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# **Vancouver Police Department Patrol Deployment Study**

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# Executive Summary

## PROJECT BACKGROUND

In September 2003, the Vancouver Police Department (VPD) embarked on a strategic planning exercise, followed by a study to identify the Department's overall staffing requirements. The result was the creation of the VPD Strategic Plan 2004-2008, which articulates the VPD's vision of becoming "Canada's leader in policing – providing safety for all." The VPD Strategic Plan identified several policing priorities including implementing best practices and improving community safety by:

- Reducing property crime
- Reducing violence against the vulnerable
- Reducing violence caused by gangs and guns
- Improving traffic safety
- Reducing street disorder

In October 2004, the VPD completed the long-range Staffing Report. This report presented a request for an increase of 469 officers and 170 civilian staff over and above existing authorized levels of 1,124 and 231.5 respectively over a five year period.

Following the publication of the 2004 Staffing Report, the City and the Vancouver Police Board agreed to create a Steering Committee who hired a team of consultants from the University College of the Fraser Valley (UCFV) to conduct an independent review of the VPD's staffing needs. The consultants identified an immediate need for an increase of 92 sworn officers and 55 civilians. A major concern of the consultants was the unacceptably high response times for priority 1 calls (emergency calls that require immediate police attention). They also identified a serious shortage of analytical and planning staff in the Planning and Research Section (P&R) who could conduct proper quantitative analysis.

The authors of the *Review of the Vancouver Police Department's Staffing Requirements* noted that the VPD did not, at the time the staffing report was prepared, have the capacity to conduct regular analysis of data on calls for service, response times and utilization rates. As well, the Department had only a limited capacity to conduct the types of analyses that would be required to determine appropriate staffing levels and conduct intelligence-led policing, a best practice in North American police services.

The authors also noted that a key indicator of the ability of a police service to meet the demands for service is the response time to priority 1 calls. These are emergency or high priority calls for service that are potentially life threatening and require immediate police attention. An analysis of the VPD dispatch data revealed that the average response time for patrol units to priority 1 calls was the slowest in North America and well above the best practice of 7 minutes. The consultants underlined that these slow response times were placing the community at risk and required immediate attention.

Ultimately, the *Review of the Vancouver Police Department's Staffing Requirements* recommended that a study of patrol deployment be conducted in order to:

1. Determine the number of sworn officers and supervisors required now and in the immediate future.
2. Prepare a plan for deploying the required number of patrol officers and supervisors most cost-effectively, by shift and patrol area, in response to temporal and geographic incidence of crime, demands for non-crime services, and the policing approach selected by the department.
3. Develop schedules for assigning required manpower most productively and equitably.

In March 2005, Vancouver City Council approved 50 sworn officers and 27 civilian positions for 2005 and an additional 50 sworn officers and 27 civilian staff for 2006. The staffing increase in 2006 was subject to the approval of a Strategic Operating Plan and a report back by the Steering Committee on projected overtime savings and opportunities for shared services.

Due to the recruiting and training lag, the 50 new officers approved in 2005 became operational only in 2006. District 1 (Downtown) received 33 of the 50 new officers and many were deployed in the downtown Entertainment District. Since the deployment of the 33 new officers, the average priority 1 response time in District 1 has been reduced by approximately 1 minute and 33 seconds (a fall of 14.8%). Additional officers were also deployed to patrol support areas including traffic enforcement and the Forensic Identification Section (crime scene investigation). There were no increases in patrol staffing in the other 3 patrol districts. As a result of the City Council staffing approvals, the Planning and Research Section of the VPD created an Organizational Planning Unit comprised of a Sergeant and three specially trained civilians, who improved the VPD's ability to collect data, analyze data, monitor performance and evaluate performance. This capacity has also been enhanced by securing the VPD Computer Aided Dispatch (CAD) and Records Management System (RMS) data from E-Comm.

In August 2005, the City and the VPD agreed to participate in a long-term Operational Review project that was divided into two phases.

Phase 1 (August 2005 – March 2006) included:

- Completion of a Strategic Operational Plan
- Completion of a Civilianization Study and shared services review
- Completion of an Overtime Review

Phase 2 (April 2006 – June 2007) includes:

- Completion of a Patrol Deployment Study
- Completion of mini-business plans for non-patrol units
- Further overtime review
- Development of an Operational Plan

The Phase 1 components were reported back to Council in March 2006. In April 2006, Council approved an increase of 31 sworn officers and 46 civilians in the authorized strength. The staffing increase in 2006 was needed to bolster policing primarily in the

investigative units including Domestic Violence, Homicide, Robbery/Assault, and Gang Crime, where the independent consultants identified immediate needs.

This report will present the findings of the Patrol Deployment Study. The remaining Phase 2 components will be completed by June 2007.

This report contains an analysis of patrol deployment in the VPD and sets out a number of recommendations that have the potential to increase the effectiveness and efficiency of patrol operations. The analysis presented below addresses the following questions:

- What level of service and performance is currently generated by the Operations Division of the VPD?
- What is the call saturation level of patrol officers?
- Are efficiency gains realistically achievable?
- How should patrol officers be allocated between geographic regions and shifts to maximize productivity?
- What is the optimal proportion of single-officer and two-officer units?
- What is the desired service level of patrol operations?
- Are additional resources needed to achieve the desired level of service or performance?
- When, where and how should existing and new resources be deployed based on the desired service goals and the deployment constraints previously mentioned?

In order to answer these questions, the following issues were examined in detail using historical patrol data, cutting-edge theoretical models, information on best practices and relevant qualitative information from the literature on policing:

- Resource deployment
- Call load
- Response time
- Allocated (reactive policing) and unallocated (proactive policing) time
- Shifting and scheduling
- Deployment of two-officer units and single-officer units
- Minimum staffing levels

- District boundaries and the use of Global Positioning System (GPS)

The approach that has been developed internally by the Planning and Research Section of the VPD to study these issues:

- Relies on reliable empirical data that was compiled and analyzed carefully before it was used to empirically assess patrol deployment.
- Is based on proven quantitative models from the academic literature on queuing theory, operations research and statistics.
- Has been enhanced by the training provided in 2006 by the consultant Iqbal Jamal, *P.Eng*, former Director at the Edmonton Police Service.
- Has been informed by the training provided in 2006 by the International Association of Chiefs of Police (IACP) – *Patrol Allocation and Deployment for Law Enforcement Managers*.
- Incorporates valuable crime data that is rarely used by other models.
- Is flexible enough to allow analysts to design experiments, test theories, consider “what if” scenarios and study most aspects of patrol operations.
- Is more scalable and flexible than the other commercial solutions available on the market today. The datasets, the tools and the interface developed under the framework of the Patrol Deployment Study can be used to easily study, at an aggregate level, millions of records compiled over several years. However, it can also be used, in conjunction with the Versadex software interface currently in place at the VPD, to investigate in detail one single incident and determine the patrol resources that were required to handle it, the patrol resources that were available at the time it was received and the patrol resources that were assigned to it.

Compared to other methods, the VPD approach to patrol deployment is more exhaustive in the sense that it considers many quantitative and qualitative, operational and managerial issues that are rarely considered elsewhere. For instance, this Patrol Deployment Study considers:

- How long patrol officers spend on each call for service.



- How many officers attend each call for service.
- Whether some officers should be reassigned to front-line patrol functions.
- Whether the calls that patrol officers currently attend need to be attended or whether some calls that are not currently attended should be attended.
- Whether more or fewer two-officer units should be deployed.

Special Constable Ryan Prox has collaborated on an on-going basis with the VPD Planning and Research Section in the development of this report. He has completed the Patrol Resource Allocation Review that includes a review of the shifting model and patrol workload. The Patrol Resource Allocation Review was designed to:

- Determine whether the current patrol shifting and deployment model at the VPD meets the requirements of each patrol district.
- Identify the existing inefficiencies in the patrol deployment model.
- Isolate the impediments to the most effective use of the existing patrol resources.
- Make recommendations to correct the shortcomings of the current patrol deployment model.

The Patrol Resource Allocation Review addressed two interrelated areas of patrol operations.

1. The report assessed whether there are sufficient resources to respond to calls for services. As part of this analysis, service level targets and performance goals were proposed. Ultimately, Special Constable Prox found that best practice police departments usually strive to obtain an average utilization rate between 40% and 50% (depending whether the administrative time and meal breaks are included or not).
2. The report also proposed potential changes to the existing deployment model that would lead to a more efficient use of patrol resources and streamlined patrol operations. The goal of these recommendations was to eliminate or reduce inefficiencies in the patrol shifting and scheduling model and ensure that patrol deployment is synchronized with the anticipated call load by hour of the day and day of the week.

In addition to the quantitative analysis a comprehensive qualitative analysis was conducted which included:

- Interviews with 21 VPD officers. During the month of October 2006, the Patrol Deployment Study Project Team conducted interviews with 21 VPD officers. The majority of these officers were from the Operations Division and were assigned to patrol duties. The sample group included officers of all ranks from Constable to Deputy Chief Constable and officers with different levels of seniority and experience within the Department. The group included people from all 4 patrol districts and people from the odd and even side.
- Interviews with a variety of E-Comm dispatch personnel. During the month of November 2006, interviews were conducted with 9 E-Comm employees holding the following positions:
  - 911 Queue
  - Emergency and non-emergency call takers
  - Dispatchers
  - Central Dispatchers
  - Team Managers
  - Operations Manager

The E-Comm staff had various levels of service ranging from 2 to 31 years of dispatch centre experience. Some of the employees that were interviewed had occupied all of the operational positions from 911 Queue to Central Dispatcher at various times in their career and were very experienced.

- A survey of 25 North American police agencies. To examine current law enforcement practices, a survey was prepared by the Patrol Deployment Study Project Team. This survey was sent out to 25 leading police agencies across North America. Each police agency that was asked to participate was selected because it was similar to the VPD in terms of its size, had the reputation to be a best practice police department, was facing a comparable workload or was policing a similar community.
- A literature review of academic articles on policing.

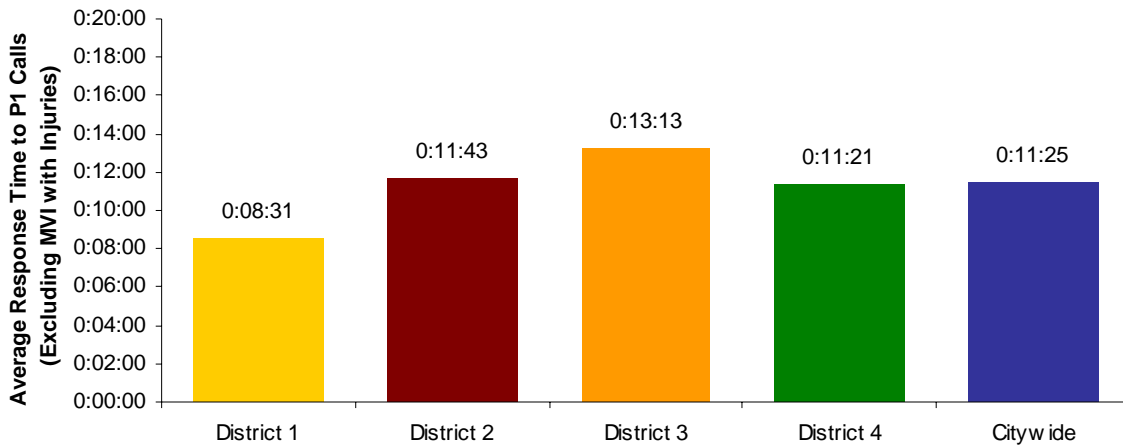
- A comprehensive review of previous patrol deployment studies that have been conducted by best practice police agencies in North America.

## **THE CURRENT SITUATION IN PATROL**

The VPD patrol data suggests that not enough patrol resources are available on the road to handle the current call load. This leads to a situation where:

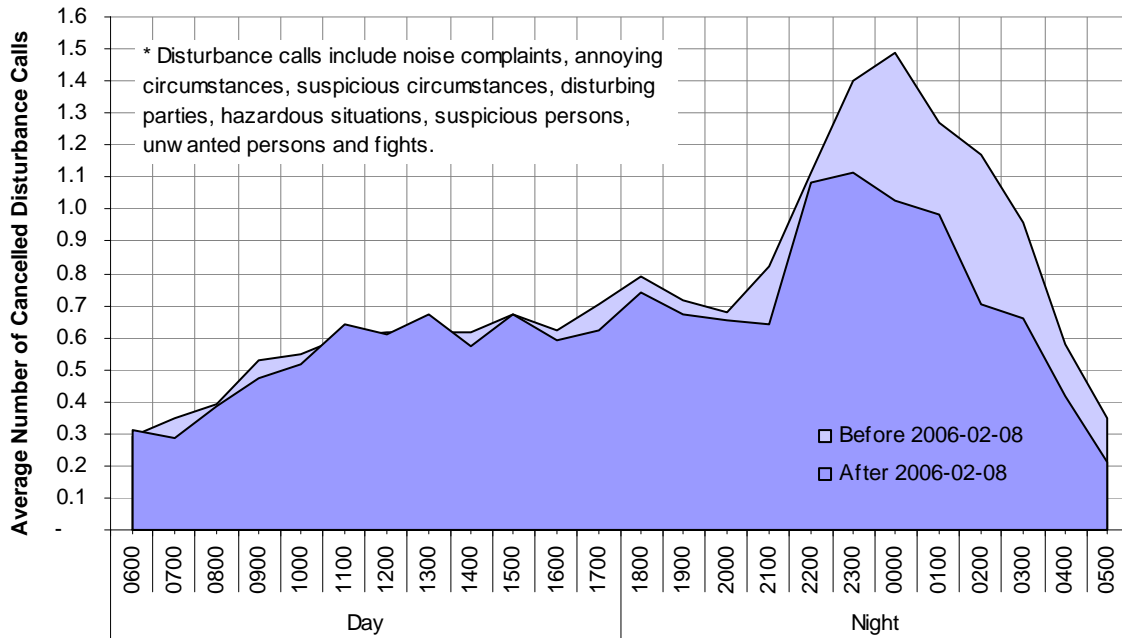
- When a citizen calls the police to report an emergency situation between 0300 and 0700 hours, there is a probability of 20% to 40% that no patrol unit will be available to be dispatched immediately and there is a probability of 35% to 70% that strictly less than two patrol units will be available to be dispatched. Between 0400 and 0500 hours on Friday and Saturday, the probability that no patrol unit will be available increases to more than 40% (higher in some patrol districts).
- On Friday and Saturday at midnight, approximately 20 calls for service are waiting to be dispatched citywide on average. Some of the calls waiting to be dispatched are potentially serious and include suspicious circumstances, mischiefs in progress, break & enters in progress, assaults, sexual assaults, robberies, thefts, domestic situations and motor vehicle incidents with injuries.
- Even when priority 1 motor vehicle incidents with injuries are excluded, the citywide average response time to priority 1 calls is longer than 11 minutes. Between 2005-06-01 and 2006-05-31, excluding priority 1 motor vehicle incidents with injuries, the average priority 1 response time was approximately 8 minutes and 31 seconds in District 1, 11 minutes and 43 seconds in District 2, 13 minutes and 13 seconds in District 3 and 11 minutes and 21 seconds in District 4.

## Average Response to Priority 1 Calls by District (Excluding MVI with Injuries)



- The average response time to priority 2, 3 and 4 calls is also unacceptably long. Between 2005-06-01 and 2006-05-31, the average response time to priority 2 calls was 34 minutes and 37 seconds, the average response time to priority 3 calls was 2 hours and 6 minutes and the average response time to priority 4 calls was 5 hours and 26 minutes.
- Each year, the VPD is unable to attend approximately 1,500 noise complaints, 1,400 annoying circumstances, 650 suspicious circumstances, 650 suspicious persons, 600 unwanted persons, 450 disturbing parties and 450 hazardous situations. Although the extension of the Delta shift led to a reduction in the incidence of call shedding, almost one disturbance call continues to be cancelled every two hours on average. Between 2200 and 0100 hours, more than one disturbance call is cancelled every hour on average. These calls represent quality of life issues that affect the citizens of Vancouver on a daily basis and contribute to street disorder.

## Average Number of Disturbance Calls Cancelled Daily Citywide



The current situation implies that Vancouver citizens and VPD officers face inflated risks because patrol resources are stretched too thin late at night and during the weekend. This deployment strategy is inherently inefficient because proactive policing activities have the potential to be most rewarding just as there are fewer available units patrolling in the street (i.e. very late at night, when most honest citizens are sleeping or at work) and fewer cover units are available when the risk faced by patrol officers is highest (as demonstrated in the literature on policing).

A careful analysis of the empirical data and an exhaustive review of the patrol deployment literature confirmed that the existing VPD patrol resources are working efficiently:

- Patrol workload is shared relatively equitably between the existing patrol districts. Similar trends are observed across all patrol districts. Most discrepancies between patrol districts can be explained satisfactorily by a careful analysis of the data.
- The VPD's operational policies and tactical guidelines appear to be applied consistently across the existing four patrol districts. Overall, empirical evidence

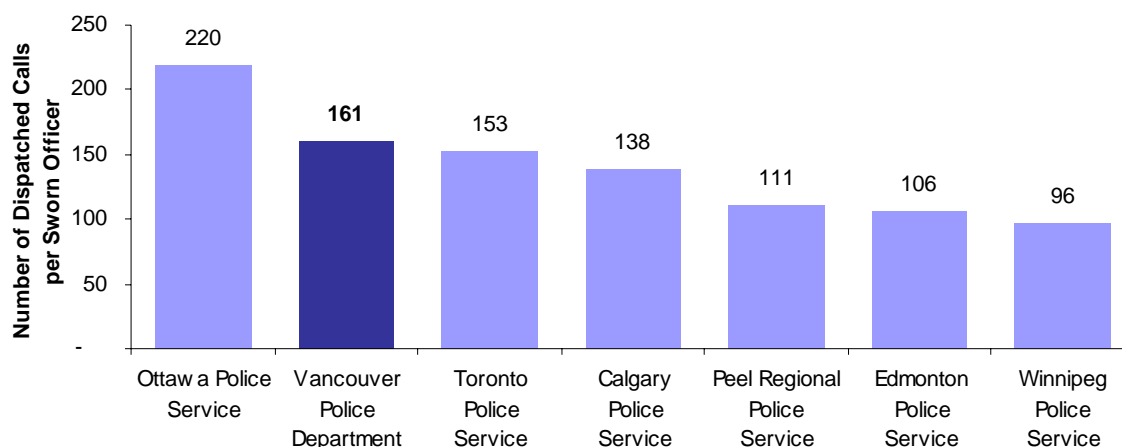
suggests that patrol officers and supervisors are able to reliably assess how many units should be assigned to each incident and how much time they should spend on each case.

- No patrol time is being wasted on unfounded or minor calls for service by VPD regular patrol units. On average, VPD regular patrol units spend approximately 1 hour and 20 minutes on each call for service they are dispatched to. On average, the police agencies surveyed under the framework of this Patrol Deployment Study were spending an average of approximately 1 hour and 22 minutes per call. In general, patrol officers at the VPD spend more time on serious incidents. This represents an efficient allocation of patrol resources and it follows the best practices in the field of law enforcement.
- The current VPD shifting pattern is able to match patrol resources with call load very closely. This suggests that the current VPD shifting pattern is efficient.
- The average call load per officer at the VPD is higher than most other comparable Canadian police agencies. Between 2005-06-01 and 2006-05-31, a total of 188,616 calls were dispatched to VPD units. This corresponds to 161 dispatched calls per officer on average and this represents a higher call load per officer than the Toronto Police Service, the Calgary Police Service, the Peel Regional Police Service, the Edmonton Police Service and the Winnipeg Police Service.<sup>1</sup>

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<sup>1</sup> While more calls are dispatched per officer at the Ottawa Police Service, Vancouver has twice the crime rate of Ottawa.

## Average Number of Dispatched Calls per Sworn Officer in Select Canadian Police Agencies



Approximately one quarter of all calls handled by regular VPD patrol units are criminal incidents as defined by the Criminal Code of Canada or other federal statutes. Examples of crimes include sexual assaults, robberies, break & enters and drug-related offences. The remaining calls for service relate to non-criminal events. Such incidents include:

- Suspicious circumstances, suspicious persons or suspicious vehicles
- Prowlers
- Noise complaints
- Disturbances
- Street disorder issues
- Aggressive panhandling
- Annoying persons
- Mentally disturbed persons
- Intoxicated persons
- Fights
- Suicidal persons
- Missing children
- Motor vehicle accidents
- Road hazards

- Sudden deaths
- Domestic situations
- Civil disputes (including neighbour disputes and landlord/tenant disputes)
- Requests for assistance from other agencies (including other emergency services)
- Municipal bylaws
- Provincial statutes (including infractions to the Motor Vehicle Act or the Liquor Control and Licensing Act)

## **PROACTIVE POLICING**

Patrol activities can generally fit in one of the following two categories:

1. *Reactive policing* occurs when officers respond to criminal offences and other calls for service that are reported by the public. These types of incidents can either be in progress or reported after the fact. A citizen calling 9-1-1 to report a stranger crawling through their neighbour's window would be an example of reactive policing. In the literature, the time spent investigating and reporting such incidents is commonly referred to as allocated time.
2. *Proactive policing* occurs when officers self-generate police activities. An officer checking a suspicious prowler in a laneway looking in vehicles would be an example of proactive policing. In the literature, the time spent on such activities is commonly referred to as unallocated time.

Proactive policing enables officers to focus their attention on problem areas and is a proven method to increase the effectiveness of patrol units and reduce crime. Proactive policing is a best practice in the law enforcement field and is effective at targeting repeat offenders and problem premises. Proactive policing enables officers to address community problems in a more concerted and focused manner. The alternative is to constantly treat the same symptoms, as opposed to directing solutions at the underlying problem.



Reducing violence caused by gangs and guns, reducing property crime and reducing street disorder are three goals of the VPD Strategic Plan. Proactive time allows officers to target and check gang members, property crime offenders and other people committing crimes in Vancouver. Proactive time also allows officers to address street disorder issues such as open-air drug dealing, open-air drug use, aggressive panhandling, noise, fighting and drunken hooliganism in the Entertainment District.

Unallocated time for proactive policing allows officers time to engage in self-initiated activities that can prevent or suppress crime. Such proactive activities typically include:

- Street disorder issues – these include the quality of life issues that affect people on a daily basis. These are the issues that people complain the most about. Examples of street disorder issues include aggressive panhandling, open-air drug dealing, fights, noise, intoxicated people and hooliganism in the Entertainment District. Reducing street disorder is one of the goals of the VPD Strategic Plan.
- On-view arrests – more proactive time will lead to more self-initiated arrests by officers, increased solving (or clearance) rates and reduced risks of injuries.
- Street checks – these are routine checks where officers speak with known criminals or suspicious people. They help an officer get to know the people on their beat and can lead to an arrest, the gathering of intelligence information or general crime deterrence. Street check data is crucial to establish associations between people, vehicles and locations, and is used extensively by follow-up investigators to solve crimes. For example, on 2002-03-15, a grade 12 student from Winston Churchill School in Vancouver was at a hospital fund-raising event at a banquet hall in Surrey. Later in the evening he went outside with his sister and got into a verbal altercation with several males in the parking lot. The argument escalated and the males beat the student to death in the lot. Surrey RCMP investigated the incident and requested the help of the VPD Gang Crime Unit. The RCMP provided VPD Detectives with the name of a possible suspect and needed to know any of his associates. VPD Detectives conducted a PRIME query and discovered the suspect had been checked by VPD patrol officers on

2001-05-17, drinking beer with several other males in Queen Elizabeth Park. This information was shared with the Surrey RCMP and it turned out that three of the males checked drinking beer in Vancouver had committed the murder in Surrey. Surrey RCMP used this information to accelerate their investigation and subsequently laid murder charges against four males, all from Vancouver. This information would never have been readily available if the VPD patrol officers would not have conducted the street check. It was due to the ease of access to valuable police intelligence from front line patrol officers, that this murder investigation came to a quick conclusion.

- Traffic enforcement – this can be targeted enforcement in a problem area or on-view traffic violations. Similar to street checks, traffic enforcement can also lead officers to check suspicious vehicles and their occupants and provide important information to solve crimes (e.g. David Berkowitz, infamously known as the Son of Sam, was identified using traffic enforcement data). Improving traffic safety is one of the goals of the VPD Strategic Plan.
- Problem Oriented Policing (POP) – this can take many forms but it usually involves the officer working in partnership with the community to address concerns affecting the neighbourhood. Examples would include a suspected drug house or a corner store selling contraband to minors.
- Community policing – this is an over-arching philosophy. The police are part of the community and should get to know the businesses and residents whenever possible. This can include walking a beat, riding a bicycle, public speaking or assisting residents with programs such as Block Watch.
- Intelligence-led policing – this consists in directed patrols in problem areas or crime hot spots. Intelligence-led policing can be based on the officer’s knowledge of the area, citizen-generated complaints, information received from the district crime analysts or other sources. It can lead to on-view incidents and arrests. Intelligence-led policing can also be used to target specific problem premises, such as hotels or bars contributing to the problem in a neighbourhood. This can also include “special attentions” assigned to an officer by its supervisor or the radio dispatcher.

- Informant handling and source development – this is where a person (usually someone involved in the criminal lifestyle) provides an officer with information on criminal activity or suspects involved in crime. This valuable information can assist in solving and preventing crimes.
- Licensed premises checks – this is when officers conduct routine inspections of licensed establishments to look for violations under the Liquor Control and Licensing Act such as minors consuming liquor or over-service. These types of checks allow the officers to become familiar with the staff and clientele, and develop sources and intelligence that can be useful during future investigations. Licensed premises checks contribute to reducing the problems inside licensed establishments and preventing street disorder issues.
- Crime prevention – the police providing advice to businesses and residents about safeguarding their property and providing personal safety tips.
- Follow-up investigations – more proactive time would allow officers to conduct more thorough investigations, clear more cases and further assist victims, witnesses, complainants and other citizens seeking justice. More unallocated time allows officers to spend more time conducting follow-up investigations they may not otherwise have time to complete. When officers are too busy on calls for service they sometimes take shortcuts and are not as thorough as they would like to be. They can feel pressured to clear a call and get back into service to assist their colleagues with the call load.
- Crime deterrence – increased police presence and visibility would create a deterrent that could reduce street disorder and improve the citizens' perception of safety.

## **AVERAGE RESPONSE TIMES**

Currently, the VPD categorizes the calls for service it receives into four call priorities:

1. Priority 1 (P1) calls are the most serious emergency calls that require immediate police attention. They are potentially life threatening calls that can lead to death

or grievous bodily harm. Priority 1 calls include abductions in progress, assaults in progress, domestic situations in progress, home invasions, robberies in progress, screams for help, sexual assaults in progress, shootings, stabbings and suicidal persons. The current average priority 1 response time at the VPD is 11 minutes and 25 seconds.

2. Priority 2 (P2) calls are urgent calls that require immediate police attention. For example, a residential break & enter in progress would be a priority 2 call. The current average priority 2 response time at the VPD is 34 minutes and 37 seconds.
3. Priority 3 (P3) calls are routine calls, not in progress. For example, a sexual assault reported after the fact, when the suspect is no longer present would be a priority 3 call. The current average priority 3 response time at the VPD is 2 hours and 6 minutes.
4. Priority 4 (P4) calls are low priority routine calls. For example, a break & enter reported after the fact, when the suspect is no longer at the scene would be a priority 4 call. The current average priority 4 response time at the VPD is 5 hours and 26 minutes.

The patrol data confirmed that the average response times at the Vancouver Police Department are typically higher than in most comparable police agencies:

- The average response time to priority 1 domestic violence situations is 14 minutes and 14 seconds. The average response time to priority 1 domestic situations in progress is 14 minutes. The average response time to priority 2 domestic situations is 35 minutes and 15 seconds.
- The average response time to priority 1 assaults in progress is 11 minutes and 37 seconds. The average response time to priority 2 assaults (not in progress) is between 2 and 3.5 hours. The average response time to priority 3 assaults (not in progress) is between 3 and 9 hours.
- The average response time to priority 1 suicidal persons is 15 minutes and 13 seconds. The average response time to priority 2 violent persons is 12 minutes

and 52 seconds. The average response time to priority 3 unwanted persons is 34 minutes and 46 seconds.

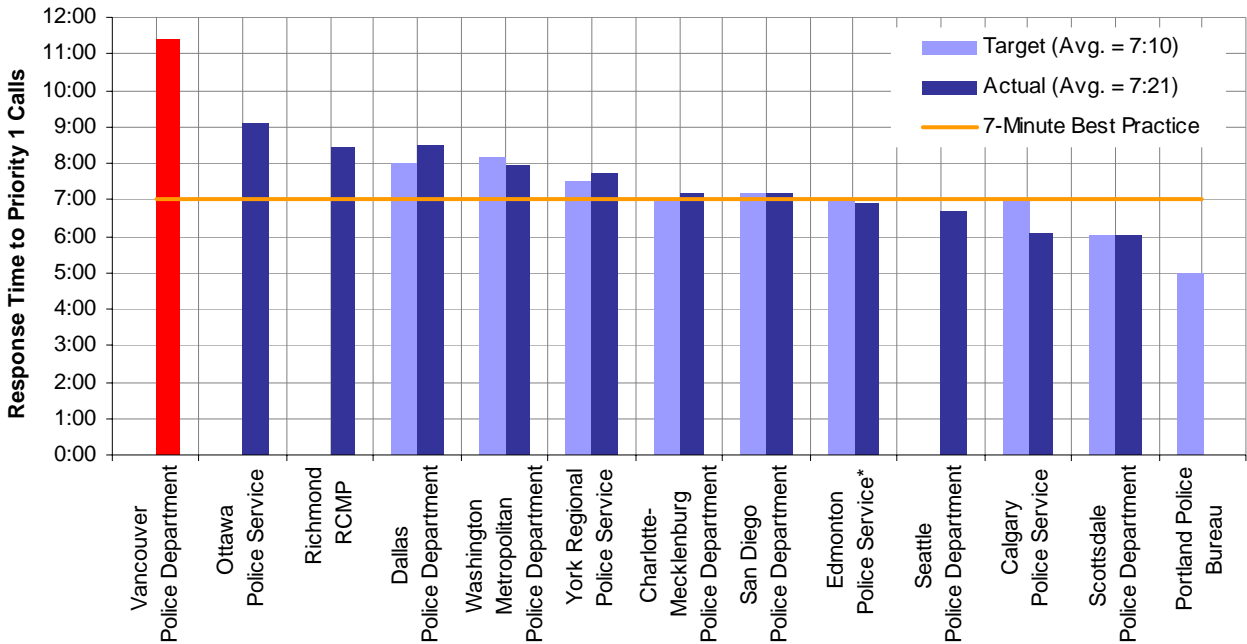
- The average response time to priority 1 abandoned 9-1-1 calls is 13 minutes and 3 seconds. The average response time to priority 2 abandoned 9-1-1 calls is 15 minutes and 1 second.
- The average response time to priority 2 break and enters in progress is 11 minutes and 6 seconds.

The literature on police response times suggests that police agencies should aspire to a best practice 7-minute priority 1 average response time. Realistically, this usually implies a 2-minute average dispatch time and a 5-minute average travel time. A 7-minute average response time represents a reasonable police response to incidents in progress and has the potential to significantly improve solvability, reduce the risk of injury or death for violent crime victims and act as a crime deterrent. Previous studies have shown that a swift police response to some calls for service can significantly influence arrest rates and witness availability (Kansas City Police Department, 1977). In particular, there is compelling evidence that response-related arrests in the case of in progress crimes dwindle as response time increases. According to some estimates, the probability of an on-scene arrest is expected to more than double from approximately 5% to 11% as the travel time falls from 10 minutes to 5 minutes. A travel time of 3 minutes would then increase the probability of a response-related arrest to 14% (Pierce County Performance Audit, 2001). Moreover, witness availability would increase from approximately 50% to 54% as the travel time falls from 10 minutes to 5 minutes and would increase from 54% to 56% as the travel time falls from 5 minutes to 3 minutes.

Leading municipal police departments in North America typically aim for a 7-minute priority 1 average response time. A survey of 16 police agencies allowed the Patrol Deployment Study Project Team to determine that the average target response time to priority 1 calls was 7 minutes and 10 seconds while the average actual response time to priority 1 calls was 7 minutes and 21 seconds. By comparison, the average priority 1 response time at the VPD is 11 minutes and 25 seconds. As illustrated by the graph

below, the average priority 1 response time at the VPD is much longer than other North American police agencies.

### Average Priority 1 Response Time in Select North American Police Agencies



## INTERNAL CHANGES

The Patrol Deployment Study Project Team has identified some internal inefficiencies that need to be addressed in order to optimize the performance of VPD patrol operations. The following internal changes should be implemented in order to ensure the efficient use of existing patrol resources:

- Reducing the total number of officers working in District Surveillance Teams (DSTs). Currently, the VPD makes use of 4 DSTs, 3 of which are drawn from existing patrol resources. An examination of these DSTs showed that, while the teams are effective at investigating certain types of crimes, 2 formalized DSTs would be more efficient at this time. The Patrol Deployment Study Project Team therefore recommends that the extra officers that were in these teams be

redeployed into a uniform patrol function. The Patrol Deployment Study Project Team recognizes that VPD's capacity to target chronic property offenders would be reduced, but believes that the balance between emergency response to calls for service and proactive crime fighting would be enhanced.

- Reducing the frequency and the length of special patrol-based projects (commonly referred to as Charlie or Delta projects). While special patrol-based projects can be effective at targeting specific crime problems, they reduce the number of uniform officers on patrol during the busiest times of the day. The Patrol Deployment Study Project Team therefore recommends that special patrol-based projects be limited to situations that require targeted action by patrol officers in plainclothes to address a serious crime problem. These projects should be accompanied by an Operational Plan that is evaluated and approved by the District Inspector and should not take place on Fridays or Saturdays between 1200 and 0400 hours.
- Adjusting the minimum staffing levels in patrol. Based on an analysis of historical data, the Patrol Deployment Study Project Team suggests that minimum staffing levels be adjusted. In general, the new recommended minimum staffing levels do not differ significantly from the current minimum staffing levels. The recommended minimum staffing levels are meant to ensure that enough patrol officers are deployed to maintain a minimum level of public safety and to ensure the safety of on-duty officers.
- Reducing slightly the number of two-officer units deployed. An analysis of the deployment data showed that approximately 65% of all deployed regular patrol units at the VPD were two-officer units. Based on the empirical data, the Patrol Deployment Study Project Team concluded that the 60-40 deployment model was the most efficient option for patrol. In other words, 60% of all deployed police units should be two-officer units and 40% should be single-officer units. In practice, the proportion of two-officer units should be slightly less than 60% during the day and slightly more during the evening and at night. Overall, the proportion of two-officer units would average out to approximately 60%. The 60-40 model has the desirable property of harmonizing the proportion of two-officer

units with the proportion of calls requiring a minimum of two officers. Moreover, the 60-40 model does not require any change in the number of patrol cars that need to be fielded and maintained. Also, the 60-40 deployment model is already formalized in Section 22 of the 2003-2006 Collective Agreement between the Vancouver Police Board and the Vancouver Police Union. As such, no major change in policy or in principle is required to enforce it.

- Maintaining the actual patrol strength closer to the authorized patrol strength. The Patrol Deployment Study Project Team recommends that a new policy be introduced to ensure that managers and supervisors maintain their actual patrol strength as close as possible to the authorized strength (at least in the long-run). The goal of this policy would be to deter the loaning of patrol officers to other non-patrol duties.
- Assigning more calls for service to the Emergency Response Team (ERT). The Emergency Response Team (ERT) assists patrol officers with the most serious types of calls. It is recommended that when ERT is not tied up on serious calls, training activities or special assignments, they reprioritize how they spend their unallocated time to handle more calls that do not usually require a report or a lengthy investigation. This would include calls such as alarms, annoying circumstances, disturbance calls, noise complaints and suspicious circumstances, persons and vehicles.
- Maintaining the extended Delta shift. The VPD began extending the late afternoon shift by one hour in February 2006 on a trial basis. The existing Delta shift was extended from 1600 to 0400 hours (as opposed to 0300 hours). The extra hour comes from Paid Time Owed by the officers. The extension of the Delta shift has proven to be a worthwhile experiment and provides additional staff coverage during a busy time of the evening. The extra hour adds the equivalent of at least 5.5 additional patrol officers on the street over each calendar year.
- Implementing a weekend Delta Team in District 1. Based on the call load data, the Patrol Deployment Study Project Team recommends that a permanent fixed Delta Team be implemented in District 1 using existing patrol resources. The officers assigned to the fixed Delta Team would be drawn from the 33 officers



that were added to District 1 as a result of the 2005 Council approvals. A team of 11 Constables would work Wednesday to Saturday from 1800 to 0400 hours. This would provide more officers in the Entertainment District during the busiest days of the week and busiest hours of the day.

These internal changes would be expected to lead to an average priority 1 response time shorter than 11 minutes and would provide some additional proactive time to patrol officers. To further reduce the VPD's average priority 1 response time and to provide more unallocated time for officers to conduct proactive policing activities, the VPD requires additional patrol resources.

## **STAFFING AND DEPLOYMENT OPTIONS**

To further improve patrol operations at the VPD, a set of staffing and deployment options are proposed by the Patrol Deployment Study Project Team. These options are summarized below. Each option will lead to substantial performance gains and service improvements for the citizens of Vancouver.

Three options are presented with different deployment models for the additional officers that are recommended. Each option identifies proposed stages for implementing the new officers.

- Under Option A, the VPD implements a fixed 4-on-3-off Delta shift working from Wednesday to Saturday every week, in addition to the other existing shifts. This is the most efficient option and it is recommended by the Project Team. Option A leads to a 7-minute average response time for priority 1 calls and an average utilization rate of 46%. This would place the VPD among the best practice police agencies in North America.
- Under Option B, the VPD implements a fixed 4-on-4-off Delta shift in addition to the other existing shifts. This is still a viable option but is less efficient than Option A.

- Under Option C, the VPD implements some changes to improve efficiency internally and maintains the existing shifting model. Unfortunately, peak times of inefficiency would remain under Option C. In turn, the impact of the new officers on the average priority 1 response time would be reduced and span of control issues would arise. This option is not recommended by the Project Team.

Overall, Option A is the most efficient deployment model and is therefore recommended by the Patrol Deployment Study Project Team. Option B is the second most efficient model and Option C is the least efficient model.

Each of these options is explained below and details are provided as to how they could be staged. The financial implications of each option are also included.

## **OPTION A**

Under Option A, the VPD implements a fixed 4-on-3-off Delta shift working from Wednesday to Saturday every week in addition to the other existing shifts. The relatively lower number of regular patrol officers deployed in the morning (between 0600 and 1200 hours) under Option A would be compensated by the fact that:

- Relatively more single-officer units would be deployed during the Alpha shift and the Bravo shift, in accordance with the findings presented in the section on two-officer deployment.
- The minimum staffing levels during the day would increase slightly, in accordance with the findings presented in the section on minimum staffing levels.
- Fewer priority 1 and 2 calls are received in the morning, as shown by the analysis of the call load by hour of the day.
- ERT units would be expected to handle more calls for service during the day, as recommended in the section on ERT.

## Stage A1

Under Stage A1, the VPD implements some changes to improve efficiency internally.

Among others:

1. The District Surveillance Teams (DST) in District 1 (Team 11) and District 2 combine to create a Patrol North Surveillance Team (responsible for District 1 and District 2). This team is made up from the existing Sergeant and 6 Constables from District 1 Team 11 and 3 Constables from the District 2 DST. The remaining 4 Constables and Sergeant from District 2 DST return to their home teams. The DST in District 3 and District 4 combine to create a Patrol South Surveillance Team (responsible for District 3 and District 4). This team is made up from 5 Constables from the District 3 DST and 4 Constables from the District 4 DST. One additional authorized Sergeant position is required to supervise the Patrol South Surveillance Team. The remaining 5 Constables and 2 Sergeants from the District 3 and District 4 DST return to their home teams. The new North and South Surveillance Teams will be formalized teams that are fully staffed, properly equipped and trained.
2. A permanent fixed Delta shift is implemented in District 1. A total of 11 Constables from District 1 are reassigned to the permanent Delta shift in District 1. One authorized Constable position is deducted from Team 3 to Team 10 in District 1 (this frees up 8 Constables) and 3 Constables from the DST in District 1 are reassigned to the permanent Delta shift (for a total of 11 Constables). These Constable positions are already authorized. One new Sergeant is required to supervise the Permanent Delta team in District 1. The permanent Delta shift extends from 1800 to 0400 hours on Wednesday, Thursday, Friday and Saturday (4-on-3-off rotation).
3. The existing Delta shift continues to extend from 1600 to 0400 hours (as opposed to 0300 hours).

4. Special patrol-based projects are reduced (e.g. Charlie and Delta patrol projects). These projects are limited to situations that require targeted action by patrol officers in plainclothes to address a serious crime problem. These projects must be accompanied by an Operational Plan that is evaluated and approved by the District Inspector. These projects should not take place on Fridays or Saturdays between 1200 and 0400 hours.
5. Minimum staffing levels are properly adjusted to match the call load.
6. The 60-40 deployment split mandated by the Collective Agreement between the VPU and the Vancouver Police Board is enforced. This implies that the proportion of two-officer regular patrol units deployed decreases from approximately 65% to 60%.
7. A new policy is introduced to ensure that managers and supervisors maintain their actual patrol strength as close as possible to the authorized strength (at least in the long-run).
8. When ERT is not tied up on serious calls, training activities or special assignments, they reprioritize how they spend their unallocated time to handle more calls that do not usually require a report or lengthy investigation. This would include calls such as alarms, annoying circumstances, disturbance calls, noise complaints and suspicious circumstances, persons and vehicles.
9. Patrol operations are regularly monitored and evaluated. The following performance measures are measured and analyzed on an annual basis at year-end:
  - Number of calls recorded, dispatched and attended
  - Total number of patrol officers deployed
  - Proportion of two-officer units deployed
  - Average proportion of unallocated (proactive policing) and allocated time (reactive policing)
  - Average response time for priority 1, 2, 3 and 4 calls

- Average service time
- Average number of units and officers per call
- Clearance rates
- Number of cancelled calls for service
- Number of on-view calls
- Number of on-view criminal offences
- Number of street checks
- Number of traffic tickets
- Number of report errors (e.g. “Bring Forwards”)

### **Net Staffing Request**

2 Sergeants (one for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in District 1.
- Consolidated Patrol Surveillance teams that are formalized.
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

Citywide, the adjustments proposed under Stage A1 are expected to lead to a decrease of approximately 31 seconds in the average priority 1 response time. More specifically, the average priority 1 travel time would be reduced by approximately 21 seconds in District 1, 14 seconds in District 2, 54 seconds in District 3 and 33 seconds in District 4.

This would imply that the average priority 1 response time would then decrease to 10 minutes and 54 seconds.

For its part:

- The average response time to priority 2 calls would be expected to fall by approximately 1 minute and 34 seconds to 33 minutes and 3 seconds.
- The average response time to priority 3 calls would be expected to fall by approximately 8 minutes and 6 seconds to 1 hour and 58 minutes.
- The average response time to priority 4 calls would be expected to fall by approximately 31 minutes and 32 seconds to 4 hours and 54 minutes.

### **Expected Change in the Average Utilization Rate**

The implementation of an improved deployment model using existing resources deployed more efficiently should achieve a utilization rate in the 60% to 65% range.

## **Stage A2**

Under Stage A2, the VPD implements the changes suggested under Stage A1 and creates a Metro Team comprised of 28 Constables and 2 Sergeants working from 1500 to 0200 hours on a 4-on-4-off schedule (one team of 14 Constables and 1 Sergeant on the even side and 14 Constables and 1 Sergeant on the odd side). The Metro Team requires the standard patrol equipment supplied to patrol units (including cars, laptops and radios) as well as 10 cell phones (one per deployed unit).

### **Net Staffing Request**

2 Sergeants (one for the permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

28 Constables and 2 Sergeants (two Metro Teams comprised of 14 Constables and 1 Sergeant each) and equipment for the Metro Team.

= 28 Constables and 4 Sergeants.

## **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in District 1.
- Consolidated Patrol Surveillance teams that are formalized.
- Metro Team providing a highly flexible response team deployable citywide.
- More proactive time for patrol officers.

## **Predicted Change in the Average Response Time**

When the adjustments from Stage A1 are taken into account, the citywide average priority 1 response time would decrease by approximately 1 minute and 13 seconds under Stage A2. More specifically, the average priority 1 travel time would be reduced by 26 seconds in District 1, 27 seconds in District 2, 1 minute and 13 seconds in District 3 and 52 seconds in District 4. Since patrol units would be readily available to be dispatched more often, the average queuing delay could also decrease by up to 28 seconds.

This would imply that the average priority 1 response time would then decrease to 10 minutes and 12 seconds.

For its part:

- The average response time to priority 2 calls would be expected to fall by approximately 3 minutes and 9 seconds to 31 minutes and 28 seconds.
- The average response time to priority 3 calls would be expected to fall by approximately 15 minutes and 56 seconds to 1 hour and 50 minutes.
- The average response time to priority 4 calls would be expected to fall by approximately 54 minutes and 57 seconds to 4 hours and 31 minutes.

## **Expected Change in the Average Utilization Rate**

The deployment of the citywide Metro Team is expected to lead to an average utilization rate of 58%. This would imply an improvement of 7 percentage points compared to the 2005 average utilization rate of 65%.

## **Stage A3**

Under Stage A3, the VPD implements the changes suggested under Stage A1 and Stage A2. It also implements a permanent delta shift in District 2, District 3 and District 4. As in District 1, the permanent Delta shift in District 2, District 3 and District 4 work between 1800 to 0500 hours on Wednesday, Thursday, Friday and Saturday (4-on-3-off rotation). This requires a total of 30 Constables and 3 Sergeants (10 Constables and 1 Sergeant per team) in addition to the staffing request under Stage A2.

### **Net Staffing Request**

2 Sergeants (one for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

28 Constables and 2 Sergeants (two Metro Teams comprised of 14 Constables and 1 Sergeant each) and equipment for the Metro Team.

30 Constables and 3 Sergeants (10 Constables and 1 Sergeant per team in District 2, District 3 and District 4).

= 58 Constables and 7 Sergeants.

### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in all patrol districts.
- Consolidated Patrol Surveillance teams that are formalized.
- Metro Team providing a highly flexible response team deployable citywide.
- More proactive time for patrol officers.



## **Predicted Change in the Average Response Time**

When the adjustments from Stage A1 and Stage A2 are taken into account, the citywide average priority 1 response time would decrease by approximately 2 minute and 10 seconds under Stage A3. More specifically, the average priority 1 travel time would be reduced by 26 seconds in District 1, 50 seconds in District 2, 1 minute and 50 seconds in District 3 and 1 minute and 41 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 58 seconds.

This would imply that the average priority 1 response time would then decrease to 9 minutes and 15 seconds.

For its part:

- The average response time to priority 2 calls would be expected to fall by approximately 5 minutes and 15 seconds to 29 minutes and 22 seconds.
- The average response time to priority 3 calls would be expected to fall by approximately 25 minutes and 43 seconds to 1 hour and 40 minutes.
- The average response time to priority 4 calls would be expected to fall by approximately 1 hour and 29 minutes to 3 hours and 56 minutes.

## **Expected Change in the Average Utilization Rate**

The deployment of the citywide Metro Team and 58 additional patrol constables throughout District 2, District 3 and District 4 is expected to lead to an average utilization rate of 54%. This would imply an improvement of 11 percentage points compared to the 2005 average utilization rate of 65%.

## **Stage A4**

Under Stage A4, the VPD implements the changes suggested under Stage A1, Stage A2 and Stage A3. It also assigns a total of 24 additional Constables in District 2, District

3 and District 4. The additional Constables would allow the VPD to backfill the patrol surveillance positions that were previously included in the official authorized strength. This implies that 3 Constables would be allocated to District 2 to backfill the authorized positions that were transferred to the Patrol North Surveillance Team and a total of 9 additional Constables would be allocated to District 3 and District 4 to backfill the authorized positions that were transferred to the Patrol South Surveillance Team. Approximately 3 additional Constables would be allocated to the Alpha shift (Team 1 or 2) in District 3 and 3 Constables would be allocated to the Alpha shift in District 4. The remaining 6 Constables would be divided between the existing patrol squads.

### **Net Staffing Request**

2 Sergeants (one for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

28 Constables and 2 Sergeants (two Metro Teams comprised of 14 Constables and 1 Sergeant each) and equipment for the Metro Team.

30 Constables and 3 Sergeants (10 Constables and 1 Sergeant per team in District 2, District 3 and District 4).

24 Constables (including 3 Constables on the Alpha shift in District 3, 3 Constables on the Alpha shift in District 4, 3 Constables in District 2 to backfill the authorized positions that were transferred to the Patrol North Surveillance Team and a total of 9 additional Constables in District 3 and District 4 to backfill the authorized positions that were transferred to the Patrol South Surveillance Team).

= 82 Constables and 7 Sergeants.

### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in all patrol districts.

- Consolidated Patrol Surveillance teams that are formalized.
- Metro Team providing a highly flexible response team deployable citywide.
- Slightly larger patrol teams (including larger Alpha teams).
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

When the adjustments from Stage A1, Stage A2 and Stage A3 are taken into account, the citywide average priority 1 response time would decrease by approximately 3 minutes and 13 seconds under Stage A4. More specifically, the average priority 1 travel time would be reduced by 26 seconds in District 1, 1 minute and 21 seconds in District 2, 2 minutes and 43 seconds in District 3 and 2 minutes and 54 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 22 seconds.

This would imply that the average priority 1 response time would then decrease to 8 minutes and 12 seconds.

For its part:

- The average response time to priority 2 calls would be expected to fall by approximately 6 minutes and 24 seconds to 28 minutes and 13 seconds.
- The average response time to priority 3 calls would be expected to fall by approximately 31 minutes and 13 seconds to 1 hour and 35 minutes.
- The average response time to priority 4 calls would be expected to fall by approximately 1 hour and 45 minutes to 3 hours and 40 minutes.

### **Expected Change in the Average Utilization Rate**

The deployment of additional patrol resources is expected to lead to an average utilization rate of 50% in every patrol district. This would imply an improvement of 15 percentage points compared to the 2005 average utilization rate of 65%.

Optimal staffing deployment would be achieved using the lowest total number of officers, the lowest number of new teams and 4 fewer new Sergeant positions.

## **Stage A5**

Under Stage A5, the patrol authorized strength would increase by a total of 122 Constables. The first 82 Constables would allow the VPD to implement all the recommendations proposed under Stage A1 to A4. The 40 remaining officers would allow the VPD to reach an average priority 1 response time of approximately 7 minutes. In practice, the authorized strength of each patrol squad (Team 1 to Team 10 in each patrol district) could increase by one Constable. The average priority 1 response time of 7 minutes is generally recognized as a best practice in the field of law enforcement.

### **Net Staffing Request**

2 Sergeants (one for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

28 Constables and 2 Sergeants (two Metro Teams comprised of 14 Constables and 1 Sergeant each) and equipment for the Metro Team.

30 Constables and 3 Sergeants (10 Constables and 1 Sergeant per team in District 2, District 3 and District 4).

24 Constables (including 3 Constables on the Alpha shift in District 3, 3 Constables on the Alpha shift in District 4, 3 Constables in District 2 to backfill the authorized positions that were transferred to the Patrol North Surveillance Team and a total of 9 additional Constables in District 3 and District 4 to backfill the authorized positions that were transferred to the Patrol South Surveillance Team).

40 Constables (one additional Constable in each patrol squad in each patrol district).

= 122 Constables and 7 Sergeants.

### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in all patrol districts.
- Consolidated Patrol Surveillance teams that are formalized.
- Metro Team providing a highly flexible response team deployable citywide.
- Slightly larger patrol teams (including larger Alpha teams).
- Best practice priority 1 response time of approximately 7 minutes (excluding motor vehicle incidents with injuries).
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

Under Stage A5, the citywide average priority 1 response time would decrease by approximately 4 minutes and 25 seconds. More specifically, the average priority 1 travel time would be reduced by 39 seconds in District 1, 1 minute and 49 seconds in District 2, 3 minutes and 26 seconds in District 3 and 3 minutes and 55 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 59 seconds.

Under Stage A5, the additional patrol resources allow the VPD to obtain a 7-minute average travel time.

For its part:

- The average response time to priority 2 calls would be expected to fall by approximately 7 minutes and 24 seconds to 27 minutes and 13 seconds.
- The average response time to priority 3 calls would be expected to fall by approximately 36 minutes and 44 seconds to 1 hour and 29 minutes.

- The average response time to priority 4 calls would be expected to fall by approximately 2 hours and 4 minutes to 3 hours and 22 minutes.

### **Predicted Change in the Average Utilization Rate**

The deployment of 122 additional Constables in patrol is expected to lead to an average utilization rate of 46% in District 1 and District 2 and 47% in District 3 and District 4. This would imply an improvement of 19 percentage points compared to the 2005 average utilization rate of 65%.

### **Summary of Option A**

The following table shows summarizes how patrol staffing would be allocated under each stage of Option A.

### Actual Patrol Strength Under Option A's Staffing Options

	Current		Stage A1		Stage A2		Stage A3		Stage A4		Stage A5	
	Constables*	Sergeants	Constables	Sergeants	Constables	Sergeants	Constables	Sergeants	Constables	Sergeants	Constables	Sergeants
D1 Team 1-2	18	2	18	2	18	2	18	2	18	2	20	2
D1 Team 3-10	104	8	96	8	96	8	96	8	96	8	104	8
D1 Fixed Delta	-	-	11	1	11	1	11	1	11	1	11	1
D2 Team 1-2	18	2	18	2	18	2	18	2	18	2	20	2
D2 Team 3-10	73	7	77	8	77	8	77	8	82	8	90	8
D2 Fixed Delta	-	-	-	-	-	-	10	1	10	1	10	1
D3 Team 1-2	15	2	15	2	15	2	15	2	18	2	20	2
D3 Team 3-10	97	7	100	8	100	8	100	8	106	8	114	8
D3 Fixed Delta	-	-	-	-	-	-	10	1	10	1	10	1
D4 Team 1-2	15	2	15	2	15	2	15	2	18	2	20	2
D4 Team 3-10	81	7	83	8	83	8	83	8	90	8	98	8
D4 Fixed Delta	-	-	-	-	-	-	10	1	10	1	10	1
District Surveillance	30	4	18	2	18	2	18	2	18	2	18	2
Metro Team	-	-	-	-	28	2	28	2	28	2	28	2
<b>Total</b>	<b>451</b>	<b>41</b>	<b>451</b>	<b>43</b>	<b>479</b>	<b>45</b>	<b>509</b>	<b>48</b>	<b>533</b>	<b>48</b>	<b>573</b>	<b>48</b>
<b>Required Increase</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>28</b>	<b>4</b>	<b>58</b>	<b>7</b>	<b>82</b>	<b>7</b>	<b>122</b>	<b>7</b>

\* The number of Constables in District 2, District 3 and District 4 includes some Acting Sergeants.

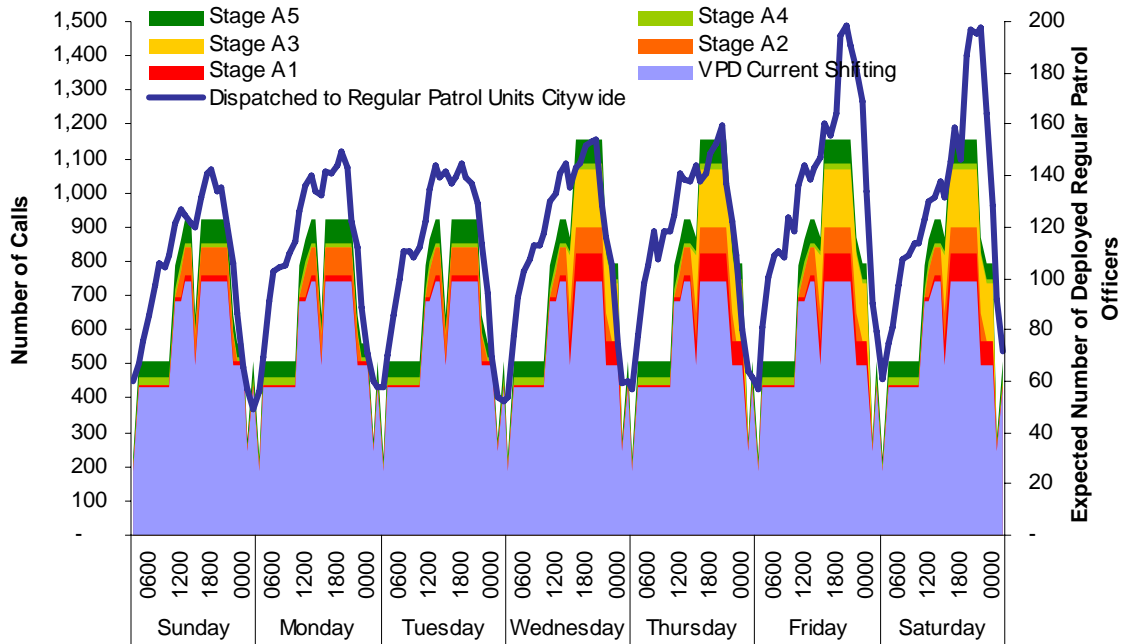
The following table summarizes the required staffing increase, the projected average priority 1 response time, the projected average utilization rate and the estimated correlation between staffing and call load under each stage of Option A.

### Staffing Implications for Option A

		FTE			Expected Performance			
		Sgt.	Cst.	Total FTE	Average P1 Response Time	Decrease in Average P1 Response Time	Average Utilization Rate	Correlation Between Staffing and Call Load
	Current				0:11:25		65.0%	0.770
<b>Option A</b>	Stage A1	2	0	<b>2</b>	0:10:54	0:00:31	65.0%	0.805
	Stage A2	4	28	<b>32</b>	0:10:12	0:01:13	58.0%	0.816
	Stage A3	7	58	<b>65</b>	0:09:15	0:02:10	54.0%	0.838
	Stage A4	7	82	<b>89</b>	0:08:12	0:03:13	50.0%	0.839
	Stage A5	7	122	<b>129</b>	0:07:00	0:04:25	46.0%	0.839

The following graph illustrates how patrol staffing would increase to match the call load under each stage of Option A. Graphically, the most significant gains would be obtained under A3, when fixed Delta teams are implemented in District 2, District 3 and District 4.

### Call Load and Patrol Staffing Under Option A

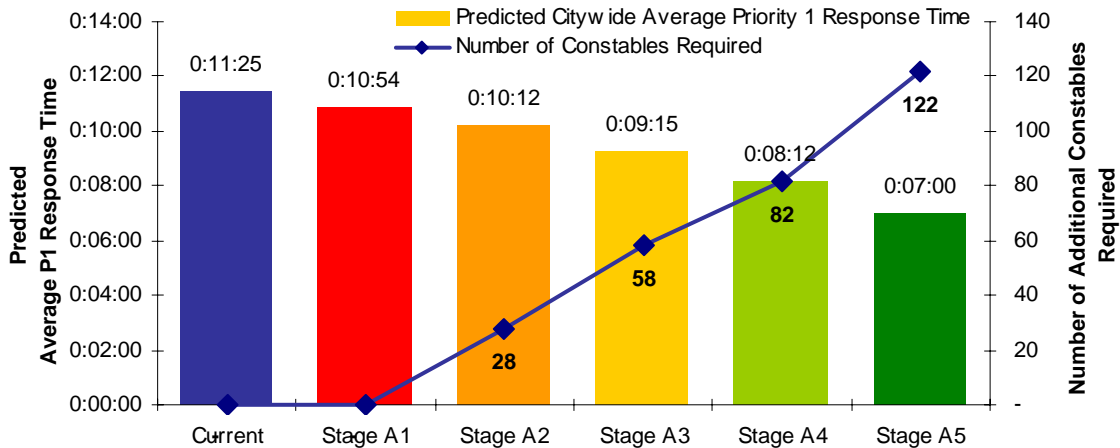


The following graph illustrates how the average priority 1 response time would decrease as patrol staffing increases under each stage of Option A. The average priority 1



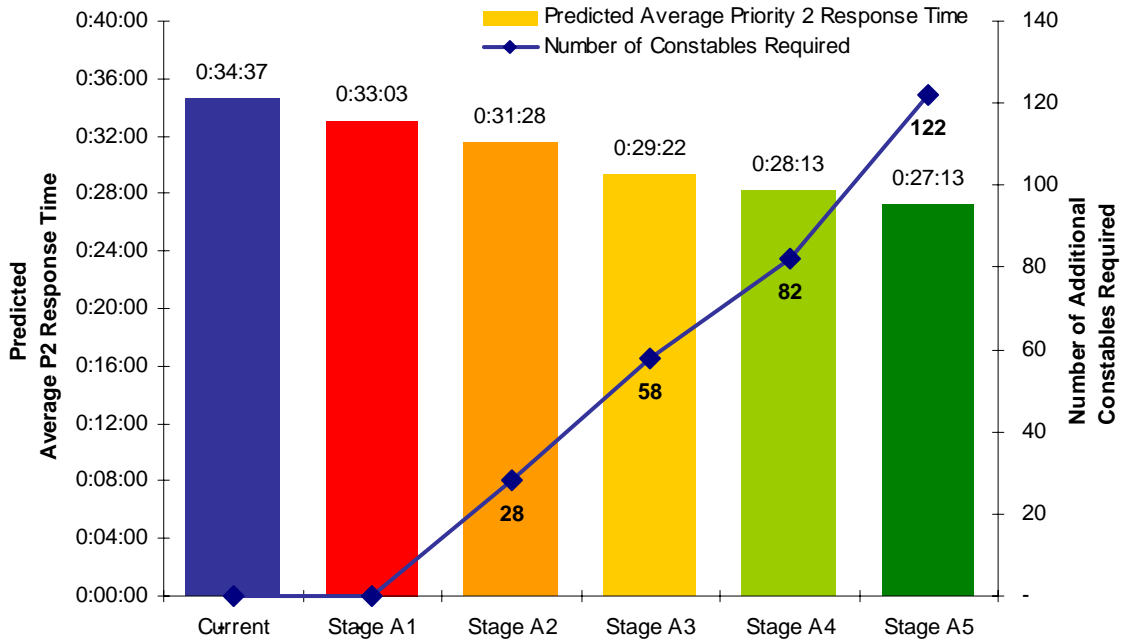
response time would be expected to decrease to 10 minutes and 54 seconds under A1, 10 minutes and 12 seconds under A2, 9 minutes and 15 seconds under A3, 8 minutes and 12 seconds under A4 and 7 minutes under A5.

### Number of Additional Constables and Predicted Average Priority 1 Response Time Under Option A



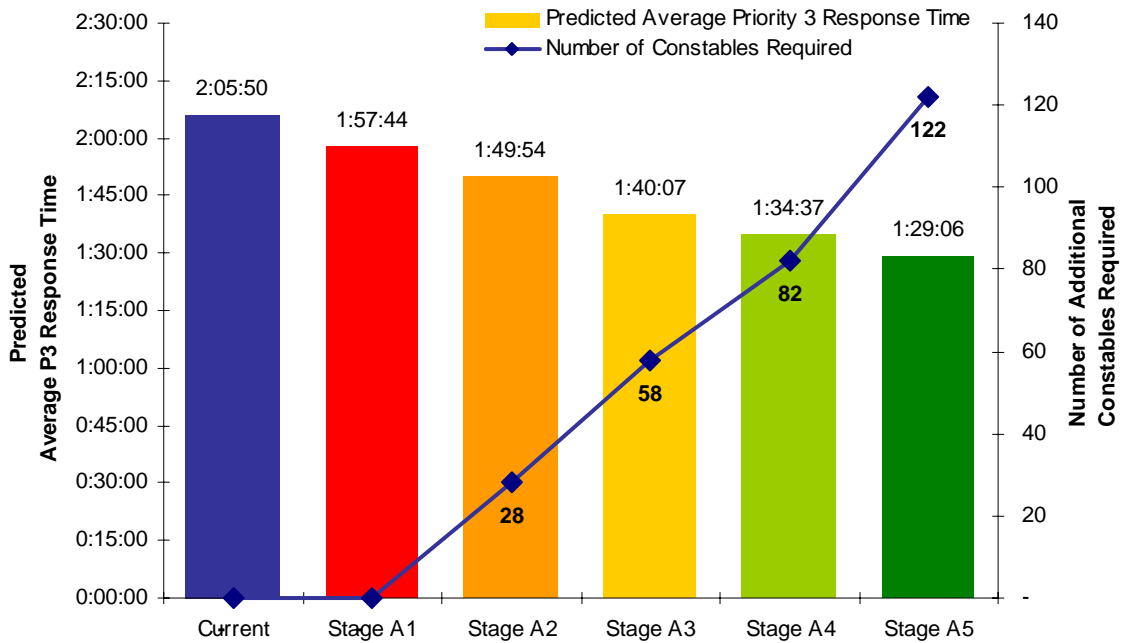
The following graph illustrates how the average priority 2 response time would decrease as patrol staffing increases under each stage of Option A. The average priority 2 response time would be expected to decrease to 33 minutes and 3 seconds under A1, 31 minutes and 28 seconds under A2, 29 minutes and 22 seconds under A3, 28 minutes and 13 seconds under A4 and 27 minutes and 13 seconds under A5.

## Number of Additional Constables and Predicted Average Priority 2 Response Time Under Option A



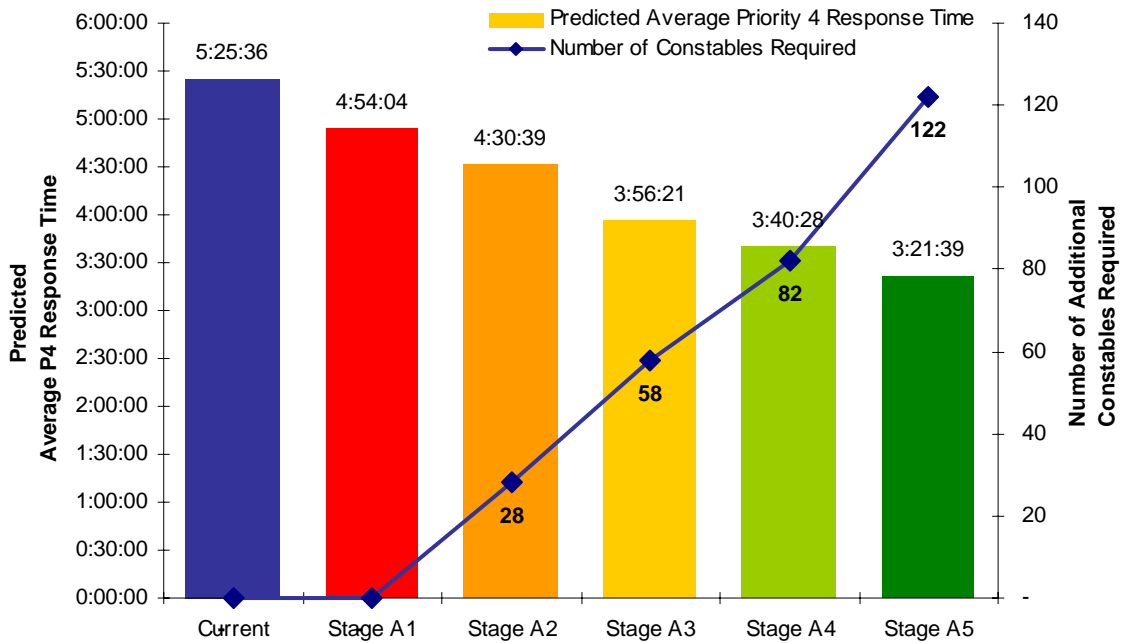
The following graph illustrates how the average priority 3 response time would decrease as patrol staffing increases under each stage of Option A. The average priority 3 response time would be expected to decrease to 1 hour and 58 minutes under A1, 1 hour and 50 minutes under A2, 1 hour and 40 minutes under A3, 1 hour and 35 minutes under A4 and 1 hour and 29 minutes under A5.

## Number of Additional Constables and Predicted Average Priority 3 Response Time Under Option A



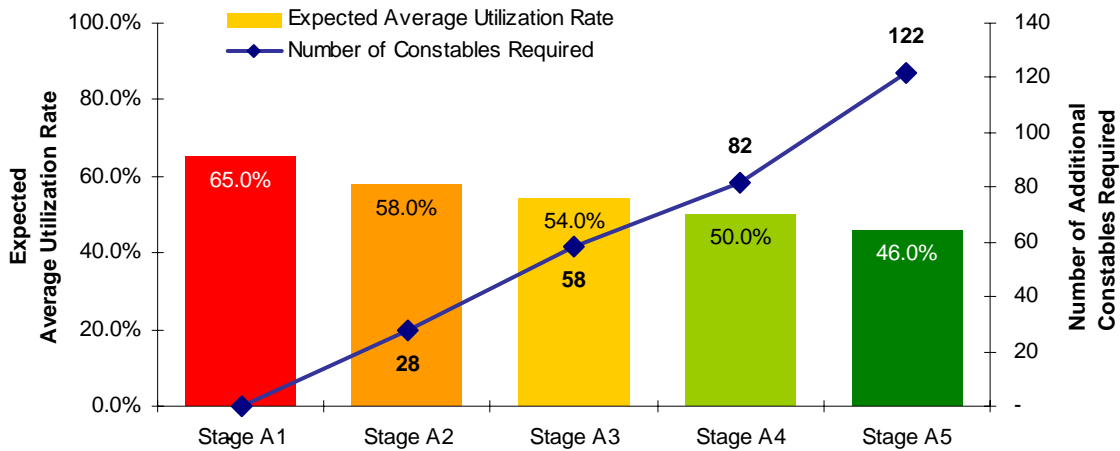
The following graph illustrates how the average priority 4 response time would decrease as patrol staffing increases under each stage of Option A. The average priority 4 response time would be expected to decrease to 4 hours and 54 minutes under A1, 4 hours and 31 minutes under A2, 3 hour and 56 minutes under A3, 3 hours and 40 minutes under A4 and 3 hours and 22 minutes under A5.

## Number of Additional Constables and Predicted Average Priority 4 Response Time Under Option A



The following graph illustrates how the average utilization rate would decrease as patrol staffing increases under each stage of Option A. The average utilization rate would be expected to decrease to 58% under A2, 54% under A3, 50% under A4 and 46% under A5.

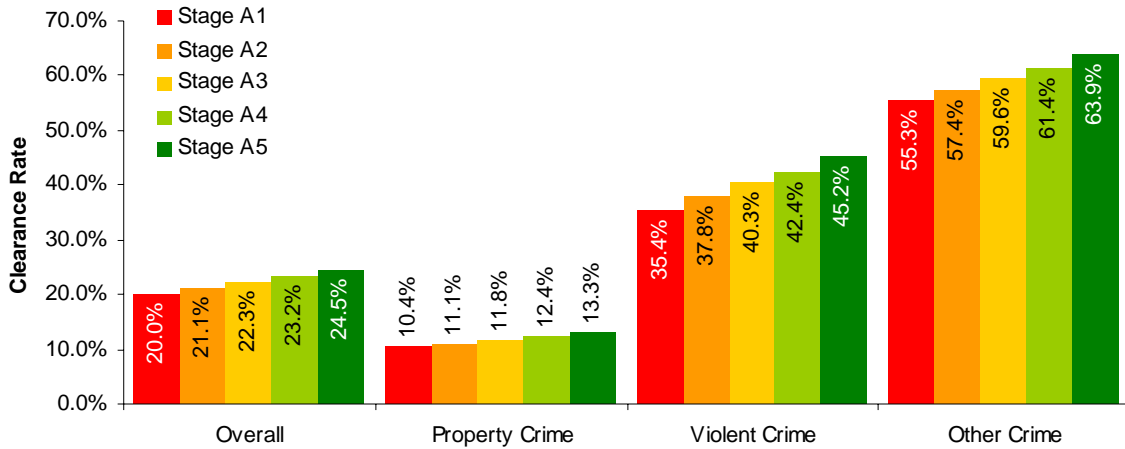
## Number of Additional Constables and Predicted Average Utilization Rate Under Option A



The following graph illustrates how the clearance rate would increase with patrol staffing under each stage of Option A. The overall clearance rate would be expected to increase to 21.1% under A2, 22.3% under A3, 23.2% under A4 and 24.5% under A5. In particular:

- The property crime clearance rate would be expected to increase to 11.1% under A2, 11.8% under A3, 12.4% under A4 and 13.3% under A5.
- The violent crime clearance rate would be expected to increase to 37.8% under A2, 40.3% under A3, 42.4% under A4 and 45.2% under A5.
- The other crime clearance rate would be expected to increase to 57.4% under A2, 59.6% under A3, 61.4% under A4 and 63.9% under A5.

### Predicted Clearance Rates Under Option A



The following table summarizes the required staffing increase, the fleet requirements and the financial implications under each stage of Option A.

### Financial Summary for Option A

Option A	FTE			Fleet	Financial Summary	
	Sergeants	Constables	Total		One Time Cost	Annual Operating Costs
Stage A1	2	0	2	12	\$ 65,490	\$ 529,785
Stage A2	4	28	32	22	\$ 481,140	\$ 3,855,795
Stage A3	7	58	65	43	\$ 910,680	\$ 7,865,535
Stage A4	7	82	89	47	\$ 1,249,360	\$ 10,419,015
Stage A5	7	122	129	54	\$ 1,780,960	\$ 14,602,410

### OPTION B

Under Option B, the VPD implements a fixed 4-on-4-off Delta shift in addition to the other existing shifts.

## Stage B1

Under Stage B1, the VPD implements some changes to improve efficiency internally. Among others:

1. The District Surveillance Teams (DST) in District 1 (Team 11) and District 2 combine to create a Patrol North Surveillance Team (responsible for District 1 and District 2). This team is made up from the existing Sergeant and 3 Constables from District 1 Team 11 and 6 Constables from the District 2 DST. The remaining Constable and Sergeant from District 2 DST return to their home teams. The DST in District 3 and District 4 combine to create a Patrol South Surveillance Team (responsible for District 3 and District 4). This team is made up from 5 Constables from the District 3 DST and 4 Constables from the District 4 DST. One additional authorized Sergeant position is required to supervise the Patrol South Surveillance Team. The remaining 5 Constables and 2 Sergeants from the District 3 and District 4 DST return to their home teams. The new North and South Surveillance Teams will be formalized teams that are fully staffed, properly equipped and trained.
2. A permanent Delta shift is implemented in District 1. A total of 22 Constables in District 1 are reassigned to the permanent Delta shift in District 1. Two authorized Constable positions are deducted from Team 3 to Team 10 in District 1 (this frees up 16 Constables) and 6 Constables from the DST in District 1 are reassigned to the permanent Delta shift (for a total of 22 Constables). These Constable positions are already authorized. Two Sergeants are required to supervise the Permanent Delta team in District 1 (one for the odd side and one for the even side). The permanent Delta shift extends from 1800 to 0500 hours.
3. The existing Delta shift continues to extend from 1600 to 0400 hours (as opposed to 0300 hours).
4. Special patrol-based projects are reduced (e.g. Charlie and Delta patrol projects). These projects are limited to situations that require targeted action by patrol

officers in plainclothes to address a serious crime problem. These projects must be accompanied by an Operational Plan that is evaluated and approved by the District Inspector. These projects should not take place on Fridays or Saturdays between 1200 and 0400 hours.

5. Minimum staffing levels are properly adjusted to match the call load.
6. The 60-40 deployment split mandated by the Collective Agreement between the VPU and the Vancouver Police Board is enforced. This implies that the proportion of two-officer regular patrol units deployed decreases from approximately 65% to 60%.
7. A new policy is introduced to ensure that managers and supervisors maintain their actual patrol strength as close as possible to the authorized strength (at least in the long-run).
8. When ERT is not tied up on serious calls, training activities or special assignments, they reprioritize how they spend their unallocated time to handle more calls that do not usually require a report or lengthy investigation. This would include calls such as alarms, annoying circumstances, disturbance calls, noise complaints and suspicious circumstances, persons and vehicles.
9. Patrol operations are regularly monitored and evaluated. The following performance measures are measured and analyzed on an annual basis at year-end:
  - Number of calls recorded, dispatched and attended
  - Total number of patrol officers deployed
  - Proportion of two-officer units deployed
  - Average proportion of unallocated (proactive policing) and allocated time (reactive policing)
  - Average response time for priority 1, 2, 3 and 4 calls
  - Average service time
  - Average number of units and officers per call



- Clearance rates
- Number of cancelled calls for service
- Number of on-view calls
- Number of on-view criminal offences
- Number of street checks
- Number of traffic tickets
- Number of report errors (e.g. “Bring Forwards”)

### **Net Staffing Request**

3 Sergeants (two for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in District 1.
- Consolidated Patrol Surveillance teams that are formalized.
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

Including the gains obtained from the extension of the Delta shift, the adjustments proposed under Stage B1 are expected to lead to a decrease of approximately 32 seconds in the citywide average priority 1 response time. More specifically, the average priority 1 travel time would be reduced by 25 seconds in District 1, 14 seconds in District 2, 54 seconds in District 3 and 34 seconds in District 4.

This would imply that the average priority 1 response time would then decrease to 10 minutes and 53 seconds.

## **Expected Change in the Average Utilization Rate**

The implementation of an improved deployment model using existing resources deployed more efficiently should achieve an average utilization rate in the 60% to 65% range.

## **Stage B2**

Under Stage B2, the VPD implements the changes suggested under Stage B1 and creates a Metro Team comprised of 26 Constables and 2 Sergeants working from 1500 to 0200 hours on a 4-on-4-off schedule (one team of 13 Constables and 1 Sergeant on the even side and 13 Constables and 1 Sergeant on the odd side). The Metro Team requires the standard patrol equipment supplied to patrol (including cars, laptops and radios) as well as 10 cell phones (one per deployed unit).

### **Net Staffing Request**

3 Sergeants (two for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

26 Constables and 2 Sergeants (two Metro Teams comprised of 13 Constables and 1 Sergeant each) and equipment for the Metro Team.

= 26 Constables and 5 Sergeants.

### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in District 1.
- Consolidated Patrol Surveillance teams that are formalized.
- Metro Team providing a highly flexible response team deployable citywide.
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

When the adjustments from Stage B1 are taken into account, the citywide average priority 1 response time would decrease by approximately 1 minute and 12 seconds under Stage A2. More specifically, the average priority 1 travel time would be reduced by 30 seconds in District 1, 27 seconds in District 2, 1 minute and 13 seconds in District 3 and 52 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 26 seconds.

This would imply that the average priority 1 response time would then decrease to 10 minutes and 13 seconds.

### **Expected Change in the Average Utilization Rate**

The deployment of the citywide Metro Team is expected to lead to an average utilization rate of 59%. This would imply an improvement of 6 percentage points compared to the 2005 average utilization rate of 65%.

## **Stage B3**

Under Stage B3, the VPD implements the changes suggested under Stage B1 and Stage B2. It also implements a permanent delta shift in District 2, District 3 and District 4. As in District 1, the permanent Delta shift in District 2, District 3 and District 4 work between 1800 to 0500 hours on a 4-on-4-off rotation. This requires a total of 56 Constables and 6 Sergeants (9 Constables and 1 Sergeant per odd/even team in District 2 and District 4, 10 Constables and 1 Sergeant per odd/even team in District 3) in addition to the staffing request under Stage B2.

## **Net Staffing Request**

3 Sergeants (two for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

26 Constables and 2 Sergeants (two Metro Teams comprised of 13 Constables and 1 Sergeant each) and equipment for the Metro Team.

56 Constables and 6 Sergeants (9 Constables and 1 Sergeant per odd/even team in District 2 and District 4, 10 Constables and 1 Sergeant per odd/even team in District 3).

= 82 Constables and 11 Sergeants.

## **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in all patrol districts.
- Consolidated Patrol Surveillance teams that are formalized.
- Metro Team providing a highly flexible response team deployable citywide.
- More proactive time for patrol officers.

## **Predicted Change in the Average Response Time**

When the adjustments from Stage B1 and Stage B2 are taken into account, the citywide average priority 1 response time would decrease by approximately 2 minutes and 44 seconds under Stage A3. More specifically, the average priority 1 travel time would be reduced by 30 seconds in District 1, 57 seconds in District 2, 2 minutes and 2 seconds in District 3 and 1 minute and 57 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 22 seconds.

This would imply that the average priority 1 response time would then decrease to 8 minutes and 41 seconds.

## **Expected Change in the Average Utilization Rate**

The deployment of additional patrol resources is expected to lead to an average utilization rate of 50% in every patrol district. This would imply an improvement of 15 percentage points compared to the 2005 average utilization rate of 65%.

Stage B3 implies an average utilization rate that supports proactive policing. By comparison to Stage A4, which required 7 new Sergeant positions to support 6 new patrol teams, Stage B3 requires 11 new Sergeant positions to support a total of 10 new patrol teams.

## **Stage B4**

Under Stage B4, the patrol authorized strength would increase by a total of 122 Constables. The first 82 Constables would allow the VPD to implement all the recommendations proposed under Stage A1 to A4. The 40 remaining officers would allow the VPD to reduce the average priority 1 travel time further. Overall, the average priority 1 response time would be expected to decrease below 8 minutes.

### **Net Staffing Request**

3 Sergeants (two for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

26 Constables and 2 Sergeants (two Metro Teams comprised of 13 Constables and 1 Sergeant each) and equipment for the Metro Team.

56 Constables and 6 Sergeants (9 Constables and 1 Sergeant per odd/even team in District 2 and District 4, 10 Constables and 1 Sergeant per odd/even team in District 3).

40 Constables (one additional Constable in each patrol team in each patrol district).

= 122 Constables and 11 Sergeants.

### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in all patrol districts.
- Consolidated Patrol Surveillance teams that are formalized.
- Metro Team providing a highly flexible response team deployable citywide.
- Slightly larger patrol teams (including larger Alpha teams).
- Better-practice priority 1 response time of less than 8 minutes.
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

Under Stage B4, the citywide average priority 1 response time would decrease by approximately 3 minutes and 56 seconds. More specifically, the average priority 1 travel time would be reduced by 43 seconds in District 1, 1 minute and 25 seconds in District 2, 2 minutes and 45 seconds in District 3 and 2 minutes and 58 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 59 seconds.

This would imply that the average priority 1 response time would then decrease to 7 minutes and 28 seconds.

### **Expected Change in the Average Utilization Rate**

The deployment of 122 additional Constables in patrol is expected to lead to an average utilization rate of 46% in District 1 and District 2 and 47% in District 3 and District 4. This would imply an improvement of 19 percentage points compared to the 2005 average utilization rate of 65%.

## Summary of Option B

The following table shows summarizes how patrol staffing would be allocated under each stage of Option B.

**Actual Patrol Strength Under Option B's Staffing Options**

	Current		Stage B1		Stage B2		Stage B3		Stage B4	
	Constables*	Sergeants	Constables	Sergeants	Constables	Sergeants	Constables	Sergeants	Constables	Sergeants
D1 Team 1-2	18	2	18	2	18	2	18	2	20	2
D1 Team 3-10	104	8	88	8	88	8	88	8	96	8
D1 Fixed Delta Shift	-	-	22	2	22	2	22	2	22	2
D2 Team 1-2	18	2	18	2	18	2	18	2	20	2
D2 Team 3-10	73	7	74	8	74	8	74	8	82	8
D2 Fixed Delta Shift	-	-	-	-	-	-	18	2	18	2
D3 Team 1-2	15	2	15	2	15	2	15	2	17	2
D3 Team 3-10	97	7	100	8	100	8	100	8	108	8
D3 Fixed Delta Shift	-	-	-	-	-	-	20	2	20	2
D4 Team 1-2	15	2	15	2	15	2	15	2	17	2
D4 Team 3-10	81	7	83	8	83	8	83	8	91	8
D4 Fixed Delta Shift	-	-	-	-	-	-	18	2	18	2
District Surveillance	30	4	18	2	18	2	18	2	18	2
Metro Team	-	-	-	-	26	2	26	2	26	2
<b>Total</b>	<b>451</b>	<b>41</b>	<b>451</b>	<b>44</b>	<b>477</b>	<b>46</b>	<b>533</b>	<b>52</b>	<b>573</b>	<b>52</b>
<b>Required Increase</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>26</b>	<b>5</b>	<b>82</b>	<b>11</b>	<b>122</b>	<b>11</b>

\* The number of Constables in District 2, District 3 and District 4 includes some Acting Sergeants.

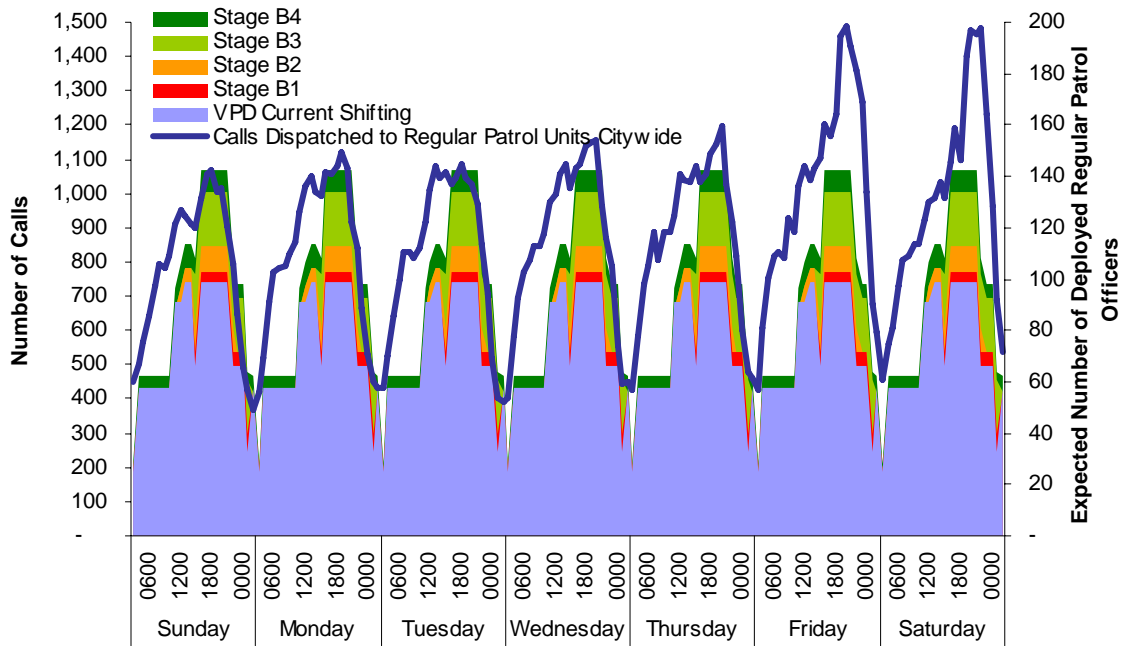
The following table summarizes the required staffing increase, the projected average priority 1 response time, the projected average utilization rate and the estimated correlation between staffing and call load under each stage of Option B.

### Staffing Implications for Option B

		FTE			Expected Performance			
		Sgt.	Cst.	Total FTE	Average P1 Response Time	Decrease in Average P1 Response Time	Average Utilization Rate	Correlation Between Staffing and Call Load
	Current				0:11:25		65.0%	0.770
<b>Option B</b>	Stage B1	3	0	<b>3</b>	0:10:53	0:00:32	65.0%	0.785
	Stage B2	5	26	<b>31</b>	0:10:13	0:01:12	59.0%	0.797
	Stage B3	11	82	<b>93</b>	0:08:41	0:02:44	50.0%	0.769
	Stage B4	11	122	<b>133</b>	0:07:28	0:03:57	46.0%	0.775

The following graph illustrates how patrol staffing would increase to match the call load under each stage of Option B. Graphically, the most significant gains would be obtained under B3, when fixed Delta teams are implemented in District 2, District 3 and District 4.

### Call Load and Patrol Staffing Under Option B

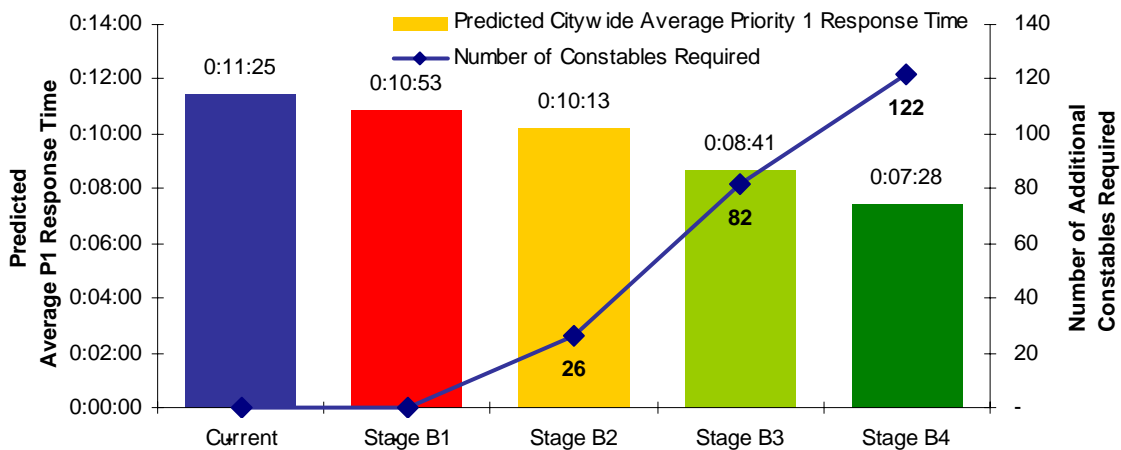


The following graph illustrates how the average priority 1 response time would decrease as patrol staffing increases under each stage of Option B. The average priority 1 response time would be expected to decrease to 10 minutes and 53 seconds under B1,



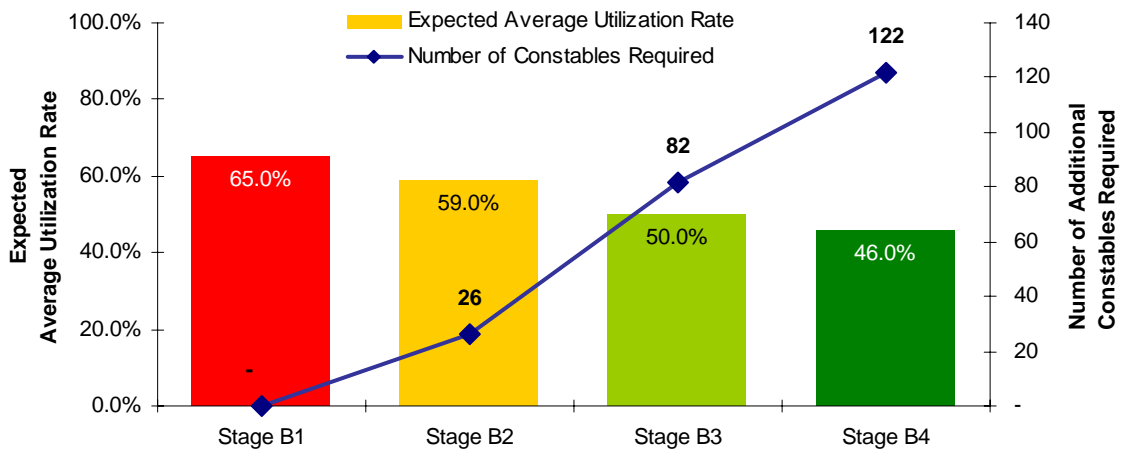
10 minutes and 13 seconds under B2, 8 minutes and 41 seconds under B3 and 7 minutes and 28 seconds under B4.

### Number of Additional Constables and Predicted Average Priority 1 Response Time Under Option B



The following graph illustrates how the average utilization rate would decrease as patrol staffing increases under each stage of Option B. The average utilization rate would be expected to decrease to 59% under B2, 50% under B3 and 46% under B4.

### Number of Additional Constables and Predicted Average Utilization Rate Under Option B



The following table summarizes the required staffing increase, the fleet requirements and the financial implications under each stage of Option B.

### Financial Summary for Option B

Option B	FTE			Fleet	Financial Summary	
	Sergeants	Constables	Total		One Time Cost	Annual Operating Costs
Stage B1	3	0	3	13	\$ 77,890	\$ 685,855
Stage B2	5	26	31	22	\$ 470,550	\$ 3,782,175
Stage B3	11	82	93	38	\$ 1,269,440	\$ 10,477,875
Stage B4	11	122	133	45	\$ 1,801,040	\$ 14,752,770

## OPTION C

Under Option C, the VPD implements some changes to improve efficiency internally and maintains the existing shifting model. Unfortunately, peak times of inefficiency would remain under Option C. In turn, the impact of the new officers on the average priority 1 response time would be reduced and span of control issues would arise.

### Stage C1

Under Stage C1, the VPD implements some changes to improve internal efficiency. Among others:

1. The District Surveillance Team (DST) in District 1 (Team 11) becomes the Patrol North Surveillance Team (responsible for District 1 and District 2). This team is made up from the existing Sergeant and 9 Constables from District 1 Team 11. The 7 Constables and the Sergeant from the District 2 DST return to their home teams. The DST in District 3 and District 4 combine to create a Patrol South Surveillance Team (responsible for District 3 and District 4). This team is made up from 5 Constables from the District 3 DST and 4 Constables from the District 4 DST. One additional authorized Sergeant position is required to supervise the

Patrol South Surveillance Team. The remaining 5 Constables and 2 Sergeants from the District 3 and District 4 DST return to their home teams. The new North and South Surveillance Teams will be formalized teams that are fully staffed, properly equipped and trained.

2. The existing Delta shift continues to extend from 1600 to 0400 hours (as opposed to 0300 hours).
3. Special patrol-based projects are reduced (e.g. Charlie and Delta patrol projects). These projects are limited to situations that require targeted action by patrol officers in plainclothes to address a serious crime problem. These projects must be accompanied by an Operational Plan that is evaluated and approved by the District Inspector. These projects should not take place on Fridays or Saturdays between 1200 and 0400 hours.
4. Minimum staffing levels are properly adjusted to match the call load.
5. The 60-40 deployment split mandated by the Collective Agreement between the VPU and the Vancouver Police Board is enforced. This implies that the proportion of two-officer regular patrol units deployed decreases from approximately 65% to 60%.
6. A new policy is introduced to ensure that managers and supervisors maintain their actual patrol strength as close as possible to the authorized strength (at least in the long-run).
7. When ERT is not tied up on serious calls, training activities or special assignments, they reprioritize how they spend their unallocated time to handle more calls that do not usually require a report or lengthy investigation. This would include calls such as alarms, annoying circumstances, disturbance calls, noise complaints and suspicious circumstances, persons and vehicles.

8. Patrol operations are regularly monitored and evaluated. The following performance measures are measured and analyzed on an annual basis at year-end:

- Number of calls recorded, dispatched and attended
- Total number of patrol officers deployed
- Proportion of two-officer units deployed
- Average proportion of unallocated (proactive policing) and allocated time (reactive policing)
- Average response time for priority 1, 2, 3 and 4 calls
- Average service time
- Average number of units and officers per call
- Clearance rates
- Number of cancelled calls for service
- Number of on-view calls
- Number of on-view criminal offences
- Number of street checks
- Number of traffic tickets
- Number of report errors (e.g. "Bring Forwards")

### **Net Staffing Request**

One Sergeant for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

### **Net Gains**

- Internal efficiency gains.
- Consolidated Patrol Surveillance teams that are formalized.
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

Under Stage C1, the citywide average priority 1 response time would decrease by approximately 28 seconds. More specifically, the average priority 1 travel time

would be reduced by 9 seconds in District 1, 15 seconds in District 2, 54 seconds in District 3 and 34 seconds in District 4.

This would imply that the average priority 1 response time would then decrease to 10 minutes and 57 seconds.

### **Expected Change in the Average Utilization Rate**

The implementation of an improved deployment model using existing resources deployed more efficiently should achieve an average utilization rate in the 60% to 65% range.

## **Stage C2**

Under Stage C2, the VPD implements some changes to improve internal efficiency and 82 new Constables are assigned to District 2, District 3 and District 4. Because it already received a total of 33 new officers in 2005, District 1 does not receive additional patrol officers under Stage C2. District 2 receives 22 new Constable positions, District 3 receives 36 new Constable positions and District 4 receives 24 new Constable positions. The shift deployment model remains unchanged.

### **Net Staffing Request**

One Sergeant for the Patrol South Surveillance Team and equipment for the patrol surveillance teams (North and South).

82 Constables.

= 82 Constables and 1 Sergeant.

### **Net Gains**

- Internal efficiency gains.
- Consolidated Patrol Surveillance teams that are formalized.
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

Under Stage C2, the citywide average priority 1 response time would decrease by approximately 2 minute and 38 seconds. More specifically, the average priority 1 travel time would be reduced by 16 seconds in District 1, 51 seconds in District 2, 1 minute and 59 seconds in District 3 and 1 minute and 56 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 22 seconds.

This would imply that the average priority 1 response time would then decrease to 8 minutes and 47 seconds.

### **Expected Change in the Average Utilization Rate**

The additional 82 Constables should allow the VPD to obtain an average utilization rate of 50%. However, peak times of inefficiency would remain.

## **Stage C3**

Under Stage C2, the VPD implements some changes to improve internal efficiency and 122 new Constables are assigned citywide. This allows the VPD to obtain an average priority 1 response time of approximately 8 minutes.

### **Net Staffing Request**

One Sergeant for the Patrol South Surveillance Team and equipment for the patrol surveillance teams (North and South).

122 Constables.

= 122 Constables and 1 Sergeant.

### **Net Gains**

- Internal efficiency gains.

- Consolidated Patrol Surveillance teams that are formalized.
- More proactive time for patrol officers.
- Better-practice priority 1 response time of approximately 8 minutes.

### **Predicted Change in the Average Response Time**

Under Stage C3, the citywide average priority 1 response time would decrease by approximately 3 minutes and 25 seconds. More specifically, the average priority 1 travel time would be reduced by 26 seconds in District 1, 59 seconds in District 2, 2 minutes and 8 seconds in District 3 and 2 minutes and 8 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 59 seconds.

This would imply that the average priority 1 response time would then decrease to 8 minutes.

### **Expected Change in the Average Utilization Rate**

The additional 122 Constables should allow the VPD to obtain an average utilization rate of 46% to 47%. However, peak times of inefficiency would remain.

## **Summary of Option C**

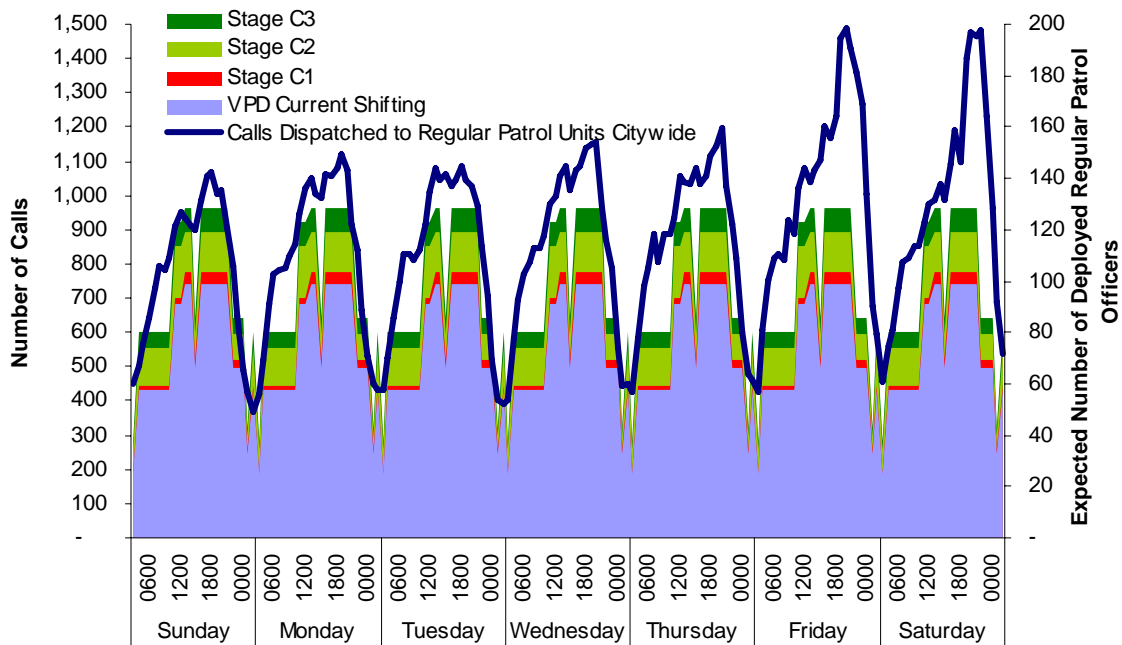
The following table summarizes the required staffing increase, the projected average priority 1 response time, the projected average utilization rate and the estimated correlation between staffing and call load under each stage of Option C.

### Staffing Implications for Option C

		FTE			Expected Performance			
		Sgt.	Cst.	Total FTE	Average P1 Response Time	Decrease in Average P1 Response Time	Average Utilization Rate	Correlation Between Staffing and Call Load
	Current				0:11:25		65.0%	0.770
<b>Option C</b>	Stage C1	1	0	<b>1</b>	0:10:57	0:00:28	65.0%	0.772
	Stage C2	1	82	<b>83</b>	0:08:47	0:02:38	50.0%	0.759
	Stage C3	1	122	<b>123</b>	0:08:00	0:03:25	46.0%	0.757

The following graph illustrates how patrol staffing would increase to match the call load under each stage of Option C. Graphically, the most significant gains would be obtained with the addition of 82 additional Constables under C2.

#### Call Load and Patrol Staffing Under Option C

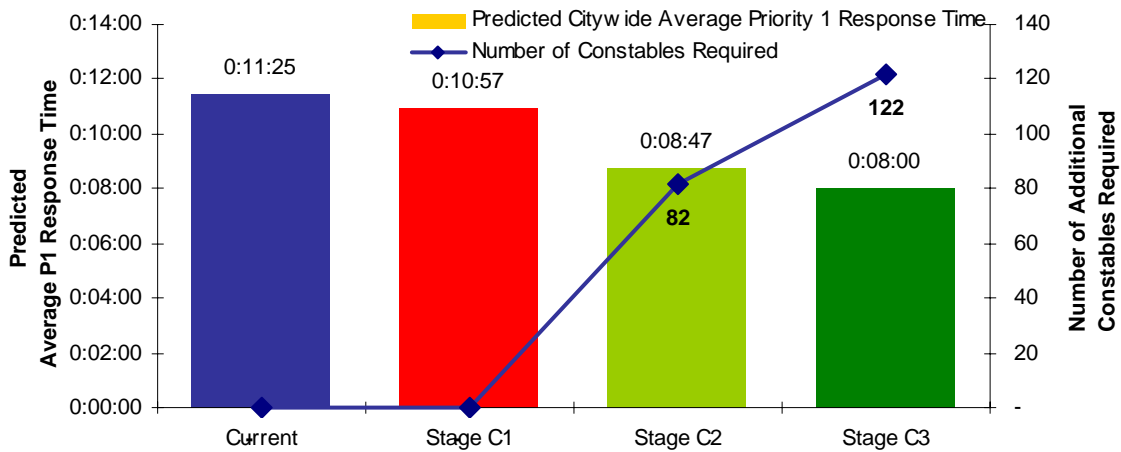


The following graph illustrates how the average priority 1 response time would decrease as patrol staffing increases under each stage of Option C. The average priority 1



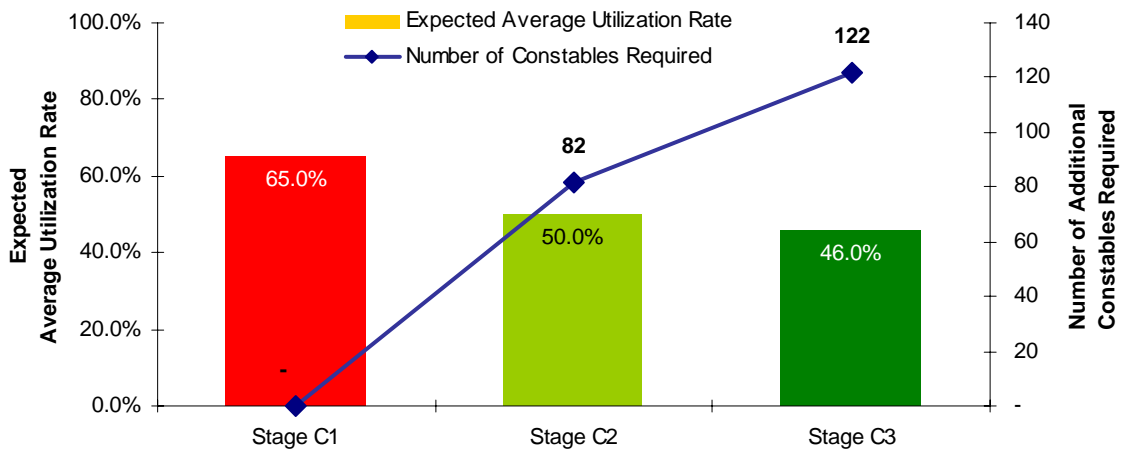
response time would be expected to decrease to 10 minutes and 57 seconds under C1, 8 minutes and 47 seconds under C2 and 8 minutes under C3.

### Number of Additional Constables and Predicted Average Priority 1 Response Time Under Option C



The following graph illustrates how the average utilization rate would decrease as patrol staffing increases under each stage of Option C. The average utilization rate would be expected to decrease to 50% under C2 and 46% under C3.

### Number of Additional Constables and Predicted Average Utilization Rate Under Option C



The following table summarizes the required staffing increase, the fleet requirements and the financial implications under each stage of Option C.

### **Financial Summary for Option C**

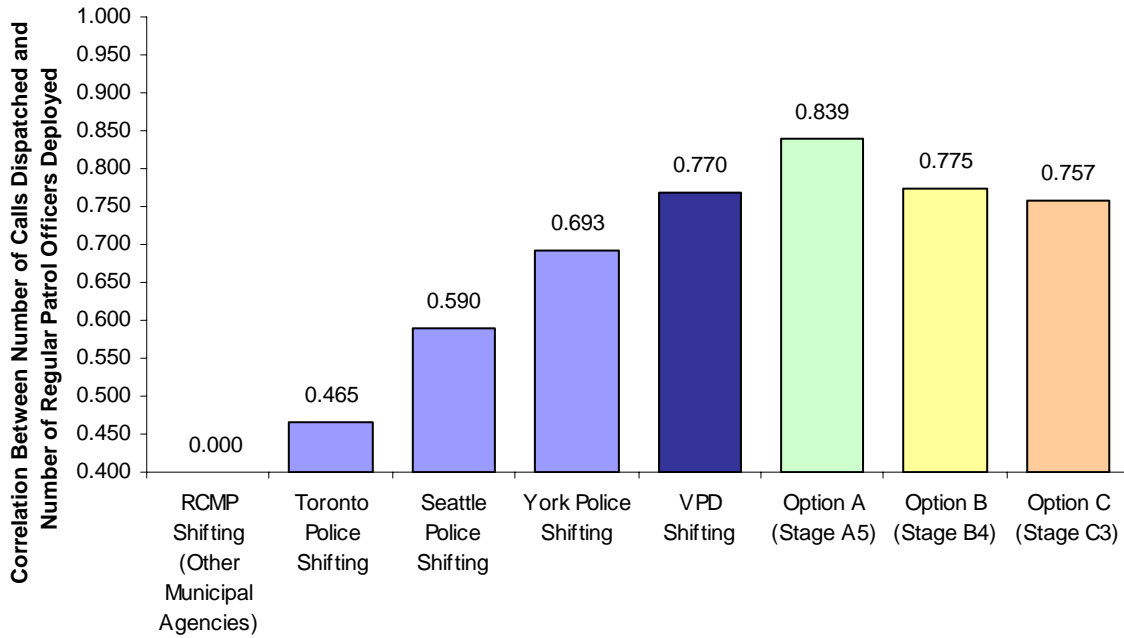
Option C	FTE			Fleet	Financial Summary	
	Sergeants	Constables	Total		One Time Cost	Annual Operating Costs
Stage C1	1	0	1	11	\$ 51,900	\$ 373,595
Stage C2	1	82	83	25	\$1,135,490	\$ 8,947,725
Stage C3	1	122	123	32	\$1,656,490	\$ 13,077,235

### **COMPARISONS BETWEEN OPTIONS A, B AND C**

As opposed to Option A and Option B, which introduce a fixed Delta shift and a Metro Team, peak times of inefficiency would remain under Option C. The existing shifting model retained under Option C leads to periods of both high and low utilization. This results in a shifting pattern that fails to adequately match resources with call load. During some hours of the day, there is either an abundance of resources or insufficient resources to meet the demand. The current shifting model artificially generates heightened periods of stress and anxiety because it fails to address the lack of shift overlap during times of peak call load.

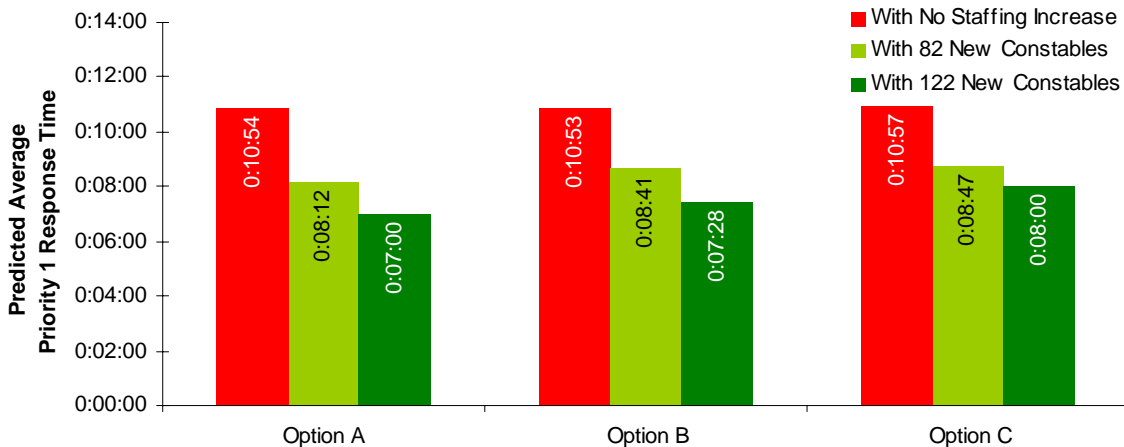
Whether the regular patrol teams are staffed at minimums or not, Option A and Option B ensure that more officers are deployed during the evening because they deploy at least one additional late afternoon shift (i.e. fixed Delta shift and/or Metro Team). This is more efficient because more calls are received at night on average. Finally, Option C also creates span of control issues by leading to an increase in the size of each existing patrol team to as many as 17 Constables per team, which is not in line with best practices. Overall, Option A is the most efficient deployment model and is therefore recommended by the Patrol Deployment Study Project Team. Option B is the second most efficient model and Option C is the least efficient model.

## Correlation Between the Number of Calls and Staffing Under Options A, B and C



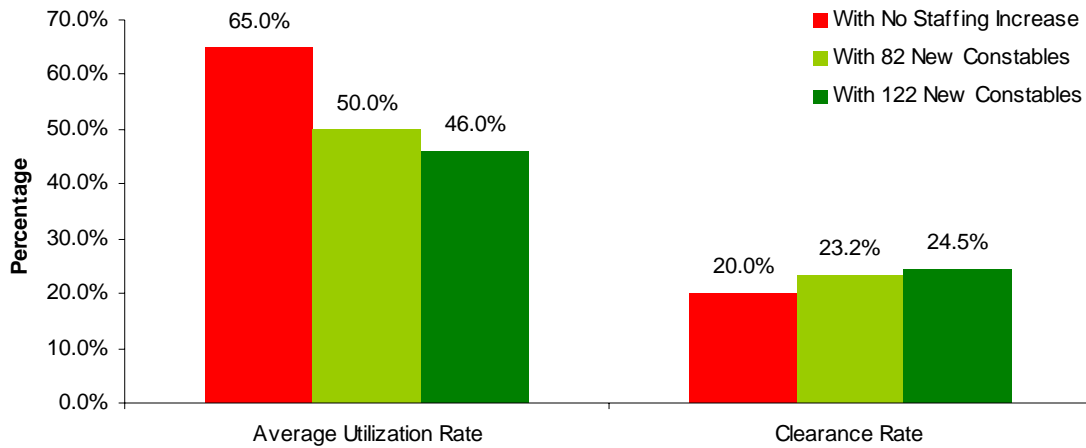
As shown in the graph below, the marginal impact of additional patrol resources is maximized under Option A. By comparison, the impact of staffing increases is diminished under Option B and Option C. This reflects the fact that the shifting patterns under Option B and Option C are not as efficient as the shifting pattern proposed under Option A.

## Predicted Average Priority 1 Response Time Under Each Option



In order to examine how clearance rates could be improved under the different staffing options that have been presented, an analysis of performance data from leading Canadian police agencies was conducted. The following graph summarizes the performance gains that are expected given the appropriate increase in patrol resources.

### Predicted Average Utilization Rate and Clearance Rate Under Each Staffing Option



### Summary Table Comparing Options A, B and C

		FTE			Expected Performance				Fleet	Financial Summary	
		Sgt.	Cst.	Total FTE	Average P1 Response Time	Decrease in Average P1 Response Time	Average Utilization Rate	Correlation Between Staffing and Call Load		One Time Cost	Annual Operating Costs
	Current				0:11:25		65.0%	0.770			
<b>Option A</b>	Stage A1 - Efficiencies	2	0	<b>2</b>	0:10:54	0:00:31	65.0%	0.805	12	\$ 65,490	\$ 529,785
	Stage A2 - Metro Team	4	28	<b>32</b>	0:10:12	0:01:13	58.0%	0.816	22	\$ 481,140	\$ 3,855,795
	Stage A3 - Delta 2, 3, 4	7	58	<b>65</b>	0:09:15	0:02:10	54.0%	0.838	43	\$ 910,680	\$ 7,865,535
	Stage A4 - 50% Util. Rate	7	82	<b>89</b>	0:08:12	0:03:13	50.0%	0.839	47	\$1,249,360	\$10,419,015
	Stage A5 - 7-Minute RT	7	122	<b>129</b>	0:07:00	0:04:25	46.0%	0.839	54	\$1,780,960	\$14,602,410
<b>Option B</b>	Stage B1 - Efficiencies	3	0	<b>3</b>	0:10:53	0:00:32	65.0%	0.785	13	\$ 77,890	\$ 685,855
	Stage B2 - Metro Team	5	26	<b>31</b>	0:10:13	0:01:12	59.0%	0.797	22	\$ 470,550	\$ 3,782,175
	Stage B3 - 50% Util. Rate	11	82	<b>93</b>	0:08:41	0:02:44	50.0%	0.769	38	\$1,269,440	\$10,477,875
	Stage B4 - 7.5-Minute RT	11	122	<b>133</b>	0:07:28	0:03:57	46.0%	0.775	45	\$1,801,040	\$14,752,770
<b>Option C</b>	Stage C1 - Efficiencies	1	0	<b>1</b>	0:10:57	0:00:28	65.0%	0.772	11	\$ 51,900	\$ 373,595
	Stage C2 - 50% Util. Rate	1	82	<b>83</b>	0:08:47	0:02:38	50.0%	0.759	25	\$1,135,490	\$ 8,947,725
	Stage C3 - 8-Minute RT	1	122	<b>123</b>	0:08:00	0:03:25	46.0%	0.757	32	\$1,656,490	\$13,077,235

# OTHER RECOMMENDATIONS

## THE DEPLOYMENT OF TWO-OFFICER UNITS

Past research in the field of law enforcement suggests that:

- In general, single-officer units were more likely to be deployed during the day (i.e. during daylight hours) and in less densely populated areas (Wilson and Brewer, 1991).
- Police agencies that routinely deployed single-officer units typically restricted their use to “low-risk” taskings such as report taking, traffic enforcement and patrol supervision (Wilson, 1991).
- Two-officer units tend to generate more traffic citations and handle each call for service relatively more quickly on average (Wilson, 1990).
- Two-officer units were relatively more likely to make an arrest or complete a formal police report after responding to a domestic argument (Wilson and Brewer, 1991).
- For a given response time, a two-officer unit arriving first at the scene of an incident was 18% to 25% more likely to make an arrest than a single-officer unit (Tarr, 1978).
- In general, a two-officer unit is more cost-efficient than a single-officer unit requiring backup support (Wilson, 1990). In other words, two-officer units are more cost-effective than two single-officer units on calls that can be successfully resolved only with a minimum of 2 officers.
- An optimal deployment model must incorporate a judicious ratio of single to two-officer units and an efficient dispatching procedure (National Institute of Justice, 1986). In particular, the dispatching personnel play a central role in minimizing risk for the single-officer unit (Wilson, 1991).
- Single-officer patrol units are significantly most likely to be injured when assaulted (Wilson, Brunk and Meyer, 1990).

In the current policing environment, the 60-40 deployment model emerges as the single most attractive option for patrol. The 60-40 model has the desirable property of

harmonizing the proportion of two-officer units with the proportion of two-officer calls dispatched to VPD regular patrol units. Moreover, the 60-40 model does not require any change in the number of patrol cars that need to be fielded and maintained. Also, two-officer partnerships tend to be more proactive, respond faster to high priority calls and generally do not have to wait for backup. The 60-40 deployment model takes advantage of this.

The 60-40 deployment model is already formalized in Section 22 of the *2003-2006 Collective Agreement* between the Vancouver Police Board and the Vancouver Police Union. As such, no major change in policy or in principle would be needed to enforce it.<sup>2</sup>

In light of this, it is recommended:

- THAT the VPD enforce the 60-40 deployment split prescribed by the current Collective Agreement between the VPU and the Vancouver Police Board.
- THAT approximately 55.0% of all regular patrol units deployed during the Alpha shift and Bravo shift be comprised of two officers.
- THAT approximately 60.0% of all regular patrol units deployed during the Charlie shift be comprised of two officers.
- THAT approximately 65.0% of all regular patrol units deployed during the Delta and Echo shifts be comprised of two officers.
- THAT plainclothes patrol units, beat patrol units and BET units continue to be comprised of two officers.
- THAT patrol wagons continue to be comprised of a single officer.
- THAT patrol supervisors be responsible for maintaining the prescribed proportion of two-officer units recommended above.

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<sup>2</sup> It should be noted that this section of the Collective Agreement is very loosely worded and does not clearly define what units and what time period is included in this calculation. During the next round of collective bargaining negotiations, the wording in this section should be clarified.

## **GLOBAL POSITIONING SYSTEM**

The use of GPS at the VPD would increase officer safety and improve patrol deployment and the dispatching of patrol resources.

### **1. Officer Safety**

GPS would be a valuable tool to assist in locating officers who are in trouble and are unable to give complete broadcast information, or don't know their exact location. It would also be of assistance when officers hit their emergency buttons by mistake and the radio dispatcher is unable to raise the unit on the air. Even though the technology is associated with the vehicle it still gives a logical starting point to locate an officer.

### **2. Patrol Deployment and Unit Dispatching**

GPS technology allows dispatchers and officers to know the location of police units. This can assist in effective call management by assigning the nearest appropriate unit to a call for service. This assists with response times and would be beneficial from a patrol efficiency perspective. There are also tactical advantages during containment and pursuit situations whereby the location of units can be determined and coordinated in the most effective manner.

It is acknowledged that there are legitimate issues to address from a labour/management perspective over the use of this technology for performance monitoring or disciplinary proceedings. There are also significant costs associated with implementing and maintaining this technology and the costs of archiving the data.

The project team is aware that the VPD Communications Section is currently exploring this technology for use in VPD vehicles. After exploring the best practices utilized by other police agencies, the Patrol Deployment Study Project Team supports the ongoing efforts by the Communications Section and recommends the implementation of GPS in VPD patrol vehicles.



## THE MINIMUM STAFFING LEVELS

The current minimum staffing levels in patrol provide minimum patrol coverage during the day and the evening but empirical evidence suggests that they are often insufficient late at night and in the morning in District 1 and District 4.

In general, the minimum staffing levels recommended below are not significantly different from the current minimum staffing levels. Most notably, the proposed minimum staffing levels lead to a sizeable increase in the minimum number of officers deployed in District 1 during the evening. Anecdotal evidence suggests that this is both justified and desirable.

### Recommended Minimum Staffing Levels in Patrol

District	Alpha	Bravo	Charlie	Delta	Echo	Total
D1 Week	5	5+1	5	6+1	7+1	<b>28+3</b>
D1 Weekend	5	7+1	7	7+1	8+1	<b>34+3</b>
D2 Week	5+1	5	5+1	6	7+1	<b>28+3</b>
D2 Weekend	5+1	5	5+1	7	8+1	<b>30+3</b>
BET		9		9		<b>18</b>
D3 Week	4	6+1	6	6+1	7+1	<b>29+3</b>
D3 Weekend	4	6+1	6	6+1	8+1	<b>30+3</b>
D4 Week	4+1	6	6+1	5	7+1	<b>28+3</b>
D4 Weekend	4+1	6	6+1	5	8+1	<b>29+3</b>
<b>Total</b>	<b>18+2</b>	<b>31 (Week) or 33 (Weekend) +2</b>	<b>22 (Week) or 24 (Weekend) +2</b>	<b>32 (Week) or 34 (Weekend) +2</b>	<b>28 (Week) or 32 (Weekend) +4</b>	<b>131 (Week) or 141 (Weekend) +12</b>
* Patrol wagons are +1. Patrol supervisors are excluded.						
** Weekends are defined as Friday and Saturday.						

The minimum staffing levels recommended by the Patrol Deployment Study Project Team imply that enough patrol officers are deployed to maintain the safety of the officers and offer a minimal level of protection to the public. These minimum staffing levels are not designed to allow patrol officers to conduct proactive policing activities and are most likely to lead to significantly longer response times and call shedding.

# OUTCOMES

It is expected that the addition of patrol officers at the VPD would lead to:

- Increased public safety
- Reduced response times to calls for service (more police = arrive faster)
- Increased apprehension of criminals
- Reduced injuries to victims
- Increased availability of witnesses
- Improved clearance rates
- Increased preservation of crime scenes/forensic evidence integrity
- Increased proactive policing
- Increased intelligence gathering
- Increased “on-view” and self initiated arrests
- Better customer service/able to attend some of the calls we currently have to cancel
- Reduced street disorder
- Improved traffic safety/more traffic enforcement
- Fewer report errors (“BFs”) due to more thorough investigations
- Literature supports that more police = less crime
- Increased police presence and visibility

Since 2005, the VPD has improved significantly its ability to collect and analyze patrol data. Due to the amount of time it takes to hire and train a new police officer, any new officers hired in 2007 would not be deployable until 2008. While some preliminary results may be available by the end of 2008, it is preferable to have a full year of data to assess the actual impact of any staffing or policy change. This means that the impact of officers hired in 2007 cannot be fully evaluated until sometime in 2009. The following performance measurements would enable the VPD to measure and evaluate its success:

- Number of calls recorded, dispatched and attended
- Total number of patrol officers deployed

- Proportion of two-officer units deployed
- Average proportion of unallocated (proactive policing) and allocated time (reactive policing)
- Average response time for priority 1, 2, 3 and 4 calls
- Average service time
- Average number of units and officers per call
- Clearance rates
- Number of cancelled calls for service
- Number of on-view calls
- Number of on-view criminal offences
- Number of street checks
- Number of traffic tickets
- Number of report errors (e.g. "Bring Forwards")

# Table of Contents

<b><u>EXECUTIVE SUMMARY .....</u></b>	<b><u>3</u></b>
<b>PROJECT BACKGROUND.....</b>	<b>3</b>
<b>THE CURRENT SITUATION IN PATROL.....</b>	<b>10</b>
PROACTIVE POLICING .....	15
AVERAGE RESPONSE TIMES.....	18
<b>INTERNAL CHANGES .....</b>	<b>21</b>
<b>STAFFING AND DEPLOYMENT OPTIONS .....</b>	<b>24</b>
OPTION A .....	25
OPTION B .....	45
OPTION C .....	57
COMPARISONS BETWEEN OPTIONS A, B AND C .....	65
<b>OTHER RECOMMENDATIONS.....</b>	<b>69</b>
THE DEPLOYMENT OF TWO-OFFICER UNITS .....	69
GLOBAL POSITIONING SYSTEM.....	71
THE MINIMUM STAFFING LEVELS .....	72
<b>OUTCOMES.....</b>	<b>73</b>
<b><u>TABLE OF CONTENTS .....</u></b>	<b><u>75</u></b>
<b><u>LIST OF TABLES .....</u></b>	<b><u>81</u></b>
<b><u>LIST OF FIGURES.....</u></b>	<b><u>91</u></b>
<b><u>ACKNOWLEDGEMENTS .....</u></b>	<b><u>121</u></b>

<b><u>1</u></b>	<b><u>INTRODUCTION .....</u></b>	<b><u>123</u></b>
<b><u>2</u></b>	<b><u>BACKGROUND .....</u></b>	<b><u>126</u></b>
<b>2.1</b>	<b>THE PROJECT BACKGROUND .....</b>	<b>126</b>
<b>2.2</b>	<b>THE STUDY OF PATROL DEPLOYMENT.....</b>	<b>129</b>
2.2.1	THE POLICE ALLOCATION MANUAL (PAM) APPROACH .....	130
2.2.2	THE MANAGING PATROL PERFORMANCE (MPP) MODEL.....	134
2.2.3	STAFF WIZARD .....	138
2.2.4	THE VPD APPROACH TO PATROL DEPLOYMENT .....	140
<b>2.3</b>	<b>EARLIER FINDINGS.....</b>	<b>142</b>
2.3.1	SPECIAL CONSTABLE RYAN PROX’S PATROL RESOURCE ALLOCATION REVIEW.....	142
2.3.2	CONSTABLE MATTHEW HARTY’S 2005 SHIFTING REVIEW.....	145
2.3.3	SCOTTSDALE POLICE DEPARTMENT’S ASSESSMENT STUDY .....	146
2.3.4	THE LITERATURE ON CRIME AND POLICING .....	147
<b>2.4</b>	<b>THE PATROL DATA .....</b>	<b>153</b>
<b>2.5</b>	<b>INTERVIEWS WITH PATROL PERSONNEL.....</b>	<b>155</b>
<b>2.6</b>	<b>INTERVIEWS WITH E-COMM PERSONNEL .....</b>	<b>161</b>
<b>2.7</b>	<b>SURVEY OF OTHER POLICE AGENCIES.....</b>	<b>165</b>
<b>2.8</b>	<b>THE 2006 COMMUNITY DIALOGUE SURVEY.....</b>	<b>170</b>
<b><u>3</u></b>	<b><u>PATROL RESOURCES AND DEPLOYMENT .....</u></b>	<b><u>172</u></b>
<b>3.1</b>	<b>PATROL UNITS.....</b>	<b>178</b>
<b>3.2</b>	<b>SINGLE-OFFICER AND TWO-OFFICER PATROL UNITS .....</b>	<b>187</b>
<b>3.3</b>	<b>DEPLOYMENT IN DISTRICT 1.....</b>	<b>193</b>
3.3.1	TWO-OFFICER UNITS IN DISTRICT 1 .....	197
3.3.2	UNIT AVAILABILITY IN DISTRICT 1 .....	201
<b>3.4</b>	<b>DEPLOYMENT IN DISTRICT 2.....</b>	<b>210</b>
3.4.1	TWO-OFFICER UNITS IN DISTRICT 2.....	216
3.4.2	UNIT AVAILABILITY IN DISTRICT 2.....	220
<b>3.5</b>	<b>DEPLOYMENT IN DISTRICT 3.....</b>	<b>228</b>
3.5.1	TWO-OFFICER UNITS IN DISTRICT 3.....	232
3.5.2	UNIT AVAILABILITY IN DISTRICT 3 .....	236
<b>3.6</b>	<b>DEPLOYMENT IN DISTRICT 4.....</b>	<b>244</b>

3.6.1	TWO-OFFICER UNITS IN DISTRICT 4.....	248
3.6.2	UNIT AVAILABILITY IN DISTRICT 4.....	252
<b>3.7</b>	<b>DISCUSSION.....</b>	<b>260</b>
<b><u>4</u></b>	<b><u>DEMANDS FOR SERVICE.....</u></b>	<b><u>268</u></b>
<b>4.1</b>	<b>CRIMINAL INCIDENTS .....</b>	<b>301</b>
<b>4.2</b>	<b>CALL PRIORITIES .....</b>	<b>307</b>
<b>4.3</b>	<b>EMERGENCY 9-1-1 CALLS.....</b>	<b>317</b>
<b>4.4</b>	<b>ON-VIEW CALLS.....</b>	<b>338</b>
<b>4.5</b>	<b>NON-EMERGENCY CALLS.....</b>	<b>360</b>
<b>4.6</b>	<b>ALARM CALLS AND CRIMINAL OFFENCES .....</b>	<b>374</b>
<b>4.7</b>	<b>PROBLEM PREMISES IN THE DOWNTOWN EASTSIDE.....</b>	<b>376</b>
<b>4.8</b>	<b>POLICING AND THE DOWNTOWN ENTERTAINMENT DISTRICT .....</b>	<b>385</b>
<b>4.9</b>	<b>DISCUSSION.....</b>	<b>397</b>
<b><u>5</u></b>	<b><u>THE TIMING OF CALLS.....</u></b>	<b><u>400</u></b>
<b>5.1</b>	<b>CALLS BY HOUR OF THE DAY .....</b>	<b>400</b>
<b>5.2</b>	<b>CALLS BY DAY OF THE WEEK .....</b>	<b>431</b>
<b>5.3</b>	<b>PEAK CALL LOAD PERIODS .....</b>	<b>435</b>
<b>5.4</b>	<b>DAILY FLUCTUATIONS IN THE CALL LOAD.....</b>	<b>449</b>
<b>5.5</b>	<b>DISCUSSION.....</b>	<b>461</b>
<b><u>6</u></b>	<b><u>THE PATROL RESPONSE TO CALLS .....</u></b>	<b><u>463</u></b>
<b>6.1</b>	<b>PATROL RESPONSE BY INCIDENT .....</b>	<b>463</b>
<b>6.2</b>	<b>PATROL RESPONSE BY TIME OF DAY.....</b>	<b>484</b>
<b>6.3</b>	<b>PATROL RESPONSE BY DISTRICT .....</b>	<b>487</b>
<b>6.4</b>	<b>PATROL RESPONSE BY SOURCE OF CALLS .....</b>	<b>498</b>
<b>6.5</b>	<b>SINGLE-OFFICER AND TWO-OFFICER UNITS.....</b>	<b>499</b>
<b>6.6</b>	<b>CALLS ATTENDED BY PATROL SUPERVISORS .....</b>	<b>545</b>
<b>6.7</b>	<b>SERVICE TIME .....</b>	<b>553</b>
<b>6.8</b>	<b>DISCUSSION.....</b>	<b>707</b>
<b><u>7</u></b>	<b><u>PATROL PERFORMANCE .....</u></b>	<b><u>712</u></b>
<b>7.1</b>	<b>RESPONSE TIME.....</b>	<b>712</b>

<b>7.2</b>	<b>STAFFING, WORKLOAD AND PRIORITY 1 RESPONSE TIME .....</b>	<b>857</b>
<b>7.3</b>	<b>STAFFING, WORKLOAD AND THE AVERAGE RESPONSE TIME TO PRIORITY 2, 3 AND 4 CALLS .....</b>	<b>871</b>
<b>7.4</b>	<b>PROACTIVE POLICING.....</b>	<b>874</b>
7.4.1	PERSON STOPS .....	878
7.4.2	TRAFFIC STOPS .....	879
7.4.3	STREET CHECKS .....	881
7.4.4	TICKETS .....	883
<b>7.5</b>	<b>DISCUSSION.....</b>	<b>885</b>
<b><u>8</u></b>	<b><u>THE EXTENDED DELTA SHIFT .....</u></b>	<b><u>890</u></b>
<b>8.1</b>	<b>UNIT AVAILABILITY .....</b>	<b>891</b>
<b>8.2</b>	<b>TOTAL TIME SPENT ON CALLS FOR SERVICE .....</b>	<b>902</b>
<b>8.3</b>	<b>CANCELLED CALLS .....</b>	<b>914</b>
<b>8.4</b>	<b>CONCLUSION.....</b>	<b>916</b>
<b><u>9</u></b>	<b><u>THE DEPLOYMENT OF TWO-OFFICER UNITS.....</u></b>	<b><u>920</u></b>
<b>9.1</b>	<b>LITERATURE REVIEW .....</b>	<b>920</b>
<b>9.2</b>	<b>THE EXPERIENCE OF OTHER POLICE AGENCIES.....</b>	<b>925</b>
<b>9.3</b>	<b>SINGLE-OFFICER AND TWO-OFFICER CALLS.....</b>	<b>929</b>
<b>9.4</b>	<b>DEPLOYMENT OPTIONS .....</b>	<b>952</b>
<b>9.5</b>	<b>DISCUSSION.....</b>	<b>952</b>
9.5.1	DEPLOYMENT INEFFICIENCIES .....	952
9.5.2	AVAILABILITY OF BACKUP UNITS.....	957
<b>9.6</b>	<b>CONCLUSION.....</b>	<b>962</b>
<b><u>10</u></b>	<b><u>THE MINIMUM STAFFING LEVELS.....</u></b>	<b><u>967</u></b>
<b>10.1</b>	<b>SUMMARY .....</b>	<b>979</b>
<b><u>11</u></b>	<b><u>THE DISTRICT BOUNDARIES.....</u></b>	<b><u>982</u></b>
<b>11.1</b>	<b>THE DOWNTOWN EASTSIDE AS THE FIFTH DISTRICT .....</b>	<b>984</b>
<b>11.2</b>	<b>GLOBAL POSITIONING SYSTEMS .....</b>	<b>985</b>
<b><u>12</u></b>	<b><u>THE PATROL SHIFTING MODEL.....</u></b>	<b><u>990</u></b>
<b>12.1</b>	<b>THE 4-ON-3-OFF MODEL.....</b>	<b>996</b>

<b>12.2 THE 4-ON-4-OFF MODEL.....</b>	<b>997</b>
<b>12.3 THE IMPACT OF THE FIXED DELTA SHIFT.....</b>	<b>998</b>
<b>12.4 THE METRO TEAM.....</b>	<b>1002</b>
<b>12.5 THE IMPACT OF THE METRO TEAM.....</b>	<b>1006</b>
<b>12.6 DISCUSSION.....</b>	<b>1011</b>
<b><u>13 THE DISTRICT SURVEILLANCE TEAMS.....</u></b>	<b><u>1013</u></b>
<b><u>14 SPECIAL PATROL PROJECTS.....</u></b>	<b><u>1020</u></b>
<b><u>15 THE EMERGENCY RESPONSE TEAM.....</u></b>	<b><u>1024</u></b>
<b><u>16 STAFFING AND DEPLOYMENT OPTIONS.....</u></b>	<b><u>1031</u></b>
<b>16.1 OPTION A.....</b>	<b>1032</b>
16.1.1 STAGE A1.....	1032
16.1.2 STAGE A2.....	1037
16.1.3 STAGE A3.....	1039
16.1.4 STAGE A4.....	1041
16.1.5 STAGE A5.....	1044
16.1.6 SUMMARY OF OPTION A.....	1047
<b>16.2 OPTION B.....</b>	<b>1057</b>
16.2.1 STAGE B1.....	1057
16.2.2 STAGE B2.....	1060
16.2.3 STAGE B3.....	1061
16.2.4 STAGE B4.....	1063
16.2.5 SUMMARY OF OPTION B.....	1065
<b>16.3 OPTION C.....</b>	<b>1070</b>
16.3.1 STAGE C1.....	1070
16.3.2 STAGE C2.....	1073
16.3.3 STAGE C3.....	1074
16.3.4 SUMMARY OF OPTION C.....	1075
<b>16.4 COMPARISONS BETWEEN OPTIONS A, B AND C.....</b>	<b>1079</b>
<b><u>17 OTHER RECOMMENDATIONS.....</u></b>	<b><u>1085</u></b>



<b>17.1</b>	<b>THE DEPLOYMENT OF TWO-OFFICER UNITS.....</b>	<b>1085</b>
<b>17.2</b>	<b>GLOBAL POSITIONING SYSTEMS.....</b>	<b>1087</b>
<b>17.3</b>	<b>THE MINIMUM STAFFING LEVELS.....</b>	<b>1088</b>
<b><u>18</u></b>	<b><u>CONCLUSION.....</u></b>	<b><u>1089</u></b>
<b><u>19</u></b>	<b><u>GLOSSARY.....</u></b>	<b><u>1098</u></b>
<b><u>20</u></b>	<b><u>REFERENCES.....</u></b>	<b><u>1117</u></b>
<b><u>21</u></b>	<b><u>APPENDIX I – TWO-OFFICER DEPLOYMENT MODELS.....</u></b>	<b><u>1122</u></b>
<b>21.1</b>	<b>THE 70-30 DEPLOYMENT MODEL.....</b>	<b>1124</b>
<b>21.2</b>	<b>THE 60-40 DEPLOYMENT MODEL.....</b>	<b>1133</b>
<b>21.3</b>	<b>THE 50-50 DEPLOYMENT MODEL.....</b>	<b>1144</b>
<b>21.4</b>	<b>THE 40-60 DEPLOYMENT MODEL.....</b>	<b>1154</b>
<b><u>22</u></b>	<b><u>APPENDIX II – VPD DEPLOYMENT SURVEY OF OUTSIDE AGENCIES.....</u></b>	<b><u>1165</u></b>
<b><u>23</u></b>	<b><u>APPENDIX III – INTERVIEW QUESTIONS FOR E-COMM PERSONNEL.....</u></b>	<b><u>1175</u></b>
<b><u>24</u></b>	<b><u>APPENDIX IV – INTERVIEW QUESTIONS FOR PATROL PERSONNEL.....</u></b>	<b><u>1183</u></b>
<b><u>25</u></b>	<b><u>APPENDIX V – EMAIL TO VPD PERSONNEL.....</u></b>	<b><u>1193</u></b>
<b><u>26</u></b>	<b><u>APPENDIX VI – 2006 COMMUNITY DIALOGUE SURVEY.....</u></b>	<b><u>1197</u></b>
<b><u>27</u></b>	<b><u>APPENDIX VII – PATROL RESOURCE ALLOCATION REVIEW PHASE III.....</u></b>	<b><u>1211</u></b>

# List of Tables

Table 2-1 Number of Dispatched Calls for Service and Number of Patrol Officers in Surveyed Agencies .....	168
Table 2-2 Deployment Data from Surveyed Agencies.....	169
Table 3-1 Current VPD Shifting Model.....	175
Table 3-2 Number of Patrol Units Deployed Citywide by Unit Type .....	178
Table 3-3 Number of Patrol Supervisors Deployed Citywide by Shift .....	179
Table 3-4 Number of Patrol Wagons Deployed Citywide by Shift .....	181
Table 3-5 Number of Patrol Beat Units Deployed Citywide by Shift.....	182
Table 3-6 Number of Plainclothes Patrol Units Deployed Citywide by Shift.....	184
Table 3-7 Number of Uniform Patrol Units Deployed Citywide by Shift.....	185
Table 3-8 Number of Regular Patrol Units Deployed Citywide by Shift.....	186
Table 3-9 Number of Single and Two-Officer Patrol Units Deployed Citywide.....	188
Table 3-10 Number of Single and Two-Officer Regular Patrol Units Deployed Citywide.....	188
Table 3-11 Number of Single and Two-Officer Regular Patrol Units Deployed During the Alpha Shift Citywide.....	189
Table 3-12 Number of Single and Two-Officer Regular Patrol Units Deployed During the Bravo Shift and BET Foxtrot Shift Citywide .....	190
Table 3-13 Number of Single and Two-Officer Regular Patrol Units Deployed During the Charlie Shift Citywide.....	190
Table 3-14 Number of Single and Two-Officer Regular Patrol Units Deployed During the Delta Shift Citywide.....	191
Table 3-15 Number of Single and Two-Officer Regular Patrol Units Deployed During the Echo Shift Citywide.....	191
Table 3-16 Number of Single and Two-Officer Units Deployed Citywide by Shift.....	192
Table 3-17 Number of Patrol Units Deployed in District 1 by Unit Type.....	193
Table 3-18 Number of Patrol Supervisors Deployed in District 1 by Shift .....	194
Table 3-19 Number of Patrol Wagons Deployed in District 1 by Shift .....	194
Table 3-20 Number of Patrol Beat Units Deployed in District 1 by Shift.....	195
Table 3-21 Number of Plainclothes Patrol Units Deployed in District 1 by Shift.....	195
Table 3-22 Number of Uniform Patrol Units Deployed in District 1 by Shift .....	196
Table 3-23 Number of Regular Patrol Units Deployed in District 1 by Shift .....	197
Table 3-24 Number of Single and Two-Officer Regular Patrol Units Deployed in District 1.....	198

Table 3-25 Number of Single and Two-Officer Regular Patrol Units Deployed During the Alpha Shift in District 1 .....	198
Table 3-26 Number of Single and Two-Officer Regular Patrol Units Deployed During the Bravo Shift in District 1 .....	199
Table 3-27 Number of Single and Two-Officer Regular Patrol Units Deployed During the Charlie Shift in District 1 .....	199
Table 3-28 Number of Single and Two-Officer Regular Patrol Units Deployed During the Delta Shift in District 1 .....	200
Table 3-29 Number of Single and Two-Officer Regular Patrol Units Deployed During the Echo Shift in District 1 .....	200
Table 3-30 Number of Single and Two-Officer Units Deployed in District 1 by Shift.....	201
Table 3-31 Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 1 ....	202
Table 3-32 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 1 by Hour of the Day .....	204
Table 3-33 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 1 by Day of the Week.....	206
Table 3-34 Number of Patrol Units Deployed in District 2 by Unit Type.....	211
Table 3-35 Number of Patrol Supervisors Deployed in District 2 by Shift .....	211
Table 3-36 Number of Patrol Wagons Deployed in District 2 by Shift .....	212
Table 3-37 Number of BET Units Deployed in District 2 by Shift.....	212
Table 3-38 Number of Patrol Beat Units Deployed in District 2 by Shift.....	213
Table 3-39 Number of Plainclothes Patrol Units Deployed in District 2 by Shift.....	214
Table 3-40 Number of Uniform Patrol Units Deployed in District 2 by Shift .....	214
Table 3-41 Number of Regular Patrol Units Deployed in District 2 by Shift .....	215
Table 3-42 Number of Single and Two-Officer Regular Patrol Units Deployed in District 2.....	217
Table 3-43 Number of Single and Two-Officer Regular Patrol Units Deployed During the Alpha Shift in District 2 .....	217
Table 3-44 Number of Single and Two-Officer Regular Patrol Units Deployed During the Bravo Shift or the BET Foxtrot Shift in District 2.....	218
Table 3-45 Number of Single and Two-Officer Regular Patrol Units Deployed During the Charlie Shift in District 2 .....	218
Table 3-46 Number of Single and Two-Officer Regular Patrol Units Deployed During the Delta Shift or the BET Golf Shift in District 2.....	219
Table 3-47 Number of Single and Two-Officer Regular Patrol Units Deployed During the Echo Shift in District 2 .....	219
Table 3-48 Number of Single and Two-Officer Units Deployed in District 2 by Shift.....	220
Table 3-49 Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 2 ....	221

Table 3-50 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 2 by Hour of the Day .....	222
Table 3-51 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 2 by Day of the Week.....	224
Table 3-52 Number of Patrol Units Deployed in District 3 by Unit Type .....	228
Table 3-53 Number of Patrol Supervisors Deployed in District 3 by Shift .....	229
Table 3-54 Number of Patrol Wagons Deployed in District 3 by Shift .....	229
Table 3-55 Number of Patrol Beat Units Deployed in District 3 by Shift.....	230
Table 3-56 Number of Plainclothes Patrol Units Deployed in District 3 by Shift.....	230
Table 3-57 Number of Uniform Patrol Units Deployed in District 3 by Shift .....	231
Table 3-58 Number of Regular Patrol Units Deployed in District 3 by Shift .....	232
Table 3-59 Number of Single and Two-Officer Regular Patrol Units Deployed in District 3.....	233
Table 3-60 Number of Single and Two-Officer Regular Patrol Units Deployed During the Alpha Shift in District 3 .....	233
Table 3-61 Number of Single and Two-Officer Regular Patrol Units Deployed During the Bravo Shift in District 3 .....	234
Table 3-62 Number of Single and Two-Officer Regular Patrol Units Deployed During the Charlie Shift in District 3 .....	234
Table 3-63 Number of Single and Two-Officer Regular Patrol Units Deployed During the Delta Shift in District 3 .....	235
Table 3-64 Number of Single and Two-Officer Regular Patrol Units Deployed During the Echo Shift in District 3 .....	235
Table 3-65 Number of Single and Two-Officer Units Deployed in District 3 by Shift.....	236
Table 3-66 Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 3....	237
Table 3-67 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 3 by Hour of the Day .....	238
Table 3-68 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 3 by Day of the Week.....	240
Table 3-69 Number of Patrol Units Deployed in District 4 by Unit Type .....	244
Table 3-70 Number of Patrol Supervisors Deployed in District 4 by Shift .....	245
Table 3-71 Number of Patrol Wagons Deployed in District 4 by Shift .....	245
Table 3-72 Number of Patrol Beat Units Deployed in District 4 by Shift.....	246
Table 3-73 Number of Plainclothes Patrol Units Deployed in District 4 by Shift.....	246
Table 3-74 Number of Uniform Patrol Units Deployed in District 4 by Shift .....	247
Table 3-75 Number of Regular Patrol Units Deployed in District 4 by Shift .....	248
Table 3-76 Number of Single and Two-Officer Regular Patrol Units Deployed in District 4.....	249

Table 3-77 Number of Single and Two-Officer Regular Patrol Units Deployed During the Alpha Shift in District 4 .....	249
Table 3-78 Number of Single and Two-Officer Regular Patrol Units Deployed During the Bravo Shift in District 4 .....	250
Table 3-79 Number of Single and Two-Officer Regular Patrol Units Deployed During the Charlie Shift in District 4 .....	250
Table 3-80 Number of Single and Two-Officer Regular Patrol Units Deployed During the Delta Shift in District 4 .....	251
Table 3-81 Number of Single and Two-Officer Regular Patrol Units Deployed During the Echo Shift in District 4 .....	251
Table 3-82 Number of Single and Two-Officer Units Deployed in District 4 by Shift.....	252
Table 3-83 Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 4 ....	253
Table 3-84 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 4 by Hour of the Day .....	254
Table 3-85 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 4 by Day of the Week.....	256
Table 3-86 Average Number of Calls Dispatched per Regular Patrol Unit by District.....	261
Table 3-87 Proportion of Two-Officer Units Deployed by District .....	262
Table 3-88 Proportion of Two-Officer Units Deployed by Shift and by District.....	263
Table 4-1 Number of Calls for Service Dispatched and Not Dispatched .....	268
Table 4-2 General Broadcasts Not Assigned to a Police Unit by Call Type .....	271
Table 4-3 Calls Cancelled Before Being Dispatched by Call Type.....	273
Table 4-5 Calls Handled by Civilian Report Takers by Call Type .....	276
Table 4-6 Number of Dispatched Calls for Service by Type of Unit .....	279
Table 4-7 Number of Calls Dispatched to Regular Patrol Units by Call Type .....	283
Table 4-8 Priority Levels .....	308
Table 4-9 Number of Calls and Criminal Incidents Dispatched to Regular Patrol Units by Priority.....	309
Table 4-10 Number of Calls and Criminal Incidents Dispatched to Regular Patrol Units in District 1 by Priority .....	310
Table 4-11 Number of Calls and Criminal Incidents Dispatched to Regular Patrol Units in District 2 by Priority .....	311
Table 4-12 Number of Calls and Criminal Incidents Dispatched to Regular Patrol Units in District 3 by Priority .....	312
Table 4-13 Number of Calls and Criminal Incidents Dispatched to Regular Patrol Units in District 4 by Priority .....	313
Table 4-14 Number of Emergency 9-1-1 Calls by Call Type .....	319
Table 4-15 Number of Emergency 9-1-1 Calls by Priority .....	320

Table 4-16 Number of Emergency 9-1-1 Calls by Priority and Call Type.....	321
Table 4-17 Number of Emergency 9-1-1 Calls by District and by Priority .....	328
Table 4-18 Number of Emergency 9-1-1 Calls by District and Call Type .....	332
Table 4-19 Number of On-View Calls by Call Type .....	340
Table 4-20 Number of On-View Calls by Priority and Call Type.....	342
Table 4-21 Number of On-View Calls by District and by Priority .....	351
Table 4-22 Number of Telephone Calls by Priority and Call Type.....	362
Table 4-23 Number of Telephone Calls by District and by Priority .....	368
Table 4-24 Problem Locations Associated with 100 Recorded Calls or More.....	378
Table 4-25 Total Service Time Spent by Regular Patrol Units at Problem Locations by Type of Unit.....	381
Table 4-26 Total Number of Calls Handled by Regular Patrol Units by Source .....	382
Table 4-27 Average Net Number of Patrons Exiting from the Participating Establishments per Night During the 2003 Pilot Project .....	387
Table 4-28 Extended Hours of Liquor Service Policy .....	390
Table 4-29 Average Number of Dispatched Calls per Sworn Officer in Other Canadian Police Agencies .....	397
Table 5-1 Number of Calls Dispatched to Regular Patrol Units by Hour of the Day .....	403
Table 5-2 Number of Criminal Incidents Dispatched to Regular Patrol Units by Time of Day .....	408
Table 5-3 Number of Calls by Time of Day by District.....	409
Table 5-4 Number of Calls in District 1 by Hour of the Day .....	413
Table 5-5 Number of Calls in District 2 by Hour of the Day .....	418
Table 5-6 Number of Calls in District 3 by Hour of the Day .....	423
Table 5-7 Number of Calls in District 4 by Hour of the Day .....	428
Table 5-8 Number of Calls Waiting to be Dispatched One Second Before Midnight on Friday .....	437
Table 5-9 Number of Calls Waiting to be Dispatched One Second Before Midnight on Saturday .....	439
Table 5-10 Call Queue at Midnight on 2005-10-08.....	442
Table 5-11 Top 25 Days with the Largest Number of Calls Citywide .....	455
Table 5-12 Distribution of Calls by Month .....	456
Table 5-13 Number of Disturbance Calls and Fights on the 25 Busiest Days of the Years .....	457
Table 6-1 Average Number of Regular Patrol Units Dispatched by Call Type .....	476
Table 6-2 Average Number of Regular Patrol Units Dispatched by Type of Criminal Case .....	480
Table 6-3 Average Number of Regular Patrol Units Dispatched to High Priority Calls at Night by District .....	485
Table 6-4 Average Number of Regular Patrol Units by District and by Priority .....	489
Table 6-5 Average Number of Regular Patrol Units Dispatched by Call Type and by District.....	489
Table 6-6 Average Number of Regular Patrol Units Dispatched to Fights by District .....	494
Table 6-7 Average Number of Regular Patrol Units Dispatched by Source and by District.....	498

Table 6-8 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched Citywide .....	499
Table 6-9 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 1 .....	500
Table 6-10 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 2 .....	501
Table 6-11 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 3 .....	502
Table 6-12 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 4 .....	503
Table 6-13 Proportion of Two-Officer Units Dispatched by Call Type Citywide .....	523
Table 6-14 Proportion of Two-Officer Units Dispatched by Call Type in District 1 .....	524
Table 6-15 Proportion of Two-Officer Units Dispatched by Call Type in District 2 .....	525
Table 6-16 Proportion of Two-Officer Units Dispatched by Call Type in District 3 .....	526
Table 6-17 Proportion of Two-Officer Units Dispatched by Call Type in District 4 .....	527
Table 6-18 Proportion of Two-Officer Units by Hour of the Day Citywide .....	534
Table 6-19 Average Service Time per Call for Service in Other Police Agencies .....	708
Table 6-20 Average Service Time by Call Type at the VPD and the London Police Service.....	710
Table 7-1 Average Response Time to Priority 1 Calls Dispatched to Regular Patrol Units by Source....	713
Table 7-2 Average Response Time to Priority 2 Calls Dispatched to Regular Patrol Units by Source....	714
Table 7-3 Average Response Time to Priority 3 Calls Dispatched to Regular Patrol Units by Source....	716
Table 7-4 Average Response Time to Priority 4 Calls Dispatched to Regular Patrol Units by Source....	718
Table 7-5 Average Response Time to Priority 1 Calls Dispatched to Regular Patrol Units by District ....	735
Table 7-6 Average Response Time to Priority 2 Calls Dispatched to Regular Patrol Units by District ....	737
Table 7-7 Average Response Time to Priority 3 Calls Dispatched to Regular Patrol Units by District ....	740
Table 7-8 Average Response Time to Priority 4 Calls Dispatched to Regular Patrol Units by District ....	744
Table 7-9 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day Citywide ...	819
Table 7-10 Average Response Time to Priority 2 Calls by Day of the Week and Time of Day Citywide .	825
Table 7-11 Average Response Time to Priority 3 Calls by Day of the Week and Time of Day Citywide .	826
Table 7-12 Average Response Time to Priority 1 Calls Including and Excluding Motor Vehicle Incidents with Injuries .....	856
Table 7-13 Predicted Travel Time to Priority 1 MVI with Injuries by District.....	862
Table 7-14 Predicted and Actual Average Travel Time to Priority 1 Calls by District (Excluding MVI with Injuries).....	864
Table 7-15 Average Queuing Delay Associated with Priority 1 Calls (Excluding MVI Injuries) by District	869
Table 7-16 Average Queuing Delay Associated to Priority 1 MVI with Injuries by District .....	870
Table 7-17 Number of Person Stops by District.....	878
Table 7-18 Number of Person Stops by District and by Shift .....	879
Table 7-19 Number of Traffic Stops by District.....	880
Table 7-20 Number of Traffic Stops by District and by Shift.....	881
Table 7-21 Number of Street Checks by District.....	881
Table 7-22 Number of Street Checks by Single-Officer and Two-Officer Units by District.....	882

Table 7-23 Number of Tickets by District.....	883
Table 7-24 Number of Tickets by District and Statute .....	884
Table 7-25 Total Ticket Penalty Amount by District.....	884
Table 8-1 The Delta Shift .....	890
Table 8-2 Net Gain from the Extension of the Delta Shift in District 1 .....	903
Table 8-3 Net Gain from the Extension of the Delta Shift in District 2 (Excluding BET Officers) .....	906
Table 8-4 Net Gain from the Extension of the Delta Shift in District 3.....	909
Table 8-5 Net Gain from the Extension of the Delta Shift in District 4.....	912
Table 8-6 Net Annual Gain in Officer-Hours by District .....	918
Table 9-1 Average Travel Times Predicted by Green and Kolesar (1984) and Chelst (1981).....	922
Table 9-2 Officers in Single and Two-Officer Units Assaulted or Feloniously Killed Between 2002-2004 in the United States.....	924
Table 9-3 Select and Non-Select Calls in the 1990's Los Angeles Police Department.....	930
Table 9-4 Emergency 9-1-1 and Telephone Calls Dispatched to Regular Patrol Units That Usually Require At Least Two Officers .....	936
Table 9-5 Emergency 9-1-1 and Telephone Calls Dispatched to Regular Patrol Units That Usually Require Only One Officer Initially.....	938
Table 9-6 Emergency 9-1-1 and Telephone Calls Dispatched to Regular Patrol Units That May Require One or Two Officers .....	939
Table 9-7 Number of Single-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls .....	940
Table 9-8 Average Service Time on Two-Officer Emergency 9-1-1 and Telephone Calls Dispatched to One Two-Officer Unit and Two Single Officers.....	943
Table 9-9 Average Service Time on Single-Officer Emergency 9-1-1 and Telephone Calls Dispatched to One Two-Officer Unit and Two Single Officers.....	945
Table 9-10 Average Service Time on Other Emergency 9-1-1 and Telephone Calls Dispatched to One Two-Officer Unit and Two Single Officers.....	946
Table 9-11 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by District.	947
Table 9-12 Estimated Net Loss in Officer-Time in District 1 Under Each Deployment Model.....	953
Table 9-13 Estimated Net Loss in Officer-Time in District 2 Under Each Deployment Model.....	954
Table 9-14 Estimated Net Loss in Officer-Time in District 3 Under Each Deployment Model.....	955
Table 9-15 Estimated Net Loss in Officer-Time in District 4 Under Each Deployment Model.....	956
Table 9-16 Number of Single and Two-Officer Regular Patrol Units Deployed Citywide by Shift Under the Refined 60-40 Deployment Model .....	964
Table 9-17 Number of Two-Officer Units that Should be Deployed with Each Staffing Level.....	966
Table 10-1 Recommended Minimum Staffing Levels by Shift in District 1 .....	970
Table 10-2 Recommended Minimum Staffing Levels by Shift in District 2 .....	972
Table 10-3 Recommended Minimum Staffing Levels by Shift in District 3 .....	974



Table 10-4 Recommended Minimum Staffing Levels by Shift in District 4 .....	976
Table 10-5 Recommended Minimum Staffing Levels in Patrol.....	981
Table 10-6 Current Minimum Staffing Levels in Patrol .....	981
Table 11-1 Does Your Agency Use GPS Technology in Your Patrol Units?.....	986
Table 12-1 Expected Decrease in the Average Priority 1 Response Time with the 4-On-4-Off Fixed Delta Shift Alone (Excluding MVI with Injuries) .....	1001
Table 12-2 Expected Decrease in the Average Priority 1 Response Time with the 4-On-3-Off Fixed Delta Shift Alone (Excluding MVI with Injuries) .....	1002
Table 12-3 Expected Decrease in the Average Priority 1 Response Time with the Metro Team Alone (Excluding MVI with Injuries).....	1010
Table 13-1 Actual Staffing Levels in District Surveillance Teams.....	1013
Table 13-2 Creation Date of Each District Surveillance Team .....	1014
Table 13-3 Charges Laid by the First District Surveillance Team and the Sample of Patrol Officers ....	1016
Table 13-4 Charges Laid by the Second District Surveillance Team and the Sample of Patrol Officers .....	1017
Table 15-1 Total Number of ERT Units Deployed .....	1026
Table 15-2 ERT at a Glance .....	1027
Table 16-1 Actual Patrol Strength Under Option A's Staffing Options .....	1048
Table 16-2 Staffing Implications for Option A .....	1049
Table 16-3 Financial Summary for Option A.....	1055
Table 16-4 Financial Details for Option A .....	1056
Table 16-5 Actual Patrol Strength Under Option B's Staffing Options .....	1065
Table 16-6 Staffing Implications for Option B .....	1066
Table 16-7 Financial Summary for Option B.....	1068
Table 16-8 Financial Details for Option B .....	1069
Table 16-9 Staffing Implications for Option C .....	1075
Table 16-10 Financial Summary for Option C.....	1077
Table 16-11 Financial Details for Option C .....	1078
Table 16-12 Summary Table Comparing Options A, B and C.....	1083
Table 17-1 Recommended Minimum Staffing Levels in Patrol.....	1088
Table 21-1 Number of Single and Two-Officer Regular Patrol Units Deployed in District 1 with the 70-30 Deployment Model .....	1124
Table 21-2 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 1 with the 70-30 Deployment Model.....	1125
Table 21-3 Number of Single and Two-Officer Regular Patrol Units Deployed in District 2 with the 70-30 Deployment Model .....	1126

Table 21-4 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 2 with the 70-30 Deployment Model .....	1127
Table 21-5 Number of Single and Two-Officer Regular Patrol Units Deployed in District 3 with the 70-30 Deployment Model .....	1129
Table 21-6 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 3 with the 70-30 Deployment Model .....	1130
Table 21-7 Number of Single and Two-Officer Regular Patrol Units Deployed in District 4 with the 70-30 Deployment Model .....	1131
Table 21-8 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 4 with the 70-30 Deployment Model .....	1132
Table 21-9 Number of Single and Two-Officer Regular Patrol Units Deployed in District 1 with the 60-40 Deployment Model .....	1134
Table 21-10 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 1 with the 60-40 Deployment Model .....	1135
Table 21-11 Number of Single and Two-Officer Regular Patrol Units Deployed in District 2 with the 60-40 Deployment Model .....	1136
Table 21-12 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 2 with the 60-40 Deployment Model .....	1137
Table 21-13 Number of Single and Two-Officer Regular Patrol Units Deployed in District 3 with the 60-40 Deployment Model .....	1139
Table 21-14 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 3 with the 60-40 Deployment Model .....	1140
Table 21-15 Number of Single and Two-Officer Regular Patrol Units Deployed in District 4 with the 60-40 Deployment Model .....	1142
Table 21-16 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 4 with the 60-40 Deployment Model .....	1143
Table 21-17 Number of Single and Two-Officer Regular Patrol Units Deployed in District 1 with the 50-50 Deployment Model .....	1145
Table 21-18 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 1 with the 50-50 Deployment Model .....	1146
Table 21-19 Number of Single and Two-Officer Regular Patrol Units Deployed in District 2 with the 50-50 Deployment Model .....	1147
Table 21-20 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 2 with the 50-50 Deployment Model .....	1148
Table 21-21 Number of Single and Two-Officer Regular Patrol Units Deployed in District 3 with the 50-50 Deployment Model .....	1150

Table 21-22 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 3 with the 50-50 Deployment Model.....	1151
Table 21-23 Number of Single and Two-Officer Regular Patrol Units Deployed in District 4 with the 50-50 Deployment Model .....	1152
Table 21-24 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 4 with the 50-50 Deployment Model.....	1153
Table 21-25 Number of Single and Two-Officer Regular Patrol Units Deployed in District 1 with the 40-60 Deployment Model .....	1155
Table 21-26 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 1 with the 40-60 Deployment Model.....	1156
Table 21-27 Number of Single and Two-Officer Regular Patrol Units Deployed in District 2 with the 40-60 Deployment Model .....	1157
Table 21-28 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 2 with the 40-60 Deployment Model.....	1158
Table 21-29 Number of Single and Two-Officer Regular Patrol Units Deployed in District 3 with the 40-60 Deployment Model .....	1160
Table 21-30 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 3 with the 40-60 Deployment Model.....	1161
Table 21-31 Number of Single and Two-Officer Regular Patrol Units Deployed in District 4 with the 40-60 Deployment Model .....	1162
Table 21-32 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 4 with the 40-60 Deployment Model.....	1163

# List of Figures

Figure 2-1 Willingness of the Participants at the 2006 Community Dialogue Session to Pay for Additional Patrol Officers .....	171
Figure 3-1 City Neighbourhoods and Patrol Districts.....	174
Figure 3-2 Average Number of Patrol Supervisors Deployed Citywide by Hour of the Day.....	180
Figure 3-3 Average Number of Patrol Wagons Deployed Citywide by Hour of the Day.....	182
Figure 3-4 Average Number of Patrol Beat Units Deployed Citywide by Hour of the Day .....	183
Figure 3-5 Average Number of Plainclothes Patrol Units Deployed Citywide by Hour of the Day .....	184
Figure 3-6 Average Number of Uniform Patrol Units Deployed Citywide by Hour of the Day.....	186
Figure 3-7 Average Number of Regular Patrol Units Deployed Citywide by Hour of the Day.....	187
Figure 3-8 Proportion of Single and Two-Officer Regular Patrol Units Deployed Citywide.....	189
Figure 3-9 Proportion of Two-Officer Units Deployed Citywide by Shift .....	192
Figure 3-10 Proportion of Two-Officer Units Deployed Citywide by Hour of the Day.....	192
Figure 3-11 Average Number of Uniform Patrol Units Deployed in District 1 by Hour of the Day.....	196
Figure 3-12 Average Number of Regular Patrol Units Deployed in District 1 by Hour of the Day.....	197
Figure 3-13 Proportion of Two-Officer Units Deployed in District 1 by Shift.....	201
Figure 3-14 Probability Distribution of the Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 1 .....	202
Figure 3-15 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 1 by Hour of the Day .....	205
Figure 3-16 Average Probability That No Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day .....	205
Figure 3-17 Average Probability That Only One Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day.....	206
Figure 3-18 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 1 by Day of the Week.....	207
Figure 3-19 Probability That No Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week .....	207
Figure 3-20 Probability That Only One Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week .....	208
Figure 3-21 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Friday in District 1 by Hour of the Day .....	208
Figure 3-22 Average Probability That No Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call on Friday by Hour of the Day .....	209

Figure 3-23 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Saturday in District 1 by Hour of the Day .....	209
Figure 3-24 Average Probability That No Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call on Saturday by Hour of the Day .....	210
Figure 3-25 Average Number of BET Units Deployed in District 2 by Hour of the Day.....	213
Figure 3-26 Average Number of Uniform Patrol Units Deployed in District 2 by Hour of the Day.....	215
Figure 3-27 Average Number of Regular Patrol Units Deployed in District 2 by Hour of the Day.....	216
Figure 3-28 Proportion of Two-Officer Units Deployed in District 2 by Shift.....	220
Figure 3-29 Probability Distribution of the Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 2 .....	221
Figure 3-30 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 2 by Hour of the Day .....	223
Figure 3-31 Average Probability That No Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day .....	223
Figure 3-32 Average Probability That Only One Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day .....	224
Figure 3-33 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 2 by Day of the Week.....	225
Figure 3-34 Probability That No Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week .....	225
Figure 3-35 Probability That Only One Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week .....	226
Figure 3-36 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Friday in District 2 by Hour of the Day .....	226
Figure 3-37 Average Probability That No Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call on Friday by Hour of the Day .....	227
Figure 3-38 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Saturday in District 2 by Hour of the Day .....	227
Figure 3-39 Average Probability That No Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call on Friday by Hour of the Day .....	228
Figure 3-40 Average Number of Uniform Patrol Units Deployed in District 3 by Hour of the Day.....	231
Figure 3-41 Average Number of Regular Patrol Units Deployed in District 3 by Hour of the Day.....	232
Figure 3-42 Proportion of Two-Officer Units Deployed in District 3 by Shift.....	236
Figure 3-43 Probability Distribution of the Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 3 .....	237
Figure 3-44 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 3 by Hour of the Day .....	239

Figure 3-45 Average Probability That No Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day ..... 239

Figure 3-46 Average Probability That Only One Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day ..... 240

Figure 3-47 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 3 by Day of the Week..... 241

Figure 3-48 Probability That No Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week ..... 241

Figure 3-49 Probability That Only One Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week ..... 242

Figure 3-50 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Friday in District 3 by Hour of the Day ..... 242

Figure 3-51 Average Probability That No Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call on Friday by Hour of the Day ..... 243

Figure 3-52 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Saturday in District 3 by Hour of the Day ..... 243

Figure 3-53 Average Probability That No Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call on Saturday by Hour of the Day ..... 244

Figure 3-54 Average Number of Uniform Patrol Units Deployed in District 4 by Hour of the Day..... 247

Figure 3-55 Average Number of Regular Patrol Units Deployed in District 4 by Hour of the Day..... 248

Figure 3-56 Proportion of Two-Officer Units Deployed in District 4 by Shift..... 252

Figure 3-57 Probability Distribution of the Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 4 ..... 253

Figure 3-58 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 4 by Hour of the Day ..... 255

Figure 3-59 Average Probability That No Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day ..... 255

Figure 3-60 Average Probability That Only One Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day..... 256

Figure 3-61 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 4 by Day of the Week..... 257

Figure 3-62 Probability That No Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week ..... 257

Figure 3-63 Probability That Only One Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week ..... 258

Figure 3-64 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Friday in District 4 by Hour of the Day ..... 258

Figure 3-65 Average Probability That No Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call on Friday by Hour of the Day .....	259
Figure 3-66 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Saturday in District 4 by Hour of the Day .....	259
Figure 3-67 Average Probability That No Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call on Saturday by Hour of the Day .....	260
Figure 3-68 Total Number of Regular Patrol Units Deployed by District .....	260
Figure 3-69 Average Number of Calls Dispatched per Regular Patrol Unit by District.....	261
Figure 3-70 Proportion of Two-Officer Units Deployed by District .....	262
Figure 3-71 Proportion of Two-Officer Units Deployed During the Alpha Shift by District.....	263
Figure 3-72 Proportion of Two-Officer Units Deployed During the Bravo or BET Foxtrot Shift by District.....	263
Figure 3-73 Proportion of Two-Officer Units Deployed During the Charlie Shift by District .....	264
Figure 3-74 Proportion of Two-Officer Units Deployed During the Delta or BET Golf Shift by District.....	264
Figure 3-75 Proportion of Two-Officer Units Deployed During the Echo Shift by District.....	265
Figure 4-1 Number of Recorded Calls for Service .....	268
Figure 4-2 Proportion of Calls Dispatched at the Richmond RCMP Detachment .....	269
Figure 4-3 Number of Calls Not Dispatched to a Police Unit.....	270
Figure 4-4 General Broadcasts Not Dispatched by Call Type .....	271
Figure 4-5 Calls Cancelled Before Being Dispatched by Call Type .....	274
Figure 4-6 Proportion of Calls Cancelled at the Richmond RCMP Detachment .....	275
Figure 4-7 Calls Handled by Civilian Report Takers by Call Type.....	277
Figure 4-8 Proportion of Calls Handled by Civilian Report Takers at the Richmond RCMP Detachment.....	278
Figure 4-9 Number of Dispatched Calls for Service by Type of Unit .....	279
Figure 4-10 Number of Emergency 9-1-1 Calls, On-View Calls and Telephone Calls Dispatched to Regular Patrol Units by Source.....	280
Figure 4-11 Number of Calls Dispatched to Regular Patrol Units by District .....	281
Figure 4-12 Number of Criminal Incidents by District .....	301
Figure 4-13 Number of Criminal Incidents and Calls Dispatched to Regular Patrol Units by District.....	302
Figure 4-14 Proportion of Criminal Incidents Among the Calls Dispatched to Regular Patrol Units by District .....	303
Figure 4-15 Number of Thefts from Motor Vehicle Dispatched to Regular Patrol Units by District .....	304
Figure 4-16 Number of Shoplifters Dispatched to Regular Patrol Units by District .....	304
Figure 4-17 Number of Serious Assaults Dispatched to Regular Patrol Units by District .....	306
Figure 4-18 Robberies with a Firearm Dispatched to Regular Patrol Units.....	306
Figure 4-19 Residential Break and Enters Dispatched to Regular Patrol Units .....	307
Figure 4-20 Total Number of Calls Dispatched to Regular Patrol Units by Priority .....	309
Figure 4-21 Proportion of Calls Dispatched to Regular Patrol Units That Involved a Criminal Offence... 310	

Figure 4-22 Proportion of Calls Dispatched to Regular Patrol Units in District 1 That Involved a Criminal Offence.....	311
Figure 4-23 Proportion of Calls Dispatched to Regular Patrol Units in District 2 That Involved a Criminal Offence.....	312
Figure 4-24 Proportion of Calls Dispatched to Regular Patrol Units in District 3 That Involved a Criminal Offence.....	313
Figure 4-25 Proportion of Calls Dispatched to Regular Patrol Units in District 4 That Involved a Criminal Offence.....	314
Figure 4-26 Proportion of Priority 1 Criminal Incidents by District .....	314
Figure 4-27 Proportion of Priority 2 Criminal Incidents by District .....	315
Figure 4-28 Proportion of Priority 1 Criminal Incidents by District (Excluding MVI with Injuries) .....	316
Figure 4-29 Number of Emergency 9-1-1 Calls by Priority .....	320
Figure 4-30 Number of Emergency 9-1-1 Calls by District .....	325
Figure 4-31 Number of Emergency 9-1-1 Calls in District 1 by Priority .....	325
Figure 4-32 Number of Emergency 9-1-1 Calls in District 2 by Priority .....	326
Figure 4-33 Number of Emergency 9-1-1 Calls in District 3 by Priority .....	327
Figure 4-34 Number of Emergency 9-1-1 Calls in District 4 by Priority .....	327
Figure 4-35 Number of Priority 1 Emergency 9-1-1 Calls by District.....	328
Figure 4-36 Number of Priority 2 Emergency 9-1-1 Calls by District.....	329
Figure 4-37 Number of Priority 3 Emergency 9-1-1 Calls by District.....	329
Figure 4-38 Number of Priority 4 Emergency 9-1-1 Calls by District.....	330
Figure 4-39 Number of Emergency 9-1-1 Calls That Involved a Criminal Offence by Priority .....	333
Figure 4-40 Proportion of Emergency 9-1-1 Calls That Involved a Criminal Offence by Priority .....	333
Figure 4-41 Proportion of Emergency 9-1-1 Calls in District 1 That Involved a Criminal Offence by Priority .....	334
Figure 4-42 Proportion of Emergency 9-1-1 Calls in District 2 That Involved a Criminal Offence by Priority .....	335
Figure 4-43 Proportion of Emergency 9-1-1 Calls in District 3 That Involved a Criminal Offence by Priority .....	335
Figure 4-44 Proportion of Emergency 9-1-1 Calls in District 4 That Involved a Criminal Offence by Priority .....	336
Figure 4-45 Proportion of Priority 1 Emergency 9-1-1 Calls That Involved a Criminal Offence by District .....	337
Figure 4-46 Number of On-View Calls by Priority .....	341
Figure 4-47 Number of On-View Calls by District .....	344
Figure 4-48 Number of On-View Calls in District 1 by Priority .....	346
Figure 4-49 Number of On-View Calls in District 2 by Priority .....	348



Figure 4-50 Number of On-View Calls in District 3 by Priority .....	349
Figure 4-51 Number of On-View Calls in District 4 by Priority .....	350
Figure 4-52 Number of Priority 1 On-View Calls by District.....	352
Figure 4-53 Number of Priority 2 On-View Calls by District.....	352
Figure 4-54 Number of Priority 3 On-View Calls by District.....	353
Figure 4-55 Number of Priority 4 On-View Calls by District.....	353
Figure 4-56 Proportion of On-View Calls That Involved a Criminal Offence by Priority .....	354
Figure 4-57 Proportion of Priority 1 Emergency 9-1-1 and On-View Calls That Involved a Criminal Offence .....	355
Figure 4-58 Proportion of On-View Calls in District 1 That Involved a Criminal Offence.....	356
Figure 4-59 Proportion of On-View Calls in District 2 That Involved a Criminal Offence.....	357
Figure 4-60 Proportion of On-View Calls in District 3 That Involved a Criminal Offence.....	358
Figure 4-61 Proportion of On-View Calls in District 4 That Involved a Criminal Offence.....	358
Figure 4-62 Proportion of Priority 1 On-View Calls That Involved a Criminal Offence by District .....	359
Figure 4-63 Number of Telephone Calls by Priority.....	361
Figure 4-64 Number of Telephone Calls by District.....	364
Figure 4-65 Number of Telephone Calls in District 1 by Priority.....	365
Figure 4-66 Number of Telephone Calls in District 2 by Priority.....	366
Figure 4-67 Number of Telephone Calls in District 3 by Priority.....	367
Figure 4-68 Number of Telephone Calls in District 4 by Priority.....	368
Figure 4-69 Proportion of Telephone Calls That Involved a Criminal Offence by Priority .....	370
Figure 4-70 Proportion of Priority 1 Emergency 9-1-1 Calls, On-View Incidents and Telephone Calls That Involved a Criminal Offence.....	370
Figure 4-71 Proportion of Telephone Calls in District 1 That Involved a Criminal Offence by Priority .....	371
Figure 4-72 Proportion of Telephone Calls in District 2 That Involved a Criminal Offence by Priority .....	372
Figure 4-73 Proportion of Telephone Calls in District 3 That Involved a Criminal Offence by Priority .....	373
Figure 4-74 Proportion of Telephone Calls in District 4 That Involved a Criminal Offence by Priority .....	374
Figure 4-75 Proportion of Founded Alarms by District.....	375
Figure 4-76 Proportion of Founded Alarms by Type of Alarm .....	376
Figure 4-77 Total Service Time Spent by Regular Patrol Units at Problem Locations by Type of Unit....	381
Figure 4-78 Liquor Establishments Who Participated in the 2003 Pilot Project .....	386
Figure 4-79 Average Net Number of Patrons Exiting from the Participating Establishments per Minute During the 2003 Pilot Project .....	387
Figure 4-80 Number of Calls Recorded in the Entertainment District Between June and November.....	391
Figure 4-81 Percentage of District 1 Calls Recorded in the Entertainment District Between June and November.....	391
Figure 4-82 Number of Fights Recorded in the Entertainment District Between June and November ....	392

Figure 4-83 Number of Assaults in Progress and Stabbings Recorded in the Entertainment District Between June and November.....	393
Figure 4-84 Number of Disturbance and Annoyance Calls Recorded in the Entertainment District Between June and November.....	394
Figure 4-85 Number of Disturbance and Annoyance Calls Recorded in Gastown Between June and November.....	394
Figure 4-86 Number of Suspicious Circumstances, Persons and Vehicles Recorded in the Entertainment District Between June and November.....	395
Figure 4-87 Number of Requests for Assistance from the General Public Dispatched in the Entertainment District Between June and November.....	395
Figure 4-88 Number of Shots Fired or Shots Heard Calls Dispatched in the Entertainment District Between June and November.....	396
Figure 4-89 Average Number of Dispatched Calls per Sworn Officer in Other Canadian Police Agencies .....	398
Figure 5-1 Number of Calls Citywide by Hour of the Day .....	404
Figure 5-2 Percentage of Calls by Hour of the Day at the Seattle Police Department and the Richmond RCMP Detachment .....	405
Figure 5-3 Average Number of Priority 1 Calls Citywide by Hour of the Day .....	406
Figure 5-4 Average Number of Priority 2 Calls Citywide by Hour of the Day .....	406
Figure 5-5 Proportion of Calls Dispatched at Night by District.....	409
Figure 5-6 Number of Calls in District 1 by Hour of the Day.....	414
Figure 5-7 Number of Calls in District 2 by Hour of the Day.....	419
Figure 5-8 Number of Calls in District 3 by Hour of the Day.....	424
Figure 5-9 Number of Calls in District 4 by Hour of the Day.....	429
Figure 5-10 Number of Calls by Day of the Week Citywide.....	432
Figure 5-11 Number of Calls in District 1 by Day of the Week .....	433
Figure 5-12 Number of Calls in District 2 by Day of the Week .....	433
Figure 5-13 Number of Calls in District 3 by Day of the Week .....	434
Figure 5-14 Number of Calls in District 4 by Day of the Week .....	434
Figure 5-15 Number of Calls on Friday Night by Hour.....	435
Figure 5-16 Number of Calls on Saturday Night by Hour .....	436
Figure 5-17 Average Number of Calls Waiting to be Dispatched on Friday and Saturday at Midnight by District .....	439
Figure 5-18 Proportion of Calls Dispatched on Friday Night by District .....	446
Figure 5-19 Proportion of Calls Dispatched on Saturday Night by District.....	447
Figure 5-20 Number of Calls on Friday and Saturday Night by District (Excluding Disturbance Calls and Licensed Premises Checks).....	449

Figure 5-21 Distribution of Calls by Day of the Year.....	450
Figure 5-22 Average Number of Calls by Day of the Week.....	450
Figure 5-23 Distribution of Calls by Month.....	456
Figure 5-24 Proportion of Disturbance Calls and Fights on the 25 Busiest Days of the Year.....	457
Figure 5-25 Distribution of Calls by Day of the Year (Excluding Noise Complaints, Disturbing Parties and Fights) .....	458
Figure 5-26 Proportion of Calls by District .....	459
Figure 5-27 Proportion of Calls by Priority .....	460
Figure 5-28 Proportion of Calls by Source.....	460
Figure 6-1 Distribution of Regular Patrol Units per Call.....	463
Figure 6-2 Average Number of Regular Patrol Units by Priority .....	464
Figure 6-3 Average Number of Regular Patrol Units to Suspicious Circumstances by Priority .....	465
Figure 6-4 Average Number of Regular Patrol Units to Fights, Assaults and Weapons in Progress.....	466
Figure 6-5 Average Number of Regular Patrol Units to Missing Persons and Missing Children.....	467
Figure 6-6 Average Number of Regular Patrol Units to Neighbour Disputes, Domestic Situations and Domestic Violence Situations .....	467
Figure 6-7 Average Number of Regular Patrol Units to Thefts, Thefts from Vehicle and Thefts of Vehicle .....	468
Figure 6-8 Average Number of Regular Patrol Units to Break and Enters and Home Invasions .....	469
Figure 6-9 Average Number of Regular Patrol Units to Robberies.....	469
Figure 6-10 Average Number of Regular Patrol Units to Sexual Assaults .....	470
Figure 6-11 Average Number of Regular Patrol Units to Founded Robberies .....	471
Figure 6-12 Average Number of Regular Patrol Units to Domestic Disputes, Assaults and Homicides ..	472
Figure 6-13 Average Number of Regular Patrol Units to Serious Motor Vehicle Incidents .....	473
Figure 6-14 Average Number of Regular Patrol Units to Founded Impaired Driving Incidents.....	474
Figure 6-15 Average Number of Regular Patrol Units Dispatched to High Priority Calls at Night by District .....	485
Figure 6-16 Average Number of Regular Patrol Units Dispatched by District .....	488
Figure 6-17 Average Number of Regular Patrol Units Dispatched to Fights by District .....	493
Figure 6-18 Average Number of Regular Patrol Units Dispatched to Suicidal Persons by District .....	493
Figure 6-19 Proportion of Single-Officer and Two-Officer Regular Patrol Units Dispatched Citywide .....	500
Figure 6-20 Proportion of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 1 .	501
Figure 6-21 Proportion of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 2 .	502
Figure 6-22 Proportion of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 3 .	503
Figure 6-23 Proportion of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 4 .	504
Figure 6-24 Proportion of Two-Officer Regular Patrol Units Dispatched by District .....	505

Figure 6-25 Proportion of Two-Officer Regular Patrol Units Dispatched to Annoying Circumstances by District .....	505
Figure 6-26 Proportion of Two-Officer Regular Patrol Units Dispatched to Thefts by District.....	506
Figure 6-27 Proportion of Two-Officer Regular Patrol Units Dispatched to Requests for Assistance from the General Public by District.....	507
Figure 6-28 Proportion of Two-Officer Regular Patrol Units Dispatched to Noise Complaints by District	507
Figure 6-29 Proportion of Two-Officer Regular Patrol Units Dispatched to Break and Enters by District	508
Figure 6-30 Proportion of Two-Officer Regular Patrol Units Dispatched to Assaults by District .....	509
Figure 6-31 Proportion of Two-Officer Regular Patrol Units Dispatched to Alarms by District.....	509
Figure 6-32 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only One Unit Citywide .....	510
Figure 6-33 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only Two Units Citywide .....	511
Figure 6-34 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only One Unit in District 1 .....	512
Figure 6-35 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only Two Units in District 1 .....	512
Figure 6-36 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only One Unit in District 2 .....	513
Figure 6-37 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only Two Units in District 2 .....	514
Figure 6-38 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only One Unit in District 3 .....	515
Figure 6-39 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only Two Units in District 3 .....	515
Figure 6-40 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only One Unit in District 3 .....	516
Figure 6-41 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched to Calls with Only One or Two Units Citywide.....	517
Figure 6-42 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched to Calls with Three Units Citywide .....	518
Figure 6-43 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched to Calls with Four Units Citywide .....	518
Figure 6-44 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched to Calls with Five Units Citywide .....	519
Figure 6-45 Proportion of One-Officer Units Dispatched to Hazardous Situations by District.....	529
Figure 6-46 Proportion of One-Officer Units Dispatched to Suspicious Vehicles by District.....	530

Figure 6-47 Proportion of Two-Officer Units Dispatched to Suspicious Vehicles by District.....	531
Figure 6-48 Proportion of Two-Officer Units by Priority .....	533
Figure 6-49 Proportion of Two-Officer Units by Hour of the Day Citywide .....	535
Figure 6-50 Proportion of Two-Officer Units by Time of Day Citywide .....	535
Figure 6-51 Proportion of Two-Officer Units by Time of Day in District 1 .....	536
Figure 6-52 Proportion of Two-Officer Units by Time of Day in District 2.....	536
Figure 6-53 Proportion of Two-Officer Units by Time of Day in District 3.....	537
Figure 6-54 Proportion of Two-Officer Units by Hour of the Day in District 4.....	537
Figure 6-55 Proportion of Two-Officer Units Dispatched to Priority 1 Calls.....	538
Figure 6-56 Proportion of Two-Officer Units Dispatched to Priority 2 Calls.....	539
Figure 6-57 Proportion of Two-Officer Units Dispatched to Priority 3 Calls.....	539
Figure 6-58 Proportion of Two-Officer Units Dispatched to Priority 4 Calls.....	540
Figure 6-59 Proportion of Two-Officer Units Dispatched to Emergency 9-1-1 Calls .....	541
Figure 6-60 Proportion of Two-Officer Units Dispatched to On-View Calls .....	541
Figure 6-61 Proportion of Two-Officer Units Dispatched to Telephone Calls.....	542
Figure 6-62 Proportion of Two-Officer Units Dispatched to Calls with Only One Regular Patrol Unit by Source Citywide .....	543
Figure 6-63 Proportion of Two-Officer Units That Handled On-View Calls with Only One Regular Patrol Unit Citywide .....	544
Figure 6-64 Proportion of Suspicious Persons Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor.....	546
Figure 6-65 Proportion of Abandoned 9-1-1 Calls Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor.....	547
Figure 6-66 Proportion of Requests for Assistance from the Provincial Ambulance Service Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor .....	548
Figure 6-67 Proportion of Break and Enters Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor.....	551
Figure 6-68 Proportion of Mischiefs Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor .....	551
Figure 6-69 Proportion of Thefts from Motor Vehicle Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor.....	552
Figure 6-70 Queuing Delay, Travel Time, On-Scene Time, Response Time and Service Time.....	554
Figure 6-71 Total Service Time by Type of Unit .....	556
Figure 6-72 Average Service Time by Type of Unit.....	556
Figure 6-73 Total Service Time by Single-Officer and Two-Officer Regular Patrol Units.....	557
Figure 6-74 Average Service Time by Single-Officer and Two-Officer Regular Patrol Units .....	557
Figure 6-75 Total Service Time on Priority 1 Calls by Type of Unit.....	559

Figure 6-76 Average Service Time on Priority 1 Calls by Type of Unit .....	559
Figure 6-77 Total Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units .....	560
Figure 6-78 Average Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units .....	560
Figure 6-79 Total Service Time on Priority 2 Calls by Type of Unit.....	562
Figure 6-80 Average Service Time on Priority 2 Calls by Type of Unit .....	562
Figure 6-81 Total Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units .....	563
Figure 6-82 Average Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units .....	563
Figure 6-83 Total Service Time on Priority 3 Calls by Type of Unit.....	565
Figure 6-84 Average Service Time on Priority 3 Calls by Type of Unit .....	565
Figure 6-85 Total Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units .....	566
Figure 6-86 Average Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units .....	566
Figure 6-87 Total Service Time on Priority 4 Calls by Type of Unit.....	568
Figure 6-88 Average Service Time on Priority 4 Calls by Type of Unit .....	568
Figure 6-89 Total Service Time on Priority 4 Calls by Single-Officer and Two-Officer Regular Patrol Units .....	569
Figure 6-90 Average Service Time on Priority 4 Calls by Single-Officer and Two-Officer Regular Patrol Units .....	569
Figure 6-91 Total Service Time by Priority.....	570
Figure 6-92 Average Service Time by Priority .....	570
Figure 6-93 Total Service Time of Regular Patrol Units by Priority .....	571
Figure 6-94 Average Service Time of Regular Patrol Units by Priority.....	571
Figure 6-95 Total Service Time of Uniform Patrol Units by Priority .....	572
Figure 6-96 Average Service Time of Uniform Patrol Units by Priority.....	572
Figure 6-97 Total Service Time of Plainclothes Patrol Units by Priority .....	573
Figure 6-98 Average Service Time of Plainclothes Patrol Units by Priority.....	573
Figure 6-99 Total Service Time of Patrol Beat Units by Priority .....	574
Figure 6-100 Average Service Time of Patrol Beat Units by Priority.....	574
Figure 6-101 Total Service Time of BET Units by Priority .....	575
Figure 6-102 Average Service Time of BET Units by Priority.....	575
Figure 6-103 Total Service Time of Patrol Supervisors by Priority .....	576
Figure 6-104 Average Service Time of Patrol Supervisors by Priority .....	576

Figure 6-105 Total Service Time of Patrol Wagons by Priority.....	577
Figure 6-106 Average Service Time of Patrol Wagons by Priority .....	577
Figure 6-107 Total Service Time of Single-Officer Regular Patrol Units by Priority .....	578
Figure 6-108 Average Service Time of Single-Officer Regular Patrol Units by Priority.....	578
Figure 6-109 Total Service Time of Two-Officer Regular Patrol Units by Priority .....	579
Figure 6-110 Average Service Time of Two-Officer Regular Patrol Units by Priority .....	579
Figure 6-111 Proportion of Dispatched Calls Attended by Patrol Supervisors by Priority.....	580
Figure 6-112 Proportion of Dispatched Calls Attended by Plainclothes Patrol Units by Priority .....	581
Figure 6-113 Proportion of Dispatched Calls Attended by Uniform Patrol Units by Priority .....	582
Figure 6-114 Proportion of Dispatched Calls Attended by BET Units by Priority .....	582
Figure 6-115 Proportion of Dispatched Calls Attended by Patrol Wagons by Priority.....	583
Figure 6-116 Total Service Time on Emergency 9-1-1 Calls by Type of Unit .....	584
Figure 6-117 Average Service Time on Emergency 9-1-1 Calls by Type of Unit.....	585
Figure 6-118 Total Service Time on Emergency 9-1-1 Calls by Single-Officer and Two-Officer Regular Patrol Units.....	586
Figure 6-119 Average Service Time on Emergency 9-1-1 Calls by Single-Officer and Two-Officer Regular Patrol Units.....	586
Figure 6-120 Total Service Time on Telephone Calls by Type of Unit .....	588
Figure 6-121 Average Service Time on Telephone Calls by Type of Unit.....	588
Figure 6-122 Total Service Time on Telephone Calls by Single-Officer and Two-Officer Regular Patrol Units .....	589
Figure 6-123 Average Service Time on Telephone Calls by Single-Officer and Two-Officer Regular Patrol Units .....	589
Figure 6-124 Total Service Time on On-View Calls by Type of Unit .....	591
Figure 6-125 Average Service Time on On-View Calls by Type of Unit.....	591
Figure 6-126 Total Service Time on On-View Calls by Single-Officer and Two-Officer Regular Patrol Units .....	592
Figure 6-127 Average Service Time on On-View Calls by Single-Officer and Two-Officer Regular Patrol Units .....	593
Figure 6-128 Average Service Time by Regular Patrol Units on Motor Vehicle Incidents and Traffic Suspensions.....	594
Figure 6-129 Average Service Time by Regular Patrol Units on Domestic Situations, Domestic Violence Situations and Fights.....	595
Figure 6-130 Average Service Time by Regular Patrol Units on Alarms.....	596
Figure 6-131 Average Service Time by Regular Patrol Units on Suspicious Circumstances and Annoying Circumstances .....	597

Figure 6-132 Average Service Time by Regular Patrol Units on Annoying Circumstances, Noise Complaints, Disturbing Parties and Hazardous Situations .....	598
Figure 6-133 Average Service Time by Regular Patrol Units on Suspicious Persons and Suspicious Vehicles.....	600
Figure 6-134 Average Service Time by Regular Patrol Units on Missing Children, Suicidal, Violent, Unwanted, Missing, Disturbed and Intoxicated Persons .....	602
Figure 6-135 Average Service Time by Regular Patrol Units on Requests for Assistance from the General Public, the Provincial Ambulance Service, Other Agencies and the Fire Department .....	604
Figure 6-136 Average Service Time by Regular Patrol Units on Welfare Checks, Intelligence Calls and Licensed Premises Checks.....	605
Figure 6-137 Average Service Time by Regular Patrol Units on Court Order Breaches, Warrants and Arrests.....	606
Figure 6-138 Average Service Time by Regular Patrol Units on Arsons and Unfounded Arsons.....	607
Figure 6-139 Average Service Time by Regular Patrol Units on Assaults and Unfounded Assaults.....	609
Figure 6-140 Average Service Time by Regular Patrol Units on Probation Breaches, Parole Violations and Bail Violations.....	611
Figure 6-141 Average Service Time by Regular Patrol Units on Break and Enters and Unfounded Break and Enters.....	612
Figure 6-142 Average Service Time by Regular Patrol Units on Indecent Acts and Unfounded Indecent Acts .....	613
Figure 6-143 Average Service Time by Regular Patrol Units on Criminal Harassment Cases, Harassing Phone Calls and Unfounded Stalking or Harassment Calls .....	614
Figure 6-144 Average Service Time by Regular Patrol Units on Impaired Driving Cases and Unfounded Impaired Drivers.....	615
Figure 6-145 Average Service Time by Regular Patrol Units on Hit and Run and Unfounded Hit and Run .....	616
Figure 6-146 Average Service Time by Regular Patrol Units on Extortion or Intimidation Cases and Unfounded Extortion Calls .....	617
Figure 6-147 Average Service Time by Regular Patrol Units on Shootings, Weapon-Related Incidents and Unfounded Weapon-Related Incidents.....	618
Figure 6-148 Average Service Time by Regular Patrol Units on Frauds, Counterfeit Currency Cases and Unfounded Frauds .....	620
Figure 6-149 Average Service Time by Regular Patrol Units on Mischiefs and Unfounded Mischiefs....	621
Figure 6-150 Average Service Time by Regular Patrol Units on Robberies and Unfounded Robberies .	622
Figure 6-151 Average Service Time by Regular Patrol Units on Sexual Assaults and Unfounded Sexual Assaults.....	624



Figure 6-152 Average Service Time by Regular Patrol Units on Thefts of Motor Vehicles and Unfounded Thefts of Motor Vehicles .....	625
Figure 6-153 Average Service Time by Regular Patrol Units on Thefts and Unfounded Thefts .....	626
Figure 6-154 Average Service Time by Regular Patrol Units on Threats and Unfounded Threats.....	627
Figure 6-155 Average Service Time by Regular Patrol Units on Drug-Related Cases .....	628
Figure 6-156 Total Service Time by Type of Unit in District 1 .....	630
Figure 6-157 Average Service Time by Type of Unit in District 1 .....	630
Figure 6-158 Total Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 1....	631
Figure 6-159 Average Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 1 .....	631
Figure 6-160 Total Service Time on Priority 1 Calls by Type of Unit in District 1 .....	632
Figure 6-161 Average Service Time on Priority 1 Calls by Type of Unit in District 1.....	633
Figure 6-162 Total Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1.....	633
Figure 6-163 Average Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1 .....	634
Figure 6-164 Total Service Time on Priority 2 Calls by Type of Unit in District 1 .....	635
Figure 6-165 Average Service Time on Priority 2 Calls by Type of Unit in District 1.....	635
Figure 6-166 Total Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1.....	636
Figure 6-167 Average Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1 .....	636
Figure 6-168 Total Service Time on Priority 3 Calls by Type of Unit in District 1 .....	637
Figure 6-169 Average Service Time on Priority 3 Calls by Type of Unit in District 1.....	638
Figure 6-170 Total Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1.....	638
Figure 6-171 Average Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1 .....	639
Figure 6-172 Total Service Time on Lower Priority Calls by Type of Unit in District 1 .....	640
Figure 6-173 Average Service Time on Lower Priority Calls by Type of Unit in District 1.....	640
Figure 6-174 Total Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1 .....	641
Figure 6-175 Average Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1 .....	641
Figure 6-176 Total Service Time by Type of Unit in District 2 .....	643
Figure 6-177 Average Service Time by Type of Unit in District 2.....	643
Figure 6-178 Total Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 2....	644

Figure 6-179 Average Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 2 .....	644
Figure 6-180 Total Service Time on Priority 1 Calls by Type of Unit in District 2 .....	645
Figure 6-181 Average Service Time on Priority 1 Calls by Type of Unit in District 2.....	646
Figure 6-182 Total Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2.....	646
Figure 6-183 Average Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2 .....	647
Figure 6-184 Total Service Time on Priority 2 Calls by Type of Unit in District 2 .....	648
Figure 6-185 Average Service Time on Priority 2 Calls by Type of Unit in District 2.....	648
Figure 6-186 Total Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2.....	649
Figure 6-187 Average Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2 .....	649
Figure 6-188 Total Service Time on Priority 3 Calls by Type of Unit in District 2 .....	650
Figure 6-189 Average Service Time on Priority 3 Calls by Type of Unit in District 2.....	651
Figure 6-190 Total Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2.....	651
Figure 6-191 Average Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2 .....	652
Figure 6-192 Total Service Time on Lower Priority Calls by Type of Unit in District 2 .....	653
Figure 6-193 Average Service Time on Lower Priority Calls by Type of Unit in District 2.....	653
Figure 6-194 Total Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2 .....	654
Figure 6-195 Average Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2.....	654
Figure 6-196 Total Service Time by Type of Unit in District 3 .....	656
Figure 6-197 Average Service Time by Type of Unit in District 3.....	656
Figure 6-198 Total Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 3....	657
Figure 6-199 Average Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 3 .....	657
Figure 6-200 Total Service Time on Priority 1 Calls by Type of Unit in District 3 .....	658
Figure 6-201 Average Service Time on Priority 1 Calls by Type of Unit in District 3.....	659
Figure 6-202 Total Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3.....	659
Figure 6-203 Average Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3 .....	660

Figure 6-204 Total Service Time on Priority 2 Calls by Type of Unit in District 3 .....	661
Figure 6-205 Average Service Time on Priority 2 Calls by Type of Unit in District 3.....	661
Figure 6-206 Total Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3.....	662
Figure 6-207 Average Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3 .....	662
Figure 6-208 Total Service Time on Priority 3 Calls by Type of Unit in District 3 .....	663
Figure 6-209 Average Service Time on Priority 3 Calls by Type of Unit in District 3.....	664
Figure 6-210 Total Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3.....	664
Figure 6-211 Average Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3 .....	665
Figure 6-212 Total Service Time on Lower Priority Calls by Type of Unit in District 3 .....	666
Figure 6-213 Average Service Time on Lower Priority Calls by Type of Unit in District 3.....	666
Figure 6-214 Total Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3 .....	667
Figure 6-215 Average Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3.....	667
Figure 6-216 Total Service Time by Type of Unit in District 4 .....	669
Figure 6-217 Average Service Time by Type of Unit in District 4 .....	669
Figure 6-218 Total Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 4....	670
Figure 6-219 Average Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 4 .....	670
Figure 6-220 Total Service Time on Priority 1 Calls by Type of Unit in District 4 .....	671
Figure 6-221 Average Service Time on Priority 1 Calls by Type of Unit in District 4.....	672
Figure 6-222 Total Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4.....	672
Figure 6-223 Average Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4 .....	673
Figure 6-224 Total Service Time on Priority 2 Calls by Type of Unit in District 4 .....	674
Figure 6-225 Average Service Time on Priority 2 Calls by Type of Unit in District 4.....	674
Figure 6-226 Total Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4.....	675
Figure 6-227 Average Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4 .....	675
Figure 6-228 Total Service Time on Priority 3 Calls by Type of Unit in District 4 .....	676
Figure 6-229 Average Service Time on Priority 3 Calls by Type of Unit in District 4.....	677

Figure 6-230 Total Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4.....	677
Figure 6-231 Average Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4 .....	678
Figure 6-232 Total Service Time on Lower Priority Calls by Type of Unit in District 4 .....	679
Figure 6-233 Average Service Time on Lower Priority Calls by Type of Unit in District 4.....	679
Figure 6-234 6-235 Total Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4.....	680
Figure 6-236 Average Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4.....	680
Figure 6-237 Average Service Time by Regular Patrol Units per Call by District.....	681
Figure 6-238 Average Service Time per Dispatched Regular Patrol Unit by District .....	682
Figure 6-239 Total Service Time by Regular Patrol Units by District.....	683
Figure 6-240 Total Service Time by Patrol Supervisors by District .....	683
Figure 6-241 Average Service Time by Patrol Supervisors per Call by District .....	684
Figure 6-242 Average Service Time by Regular Patrol Units per Priority 1 Call by District .....	685
Figure 6-243 Average Service Time by Plainclothes Patrol Units per Priority 1 Call by District .....	686
Figure 6-244 Average Service Time by Regular Patrol Units per Priority 2 Call by District .....	686
Figure 6-245 Average Service Time by Regular Patrol Units per Priority 3 Call by District .....	687
Figure 6-246 Average Service Time by Regular Patrol Units per Lower Priority Call by District .....	688
Figure 6-247 Average Service Time by Uniform Patrol Units per Lower Priority Call by District .....	689
Figure 6-248 Average Service Time by Regular Patrol Units on Common Assaults by District.....	690
Figure 6-249 Average Service Time by Regular Patrol Units on Shoplifters by District.....	690
Figure 6-250 Average Service Time by Regular Patrol Units on Threatening Cases by District .....	691
Figure 6-251 Average Service Time by Regular Patrol Units on Criminal Harassment Cases by District.....	692
Figure 6-252 Average Service Time by Regular Patrol Units on Possession of Stolen Property Cases by District .....	692
Figure 6-253 Average Service Time by Regular Patrol Units on Impaired Driving Cases by District .....	693
Figure 6-254 Average Service Time by Regular Patrol Units on Unfounded Impaired Drivers by District .....	693
Figure 6-255 Average Service Time by Regular Patrol Units on Hit and Run by District.....	694
Figure 6-256 Average Service Time by Regular Patrol Units on Cocaine Possession Cases by District.....	694
Figure 6-257 Average Service Time by Regular Patrol Units on Cannabis Possession Cases by District .....	695
Figure 6-258 Average Service Time by Regular Patrol Units on Cocaine Trafficking Cases by District.....	696
Figure 6-259 Average Service Time by Regular Patrol Units on Cannabis Trafficking Cases by District.....	697
Figure 6-260 Average Service Time by Regular Patrol Units on Weapon Possession Cases by District.....	698

Figure 6-261 Average Service Time by Regular Patrol Units on Property Arsons by District .....	698
Figure 6-262 Average Service Time by Regular Patrol Units on Bail Violations by District .....	699
Figure 6-263 Average Service Time by Regular Patrol Units on Breaches of Peace by District .....	699
Figure 6-264 Average Service Time by Regular Patrol Units on Criminal Code Warrants by District .....	700
Figure 6-265 Average Service Time by Regular Patrol Units on Probation Breaches by District .....	701
Figure 6-266 Average Service Time by Regular Patrol Units on Unarmed Robberies by District.....	701
Figure 6-267 Average Service Time by Regular Patrol Units on Robberies with a Firearm by District....	702
Figure 6-268 Average Service Time by Regular Patrol Units on Unfounded Robberies by District.....	703
Figure 6-269 Average Service Time by Regular Patrol Units on Sexual Assaults by District .....	703
Figure 6-270 Average Service Time by Regular Patrol Units on Commercial Break and Enters by District .....	704
Figure 6-271 Average Service Time by Regular Patrol Units on Unfounded Break and Enters by District .....	704
Figure 6-272 Average Service Time by Regular Patrol Units on Credit or Debit Card Frauds by District	705
Figure 6-273 Average Service Time by Regular Patrol Units on Unfounded Frauds by District .....	705
Figure 6-274 Average Service Time by Regular Patrol Units on Counterfeit Currency Cases by District	706
Figure 6-275 Average Service Time by Regular Patrol Units on Shots Fired Incidents by District.....	707
Figure 6-276 Average Service Time per Call for Service in Other Police Agencies.....	708
Figure 7-1 Average Response Time to Priority 1 Calls Dispatched to Regular Patrol Units by Source...	713
Figure 7-2 Average Response Time to Priority 2 Calls Dispatched to Regular Patrol Units by Source...	715
Figure 7-3 Average Response Time to Priority 3 Calls Dispatched to Regular Patrol Units by Source...	717
Figure 7-4 Average Response Time to Priority 4 Calls Dispatched to Regular Patrol Units by Source...	719
Figure 7-5 Average Response Time by Priority and by Source.....	720
Figure 7-6 Average Response Time to Priority 1 Assaults with a Weapon in Progress, Home Invasions, Robberies in Progress and Weapon-Related Incidents in Progress Dispatched to Regular Patrol Units Citywide.....	721
Figure 7-7 Average Response Time to Persons Screaming, Fights, Jumpers and Shots Fired Incidents Dispatched to Regular Patrol Units Citywide .....	722
Figure 7-8 Average Response Time to Alarms Dispatched to Regular Patrol Units Citywide .....	722
Figure 7-9 Average Response Time to Assaults Citywide.....	723
Figure 7-10 Average Response Time to Domestic Situations Dispatched to Regular Patrol Units Citywide .....	724
Figure 7-11 Average Response Time to Missing Children, Suicidal Persons, Violent Persons and Unwanted Persons Dispatched to Regular Patrol Units Citywide.....	725
Figure 7-12 Average Response Time to Prowlers and Suspicious Persons Citywide .....	726
Figure 7-13 Average Response Time to Motor Vehicle Incidents Citywide.....	727

Figure 7-14 Average Response Time to Disturbing Parties, Noise Complaints, Suspicious Circumstances and Annoying Circumstances Citywide.....	728
Figure 7-15 Average Response Time to Priority 2 Indecent Acts in Progress, Mischiefs in Progress, Frauds in Progress, Thefts in Progress and Thefts from Vehicle Citywide .....	729
Figure 7-16 Average Response Time to Requests for Assistance from the General Public and the Provincial Ambulance Service Citywide.....	730
Figure 7-17 Average Response Time to Priority 1 Calls at the Richmond RCMP Detachment.....	732
Figure 7-18 Average Response Time to Priority 2 Calls at the Richmond RCMP Detachment.....	733
Figure 7-19 Average Response Time to Priority 3 Calls at the Richmond RCMP Detachment.....	733
Figure 7-20 Average Queuing Delay Associated with Priority 1 Calls Dispatched to Regular Patrol Units by District.....	735
Figure 7-21 Average Travel Time to Priority 1 Calls Dispatched to Regular Patrol Units by District .....	736
Figure 7-22 Average Response Time to Priority 1 Calls Dispatched to Regular Patrol Units by District .	736
Figure 7-23 Average Queuing Delay Associated with Priority 2 Calls Dispatched to Regular Patrol Units by District.....	738
Figure 7-24 Average Travel Time to Priority 2 Calls Dispatched to Regular Patrol Units by District .....	738
Figure 7-25 Average Response Time to Priority 2 Calls Dispatched to Regular Patrol Units by District .	739
Figure 7-26 Average Queuing Delay Associated with Priority 3 Calls Dispatched to Regular Patrol Units by District.....	741
Figure 7-27 Average Travel Time to Priority 3 Calls Dispatched to Regular Patrol Units by District .....	742
Figure 7-28 Average Response Time to Priority 3 Calls Dispatched to Regular Patrol Units by District .	743
Figure 7-29 Average Queuing Delay Associated with Priority 4 Calls Dispatched to Regular Patrol Units by District.....	745
Figure 7-30 Average Travel Time to Priority 4 Calls Dispatched to Regular Patrol Units by District .....	746
Figure 7-31 Average Response Time to Priority 4 Calls Dispatched to Regular Patrol Units by District .	747
Figure 7-32 Average Response Time to Priority 1 Assaults with a Weapon in Progress, Robberies in Progress and Weapon-Related Incidents in Progress Dispatched to Regular Patrol Units in District 1 ..	748
Figure 7-33 Average Response Time to Screams, Fights, Jumpers and Shots Fired Incidents Dispatched to Regular Patrol Units in District 1 .....	749
Figure 7-34 Average Response Time to Alarms Dispatched to Regular Patrol Units in District 1 .....	749
Figure 7-35 Average Response Time to Domestic Situations Dispatched to Regular Patrol Units in District 1 .....	750
Figure 7-36 Average Response Time to Missing Children, Suicidal Persons, Violent Persons and Unwanted Persons Dispatched to Regular Patrol Units in District 1 .....	751
Figure 7-37 Average Response Time to Assaults in District 1 .....	752
Figure 7-38 Average Response Time to Motor Vehicle Incidents in District 1 .....	753

Figure 7-39 Average Response Time to Priority 2 Indecent Acts in Progress, Mischiefs in Progress, Frauds in Progress, Thefts in Progress and Thefts from Vehicle in District 1 .....	754
Figure 7-40 Average Response Time to Requests for Assistance from the General Public and the Provincial Ambulance Service in District 1 .....	755
Figure 7-41 Average Response Time to Disturbing Parties, Noise Complaints, Suspicious Circumstances and Annoying Circumstances in District 1 .....	756
Figure 7-42 Average Response Time to Priority 1 Assaults with a Weapon in Progress, Robberies in Progress and Weapon-Related Incidents in Progress Dispatched to Regular Patrol Units in District 2 ..	757
Figure 7-43 Average Response Time to Screams, Fights, Jumpers and Shots Fired Incidents Dispatched to Regular Patrol Units in District 2 .....	758
Figure 7-44 Average Response Time to Alarms Dispatched to Regular Patrol Units in District 2 .....	759
Figure 7-45 Average Response Time to Domestic Situations Dispatched to Regular Patrol Units in District 2 .....	760
Figure 7-46 Average Response Time to Assaults in District 2 .....	761
Figure 7-47 Average Response Time to Missing Children, Suicidal Persons, Violent Persons and Unwanted Persons Dispatched to Regular Patrol Units in District 2 .....	762
Figure 7-48 Average Response Time to Motor Vehicle Incidents in District 2 .....	763
Figure 7-49 Average Response Time to Priority 2 Indecent Acts in Progress, Mischiefs in Progress, Frauds in Progress, Thefts in Progress and Thefts from Vehicle in District 2 .....	764
Figure 7-50 Average Response Time to Requests for Assistance from the General Public and the Provincial Ambulance Service in District 2 .....	765
Figure 7-51 Average Response Time to Disturbing Parties, Noise Complaints, Suspicious Circumstances and Annoying Circumstances in District 2 .....	766
Figure 7-52 Average Response Time to Priority 1 Assaults with a Weapon in Progress, Robberies in Progress and Weapon-Related Incidents in Progress Dispatched to Regular Patrol Units in District 3 ..	767
Figure 7-53 Average Response Time to Screams, Fights and Shots Fired Incidents Dispatched to Regular Patrol Units in District 3 .....	768
Figure 7-54 Average Response Time to Alarms Dispatched to Regular Patrol Units in District 3 .....	769
Figure 7-55 Average Response Time to Assaults in District 3 .....	770
Figure 7-56 Average Response Time to Domestic Situations Dispatched to Regular Patrol Units in District 3 .....	771
Figure 7-57 Average Response Time to Missing Children, Suicidal Persons, Violent Persons and Unwanted Persons Dispatched to Regular Patrol Units in District 3 .....	772
Figure 7-58 Average Response Time to Motor Vehicle Incidents in District 3 .....	773
Figure 7-59 Average Response Time to Priority 2 Indecent Acts in Progress, Mischiefs in Progress, Frauds in Progress, Thefts in Progress and Thefts from Vehicle in District 3 .....	774

Figure 7-60 Average Response Time to Requests for Assistance from the General Public and the Provincial Ambulance Service in District 3.....	775
Figure 7-61 Average Response Time to Disturbing Parties, Noise Complaints, Suspicious Circumstances and Annoying Circumstances in District 3 .....	776
Figure 7-62 Average Response Time to Priority 1 Assaults with a Weapon in Progress, Robberies in Progress and Weapon-Related Incidents in Progress Dispatched to Regular Patrol Units in District 4 ..	777
Figure 7-63 Average Response Time to Screams, Jumpers, Fights and Shots Fired Incidents Dispatched to Regular Patrol Units in District 4 .....	778
Figure 7-64 Average Response Time to Alarms Dispatched to Regular Patrol Units in District 4 .....	779
Figure 7-65 Average Response Time to Assaults in District 4 .....	780
Figure 7-66 Average Response Time to Domestic Situations Dispatched to Regular Patrol Units in District 4 .....	781
Figure 7-67 Average Response Time to Missing Children, Suicidal Persons, Violent Persons and Unwanted Persons Dispatched to Regular Patrol Units in District 4 .....	782
Figure 7-68 Average Response Time to Motor Vehicle Incidents in District 4 .....	783
Figure 7-69 Average Response Time to Priority 2 Indecent Acts in Progress, Mischiefs in Progress, Frauds in Progress, Thefts in Progress and Thefts from Vehicle in District 4 .....	784
Figure 7-70 Average Response Time to Requests for Assistance from the General Public and the Provincial Ambulance Service in District 4.....	785
Figure 7-71 Average Response Time to Disturbing Parties, Noise Complaints, Suspicious Circumstances and Annoying Circumstances in District 4 .....	786
Figure 7-72 Average Response Time to Priority 1 Calls by Hour of the Day Citywide.....	787
Figure 7-73 Average Response Time to Priority 1 Calls During the Day and at Night.....	788
Figure 7-74 Average Response Time to Priority 1 Calls at the VPD and at the Seattle Police Department .....	788
Figure 7-75 Average Response Time to Priority 2 Calls by Hour of the Day Citywide.....	789
Figure 7-76 Average Response Time to Priority 2 Calls During the Day and at Night.....	789
Figure 7-77 Average Response Time to Priority 3 Calls by Hour of the Day Citywide.....	790
Figure 7-78 Average Response Time to Priority 3 Calls During the Day and at Night.....	791
Figure 7-79 Average Response Time to Priority 1 Calls by Hour of the Day in District 1 .....	792
Figure 7-80 Average Response Time to Priority 1 Calls by Hour of the Day in District 2 .....	792
Figure 7-81 Average Response Time to Priority 1 Calls by Hour of the Day in District 3 .....	793
Figure 7-82 Average Response Time to Priority 1 Calls by Hour of the Day in District 4 .....	794
Figure 7-83 Average Response Time to Priority 1 Calls by Time of Day and by District .....	794
Figure 7-84 Average Response Time to Priority 2 Calls by Hour of the Day in District 1 .....	795
Figure 7-85 Average Response Time to Priority 2 Calls by Hour of the Day in District 2 .....	796
Figure 7-86 Average Response Time to Priority 2 Calls by Hour of the Day in District 3 .....	796



Figure 7-87 Average Response Time to Priority 2 Calls by Hour of the Day in District 4 .....	797
Figure 7-88 Average Response Time to Priority 2 Calls by Time of Day and by District .....	798
Figure 7-89 Average Response Time to Priority 3 Calls by Hour of the Day in District 1 .....	799
Figure 7-90 Average Response Time to Priority 3 Calls by Hour of the Day in District 2 .....	799
Figure 7-91 Average Response Time to Priority 3 Calls by Hour of the Day in District 3 .....	800
Figure 7-92 Average Response Time to Priority 3 Calls by Hour of the Day in District 4 .....	801
Figure 7-93 Average Response Time to Priority 3 Calls by Time of Day and by District .....	802
Figure 7-94 Average Response Time to Priority 1 Motor Vehicle Incidents with Injuries by Hour of the Day Citywide.....	803
Figure 7-95 Average Response Time to Priority 1 Domestic Situations in Progress by Hour of the Day Citywide.....	803
Figure 7-96 Average Response Time to Priority 2 Domestic Situations by Hour of the Day Citywide.....	804
Figure 7-97 Average Response Time to Domestic Situations by Time of Day.....	805
Figure 7-98 Average Response Time to Priority 1 Assaults in Progress by Hour of the Day Citywide....	806
Figure 7-99 Average Response Time to Priority 2 Break and Enters in Progress by Hour of the Day Citywide.....	807
Figure 7-100 Average Response Time to Incidents in Progress by Time of Day.....	808
Figure 7-101 Average Response Time to Persons Screaming, Violent Persons, Suicidal Persons, Unwanted Persons and Shoplifters by Time of Day .....	810
Figure 7-102 Average Response Time to Priority 2 Suspicious Circumstances by Hour of the Day Citywide.....	811
Figure 7-103 Average Response Time to Priority 3 Suspicious Circumstances by Hour of the Day Citywide.....	812
Figure 7-104 Average Response Time to Suspicious Persons, Suspicious Vehicles, Suspicious Circumstances and Annoying Circumstances by Time of Day .....	813
Figure 7-105 Average Response Time to Priority 3 Alarms by Hour of the Day Citywide.....	814
Figure 7-106 Average Response Time to Alarms by Time of Day .....	815
Figure 7-107 Average Response Time to Priority 2 Abandoned 9-1-1 Calls by Hour of the Day Citywide .....	815
Figure 7-108 Average Response Time to Priority 3 Requests for Assistance from the Provincial Ambulance Service by Hour of the Day Citywide .....	816
Figure 7-109 Average Response Time to Priority 4 Break and Enters by Hour of the Day Citywide.....	817
Figure 7-110 Average Response Time to Priority 2 Fights by Hour of the Day Citywide .....	817
Figure 7-111 Average Response Time to Priority 3 Noise Complaints by Hour of the Day Citywide .....	818
Figure 7-112 Average Response Time to Priority 3 Disturbing Parties by Hour of the Day Citywide .....	818
Figure 7-113 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day Citywide .....	819

Figure 7-114 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day in District 1 .....	821
Figure 7-115 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day in District 2 .....	822
Figure 7-116 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day in District 3 .....	823
Figure 7-117 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day in District 4 .....	824
Figure 7-118 Average Response Time to Priority 2 Calls by Day of the Week and Time of Day Citywide .....	825
Figure 7-119 Average Response Time to Priority 3 Calls by Day of the Week and Time of Day Citywide .....	827
Figure 7-120 Average Response Time to Priority 1 Criminal Incidents Citywide .....	828
Figure 7-121 Average Response Time to Priority 1 Criminal Incidents by District .....	829
Figure 7-122 Average Response Time to MVI with Injuries, Possible Impaired Drivers and Hit and Run That Involved a Criminal Offence.....	830
Figure 7-123 Average Response Time to Domestic Situations in Progress, Disturbance Screaming Calls and Robberies in Progress That Involved a Criminal Offence.....	831
Figure 7-124 Average Response Time to Abandoned 9-1-1 Calls, Fights and Requests for Assistance from the Provincial Ambulance Service That Involved a Criminal Offence .....	832
Figure 7-125 Average Response Time to Hold-Up Alarms and Silent or Panic Alarms That Involved a Criminal Offence .....	833
Figure 7-126 Average Response Time to Suspicious Persons, Suspicious Circumstances and Annoying Circumstances That Involved a Criminal Offence.....	835
Figure 7-127 Average Response Time to Priority 1 Calls Dispatched to One Regular Patrol Unit.....	837
Figure 7-128 Average Response Time to Priority 1 Calls Dispatched to One Regular Patrol Unit by Time of Day .....	838
Figure 7-129 Average Response Time to Priority 1 Calls Dispatched to One Regular Patrol Unit by District .....	839
Figure 7-130 Average Response Time to Priority 1 Assaults in Progress, Persons Screaming, Domestic Situations in Progress, MVI with Injuries and Suicidal Persons Dispatched to One Regular Patrol Unit.	841
Figure 7-131 Average Response Time to Priority 1 Calls Dispatched to Two Regular Patrol Units .....	842
Figure 7-132 Average Response Time to Priority 2 Calls Dispatched to One Regular Patrol Unit.....	844
Figure 7-133 Average Response Time to Priority 2 Calls Dispatched to One Regular Patrol Unit by Time of Day .....	845
Figure 7-134 Average Response Time to Priority 2 Calls Dispatched to One Regular Patrol Unit by District .....	847

Figure 7-135 Average Response Time to Priority 2 Incidents in Progress Dispatched to One Regular Patrol Unit.....	848
Figure 7-136 Average Response Time to Priority 2 Domestic Situations, Suspicious Circumstances, Prowlers, Requests for Assistance from the Provincial Ambulance Service and Possible Impaired Drivers Dispatched to One Regular Patrol Unit.....	850
Figure 7-137 Average Response Time to Priority 2 Calls Dispatched to Two Regular Patrol Units .....	851
Figure 7-138 Average Response Time to Priority 2 Break and Enters in Progress Dispatched to One or Two Regular Patrol Units .....	852
Figure 7-139 Average Response Time to Priority 2 Fights Dispatched to One or Two Regular Patrol Units .....	853
Figure 7-140 Average Response Time to Priority 1 Calls Including and Excluding Motor Vehicle Incidents with Injuries .....	857
Figure 7-141 Predicted Travel Time to Priority 1 MVI with Injuries by District.....	863
Figure 7-142 Predicted and Actual Average Travel Time to Priority 1 Calls by District (Excluding MVI with Injuries).....	864
Figure 7-143 Actual and Predicted Average Travel Time by Hour of the Day in District 1 .....	865
Figure 7-144 Actual and Predicted Average Travel Time by Hour of the Day in District 2.....	866
Figure 7-145 Actual and Predicted Average Travel Time by Hour of the Day in District 3.....	866
Figure 7-146 Actual and Predicted Average Travel Time by Hour of the Day in District 4.....	867
Figure 7-147 Average Queuing Delay Associated with Priority 1 Calls (Excluding MVI with Injuries) by District .....	869
Figure 7-148 Average Queuing Delay Associated to Priority 1 MVI with Injuries by District.....	871
Figure 7-149 Predicted and Actual Citywide Average Queuing Delay by Priority .....	874
Figure 7-150 Proportion of Street Checks by Two-Officer Units by District.....	882
Figure 7-151 Average Response Time in Other North American Police Agencies .....	886
Figure 7-152 The 40-40-20 Allocation Model.....	888
Figure 8-1 Average Number of Available Regular Patrol Units in District 1 During the Week Days Before and After the Extension of the Delta Shift.....	892
Figure 8-2 Average Number of Busy Regular Patrol Units in District 1 During the Week Days Before and After the Extension of the Delta Shift.....	892
Figure 8-3 Average Number of Available Regular Patrol Units in District 1 During the Weekend Before and After the Extension of the Delta Shift.....	893
Figure 8-4 Average Number of Busy Regular Patrol Units in District 1 During the Weekend Before and After the Extension of the Delta Shift.....	894
Figure 8-5 Average Number of Available Regular Patrol Units in District 2 During the Week Days Before and After the Extension of the Delta Shift.....	895

Figure 8-6 Average Number of Busy Regular Patrol Units in District 2 During the Week Days Before and After the Extension of the Delta Shift.....	895
Figure 8-7 Average Number of Available Regular Patrol Units in District 2 During the Weekend Before and After the Extension of the Delta Shift.....	896
Figure 8-8 Average Number of Busy Regular Patrol Units in District 2 During the Weekend Before and After the Extension of the Delta Shift.....	897
Figure 8-9 Average Number of Available Regular Patrol Units in District 3 Before and After the Extension of the Delta Shift.....	898
Figure 8-10 Average Number of Busy Regular Patrol Units in District 3 Before and After the Extension of the Delta Shift.....	898
Figure 8-11 Average Number of Available Regular Patrol Units in District 4 During the Week Days Before and After the Extension of the Delta Shift.....	899
Figure 8-12 Average Number of Busy Regular Patrol Units in District 4 During the Week Days Before and After the Extension of the Delta Shift.....	900
Figure 8-13 Average Number of Available Regular Patrol Units in District 4 During the Weekend Before and After the Extension of the Delta Shift.....	901
Figure 8-14 Average Number of Busy Regular Patrol Units in District 4 During the Weekend Before and After the Extension of the Delta Shift.....	901
Figure 8-15 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 1 During the Week .....	904
Figure 8-16 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 1 During the Weekend .....	905
Figure 8-17 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 2 During the Week .....	907
Figure 8-18 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 2 During the Weekend .....	908
Figure 8-19 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 3 During the Week .....	910
Figure 8-20 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 3 During the Weekend .....	911
Figure 8-21 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 4 During the Week .....	913
Figure 8-22 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 4 During the Weekend .....	914
Figure 8-23 Average Number of Disturbance Calls Cancelled Daily Citywide .....	915
Figure 8-24 Average Officer-Hours Spent on Calls per Officer-Shift Before and After the Extension of the Delta Shift.....	917

Figure 8-25 Total Net Gain in Officer-Hours in Patrol by District .....	917
Figure 8-26 Total Net Gain in Officer-Hours on Calls for Service by District.....	918
Figure 9-1 Ratio of Officers Feloniously Killed to Officers Assaulted Between 2002-2004 in the United States .....	924
Figure 9-2 Number of Single-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls .....	941
Figure 9-3 Total Service Time on Single-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls .....	941
Figure 9-4 Average Service Time on Single-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls .....	942
Figure 9-5 Average Officer-Hours on Two-Officer Emergency 9-1-1 and Telephone Calls Dispatched to One Two-Officer Unit and Two Single Officers.....	944
Figure 9-6 Average Officer-Hours on Single-Officer Emergency 9-1-1 and Telephone Calls Dispatched to One Two-Officer Unit and One Single Officer.....	945
Figure 9-7 Proportion of Two-Officer Emergency 9-1-1 and Telephone Calls by District .....	948
Figure 9-8 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by Hour of the Day.....	949
Figure 9-9 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by Hour of the Day in District 1 .....	950
Figure 9-10 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by Hour of the Day in District 2.....	950
Figure 9-11 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by Hour of the Day in District 3.....	951
Figure 9-12 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by Hour of the Day in District 4.....	951
Figure 9-13 Estimated Total Net Loss in Officer-Time in District 1 Under Each Deployment Model .....	954
Figure 9-14 Estimated Total Net Loss in Officer-Time in District 2 Under Each Deployment Model .....	955
Figure 9-15 Estimated Total Net Loss in Officer-Time in District 3 Under Each Deployment Model .....	956
Figure 9-16 Estimated Total Net Loss in Officer-Time in District 4 Under Each Deployment Model .....	957
Figure 9-17 Estimated Average Delay to Obtain Backup on a Two-Officer Call Under the 70-30 Deployment Model.....	958
Figure 9-18 Estimated Average Delay to Obtain Backup on a Two-Officer Call Under the 60-40 Deployment Model.....	959
Figure 9-19 Estimated Average Delay to Obtain Backup on a Two-Officer Call Under the 50-50 Deployment Model.....	959
Figure 9-20 Estimated Average Delay to Obtain Backup on a Two-Officer Call Under the 40-60 Deployment Model.....	960

Figure 9-21 Estimated Average Proportion of Calls That Will Require Backup Under the 70-30 Deployment Model .....	960
Figure 9-22 Estimated Average Proportion of Calls That Will Require Backup Under the 60-40 Deployment Model .....	961
Figure 9-23 Estimated Average Proportion of Calls That Will Require Backup Under the 50-50 Deployment Model .....	961
Figure 9-24 Estimated Average Proportion of Calls That Will Require Backup Under the 40-60 Deployment Model .....	962
Figure 9-25 Proportion of Single-Officer and Two-Officer Regular Patrol Units by Hour of the Day Under the Refined 60-40 Deployment Model .....	965
Figure 10-1 Recommended and Critical Minimum Staffing Levels by Hour of the Day in District 1 .....	970
Figure 10-2 Recommended and Critical Minimum Staffing Levels by Hour of the Day in District 2 .....	972
Figure 10-3 Recommended and Critical Minimum Staffing Levels by Hour of the Day in District 3 .....	974
Figure 10-4 Recommended and Critical Minimum Staffing Levels by Hour of the Day in District 4 .....	976
Figure 10-5 Critical and Current Minimum Staffing Levels by Hour of the Day in District 1 .....	977
Figure 10-6 Critical and Current Minimum Staffing Levels by Hour of the Day in District 2 .....	978
Figure 10-7 Critical and Current Minimum Staffing Levels by Hour of the Day in District 3 .....	978
Figure 10-8 Critical and Current Minimum Staffing Levels by Hour of the Day in District 4 .....	979
Figure 12-1 Average Number of Available Patrol Units in District 1 with the 4-On-4-Off Fixed Delta Team .....	999
Figure 12-2 Average Number of Available Patrol Units in District 2 with the 4-On-4-Off Fixed Delta Team .....	999
Figure 12-3 Average Number of Available Patrol Units in District 3 with the 4-On-4-Off Fixed Delta Team .....	1000
Figure 12-4 Average Number of Available Patrol Units in District 4 with the 4-On-4-Off Fixed Delta Team .....	1000
Figure 12-5 Average Number of Available Patrol Units in District 1 with the Metro Team .....	1007
Figure 12-6 Average Number of Available Patrol Units in District 2 with the Metro Team .....	1008
Figure 12-7 Average Number of Available Patrol Units in District 3 with the Metro Team .....	1008
Figure 12-8 Average Number of Available Patrol Units in District 4 with the Metro Team .....	1009
Figure 15-1 Total Number of Calls Handled by ERT Units by Hour of the Day .....	1027
Figure 15-2 Total Number of Calls Handled by ERT Units by Day of the Week .....	1028
Figure 15-3 Total Number of Calls Handled by ERT Units by Priority .....	1028
Figure 16-1 Call Load and Patrol Staffing Under the Current VPD Deployment Model .....	1035
Figure 16-2 Call Load and Patrol Staffing Under Stage A1 .....	1036
Figure 16-3 Call Load and Patrol Staffing Under Stage A2 .....	1038
Figure 16-4 Call Load and Patrol Staffing Under Stage A3 .....	1040

Figure 16-5 Call Load and Patrol Staffing Under Stage A4 .....	1043
Figure 16-6 Call Load and Patrol Staffing Under Stage A5 .....	1046
Figure 16-7 Call Load and Patrol Staffing Under Option A .....	1049
Figure 16-8 Number of Additional Constables and Predicted Average Priority 1 Response Time Under Option A .....	1050
Figure 16-9 Number of Additional Constables and Predicted Average Priority 2 Response Time Under Option A .....	1051
Figure 16-10 Number of Additional Constables and Predicted Average Priority 3 Response Time Under Option A .....	1052
Figure 16-11 Number of Additional Constables and Predicted Average Priority 4 Response Time Under Option A .....	1053
Figure 16-12 Number of Additional Constables and Predicted Average Utilization Rate Under Option A .....	1054
Figure 16-13 Predicted Clearance Rates Under Option A .....	1055
Figure 16-14 Call Load and Patrol Staffing Under Option B .....	1066
Figure 16-15 Number of Additional Constables and Predicted Average Priority 1 Response Time Under Option B .....	1067
Figure 16-16 Number of Additional Constables and Predicted Average Utilization Rate Under Option B .....	1067
Figure 16-17 Call Load and Patrol Staffing Under Option C .....	1076
Figure 16-18 Number of Additional Constables and Predicted Average Priority 1 Response Time Under Option C .....	1076
Figure 16-19 Number of Additional Constables and Predicted Average Utilization Rate Under Option C .....	1077
Figure 16-20 Correlation Between Call Load and Expected Number of Regular Patrol Officers Under Each Stage .....	1080
Figure 16-21 Predicted Average Priority 1 Response Time Under Each Deployment Option .....	1081
Figure 16-22 Predicted Average Utilization Rate and Clearance Rate Under Each Staffing Option .....	1082
Figure 18-1 Average Response to Priority 1 Calls by District (Excluding MVI with Injuries) .....	1090
Figure 18-2 Average Number of Disturbance Calls Cancelled Daily Citywide .....	1091
Figure 18-3 Average Number of Dispatched Calls per Sworn Officer in Select Canadian Police Agencies .....	1093
Figure 21-1 Proportion of Single and Two-Officer Calls in District 1 Dispatched to Single and Two-Officer Units with the 70-30 Deployment Model .....	1126
Figure 21-2 Proportion of Single and Two-Officer Calls in District 2 Dispatched to Single and Two-Officer Units with the 70-30 Deployment Model .....	1128

Figure 21-3 Proportion of Single and Two-Officer Calls in District 3 Dispatched to Single and Two-Officer Units with the 70-30 Deployment Model .....	1131
Figure 21-4 Proportion of Single and Two-Officer Calls in District 4 Dispatched to Single and Two-Officer Units with the 70-30 Deployment Model .....	1133
Figure 21-5 Proportion of Single and Two-Officer Calls in District 1 Dispatched to Single and Two-Officer Units with the 60-40 Deployment Model .....	1136
Figure 21-6 Proportion of Single and Two-Officer Calls in District 2 Dispatched to Single and Two-Officer Units with the 60-40 Deployment Model .....	1138
Figure 21-7 Proportion of Single and Two-Officer Calls in District 3 Dispatched to Single and Two-Officer Units with the 60-40 Deployment Model .....	1141
Figure 21-8 Proportion of Single and Two-Officer Calls in District 4 Dispatched to Single and Two-Officer Units with the 60-40 Deployment Model .....	1144
Figure 21-9 Proportion of Single and Two-Officer Calls in District 1 Dispatched to Single and Two-Officer Units with the 50-50 Deployment Model .....	1147
Figure 21-10 Proportion of Single and Two-Officer Calls in District 2 Dispatched to Single and Two-Officer Units with the 50-50 Deployment Model .....	1149
Figure 21-11 Proportion of Single and Two-Officer Calls in District 3 Dispatched to Single and Two-Officer Units with the 50-50 Deployment Model .....	1152
Figure 21-12 Proportion of Single and Two-Officer Calls in District 4 Dispatched to Single and Two-Officer Units with the 50-50 Deployment Model .....	1154
Figure 21-13 Proportion of Single and Two-Officer Calls in District 1 Dispatched to Single and Two-Officer Units with the 40-60 Deployment Model .....	1157
Figure 21-14 Proportion of Single and Two-Officer Calls in District 2 Dispatched to Single and Two-Officer Units with the 40-60 Deployment Model .....	1159
Figure 21-15 Proportion of Single and Two-Officer Calls in District 3 Dispatched to Single and Two-Officer Units with the 40-60 Deployment Model .....	1162
Figure 21-16 Proportion of Single and Two-Officer Calls in District 4 Dispatched to Single and Two-Officer Units with the 40-60 Deployment Model .....	1164





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# 1 INTRODUCTION

A best practice police organization will ensure that its patrol resources are deployed efficiently and that the finite resources it has at its disposal will be put to the best possible use. In the case of patrol operations, this can best be achieved by examining ways to improve patrol deployment and provide patrol members with the equipment and training they need to perform their core functions.

This report contains an analysis of patrol deployment in the Vancouver Police Department (VPD) and presents a number of recommendations that have the potential to increase the effectiveness and efficiency of patrol operations. The analysis presented below addresses the following questions:

- What level of service and performance is currently generated by the Operations Division of the VPD?
- What is the call saturation level of patrol officers?
- Are efficiency gains realistically achievable?
- How should patrol officers be allocated between geographic regions and shifts to maximize productivity?
- What is the optimal proportion of single-officer and two-officer units?
- What is the desired service level of patrol operations?
- Are additional resources needed to achieve the desired level of service or performance?
- When, where and how should existing and new resources be deployed based on the desired service goals and the deployment constraints previously mentioned?

In order to answer these questions, the following issues were examined in detail using historical patrol data, cutting-edge theoretical models, information on best practices and relevant qualitative information from the literature on policing:

- Resource deployment
- Call load
- Response time

- Allocated (reactive policing) and unallocated (proactive policing) time
- Shifting and scheduling
- Deployment of two-officer units and single-officer units
- Minimum staffing levels
- District boundaries and the use of Global Positioning System (GPS)

In addition to the quantitative analysis a comprehensive qualitative analysis was conducted which included:

- Interviews with 21 VPD officers. During the month of October 2006, the Patrol Deployment Study Project Team conducted interviews with 21 VPD officers. The majority of these officers were from the Operations Division and were assigned to patrol duties. The sample group included officers of all ranks from Constable to Deputy Chief Constable and officers with different levels of seniority and experience within the Department. The group included people from all 4 patrol districts and people from the odd and even side.
- Interviews with a variety of E-Comm dispatch personnel. During the month of November 2006, interviews were conducted with 9 E-Comm employees including personnel working in the 9-1-1 queue, emergency and non-emergency call takers, dispatchers, central dispatchers, team managers and the Operations Manager. The E-Comm staff had various levels of service ranging from 2 to 31 years of dispatch centre experience. Some of the employees that were interviewed had occupied all of the operational positions from 9-1-1 queue to central dispatcher at various times in their career and were very experienced.
- A survey of 25 North American police agencies. To examine current law enforcement practices, a survey was prepared by the Patrol Deployment Study Project Team. This survey was sent out to 25 leading police agencies across North America. Each police agency that was asked to participate was selected because it was similar to the VPD in terms of its size, had the reputation to be a best practice police department, was facing a comparable workload or was policing a similar community.
- A literature review of academic articles on policing.

- A comprehensive review of previous patrol deployment studies that have been conducted by best practice police agencies in North America.

As this Patrol Deployment Study illustrates, the VPD strives to ensure that its patrol operations are efficient and meet the expectations of Vancouver citizens and businesses. Day after day, VPD members face challenges and are required to make difficult choices but they are determined to improve the quality of life of Vancouver citizens, maintain public order, uphold the rule of law and prevent crime. The purpose of this Patrol Deployment Study is to enhance their ability to do so.

In the VPD Strategic Plan 2004-2008, the VPD committed to become “Canada’s leader in policing” and improve community safety by:

- Reducing property crime.
- Reducing violence against the vulnerable.
- Reducing violence caused by gangs and guns.
- Improving traffic safety.
- Reducing street disorder.

In consultation with the public, the Department identified these issues as the most important crime problems in the City of Vancouver. In essence, the objective of this Patrol Deployment Study is to ensure that patrol operations at the VPD are structured to achieve these important goals in the most efficient and cost-effective way possible. The Patrol Deployment Study relies on the core idea that patrol is the foundation of police work and should therefore remain the primary mechanism through which the Department delivers its services. Uniform patrol officers are essential to address the priorities identified in the VPD Strategic Plan 2004-2008. The recommendations presented in this Patrol Deployment Study are designed to allow patrol officers to make a difference in the community and provide improved levels of service.

## 2 BACKGROUND

### 2.1 THE PROJECT BACKGROUND

In September 2003, the Vancouver Police Department (VPD) embarked on a strategic planning exercise, followed by a study to identify the Department's overall staffing requirements. The result was the creation of the VPD Strategic Plan 2004-2008, which articulates the VPD's vision of becoming "Canada's leader in policing – providing safety for all." The VPD Strategic Plan identified several policing priorities including implementing best practices and improving community safety by:

- Reducing property crime
- Reducing violence against the vulnerable
- Reducing violence caused by gangs and guns
- Improving traffic safety
- Reducing street disorder

In October 2004, the VPD completed the long-range Staffing Report. This report presented a request for an increase of 469 officers and 170 civilian staff over and above existing authorized levels of 1,124 and 231.5 respectively over a five year period.

Following the publication of the 2004 Staffing Report, the City and the Vancouver Police Board agreed to create a Steering Committee who hired a team of consultants from the University College of the Fraser Valley (UCFV) to conduct an independent review of the VPD's staffing needs. The consultants identified an immediate need for an increase of 92 sworn officers and 55 civilians. A major concern of the consultants was the unacceptably high response times for priority 1 calls (emergency calls that require immediate police attention). They also identified a serious shortage of analytical and planning staff in the Planning and Research Section (P&R) who could conduct proper quantitative analysis.

The authors of the *Review of the Vancouver Police Department's Staffing Requirements* noted that the VPD did not, at the time the staffing report was prepared, have the capacity to conduct regular analysis of data on calls for service, response times and

utilization rates. As well, the Department had only a limited capacity to conduct the types of analyses that would be required to determine appropriate staffing levels and conduct intelligence-led policing, a best practice in North American police services.

The authors also noted that a key indicator of the ability of a police service to meet the demands for service is the response time to priority 1 calls. These are emergency or high priority calls for service that are potentially life threatening and require immediate police attention. An analysis of the VPD dispatch data revealed that the average response time for patrol units to priority 1 calls was the slowest in North America and well above the best practice of 7 minutes. The consultants underlined that these slow response times were placing the community at risk and required immediate attention.

Ultimately, the *Review of the Vancouver Police Department's Staffing Requirements* recommended that a study of patrol deployment be conducted in order to:

1. Determine the number of sworn officers and supervisors required now and in the immediate future.
2. Prepare a plan for deploying the required number of patrol officers and supervisors most cost-effectively, by shift and patrol area, in response to temporal and geographic incidence of crime, demands for non-crime services, and the policing approach selected by the department.
3. Develop schedules for assigning required manpower most productively and equitably.

In March 2005, Vancouver City Council approved 50 sworn officers and 27 civilian positions for 2005 and an additional 50 sworn officers and 27 civilian staff for 2006. The staffing increase in 2006 was subject to the approval of a Strategic Operating Plan and a report back by the Steering Committee on projected overtime savings and opportunities for shared services.

Due to the recruiting and training lag, the 50 new officers approved in 2005 became operational only in 2006. District 1 (Downtown) received 33 of the 50 new officers and



many were deployed in the downtown Entertainment District. Since the deployment of the 33 new officers, the average priority 1 response time in District 1 has been reduced by approximately 1 minute and 33 seconds (a fall of 14.8%). Additional officers were also deployed to patrol support areas including traffic enforcement and the Forensic Identification Section (crime scene investigation). There were no increases in patrol staffing in the other 3 patrol districts. As a result of the City Council staffing approvals, the Planning and Research Section of the VPD created an Organizational Planning Unit comprised of a Sergeant and three specially trained civilians, who improved the VPD's ability to collect data, analyze data, monitor performance and evaluate performance. This capacity has also been enhanced by securing the VPD Computer Aided Dispatch (CAD) and Records Management System (RMS) data from E-Comm.

In August 2005, the City and the VPD agreed to participate in a long-term Operational Review project that was divided into two phases.

Phase 1 (August 2005 – March 2006) included:

- Completion of a Strategic Operational Plan
- Completion of a Civilianization Study and shared services review
- Completion of an Overtime Review

Phase 2 (April 2006 – June 2007) includes:

- Completion of a Patrol Deployment Study
- Completion of mini-business plans for non-patrol units
- Further overtime review
- Development of an Operational Plan

The Phase 1 components were reported back to Council in March 2006. In April 2006, Council approved an increase of 31 sworn officers and 46 civilians in the authorized strength. The staffing increase in 2006 was needed to bolster policing primarily in the investigative units including Domestic Violence, Homicide, Robbery/Assault, and Gang Crime, where the independent consultants identified immediate needs.

This report will present the findings of the Patrol Deployment Study. The remaining Phase 2 components will be completed by June 2007.

## **2.2 THE STUDY OF PATROL DEPLOYMENT**

The study of patrol deployment is not about data, statistics or “bean counting.” It is about knowing what patrol officers do, understanding what citizens are expecting and putting in place the management structure, the information systems and the incentives that will make things happen. Concretely, this means implementing an efficient shifting pattern, deploying the appropriate number of patrol officers or units, making sure that calls are handled adequately and ensuring that patrol resources are used in a cost-effective way through sufficient supervision and management accountability.

In the field of law enforcement, three distinct analytical approaches are typically used by leading police agencies or organizations wishing to study patrol deployment.

- The Police Allocation Manual (PAM) approach is used as a simple alternative to more complex models, requires only rudimentary patrol-based data and involves relatively simple computations. The PAM is a deterministic approach in the sense that the results it provides are only expected to hold on average (e.g. over a year) and it is unable to account for statistical variations in the demands for service or the staffing level. On the bright side, the PAM approach relies strictly on mathematical and logical relationships that hold by definition. Given pre-established policy decisions and various other empirical inputs, the PAM will suggest some staffing level that will meet the chosen patrol performance measures.
- The Managing Patrol Performance (MPP) model is a sophisticated model which transforms empirical data and policy decisions into quantifiable output measures. Unlike the PAM approach, the MPP model implicitly allows for stochastic variations in patrol workload and unit availability. The cost of this additional refinement is the added uncertainty associated with the output. Because it is based on theoretical statistical relationships from the fields of operations

research, queuing theory and regression analysis, the MPP model can only be as accurate as its underlying assumptions. Moreover, because it is offered in the form of a licensed software-based solution, the MPP model remains a “black box” solution that offers neither the flexibility nor the transparency associated with the PAM approach or another tailored solution.

- Like the MPP model, Staff Wizard is also based on queuing theory but is packaged differently. Staff Wizard is a commercial computer program distributed by Corona Solutions. It is based extensively on the Patrol/Plan software developed by the Institute for Public Program Analysis (IPPA) for the U.S. National Institute of Justice. Staff Wizard uses results from queuing theory to analyze the patrol workload and generate key statistics that can be used to assess staffing, deployment and scheduling.

Ultimately, the Patrol Deployment Study Project Team determined that no single tool would be able to answer all the questions that needed to be answered and were relevant in the context of the Operational Review. Therefore, an in-house approach and custom models informed by best practices from the field of law enforcement, management science, statistics, queuing theory, operations research and the academic literature on policing was developed. Empirical patrol data was then used to put into context the findings of the Patrol Deployment Study Project Team, benchmark the VPD against other leading agencies and address the questions asked in the project scope. Although the VPD approach to patrol deployment uses the same underlying concepts as the PAM approach, the MPP model and Staff Wizard, it also allows more flexibility and more detailed analysis. This Patrol Deployment Study is the first iteration resulting from this approach.

### **2.2.1 The Police Allocation Manual (PAM) Approach**

The Police Allocation Manual (PAM) was developed between 1988 and 1993 by the Northwestern University Center for Public Safety for the National Highway Traffic Safety Administration of the U.S. Department of Transportation. The project was coordinated

by Dr. William Stenzel. The goal of the study was to produce a staffing and allocation procedure for law enforcement agencies. The PAM methodology is designed to help agencies address the following questions:

1. What is the number of officers, field supervisors, and command personnel required to provide acceptable levels of patrol and traffic services?
2. How should patrol officers be allocated between geographic regions and shifts to maximize productivity?

The procedures for determining the number of personnel are based on an analysis of officer workload in terms of the amount of time required to complete various tasks. The PAM estimates the suitable staffing level for a complete jurisdiction or a specific patrol district by accounting for the time that officers need to perform patrol activities.

All on-duty patrol activities are assigned to one of the following categories:

- Reactive (e.g. emergency calls for service, traffic accidents, assists)
- Proactive (e.g. self-initiated calls, community-oriented policing, traffic stops, criminal investigations, field interrogations, motorist assists, street checks, intelligence reports, etc.)
- Uncommitted (e.g. patrol in assigned area, free time)
- Administrative (e.g. office time, court time, training, meals, briefings, reports, etc.)

The PAM methodology relies on historical workload data and user-supplied performance objectives and policies. The challenge is to account for all the different patrol activities as well as the entire time spent on those patrol activities. This information is then incorporated in nine worksheets that guide the user to determine how many officers are needed to match the service needs of the population and the workload of patrol teams.

The following data items illustrate the types of inputs required by the PAM:

- Shift length (hours)
- Average work week (hours)

- Average number of paid off-duty hours per year per officer
- Average number of on-duty hours spent on non-patrol temporary assignments per year per officer
- Average number of officers to be supervised by each field supervisor
- Percentage of field supervisor on-duty time spent on the field (i.e. not doing administrative duties)
- Number of command personnel
- Geographic area
- Average driving speed by type of road
- Average response speed for emergency calls
- Average travel time for emergency activities
- Average response speed for non-emergency calls
- Average travel time for non-emergency activities
- Total road distance by type of road
- Patrol interval by type of road (hours)
- Average number of accidents handled per day
- Average service time per accident
- Average number of service calls handled per day
- Average service time per call
- Proportion of patrol units staffed with two officers
- Minimum number of on-duty officers required for patrol duties
- Percentage of on-duty time spent on special assignments by patrol officers
- Percentage of service calls that cannot be pre-empted
- Percentage of administrative activities that cannot be pre-empted
- Percentage of self-initiated activities that cannot be pre-empted
- Average time spent on administrative activities per hour
- Average time spent on self-initiated activities per hour
- Average time spent on emergency calls per hour

Ultimately, the PAM approach can be used to estimate the average number of on-duty officers needed each day in each district (or “Autonomous Patrol Area”). The PAM takes into account the number of field supervisors, the number of command staff, the

proportion of two-officer units, minimum staffing requirements, special assignments and time off.

The PAM approach is a model of police staffing that can be used to prescribe how many officers are needed. Each step is based on elementary mathematical and logical relationships between workload, expected patrol performance measures, the characteristics of the patrol area and the number of officers required. The Scottsdale Police Department is probably the most prominent agency advocating the PAM approach.

The PAM approach can be used to determine “appropriate” staffing levels and assess the impact of hypothetical scenarios on the required staffing level (e.g. what will be the impact on staffing if the workload increases by 20% or if the target for the average travel time is reduced by 1 minute). However, the PAM can only prescribe how many officers are needed when performance objectives are provided (i.e. when someone decides what level of service is desired or expected). The PAM cannot be used as a predictive tool because:

- It cannot be used to describe/predict the level of patrol performance (e.g. response time) by specifying a given number of officers, the workload and other characteristics of the jurisdiction.
- It cannot be used to predict changes in patrol performance or workload as staffing levels change.
- It cannot be used to predict the future workload of a patrol area.
- It cannot be used to determine if and/or how the shifting and the scheduling patterns should be tweaked.

Moreover, the PAM cannot be used to assess the efficiency of current patrol operations. This is because:

- It cannot be used to determine if and/or how patrol districts should be redesigned.
- It cannot be used to determine the optimal proportion of two-officer units that should be deployed in patrol.

- It cannot be used to assess whether the organization is internally consistent (e.g. whether patrol units spend too little or too much time on some calls, whether the average response time to some calls is too long or comparatively too short, whether patrol officers process calls adequately, etc.).

For these reasons, the Project Team cannot confidently recommend the use of the PAM approach by the VPD at this stage.

### **2.2.2 The Managing Patrol Performance (MPP) Model**

The Managing Patrol Performance (MPP) system is the Windows-based version of a DOS program called Patrol/Plan, which has been available to police agencies since 1975. MPP uses a mathematical model to help managers plan the deployment of patrol personnel. Among others, the consultant Peter Bellmio is a well-known proponent of the MPP model. In Canada, the Calgary Police Service is the leading user of the MPP model.

The MPP approach is based on the philosophy that front-line staffing needs should be tied to service levels and workload. The MPP approach was developed by the Police Management Advisors (a consulting group based in California that includes Peter Bellmio) to simulate how varying levels of workload and staffing can affect patrol performance. The MPP system is the main competitor to Staff Wizard. It is often described as a “state-of-the-art” method to make patrol deployment decisions and identify long-range patrol staffing needs. In essence, the MPP capability is a series of mathematical formulas designed to model the patrol force in any area, on any day of the week and during any time period. The MPP approach relies on queuing theory, probabilistic reasoning and various results from operations research that were first introduced to the field of law enforcement in the early 1970s by Dr. Richard Larson, a Professor of Engineering Systems and Civil and Environmental Engineering at the Massachusetts Institute of Technology.

The MPP is a computer model designed to analyze CAD data with the objective of matching staffing levels with patrol workload, while meeting specific performance goals. The MPP system transforms dispatch data into useful information about patrol performance.

Among others, the MPP model can account for the following factors:

- Number of units on patrol duties
- Average travel time
- Average service time
- Average call rate
- Number of units required by call
- Average time spent by call
- Average number of units deployed
- Average time spent on administrative duties or other non-call related tasks
- Percentage of priority 1, 2 and 3 calls
- Area of each district

The MPP approach identifies how many units are needed and when or where they should be deployed based on how busy patrol officers are and what the service goals of the police agency are. For example, the public goal of the Calgary Police Service is to obtain a 7-minute average priority 1 response time, maintain 40% of proactive time (along with 20% of administrative time and 40% of reactive time) and have 2 units available for backup at all times for officer-safety reasons.

Among others, the MPP system can estimate:

- Average number of free units (available to answer calls or perform other patrol duties)
- Average call time
- Average utilization rate
- Average response time
- Percentage of time spent on uncommitted time
- Proportion of calls handled by secondary units



- Probability that all units will be simultaneously busy
- Percentage of time during which all units will be simultaneously busy
- Number of response units required to meet particular patrol performance characteristics
- Optimal distribution of units across time blocks, days of the week or geographic areas

The number of units recommended by the MPP model is adjusted by geographic region, day of week and time block. The fundamental goal of the MPP model is to link patrol resources with call workload (staffing to workload) and therefore maintain consistent service levels. The MPP approach can be used to ensure that officers have a chance to do proactive policing and work at a steady pace.

As a Canadian pioneer in the use of the MPP model, the Calgary Police Service acknowledged that the MPP model can be used effectively to:

- Even out workload across shifts
- Provide time for problem solving and directed patrols
- Ensure a consistent level of service across the city
- Promote officer safety by helping to ensure enough free units are available for backup
- Provide some relief from the minimum staffing levels currently mandated under the minimum staffing guidelines by basing minimum staffing on workload requirements
- Better forecast scheduling requirements into the future

As opposed to the PAM approach, the MPP model can also be used to make empirical predictions, run simulations or look at hypothetical scenarios. For instance, the MPP model can be used to show what will likely happen to priority 1 response times, the number of free units and the amount of proactive policing when the number of units deployed changes, the number of dispatched calls varies or patrol shifts are reorganized.

In the United States, the MPP method is already used by the Seattle Police Department, the Los Angeles Police Department, the Charlotte-Mecklenburg (NC) Police Department, the Newport News (VA) Police Department, the Knoxville (TN) Police Department, the Winston-Salem (NC) Police Department and the Palm Beach (FL) County Sheriff's Office, among others. The Calgary Police Service was the first Canadian police agency to implement the MPP methodology. The Durham Regional Police Service, the Winnipeg Police Service and the Edmonton Police Service now seem to be following in the footsteps of the Calgary Police Service.

The problem with the MPP model is that:

- It is not very transparent. The underlying mathematical equations of the MPP model are based on theoretical results from queuing theory, operations research and regression analysis. Unfortunately, without knowing what assumptions are used, it is difficult to assess how precise or how relevant the results are.
- It is not very flexible. The MPP model is not designed to explore the call, dispatch and deployment data in detail. For instance, the MPP model cannot be used to study discrepancies by patrol district, source of calls, call types (e.g. abandoned 9-1-1 calls) or case types (e.g. residential break and enters, aggravated assault, etc.). Similarly, it cannot be used advantageously to study questions of a qualitative nature like the deployment of two-officer units, the design of the patrol districts, the creation of patrol-based specialty squads or the establishment of service level standards.

For these reasons, the Project Team cannot confidently recommend the use of the MPP model by the VPD at this stage. Nevertheless, as Constable Harty wrote in the VPD 2005 Shifting Review, the MPP model could turn out to be an effective tool for the district analysts that need to assess patrol deployment.

### **2.2.3 Staff Wizard**

Staff Wizard is a commercial computer program distributed by Corona Solutions. Like the MPP model, Staff Wizard is based extensively on the Patrol/Plan software developed by the Institute for Public Program Analysis for the U.S. National Institute of Justice. Staff Wizard uses results from queuing theory to analyze the patrol workload and generate key statistics that can be used to assess staffing, deployment and scheduling.

Using the patrol data, Staff Wizard can estimate:

- The expected number of citizen-generated calls for service by hour of the day and day of the week.
- The average number of patrol units dispatched to each call for service.
- The average service time.
- The total workload by patrol district, by priority level, by hour of the day and by day of the week.
- The average utilization rate by patrol district, by hour of the day and by day of the week.
- The average number of available patrol units.
- The average queuing delay, the average travel time and the average response time.
- The expected probability that a call will have to be stacked in the waiting queue.
- The expected average response time.

Essentially, Staff Wizard requires the following data to work correctly:

- A unique identifier for each recorded CAD call.
- The priority code associated with each call.
- Date and time stamps indicating when the call was received, dispatched and cleared.
- Date and time stamps indicating when each unit was dispatched, enroute or at the scene and when each unit cleared.

- A code differentiating between officer-initiated (on-view) and citizen-generated calls.

Staff Wizard relies on user-specified performance objectives to determine the appropriate staffing level for patrol. For instance, the user can provide:

- Maximum probability that all patrol units will be busy and a call will have to be stacked.
- Average utilization rate.
- Average response time (by priority).
- Average travel time (by priority).
- Average queue delay (by priority).
- Average number of available units.
- Uncommitted time per unit per hour.

Staff Wizard can assign units to a computer-generated optimized schedule or measure how efficient the schedule provided by user is.

In the VPD's case, the initial cost of purchasing, installing, setting up and maintaining Staff Wizard would be close to US\$ 80,000 while the recurring cost would be more than US\$ 8,000 annually. According to information publicly available, the Halton Regional Police Service, the Ottawa Police Service, the Austin Police Department, the Dallas Police Department, the Miami-Dade Police Department, the Seattle Police Department and the San Diego Police Department are currently using Staff Wizard or used it in the past.

Ultimately, Staff Wizard is a desirable software solution for police agencies who do not wish to study call, dispatch and deployment data in detail or look at questions of a qualitative nature like the deployment of two-officer units, the design of the patrol districts or the establishment of service level standards. Staff Wizard is also a solution of choice for "better practice" police organizations that do not have the analytical capabilities, the need or the willingness to examine patrol operations in a more systematic way. Staff Wizard can provide valuable indicators and is a useful tool to describe and predict performance and efficiency.

Unfortunately, Staff Wizard faces the same problems as the MPP model:

- It is not very transparent. Because it is a commercial software solution, Staff Wizard does not describe the mathematical models it relies on or the assumptions it uses to generate the results. Again, without knowing what assumptions are used, it is difficult to assess how accurate or how relevant the results are. In any case, even if the theoretical model used by Staff Wizard was completely accurate, it would be virtually impossible to explain the results obtained by Staff Wizard without an intimate knowledge of the underlying model.
- It is not very flexible. The Staff Wizard is not designed to explore questions of a qualitative nature like the deployment of two-officer units, the design of the patrol districts, the creation of patrol-based specialty squads or the establishment of service level standards. Moreover, some senior analysts in Canadian police agencies have previously questioned the ability of Staff Wizard to take into account union constraints, management constraints, shifting constraints and scheduling constraints.

In light of this information, the Project Team cannot confidently recommend the use of Staff Wizard by the VPD at this stage. Nevertheless, Staff Wizard could turn out to be an effective tool for the district analysts that need to assess patrol deployment in the future.

#### **2.2.4 The VPD Approach to Patrol Deployment**

This Patrol Deployment Study relies on a more comprehensive approach than the PAM approach, the MPP model or Staff Wizard. The approach that has been developed internally by the Planning and Research Section of the VPD:

- Includes most of the variables covered by the MPP model or Staff Wizard and many more.
- Is based on proven quantitative models from the academic literature on queuing theory, operations research and statistics.

- Has been enhanced by the training provided in 2006 by the consultant Iqbal Jamal, *P.Eng*, former Director at the Edmonton Police Service.
- Has been informed by the course *Patrol Allocation and Deployment for Law Enforcement Managers* provided in 2006 by the International Association of Chiefs of Police (IACP).
- Relies on reliable empirical data that was compiled and analyzed carefully before it was used to empirically assess patrol deployment.
- Incorporates valuable RMS data that is rarely used by other models.
- Is flexible enough to allow analysts to design experiments, test theories, consider “what if” scenarios and study most aspects of patrol operations.
- Is more scalable and flexible than the other commercial solutions available on the market today. The datasets, the tools and the interface developed under the framework of the Patrol Deployment Study can be used to easily study, at an aggregate level, millions of records compiled over several years. However, it can also be used, in conjunction with the Versadex software interface currently in place at the VPD, to investigate in detail one single incident and determine the patrol resources that were required to handle it, the patrol resources that were available at the time it was received and the patrol resources that were assigned to it.

Compared to other methods, the VPD approach to patrol deployment is more exhaustive in the sense that it considers many quantitative and qualitative, operational and managerial issues that are rarely considered elsewhere. For instance, this Patrol Deployment Study considers:

- How long patrol officers spend on each call for service.
- How many officers attend each call for service.
- Whether some officers should be reassigned to front-line patrol functions.
- Whether the calls that patrol officers currently attend need to be attended or whether some calls that are not currently attended should be attended.
- Whether more or less two-officer units should be deployed.

Conceptually, the PAM approach, the MPP model and Staff Wizard take historical patrol data (including the call data, the dispatch data and the deployment data) and generate empirical predictions based on that data. The VPD approach improves on this method by analyzing the data even before it is fed to the theoretical model. This leads to a better overview of what is currently being done and, even more importantly, what is not being done or what should be done differently.

## **2.3 EARLIER FINDINGS**

In the past few years, several authors have reviewed patrol operations at the VPD and elsewhere. Their findings are summarized below because they inform the analysis presented below.

### **2.3.1 Special Constable Ryan Prox's Patrol Resource Allocation Review**

In November 2002, Special Constable Ryan Prox and Isabelle Groc of the VPD's Planning, Research and Audit Section submitted Phase 1 of the Patrol Resource Allocation Review. The goal of the Patrol Resource Allocation Review Phase 1 was to examine the number of calls for service handled by the VPD on a daily and hourly basis as well as the time spent on these calls for service (in unit-minutes). The two variables were then used to examine at a superficial level patrol workload by district, by day of the week and by hour of the day.

While the Phase 1 analysis showed call distribution patterns and total unit-hours spent on calls by hour of the day (i.e. the demand for police services), it did not include data on the actual number of units deployed (i.e. the supply of police services). In order to better understand the patrol deployment model and be able to produce recommendations in this area, the Planning and Research Section initiated the second phase of the project. To this end, patrol attendance data was compiled manually into a Microsoft Access database. In April 2004, Special Constable Prox of the Criminal Intelligence Section submitted the Phase 2 report of the Patrol Resource Allocation

Review. The Phase 2 report provided the conclusion to a two-step evaluation that examined the shifting model in place in the Operations Division of the VPD. The Phase 2 report relied on the attendance data and provided several recommendations. In the Phase 2 report, Special Constable Prox established that patrol units were spending between 47% and 57% of their time on calls for service on average but, because the shifting pattern was not matching call load adequately, the average utilization rate was peaking at around 100% in some patrol districts during some periods. In particular, Special Constable Prox found that:

- At times, the unit utilization rate in some patrol districts was excessive.
- The average unit utilization was highest in District 2.
- Average unit utilization was increasing sharply during the weekend in part because of a higher call load during weekend bar hours.
- District 3 was experiencing an excessive average utilization rate between 0300 and 0400 hours because it did not adjust the start time and end time of the Charlie (1400 to 0100 hours) and Delta (1600 to 0300 hours) shifts during the weekend.

To mitigate these problems, Special Constable Prox proposed the creation of three new shifts to supplement the existing five patrol shifts, including an additional afternoon shift (Golf shift), an additional evening shift (Foxtrot shift) and an additional weekend shift (Hotel shift) financed using overtime. Moreover, Special Constable Prox argued that 142 additional patrol members were needed in order to:

- Allow the VPD to meet the service level fitting a best practice police department.
- Allow the VPD to implement the structural changes described above aimed at improving the efficiency of the shifting model.
- Improve the performance of patrol operations.

More precisely, Special Constable Prox contended that 22 additional patrol officers should join District 1, 60 additional patrol officers should join District 2, 40 additional patrol officers should join District 3 and 20 additional patrol officers should join District 4.



Although the deployment model proposed in the Phase 2 report addressed key concerns in patrol, the report did not contain:

- The historical data necessary to identify annual trends and patterns.
- The overtime data necessary to isolate deployment and staffing problems.
- The police response time data necessary to examine patrol performance and patrol service levels.

Unfortunately, the combination of these issues had a detrimental effect on the authority of the final Phase 2 report. Ultimately, the VPD senior management and the VPU determined jointly that the shifting model proposed in the Patrol Resource Allocation Review Phase 2 would not be implemented.

On 2006-11-19, Special Constable Prox submitted the final draft of the Patrol Resource Allocation Review Phase 3 to the Planning and Research Section. Special Constable Ryan Prox has collaborated on an on-going basis with the VPD Planning and Research Section in the development of this report. The Phase 3 of the Patrol Resource Allocation Review was a detailed, independent study that included a review of the shifting model and patrol workload. It was designed to:

- Determine whether the current patrol shifting and deployment model at the VPD meets the requirements of each patrol district.
- Identify the existing inefficiencies in the patrol deployment model.
- Isolate the impediments to the most effective use of the existing patrol resources.
- Make recommendations to correct the shortcomings of the current patrol deployment model.

The Phase 3 report addressed two interrelated areas of patrol operations.

1. The report assessed whether there are sufficient resources to respond to calls for services. As part of this analysis, service level targets and performance goals were proposed. Ultimately, Special Constable Prox found that best practice police departments strive to obtain an average utilization rate between 40% and

50% (depending whether the administrative time and meal breaks are included or not).

2. The report also proposed potential changes to the existing deployment model that would lead to a more efficient use of patrol resources and streamlined patrol operations. The goal of these recommendations was to eliminate or reduce inefficiencies in the patrol shifting and scheduling model and ensure that patrol deployment is synchronized with the anticipated call load by hour of the day and day of the week.

These two elements are studied in more detail in the main body of the report.

### **2.3.2 Constable Matthew Harty's 2005 Shifting Review**

In July 2005, Constable Matthew Harty submitted the 2005 Shifting Review to the VPD Shifting Committee. Constable Harty's mandate was to review the existing shifting model and research shifting models used by other North American police departments.

Under the framework of the 2005 Shifting Review, Constable Harty concluded that:

- The existing VPD shifting model (4 days on followed by 4 days off and rotating 11-hour shifts) was meeting a majority of the best practice standards suggested by the literature on shift work.
- Extending the Delta shift by an hour was both a viable and desirable short-term solution to the shift coverage problem.
- Fixed shifting was a desirable option to improve the existing shifting model in the long term.

In February 2006, senior VPD management implemented the main recommendation from Constable Harty's 2005 Shifting Review and extended the Delta coverage by one hour. Before 2006-02-08, the Delta shift during the week was starting at 1600 hours and ending at 0300 hours. During the weekend (on Friday and Saturday), the Delta shift was starting at 1700 hours and ending at 0400 hours in District 1, District 2 and District 4.

Since 2006-02-08, the Delta shift has been starting at 1600 hours and ending at 0400 hours every day of the week in all patrol districts.

The decision to extend the Delta shift is analyzed as part of this Patrol Deployment Study. Ultimately, the data suggests that the extension of the Delta shift had significant, positive effects in patrol.

### **2.3.3 Scottsdale Police Department's Assessment Study**

In October 2004, the Northwestern University Center for Public Safety submitted the Assessment of the Scottsdale Police Department's Allocation, Deployment and Scheduling Processes. As the architect behind the PAM approach, the Northwestern University Center for Public Safety (formerly known as the Traffic Institute) is an academic leader in the field of patrol staffing, patrol deployment and patrol allocation. The Scottsdale Police Department, for its part, is widely recognized as a best practice police department in the field of police planning and patrol deployment. As such, the Scottsdale Police Department's Assessment Study was a landmark in the field of law enforcement in general and patrol deployment in particular.

The Scottsdale Police Department's Assessment Study covered a wide range of topics, including patrol staffing and deployment. The main contribution of the Scottsdale Police Department's Assessment Study was to confirm that:

- The deployment of patrol resources by patrol district, day of the week and time of the day need to match the geographic and temporal distribution of demands for service as much as possible. Moreover, equitable workload across squads is a desirable feature of any patrol deployment model.
- The average response time to high priority calls is a key performance measure of patrol operations. Moreover, patrol staffing can affect significantly the average response time.
- The MPP model (as well as the Staff Wizard software solution based on the same tools) is not a silver bullet when it comes to the study of patrol deployment.

This is because the MPP model involves more complicated procedures that are difficult to use, understand and explain. Also, more complicated procedures like the MPP model or Staff Wizard have not been able to consistently demonstrate that they were more accurate compared to simpler, proven methods.

- Within each patrol district, there may be conflicting objectives between unit utilization and response time. More precisely, it may not be possible to balance both the average workload and the average response time in each patrol district if the workload is concentrated in some areas of the jurisdiction (e.g. District 1) while other areas are less dense (e.g. District 4).

By most standards, the Scottsdale Police Department's Assessment Study produced by the Northwestern University Center for Public Safety was innovative and very exhaustive. Several of the new ideas it introduced are considered in the context of this Patrol Deployment Study.

### **2.3.4 The Literature on Crime and Policing**

The main problem that economists and criminologists face when they try to estimate the relationship between crime and policing is that:

- Police resources may depend on crime patterns. Jurisdictions with more crime spend more on policing, and politicians will increase police budgets when they anticipate an increase in crime. Cities facing relatively high crime rates therefore tend to have relatively larger police forces. Even within individual jurisdictions, police officers may tend to be hired when the crime rate is increasing or an important crime problem is growing.
- Police resources may affect the number of crimes reported by citizens. As the police force expands, customer service and the quality of police investigations improve. As a consequence, the solving rate (also known as the clearance rate) has the potential to increase. Knowing that a crime is more likely to be solved, citizens may then be encouraged to report more crimes that would have remained undetected before additional officers were hired.

- Police resources may affect the number of crimes reported by officers. As police staffing increases, officers can have more uncommitted time and the police presence on the street expands. In turn, this may allow officers to discretionarily charge more people (e.g. following a domestic dispute), detect more on-view crimes (e.g. an impaired driver, a drug dealer, a prostitute agent assaulting a sex trade worker, etc.) or participate in more proactive policing activities (e.g. licensed premises checks, traffic stops, undercover drug operations, surveillance operations, etc.).

For all these reasons, additional police officers can therefore spuriously appear to cause more crime. One of the most important challenges faced by researchers is therefore to isolate the causal effect of police on crime.

Several researchers have studied the statistical relationship between the size of a police force and the crime level. In general, the most recent economic literature on crime and policing confirms that increases in police personnel can lead to reductions in crime. Academic authors have established, through the objective examination of empirical data and the careful use of sophisticated statistical techniques, that an increase in the number of police officers does lead to a significant reduction in the level of crime in a neighbourhood or city.

In other words, the more recent empirical evidence clearly supports the premise that additional police officers will reduce crime. For instance:

- *The Economist* (August 25th, 2005), using crime figures released by London's Metropolitan Police, suggests that the additional police officers deployed in the streets of London following the July 2005 attacks on the public transit system have contributed to reduce the crime level in the city. Following the July 7th bombings, crime went down by 12% compared to July 2004 in Camden, Hammersmith & Fulham, Lambeth, Tower Hamlets, Westminster and the City of London, where most of the additional police officers were deployed. In contrast, crime went up slightly in outer London, which did not receive as much extra

protection. This anecdotal evidence suggests that police presence can successfully deter criminal activity.

- Vollaard (2005) suggests that the increase in police resources witnessed during the period 1996-2003 in the Netherlands had a significant effect on property crime, violent and “nuisance” crimes. Using victimization data by region and data on police resources from the Dutch Interior Department, Vollaard (2005) finds that the growth in police personnel between 1996 and 2003 reduced the probability of becoming a victim of crime by about 10% and caused a fall in the Dutch crime rate. Vollaard (2005) estimates that a 10% increase in police resources has the potential to reduce property crime and violent crime by approximately 5% and 7% respectively. More specifically, Vollaard (2005) predicts that a 10% increase in police resources should cause a decrease of 14.7% in burglaries, 7.9% in auto crimes, 6.2% in bicycle thefts, 11.7% in purse thefts, 8.6% in graffiti, 7.6% in public intoxication and 11.1% in noise nuisance. Vollaard (2005) also presents evidence suggesting that additional police officers have an even larger impact on crime when they are allocated to urban areas.
- Shi (2005) finds that patrol officers at the Cincinnati Police Department may have become reluctant to police misdemeanor offences following the April 2001 shooting of an unarmed African-American male by a white police officer. In turn, Shi (2005) demonstrates that this reduction in policing activity led to an increase in the crime level, suggesting that criminal activity is sensitive to policing. Shi (2005) finds evidence suggesting that patrol officers at the Cincinnati Police Department may have policed less aggressively those offences requiring more discretion after they were placed under the intense external oversight engendered by the April 2001 shooting of an unarmed African-American male by a white Cincinnati police officer. For instance, Shi (2005) finds that arrests related to drug and alcohol use and traffic violations decreased significantly after April 2001. In turn, Shi (2005) reveals that this reduction in policing activity, by itself, is likely to have caused an increase of around 16% in felony crimes.
- Di Tella & Schargrofsky (2004) demonstrate that, everything else being equal, city blocks that received additional police protection following the July 1994

bombing of the Asociacion Mutual Israelita Argentina (A.M.I.A.) experienced fewer thefts of auto compared to the other neighbourhoods of Buenos Aires (who did not receive extra protection). Di Tella & Schargrotsky (2004) are able to isolate a large deterrence effect of police on crime. Using data relating to the location of car thefts before and after the terrorist attack for the period beginning April 1<sup>st</sup> and ending December 31<sup>st</sup>, the authors found that there was a reduction of 0.08 car thefts per month on average in the city blocks that received direct police protection (i.e. there were 8 fewer car thefts over 100 protected city blocks). These results suggest that car thefts decreased by approximately 75% where additional police protection was implemented.

- Klick & Tabarrok (2004) show that the increased police activity in Washington, D.C. during terror alerts is associated with a statistically significant fall in the crime level. Klick & Tabarrok (2004) argue that the reduction in the crime level witnessed during terror alerts is caused by the intensified police activity (i.e. when the Homeland Security alert level is high, there are more patrols, shifts are longer and there is extended surveillance around sensitive areas). Using daily crime data from the Metropolitan Police Department of the District of Columbia, Klick & Tabarrok (2004) find that crime in the National Mall area (which comprises the White House, the U.S. Congress, the Supreme Court, the Smithsonian and various other government agencies) was reduced by more than 2 crimes per day on average during high alerts. The authors conclude that an increase of approximately 50% in police presence is expected to lead to a statistically significant reduction of between 12 to 16% in the crime level.
- Levitt (2004) finds that the sharp fall in the U.S. crime rate witnessed in the 1990s was likely caused, in the most part, by an increase in the number of police officers, an increase in the number of prison inmates, a reduction in crack consumption and the legalization of abortion. Among others, Levitt (2004) shows that economic growth, population aging, improvements in policing strategies, changes in gun control laws, changes in concealed weapons laws and increased use of capital punishment can not realistically explain, by themselves, the crime reduction of the 1990s. Levitt (2004) instead concludes that the U.S. crime level

fell in the 1990s thanks to an increase in the number of police officers, an increase in the number of prison inmates, a reduction in crack consumption and the legalization of abortion in the 1970s. Based on the crime elasticities derived by Marvell & Moody (1996), Levitt (1997) and Corman & Mocan (2000), Levitt (2004) estimates that the additional 50,000 to 60,000 police officers hired between 1991 and 2001 could account for a reduction of 5 to 6% in the U.S. crime level (between 10 to 20% of the overall decline in crime). Ultimately, Levitt (2004) also finds that the investment in police has been a cost-effective approach to reducing crime. Based on commonly used estimates of the cost of crime incurred by victims, Levitt (2004) suggests that each dollar spent to hire more police officers in the 1990s may have generated social benefits (i.e. through decreased crime burden) worth between \$2.40 and \$3.00, which is 25% more than the social benefits generated by an extra dollar invested in prisons and incarceration.

- Corman & Mocan (2000) show that murders, assaults, robberies, burglaries and car thefts are influenced (with short lags) by the number of police officers and the number of arrests. Using monthly New York City crime and arrest data collected since 1970, the authors are able to estimate the relationship between the growth rate of various crimes and the growth in the number of police officers and the number of arrests. Corman & Mocan (2000) find that a 10% increase in the growth rate of arrests has the potential to cause a 9.40% decrease in the long-run growth rate of robberies, a 2.89% decrease in the growth rate of burglaries and a 2.72% decrease in the long-run growth rate of motor-vehicle thefts. Similarly, a 10% increase in the growth rate of the police force is expected to generate a 4.19% decrease in the growth rate of burglaries.
- Levitt (1997) suggests that increases in the size of police forces during mayoral and gubernatorial election years have an adverse effect on crime. Exploiting the fact that election timing may act as an instrument for changes in the size of the police force, Levitt (1997) is able to isolate the overall effect of police on violent crime rates. Using data for 59 U.S. cities collected between 1970 and 1992, Levitt (1997) find that the violent crime rate falls when the number of sworn



officers grows during election years. Levitt (1997) estimates that an increase of approximately 10% in the police force can generate a statistically significant decrease of approximately 6.5% to 13.9% in the violent crime rate.<sup>3</sup>

- Using data from 56 U.S. cities collected over twenty years, Marvell & Moody (1996) find that increases in the number of police officers do tend to reduce crime in the subsequent year. Marvell & Moody (1996) estimate that each additional officer added to a police force located in a large city will prevent an average of 24 Part 1 crimes (i.e. murders, sexual assaults, robberies, aggravated assaults, burglaries, larcenies and auto thefts). In contrast, the authors find that a representative officer hired anywhere in a State (including small towns) will likely prevent only 4 Part 1 crimes. Accordingly, Marvell & Moody (1996) conclude that the marginal benefits of hiring more police officers are greater in large urban centers, where the crime rate is generally higher.

To summarize:

1. The earlier research, by Corman & Mocan (2000) and Levitt (1997), indicates that a marginal increase in the police force can lead, by itself, to a decrease in the crime level. However, these authors find that a small (marginal) increase in the number of police officers generally leads to a moderate reduction in the crime level or the victimization rate.
2. Vollaard (2005), Di Tella & Schargrodsky (2004) and Klick & Tabarrok (2004) have assessed the impact of a significant increase in the level of police activity. These authors generally find that an increase in police activity (i.e. following a terrorist attack or a terror alert) has the potential to generate a substantial drop in the crime rate or the amount of criminal activity.

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<sup>3</sup> McCrary (2002) correctly argues that the results obtained by Levitt (1997) hinge on an incorrect transformation of the data. McCrary (2002) finds that when the correct transformation is used, the estimates become insignificant and virtually meaningless statistically. In response to McCrary (2002), Levitt (2002) proposes the number of municipal firefighters per capita as plausible exogenous instruments for the size of the police force. Using city-level data covering the period 1975-1995, Levitt (2002) finds that an increase of 10% in the number of sworn officers should lead to a fall of approximately 4.4% in the crime rate.

Overall, the economic literature supports the idea that the return to extra policing (in terms of reduced criminal activity) increases with the size of the change in authorized strength. When there is a small expansion of the police force, the additional police officers are likely to generate a moderate fall in the crime level. When there is a more meaningful increase in the level of police activity, each additional police officer is expected to have a relatively larger impact on crime.

## **2.4 THE PATROL DATA**

Within the last 5 years, the VPD has used three different CAD systems. Each system was associated with a new vendor and led to the introduction of unique features and functions, including additional data fields, different user interfaces as well as different methods to collect, store and retrieve the data.

Integral to the Patrol Deployment Study was the acquisition of the Department's data from E-Comm. The desired data resided in two different systems:

- Computer Aided Dispatch (CAD) data: All data records pertaining to calls for service from the public and the corresponding police response to those calls.
- Records Management System (RMS) data: All data records pertaining to police reports submitted on criminal and non-criminal events investigated by the VPD.

The computer systems in the Planning and Research Section also had to be upgraded to enable detailed analysis of the new data. The additional software and training included:

- Microsoft SQL Server (relational database software)
- SPSS (statistical software)
- Crystal Reports (programming software)
- ArcGIS (mapping software)

The study involved the analysis of historical patrol data from 2000-2005 (by Special Constable Prox) and an in-depth analysis of a one-year data sample covering the period

between June 2005 and May 2006 inclusively (by Simon Demers). The data available for the analysis included (but was not limited to):

- For each call, the identity of the caller, the location of the incident, the time at which the call was received and dispatched, the time at which the first officer arrived on-scene, how long the officers remained on the call, the number of officers who responded to the call, the call type (e.g. break and enter, assault, noise complaint, shots fired) and the priority level (i.e. priority 1 to 4).
- For each unit dispatched to a call, the call sign of the unit, the number of officers in the unit, the time at which the unit was dispatched, the time at which the unit arrived on-scene, how long the unit remained on the call.
- For each reported incident, the incident number, the type of the incident and the description of the offence (when applicable).
- For each unit that signed on the CAD system, the call sign of the unit, the number of officers in the unit and the time at which the unit signed on.

The CAD and RMS data allowed the VPD to determine:

- The number of active patrol units by district and time of day.
- The number of busy patrol units by district and time of day.
- The number of available patrol units by district and time of day.
- The call load by priority level, location, district, zone, time of day, day of the week and call type.
- The amount of resources necessary to respond to each call for service.
- The time that officers needed to perform various patrol activities.
- The dispatch time, travel time and response time for each call for service.
- The average response time by priority level, district, time of day, day of the week and call type.
- The average utilization rate by day of the week and hour of the day.
- The probability that all the police units patrolling a certain area will be simultaneously busy.
- The relationship between the number of patrol units or officers, the call load and the response time.

This data represents the empirical foundation of the VPD Patrol Deployment Study.

## **2.5 INTERVIEWS WITH PATROL PERSONNEL**

During the month of October 2006, the Patrol Deployment Study Project Team conducted interviews with 21 VPD officers. The majority of these officers were from the Operations Division and were assigned to patrol duties. This sample group included officers of all ranks from Constable to Deputy Chief Constable and officers with different levels of seniority and experience within the Department. The group included people from all 4 patrol districts and people from the odd and even side.

The selected patrol officers were interviewed individually by a member of the Patrol Deployment Study Project Team or the Planning & Research Section. The officers were asked about the activities that they were doing and the related challenges that they were facing on a day-to-day basis. Each interview took between 90 and 120 minutes on average. Although the answers provided by each individual officer will remain anonymous, the feedback obtained from the interviews is summarized below.

During the interviews, the interviewed officers explained that:

- Patrol teams are busy at all times of the day and most of the strain experienced by patrol members is a result of the limited manpower available. Patrol is understaffed and there are not enough officers to cover the busy times of the day, particularly on the late afternoon and night shifts. Some officers were frustrated by the fact that they were often forced to drive from call to call and that there was never any time to conduct follow-ups or proactive policing activities. Some officers wish they could take more time to thoroughly investigate certain incidents but they feel pressured to clear and take more calls. One senior Constable suggested that patrol, on many nights, is only “one call away from chaos.” The amount of calls that patrol is dispatched to is also a concerning challenge for the Inspectors and Sergeants.

- The current minimum staffing levels appear to be too low, although it would be difficult to increase the minimum staffing levels without first increasing the authorized strength. The current staffing levels are not based sufficiently on scientific analysis. The majority of the Sergeants and Inspectors thought that the minimum staffing levels should allow patrol officers to be also proactive (so that they aren't running from call to call), should reflect the call load as well as the public's expectations in terms of police services and should be clearly defined.
- Usually, the workload decreases significantly on Sunday, and then increases again on Monday, especially after holidays when people are returning home. Fridays and weekends are usually the busiest days of the week in terms of call load. However, many also felt that there was rarely a slow day in patrol anymore.
- District 1 and District 2 are busiest during the evening to early morning especially on Fridays and Saturdays. District 3 is busiest after midnight until 0500 hours, when the Alpha shift starts. District 4 is busiest during the afternoon.
- The period between 0100 and 0400 hours was the busiest for the late afternoon and night shifts and the period between 1400 and 1700 hours was the busiest for the day shift. During the busiest hours of the day, the patrol teams are dispatched to many calls creating an exhausting workload.
- The most prevalent policing problems in Vancouver are associated with the drug habits of several offenders. One officer suspected that the drug problem fuelled about 90% of the crime in Vancouver, including a large incidence of drug-related property crimes and organized crime.
- A great majority of the individuals who suffer from a mental illness within the Downtown Eastside are also drug-addicted and a high level of crime is associated with their activities.
- Report writing is one of the most tedious aspects of a patrol officer's work. The amount of time spent on report writing was typically dictated by the type of incidents encountered but typically varied from 3 hours to 8 hours per 11-hour shift.
- An excessive workload and reporting requirements often prevent patrol officers to engage in proactive or preventive policing activities.

- The amount of time attributed to report writing is closely related to the complexity and stringent reporting requirements associated with PRIME.
- The writing process could be condensed and the amount of work that is currently being done is excessive. Some officers suggested that they could streamline the report writing process and spend more time out on the road if PRIME would be more user-friendly. Some officers suggested that they could attend some calls for service and then dictate the relevant information to a civilian clerk or give the clerk a hand written report for transcription. Some Sergeants and Inspectors also suggested that report writing training needs to be improved in order to enforce more stringent writing standards.
- On-view incidents also play a role in creating more paperwork for the patrol officers. Officers often find themselves dealing with many calls of a serious nature that often involve violence, a potential for violence or medical issues like mental health. These cases often lead to a legitimate use of force and can be very challenging.
- Patrol officers would like to be able to go to most calls for service but they would be better able to deal with the most serious issues if some minor calls could be eliminated. Some suggestions of calls that could be redirected to alternative response units were petty thefts (e.g. under \$5,000), civil disputes, panhandlers, homeless people, people with mental health issues, found property, bylaw infractions, curfew breaches, outside warrants (enforceable only in another jurisdiction), child custody disputes with no endangerment or enforcement order and chronic missing persons. Officers felt that they should spend more time to investigate and report violent crimes, property crimes, follow-ups, major thefts and parole violations. Finally, officers noted that there should be a sworn presence at E-Comm and felt the old VPD Communications Centre provided a better service.
- Two-officer units are preferable to single-officer units. Police Academy training teaches contact and cover tactics that require two officers. Moreover, officers indicated that a two-person unit was a mandatory safety precaution when dealing with mentally-ill people, drug users and violent individuals. Many patrol officers

also felt that they were able to take on a more proactive role if they had a partner and did not have to wait for backup before responding to more serious calls. Morale was also higher among units that shared the workload with a partner and many felt this led to higher productivity because partners can learn from each other. It also provided a better mentoring experience for junior members who make up a large part of the patrol personnel.

- Except in the Downtown Eastside and during the night shifts, there are enough two-officer patrol cars. Many officers did note that there would be some benefit to deploying more single-officer cars during the day shift, when there are proportionately more report calls. Sergeants and Inspectors indicated that the deployment of two-officer units should be based on location, time of day, and type of call. The officers that were interviewed indicated that two-officer cars need to be used efficiently and were not effective when they were tied up on less serious calls. Some Sergeants indicated that they were expecting two-officer units to take the serious calls and generally saw some value in having single-officer units to take the less serious report calls.
- Given the fact that patrol squads are often deployed at the minimum staffing level, there must be some single-officer units on the road to ensure that police coverage is sufficient and that two-officer units are not tied up on minor calls.
- The 4-on-4-off shift is a good benefit to patrol, but a number of improvements need to be made in order to attract senior members back into patrol, and to deal with the spikes in the call load. There were some suggestions for modifying shifting patterns from the current model as it is hard to transition from the night shift to the day shift. Many officers noted that scheduling patterns could also be changed to attract more senior members back in patrol and customized by district to deal individually with the busiest periods in each of the four districts. The Inspectors and Sergeants agreed that the 4-on-4-off scheduling pattern offers a great lifestyle. However, the consensus was that the shift model needs to match the right amount of resources to the demands for service and should be determined by examining when and where the officers are most needed.

- More senior members could be attracted to patrol if seniority was formally recognized (e.g. with the Corporal rank or the Senior Constable status), monetary incentives were provided or more decision-making powers were given to frontline officers.
- Special patrol-based projects during Charlie shift (i.e. between 1400 to 0100 hours or 1900 to 0100 hours) are good for team morale and are desirable because they offer a change of pace from the ordinary patrol work. Many officers also conceded that patrol-based projects weren't very effective at stopping or preventing crime and that there have been many instances where the patrol squad didn't have specific goals before starting on a project.
- In general, Constables like doing Charlie projects. However, the patrol officers working during the Delta shift (i.e. between 1600 to 0400 hours) or Echo shift (i.e. between 1900 to 0600 hours) typically despise Charlie projects because they imply that a full patrol squad becomes unavailable and leaves them to deal with the call load.
- Although patrol officers respond relatively quickly to priority 1 calls, patrol officers should respond faster to lower priority calls. The widely held view among patrol officers is that the patrol response to lower priority calls could be quicker so that members of the public aren't waiting unreasonably long. Patrol officers also thought that they should have the ability to respond faster to calls in progress, suspicious circumstances, and any calls involving potential violence, such as domestic disputes.

The interviews also allowed the Patrol Deployment Study Project Team to determine that:

- Some officers feel that the current district boundaries need to be modified. Among others, some officers propose to further divide Districts 3 and District 4 because the geographical area that needs to be covered is too large compared to the small number of officers in those districts. A smaller number of officers thought that the Downtown Eastside could form a fifth standalone patrol district



as the resources allocated to District 2 are often consumed by the problems in the Downtown Eastside.

- The key to maintain the quality of service in patrol, according to many officers, is to minimize the number of specialty squads or special initiatives that take patrol personnel away and find ways to attract senior members back from other duties.
- Some officers indicated that, whenever a new specialty squad is created, the Department too often borrows patrol personnel and takes a long time to backfill the patrol position (if ever).
- Some Sergeants were concerned by the fact that they were sometimes losing Constables to various projects or Departmental initiatives without having the chance to provide their input. Other Sergeants expressed concerns about Charlie patrol-based projects and the strain these projects put on the remaining patrol resources. Nevertheless, some officers acknowledged that Charlie projects can often become positive team-building exercises. Some officers believed that Charlie projects were valuable and remained one of the only ways to deal with problem locations or prolific offenders.
- Some officers indicated that specialty squads such as ERT, Youth Services Unit, Gang Crime Unit and Traffic Enforcement Unit should assist more with patrol calls. Several officers mentioned that the Traffic Enforcement Unit could handle more motor vehicle incidents in order to allow regular patrol units to focus on more serious incidents.
- Some patrol officers felt that their work was not appreciated compared to other areas of the Department. In contrast, other officers considered that patrol was the best place to work.
- Some Inspectors and Sergeants believed that the officers spent too much time writing reports. These officers basically argued that the main duty of police officers was not data processing; instead, they should to be out on the street answering calls. Other Inspectors and Sergeants disagreed and thought that officers should be putting in more reports of a higher quality than they currently submit. These interviewees explained that it was important to spend some time to properly investigate and write thorough reports.

- Some officers didn't see the value of bringing senior Constables back in patrol because they felt that the senior Constables would not be motivated to be there.
- Some officers were concerned by the fact that senior acting NCOs were often expected to take on some additional tasks with no extra pay even when they aren't acting.
- Some officers considered that it would be desirable to attend any call that involves an interaction with the general public. However, other interviewees argued that break and enters and motor vehicle incidents not be attended by a police unit and that patrol officers should instead engage in proactive or preventive policing activities such as foot patrols, street and vehicle checks, random patrols around crime hotspots, follow-ups with victims, promoting target hardening, and monitoring chronic offenders.
- Some of the interviewees agreed that fixed shifts would enable officers to become familiar with their beat area and would possible match staffing with call load more closely. Other individuals highlighted the fact that fixed shifting limits the ability of patrol squads to communicate with each other. The major concern with shift bidding is that the senior members could potentially be the only individuals who benefit. Finally, shift bidding would isolate experience. This would be especially detrimental for the junior patrol members.

Ultimately, the information collected through the interviews with the patrol personnel informed the analysis presented below.

## **2.6 INTERVIEWS WITH E-COMM PERSONNEL**

During the month of November 2006, interviews were conducted with nine E-Comm employees holding the following positions:

- 911 Queue
- Emergency and non-emergency call takers
- Dispatchers
- Central Dispatchers

- Team Managers
- Operations Manager

The E-Comm staff interviewed had various levels of service ranging from 2 to 31 years of dispatch centre experience. Some of the employees that were interviewed had occupied all of the operational positions from 911 Queue to Central Dispatcher at various times in their career and were very experienced. The average interview took approximately 2 hours to complete.

E-Comm handles all emergency 911 calls for the Greater Vancouver Regional District (GVRD). They also handle the non-emergency calls, call taking and dispatching services for a number of police and fire agencies in the region, including the VPD. Given their unique position, E-Comm personnel were able to provide some valuable insights into VPD patrol deployment. The following section highlights the issues facing VPD patrol operations from an E-Comm personnel perspective.

The major issue that E-Comm personnel feel affects the response times of VPD patrol units is the lack of police personnel in patrol. As the population for the City of Vancouver steadily increases, police resources have not increased at the same growth rate. The lack of police personnel has manifested itself through the number of calls that are holding for several days before being dealt with. It is most noticeable on Friday and Saturday nights, on “Welfare Wednesdays” and even more pronounced during the summer months. One of the most senior Dispatchers noted that District 1 is completely out of control and has changed dramatically over the past 10 years.

Most E-Comm personnel feel that it is not the shifting patterns, but the need for more officers on all shifts that is the cause behind the delays in call responses. The general shifting pattern that is currently in place is seen as being a good model for matching officers to call load in Vancouver. However, it was suggested that the Charlie and Delta shifts should start one hour later as there is a need for more officers at peak times during the late night/early morning hours.

More units are currently needed to handle the calls for service and to allow for some proactive policing to occur. One of the challenges that E-Comm has encountered is that there are not enough available police units to assign calls to. As a consequence, some calls are often held in the queue for long periods of time. The lack of police resources leads to a slower response time which means an inability to provide proper customer service to the public.

E-Comm staff had many concerns in relation to the Charlie projects that some patrol teams participate in. Precisely when call load is peaking, the dispatchers sometimes get a call from a patrol Sergeant informing them that an entire team will be off the air doing a special project. This normally happens at one of the worst times of the day in terms of call load and E-Comm staff is rarely given any advance warning. This not only creates a back-log of calls but also puts additional pressure on the remaining patrol units who then face an even heavier workload.

The consensus at E-Comm is that the VPD needs to get back to patrol basics and start putting more uniform patrol officers back on the street. The experienced dispatchers have noticed that the call volume seems to be getting worse over time, yet the VPD seems to be deploying less uniform patrol officers than before. Some of the Dispatchers also dispatch for the RCMP and noted that the RCMP systematically deploys the bulk of their officers in a uniform patrol role.

While long priority 1 response times are sometimes a concern, the E-Comm personnel generally feel that they are handled properly. They are finding that some of the lower priority calls don't get answered for days. It is not rare that crime victims will call back to find out why the police are taking so long to come talk to them and investigate. They believe that sometimes lower priority calls (i.e. priority 3 and 4 calls) are not being taken seriously by officers. Challenges that must be overcome when dealing with any call include the artificial limitations and organizational silos created by the district boundaries as well as the manpower issues.

E-Comm personnel suggested that the following calls do not systematically require a swift police response: theft from auto and lost property over \$5000, chronic

complainers, follow-ups from other police agencies, credit card and internet fraud, less serious car accidents, missing hospital patients and audible alarms where there is no indication of a break and enter.

When deciding whether to dispatch one or two-officer units, E-Comm personnel try to match single-officer report calls to single-officer units. They also consider how long a citizen has been waiting and will typically send a two-officer unit when no single-officer cars are available. E-Comm personnel felt that, for officer safety reasons, certain calls always required two-officer units due to the nature of the call and believed that a two-officer unit was often required. They felt there was a need for more single-officer units on day shift and believed that this is usually the case. In contrast, there are more two-officer units deployed at night for priority 1 and priority 2 calls. Some of the factors that influence the type of unit dispatched include call type, priority, whether it is in progress or the suspect is still on scene, weapons are involved, multiple parties to deal with at the scene and any history associated with the address. It was apparent that officer safety is always a paramount concern of the people that were interviewed. Many of the experienced dispatchers develop a gut feeling for the calls and know when to dispatch a single officer, a two-officer unit or multiple units.

E-Comm staff was very supportive of GPS technology for patrol units. They see other police agencies at E-Comm using it (Richmond RCMP and the Ridge Meadows RCMP) and can't understand why the VPD would be reluctant to implement the technology. Everyone who was interviewed felt that GPS tracking and monitoring makes total sense for officer safety reasons, from a tactical point of view and from an efficiency perspective. GPS is perceived by E-Comm to be especially promising in the large patrol districts (District 2, District 3, District 4) because it would allow the dispatchers to see the location of all the patrol units so that, in theory, the closest available unit could be dispatched.

E-Comm staff noted that the BC Ambulance Service will dispatch paramedics all over the City and to other parts of the Lower Mainland when needed for an emergency. They felt that VPD could learn something from this approach as it would allow more flexibility

to move resources between districts when needed. Some dispatchers felt that District 3 and District 4 could be divided to form a fifth district because they are relatively very large. Dispatchers also believed that GPS would solve some of those problems and prevent units travelling from False Creek to the Fraser River to take a call.

The staff was very supportive of the TRT concept on two counts. First, TRT was very good to deal with some priority 3 and 4 calls. TRT was able to complete some investigations over the phone and, in other cases, they started the police report for the patrol officers before they arrived at the scene, thus saving them time at the end writing it up. The second benefit of TRT was having uniform officers in the dispatch centre for advice on calls and legal issues that sometimes arise.

Overall, E-Comm personnel persistently indicated that, in their view, the VPD doesn't have enough uniform resources in patrol. The common belief was that VPD is under resourced and needs to consider returning some of the officers assigned to special duties (e.g. special projects, surveillance) back to uniform patrol functions.

The feedback provided by E-Comm personnel to the Patrol Deployment Study Project Team informed the analysis presented below and greatly influenced the recommendations summarized at the end of the report.

## **2.7 SURVEY OF OTHER POLICE AGENCIES**

To examine current practices in law enforcement, a survey was prepared by the Patrol Deployment Study Project Team. This survey was sent out to 25 leading North American police agencies. Each police agency that was asked to participate either was similar to the VPD in terms of its size, had the reputation to be a best practice police department, was facing a comparable workload or was policing a similar community. Caution must be exercised when attempting to compare any individual respondent to the VPD because each organization serves a unique community in practice and operates in a distinct economic, political and social environment. Fortunately, aggregating data from a number of different agencies helps to eliminate the individual

differences that may exist between departments. Once this information is compiled, the trends that emerge in the data can be used as a baseline to examine how the VPD compares to its North American peers.

Out of the 25 police agencies that were invited to participate in the survey, 16 responded and returned a completed questionnaire to the Patrol Deployment Study Project Team. The following agencies responded to the survey:

- Calgary Police Service
- Charlotte-Mecklenburg Police Department
- Cincinnati Police Department
- Dallas Police Department
- Edmonton Police Service
- Miami Beach Police Department
- Ottawa Police Service
- Peel Regional Police
- Portland Police Bureau
- Regina Police Service
- San Diego Police Department
- Scottsdale Police Department
- Seattle Police Department
- Toronto Police Service
- Winnipeg Police Service
- York Regional Police

The following agencies were unable to or did not respond to the main survey (although some did provide some information about GPS technology\*):

- Durham Regional Police Service\*
- Halifax Regional Police Service
- Halton Regional Police Service\*
- Los Angeles Police Department
- Montreal Police Service

- Phoenix Police Department
- St. Louis Metropolitan Police Department\*
- Surrey Detachment of the R.C.M.P.\*
- Victoria Police Department\*

The Patrol Deployment Study Project Team wishes to thank all the agencies and their representatives that participated in this process, regardless of whether they were able to respond to the survey or not. The effort and cooperation of these agencies makes it possible to examine trends in policing and collectively advance the field of patrol deployment.

The following table summarizes some of the aggregate patrol data obtained from each surveyed agency for the year 2005. Casual observation of this benchmark data suggests that the VPD managed to handle more dispatched calls for service than either the Edmonton Police Service or the Peel Regional Police Service but had less patrol officers than both these Canadian agencies.



**Table 2-1 Number of Dispatched Calls for Service and Number of Patrol Officers  
in Surveyed Agencies**

<b>Agency</b>	<b>Dispatched Calls for Service*</b>	<b>Number of Patrol Officers</b>
Calgary Police Service	205,735	
Charlotte-Mecklenburg Police Department	396,611	914
Cincinnati Police Department	288,749	794
Dallas Police Department	606,975	1,173
Edmonton Police Service	142,787	724
Miami Beach Police Department	139,418	280
Ottawa Police Service	275,056	704
Peel Regional Police Service	185,232	647
Portland Police Bureau	244,335	
Regina Police Service	64,032	
San Diego Police Department	644,223	1,000
Scottsdale Police Department		289
Seattle Police Department	251,582	618
Toronto Police Service	799,151	1,575
<b>Vancouver Police Department</b>	<b>188,616</b>	<b>541</b>
Winnipeg Police Service	118,560	
York Regional Police Service		
<b>Average</b>	<b>303,404</b>	<b>772</b>
* Caution must be exercised when comparing the number of dispatched calls for service between agencies because the definition of dispatched calls for service varies by agency and depends on the CAD system used. Some CAD systems create a new call when officers conduct traffic stops or persons checks.		

The patrol deployment data is presented the table below.

**Table 2-2 Deployment Data from Surveyed Agencies**

<b>Agency</b>	<b>Scheduling Cycle</b>	<b>Fixed or Rotating</b>	<b>Deployment Software Used</b>	<b>All B&amp;Es Attended by Patrol Units</b>
Calgary Police Service	Irregular	Rotating	MPP	Yes
Charlotte-Mecklenburg Police Department	5-on-2-off or 4-on-3-off	Mixed	MPP	Yes
Cincinnati Police Department	49-day cycle	Shift Bidding	Custom	Yes
Dallas Police Department	5-on-2-off	Fixed	Staff Wizard	Yes
Edmonton Police Service	Irregular	Shift Bidding	Custom	
Miami Beach Police Department	4-on-3-off	Shift Bidding	None	Yes
Ottawa Police Service	15-day cycle	Mixed	Custom	Yes
Peel Regional Police Service	35-day cycle	Fixed	None	Yes
Portland Police Bureau	4-on-3-off	Shift Bidding	MPP	Yes
Regina Police Service			None	Most
San Diego Police Department	4-on-3-off	Rotating	None	
Scottsdale Police Department	4-on-3-off		Custom	Civilians
Seattle Police Department	4-on-2-off	Fixed	MPP	Yes
Toronto Police Service	35-day cycle	Rotating	None	Yes
<b>Vancouver Police Department</b>	<b>4-on-4-off</b>	<b>Rotating</b>	<b>None</b>	<b>Most</b>
Winnipeg Police Service	28-day cycle	Fixed	None	Most
York Regional Police Service	4-on-4-off	Fixed	None	Yes

As expected, few police agencies use a commercial solution to assist with patrol deployment. The Calgary Police Service, the Charlotte-Mecklenburg Police Department, the Portland Police Bureau and the Seattle Police Department rely on the MPP model while the Dallas Police Department uses Staff Wizard.

Patrol units were physically attending break & enters in virtually all the surveyed police agencies. This is in line with law enforcement’s best practices and is consistent with the practices currently in place at the VPD.

More benchmark data is presented in each relevant section below.

## **2.8 THE 2006 COMMUNITY DIALOGUE SURVEY**

As part of the Department's on-going strategic planning efforts, the VPD and the Vancouver Police Board co-hosted a Community Dialogue Session on 2006-06-03 at the Renaissance Vancouver Hotel Harbourside. The 2006 Community Dialogue Session was a follow-up to the 2004 Deliberative Dialogue. These bi-annual dialogue sessions allow the Department to obtain input from the community on topical issues related to the VPD Strategic Plan 2004-2008.

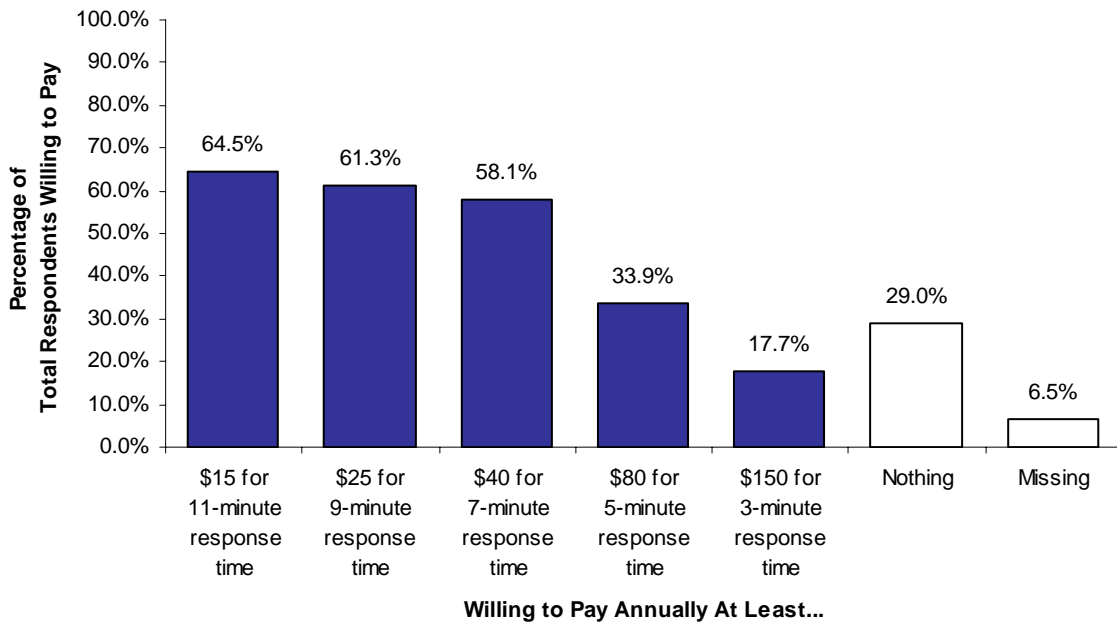
Participants from all over the City of Vancouver were invited to discuss issues relating to violent crime. More specifically, the 2006 Community Dialogue Session included discussions on domestic violence, violence against the vulnerable (seniors, children, women and sex trade workers), gang violence, gun violence and other types of violence (purse snatchings, home invasions and robberies). The Dialogue was an opportunity for the participants to provide valuable input to the VPD surrounding these issues. A total of 96 community members, belonging to various groups, attended this session. Members of the Vancouver Police Board and VPD were also in attendance.

The VPD Planning and Research Section, with the assistance of Professor Curt Griffiths, designed the 2006 Community Dialogue Survey that was disseminated to all the participants at the Community Dialogue Session. The 2006 Community Dialogue Survey contained 29 questions that were discussing, among others, service level expectations in the context of police services. Out of the 96 participants that were surveyed, a total of 62 returned the completed questionnaire. An analysis of the data collected during the 2006 Community Dialogue Session revealed that:

- Approximately 56.5% of the respondents felt that the city was not being policed adequately.
- Approximately 69.4% of the respondents considered that a 13-minute delay was unacceptable for serious, high priority (priority 1) calls.
- At least 64.5% of the respondents were willing to pay more property taxes annually to increase the actual number of patrol units on the street with the purpose of reducing the average response time to high priority (priority 1) calls. In

particular, 71.4% of the respondents who felt that the city was not policed adequately and 72.1% of the respondents who considered that a 13-minute delay for high priority calls was unacceptable were willing to pay more property taxes to increase the actual number of patrol units on the street.

**Figure 2-1 Willingness of the Participants at the 2006 Community Dialogue Session to Pay for Additional Patrol Officers**



Following in the path of several previous studies and surveys, the 2006 Community Dialogue Survey confirmed that Vancouver citizens expect a higher service level from the police and are willing to pay for it.

### **3 PATROL RESOURCES AND DEPLOYMENT**

For patrol purposes, Vancouver is divided in four districts. Each patrol district is managed by an Inspector who currently reports to the Deputy Chief Constable commanding the Operations Division.<sup>4</sup>

District 1 consists of the downtown core and is located in the northwest quadrant of Vancouver. It includes the West End, Yaletown, Coal Harbour, the Central Business District and Stanley Park. St. Paul's Hospital, the Pacific Centre, the Trade and Convention Center (cruise ship terminal), the Vancouver Art Gallery, Canada Place, GM Place and the BC Place Stadium are all located within District 1. During weekends or special events, a large number of people typically converge to District 1. Typically, evenings draw a large entertainment crowd to concerts, sporting events, pubs and cabarets on Granville Street and Robson Street. The 900 block of Granville Street in the Entertainment District houses the largest concentration of liquor establishments in the City.

District 1 is bordered by English Bay to the West, Burrard Inlet to the North, False Creek to the South and District 2 to the East. The boundary between District 1 and District 2 is roughly defined, from North to South, by Richards Street, West Hastings Street, Hamilton Street, West Pender Street, Beatty Street, Abbott Street and Quebec Street. The Burrard Bridge, Granville Bridge and Cambie Street Bridge all connect District 1 to District 4. The Lions Gate Bridge connects Stanley Park to North Vancouver and West Vancouver.

District 2 is located in the northeast quadrant of the City. District 2 includes Gastown, Chinatown, the Downtown Eastside and Commercial Drive, as well as the communities of Strathcona, Grandview Woodlands and Hastings Sunrise. District 2 houses the

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<sup>4</sup> After the reintroduction of the Superintendent rank, District Inspectors in District 1 and District 2 will report to the Patrol North Superintendent and District Inspectors in District 3 and District 4 will report to the Patrol South Superintendent.

Carnegie Public Library, the half-mile Hastings race track and the Pacific National Exhibition (PNE).

District 2 is bordered by District 1 to the West, Burrard Inlet to the North, Boundary Road to the East and District 3 to the South. The boundary between District 2 and District 3 is roughly defined by the Lougheed Highway, East Broadway, North Grandview Highway, Clark Drive, Great Northern Way, East 2nd Avenue and Quebec Street. The Second Narrows Ironworkers Memorial Bridge connects District 2 to North Vancouver.

District 3 is located in the southeast quadrant of the City and houses a diverse mix of income groups, industries and businesses. It includes the communities of Mount Pleasant, Kensington Cedar Cottage, Renfrew Collingwood, Sunset, Victoria Fraserview and Killarney. Kingsway is the main traffic route in the patrol district.

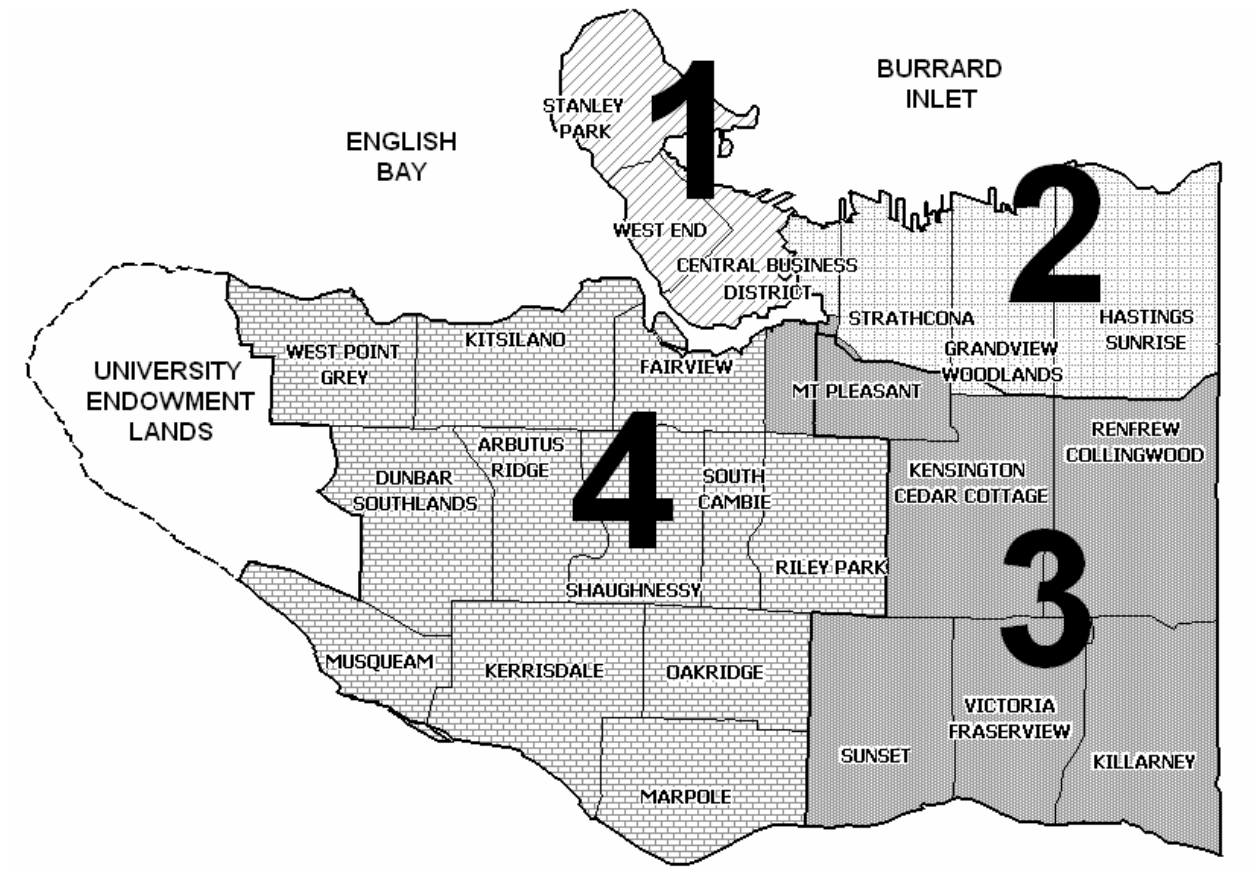
District 3 is bordered by District 2 to the North, Boundary Road to the East, the North Arm Fraser River to the South and District 4 to the West. The boundary between District 2 and District 3 is roughly defined by Ontario Street, East 16th Avenue, Fraser Street, East 41st Avenue and Ontario Street. The Knight Street Bridge connects Vancouver to the City of Richmond.

District 4 is the patrol district with the largest geographic area. It encompasses the communities of West Point Grey, Kitsilano, Marpole, Shaughnessy, Kerrisdale, Riley Park, Dunbar, Oakridge, Arbutus Ridge, South Cambie, Fairview and Musqueam. District 4 houses Granville Island, the Vancouver General Hospital, Vanier Park, the Planetarium, Queen Elizabeth Park, the Musqueam Indian Reserve, Spanish Banks, Kitsilano Beach, Jericho Beach, Locarno Beach, Nat Bailey Stadium, Jericho Golf and Country Club, and Van Dusen Gardens. The construction of the RAV line is currently underway in District 4.

District 4 is bordered by English Bay to the North, District 3 to the East, the North Arm Fraser River to the South and the University Endowment Lands to the West. The Oak

Street Bridge and the Arthur Laing Bridge both connect District 4 with the City of Richmond.

**Figure 3-1 City Neighbourhoods and Patrol Districts**



The VPD patrol shifting model currently relies on 5 distinct shifts.

- Since 2006-03-04, the Alpha (early day) shift has been taking place between 0445 and 1600 hours.<sup>5</sup>
- The Bravo (day) shift takes place between 0700 and 1800 hours.
- The Charlie (afternoon) shift takes place between 1400 and 0100 hours.

<sup>5</sup> Before 2006-03-04, the Alpha shift was starting 15 minutes later (at 0500 hours).

- Since 2006-02-08, the Delta (late afternoon) shift has been taking place between 1600 and 0400 hours.<sup>6</sup>
- The Echo (night) shift takes place between 1900 and 0600 hours.

The BET shifting schedule is tweaked to account for the fact that BET officers cycle through only 2 of the 5 shifts. Like the other regular patrol units in each patrol district, BET officers on day shift work between 0700 and 1800 hours (Foxtrot or BET day shift). A second set of BET officers also work a late afternoon shift between 1600 to 0330 hours during the week (Golf or BET late afternoon shift) and between 1630 to 0400 hours during the weekend (weekend Golf shift). A BET late car is also expected to be deployed every night between 1830 and 0600 hours (BET late car). This ensures a 23-hour BET coverage in the Downtown Eastside.

**Table 3-1 Current VPD Shifting Model**

<b>Shift</b>	<b>Time</b>
Alpha	0445 to 1600 Hours
Bravo	0700 to 1800 Hours
Charlie	1400 to 0100 Hours
Delta	1600 to 0400 Hours
Echo	1900 to 0600 Hours
Foxtrot (BET Only)	0700 to 1800 Hours
Golf (BET Only)	1600 to 0330 Hours
Weekend Golf (BET Only)	1630 to 0400 Hours
Late Car (BET Only)	1830 to 0600 Hours

Currently, the patrol division at the VPD consists in a large part of 10 patrol squads in each of the 4 patrol districts and 4 separate BET patrol squads.

In District 1, there is also the Crime Suppression Team (Team 11) and a Mounted Squad (Team 12). In District 2, there is the Rapid Action Team (not formally authorized) and the Marine Squad (Team 11). In District 3, there is the Street Crime Enforcement

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<sup>6</sup> Before 2006-02-08, the Delta shift was ending one hour earlier (at 0300 hours) during the week and was starting one hour later (at 1700 hours) during the weekend. This was the case in all patrol districts except District 3, where the Delta was not adjusted during the weekend. In District 3, the Delta shift was always ending one hour earlier (at 0300 hours) before 2006-02-08.



Unit (not formally authorized). In District 4, there is also the Property Crime Reduction Unit (not formally authorized). Because these units play a specialized role in patrol and their primary mandate is not to answer calls for service, they were excluded from most of the data analysis. The business practices of the Mounted Squad, the Marine Squad and the District Surveillance Teams will be reviewed as part of the upcoming VPD Investigative Deployment Study.

Two of the 10 patrol squads in each patrol district (Team 1 and Team 2) work a fixed Alpha shift on a 4-on-4-off schedule. In other words, Team 1 will work four consecutive days during the Alpha shift and will then have four consecutive days of leave. Team 2 will take over while Team 1 is away on leave and vice versa. Days during which Team 1 is working are called "odd days". Days during which Team 2 is working are called "even days".

The 8 remaining patrol squads in each patrol district (Team 3 to Team 10) follow a 4-on-4-off forward shift rotation starting with the Bravo shift up to the Echo shift. In other words, Team 3 will work four consecutive days during the Bravo shift and will then have four consecutive days of leave. During the same period, Team 5 will work four consecutive days during the Charlie shift and will then have four consecutive days of leave. Team 7, for its part, will work four consecutive days during the Delta shift and will then have four consecutive days of leave. Finally, Team 9 will work four consecutive days during the Echo shift and will then have four consecutive days of leave. The even teams (Team 4, Team 6, Team 8 and Team 10) take over when the odd teams are away. After each scheduling cycle, each patrol team rotates forward. This implies that a patrol team working during the Bravo shift 8 days ago will next work during the Charlie shift. Similarly, a patrol team working during the Echo shift 8 days ago will next work during the Alpha shift.

For example, the period 2006-12-01 to 2006-12-04 consisted of the odd shift rotation. During this period, the Team 1 in each patrol district was working during the Alpha shift, Team 3 was working during the Bravo shift, Team 5 was working during the Charlie shift, Team 7 was working during the Delta shift and Team 9 was working during the

Echo shift. The other patrol teams (Teams 2, 4, 6, 8 and 10) were on leave during this time. By contrast, the period 2006-12-05 to 2006-12-08 consisted of the even shift rotation. During this period, the Team 2 in each patrol district was working during the Alpha shift, Team 4 was working during the Charlie shift, Team 6 was working during the Delta shift, Team 8 was working during the Echo shift and Team 10 was working during the Bravo shift. The other patrol teams (Teams 1, 3, 5, 7 and 9) were on leave during this time. Between 2006-12-09 and 2006-12-12 (odd days), Teams 1, 3, 5, 7 and 9 in each patrol district came back to work while Teams 2, 4, 6, 8 and 10 were on leave. During this period, Team 3 was working during the Charlie shift, Team 5 was working during the Delta shift, Team 7 was working during the Echo shift and Team 9 was working during the Bravo shift. Since it is not rotating forward like the other patrol teams, Team 1 was still working during the Alpha shift.

Over an 8-day cycle, VPD patrol officers work 4 consecutive days (11-hour shifts) and then have 4 consecutive days off. In any given year, this shift schedule leads to approximately 70 hours of "Paid Time Owed" (PTO) per patrol officer. These are hours that the patrol officer owes back to the Department. Typically, patrol officers will spend around 57% of this time (40 hours) on training but will still owe 30 hours to the Department. Historically, these hours have been used up during the year by deploying additional officers during high demand events such as Halloween and New Year's Eve. Since February 2006, officers have been paying back the PTO hours by working an additional hour during the Delta (late afternoon) shift. The 12-hour Delta shift (1600 to 0400 hours) insures that more officers are available during peak call times when liquor establishments are closing. For their part, the members in Team 1 and Team 2 in each of the patrol districts pay back the PTO hours by starting 15 minutes earlier on each shift. This is why the Alpha shift extends from 0445 to 1600 hours. Moreover, BET officers pay back the PTO hours by working 30 minutes longer during the Golf (late afternoon) shift.

### 3.1 PATROL UNITS

Between 2005-06-01 and 2006-05-31, a total of approximately 45,650 VPD patrol units were deployed citywide:

- 7,951 were patrol supervisors;
- 4,352 were patrol wagons;
- 4,940 were patrol beat units;
- 3,533 were BET units;
- 6,000 were plainclothes patrol units;
- 18,823 were uniform patrol units.<sup>7</sup>

Among the 7,951 patrol supervisors deployed over the one-year period, 681 were BET supervisors. Among the 4,940 patrol beat units, 253 were Commercial Drive patrol beat units.

**Table 3-2 Number of Patrol Units Deployed Citywide by Unit Type**

	<b>Unit Type</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Day</b>
	<b>Patrol Supervisors</b>	<b>7,951</b>	<b>21.8</b>
	Beat Enforcement Team (BET) Supervisors	681	1.9
	Other Patrol Supervisors	7,270	19.9
<b>Regular Patrol Units</b>	<b>Bicycle Units</b>	<b>51</b>	<b>0.1</b>
	<b>Plainclothes Patrol Units</b>	<b>6,000</b>	<b>16.4</b>
	<b>Uniform Patrol Units</b>	<b>18,823</b>	<b>51.6</b>
	<b>Beat Enforcement Team (BET)</b>	<b>3,533</b>	<b>9.7</b>
	<b>Patrol Beat Units</b>	<b>4,940</b>	<b>13.5</b>
	Commercial Drive Patrol Beat Units	253	0.7
	Other Patrol Beat Units	4,687	12.8
	<b>Patrol Wagons</b>	<b>4,352</b>	<b>11.9</b>
	<b>Total</b>	<b>45,650</b>	<b>125.1</b>

<sup>7</sup> In this section, a unit refers to a unit-shift (i.e. a unit deployed during a single shift).

Patrol supervisors are responsible for supervising a team of Constables. They determine whether the Constables will be deployed in single-officer units or two-officer units. They brief Constables at the beginning and the end of each shift and also after serious incidents that may occur during the shift. Patrol supervisors manage the call load, coordinate the police response to serious incidents and ensure the appropriate resources are dedicated to these calls. They provide advice to Constables on how to proceed with various types of investigations. They also assist regular patrol units by taking some calls for service and providing backup when needed. In addition to assisting officers in their district, patrol supervisors liaise with E-Comm personnel, the Duty Officer (Car 10) and other police supervisors on a regular basis.

Between 2005-06-01 and 2006-05-31, a total of 1,449 patrol supervisors were deployed citywide during the Alpha shift, 1,776 were deployed during the Bravo shift or the Foxtrot shift in BET, 1,454 were deployed during the Charlie shift, 1,817 were deployed during the Delta shift or the Golf shift in BET and 1,455 were deployed during the Echo shift.

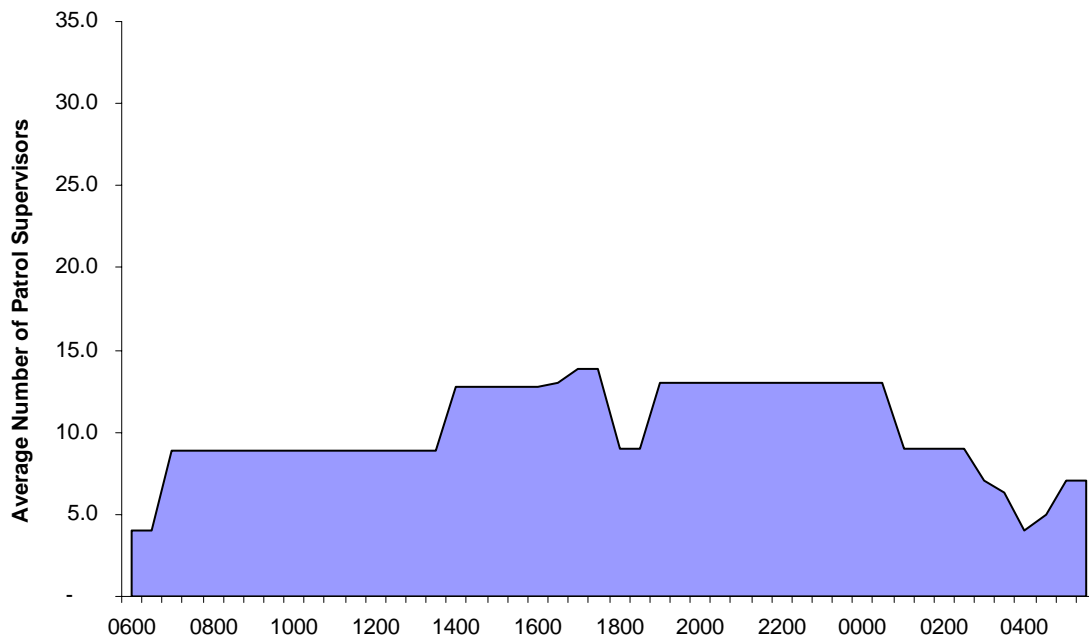
**Table 3-3 Number of Patrol Supervisors Deployed Citywide by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	1,449	4.0
Bravo or BET Foxtrot	1,776	4.9
Charlie	1,454	4.0
Delta or BET Golf	1,817	5.0
Echo	1,455	4.0
<b>Total</b>	<b>7,951</b>	<b>4.4</b>

On average, this implies that there were 4.0 to 13.8 patrol supervisors deployed citywide at any given time between 2005-06-01 and 2006-05-31. An average of approximately 4.0 patrol supervisors (one supervisor per patrol district) were deployed citywide between 0600 and 0700 hours, after the Echo units had signed off but before the Bravo units were deployed. On the other hand, approximately 13.8 patrol supervisors were deployed citywide on average between 1700 and 1800 hours, when

Bravo units were preparing to sign off and Charlie, Delta and BET units were all working.

**Figure 3-2 Average Number of Patrol Supervisors Deployed Citywide by Hour of the Day**



The primary responsibility of patrol wagons is to transport arrested parties from the scene of an incident to the Vancouver Jail located on Cordova Street. When required, patrol wagons also transport intoxicated persons to the detox centre or the Vancouver Jail if they are violent. When not transporting arrested parties, wagons assist with less serious calls that generally do not require a report and provide backup to regular patrol units.

Patrol wagons are compartmentalized and are able to transport multiple people simultaneously (e.g. young offenders, males, females). They often respond to multiple wagon calls in their district and have to prioritize their pickups based on the nature of the incident, the location of the incident and how long officers have been waiting for transport. The use of police wagons enables the investigating officers to remain at the

scene of the incident and conclude the investigation. Patrol wagons are normally staffed by a single officer.

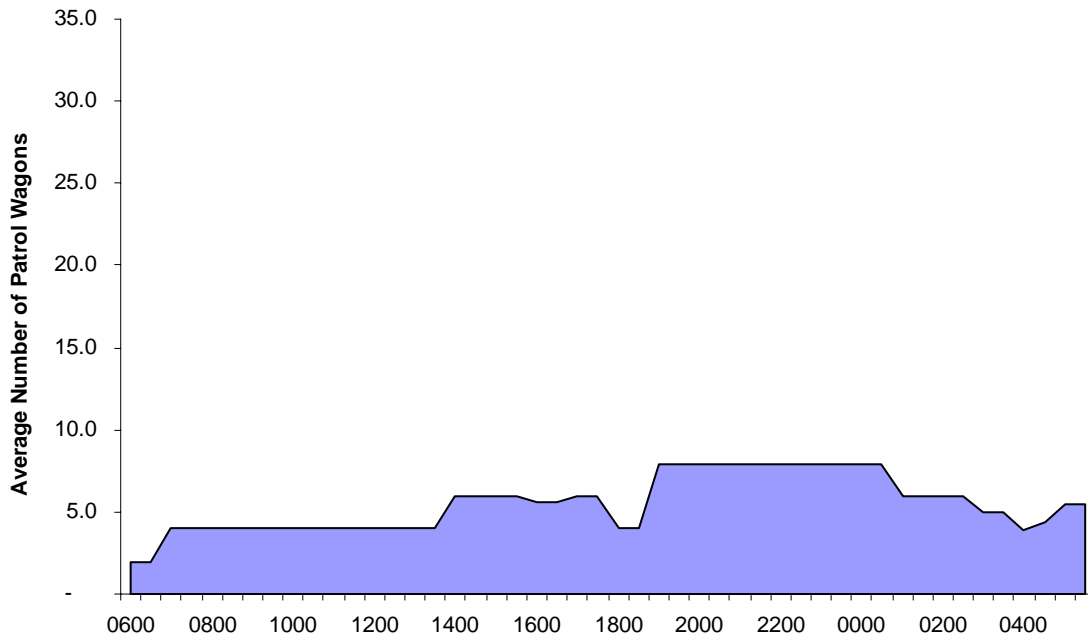
Between 2005-06-01 and 2006-05-31, a total of 729 patrol wagons were deployed citywide during the Alpha shift, 730 were deployed during the Bravo shift, 730 were deployed during the Charlie shift, 725 were deployed during the Delta shift and 1,438 were deployed during the Echo shift.

**Table 3-4 Number of Patrol Wagons Deployed Citywide by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	729	2.0
Bravo	730	2.0
Charlie	730	2.0
Delta	725	2.0
Echo	1,438	3.9
<b>Total</b>	<b>4,352</b>	<b>2.4</b>

On average, this implies that there were 2.0 to 7.9 patrol wagons deployed citywide at any given time between 2005-06-01 and 2006-05-31. An average of approximately 2.0 patrol wagons were deployed citywide between 0600 and 0700 hours while approximately 7.9 patrol wagons were deployed between 1900 and 0100 hours, when Charlie, Delta, afternoon BET and Echo units were all working.

**Figure 3-3 Average Number of Patrol Wagons Deployed Citywide by Hour of the Day**



Between 2005-06-01 and 2006-05-31, a total of 221 patrol beat units were deployed citywide during the Alpha shift, 1,175 were deployed during the Bravo shift, 1,212 were deployed during the Charlie shift, 1,171 were deployed during the Delta shift and 1,161 were deployed during the Echo shift.

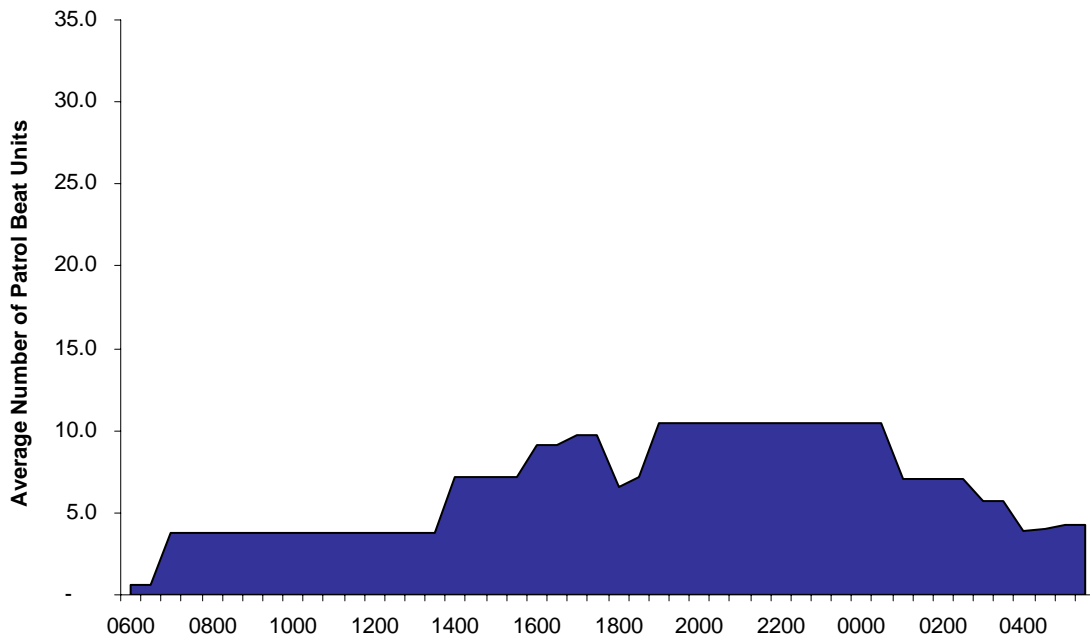
**Table 3-5 Number of Patrol Beat Units Deployed Citywide by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	221	0.6
Bravo	1,175	3.2
Charlie	1,212	3.3
Delta	1,171	3.2
Echo	1,161	3.2
<b>Total</b>	<b>4,940</b>	<b>2.7</b>

This implies that there were only 0.6 patrol beat units on average citywide between 0600 and 0700 hours, when Alpha units are preparing to sign off and Bravo units are not deployed yet. The rest of the time, there were between 3.8 and 10.4 deployed patrol

beat units on average citywide. An average of approximately 3.8 patrol beat units were deployed citywide between 0700 and 1400 hours while approximately 10.4 patrol beat units were deployed between 1900 and 0100 hours, when Charlie, Delta and Echo units were all working.

**Figure 3-4 Average Number of Patrol Beat Units Deployed Citywide by Hour of the Day**



Between 2005-06-01 and 2006-05-31, a total of 615 plainclothes patrol units were deployed citywide during the Alpha shift, 1,214 were deployed during the Bravo shift, 1,572 were deployed during the Charlie shift, 1,418 were deployed during the Delta shift and 1,181 were deployed during the Echo shift.

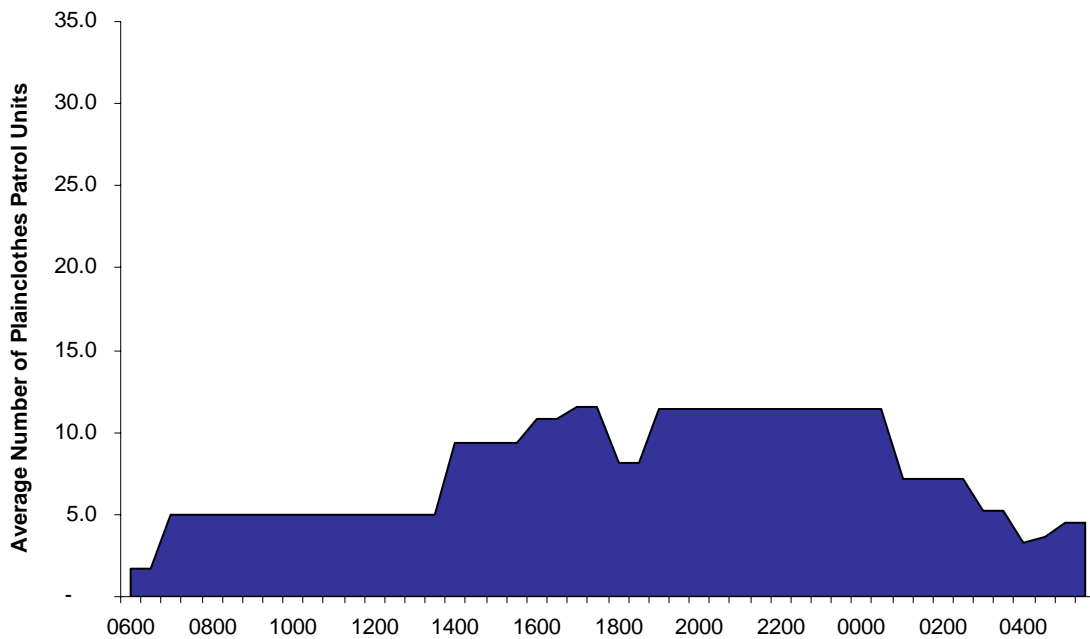


**Table 3-6 Number of Plainclothes Patrol Units Deployed Citywide by Shift**

Shift	Number of Units Deployed	Average Number of Units Deployed per Shift
Alpha	615	1.7
Bravo	1,214	3.3
Charlie	1,572	4.3
Delta	1,418	3.9
Echo	1,181	3.2
<b>Total</b>	<b>6,000</b>	<b>3.3</b>

On average, this implies that there were 1.7 to 11.5 plainclothes patrol units deployed citywide at any given time between 2005-06-01 and 2006-05-31. An average of approximately 1.7 plainclothes patrol units were deployed citywide between 0600 and 0700 hours while approximately 11.5 plainclothes patrol units were deployed on average between 1700 and 1800 hours. Moreover, 11.4 plainclothes patrol units were deployed on average between 1900 and 0100 hours, when Charlie, Delta and Echo units are working.

**Figure 3-5 Average Number of Plainclothes Patrol Units Deployed Citywide by Hour of the Day**



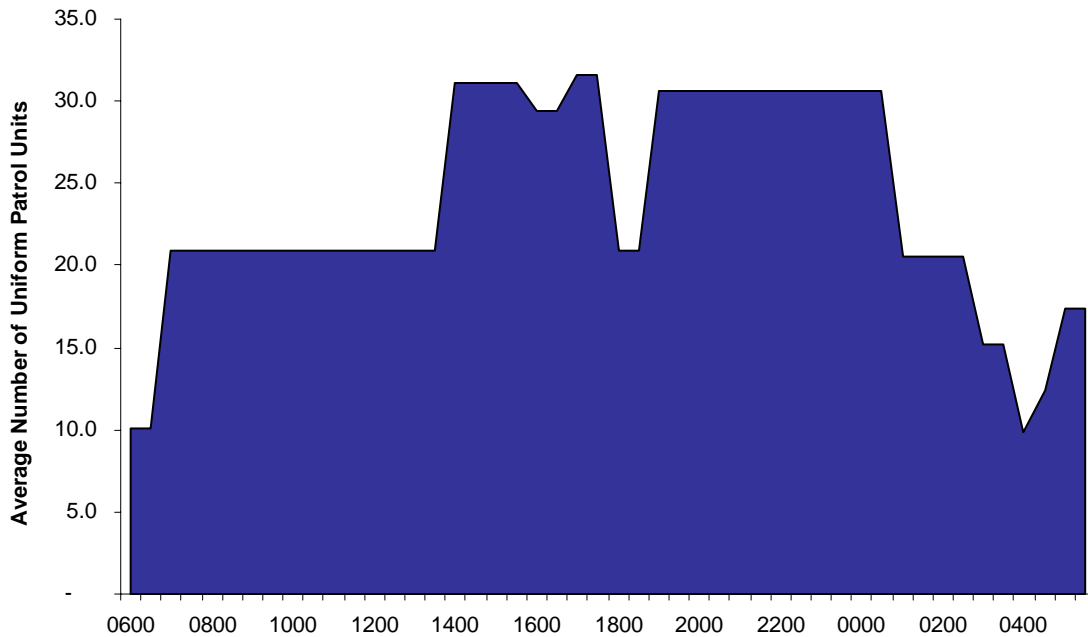
Between 2005-06-01 and 2006-05-31, a total of 3,698 uniform patrol units were deployed citywide during the Alpha shift, 3,926 were deployed during the Bravo shift, 3,718 were deployed during the Charlie shift, 3,903 were deployed during the Delta shift and 3,578 were deployed during the Echo shift.

**Table 3-7 Number of Uniform Patrol Units Deployed Citywide by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	3,698	10.1
Bravo	3,926	10.8
Charlie	3,718	10.2
Delta	3,903	10.7
Echo	3,578	9.8
<b>Total</b>	<b>18,823</b>	<b>10.3</b>

On average, this implies that there were 9.8 to 31.6 uniform patrol units deployed citywide at any given time between 2005-06-01 and 2006-05-31. An average of approximately 9.8 uniform patrol units were deployed citywide between 0400 and 0430 hours while approximately 31.6 uniform patrol units were deployed on average between 1700 and 1800 hours. Moreover, 31.1 uniform patrol units were deployed on average between 1400 and 1600 hours, when Alpha, Bravo and Charlie units are working. Finally, 30.7 uniform patrol units were deployed on average between 1900 and 0100 hours, when Charlie, Delta and Echo units are working.

**Figure 3-6 Average Number of Uniform Patrol Units Deployed Citywide by Hour of the Day**



Patrol beat units, plainclothes patrol units and uniform patrol units represent the main pool of patrol resources available to answer calls for service. In the remaining portion of this report, these units are referred to as regular patrol units.

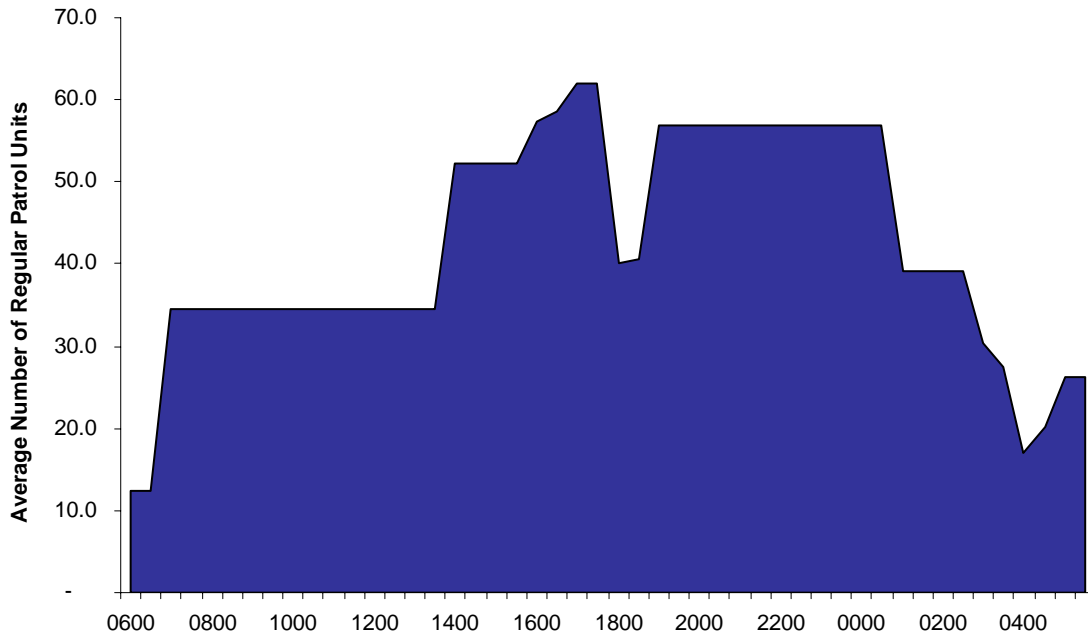
Overall, a total of 4,541 regular patrol units were deployed citywide during the Alpha shift, 8,028 were deployed during the Bravo shift, 6,513 were deployed during the Charlie shift, 8,093 were deployed during the Delta shift and 6,172 were deployed during the Echo shift (including the BET Late Car).

**Table 3-8 Number of Regular Patrol Units Deployed Citywide by Shift**

Shift	Number of Units Deployed	Average Number of Units Deployed per Shift
Alpha	4,541	12.4
Bravo or BET Foxtrot	8,028	22.0
Charlie	6,513	17.8
Delta or BET Golf	8,093	22.2
Echo or BET Late Car	6,172	16.9
<b>Total</b>	<b>33,347</b>	<b>18.3</b>

In essence, regular patrol units consist mainly of uniform patrol units. It is therefore not surprising to observe that the deployment pattern of regular patrol units follows very closely the deployment pattern of the uniform patrol units.

**Figure 3-7 Average Number of Regular Patrol Units Deployed Citywide by Hour of the Day**



### **3.2 SINGLE-OFFICER AND TWO-OFFICER PATROL UNITS**

Out of the 45,650 patrol units deployed citywide between 2005-06-01 and 2006-05-31, approximately 19,630 were single-officer units. Out of the remaining 26,020 units, 3,634 were comprised of a Field Trainer and a Block II recruit from the Police Academy. In practice, these 3,634 units should be considered as single-officer units. Ultimately, this implies that 49.0% of all patrol units deployed citywide (including patrol supervisors and patrol wagons) were two-officer units and 51% were single-officer units.

**Table 3-9 Number of Single and Two-Officer Patrol Units Deployed Citywide**

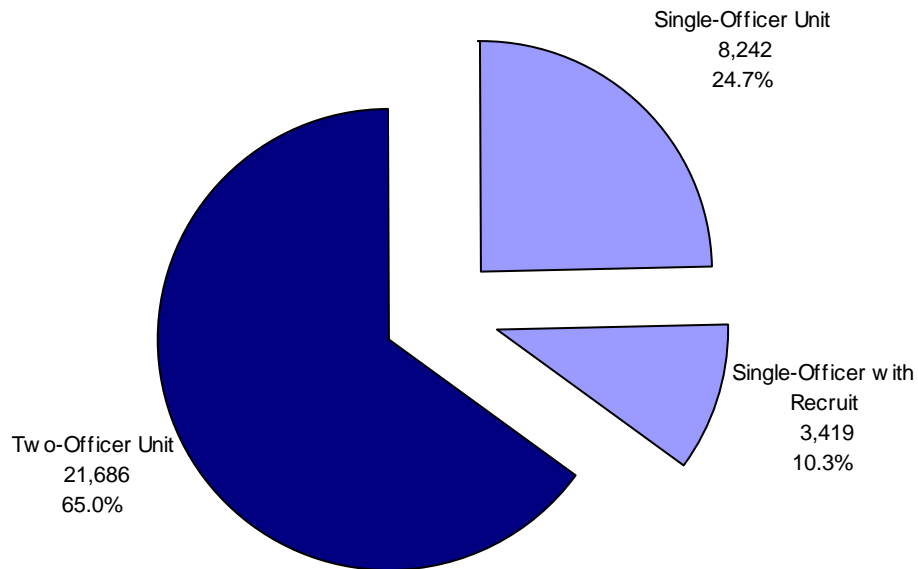
	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	19,630	43.0%
Single-Officer with Recruit	3,634	8.0%
Two-Officer Unit	22,386	49.0%
<b>Total</b>	<b>45,650</b>	<b>100.0%</b>

Out of the 33,347 regular patrol units deployed citywide between 2005-06-01 and 2006-05-31, 8,242 were single-officer units. Out of the remaining 25,105 regular patrol units, 3,419 were comprised of a Field Trainer and a Block II recruit. In practice, these 3,419 units should be considered as single-officer units. Ultimately, this implies that 65.0% of all regular patrol units deployed citywide (excluding patrol supervisors and patrol wagons) were two-officer units and 35.0% were single-officer units.

**Table 3-10 Number of Single and Two-Officer Regular Patrol Units Deployed Citywide**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	8,242	24.7%
Single-Officer with Recruit	3,419	10.3%
Two-Officer Unit	21,686	65.0%
<b>Total</b>	<b>33,347</b>	<b>100.0%</b>

**Figure 3-8 Proportion of Single and Two-Officer Regular Patrol Units Deployed Citywide**



Out of the 4,541 regular patrol units deployed citywide during the Alpha shift, 1,772 were single-officer units. Out of the remaining 2,769 regular patrol units, 362 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 53.0% of all regular patrol units deployed citywide during the Alpha shift were two-officer units and 43.0% were single-officer units.

**Table 3-11 Number of Single and Two-Officer Regular Patrol Units Deployed During the Alpha Shift Citywide**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	1,772	39.0%
Single-Officer with Recruit	362	8.0%
Two-Officer Unit	2,407	53.0%
<b>Total</b>	<b>4,541</b>	<b>100.0%</b>

Out of the 8,028 regular patrol units deployed citywide during the Bravo or the BET Foxtrot shift, 1,735 were single-officer units. Out of the remaining 6,293 regular patrol

units, 800 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 68.4% of all regular patrol units deployed citywide during the Bravo shift were two-officer units and 31.6% were single-officer units.

**Table 3-12 Number of Single and Two-Officer Regular Patrol Units Deployed During the Bravo Shift and BET Foxtrot Shift Citywide**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	1,735	21.6%
Single-Officer with Recruit	800	10.0%
Two-Officer Unit	5,493	68.4%
<b>Total</b>	<b>8,028</b>	<b>100.0%</b>

Out of the 6,513 regular patrol units deployed citywide during the Charlie shift, 1,520 were single-officer units. Out of the remaining 4,993 regular patrol units, 747 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 65.2% of all regular patrol units deployed citywide during the Charlie shift were two-officer units and 34.8% were single-officer units.

**Table 3-13 Number of Single and Two-Officer Regular Patrol Units Deployed During the Charlie Shift Citywide**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	1,520	23.3%
Single-Officer with Recruit	747	11.5%
Two-Officer Unit	4,246	65.2%
<b>Total</b>	<b>6,513</b>	<b>100.0%</b>

Out of the 8,093 regular patrol units deployed citywide during the Delta shift or the BET Golf shift, 1,870 were single-officer units. Out of the remaining 6,223 regular patrol units, 822 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 66.7% of all regular patrol units deployed citywide during the Delta shift were two-officer units and 33.3% were single-officer units.

**Table 3-14 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Delta Shift Citywide**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	1,870	23.1%
Single-Officer with Recruit	822	10.2%
Two-Officer Unit	5,401	66.7%
<b>Total</b>	<b>8,093</b>	<b>100.0%</b>

Out of the 6,172 regular patrol units deployed citywide during the Echo shift (including the BET Late Car), 1,345 were single-officer units. Out of the remaining 4,827 regular patrol units, 688 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 67.1% of all regular patrol units deployed citywide during the Echo shift were two-officer units and 32.9% were single-officer units.

**Table 3-15 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Echo Shift Citywide**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	1,345	21.8%
Single-Officer with Recruit	688	11.1%
Two-Officer Unit	4,139	67.1%
<b>Total</b>	<b>6,172</b>	<b>100.0%</b>

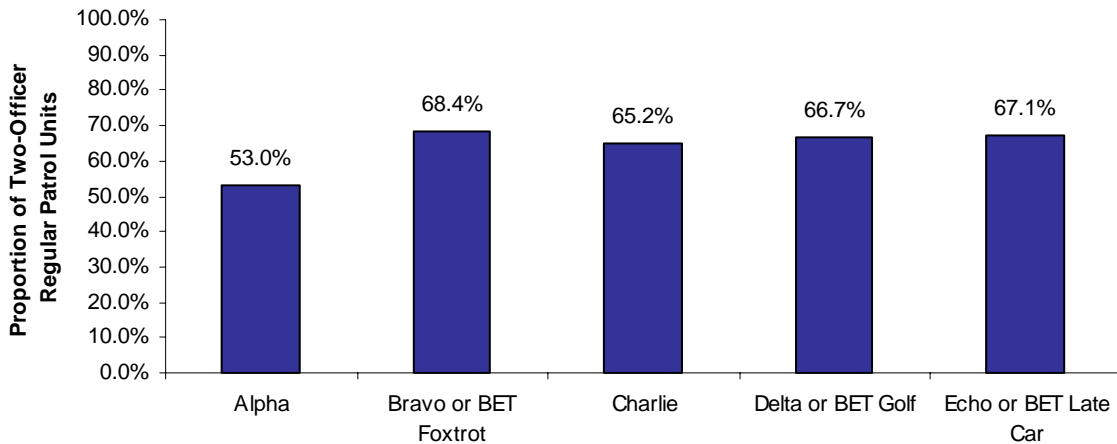
Between 2005-06-01 and 2006-05-31, on average, the proportion of two-officer regular patrol units deployed citywide varied between 53.0% and 68.4%. Overall, the proportion of two-officer regular patrol units did not vary significantly on average during each hour of the day, except when only Alpha units are deployed (from 0600 to 0700 hours).



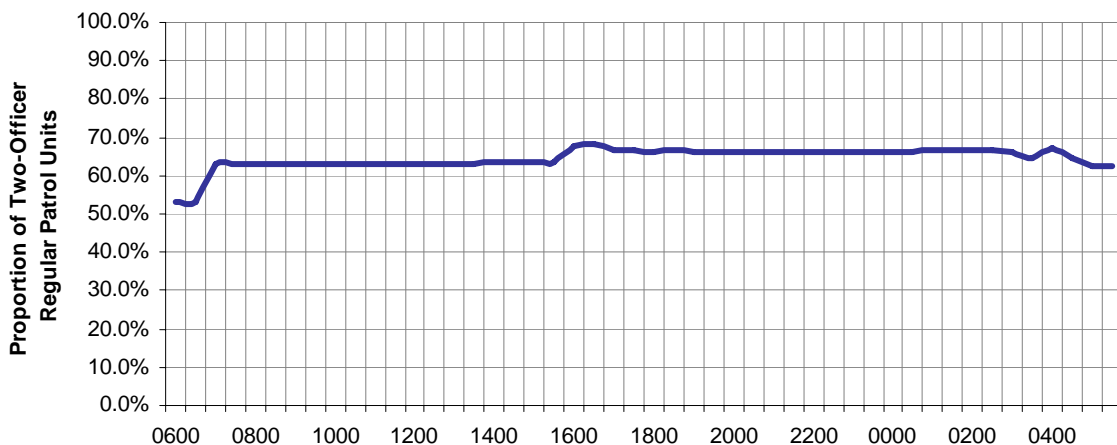
**Table 3-16 Number of Single and Two-Officer Units Deployed Citywide by Shift**

Shift	Single-Officer Units	Single-Officers with Recruit	Two-Officer Units	Total Units	Proportion of Two-Officer Units
Alpha	1,772	362	2,407	4,541	53.0%
Bravo or BET Foxtrot	1,735	800	5,493	8,028	68.4%
Charlie	1,520	747	4,246	6,513	65.2%
Delta or BET Golf	1,870	822	5,401	8,093	66.7%
Echo or BET Late Car	1,345	688	4,139	6,172	67.1%
<b>Total</b>	<b>8,242</b>	<b>3,419</b>	<b>21,686</b>	<b>33,347</b>	<b>65.0%</b>

**Figure 3-9 Proportion of Two-Officer Units Deployed Citywide by Shift**



**Figure 3-10 Proportion of Two-Officer Units Deployed Citywide by Hour of the Day**



### 3.3 DEPLOYMENT IN DISTRICT 1

Between 2005-06-01 and 2006-05-31, a total of approximately 10,878 patrol units were deployed in District 1:

- 1,812 were patrol supervisors;
- 1,093 were patrol wagons;
- 1,695 were patrol beat units;
- 764 were plainclothes patrol units;
- 5,475 were uniform patrol units.

**Table 3-17 Number of Patrol Units Deployed in District 1 by Unit Type**

<b>Unit Type</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Day</b>
Patrol Supervisors	1,812	5.0
Patrol Wagons	1,093	3.0
Bicycle Units	39	0.1
Plainclothes Patrol Units	764	2.1
Uniform Patrol Units	5,475	15.0
Patrol Beat Units	1,695	4.6
<b>Total</b>	<b>10,878</b>	<b>29.8</b>

As expected, there was 1.0 patrol supervisor per patrol team at any given time in District 1. Between 2005-06-01 and 2006-05-31, a total of 358 patrol supervisors were deployed in District 1 during the Alpha shift, 361 were deployed during the Bravo shift, 362 were deployed during the Charlie shift, 367 were deployed during the Delta shift and 364 were deployed during the Echo shift.

**Table 3-18 Number of Patrol Supervisors Deployed in District 1 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	358	1.0
Bravo	361	1.0
Charlie	362	1.0
Delta	367	1.0
Echo	364	1.0
<b>Total</b>	<b>1,812</b>	<b>1.0</b>

Between 2005-06-01 and 2006-05-31, as illustrated in the following table, a total of 364 patrol wagons were deployed in District 1 during the Bravo shift, 362 were deployed during the Delta shift and 365 were deployed during the Echo shift. Usually, no patrol wagons were deployed during the Alpha shift or the Charlie shift in District 1.

**Table 3-19 Number of Patrol Wagons Deployed in District 1 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	1	0.0
Bravo	364	1.0
Charlie	1	0.0
Delta	362	1.0
Echo	365	1.0
<b>Total</b>	<b>1,093</b>	<b>0.6</b>

On average, approximately one patrol beat unit was deployed per shift on a daily basis. However, very few patrol beat units were deployed during the Alpha shift. Between 2005-06-01 and 2006-05-31, a total of 43 patrol beat units were deployed in District 1 during the Alpha shift, 391 were deployed during the Bravo shift, 412 were deployed during the Charlie shift, 427 were deployed during the Delta shift and 422 were deployed during the Echo shift.

**Table 3-20 Number of Patrol Beat Units Deployed in District 1 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	43	0.1
Bravo	391	1.1
Charlie	412	1.1
Delta	427	1.2
Echo	422	1.2
<b>Total</b>	<b>1,695</b>	<b>0.9</b>

On average, approximately 2 plainclothes patrol units were deployed in District 1 every day. Plainclothes patrol units were proportionately more likely to be deployed during the Charlie shift. Between 2005-06-01 and 2006-05-31, a total of 109 plainclothes patrol units were deployed in District 1 during the Alpha shift, 146 were deployed during the Bravo shift, 252 were deployed during the Charlie shift, 137 were deployed during the Delta shift and 120 were deployed during the Echo shift.

**Table 3-21 Number of Plainclothes Patrol Units Deployed in District 1 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	109	0.3
Bravo	146	0.4
Charlie	252	0.7
Delta	137	0.4
Echo	120	0.3
<b>Total</b>	<b>764</b>	<b>0.4</b>

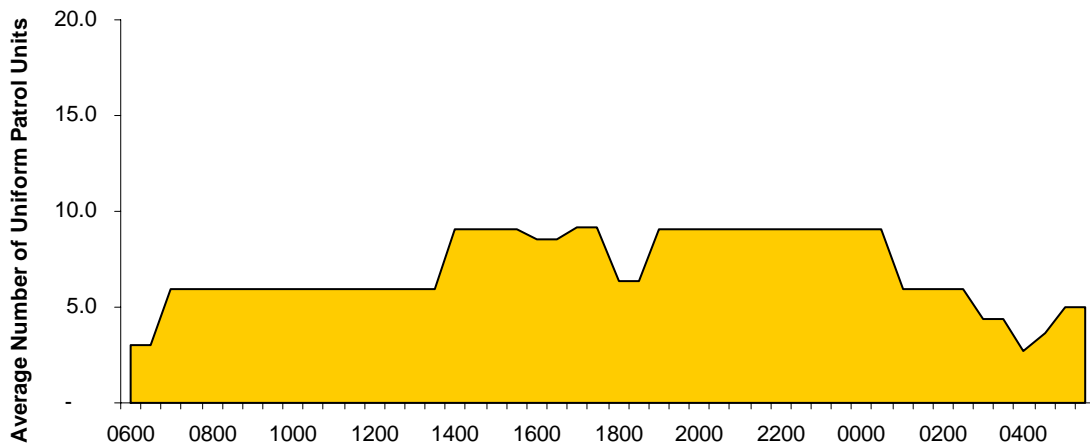
Between 2005-06-01 and 2006-05-31, a total of 1,119 uniform patrol units were deployed in District 1 during the Alpha shift, 1,031 were deployed during the Bravo shift, 1,161 were deployed during the Charlie shift, 1,159 were deployed during the Delta shift and 1,005 were deployed during the Echo shift.

**Table 3-22 Number of Uniform Patrol Units Deployed in District 1 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	1,119	3.1
Bravo	1,031	2.8
Charlie	1,161	3.2
Delta	1,159	3.2
Echo	1,005	2.8
<b>Total</b>	<b>5,475</b>	<b>3.0</b>

On average, this implies that there were 2.8 to 9.2 uniform patrol units deployed in District 1 at any given time between 2005-06-01 and 2006-05-31. An average of approximately 2.8 uniform patrol units were deployed citywide between 0400 and 0430 hours while approximately 9.2 uniform patrol units were deployed on average between 1700 and 1800 hours. Moreover, 9.1 uniform patrol units were deployed on average between 1400 and 1600 hours, when Alpha, Bravo and Charlie units are working. Finally, 9.1 uniform patrol units were also deployed on average between 1900 and 0100 hours, when Charlie, Delta and Echo units are working.

**Figure 3-11 Average Number of Uniform Patrol Units Deployed in District 1 by Hour of the Day**



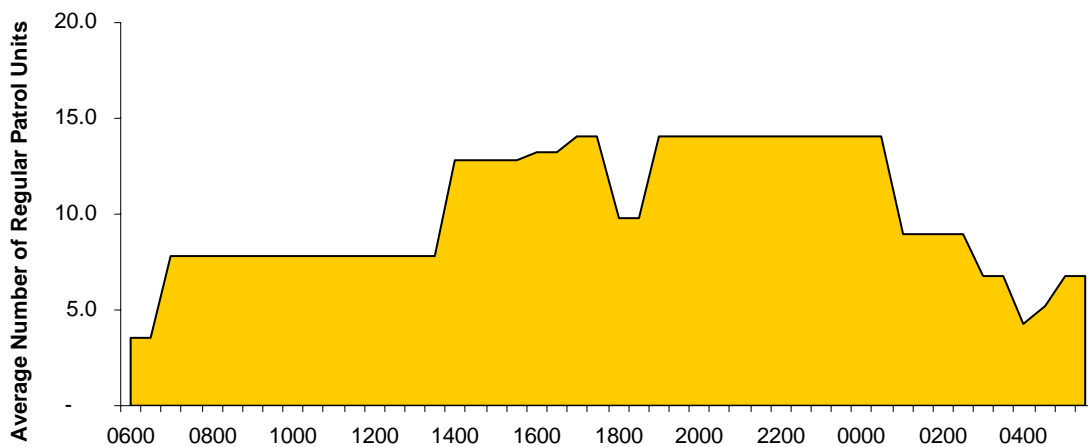
Overall, a total of 1,276 regular patrol units were deployed in District 1 during the Alpha shift, 1,579 were deployed during the Bravo shift, 1,836 were deployed during the

Charlie shift, 1,733 were deployed during the Delta shift and 1,549 were deployed during the Echo shift.

**Table 3-23 Number of Regular Patrol Units Deployed in District 1 by Shift**

Shift	Number of Units Deployed	Average Number of Units Deployed per Shift
Alpha	1,276	3.5
Bravo	1,579	4.3
Charlie	1,836	5.0
Delta	1,733	4.7
Echo	1,549	4.2
<b>Total</b>	<b>7,973</b>	<b>4.4</b>

**Figure 3-12 Average Number of Regular Patrol Units Deployed in District 1 by Hour of the Day**



### 3.3.1 Two-Officer Units in District 1

Out of the 7,973 regular patrol units deployed in District 1 between 2005-06-01 and 2006-05-31, 2,173 were single-officer units. Out of the remaining 5,800 regular patrol units, 935 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 61.0% of all regular patrol units deployed in District 1 (excluding patrol

supervisors and patrol wagons) were two-officer units and 39.0% were single-officer units.

**Table 3-24 Number of Single and Two-Officer Regular Patrol Units Deployed in District 1**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	2,173	27.3%
Single-Officer with Recruit	935	11.7%
Two-Officer Unit	4,865	61.0%
<b>Total</b>	<b>7,973</b>	<b>100.0%</b>

Out of the 1,276 regular patrol units deployed in District 1 during the Alpha shift, 530 were single-officer units. Out of the remaining 746 regular patrol units, 67 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 53.2% of all regular patrol units deployed in District 1 during the Alpha shift were two-officer units and 46.8% were single-officer units.

**Table 3-25 Number of Single and Two-Officer Regular Patrol Units Deployed During the Alpha Shift in District 1**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	530	41.5%
Single-Officer with Recruit	67	5.3%
Two-Officer Unit	679	53.2%
<b>Total</b>	<b>1,276</b>	<b>100.0%</b>

Out of the 1,579 regular patrol units deployed in District 1 during the Bravo shift, 401 were single-officer units. Out of the remaining 1,178 regular patrol units, 191 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 62.5% of all regular patrol units deployed in District 1 during the Bravo shift were two-officer units and 37.5% were single-officer units.

**Table 3-26 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Bravo Shift in District 1**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	401	25.4%
Single-Officer with Recruit	191	12.1%
Two-Officer Unit	987	62.5%
<b>Total</b>	<b>1,579</b>	<b>100.0%</b>

Out of the 1,836 regular patrol units deployed in District 1 during the Charlie shift, 380 were single-officer units. Out of the remaining 1,456 regular patrol units, 241 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 66.2% of all regular patrol units deployed in District 1 during the Charlie shift were two-officer units and 33.8% were single-officer units.

**Table 3-27 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Charlie Shift in District 1**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	380	20.7%
Single-Officer with Recruit	241	13.1%
Two-Officer Unit	1,215	66.2%
<b>Total</b>	<b>1,836</b>	<b>100.0%</b>

Out of the 1,733 regular patrol units deployed in District 1 during the Delta shift, 556 were single-officer units. Out of the remaining 1,177 regular patrol units, 228 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 54.8% of all regular patrol units deployed in District 1 during the Delta shift were two-officer units and 45.2% were single-officer units.



**Table 3-28 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Delta Shift in District 1**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	556	32.1%
Single-Officer with Recruit	228	13.2%
Two-Officer Unit	949	54.8%
<b>Total</b>	<b>1,733</b>	<b>100.0%</b>

Out of the 1,549 regular patrol units deployed in District 1 during the Echo shift, 306 were single-officer units. Out of the remaining 1,243 regular patrol units, 208 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 66.8% of all regular patrol units deployed in District 1 during the Echo shift were two-officer units and 33.2% were single-officer units.

**Table 3-29 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Echo Shift in District 1**

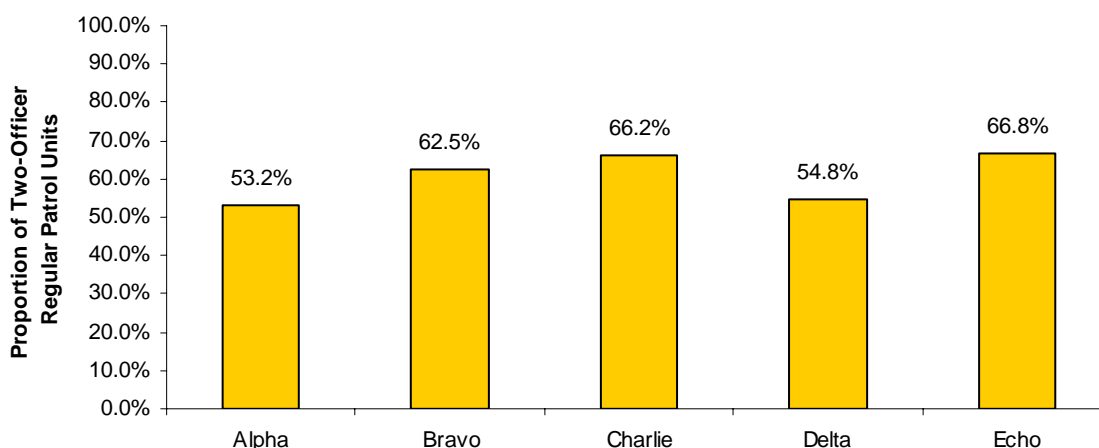
	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	306	19.8%
Single-Officer with Recruit	208	13.4%
Two-Officer Unit	1,035	66.8%
<b>Total</b>	<b>1,549</b>	<b>100.0%</b>

Between 2005-06-01 and 2006-05-31, on average, the proportion of two-officer regular patrol units deployed in District 1 varied between 53.2% and 66.8%.

**Table 3-30 Number of Single and Two-Officer Units Deployed in District 1 by Shift**

Shift	Single-Officer Units	Single-Officers with Recruit	Two-Officer Units	Total Units	Proportion of Two-Officer Units
Alpha	530	67	679	1,276	53.2%
Bravo	401	191	987	1,579	62.5%
Charlie	380	241	1,215	1,836	66.2%
Delta	556	228	949	1,733	54.8%
Echo	306	208	1,035	1,549	66.8%
<b>Total</b>	<b>2,173</b>	<b>935</b>	<b>4,865</b>	<b>7,973</b>	<b>61.0%</b>

**Figure 3-13 Proportion of Two-Officer Units Deployed in District 1 by Shift**



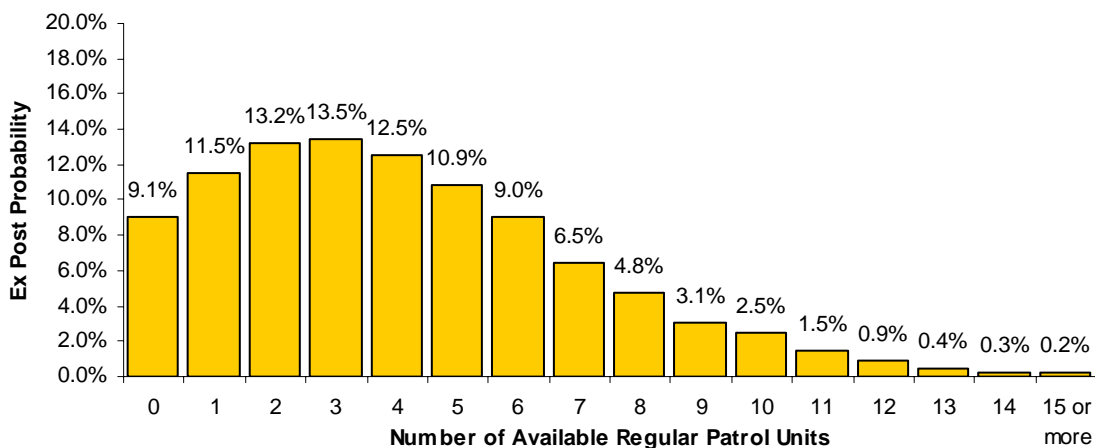
### 3.3.2 Unit Availability in District 1

A total of 11,794 priority 1 or 2 emergency 9-1-1 and telephone calls were received between 2005-06-01 and 2006-05-31 in District 1. In 1,071 cases (9.1% of all calls), no regular patrol unit was readily available to respond to the high priority call while only one regular patrol unit was available to respond in 1,361 cases (11.5% of all calls). In 1,561 cases (13.2% of all cases), only two regular patrol units were available to be dispatched.

**Table 3-31 Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 1**

<b>Number of Available Regular Patrol Units</b>	<b>Number of Occurrences (P1 or P2 Calls)</b>	<b>Ex Post Probability</b>
0	1,071	9.1%
1	1,361	11.5%
2	1,561	13.2%
3	1,588	13.5%
4	1,479	12.5%
5	1,286	10.9%
6	1,063	9.0%
7	764	6.5%
8	565	4.8%
9	366	3.1%
10	291	2.5%
11	179	1.5%
12	111	0.9%
13	53	0.4%
14	31	0.3%
15 or more	25	0.2%
<b>Total</b>	<b>11,794</b>	<b>100.0%</b>

**Figure 3-14 Probability Distribution of the Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 1**



As expected, no regular patrol units were available to be dispatched in District 1 more often between midnight and 0600 hours. Moreover, the average number of regular

patrol units available to be dispatched was also lower between midnight and 0600 hours.

The actual number of regular patrol units available to be dispatched will usually be lower than the estimated number reported in this Patrol Deployment Study. This is because officers can be tied up on other activities in addition to calls for service, including:

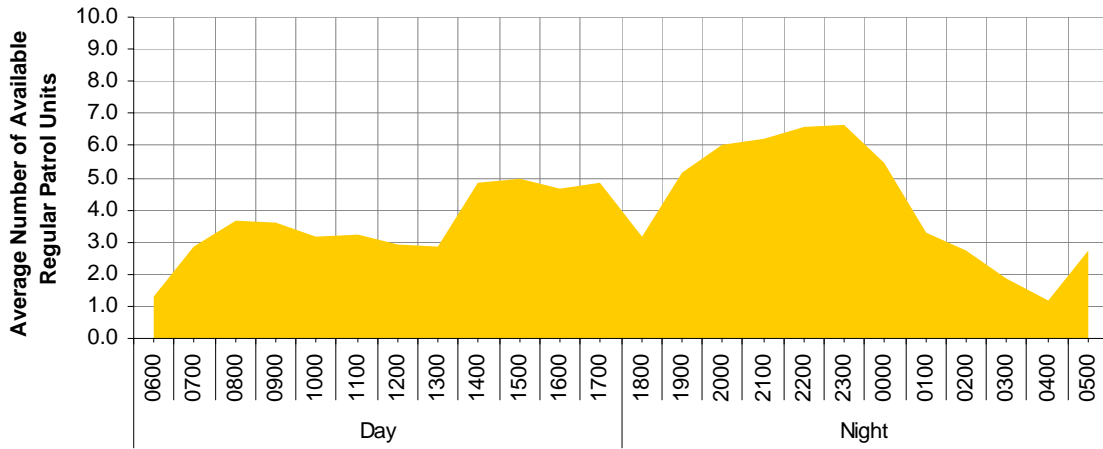
- Court duties
- Report writing
- Investigative follow-ups
- Meal breaks or coffee breaks
- Traffic stops
- Persons checks
- Administrative tasks

These activities were not captured in the data. As a consequence, the number of regular patrol units available to be dispatched at any given time will be overestimated.

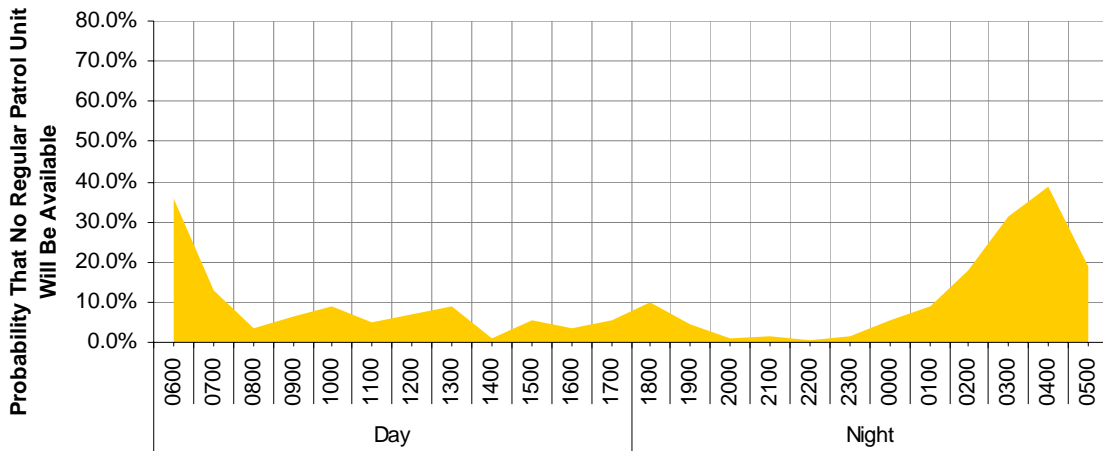
**Table 3-32 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 1 by Hour of the Day**

Hour	Total Number of Occurrences	Average Number of Available Regular Patrol Units	Probability That No Regular Patrol Unit Will Be Available	Probability That One Regular Patrol Unit Will Be Available	
Day	0600	206	1.3	35.9%	24.3%
	0700	253	2.9	13.0%	16.2%
	0800	324	3.7	3.7%	8.6%
	0900	349	3.6	6.6%	10.0%
	1000	366	3.2	8.7%	11.7%
	1100	437	3.2	4.8%	15.6%
	1200	435	2.9	7.1%	19.8%
	1300	480	2.9	9.0%	19.0%
	1400	476	4.8	1.1%	7.1%
	1500	499	4.9	5.4%	7.8%
	1600	572	4.6	3.7%	10.3%
	1700	546	4.8	5.5%	9.0%
Night	1800	551	3.2	10.2%	14.5%
	1900	559	5.2	4.5%	5.7%
	2000	598	6.0	0.8%	3.8%
	2100	588	6.2	1.4%	4.1%
	2200	608	6.6	0.7%	3.9%
	2300	593	6.7	1.5%	2.4%
	0000	648	5.5	5.7%	7.4%
	0100	712	3.3	8.8%	13.6%
	0200	811	2.7	17.9%	16.5%
	0300	595	1.9	31.3%	22.4%
0400	349	1.2	39.0%	26.1%	
0500	239	2.8	18.8%	15.9%	
<b>Total</b>	<b>11,794</b>	<b>4.1</b>	<b>9.1%</b>	<b>11.5%</b>	

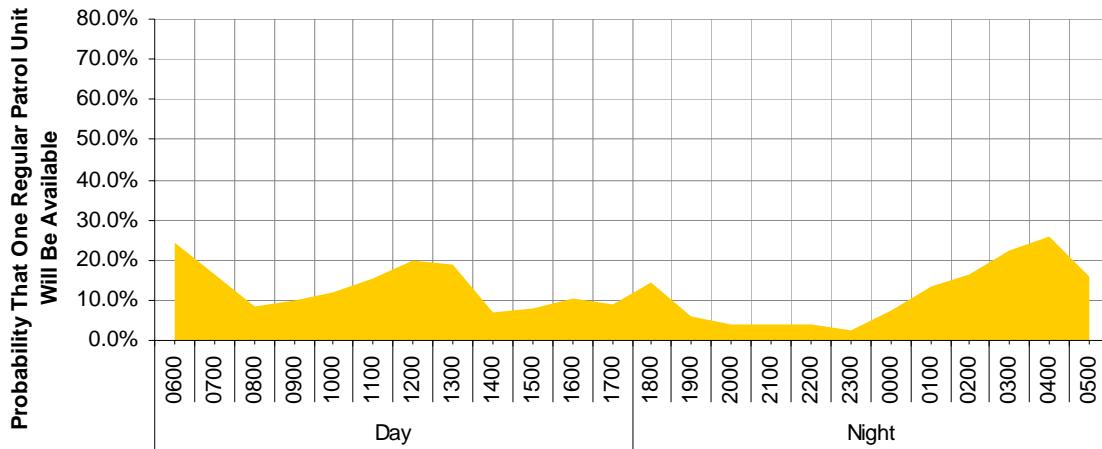
**Figure 3-15 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 1 by Hour of the Day**



**Figure 3-16 Average Probability That No Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day**



**Figure 3-17 Average Probability That Only One Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day**

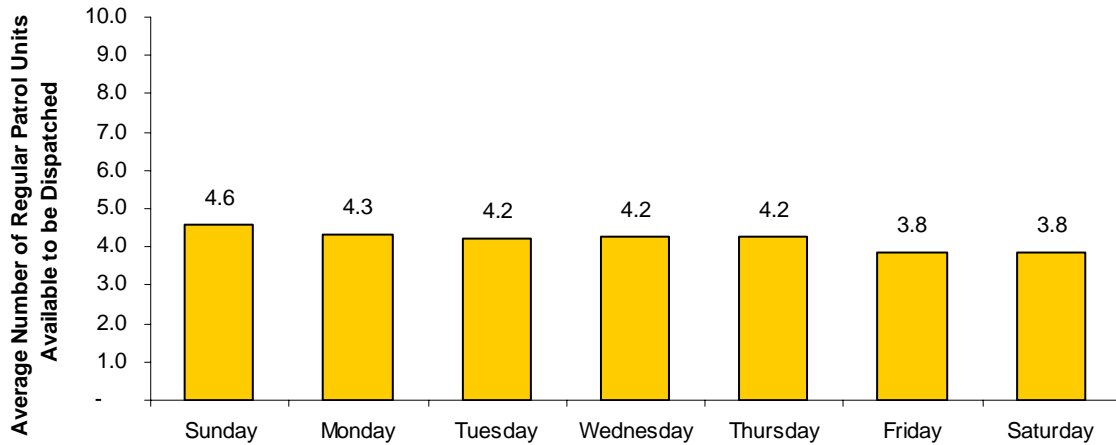


As expected, less regular patrol units were likely to be available on Friday and Saturday in District 1. This was reflected by the average number of regular patrol units available to respond to high priority calls as well as by the percentage of the time when no regular patrol unit was available.

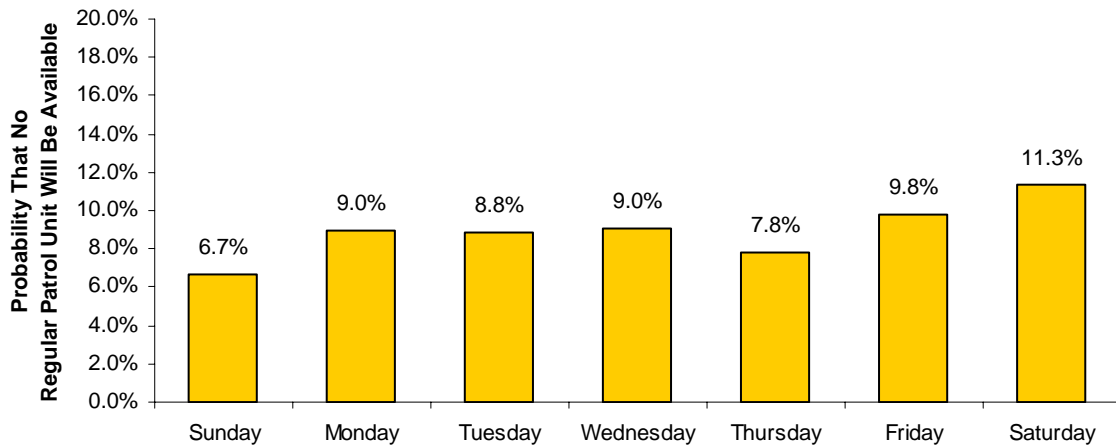
**Table 3-33 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 1 by Day of the Week**

Day of the Week	Total Number of Occurrences	Average Number of Available Regular Patrol Units	Probability That No Regular Patrol Unit Will Be Available	Probability That One Regular Patrol Unit Will Be Available
Sunday	1,382	4.6	6.7%	10.1%
Monday	1,524	4.3	9.0%	10.0%
Tuesday	1,552	4.2	8.8%	12.2%
Wednesday	1,571	4.2	9.0%	10.0%
Thursday	1,651	4.2	7.8%	11.3%
Friday	2,094	3.8	9.8%	13.8%
Saturday	2,020	3.8	11.3%	12.2%
<b>Total</b>	<b>11,794</b>	<b>4.1</b>	<b>9.1%</b>	<b>11.5%</b>

**Figure 3-18 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 1 by Day of the Week**

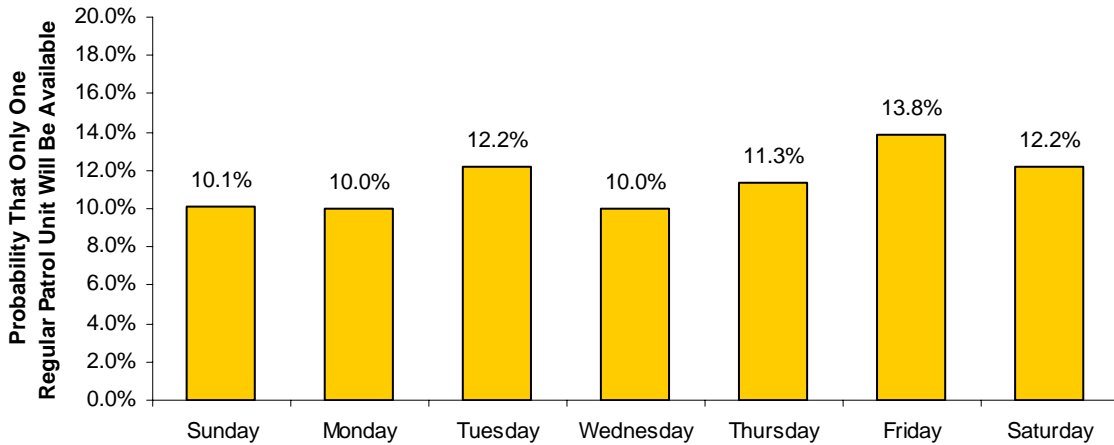


**Figure 3-19 Probability That No Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week**



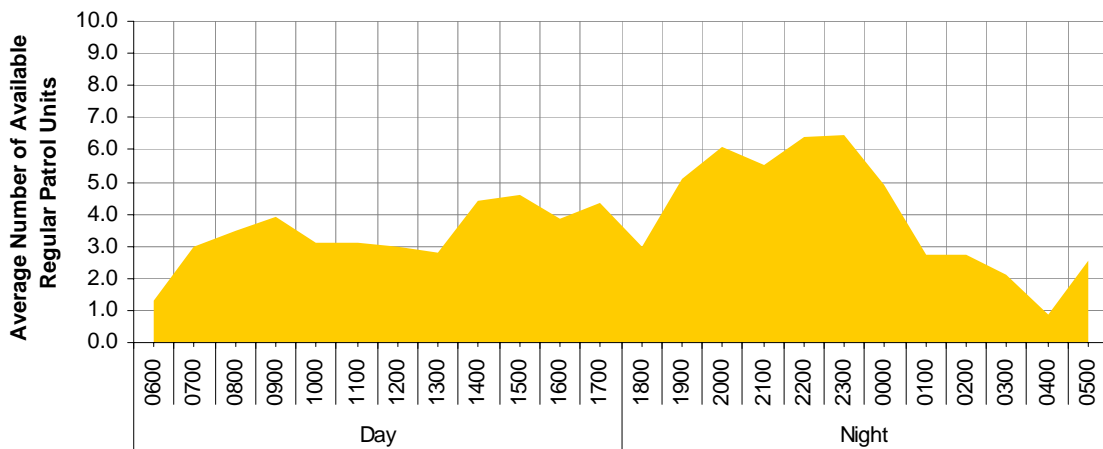


**Figure 3-20 Probability That Only One Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week**

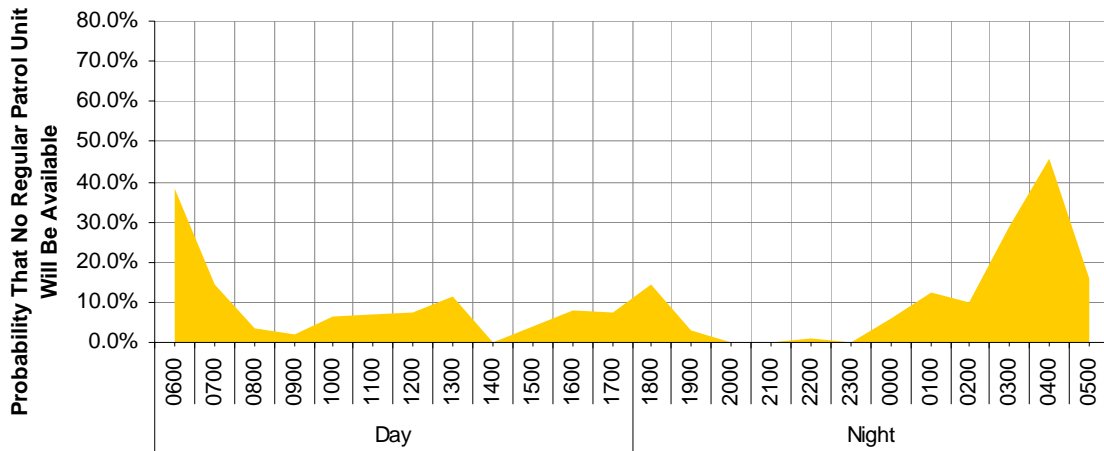


On Friday (from 0600 hours on Friday to 0600 hours on Saturday) in District 1, 3.8 regular patrol units were available to be dispatched to priority 1 or 2 calls on average. However, no regular patrol unit was available to respond to incoming priority 1 or 2 calls approximately 9.8% of the time. Similarly, only one regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 13.6% of the time. Moreover, no regular patrol unit was available 19.1% of the time on Friday night (from midnight to 0600 hours on Saturday).

**Figure 3-21 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Friday in District 1 by Hour of the Day**

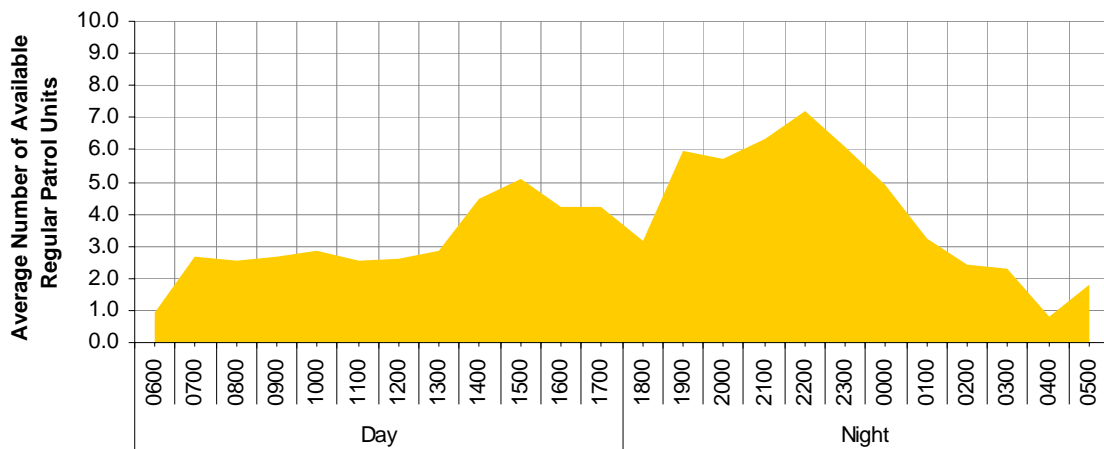


**Figure 3-22 Average Probability That No Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call on Friday by Hour of the Day**

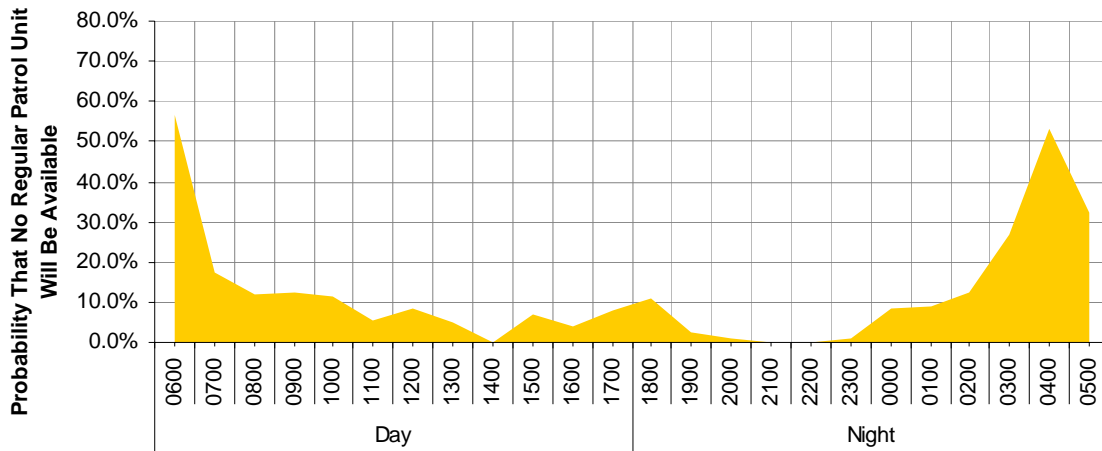


On Saturday (from 0600 hours on Saturday to 0600 hours on Sunday) in District 1, 3.8 regular patrol units were available to be dispatched to priority 1 or 2 calls on average. However, no regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 11.3% of the time. Similarly, only one regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 11.9% of the time. Moreover, no regular patrol unit was available 21.1% of the time on Saturday night (from midnight to 0600 hours on Sunday).

**Figure 3-23 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Saturday in District 1 by Hour of the Day**



**Figure 3-24 Average Probability That No Regular Patrol Unit in District 1 Will Be Available to Respond to a Priority 1 or 2 Call on Saturday by Hour of the Day**



### 3.4 DEPLOYMENT IN DISTRICT 2

Between 2005-06-01 and 2006-05-31, a total of approximately 14,091 patrol units were deployed in District 2:

- 2,499 were patrol supervisors (including 681 BET supervisors);
- 1,093 were patrol wagons;
- 1,148 were patrol beat units (including 253 Commercial Drive patrol beat units);
- 1,824 were plainclothes patrol units;
- 3,533 were BET units;
- 3,984 were uniform patrol units.

**Table 3-34 Number of Patrol Units Deployed in District 2 by Unit Type**

<b>Unit Type</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Day</b>
<b>Patrol Supervisors</b>	<b>2,499</b>	<b>6.8</b>
Beat Enforcement Team (BET) Supervisors	681	1.9
Other Patrol Supervisors	1,818	5.0
<b>Bicycle Units</b>	<b>10</b>	<b>0.0</b>
<b>Plainclothes Patrol Units</b>	<b>1,824</b>	<b>5.0</b>
<b>Uniform Patrol Units</b>	<b>3,984</b>	<b>10.9</b>
<b>Beat Enforcement Team (BET)</b>	<b>3,533</b>	<b>9.7</b>
<b>Patrol Beat Units</b>	<b>1,148</b>	<b>3.1</b>
Commercial Drive Patrol Beat Units	253	0.7
Other Patrol Beat Units	895	2.5
<b>Patrol Wagons</b>	<b>1,093</b>	<b>3.0</b>
<b>Total</b>	<b>14,091</b>	<b>38.6</b>

As expected, there was 1.0 patrol supervisor per patrol team (including BET) at any given time in District 2. Between 2005-06-01 and 2006-05-31, a total of 363 patrol supervisors were deployed in District 2 during the Alpha shift, 690 were deployed during the Bravo shift or the BET Foxtrot shift, 362 were deployed during the Charlie shift, 719 were deployed during the Delta shift or the BET Golf shift and 365 were deployed during the Echo shift.

**Table 3-35 Number of Patrol Supervisors Deployed in District 2 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	363	1.0
Bravo or BET Foxtrot	690	1.9
Charlie	362	1.0
Delta or BET Golf	719	2.0
Echo	365	1.0
<b>Total</b>	<b>2,499</b>	<b>1.4</b>

Between 2005-06-01 and 2006-05-31, as illustrated in the following table, a total of 363 patrol wagons were deployed in District 2 during the Alpha shift, 364 were deployed

during the Charlie shift and 362 were deployed during the Echo shift. Usually, no patrol wagons were deployed during the Bravo shift or the Delta shift in District 2.

**Table 3-36 Number of Patrol Wagons Deployed in District 2 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	363	1.0
Bravo	2	0.0
Charlie	364	1.0
Delta	2	0.0
Echo	362	1.0
<b>Total</b>	<b>1,093</b>	<b>0.6</b>

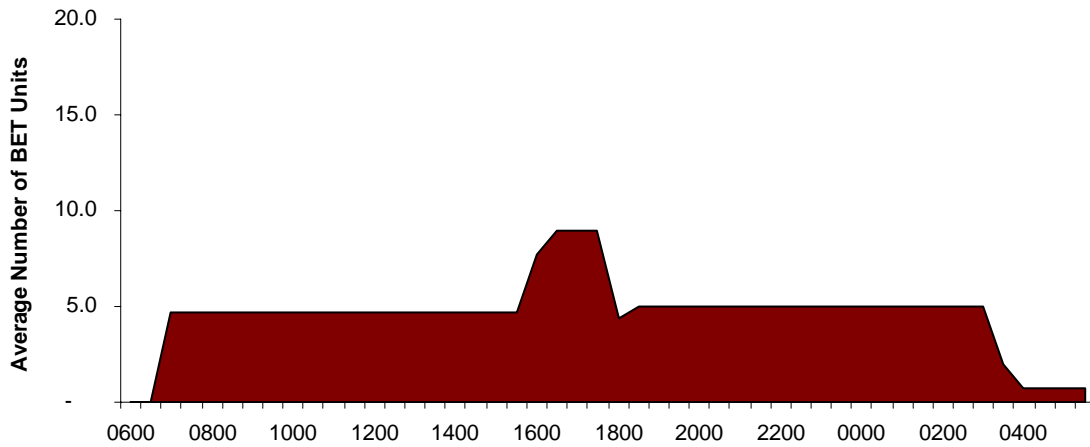
Between 2005-06-01 and 2006-05-31, a total of 1,697 BET units were deployed in District 2 exclusively during the Foxtrot (day) shift and 1,586 were deployed during the Golf (afternoon) shift. At least 250 additional BET units were in the late car working between 1830 and 0600 hours.

**Table 3-37 Number of BET Units Deployed in District 2 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Foxtrot	1,697	4.6
Golf	1,586	4.3
Late Car	250	0.7
<b>Total</b>	<b>3,533</b>	<b>4.8</b>

On average, this implies that there were no BET units deployed between 0600 and 0700 hours and at most one BET unit (the late car) between 0400 and 0600 hours. The rest of the time, there were approximately 4.6 to 9.0 deployed BET units. On average, between 2005-06-01 and 2006-05-31, approximately 4.6 BET units were deployed between 0700 and 1600 hours. By comparison, approximately 9.0 BET units were deployed on average between 1630 and 1800 hours, when day and afternoon BET units are both working.

**Figure 3-25 Average Number of BET Units Deployed in District 2 by Hour of the Day**



On average, approximately one patrol beat unit was deployed every second shift on a daily basis in District 2. As in District 1, fewer patrol beat units were deployed during the Alpha shift. Between 2005-06-01 and 2006-05-31, a total of 166 patrol beat units were deployed in District 2 during the Alpha shift, 275 were deployed during the Bravo shift, 258 were deployed during the Charlie shift, 213 were deployed during the Delta shift and 236 were deployed during the Echo shift.

**Table 3-38 Number of Patrol Beat Units Deployed in District 2 by Shift**

Shift	Number of Units Deployed	Average Number of Units Deployed per Shift
Alpha	166	0.5
Bravo	275	0.8
Charlie	258	0.7
Delta	213	0.6
Echo	236	0.6
<b>Total</b>	<b>1,148</b>	<b>0.6</b>

On average, approximately one plainclothes patrol unit was deployed in District 2 on every shift. Plainclothes patrol units in District 2 were proportionately more likely to be dispatched during the Delta shift. Between 2005-06-01 and 2006-05-31, a total of 152 plainclothes patrol units were deployed in District 2 during the Alpha shift, 373 were

deployed during the Bravo shift, 375 were deployed during the Charlie shift, 565 were deployed during the Delta shift and 359 were deployed during the Echo shift.

**Table 3-39 Number of Plainclothes Patrol Units Deployed in District 2 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	152	0.4
Bravo	373	1.0
Charlie	375	1.0
Delta	565	1.5
Echo	359	1.0
<b>Total</b>	<b>1,824</b>	<b>1.0</b>

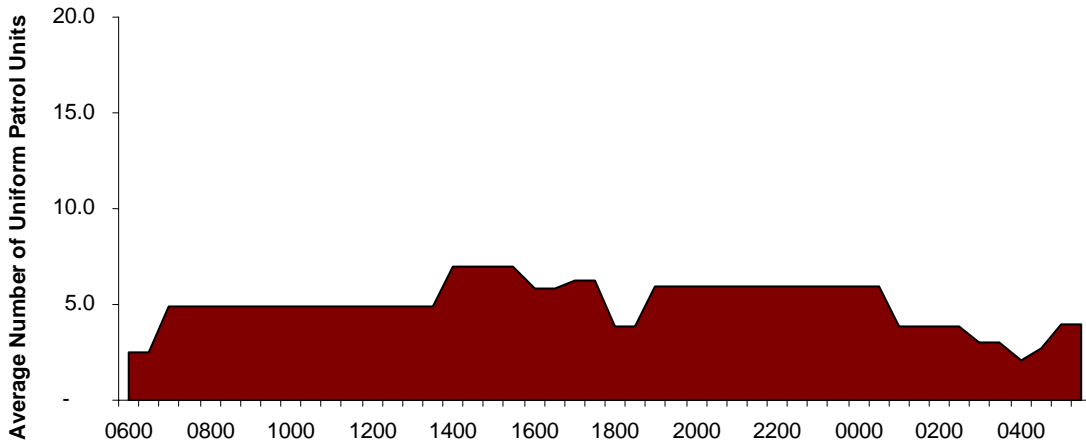
Between 2005-06-01 and 2006-05-31, a total of 926 uniform patrol units were deployed in District 2 during the Alpha shift, 874 were deployed during the Bravo shift, 759 were deployed during the Charlie shift, 664 were deployed during the Delta shift and 761 were deployed during the Echo shift.

**Table 3-40 Number of Uniform Patrol Units Deployed in District 2 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	926	2.5
Bravo	874	2.4
Charlie	759	2.1
Delta	664	1.8
Echo	761	2.1
<b>Total</b>	<b>3,984</b>	<b>2.2</b>

On average, when BET units are excluded, there were 2.1 to 7.0 uniform patrol units deployed in District 2 at any given time between 2005-06-01 and 2006-05-31. An average of approximately 2.1 uniform patrol units were deployed citywide between 0400 and 0430 hours while approximately 7.0 uniform patrol units were deployed on average between 1400 and 1600 hours. Moreover, 2.5 uniform patrol units were deployed on average between 0600 and 0700 hours, when only Alpha units are working.

**Figure 3-26 Average Number of Uniform Patrol Units Deployed in District 2 by Hour of the Day**



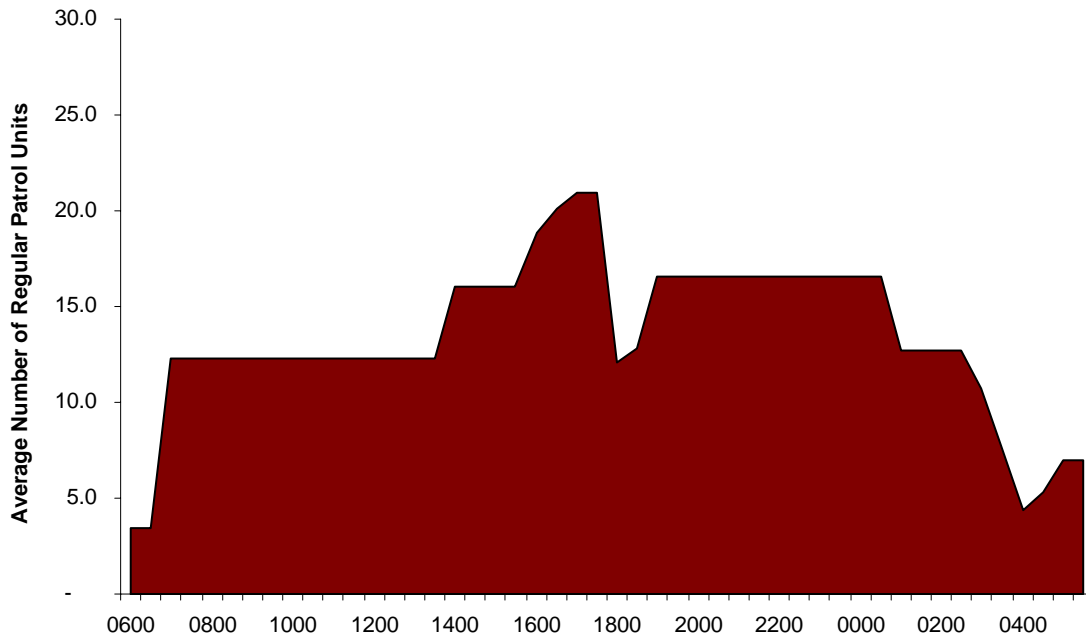
Overall, a total of 1,246 regular patrol units were deployed in District 2 during the Alpha shift, 3,224 were deployed during the Bravo shift or the BET Foxtrot shift, 1,392 were deployed during the Charlie shift, 3,281 were deployed during the Delta shift or the BET Golf shift and 1,606 were deployed during the Echo shift (including the BET Late Car).

**Table 3-41 Number of Regular Patrol Units Deployed in District 2 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	1,246	3.4
Bravo or BET Foxtrot	3,224	8.8
Charlie	1,392	3.8
Delta or BET Golf	3,031	8.3
Echo or BET Late Car	1,606	4.4
<b>Total</b>	<b>10,499</b>	<b>5.8</b>



**Figure 3-27 Average Number of Regular Patrol Units Deployed in District 2 by Hour of the Day**



### **3.4.1 Two-Officer Units in District 2**

Out of the 10,499 regular patrol units deployed in District 2 between 2005-06-01 and 2006-05-31, 1,627 were single-officer units. Out of the remaining 8,672 regular patrol units, 984 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 73.2% of all regular patrol units deployed in District 2 (excluding patrol supervisors and patrol wagons) were two-officer units and 26.8% were single-officer units.

**Table 3-42 Number of Single and Two-Officer Regular Patrol Units Deployed in District 2**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	1,827	17.4%
Single-Officer with Recruit	984	9.4%
Two-Officer Unit	7,688	73.2%
<b>Total</b>	<b>10,499</b>	<b>100.0%</b>

Out of the 1,246 regular patrol units deployed in District 2 during the Alpha shift, 363 were single-officer units. Out of the remaining 883 regular patrol units, 113 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 61.8% of all regular patrol units deployed in District 2 during the Alpha shift were two-officer units and 38.2% were single-officer units.

**Table 3-43 Number of Single and Two-Officer Regular Patrol Units Deployed During the Alpha Shift in District 2**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	363	29.1%
Single-Officer with Recruit	113	9.1%
Two-Officer Unit	770	61.8%
<b>Total</b>	<b>1,246</b>	<b>100.0%</b>

Out of the 3,224 regular patrol units deployed in District 2 during the Bravo shift or the BET Foxtrot shift, 464 were single-officer units. Out of the remaining 2,760 regular patrol units, 278 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 77.0% of all regular patrol units deployed in District 2 during the Bravo shift or the BET Foxtrot shift were two-officer units and 23.0% were single-officer units.

**Table 3-44 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Bravo Shift or the BET Foxtrot Shift in District 2**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	464	14.4%
Single-Officer with Recruit	278	8.6%
Two-Officer Unit	2,482	77.0%
<b>Total</b>	<b>3,224</b>	<b>100.0%</b>

Out of the 1,392 regular patrol units deployed in District 2 during the Charlie shift, 316 were single-officer units. Out of the remaining 1,076 regular patrol units, 167 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 65.3% of all regular patrol units deployed in District 2 during the Charlie shift were two-officer units and 34.7% were single-officer units.

**Table 3-45 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Charlie Shift in District 2**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	316	22.7%
Single-Officer with Recruit	167	12.0%
Two-Officer Unit	909	65.3%
<b>Total</b>	<b>1,392</b>	<b>100.0%</b>

Out of the 3,031 regular patrol units deployed in District 2 during the Delta shift or the BET Golf shift, 379 were single-officer units. Out of the remaining 2,652 regular patrol units, 258 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 79.0% of all regular patrol units deployed in District 2 during the Delta shift or the BET Golf shift were two-officer units and 21.0% were single-officer units.

**Table 3-46 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Delta Shift or the BET Golf Shift in District 2**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	379	12.5%
Single-Officer with Recruit	258	8.5%
Two-Officer Unit	2,394	79.0%
<b>Total</b>	<b>3,031</b>	<b>100.0%</b>

Out of the 1,606 regular patrol units deployed in District 2 during the Echo shift, 305 were single-officer units. Out of the remaining 1,301 regular patrol units, 168 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 70.5% of all regular patrol units deployed in District 2 during the Echo shift were two-officer units and 29.5% were single-officer units.

**Table 3-47 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Echo Shift in District 2**

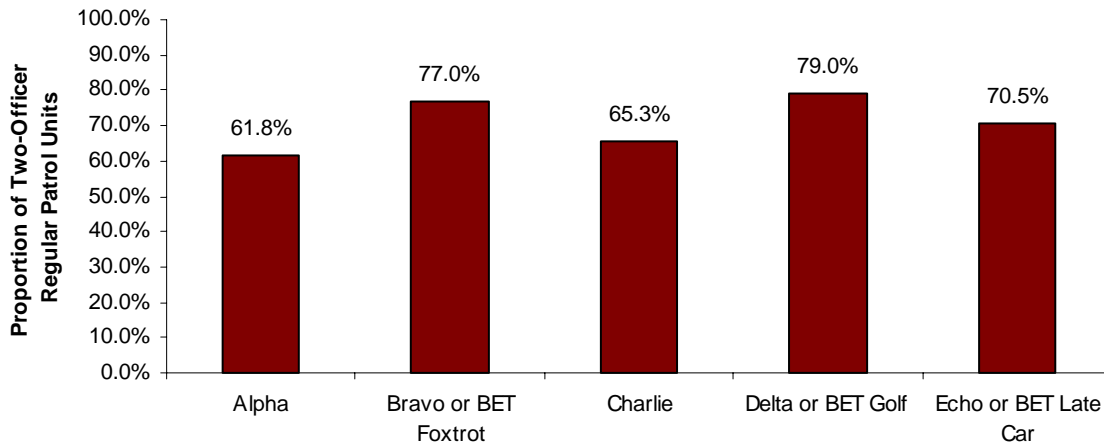
	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	305	19.0%
Single-Officer with Recruit	168	10.5%
Two-Officer Unit	1,133	70.5%
<b>Total</b>	<b>1,606</b>	<b>100.0%</b>

Between 2005-06-01 and 2006-05-31, on average, the proportion of two-officer regular patrol units deployed in District 2 varied between 61.8% and 79.0%.

**Table 3-48 Number of Single and Two-Officer Units Deployed in District 2 by Shift**

Shift	Single-Officer Units	Single-Officers with Recruit	Two-Officer Units	Total Units	Proportion of Two-Officer Units
Alpha	363	113	770	1,246	61.8%
Bravo or BET Foxtrot	464	278	2,482	3,224	77.0%
Charlie	316	167	909	1,392	65.3%
Delta or BET Golf	379	258	2,394	3,031	79.0%
Echo or BET Late Car	305	168	1,133	1,606	70.5%
<b>Total</b>	<b>1,827</b>	<b>984</b>	<b>7,688</b>	<b>10,499</b>	<b>73.2%</b>

**Figure 3-28 Proportion of Two-Officer Units Deployed in District 2 by Shift**



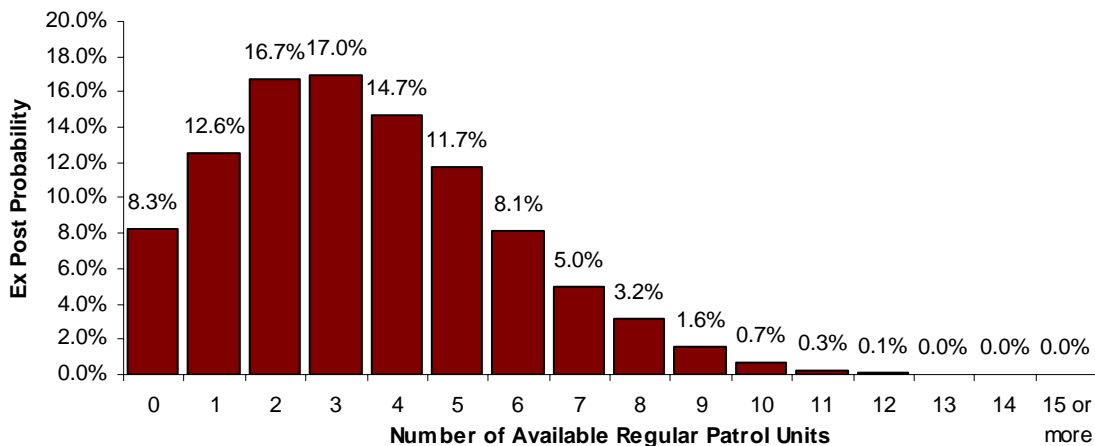
### 3.4.2 Unit Availability in District 2

A total of 14,160 priority 1 or 2 emergency 9-1-1 and non-emergency telephone calls were received between 2005-06-01 and 2006-05-31 in District 2. In 1,175 cases (8.3% of all calls), no regular patrol unit was readily available to respond to the high priority call while only one regular patrol unit was available to respond in 1,782 cases (12.6% of all calls). In 2,371 cases (16.7% of all cases), only two regular patrol units were available to be dispatched.

**Table 3-49 Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 2**

Number of Available Regular Patrol Units	Number of Occurrences (P1 or P2 Calls)	Ex Post Probability
0	1,175	8.3%
1	1,782	12.6%
2	2,371	16.7%
3	2,403	17.0%
4	2,088	14.7%
5	1,662	11.7%
6	1,149	8.1%
7	702	5.0%
8	454	3.2%
9	224	1.6%
10	95	0.7%
11	36	0.3%
12	9	0.1%
13	6	0.0%
14	4	0.0%
15 or more	-	0.0%
<b>Total</b>	<b>14,160</b>	<b>100.0%</b>

**Figure 3-29 Probability Distribution of the Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 2**



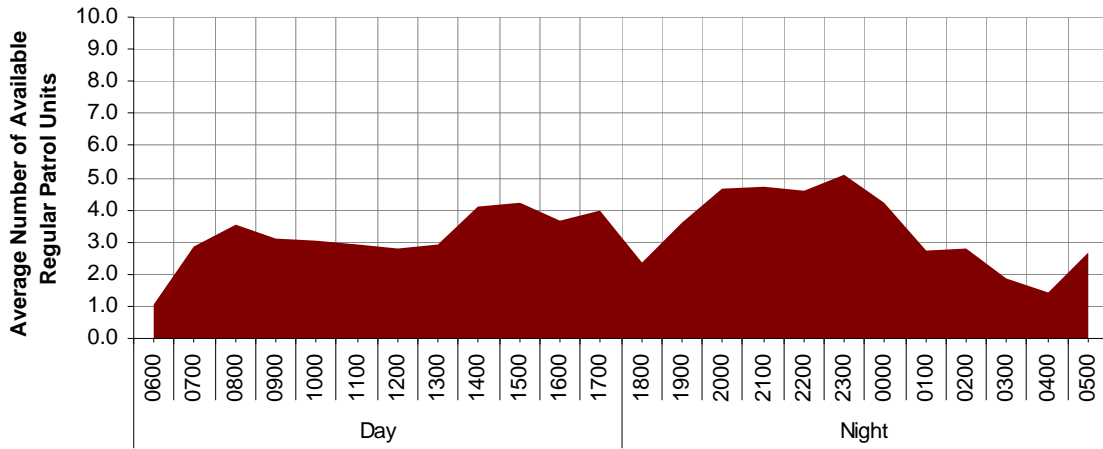
As expected, no regular patrol units were available to be dispatched in District 1 more often between midnight and 0600 hours. Moreover, the average number of regular

patrol units available to be dispatched was also lower between midnight and 0600 hours.

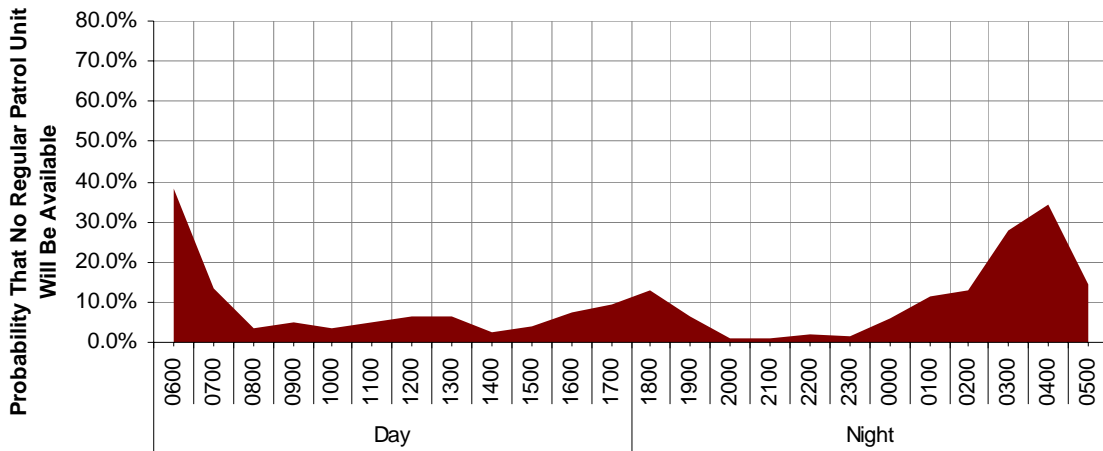
**Table 3-50 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 2 by Hour of the Day**

Hour	Total Number of Occurrences	Average Number of Available Regular Patrol Units	Probability That No Regular Patrol Unit Will Be Available	Probability That One Regular Patrol Unit Will Be Available	
Day	0600	265	1.1	38.5%	30.2%
	0700	299	2.8	13.4%	11.7%
	0800	353	3.5	3.7%	8.5%
	0900	463	3.1	5.0%	11.0%
	1000	469	3.1	3.6%	13.4%
	1100	518	2.9	5.2%	13.7%
	1200	563	2.8	6.6%	12.3%
	1300	640	2.9	6.3%	16.6%
	1400	596	4.1	2.5%	10.7%
	1500	667	4.2	4.2%	10.2%
	1600	735	3.7	7.3%	12.2%
1700	757	4.0	9.6%	11.2%	
Night	1800	715	2.4	12.7%	18.2%
	1900	739	3.6	6.2%	13.1%
	2000	751	4.6	1.2%	5.9%
	2100	781	4.7	0.9%	6.9%
	2200	796	4.6	1.8%	4.6%
	2300	759	5.1	1.7%	4.7%
	0000	761	4.3	6.0%	10.1%
	0100	720	2.7	11.3%	16.1%
	0200	608	2.8	12.8%	17.3%
	0300	508	1.9	28.0%	25.4%
0400	389	1.4	34.4%	22.6%	
0500	308	2.7	14.6%	18.5%	
<b>Total</b>	<b>14,160</b>	<b>3.5</b>	<b>8.3%</b>	<b>12.6%</b>	

**Figure 3-30 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 2 by Hour of the Day**

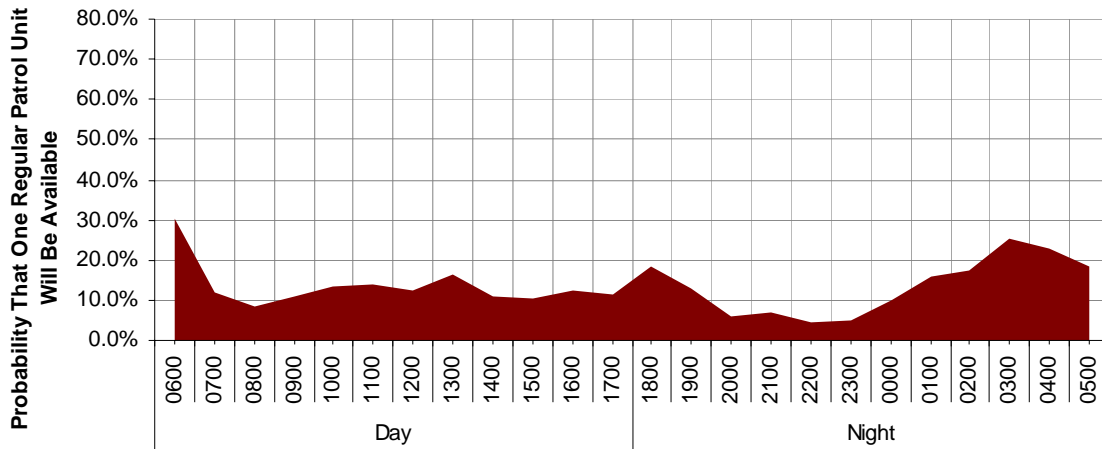


**Figure 3-31 Average Probability That No Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day**





**Figure 3-32 Average Probability That Only One Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day**

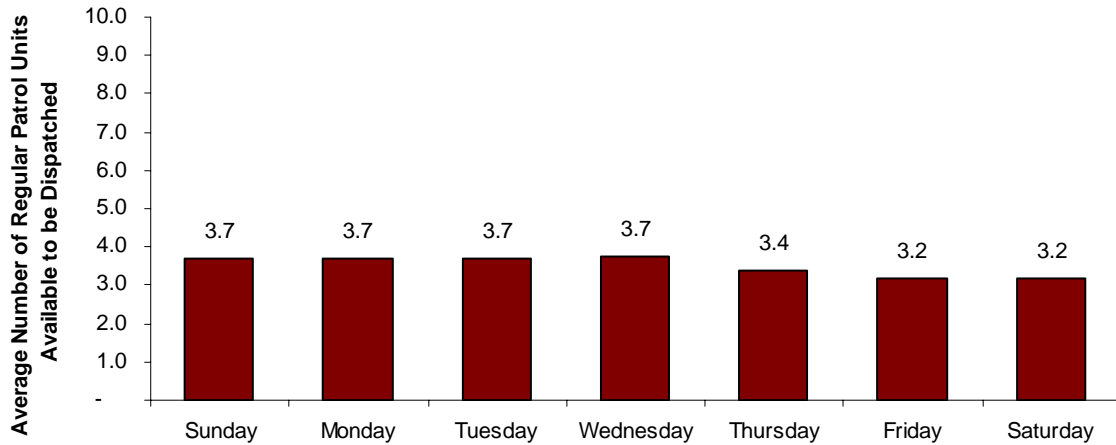


As expected, less regular patrol units were likely to be available on Friday and Saturday in District 2. This was reflected by the average number of regular patrol units available to respond to high priority calls as well as by the percentage of the time when no regular patrol unit was available.

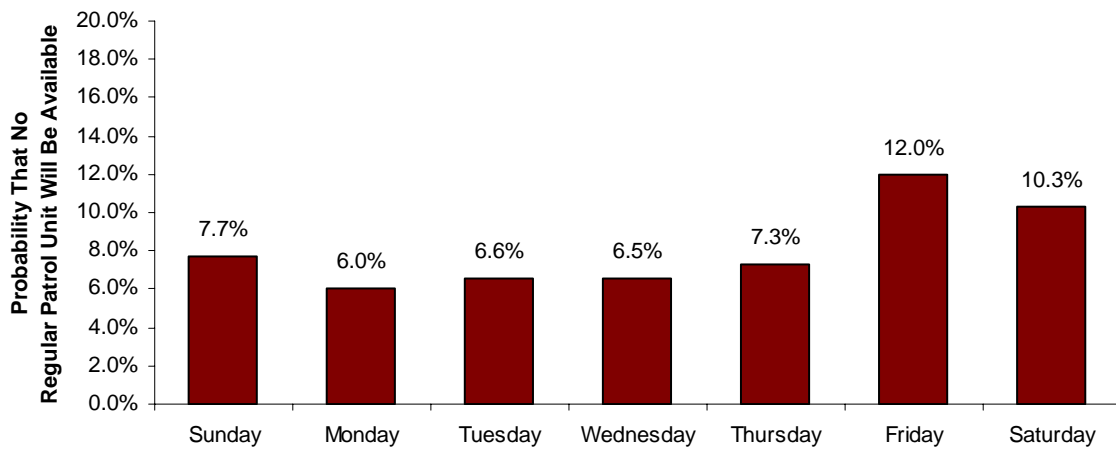
**Table 3-51 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 2 by Day of the Week**

Day of the Week	Total Number of Occurrences	Average Number of Available Regular Patrol Units	Probability That No Regular Patrol Unit Will Be Available	Probability That One Regular Patrol Unit Will Be Available
Sunday	1,672	3.7	7.7%	10.9%
Monday	1,835	3.7	6.0%	10.4%
Tuesday	1,816	3.7	6.6%	4.9%
Wednesday	1,926	3.7	6.5%	11.0%
Thursday	2,110	3.4	7.3%	12.9%
Friday	2,521	3.2	12.0%	14.4%
Saturday	2,280	3.2	10.3%	16.4%
<b>Total</b>	<b>14,160</b>	<b>3.5</b>	<b>8.3%</b>	<b>11.9%</b>

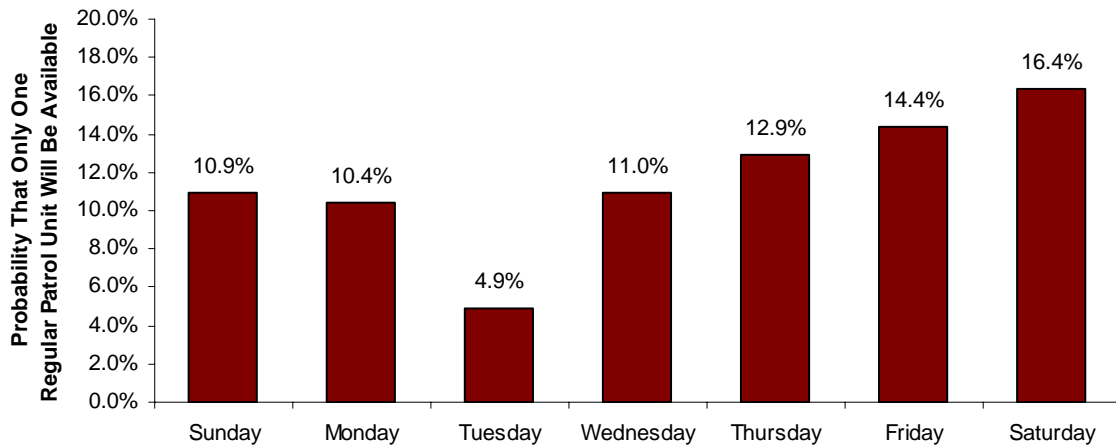
**Figure 3-33 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 2 by Day of the Week**



**Figure 3-34 Probability That No Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week**

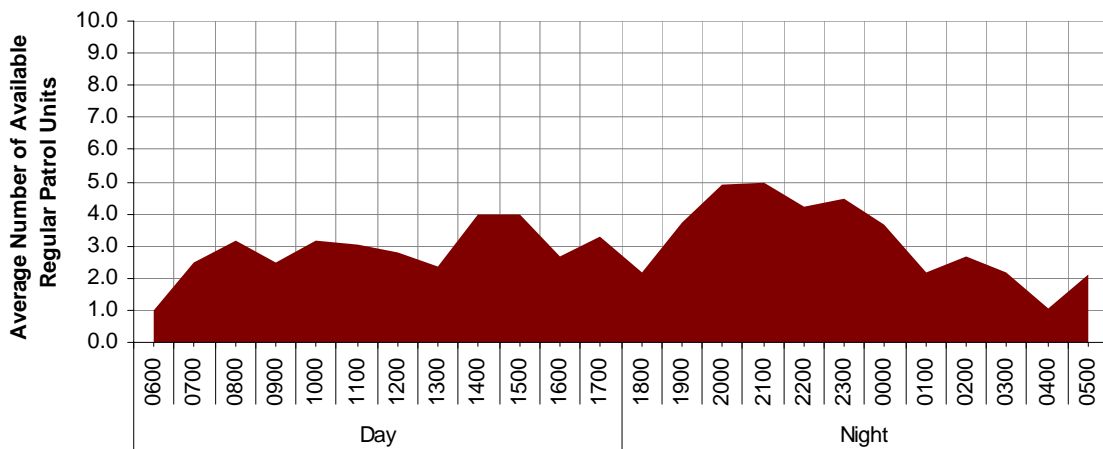


**Figure 3-35 Probability That Only One Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week**

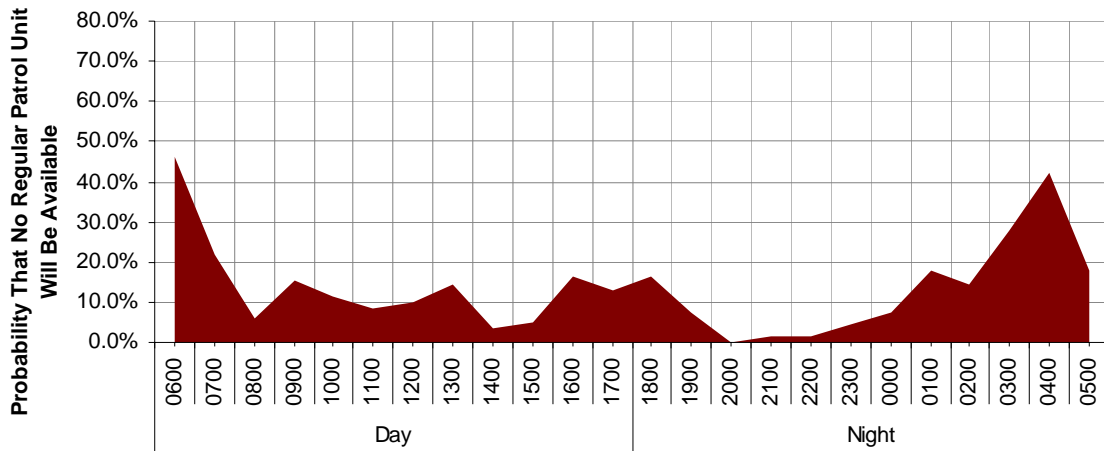


On Friday in District 2, 3.2 regular patrol units were available to be dispatched to priority 1 or 2 calls on average. However, no regular patrol unit was available to respond to incoming priority 1 or 2 calls approximately 12.0% of the time. Similarly, only one regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 14.4% of the time. Moreover, no regular patrol unit was available 19.1% of the time on Friday night (from midnight to 0600 hours on Saturday).

**Figure 3-36 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Friday in District 2 by Hour of the Day**

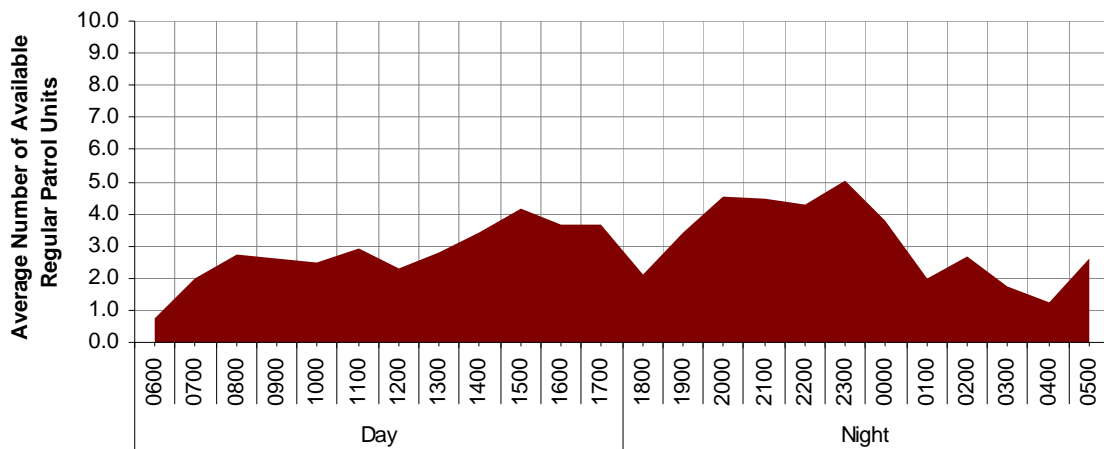


**Figure 3-37 Average Probability That No Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call on Friday by Hour of the Day**

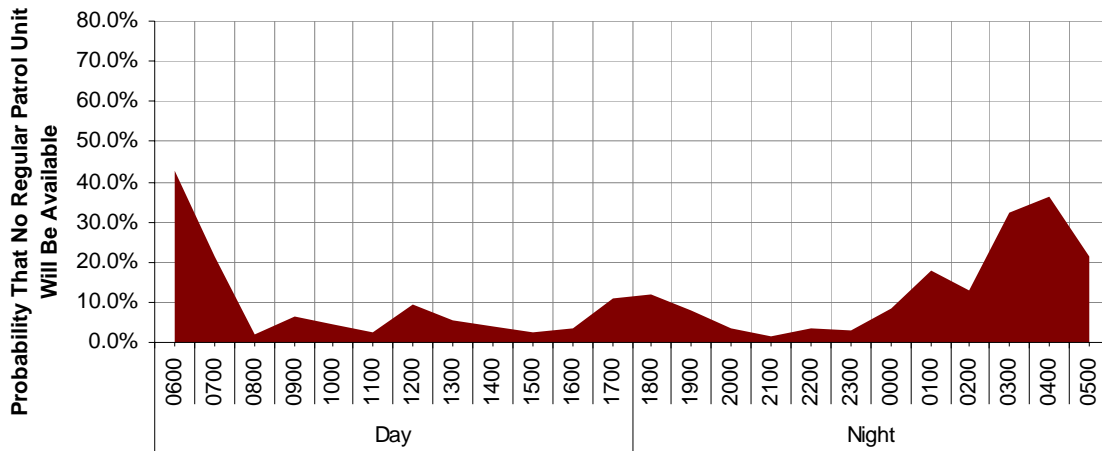


On Saturday in District 2, 3.2 regular patrol units were available to be dispatched to priority 1 or 2 calls on average. However, no regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 10.3% of the time. Similarly, only one regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 16.4% of the time. Moreover, no regular patrol unit was available 19.4% of the time on Saturday night (from midnight to 0600 hours on Sunday).

**Figure 3-38 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Saturday in District 2 by Hour of the Day**



**Figure 3-39 Average Probability That No Regular Patrol Unit in District 2 Will Be Available to Respond to a Priority 1 or 2 Call on Friday by Hour of the Day**



### 3.5 DEPLOYMENT IN DISTRICT 3

Between 2005-06-01 and 2006-05-31, a total of approximately 10,447 patrol units were deployed in District 3:

- 1,815 were patrol supervisors;
- 1,072 were patrol wagons;
- 1,447 were patrol beat units;
- 1,889 were plainclothes patrol units;
- 4,223 were uniform patrol units.

**Table 3-52 Number of Patrol Units Deployed in District 3 by Unit Type**

Unit Type	Number of Units Deployed	Average Number of Units Deployed per Day
Patrol Supervisors	1,815	5.0
Patrol Wagons	1,072	2.9
Bicycle Units	1	0.0
Plainclothes Patrol Units	1,889	5.2
Uniform Patrol Units	4,223	11.6
Patrol Beat Units	1,447	4.0
<b>Total</b>	<b>10,447</b>	<b>28.6</b>

As expected, there was 1.0 patrol supervisor per patrol team at any given time in District 3. Between 2005-06-01 and 2006-05-31, a total of 363 patrol supervisors were deployed in District 3 during the Alpha shift, 361 were deployed during the Bravo shift, 365 were deployed during the Charlie shift, 365 were deployed during the Delta shift and 361 were deployed during the Echo shift.

**Table 3-53 Number of Patrol Supervisors Deployed in District 3 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	363	1.0
Bravo	361	1.0
Charlie	365	1.0
Delta	365	1.0
Echo	361	1.0
<b>Total</b>	<b>1,815</b>	<b>1.0</b>

Between 2005-06-01 and 2006-05-31, as illustrated in the following table, a total of 364 patrol wagons were deployed in District 3 during the Bravo shift, 361 were deployed during the Delta shift and 347 were deployed during the Echo shift. No patrol wagons were deployed during the Alpha shift or the Charlie shift in District 3.

**Table 3-54 Number of Patrol Wagons Deployed in District 3 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	-	-
Bravo	364	1.0
Charlie	-	-
Delta	361	1.0
Echo	347	1.0
<b>Total</b>	<b>1,072</b>	<b>0.6</b>

On average, approximately one patrol beat unit was deployed every shift except Alpha shift in District 3. Between 2005-06-01 and 2006-05-31, only one patrol beat unit was deployed in District 3 during the Alpha shift, 350 were deployed during the Bravo shift, 385 were deployed during the Charlie shift, 360 were deployed during the Delta shift and 351 were deployed during the Echo shift.

**Table 3-55 Number of Patrol Beat Units Deployed in District 3 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	1	0.0
Bravo	350	1.0
Charlie	385	1.1
Delta	360	1.0
Echo	351	1.0
<b>Total</b>	<b>1,447</b>	<b>0.8</b>

On average, approximately one plainclothes patrol unit was deployed in District 3 on every shift. As in District 1, plainclothes patrol units in District 3 were proportionately more likely to be deployed during the Charlie shift. Between 2005-06-01 and 2006-05-31, a total of 276 plainclothes patrol units were deployed in District 3 during the Alpha shift, 343 were deployed during the Bravo shift, 579 were deployed during the Charlie shift, 344 were deployed during the Delta shift and 347 were deployed during the Echo shift.

**Table 3-56 Number of Plainclothes Patrol Units Deployed in District 3 by Shift**

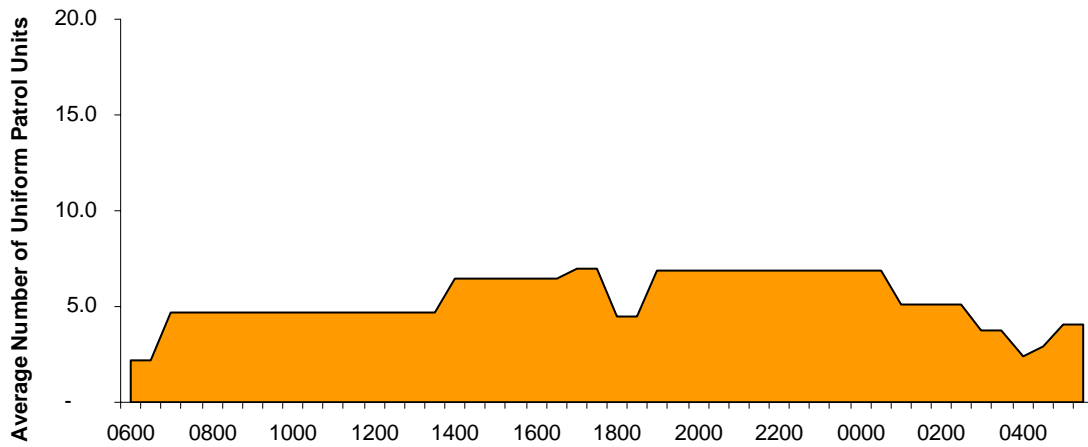
<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	276	0.8
Bravo	343	0.9
Charlie	579	1.6
Delta	344	0.9
Echo	347	1.0
<b>Total</b>	<b>1,889</b>	<b>1.0</b>

Between 2005-06-01 and 2006-05-31, a total of 784 uniform patrol units were deployed in District 3 during the Alpha shift, 924 were deployed during the Bravo shift, 661 were deployed during the Charlie shift, 973 were deployed during the Delta shift and 881 were deployed during the Echo shift.

**Table 3-57 Number of Uniform Patrol Units Deployed in District 3 by Shift**

Shift	Number of Units Deployed	Average Number of Units Deployed per Shift
Alpha	784	2.1
Bravo	924	2.5
Charlie	661	1.8
Delta	973	2.7
Echo	881	2.4
<b>Total</b>	<b>4,223</b>	<b>2.3</b>

**Figure 3-40 Average Number of Uniform Patrol Units Deployed in District 3 by Hour of the Day**



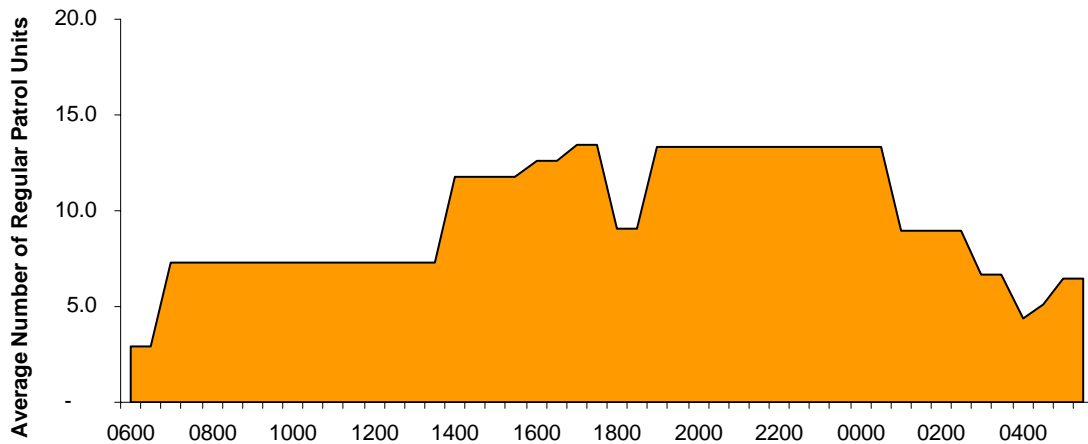
Overall, a total of 1,061 regular patrol units were deployed in District 3 during the Alpha shift, 1,617 were deployed during the Bravo shift, 1,625 were deployed during the Charlie shift, 1,678 were deployed during the Delta shift and 1,579 were deployed during the Echo shift.



**Table 3-58 Number of Regular Patrol Units Deployed in District 3 by Shift**

Shift	Number of Units Deployed	Average Number of Units Deployed per Shift
Alpha	1,061	2.9
Bravo	1,617	4.4
Charlie	1,625	4.5
Delta	1,678	4.6
Echo	1,579	4.3
<b>Total</b>	<b>7,560</b>	<b>4.1</b>

**Figure 3-41 Average Number of Regular Patrol Units Deployed in District 3 by Hour of the Day**



### 3.5.1 Two-Officer Units in District 3

Out of the 7,560 regular patrol units deployed in District 3 between 2005-06-01 and 2006-05-31, 1,861 were single-officer units. Out of the remaining 5,699 regular patrol units, 736 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 65.6% of all regular patrol units deployed in District 3 (excluding patrol supervisors and patrol wagons) were two-officer units and 34.4% were single-officer units.

**Table 3-59 Number of Single and Two-Officer Regular Patrol Units Deployed in District 3**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	1,861	24.6%
Single-Officer with Recruit	736	9.7%
Two-Officer Unit	4,963	65.6%
<b>Total</b>	<b>7,560</b>	<b>100.0%</b>

Out of the 1,061 regular patrol units deployed in District 3 during the Alpha shift, 421 were single-officer units. Out of the remaining 640 regular patrol units, 97 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 51.2% of all regular patrol units deployed in District 3 during the Alpha shift were two-officer units and 48.8% were single-officer units.

**Table 3-60 Number of Single and Two-Officer Regular Patrol Units Deployed During the Alpha Shift in District 3**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	421	39.7%
Single-Officer with Recruit	97	9.1%
Two-Officer Unit	543	51.2%
<b>Total</b>	<b>1,061</b>	<b>100.0%</b>

Out of the 1,617 regular patrol units deployed in District 3 during the Bravo shift, 371 were single-officer units. Out of the remaining 1,246 regular patrol units, 168 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 66.7% of all regular patrol units deployed in District 3 during the Alpha shift were two-officer units and 33.3% were single-officer units.

**Table 3-61 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Bravo Shift in District 3**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	371	22.9%
Single-Officer with Recruit	168	10.4%
Two-Officer Unit	1,078	66.7%
<b>Total</b>	<b>1,617</b>	<b>100.0%</b>

Out of the 1,625 regular patrol units deployed in District 3 during the Charlie shift, 221 were single-officer units. Out of the remaining 1,404 regular patrol units, 146 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 77.4% of all regular patrol units deployed in District 3 during the Charlie shift were two-officer units and 22.6% were single-officer units.

**Table 3-62 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Charlie Shift in District 3**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	221	13.6%
Single-Officer with Recruit	146	9.0%
Two-Officer Unit	1,258	77.4%
<b>Total</b>	<b>1,625</b>	<b>100.0%</b>

Out of the 1,678 regular patrol units deployed in District 3 during the Delta shift, 505 were single-officer units. Out of the remaining 1,173 regular patrol units, 162 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 60.3% of all regular patrol units deployed in District 3 during the Delta shift were two-officer units and 39.7% were single-officer units.

**Table 3-63 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Delta Shift in District 3**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	505	30.1%
Single-Officer with Recruit	162	9.7%
Two-Officer Unit	1,011	60.3%
<b>Total</b>	<b>1,678</b>	<b>100.0%</b>

Out of the 1,579 regular patrol units deployed in District 3 during the Echo shift, 343 were single-officer units. Out of the remaining 1,236 regular patrol units, 163 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 68.0% of all regular patrol units deployed in District 3 during the Echo shift were two-officer units and 32.0% were single-officer units.

**Table 3-64 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Echo Shift in District 3**

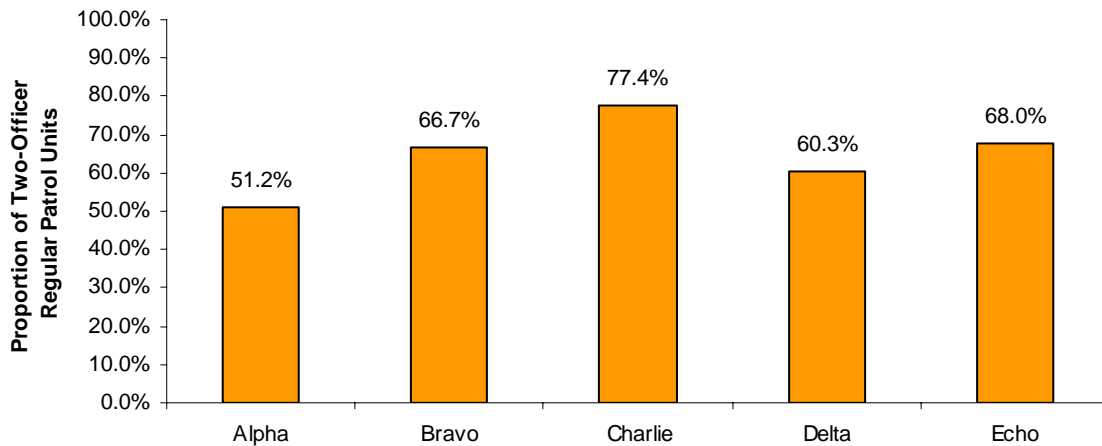
	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	343	21.7%
Single-Officer with Recruit	163	10.3%
Two-Officer Unit	1,073	68.0%
<b>Total</b>	<b>1,579</b>	<b>100.0%</b>

Between 2005-06-01 and 2006-05-31, on average, the proportion of two-officer regular patrol units deployed in District 3 varied between 51.2% and 77.4%.

**Table 3-65 Number of Single and Two-Officer Units Deployed in District 3 by Shift**

Shift	Single-Officer Units	Single-Officers with Recruit	Two-Officer Units	Total Units	Proportion of Two-Officer Units
Alpha	421	97	543	1,061	51.2%
Bravo	371	168	1,078	1,617	66.7%
Charlie	221	146	1,258	1,625	77.4%
Delta	505	162	1,011	1,678	60.3%
Echo	343	163	1,073	1,579	68.0%
<b>Total</b>	<b>1,861</b>	<b>736</b>	<b>4,963</b>	<b>7,560</b>	<b>65.6%</b>

**Figure 3-42 Proportion of Two-Officer Units Deployed in District 3 by Shift**



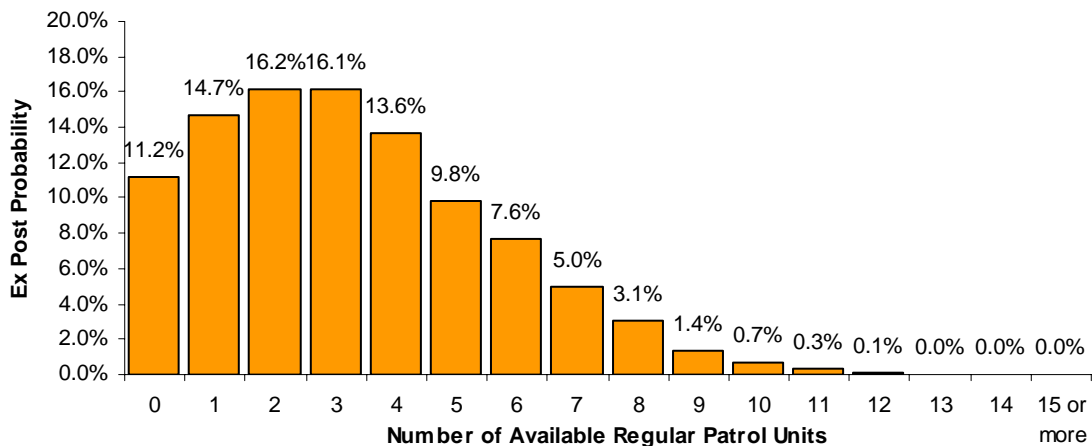
### 3.5.2 Unit Availability in District 3

A total of 15,582 priority 1 or 2 emergency 9-1-1 and non-emergency telephone calls were received between 2005-06-01 and 2006-05-31 in District 3. In 1,744 cases (11.2% of all calls), no regular patrol unit was readily available to respond to the high priority call while only one regular patrol unit was available to respond in 2,296 cases (14.7% of all calls). In 2,523 cases (16.2% of all cases), only two regular patrol units were available to be dispatched.

**Table 3-66 Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 3**

<b>Number of Available Regular Patrol Units</b>	<b>Number of Occurrences (P1 or P2 Calls)</b>	<b>Ex Post Probability</b>
0	1,744	11.2%
1	2,296	14.7%
2	2,523	16.2%
3	2,512	16.1%
4	2,122	13.6%
5	1,529	9.8%
6	1,189	7.6%
7	780	5.0%
8	484	3.1%
9	220	1.4%
10	109	0.7%
11	49	0.3%
12	19	0.1%
13	3	0.0%
14	3	0.0%
15 or more	-	0.0%
<b>Total</b>	<b>15,582</b>	<b>100.0%</b>

**Figure 3-43 Probability Distribution of the Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 3**



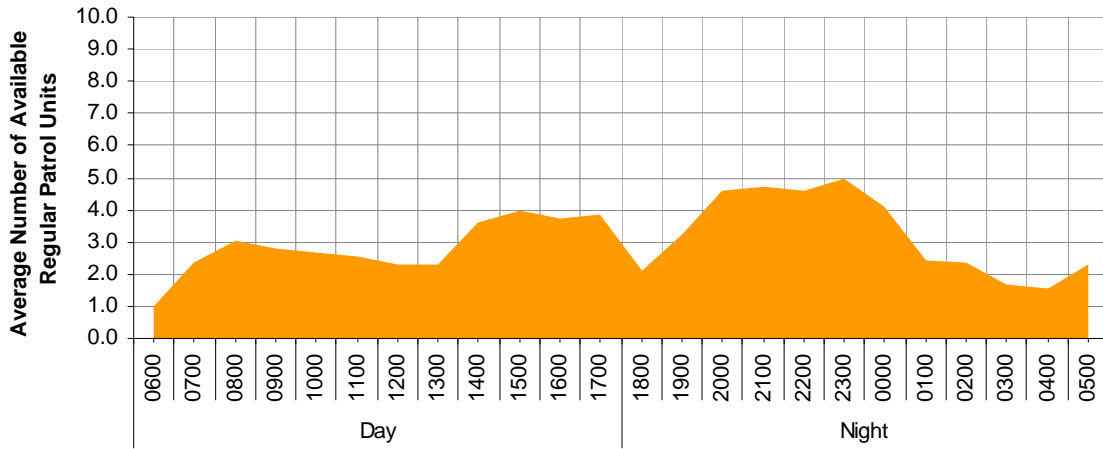
As expected, no regular patrol unit were available to be dispatched in District 3 more often between midnight and 0600 hours. Moreover, the average number of regular

patrol units available to be dispatched was also lower between midnight and 0600 hours.

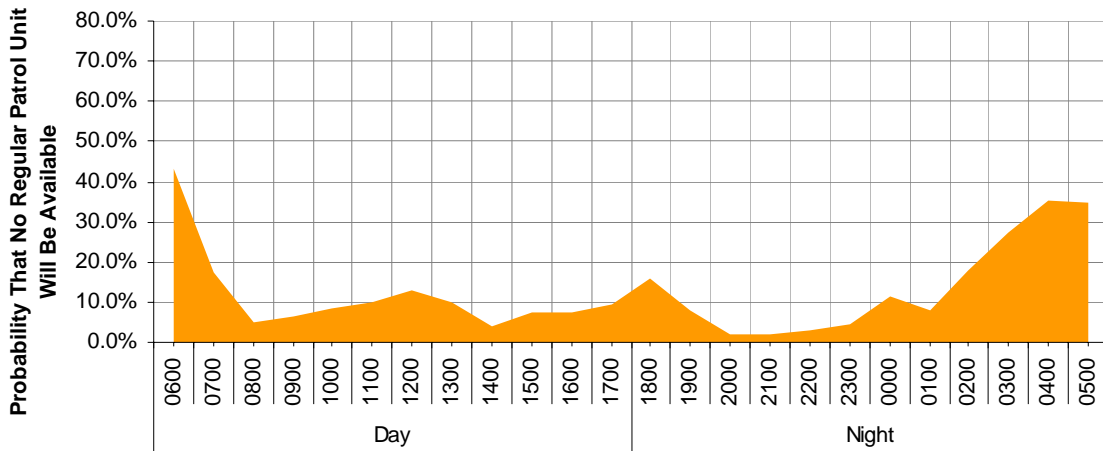
**Table 3-67 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 3 by Hour of the Day**

Hour	Total Number of Occurrences	Average Number of Available Regular Patrol Units	Probability That No Regular Patrol Unit Will Be Available	Probability That One Regular Patrol Unit Will Be Available	
Day	0600	244	1.0	43.0%	28.3%
	0700	327	2.4	17.4%	18.0%
	0800	392	3.0	5.1%	15.1%
	0900	430	2.8	6.3%	13.7%
	1000	500	2.7	8.2%	16.8%
	1100	588	2.6	9.7%	16.3%
	1200	634	2.3	12.8%	21.8%
	1300	618	2.3	10.0%	23.0%
	1400	709	3.6	4.1%	12.8%
	1500	793	3.9	7.6%	10.0%
	1600	814	3.7	7.4%	12.3%
1700	845	3.8	9.6%	15.4%	
Night	1800	871	2.1	15.8%	25.7%
	1900	909	3.2	8.0%	14.0%
	2000	906	4.6	2.0%	6.8%
	2100	914	4.7	2.1%	5.7%
	2200	910	4.6	2.9%	5.8%
	2300	876	5.0	4.2%	4.9%
	0000	823	4.1	11.2%	14.7%
	0100	679	2.4	8.0%	13.2%
	0200	627	2.4	17.7%	21.2%
	0300	499	1.6	27.1%	18.5%
0400	397	1.5	35.1%	25.7%	
0500	277	2.3	34.8%	20.7%	
<b>Total</b>	<b>15,582</b>	<b>3.3</b>	<b>30.3%</b>	<b>18.1%</b>	

**Figure 3-44 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 3 by Hour of the Day**

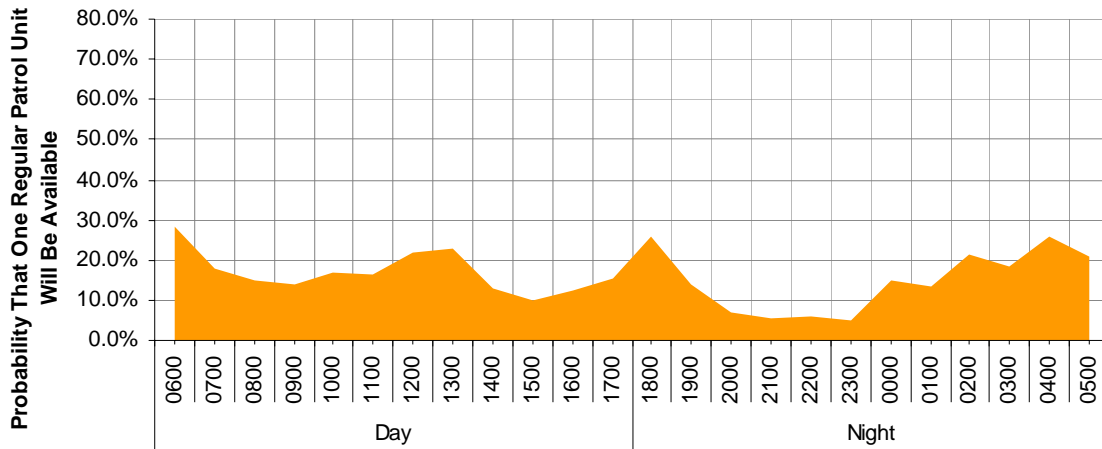


**Figure 3-45 Average Probability That No Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day**





**Figure 3-46 Average Probability That Only One Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day**

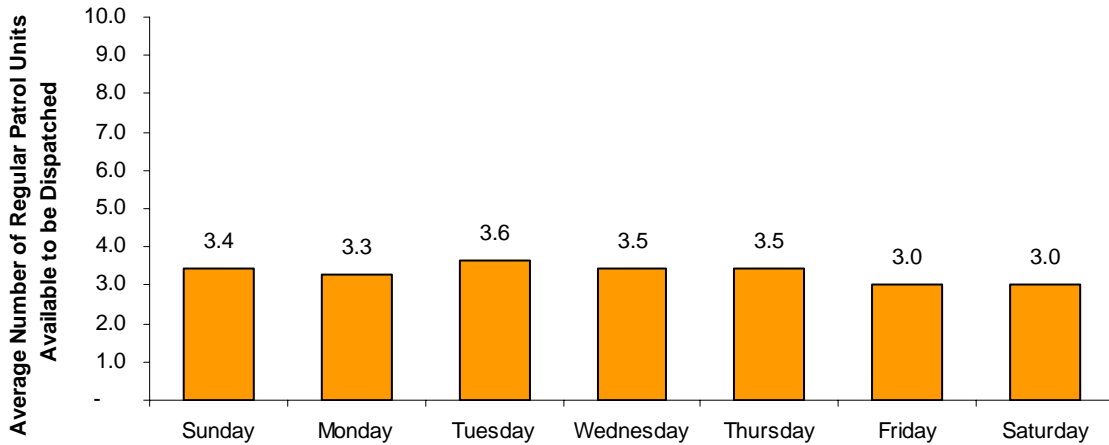


As expected, less regular patrol units were likely to be available on Friday and Saturday in District 3. This was reflected by the average number of regular patrol units available to respond to high priority calls as well as by the percentage of the time when no regular patrol unit was available.

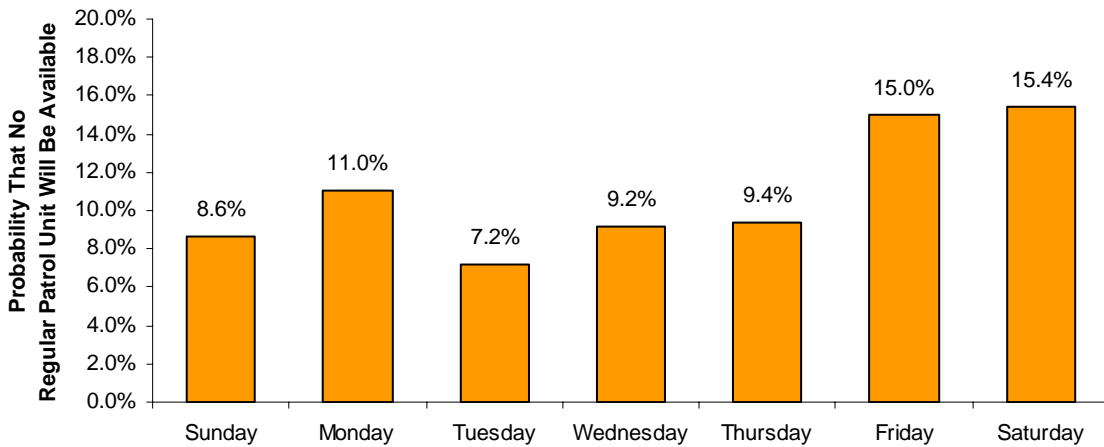
**Table 3-68 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 3 by Day of the Week**

Day of the Week	Total Number of Occurrences	Average Number of Available Regular Patrol Units	Probability That No Regular Patrol Unit Will Be Available	Probability That One Regular Patrol Unit Will Be Available
Sunday	1,975	3.4	8.6%	14.9%
Monday	2,060	3.3	11.0%	13.8%
Tuesday	2,031	3.6	7.2%	11.9%
Wednesday	2,051	3.5	9.2%	13.5%
Thursday	2,109	3.5	9.4%	13.6%
Friday	2,757	3.0	15.0%	16.3%
Saturday	2,599	3.0	15.4%	17.8%
<b>Total</b>	<b>15,582</b>	<b>3.3</b>	<b>11.2%</b>	<b>14.7%</b>

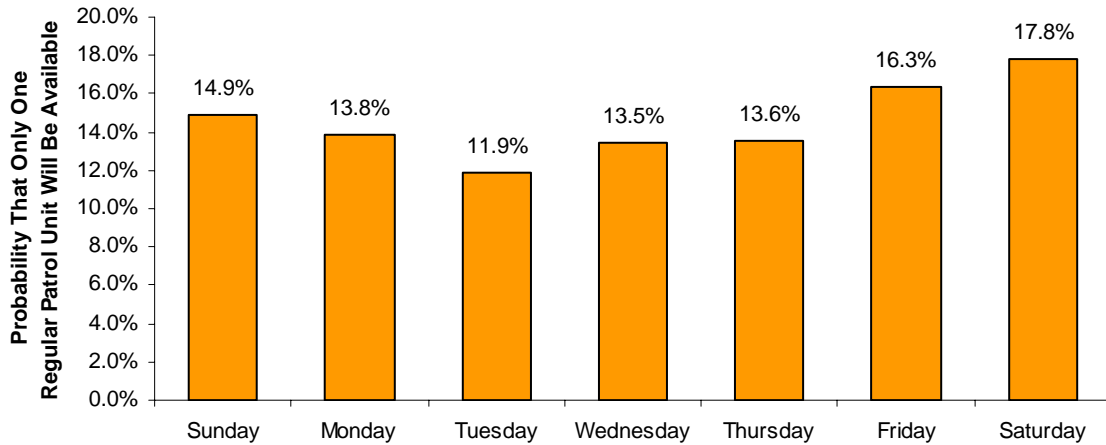
**Figure 3-47 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 3 by Day of the Week**



**Figure 3-48 Probability That No Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week**

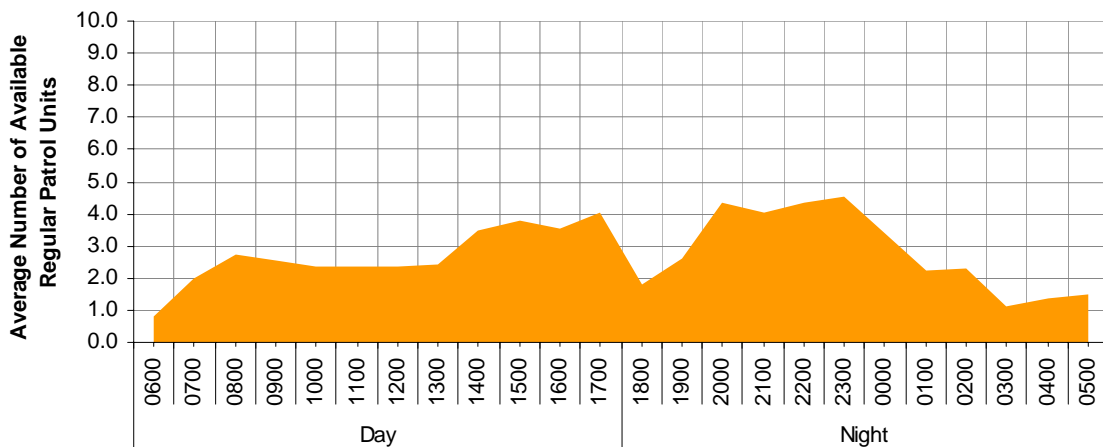


**Figure 3-49 Probability That Only One Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week**

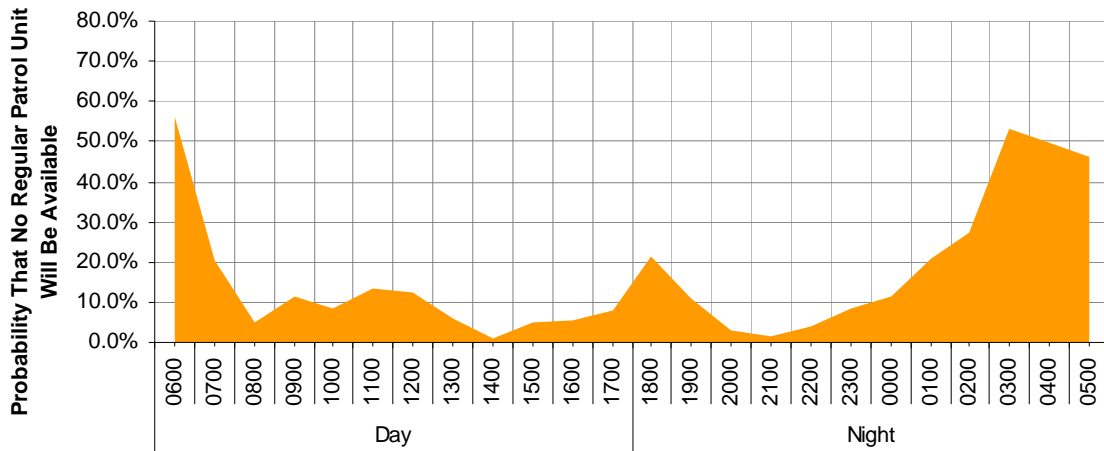


On Friday in District 3, 3.0 regular patrol units were available to be dispatched to priority 1 or 2 calls on average. However, no regular patrol unit was available to respond to incoming priority 1 or 2 calls approximately 15.0% of the time. Similarly, only one regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 16.3% of the time. Moreover, no regular patrol unit was available 30.6% of the time on Friday night (from midnight to 0600 hours on Saturday).

**Figure 3-50 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Friday in District 3 by Hour of the Day**

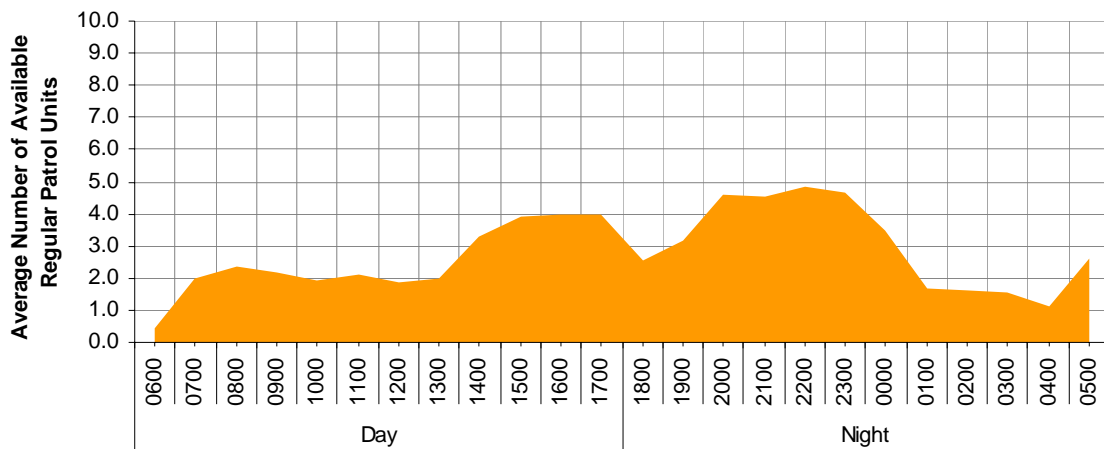


**Figure 3-51 Average Probability That No Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call on Friday by Hour of the Day**

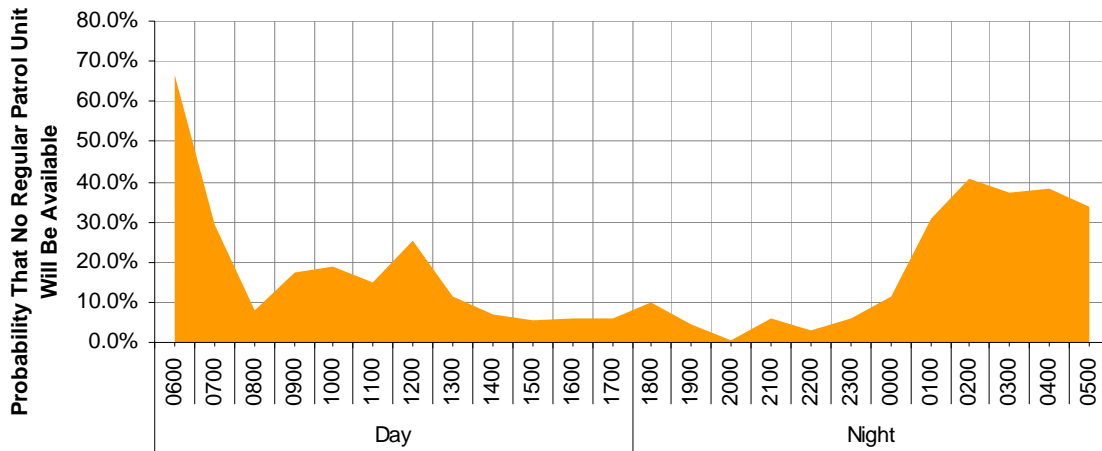


On Saturday in District 3, 3.0 regular patrol units were available to be dispatched to priority 1 or 2 calls on average. However, no regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 15.4% of the time. Similarly, only one regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 17.8% of the time. Moreover, no regular patrol unit was available 30.2% of the time on Saturday night (from midnight to 0600 hours on Sunday).

**Figure 3-52 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Saturday in District 3 by Hour of the Day**



**Figure 3-53 Average Probability That No Regular Patrol Unit in District 3 Will Be Available to Respond to a Priority 1 or 2 Call on Saturday by Hour of the Day**



### 3.6 DEPLOYMENT IN DISTRICT 4

Between 2005-06-01 and 2006-05-31, a total of approximately 10,234 patrol units were deployed in District 4:

- 1,825 were patrol supervisors;
- 1,094 were patrol wagons;
- 650 were patrol beat units;
- 1,523 were plainclothes patrol units;
- 5,141 were uniform patrol units.

**Table 3-69 Number of Patrol Units Deployed in District 4 by Unit Type**

Unit Type	Number of Units Deployed	Average Number of Units Deployed per Day
Patrol Supervisors	1,825	5.0
Patrol Wagons	1,094	3.0
Bicycle Units	1	0.0
Plainclothes Patrol Units	1,523	4.2
Uniform Patrol Units	5,141	14.1
Patrol Beat Units	650	1.8
<b>Total</b>	<b>10,234</b>	<b>28.0</b>

As expected, there was 1.0 patrol supervisor per patrol team at any given time in District 3. Between 2005-06-01 and 2006-05-31, a total of 365 patrol supervisors were deployed in District 4 during the Alpha shift, 364 were deployed during the Bravo shift, 365 were deployed during the Charlie shift, 366 were deployed during the Delta shift and 365 were deployed during the Echo shift.

**Table 3-70 Number of Patrol Supervisors Deployed in District 4 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	365	1.0
Bravo	364	1.0
Charlie	365	1.0
Delta	366	1.0
Echo	365	1.0
<b>Total</b>	<b>1,825</b>	<b>1.0</b>

Between 2005-06-01 and 2006-05-31, as illustrated in the following table, a total of 365 patrol wagons were deployed in District 4 during the Alpha shift and the Charlie shift while 364 were deployed during the Echo shift. No patrol wagons were deployed during the Bravo shift or the Delta shift in District 4.

**Table 3-71 Number of Patrol Wagons Deployed in District 4 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	365	1.0
Bravo	-	-
Charlie	365	1.0
Delta	-	-
Echo	364	1.0
<b>Total</b>	<b>1,094</b>	<b>0.6</b>

On average, approximately one patrol beat unit was deployed every second shift except Alpha shift in District 4. Between 2005-06-01 and 2006-05-31, only 11 patrol beat units were deployed in District 4 during the Alpha shift, 159 were deployed during the Bravo shift, 157 were deployed during the Charlie shift, 171 were deployed during the Delta shift and 152 were deployed during the Echo shift.

**Table 3-72 Number of Patrol Beat Units Deployed in District 4 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	11	0.0
Bravo	159	0.4
Charlie	157	0.4
Delta	171	0.5
Echo	152	0.4
<b>Total</b>	<b>650</b>	<b>0.4</b>

On average, approximately one plainclothes patrol unit was deployed in District 4 on every shift except Alpha shift. Between 2005-06-01 and 2006-05-31, a total of 78 plainclothes patrol units were deployed in District 4 during the Alpha shift, 352 were deployed during the Bravo shift, 366 were deployed during the Charlie shift, 372 were deployed during the Delta shift and 355 were deployed during the Echo shift.

**Table 3-73 Number of Plainclothes Patrol Units Deployed in District 4 by Shift**

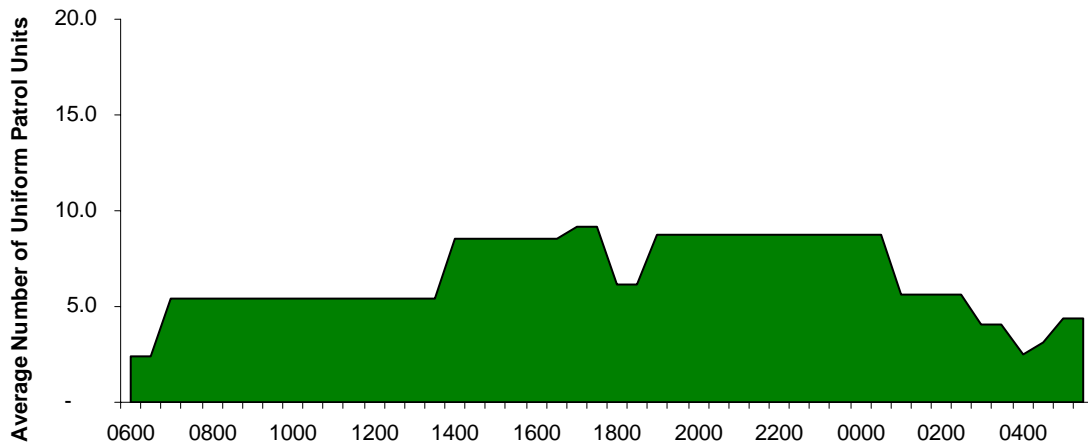
<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	78	0.2
Bravo	352	1.0
Charlie	366	1.0
Delta	372	1.0
Echo	355	1.0
<b>Total</b>	<b>1,523</b>	<b>0.8</b>

Between 2005-06-01 and 2006-05-31, a total of 869 uniform patrol units were deployed in District 4 during the Alpha shift, 1,097 were deployed during the Bravo shift, 1,137 were deployed during the Charlie shift, 1,107 were deployed during the Delta shift and 931 were deployed during the Echo shift.

**Table 3-74 Number of Uniform Patrol Units Deployed in District 4 by Shift**

<b>Shift</b>	<b>Number of Units Deployed</b>	<b>Average Number of Units Deployed per Shift</b>
Alpha	869	2.4
Bravo	1,097	3.0
Charlie	1,137	3.1
Delta	1,107	3.0
Echo	931	2.6
<b>Total</b>	<b>5,141</b>	<b>2.8</b>

**Figure 3-54 Average Number of Uniform Patrol Units Deployed in District 4 by Hour of the Day**



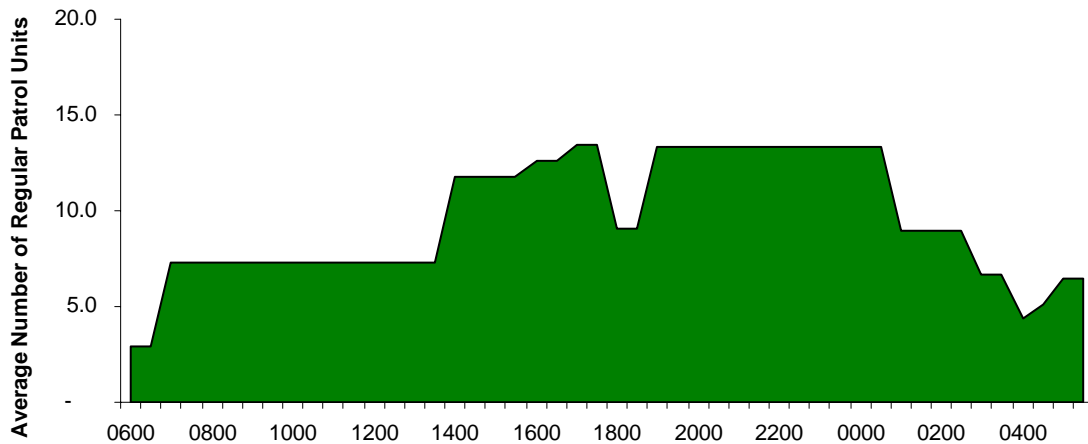
Overall, a total of 958 regular patrol units were deployed in District 4 during the Alpha shift, 1,608 were deployed during the Bravo shift, 1,660 were deployed during the Charlie shift, 1,651 were deployed during the Delta shift and 1,438 were deployed during the Echo shift.



**Table 3-75 Number of Regular Patrol Units Deployed in District 4 by Shift**

Shift	Number of Units Deployed	Average Number of Units Deployed per Shift
Alpha	958	2.6
Bravo	1,608	4.4
Charlie	1,660	4.5
Delta	1,651	4.5
Echo	1,438	3.9
<b>Total</b>	<b>7,315</b>	<b>4.0</b>

**Figure 3-55 Average Number of Regular Patrol Units Deployed in District 4 by Hour of the Day**



### 3.6.1 Two-Officer Units in District 4

Out of the 7,315 regular patrol units deployed in District 4 between 2005-06-01 and 2006-05-31, 2,381 were single-officer units. Out of the remaining 4,934 regular patrol units, 764 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 57.0% of all regular patrol units deployed in District 4 (excluding patrol supervisors and patrol wagons) were two-officer units and 43.0% were single-officer units.

**Table 3-76 Number of Single and Two-Officer Regular Patrol Units Deployed in District 4**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	2,381	32.5%
Single-Officer with Recruit	764	10.4%
Two-Officer Unit	4,170	57.0%
<b>Total</b>	<b>7,315</b>	<b>100.0%</b>

Out of the 958 regular patrol units deployed in District 4 during the Alpha shift, 458 were single-officer units. Out of the remaining 500 regular patrol units, 85 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 43.3% of all regular patrol units deployed in District 4 during the Alpha shift were two-officer units and 56.7% were single-officer units.

**Table 3-77 Number of Single and Two-Officer Regular Patrol Units Deployed During the Alpha Shift in District 4**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	458	47.8%
Single-Officer with Recruit	85	8.9%
Two-Officer Unit	415	43.3%
<b>Total</b>	<b>958</b>	<b>100.0%</b>

Out of the 1,608 regular patrol units deployed in District 4 during the Bravo shift, 499 were single-officer units. Out of the remaining 1,109 regular patrol units, 163 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 58.8% of all regular patrol units deployed in District 4 during the Bravo shift were two-officer units and 41.2% were single-officer units.

**Table 3-78 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Bravo Shift in District 4**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	499	31.0%
Single-Officer with Recruit	163	10.1%
Two-Officer Unit	946	58.8%
<b>Total</b>	<b>1,608</b>	<b>100.0%</b>

Out of the 1,660 regular patrol units deployed in District 4 during the Charlie shift, 603 were single-officer units. Out of the remaining 1,057 regular patrol units, 193 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 52.0% of all regular patrol units deployed in District 4 during the Charlie shift were two-officer units and 48.0% were single-officer units.

**Table 3-79 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Charlie Shift in District 4**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	603	36.3%
Single-Officer with Recruit	193	11.6%
Two-Officer Unit	864	52.0%
<b>Total</b>	<b>1,660</b>	<b>100.0%</b>

Out of the 1,651 regular patrol units deployed in District 4 during the Delta shift, 174 were single-officer units. Out of the remaining 1,477 regular patrol units, 174 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 63.4% of all regular patrol units deployed in District 4 during the Delta shift were two-officer units and 36.6% were single-officer units.

**Table 3-80 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Delta Shift in District 4**

	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	430	26.0%
Single-Officer with Recruit	174	10.5%
Two-Officer Unit	1,047	63.4%
<b>Total</b>	<b>1,651</b>	<b>100.0%</b>

Out of the 1,438 regular patrol units deployed in District 4 during the Echo shift, 391 were single-officer units. Out of the remaining 1,047 regular patrol units, 149 were comprised of a Field Trainer and a Block II recruit. Ultimately, this implies that 62.4% of all regular patrol units deployed in District 4 during the Echo shift were two-officer units and 37.6% were single-officer units.

**Table 3-81 Number of Single and Two-Officer Regular Patrol Units Deployed  
During the Echo Shift in District 4**

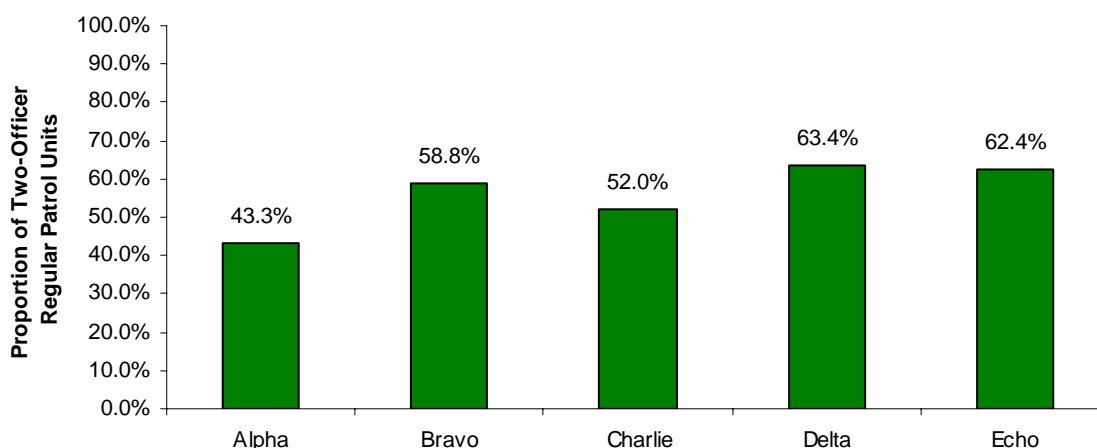
	<b>Number of Units</b>	<b>%</b>
Single-Officer Unit	391	27.2%
Single-Officer with Recruit	149	10.4%
Two-Officer Unit	898	62.4%
<b>Total</b>	<b>1,438</b>	<b>100.0%</b>

Between 2005-06-01 and 2006-05-31, on average, the proportion of two-officer regular patrol units deployed in District 4 varied between 43.3% and 63.4%.

**Table 3-82 Number of Single and Two-Officer Units Deployed in District 4 by Shift**

Shift	Single-Officer Units	Single-Officers with Recruit	Two-Officer Units	Total Units	Proportion of Two-Officer Units
Alpha	458	85	415	958	43.3%
Bravo	499	163	946	1,608	58.8%
Charlie	603	193	864	1,660	52.0%
Delta	430	174	1,047	1,651	63.4%
Echo	391	149	898	1,438	62.4%
<b>Total</b>	<b>2,381</b>	<b>764</b>	<b>4,170</b>	<b>7,315</b>	<b>57.0%</b>

**Figure 3-56 Proportion of Two-Officer Units Deployed in District 4 by Shift**



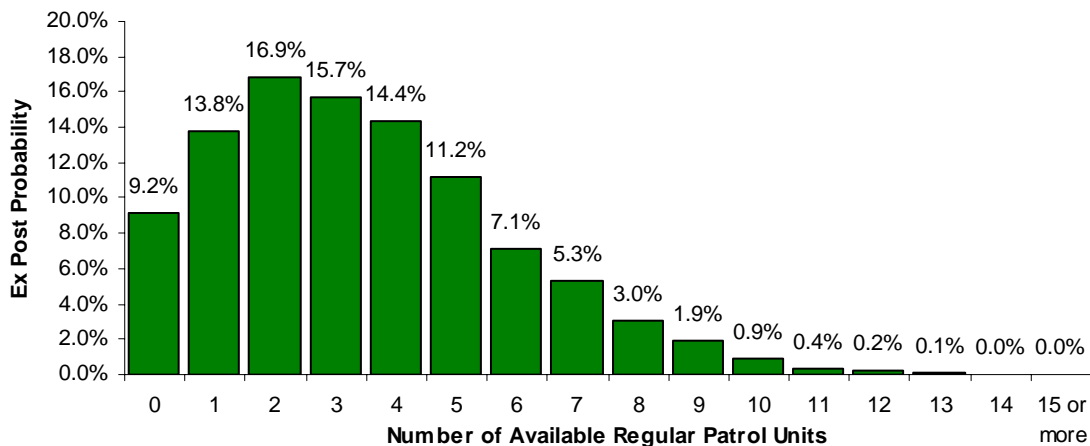
### 3.6.2 Unit Availability in District 4

A total of 15,582 priority 1 or 2 emergency 9-1-1 and telephone calls were received between 2005-06-01 and 2006-05-31 in District 3. In 1,744 cases (11.2% of all calls), no regular patrol unit was readily available to respond to the high priority call while only one regular patrol unit was available to respond in 2,296 cases (14.7% of all calls). In 2,523 cases (16.2% of all cases), only two regular patrol units were available to be dispatched.

**Table 3-83 Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 4**

Number of Available Regular Patrol Units	Number of Occurrences (P1 or P2 Calls)	Ex Post Probability
0	1,121	9.2%
1	1,681	13.8%
2	2,059	16.9%
3	1,923	15.7%
4	1,755	14.4%
5	1,369	11.2%
6	873	7.1%
7	643	5.3%
8	368	3.0%
9	230	1.9%
10	109	0.9%
11	48	0.4%
12	22	0.2%
13	9	0.1%
14	3	0.0%
15 or more	4	0.0%
<b>Total</b>	<b>12,217</b>	<b>100.0%</b>

**Figure 3-57 Probability Distribution of the Number of Regular Patrol Units Available to Respond to Priority 1 or 2 Calls in District 4**



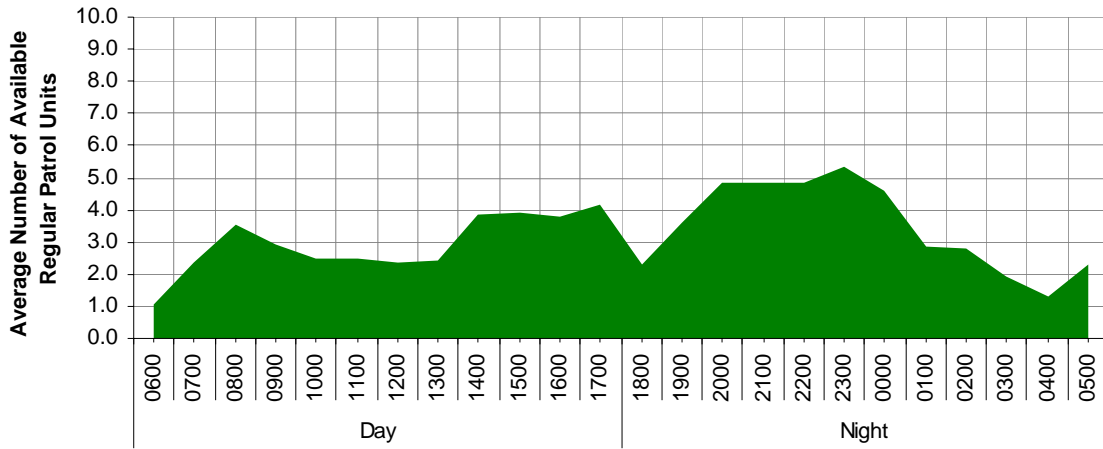
As expected, no regular patrol units were available to be dispatched in District 3 more often between midnight and 0600 hours. Moreover, the average number of regular

patrol units available to be dispatched was also lower between midnight and 0600 hours.

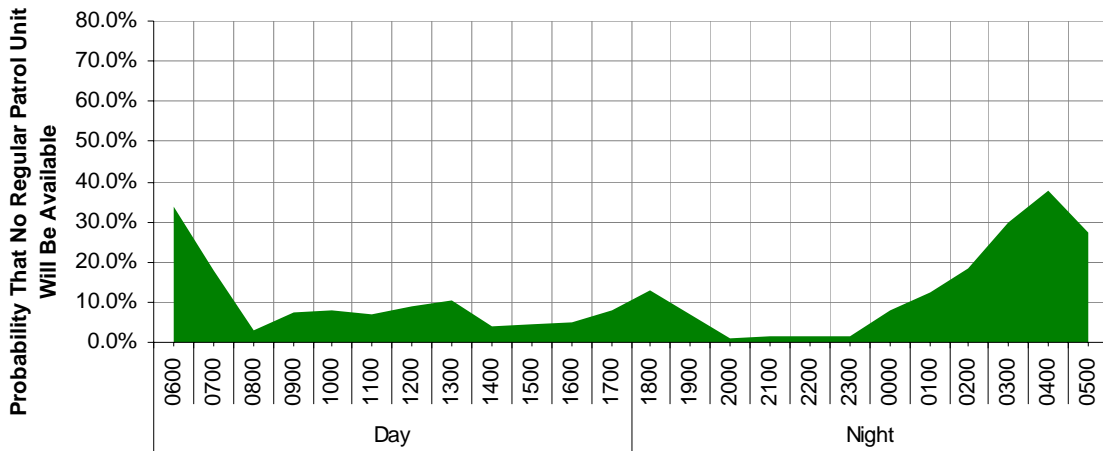
**Table 3-84 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 4 by Hour of the Day**

Hour	Total Number of Occurrences	Average Number of Available Regular Patrol Units	Probability That No Regular Patrol Unit Will Be Available	Probability That One Regular Patrol Unit Will Be Available	
Day	0600	189	1.1	33.9%	34.4%
	0700	193	2.3	18.1%	21.8%
	0800	338	3.5	3.0%	9.8%
	0900	380	2.9	7.6%	12.9%
	1000	465	2.5	7.7%	21.1%
	1100	502	2.5	7.2%	19.7%
	1200	514	2.3	9.1%	20.8%
	1300	541	2.4	10.5%	19.2%
	1400	596	3.8	4.0%	9.2%
	1500	653	3.9	4.3%	11.5%
	1600	592	3.8	5.1%	10.5%
Night	1700	687	4.1	8.0%	10.2%
	1800	654	2.3	12.7%	25.7%
	1900	626	3.6	6.7%	13.3%
	2000	634	4.8	1.1%	6.6%
	2100	621	4.9	1.3%	4.8%
	2200	716	4.9	1.5%	6.0%
	2300	686	5.3	1.5%	3.2%
	0000	600	4.6	8.2%	9.8%
	0100	572	2.8	12.4%	18.4%
	0200	543	2.8	18.2%	14.9%
	0300	368	1.9	29.9%	20.4%
0400	297	1.3	37.7%	25.3%	
0500	250	2.3	27.2%	15.6%	
<b>Total</b>	<b>12,217</b>	<b>3.5</b>	<b>9.2%</b>	<b>13.8%</b>	

**Figure 3-58 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 4 by Hour of the Day**

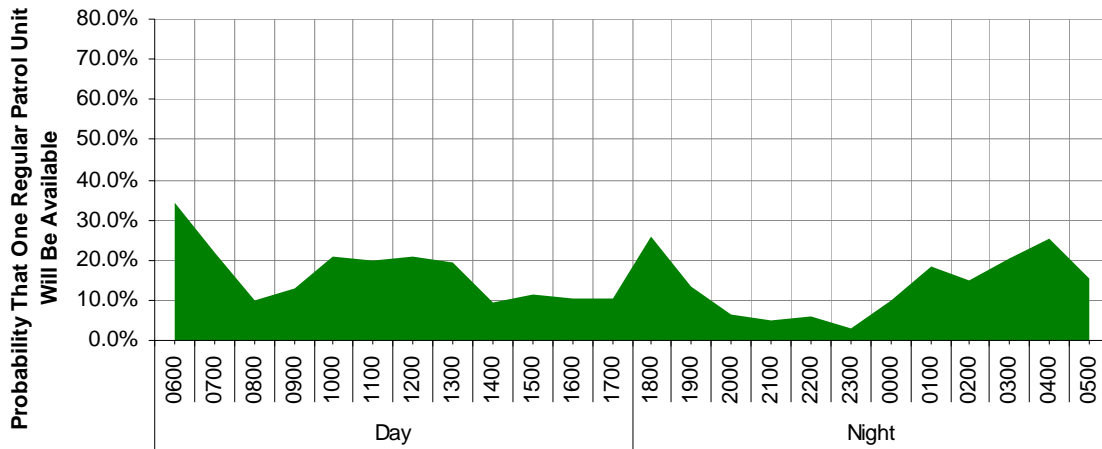


**Figure 3-59 Average Probability That No Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day**





**Figure 3-60 Average Probability That Only One Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call by Hour of the Day**

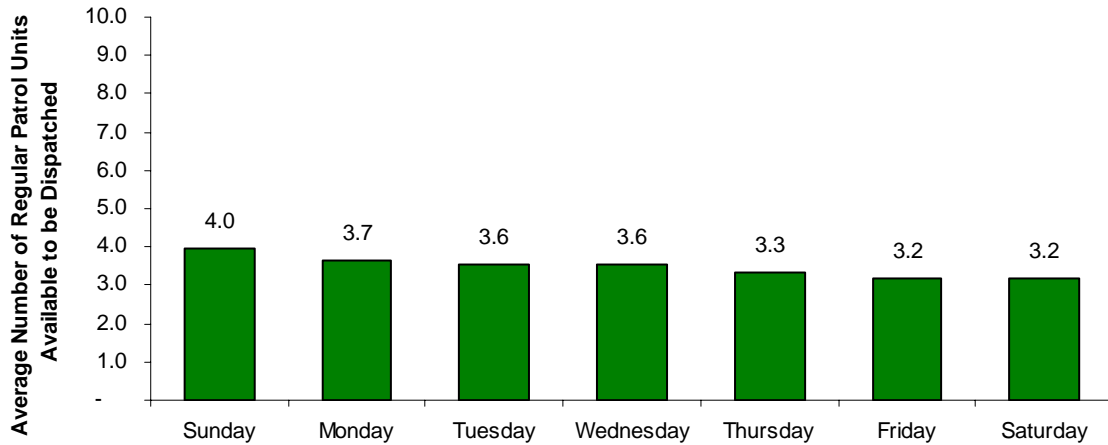


As expected, less regular patrol units were likely to be available on Friday and Saturday in District 4. This was reflected by the average number of regular patrol units available to respond to high priority calls as well as by the percentage of the time when no regular patrol unit was available.

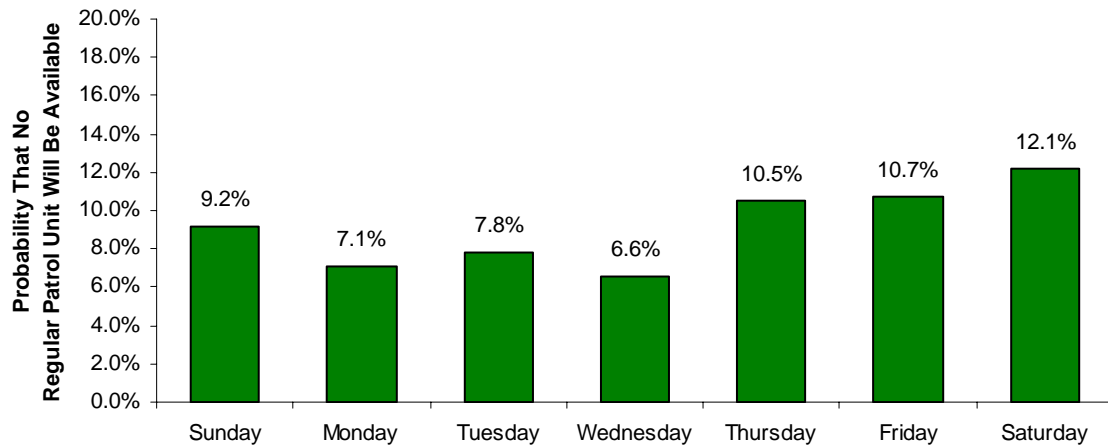
**Table 3-85 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 4 by Day of the Week**

Day of the Week	Total Number of Occurrences	Average Number of Available Regular Patrol Units	Probability That No Regular Patrol Unit Will Be Available	Probability That One Regular Patrol Unit Will Be Available
Sunday	1,400	4.0	9.2%	11.1%
Monday	1,613	3.7	7.1%	12.6%
Tuesday	1,661	3.6	7.8%	13.2%
Wednesday	1,739	3.6	6.6%	14.2%
Thursday	1,754	3.3	10.5%	14.5%
Friday	2,123	3.2	10.7%	14.9%
Saturday	1,927	3.2	12.1%	14.7%
<b>Total</b>	<b>12,217</b>	<b>3.5</b>	<b>9.3%</b>	<b>13.8%</b>

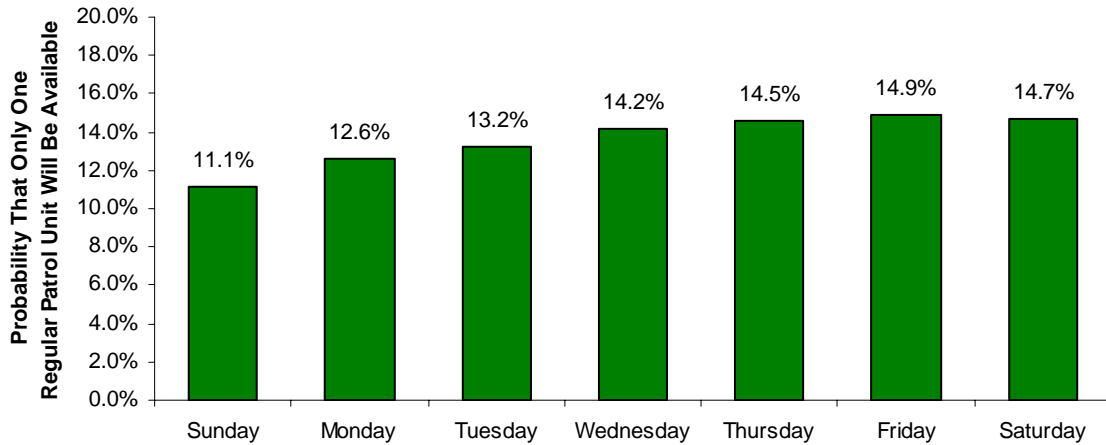
**Figure 3-61 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls in District 4 by Day of the Week**



**Figure 3-62 Probability That No Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week**

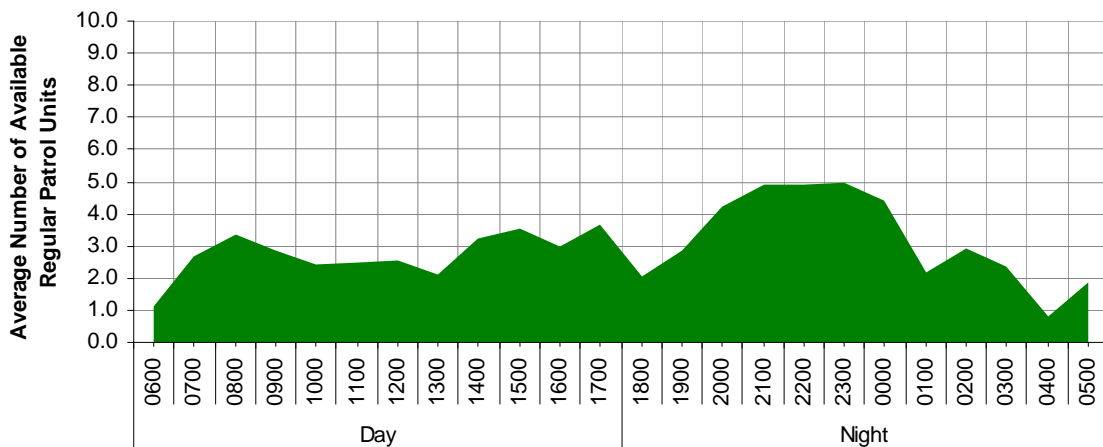


**Figure 3-63 Probability That Only One Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call by Day of the Week**

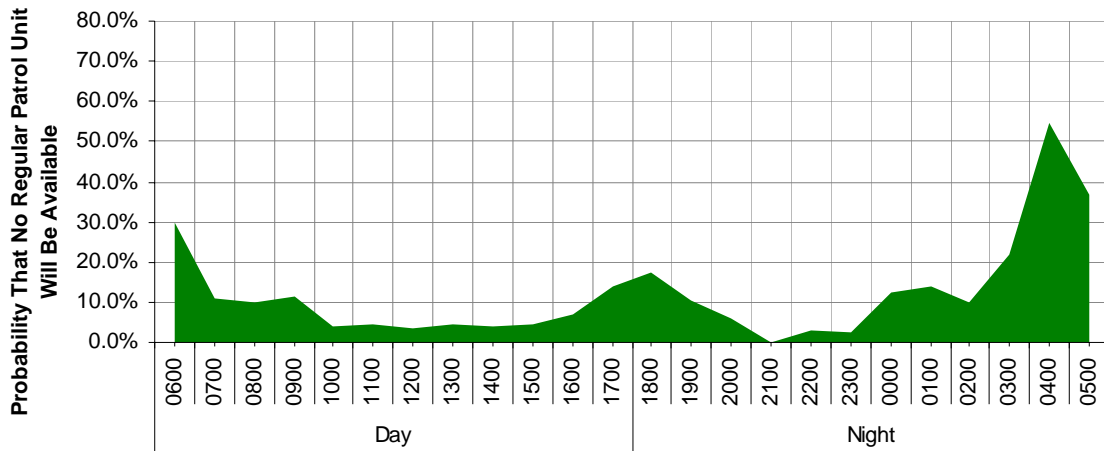


On Friday in District 4, 3.2 regular patrol units were available to be dispatched to priority 1 or 2 calls on average. However, no regular patrol unit was available to respond to incoming priority 1 or 2 calls approximately 10.7% of the time. Similarly, only one regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 14.9% of the time. Moreover, no regular patrol unit was available 20.6% of the time on Friday night (from midnight to 0600 hours on Saturday).

**Figure 3-64 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Friday in District 4 by Hour of the Day**

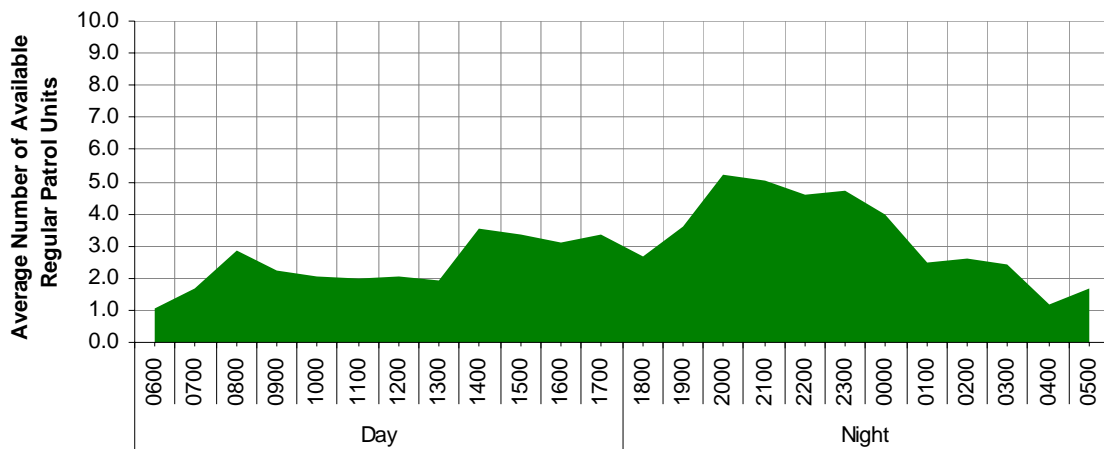


**Figure 3-65 Average Probability That No Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call on Friday by Hour of the Day**

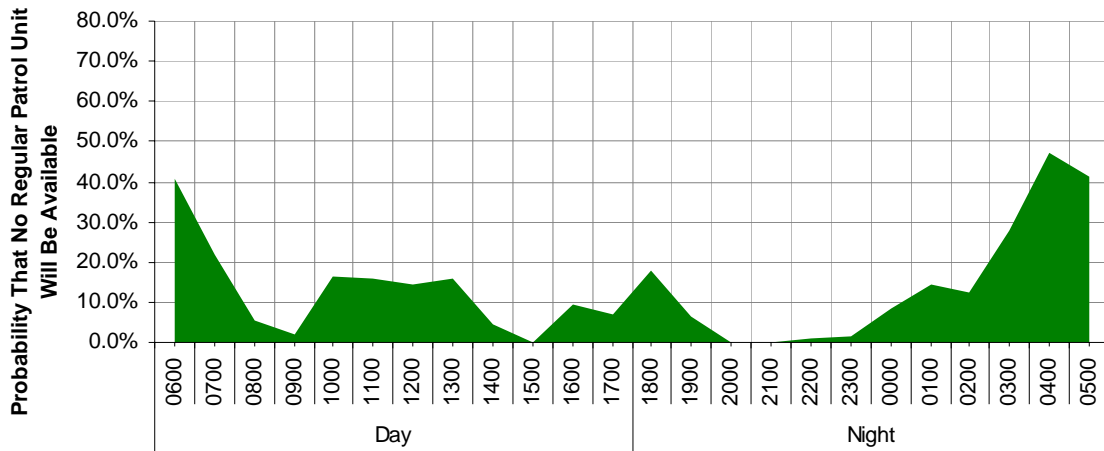


On Saturday in District 4, 3.2 regular patrol units were available to be dispatched to priority 1 or 2 calls on average. However, no regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 12.1% of the time. Similarly, only one regular patrol unit was available to respond to an incoming priority 1 or 2 call approximately 14.7% of the time. Moreover, no regular patrol unit was available 20.1% of the time on Saturday night (from midnight to 0600 hours on Sunday).

**Figure 3-66 Average Number of Regular Patrol Units Available to Be Dispatched to Priority 1 or 2 Calls on Saturday in District 4 by Hour of the Day**



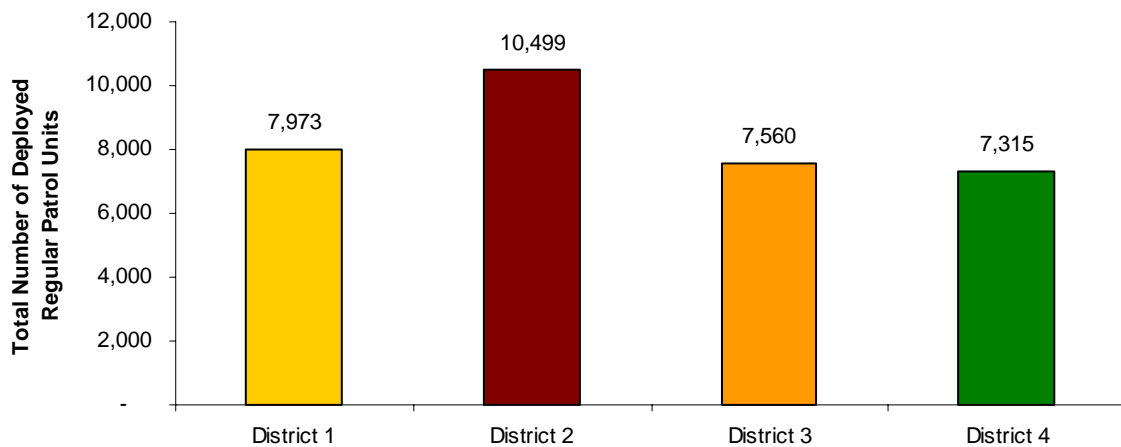
**Figure 3-67 Average Probability That No Regular Patrol Unit in District 4 Will Be Available to Respond to a Priority 1 or 2 Call on Saturday by Hour of the Day**



### 3.7 DISCUSSION

Between 2005-06-01 and 2006-05-31, a total of 7,973 regular patrol units were deployed in District 1, 10,499 regular patrol units were deployed in District 2, 7,560 regular patrol units were deployed in District 3 and 7,315 regular patrol units were deployed in District 4.

**Figure 3-68 Total Number of Regular Patrol Units Deployed by District**

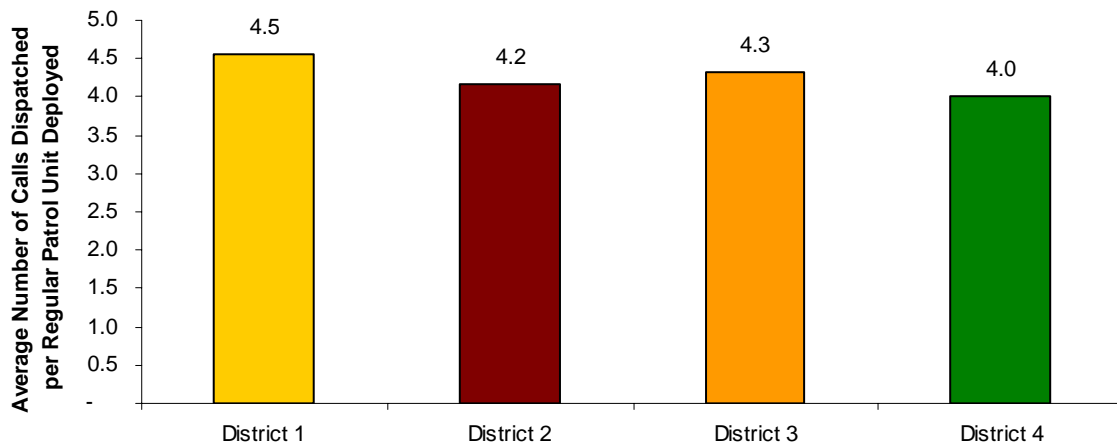


Overall, the call load appears to be balanced fairly equitably between the patrol districts. In District 1, each deployed regular patrol unit responded to an average of 4.5 calls for service by shift between 2005-06-01 and 2006-05-31. By comparison, regular patrol units in District 2 each responded to an average of 4.2 calls for service, regular patrol units in District 3 each responded to an average of 4.3 calls for service and regular patrol units in District 4 each responded to an average of 4.0 calls for service during the same period. This confirms that the staffing levels in each patrol district are aligned with the average call load. In other words, districts in which more units were deployed also handled more calls. As a consequence, workload was divided relatively equitably between the patrol districts on average.

**Table 3-86 Average Number of Calls Dispatched per Regular Patrol Unit by District**

District	Total Number of Regular Patrol Units	Average Number of Calls Dispatched per Regular Patrol Unit
District 1	7,973	4.5
District 2	10,499	4.2
District 3	7,560	4.3
District 4	7,315	4.0
<b>Total</b>	<b>33,347</b>	<b>17.1</b>

**Figure 3-69 Average Number of Calls Dispatched per Regular Patrol Unit by District**

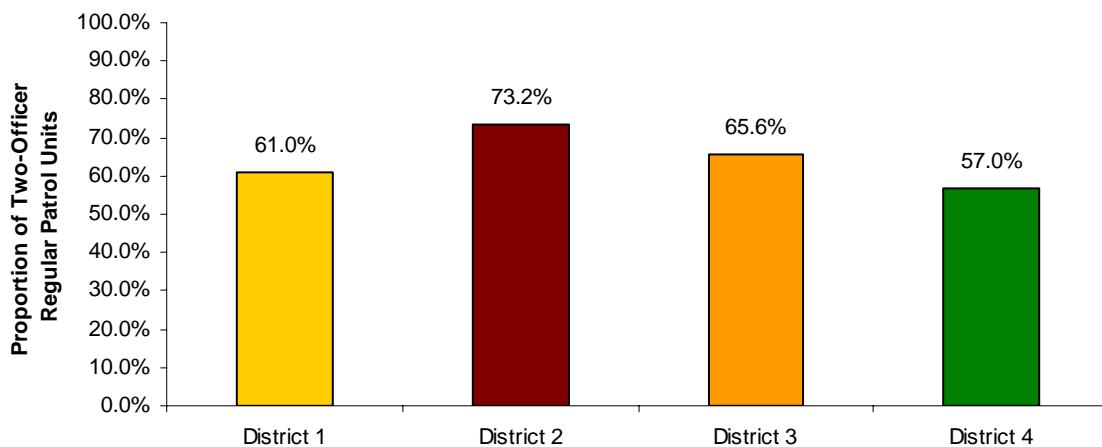


Overall, proportionately more two-officer regular patrol units were deployed in District 2 between 2005-06-01 and 2006-05-31. This is expected because BET units operate in District 2 and, by nature, BET units are virtually always comprised of two officers.

**Table 3-87 Proportion of Two-Officer Units Deployed by District**

District	Proportion of Two-Officer Units
District 1	61.0%
District 2	73.2%
District 3	65.6%
District 4	57.0%
<b>Total</b>	<b>65.0%</b>

**Figure 3-70 Proportion of Two-Officer Units Deployed by District**

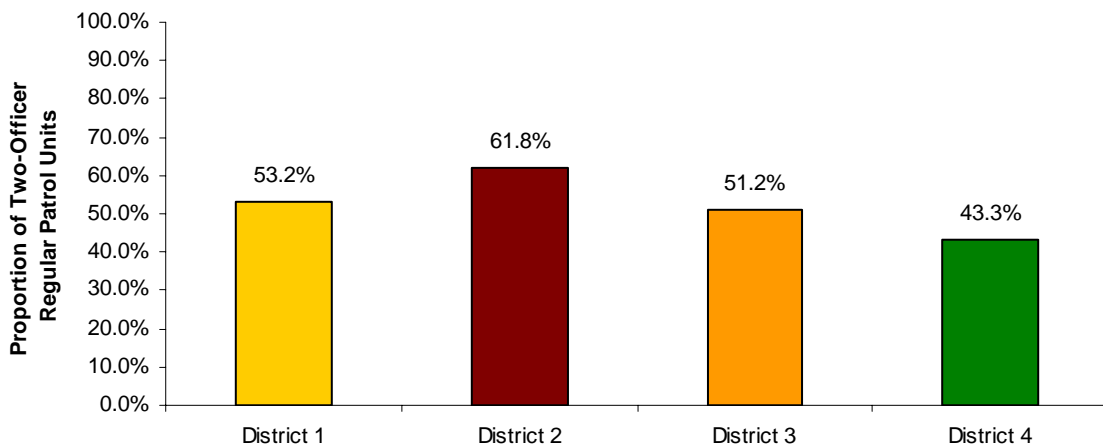


Proportionately more two-officer regular patrol units were also deployed in District 2 during the Alpha shift and the Echo shift (i.e. when no BET units are included). As expected, however, the proportion of two-officer regular patrol units in District 2 was highest during the Bravo and the Delta shift (i.e. when BET Foxtrot and BET Golf units are working).

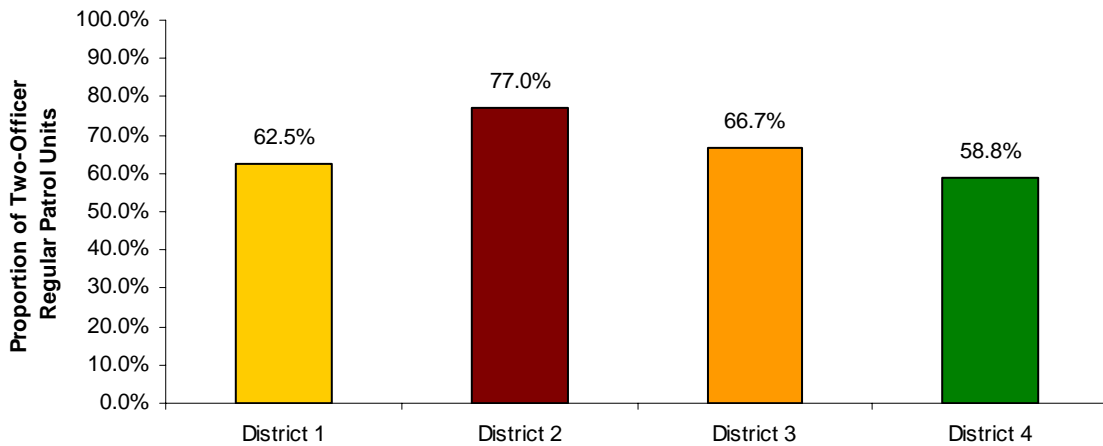
**Table 3-88 Proportion of Two-Officer Units Deployed by Shift and by District**

District	Alpha Shift	Bravo or BET Foxtrot Shift	Charlie Shift	Delta or BET Golf Shift	Echo Shift or Late Car
District 1	53.2%	62.5%	66.2%	54.8%	66.8%
District 2	61.8%	77.0%	65.3%	79.0%	70.5%
District 3	51.2%	66.7%	77.4%	60.3%	68.0%
District 4	43.3%	58.8%	52.0%	63.4%	62.4%
<b>Total</b>	<b>53.0%</b>	<b>68.4%</b>	<b>65.2%</b>	<b>66.7%</b>	<b>67.1%</b>

**Figure 3-71 Proportion of Two-Officer Units Deployed During the Alpha Shift by District**

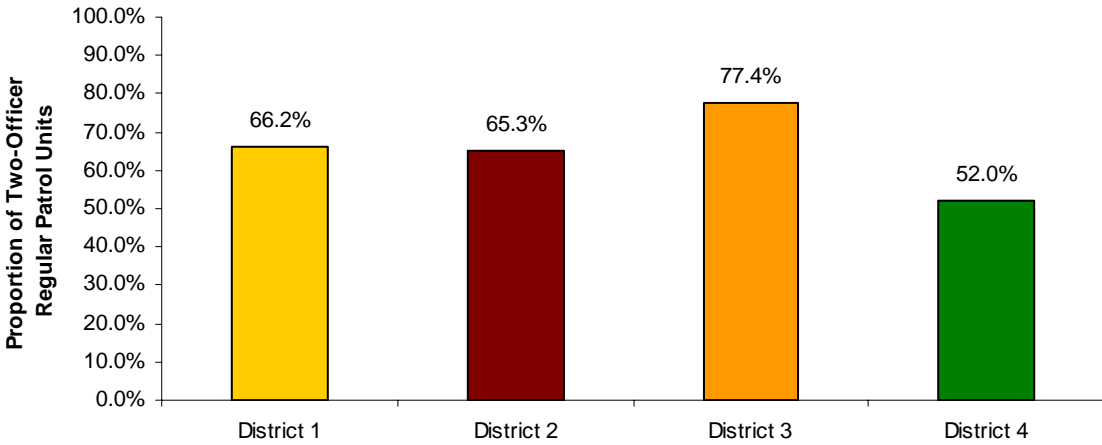


**Figure 3-72 Proportion of Two-Officer Units Deployed During the Bravo or BET Foxtrot Shift by District**

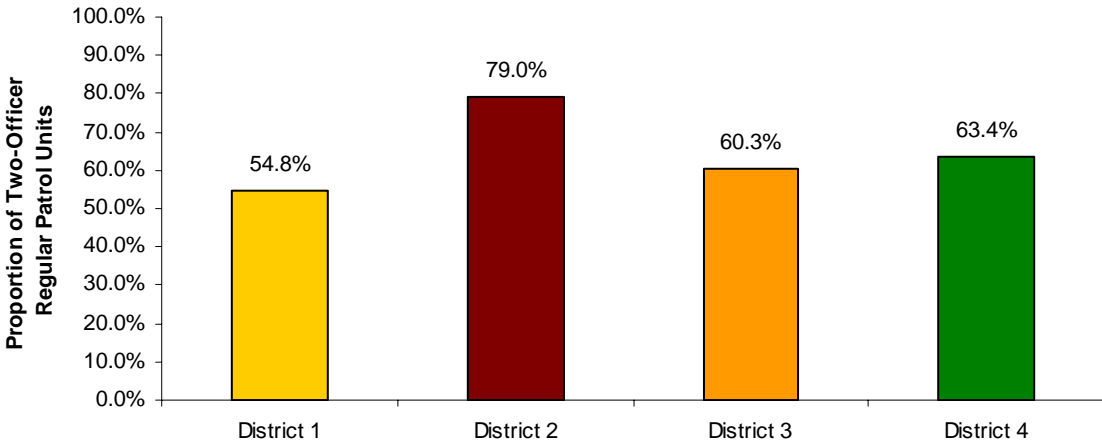




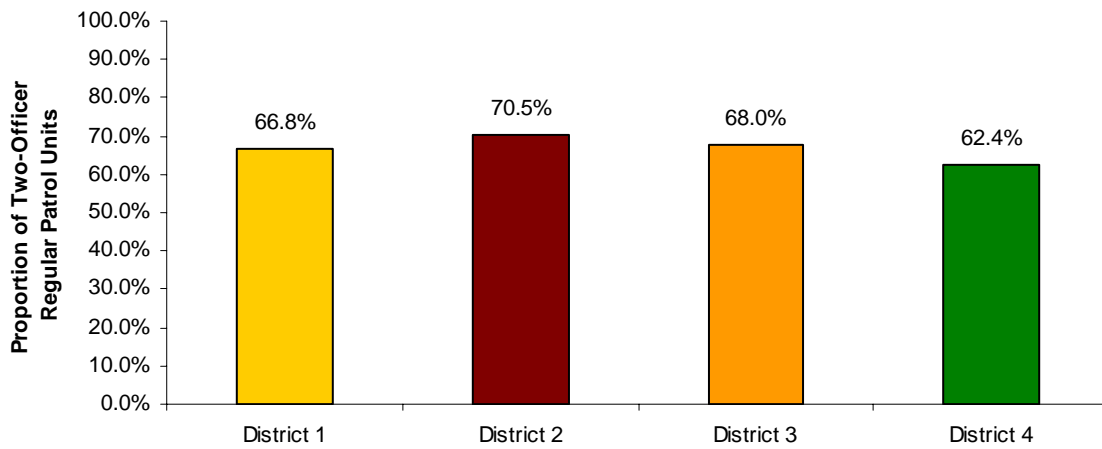
**Figure 3-73 Proportion of Two-Officer Units Deployed During the Charlie Shift by District**



**Figure 3-74 Proportion of Two-Officer Units Deployed During the Delta or BET Golf Shift by District**



**Figure 3-75 Proportion of Two-Officer Units Deployed During the Echo Shift by District**



Section 22 of the 2003-2006 Collective Agreement between the Vancouver Police Board and the Vancouver Police Union (VPU) states that:

*Normal deployment of the Operations Division shall be undertaken so as to ensure that a minimum of sixty percent (60%) of the cars deployed are deployed as two-person cars.*

As shown above, more than 65% of all regular patrol units deployed in District 2 and District 3 are comprised of two officers. By comparison, only 57.0% of all regular patrol units deployed in District 4 are comprised of two officers. Ultimately, the deployment of two-officer units has the potential to affect patrol performance and deployment efficiency. For this reason, the deployment ratio is assessed in more detail in a separate section below.

Ultimately, the data on unit availability presented above is troubling because it suggests that not enough patrol resources are available late at night to handle the call load. This leads to a situation where:

- When a priority 1 or 2 call is received between 0300 and 0700 hours in District 1, there is a probability of 18.8% to 39.0% that no patrol unit will be available to be

dispatched. Moreover, there is a probability of 34.7% to 65.1% that less than two patrol units will be available to be dispatched. Between 0400 and 0500 hours on Friday, the probability that no patrol unit will be available increases to more than 45%. Between 0400 and 0500 hours on Saturday, the probability that no patrol unit will be available increases to more than 50%.

- When a priority 1 or 2 call is received between 0300 and 0700 hours in District 2, there is a probability of 14.6% to 38.5% that no patrol unit will be available to be dispatched. Moreover, there is a probability of 33.1% to 68.7% that less than two patrol units will be available to be dispatched. Between 0400 and 0500 hours on Friday, the probability that no patrol unit will be available increases to more than 40%. Between 0400 and 0500 hours on Saturday, the probability that no patrol unit will be available increases to more than 35%.
- When a priority 1 or 2 call is received between 0300 and 0700 hours in District 3, there is a probability of 27.1% to 43.0% that no patrol unit will be available to be dispatched. Moreover, there is a probability of 45.6% to 71.3% that less than two patrol units will be available to be dispatched. Between 0400 and 0500 hours on Friday, the probability that no patrol unit will be available increases to more than 50%. Between 0600 and 0700 hours on Saturday, the probability that no patrol unit will be available increases to more than 65%.
- When a priority 1 or 2 call is received between 0300 and 0700 hours in District 4, there is a probability of 27.2% to 37.7% that no patrol unit will be available to be dispatched. Moreover, there is a probability of 42.8% to 68.3% that less than two patrol units will be available to be dispatched. Between 0400 and 0500 hours on Friday, the probability that no patrol unit will be available increases to more than 50%. Between 0600 and 0700 hours on Saturday, the probability that no patrol unit will be available increases to more than 45%.

The public goal of the Calgary Police Service is to ensure that a minimum of two patrol units are available at any given time to provide some backup to other patrol units in case of emergency. In this context, it is peculiar that VPD patrol officers need to work without any available backup for up to 4 hours per day. The current situation implies that officers at the VPD and Vancouver citizens in general face inflated risks because patrol

resources are stretched too thin late at night. This deployment strategy is inherently inefficient because proactive policing activities have the potential to be most rewarding just as there are less free units (i.e. very late at night, when most honest citizens are sleeping or at work).

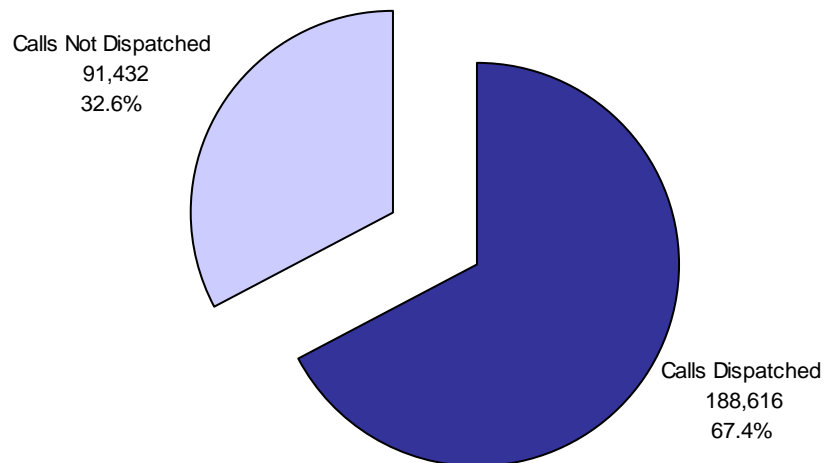
## 4 DEMANDS FOR SERVICE

Between 2005-06-01 and 2006-05-31, the VPD recorded a total of 280,048 calls for service. A police unit was dispatched to approximately 188,616 (67.4%) of these incidents.

**Table 4-1 Number of Calls for Service Dispatched and Not Dispatched**

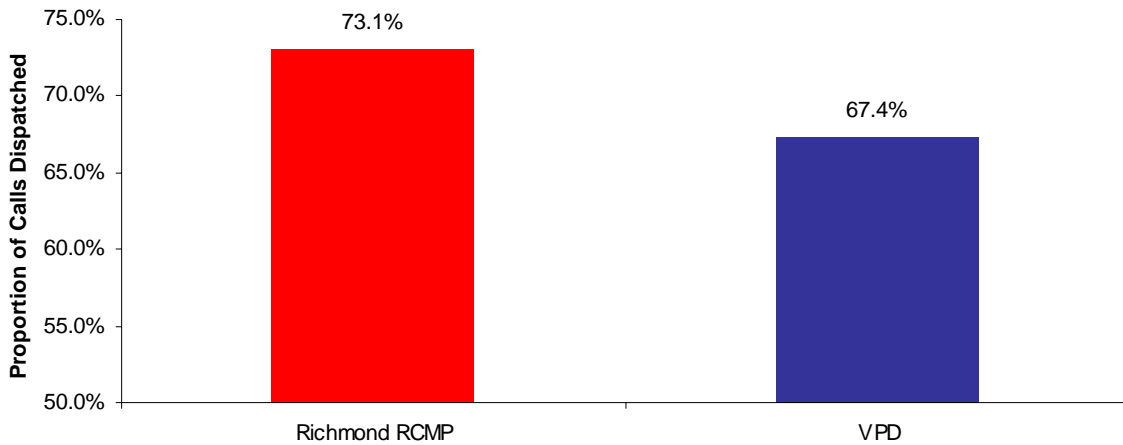
	<b>Number of Calls</b>
<b>Calls Dispatched</b>	<b>188,616</b>
<b>Calls Not Dispatched</b>	<b>91,432</b>
Cancelled	38,295
Handled by Civilian Report Takers	34,209
Duplicate	634
Cleared Automatically	317
Incomplete	40
Broadcasted	6,023
Other	11,914
<b>Total</b>	<b>280,048</b>

**Figure 4-1 Number of Recorded Calls for Service**



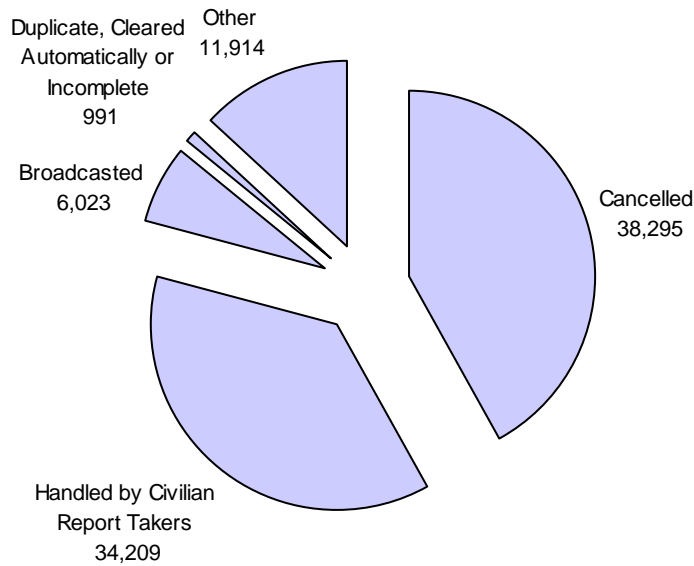
Comparisons with the Richmond RCMP Detachment show that a smaller proportion of calls were dispatched at the VPD. A careful examination of the data confirmed that this is mostly due to the fact that a larger proportion of calls were cancelled at the VPD.

**Figure 4-2 Proportion of Calls Dispatched at the Richmond RCMP Detachment**



Among the 91,432 calls that were not dispatched to a specific police unit, approximately 38,295 incidents were cancelled before they were dispatched, at least 634 calls were duplicate calls, 317 calls were cleared automatically and 34,209 incidents were handled over the phone by civilian report takers. Approximately 40 additional calls were incomplete non-emergency telephone calls and therefore could not be dispatched.

**Figure 4-3 Number of Calls Not Dispatched to a Police Unit**

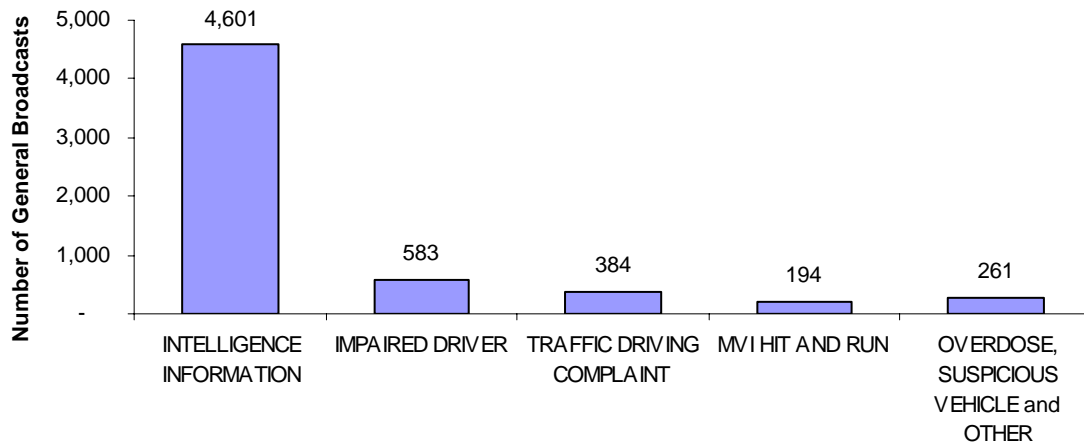


Out of the remaining 17,937 recorded incidents not assigned to any police unit, there were 12,699 9-1-1 calls, 4,497 non-emergency telephone calls and approximately 741 additional calls recorded using another method (e.g. alarm system) but not formally dispatched to any police unit. Among the 17,196 9-1-1 and non-emergency calls that were not assigned to any police unit, at least 6,023 (35.0%) were broadcasted over the police radio channels. Among others, out of these 6,023 broadcasts, there were 4,601 intelligence calls (mostly in District 2 and District 3), 583 possible impaired drivers (most of them in District 1), 384 traffic driving complaints (most of them in District 4), 194 hit and run (most of them in District 3), 26 overdoses (most of them in District 3) and 16 suspicious vehicles (most of them in District 4).

**Table 4-2 General Broadcasts Not Assigned to a Police Unit by Call Type**

<b>Call Type</b>	<b>Number of Calls</b>
INTELLIGENCE INFORMATION	4,601
IMPAIRED DRIVER	583
TRAFFIC DRIVING COMPLAINT	384
MVI HIT AND RUN	194
OVERDOSE	26
SUSPICIOUS VEHICLE	16
OTHER	219
<b>Total</b>	<b>6,023</b>

**Figure 4-4 General Broadcasts Not Dispatched by Call Type**



Broadcasted intelligence calls were formerly known as general broadcasts. However, since the implementation of the Police CAD system on 2005-05-08, general broadcasts are known as intelligence calls. An intelligence call will be created, for instance, to inform patrol units that kids are setting off firecrackers in the park or that a customer at a gas station drove off without paying. Typically, intelligence calls will be low priority calls that do not require a focused police response and are broadcasted over the air for the information of patrol units working in the area.

Ultimately, a total of approximately 11,914 calls were not dispatched to any police unit, broadcasted over the radio channels or cleared another way between 2005-06-01 and



2006-05-31. A detailed review of a random sample<sup>8</sup> of these calls revealed that most of them were either:

- Handled informally by the police (e.g. a police unit drove by and confirmed that everything was normal).
- Handled informally by the dispatcher or the call taker (e.g. the call taker was able to determine the origin of the abandoned 9-1-1 call and determined that it was an unfounded call).
- Handled by an outside party (e.g. the provincial ambulance service, the Fire Department, city staff, a private security company, BC Hydro, etc.).
- Recorded in the CAD system for information purposes only.
- Cancelled or duplicate calls that should have been flagged as such.

Among the 38,295 incidents cancelled before they were dispatched, there were 8,261 intelligence calls, 6,368 requests for assistance from the general public, 4,458 abandoned 9-1-1 calls, 1,705 alarms, 1,535 noise complaints, 1,409 annoying circumstances, 1,299 motor vehicle incidents (with or without injuries), 974 missing persons, 867 possible impaired drivers, 699 requests for assistance from the provincial ambulance service, 673 suspicious circumstances, 660 suspicious persons, 616 unwanted persons, 546 shoplifters, 480 disturbing parties, 461 hazardous situations, 421 assaults, 418 traffic driving complaints, 380 threats, 380 hit and run and 363 fights.

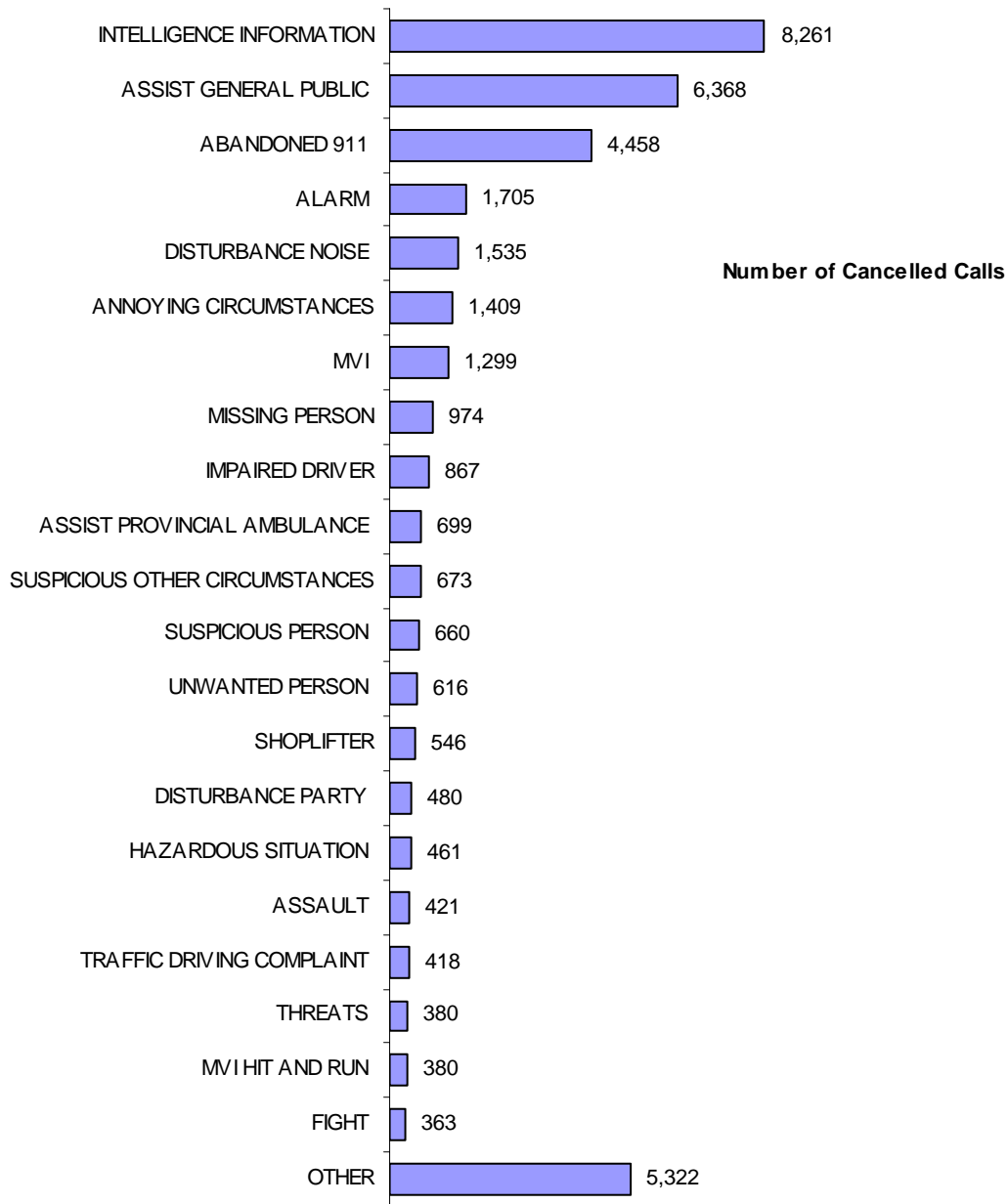
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<sup>8</sup> The remarks associated with a random sample of 1,500 calls not dispatched or broadcasted over the radio were examined to determine why no police unit attended.

**Table 4-3 Calls Cancelled Before Being Dispatched by Call Type**

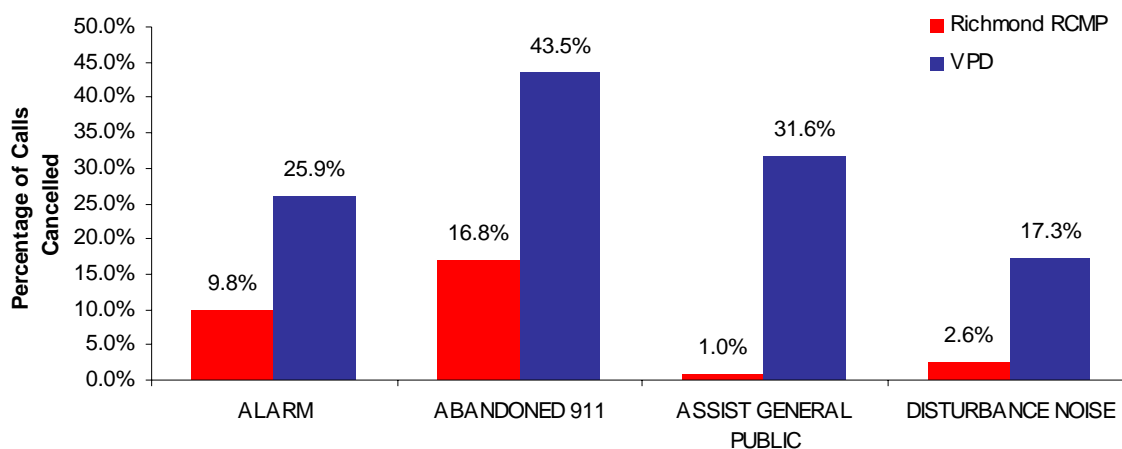
<b>Call Type</b>	<b>Number of Calls</b>
INTELLIGENCE INFORMATION	8,261
ASSIST GENERAL PUBLIC	6,368
ABANDONED 911	4,458
ALARM	1,705
DISTURBANCE NOISE	1,535
ANNOYING CIRCUMSTANCES	1,409
MVI	1,299
MISSING PERSON	974
IMPAIRED DRIVER	867
ASSIST PROVINCIAL AMBULANCE	699
SUSPICIOUS OTHER CIRCUMSTANCES	673
SUSPICIOUS PERSON	660
UNWANTED PERSON	616
SHOPLIFTER	546
DISTURBANCE PARTY	480
HAZARDOUS SITUATION	461
ASSAULT	421
TRAFFIC DRIVING COMPLAINT	418
THREATS	380
MVI HIT AND RUN	380
FIGHT	363
OTHER	5,322
<b>Total</b>	<b>38,295</b>

**Figure 4-5 Calls Cancelled Before Being Dispatched by Call Type**



Comparisons with the Richmond RCMP Detachment show that the VPD tends to cancel a much larger proportion of calls. Among others, the VPD cancelled (proportionately) more than six times as many noise complaints as the Richmond RCMP Detachment between 2005-06-01 and 2006-05-31. This is consistent with the idea that VPD patrol officers face a heavier workload on average and are often forced to shed some routine calls for service.

**Figure 4-6 Proportion of Calls Cancelled at the Richmond RCMP Detachment**



In general, there are two main reasons why some calls may be cancelled before they are dispatched:

1. In some situations, the complainant or the call taker will determine that no police response is needed anymore. This often happens, for instance, when a call taker is able to determine that an abandoned 9-1-1 call was made by children playing with the phone line, when the security company determines that an alarm is unfounded or when the paramedics determine that a motor vehicle incident is too minor to justify a police presence.
2. Given the fact that the VPD has scarce resources to attend calls for service, patrol members, patrol supervisors, dispatchers and call takers often have to shed calls or limit the time they spend on some types of calls in order to meet more critical demands for service. This is the most common reason why some noise complaints, disturbing parties, annoying circumstances, unwanted persons, suspicious circumstances and suspicious persons are cancelled before they are dispatched.

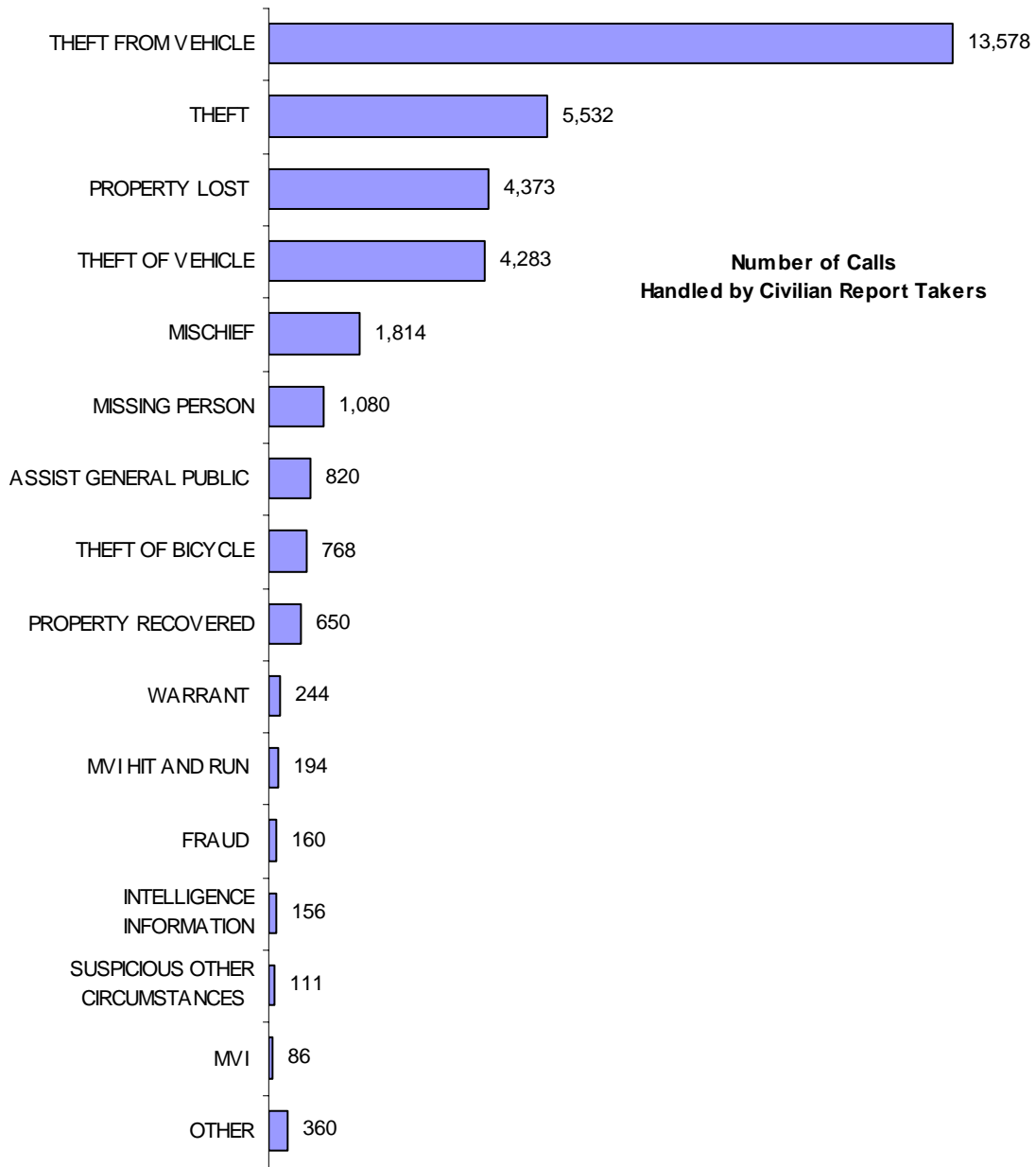
Among the 34,209 incidents handled over the phone by civilian report takers but not dispatched to any police unit, there were 13,578 thefts from vehicle, 5,532 thefts, 4,373 reports of lost property, 4,283 thefts of vehicle, 1,814 mischiefs, 1,080 missing persons,

820 requests for assistance from the general public, 768 thefts of bicycle, 650 reports of recovered property, 244 warrants, 194 hit and run, 160 frauds, 156 intelligence calls, 111 suspicious circumstances and 86 motor vehicle incidents.

**Table 4-4 Calls Handled by Civilian Report Takers by Call Type**

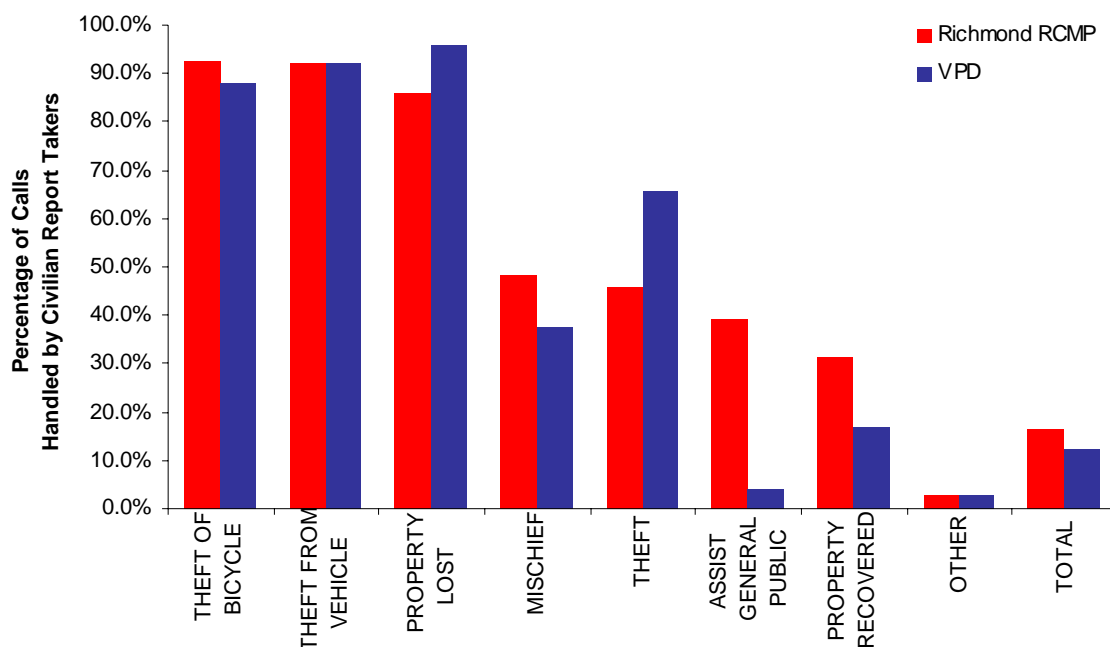
<b>Call Type</b>	<b>Number of Calls</b>
THEFT FROM VEHICLE	13,578
THEFT	5,532
PROPERTY LOST	4,373
THEFT OF VEHICLE	4,283
MISCHIEF	1,814
MISSING PERSON	1,080
ASSIST GENERAL PUBLIC	820
THEFT OF BICYCLE	768
PROPERTY RECOVERED	650
WARRANT	244
MVI HIT AND RUN	194
FRAUD	160
INTELLIGENCE INFORMATION	156
SUSPICIOUS OTHER CIRCUMSTANCES	111
MVI	86
OTHER	360
<b>Total</b>	<b>34,209</b>

**Figure 4-7 Calls Handled by Civilian Report Takers by Call Type**



Comparisons with the Richmond RCMP Detachment show that the VPD generally uses civilian report takers efficiently to handle those calls for service that do not require the attention of a sworn officer.

**Figure 4-8 Proportion of Calls Handled by Civilian Report Takers at the Richmond RCMP Detachment**



Among the 188,616 incidents dispatched between 2005-06-01 and 2006-05-31, regular patrol units handled a total of 147,501 incidents. Patrol supervisors and patrol wagons handled 19,599 additional calls. Most of the remaining 21,516 dispatched incidents were handled by:

- Patrol-based specialty units like the Beach Patrol Squad, Car 10 (the Duty Officer) Car 86 (a social worker and a police officer), Car 87 (the Mental Health Car), Yankee 10 (the Youth Car or Kiddie Car), the Crime Surveillance Teams, Scenes of Crime Officers (SOCO), the Dog Squad, the Emergency Response Team, the Marine Squad, the Mounted Squad or the Traffic Section.
- Patrol-based call-out units like Counter Attack teams, the Liquor Control Squad (also called the Lima Squad) or the Firearms Interdiction Team (FIT).
- Alternate response units like the Telephone Response Team (TRT).
- Investigative or specialty units like the arson investigator, the Criminal Intelligence Section, the Collision Investigation Unit, the Drug Squad, the Vice Unit, the Domestic Violence and Criminal Harassment (DVACH) Unit, the

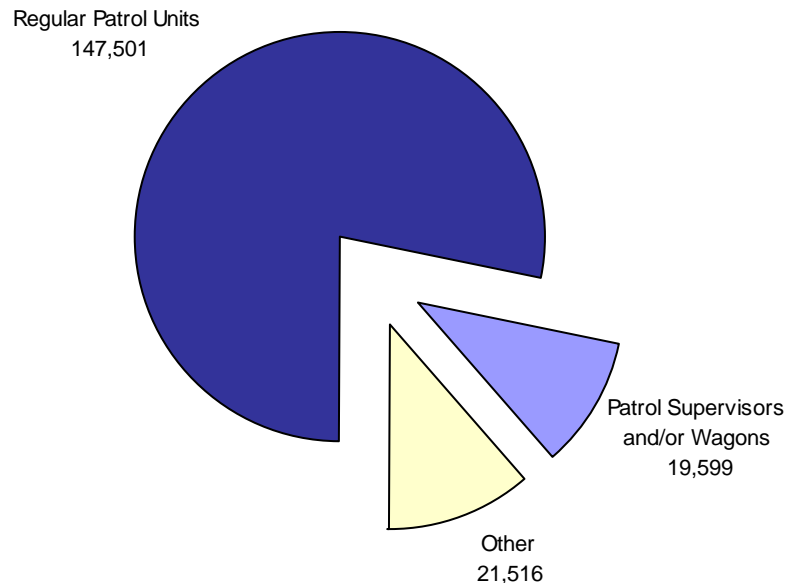
Financial Crime Unit, the Forensic Identification Unit, the Gang Crime Unit, the Hit and Run Unit, the Homicide Squad, the Outlaw Motorcycle Gang (OMG) Unit, the Robbery/Assault Squad, the School Liaison Officers, the Sexual Offence Squad, Strike Force or the School Liaison Unit.

- Other police units working on a special event or a special project (e.g. Celebration of Lights, Pacific National Exhibition, the Crowd Control Unit, movie call-outs).

**Table 4-5 Number of Dispatched Calls for Service by Type of Unit**

Type of Unit	Number of Calls
Regular Patrol Units	147,501
Patrol Supervisors and/or Wagons	19,599
Other	21,516
<b>Total</b>	<b>188,616</b>

**Figure 4-9 Number of Dispatched Calls for Service by Type of Unit**

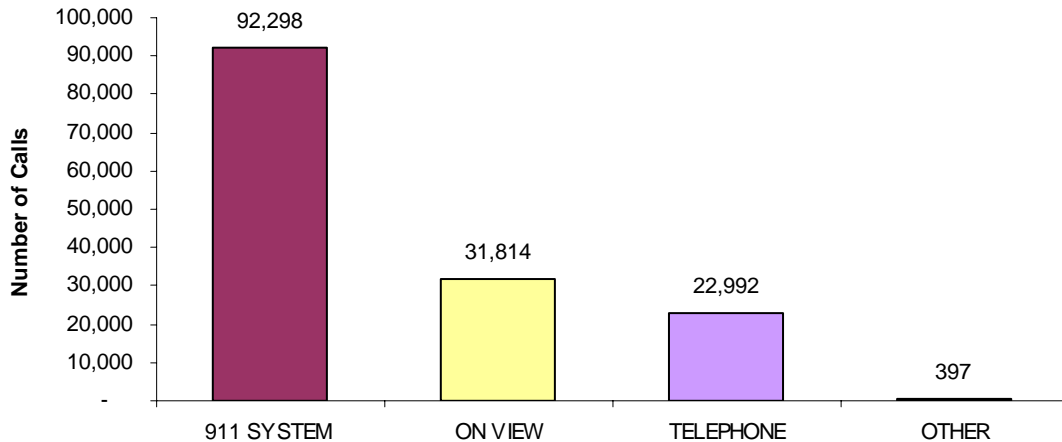


Among the 147,501 calls for service dispatched to regular patrol units between 2005-06-01 and 2006-05-31, a total of 92,298 calls for service were 9-1-1 calls, 22,992 calls were non-emergency calls and 31,814 incidents were officer-initiated calls. In addition, a



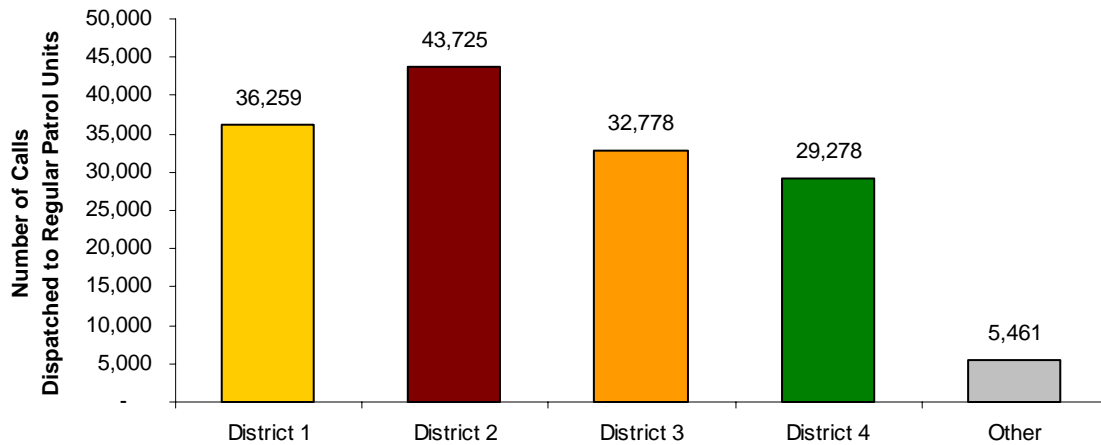
few other calls for service were recorded using another method. For instance, 313 reports of missing persons (including 11 missing children) and 56 theft reports were recorded that way.

**Figure 4-10 Number of Emergency 9-1-1 Calls, On-View Calls and Telephone Calls Dispatched to Regular Patrol Units by Source**



Between 2005-06-01 and 2006-05-31, a total of 36,259 calls were dispatched to regular patrol units in District 1, 43,725 calls were dispatched to regular patrol units in District 2, 32,778 calls were dispatched to regular patrol units in District 3 and 29,278 calls were dispatched to regular patrol units in District 4. A total of 5,461 calls for service could not be attributed to any specific district.

**Figure 4-11 Number of Calls Dispatched to Regular Patrol Units by District**



Among others, between 2005-06-01 and 2006-05-31, regular patrol units at the VPD were dispatched to a total of:

- 10,517 annoying circumstances;
- 8,600 suspicious persons;
- 8,472 requests for assistance from the general public;
- 6,579 warrants;
- 6,447 suspicious circumstances;
- 5,282 noise complaints;
- 3,780 abandoned 9-1-1 calls;
- 3,631 alarms;
- 3,390 motor vehicle incidents with injuries and 1,631 motor vehicle incidents;
- 3,333 requests for assistance from the provincial ambulance service;
- 3,046 break and enters and 1,945 break and enters in progress;
- 2,891 domestic situations in progress and 1,822 domestic situations;
- 2,787 unwanted persons;
- 2,776 traffic suspensions;
- 2,709 disturbing party;
- 2,689 arrests;
- 2,668 fights;
- 2,606 assaults and 2,502 assaults in progress;

- 2,602 court order breaches;
- 2,590 located stolen vehicles;
- 2,533 intelligence calls;
- 2,495 other criminal code offences;
- 2,434 thefts in progress and 1,846 thefts;
- 2,122 threats;
- 2,088 recovered stolen property;
- 2,053 stolen vehicles;
- 1,684 welfare checks;
- 1,616 property seized;
- 1,569 shoplifters;
- 1,558 weapons in progress;
- 1,514 mischiefs in progress;
- 1,194 requests for assistance from other agencies (including at least 28 incidents at SkyTrain stations or at the Seabus terminal);
- 1,186 hazardous situations;
- 1,172 persons intoxicated in a public place;
- 1,076 missing persons;
- 1,003 harassment calls.

**Table 4-6 Number of Calls Dispatched to Regular Patrol Units by Call Type**

<b>Call Type</b>	<b>Number of Calls</b>
ANNOYING CIRCUMSTANCES	10,517
SUSPICIOUS PERSON	8,600
ASSIST GENERAL PUBLIC	8,472
WARRANT	6,579
SUSPICIOUS OTHER CIRCUMSTANCES	6,447
DISTURBANCE NOISE	5,282
ABANDONED 911	3,780
ALARM	3,631
MVI INJURY	3,390
ASSIST PROVINCIAL AMBULANCE	3,333
BREAK AND ENTER	3,046
DOMESTIC IN PROGRESS	2,891
UNWANTED PERSON	2,787
TRAFFIC SUSPENSION	2,776
DISTURBANCE PARTY	2,709
ARREST	2,689
FIGHT	2,668
ASSAULT	2,606
BREACH COURT ORDER	2,602
THEFT VEHICLE LOCATED	2,590
INTELLIGENCE INFORMATION	2,533
ASSAULT IN PROGRESS	2,502
OTHER CRIMINAL CODE	2,495
THEFT IN PROGRESS	2,434
THREATS	2,122
PROPERTY RECOVERED	2,088
SUSPICIOUS VEHICLE	2,053
BREAK AND ENTER IN PROGRESS	1,945
THEFT	1,846
DOMESTIC REPORT	1,822
CHECK WELFARE	1,684
MVI	1,631
PROPERTY SEIZED	1,616
SHOPLIFTER	1,569
WEAPON IN PROGRESS	1,558
MISCHIEF IN PROGRESS	1,514
ASSIST OTHER AGENCY	1,194
HAZARDOUS SITUATION	1,186
SIPP/DIPP	1,172
MISSING PERSON	1,076
HARASSMENT	1,003
OTHER	23,063
<b>Total</b>	<b>147,501</b>

The 41 most common call types (i.e. call types associated with more than 1,000 calls for service) accounted for 124,438 of the 147,501 calls dispatched to regular patrol units between 2005-06-01 and 2006-05-31 (approximately 84.4%). They also accounted for approximately 25,774 of the more than 27,742 criminal offences recorded and dispatched to a VPD regular patrol unit (approximately 92.1%).

Among the 10,517 annoying circumstances dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 36 incidents turned out to be drug-related cases.
- At least 16 incidents turned out to be weapon-related cases.
- At least 20 incidents led to an assault (including one assault against a police officer and 4 assaults with a weapon or causing bodily harm).
- At least 10 incidents involved the possession of stolen property or break-in instruments.
- At least 6 incidents led to a mischief.
- At least 1 incident turned out to be a robbery.
- At least 102 additional cases led to various other criminal code offences.

Among the 8,600 suspicious persons dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 72 incidents turned out to be drug-related cases.
- At least 44 incidents turned out to be weapon-related cases.
- At least 8 incidents involved prostitution.
- At least 5 cases turned out to be arsons.
- At least 37 incidents led to an assault (including 4 assaults against a police officer and 10 assaults with a weapon or causing bodily harm).
- At least 50 cases turned out to be break and enters.
- At least 30 incidents turned out to be frauds (including 23 credit or debit card fraud cases).
- At least 6 incidents turned out to be robberies (including 2 robberies with a weapon).

- At least 11 cases turned out to be sexual assaults.
- At least 88 cases turned out to be thefts (including 10 motor vehicle thefts).
- At least 59 incidents involved the possession of stolen property.
- At least 193 additional cases led to various other criminal code offences (including 9 indecent acts, 9 counterfeit currency cases, 6 criminal harassment cases, 2 extortion cases, 2 forcible confinement cases and one bomb threat).

Among the 6,447 suspicious circumstances dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 174 incidents turned out to be drug-related cases (including 2 cases related to the production of methamphetamine, 8 cases related to the trafficking of cocaine, 2 cases related to the trafficking of heroin, 2 cases related to the trafficking of ecstasy and one case related to the trafficking of methamphetamine).
- At least 55 incidents turned out to be weapon-related cases.
- At least 6 cases turned out to be arsons.
- At least 70 incidents led to an assault (including one assault against a police officer, 2 child abuse cases, 26 assaults with a weapon or causing bodily harm and one aggravated assault).
- At least one case turned out to be an attempted murder.
- At least 66 cases turned out to be break and enters.
- At least 43 incidents turned out to be frauds (including 21 credit or debit card fraud cases).
- At least 64 incidents involved the possession of stolen property.
- At least 80 incidents led to a mischief.
- At least 17 incidents turned out to be robberies (including 10 robberies with a weapon).
- At least 7 cases turned out to be sexual assaults.
- At least 85 cases turned out to be thefts (including 14 motor vehicle thefts).
- At least 135 additional cases led to various other criminal code offences (including one bomb threat, one extortion case, 3 breaches of probation, 13 bail

violations, 2 animal cruelty cases, 3 child pornography cases, 11 counterfeit currency cases, 4 criminal harassment cases, 5 indecent acts and 10 forcible confinement cases).

Among the 2,053 suspicious vehicles dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least one case involved an arson.
- At least one case involved a credit or debit card fraud.
- At least 9 incidents turned out to be weapon-related cases.
- At least 19 cases involved a theft.
- At least 25 cases led to valuable intelligence information (including 8 drug-related and 8 gang-related intelligence reports).
- At least 27 cases involved the possession of stolen property.
- At least 41 cases involved a stolen vehicle.
- At least 46 incidents involved a serious violation under the motor vehicle act or a criminal code offence (including 2 road rage cases, 2 high speed pursuits and 10 hit and run cases).
- At least 23 additional cases led to various other criminal code offences (including one intimidation case).

Among the 8,472 instances where a regular patrol unit assisted the general public between 2005-06-01 and 2006-05-31:

- At least 16 incidents turned out to be weapon-related cases.
- At least one case turned out to be an arson.
- At least 97 incidents led to an assault (including one case of child abuse, 2 assaults against a police officer and 19 assaults with a weapon or causing bodily harm).
- At least 9 cases turned out to be break and enters.
- At least 50 incidents turned out to be frauds (including 2 cheque frauds and 2 credit or debit card fraud cases).
- At least 15 incidents involved the possession of stolen property.

- At least 6 incidents turned out to be robberies (including 2 robberies with a weapon).
- At least 5 cases turned out to be sexual offences.
- At least 81 cases turned out to be thefts (including 9 motor vehicle thefts).
- At least 47 cases involved threats.
- At least 288 additional cases led to various other criminal code offences (including 3 indecent acts, 3 child abandonment cases, 8 breaches of probation, 15 bail violations, 2 animal cruelty cases, one child pornography case, one case where a child was being lured using the Internet, 14 counterfeit currency cases, 12 criminal harassment cases, 3 forcible confinement cases, one extortion case).

Among the 3,333 instances where a regular patrol unit assisted the provincial ambulance service between 2005-06-01 and 2006-05-31:

- At least 2 incidents turned out to be weapon-related cases.
- At least 142 incidents involved an assault (including 74 assaults with a weapon or causing bodily harm and one aggravated assault).
- At least one incident involved a commercial break and enter.
- At least 2 incidents involved a fraud case (including one credit or debit card fraud).
- At least 3 incidents involved the possession of stolen property.
- At least 4 incidents led to a mischief.
- At least one incident turned out to be an extortion case.
- At least 11 incidents turned out to be robberies (including 4 robberies with a weapon).
- At least 6 cases turned out to be sexual assaults.
- At least 205 incidents involved a disturbed person, an attempted suicide or another mental health issue.
- At least 143 incidents involved an individual intoxicated in a public place.
- At least 35 additional cases led to various other criminal code offences.

Among the 1,194 instances where a regular patrol unit assisted another agency between 2005-06-01 and 2006-05-31:



- At least 5 incidents turned out to be weapon-related cases.
- At least one case involved an arson.
- At least 2 cases involved a sexual assault.
- At least 5 cases involved a fraud.
- At least 5 cases involved a mischief (including one mischief over \$5,000).
- At least 8 cases involved a theft (including 2 cases motor vehicle thefts).
- At least 22 cases involved an assault (including 5 assaults with a weapon or causing bodily harm and 4 child abuse cases).
- At least 35 incidents involved a disturbed person, an attempted suicide or another mental health issue.
- At least 67 additional cases led to various other criminal code offences.

Among the 373 instances where a regular patrol unit assisted the fire department between 2005-06-01 and 2006-05-31:

- At least 46 cases involved an arson.
- At least 6 cases involved a mischief (including one mischief over \$5,000).
- At least one case turned out to be an attempted murder.
- At least 5 incidents turned out to be drug-related cases.

Among the 6,579 warrants enforced by a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 148 incidents turned out to be drug-related cases.
- At least 31 incidents turned out to be weapon-related cases.
- At least 27 incidents involved the possession of stolen property.
- At least 14 incidents led to an assault (including one assault against a police officer and 6 assaults with a weapon or causing bodily harm).
- At least one case led to the capture of a prison escapee from Alberta.
- At least 1,570 additional cases led to various other criminal code offences (including 19 breaches of probation, 49 bail violations and 3 counterfeit currency cases).

Among the 5,282 noise complaints dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 7 incidents turned out to be weapon-related cases.
- At least 10 incidents led to an assault (including one assault with a weapon or causing bodily harm).
- At least 2 incidents turned out to be drug-related cases (including one case of heroin trafficking).
- At least 2 cases turned out to be residential break and enters.
- At least 2 cases turned out to be thefts.
- At least 9 incidents led to a mischief.
- At least 58 additional cases led to various other criminal code offences.

Among the 3,780 abandoned 9-1-1 calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 103 incidents turned out to be domestic disputes (with no assault).
- At least 64 incidents led to an assault (including one assault against a police officer and 12 assaults with a weapon or causing bodily harm).
- At least 5 incidents turned out to be robberies (including 2 robberies with a weapon).
- At least 2 cases turned out to be residential break and enters.
- At least one case turned out to be a motor vehicle theft.
- At least one incident turned out to be a fraud.
- At least 42 additional cases led to various other criminal code offences (including one extortion case, one breach of probation and 2 bail violations).

Among the 3,631 alarm calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 2 incidents turned out to be weapon-related cases.
- At least 35 cases turned out to be residential break and enters.
- At least 6 incidents led to a mischief.

Among the 330 hold-up alarm calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 7 cases turned out to be robberies (including 5 robberies with a weapon). The actual number of hold-ups will be higher. However, some the files are privatized by the robbery detectives and are therefore not included in this analysis.
- At least one incident turned out to be a counterfeit currency case.

Among the 1,631 motor vehicle incidents, 3,390 motor vehicle incidents with injuries and 322 hit and run dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 19 accidents turned out to be fatal.
- At least 4 incidents involved a stolen vehicle.
- At least 540 incidents involved a serious violation under the motor vehicle act or a criminal code offence (including 38 dangerous driving cases, 133 impaired driving cases and 310 hit and run cases).
- At least 8 incidents led to an assault (including 4 aggravated assaults).

Among the 3,046 break and enters dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 2,626 cases were to be genuine break and enters (including 1,055 commercial break and enters and 1,367 residential break and enters).
- At least 50 incidents turned out to be thefts (including 2 vehicle thefts).
- At least 32 incidents turned out to be mischiefs.
- At least 2 additional incidents turned out to be home invasions.

Among the 1,822 domestic situations and 2,891 domestic situations in progress dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 700 incidents led to an assault (including 104 assaults with a weapon or causing bodily harm, one aggravated assault, 3 assaults against a peace officer and 18 child abuse cases).

- At least 5 cases turned out to be sexual assaults (including one sexual assault with a weapon or causing bodily harm).
- At least 5 cases turned out to be residential break and enters.
- At least 13 incidents turned out to be weapon-related cases.
- At least 9 cases turned out to be thefts.
- At least 2 incidents involved prostitution.
- At least 2 incidents turned out to be robberies.
- At least 241 additional cases led to various other criminal code offences (including 8 breaches of probation, 20 bail violations, 8 criminal harassment cases, 3 forcible confinement cases and 55 threats).

Among the 387 domestic violence calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 128 incidents led to an assault (including 32 assaults with a weapon or causing bodily harm, one aggravated assault and 2 child abuse cases).
- At least one incident led to a homicide.
- At least 110 incidents turned out to be domestic disputes (with no assault).
- At least 20 additional cases led to various other criminal code offences (including 4 forcible confinement cases, 3 threats and 2 robberies).

Among the 2,689 arrests handled by a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 1,068 incidents turned out to be drug-related cases (including 363 cases related to the trafficking of cocaine, 19 cases related to the trafficking of heroin, 405 cases related to the possession of cocaine and 46 cases related to the possession of heroin).
- At least 120 incidents turned out to be weapon-related cases.
- At least one case involved an arson.
- At least 76 cases involved an assault (including 19 assaults against a police officer and 14 assaults with a weapon or causing bodily harm).
- At least 2 cases involved a sexual assault.

- At least 4 cases involved a robbery.
- At least 8 cases involved a break and enter.
- At least 16 cases involved a mischief.
- At least 19 cases involved a fraud (including 8 credit or debit card frauds).
- At least 31 cases involved a break and enter.
- At least 89 cases involved the possession of stolen property.
- At least 44 incidents involved a serious violation under the motor vehicle act or a criminal code offence.
- At least 531 additional cases led to various other criminal code offences.

Among the 2,668 fights dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 261 incidents led to an assault (including 62 assaults with a weapon or causing bodily harm, 2 aggravated assaults, 4 assaults against a police officer and 2 child abuse cases).
- At least 6 incidents turned out to be robberies (including 2 robberies with a weapon).
- At least 2 cases involved a sexual assault.
- At least 12 cases turned out to be thefts.
- At least 219 additional cases led to various other criminal code offences.

Among the 2,606 assaults, 2,502 assaults in progress, 143 assaults with a weapon and 148 assaults with a weapon in progress dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 2,751 incidents turned out to be legitimate assault cases (including 736 assaults with a weapon or causing bodily harm, 24 aggravated assaults, 36 assaults against a peace officer and 45 child abuse cases).
- At least 3 incidents led to an attempted murder.
- At least 2 incidents led to a second degree murder.
- At least 17 cases turned out to be sexual assaults (including at least 2 aggravated sexual assaults).

- At least 120 cases turned out to be robberies.
- At least 18 cases turned out to be thefts.
- At least 87 cases turned out to be domestic disputes (with no assault).
- At least 238 additional cases led to various other criminal code offences (including one criminal negligence case, one extortion case and 6 forcible confinement cases).

Among the 124 shots fired and 420 shots heard dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 53 incidents turned out to be legitimate shots fired incidents with no victim.
- At least 17 incidents turned out to be assault cases (including 14 assaults with a weapon or causing bodily harm and 2 aggravated assaults).
- At least 9 incidents led to an attempted murder.
- At least 3 incidents led to a murder.
- At least 26 incidents turned out to be mischiefs.
- At least one case turned out to be a robbery.
- At least 14 additional incidents involved the use or the possession of an illegal weapon.

Among the 2,533 intelligence calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 15 incidents turned out to be weapon-related cases.
- At least 128 cases led to drug-related intelligence information.
- At least 173 cases led to gang-related intelligence information.
- At least 66 cases led to intelligence information related to persons of interest to the police or wanted for questioning.
- At least 21 cases led to intelligence information related to prostitution.
- At least one case involved an arson.
- At least one case involved a break and enter.
- At least one case involved a robbery.

- At least 11 cases involved a theft (including one motor vehicle theft).
- At least 3 cases involved an assault (including one assault with a weapon or causing bodily harm).
- At least 20 cases involved drug possession or trafficking.

Among the 1,846 thefts and 2,434 thefts in progress dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 2,440 incidents turned out to be legitimate theft cases (including 58 motor vehicle thefts).
- At least 5 incidents turned out to be weapon-related cases.
- At least 41 incidents led to an assault (including 17 assaults with a weapon or causing bodily harm).
- At least 53 incidents led to a mischief.
- At least 55 cases turned out to be fraud cases (including 30 credit or debit card fraud cases).
- At least 75 cases turned out to be break and enters.
- At least 76 cases turned out to be robberies (including 19 robberies with a weapon).
- At least 76 cases involved the possession of stolen property.
- At least 79 additional cases led to various other criminal code offences (including 3 counterfeit currency cases and one extortion case).

Among the 2,122 threats dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 1,126 incidents turned out to be legitimate threat cases (including one bomb threat, 3 cases of intimidation and 113 harassing or obscene phone calls).
- At least 37 incidents led to an assault (including 16 assaults with a weapon or causing bodily harm).
- At least 3 cases led to a sexual assault (including one sexual assault with a weapon).
- At least 2 cases led to a robbery (including one robbery with a weapon).

- At least 10 cases led to a mischief (including one mischief over \$5,000).
- At least 2 cases led to a theft.
- At least 105 additional cases led to various other criminal code offences (including one forcible confinement case, 33 criminal harassment cases and 14 extortion cases).

Among the 1,945 break and enters in progress dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 921 cases turned out to be legitimate break and enters (including 325 commercial break and enters and 524 residential break and enters).
- At least 13 cases turned out to be robberies (including 10 robberies with a weapon).
- At least 13 cases turned out to thefts (including one motor vehicle theft).
- At least 17 incidents led to an assault (including 2 assaults against a police officer and 8 assaults with a weapon or causing bodily harm).
- At least 37 cases led to a mischief.
- At least 44 additional cases led to various other criminal code offences.

Among the 1,684 welfare checks handled by a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least one case turned out to be a serious sexual assault.
- At least 4 incidents turned out to be weapon-related cases.
- At least 5 cases involved the possession of stolen property.
- At least 8 incidents led to a missing person report.
- At least 47 additional cases led to valuable intelligence information (including 11 drug-related and 7 gang-related intelligence reports).
- At least 16 additional cases led to various other criminal code offences.

Among the 1,558 weapon in progress calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 282 incidents led to an assault (including 232 assaults with a weapon or causing bodily harm and 12 aggravated assaults).



- At least 69 cases turned out to be robberies (including 63 robberies with a weapon).
- At least 5 cases turned out to be attempted murders.
- At least 183 incidents turned out to be other weapon-related cases.
- At least 2 cases turned out to be break and enters.
- At least 6 cases turned out to be thefts.
- At least 21 cases turned out to be domestic disputes (with no assault).
- At least 21 cases turned out to be mischiefs (including one over \$5,000).
- At least 191 additional cases led to various other criminal code offences (including 5 breaches of probation, 4 bail violations, 3 extortion cases, 6 forcible confinement cases and 107 threats).

Among the 829 mischiefs and 1,514 mischiefs in progress dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 1,156 incidents turned out to be legitimate mischief cases (including 19 mischiefs over \$5,000).
- At least 12 cases turned out to be arsons.
- At least 40 incidents led to an assault (including 12 assaults with a weapon or causing bodily harm and 5 assaults against a police officer).
- At least 24 cases turned out to be break and enters.
- At least 139 additional cases led to various other criminal code offences (including 4 criminal harassment cases, 5 road rage incidents and 17 threats).

Among the 1,905 mental health calls (including suicidal persons) dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least one case turned out to be an arson.
- At least one case turned out to be a forcible confinement case.
- At least 20 incidents led to an assault (including 5 assaults with a weapon or causing bodily harm).
- At least 54 additional cases led to various other criminal code offences.

Among the 945 frauds and 347 frauds in progress dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 885 incidents turned out to be legitimate fraud cases (including 205 cheque frauds, 340 credit or debit card frauds and 2 telemarketing frauds).
- At least 6 incidents led to an assault (including one assault with a weapon or causing bodily harm).
- At least 53 incidents turned out to be counterfeit currency cases.
- At least 27 additional cases led to various other criminal code offences.

Among the 761 thefts from vehicle dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 459 incidents turned out to be legitimate theft cases (including 21 motor vehicle thefts).
- At least 3 incidents led to an assault with a weapon or causing bodily harm.
- At least 36 incidents turned out to be mischiefs.
- At least 41 additional cases led to various other criminal code offences.

Among the 726 disturbance screaming calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 25 incidents led to an assault (including 7 assaults with a weapon or causing bodily harm).
- At least 2 cases turned out to be sexual assaults (including one sexual assault with a weapon or causing bodily harm during which the assailant allegedly tried to kill his victim by tying a rope around her neck).
- At least 29 cases turned out to be domestic disputes (with no assault).
- At least 3 cases turned out to be thefts.
- At least 2 cases turned out to be robberies with a weapon.
- At least one case turned out to be a residential break and enter.

Among the 521 robberies, 634 robberies in progress, 154 robberies with a weapon and 160 robberies with a weapon in progress dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 1,116 incidents turned out to be legitimate robberies (including 136 robberies with a firearm and 392 robberies with another offensive weapon).
- At least 28 incidents led to an assault (including 12 assaults with a weapon or causing bodily harm and one aggravated assault).
- At least 75 cases turned out to be thefts (including 5 motor vehicle thefts).
- At least 22 additional cases led to various other criminal code offences (including one alleged carjacking case).

Among the 452 sexual assaults and 49 sexual assaults in progress dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 392 incidents turned out to be legitimate sexual offences (including 18 sexual assaults with a weapon or causing bodily harm and 2 aggravated sexual assaults).
- At least one additional incident turned out to be a forcible confinement case.
- At least 8 incidents turned out to be assaults.
- At least 4 incidents turned out to be robberies.
- At least 3 incidents involved indecent acts.

Among the 209 indecent acts and 257 indecent acts in progress dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 149 incidents turned out to involve indecent acts.
- At least 3 additional incidents resulted in an assault (including one assault against a police officer).
- At least 2 incidents turned out to be sexual offences.
- At least 2 incidents turned out to be mischiefs.
- At least one additional incident involved an unidentified sexual offender who followed a 17 year-old female from a bus stop.

Among the 307 neighbour disputes dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 5 incidents led to an assault (including one alleged assault with a weapon or causing bodily harm).

- At least 5 incidents led to a mischief.
- At least 20 additional cases led to various other criminal code offences (including 3 criminal harassment cases and 6 threats).

Among the 613 possible impaired drivers dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 285 incidents involved a serious violation under the motor vehicle act or a criminal code offence (including 186 impaired driving cases).
- At least 9 incidents involved the possession or trafficking of illegal drugs.

Among the 259 prowlers dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 30 incidents involved trespassing or suspicious circumstances.
- At least 8 incidents turned out to be break and enters (including 6 residential break and enters).
- At least one incident involved indecent acts.
- At least one incident turned out to be a domestic dispute.
- At least one additional incident involved a weapon.

Among the 211 vehicle thefts and 159 vehicle thefts in progress dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 187 incidents turned out to be legitimate vehicle thefts (including 83 vehicle thefts over \$5,000).
- At least 8 additional incidents involved the possession of stolen property.
- At least one incident turned out to be a fraud.
- At least one incident turned out to be a carjacking.
- At least 4 additional incidents turned out to be robberies (including 2 robberies with a weapon).

Among the 190 arsons and 23 arsons in progress dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 166 incidents turned out to be genuine arsons.

- At least 8 additional incidents turned out to be mischiefs.

Among the 167 missing children dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 118 incidents turned out to be founded and required police assistance.
- The missing child was found safe and sound in virtually all cases.

Among the 86 jumpers dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 26 incidents turned out to involve disturbed persons or persons with mental health problems.
- At least 3 incidents involved individuals intoxicated by alcohol.
- At least 9 incidents led to a fall (including 7 confirmed deaths and 2 missing persons).

Among the 58 bait car activations dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 4 incidents turned out to be vehicle thefts.
- At least 3 additional incidents involved the possession of break-in instruments.
- At least 2 additional incidents involved the possession of stolen property.

Among the 58 home invasions dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- Approximately 49 incidents turned out to be genuine home invasions.
- At least 2 incidents turned out to be break and enters.
- At least one incident turned out to be a mischief.
- At least one incident turned out to be a domestic dispute.

Among the 51 stalking cases dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31:

- At least 18 incidents turned out to be criminal harassment cases.
- At least 15 incidents turned out to be harassing or obscene phone calls.

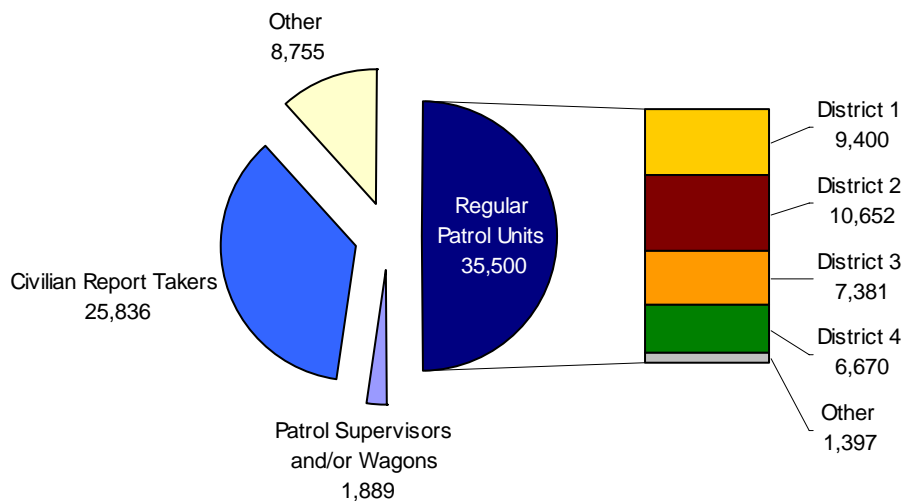
- At least one incident turned out to be a threat.

Among the 34 bomb threats dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31, at least 29 incidents were determined to be genuine bomb threats (including at least one incident which required the RCMP's Explosive Disposal Unit and one incident which led to an extensive terrorism investigation).

## 4.1 CRIMINAL INCIDENTS

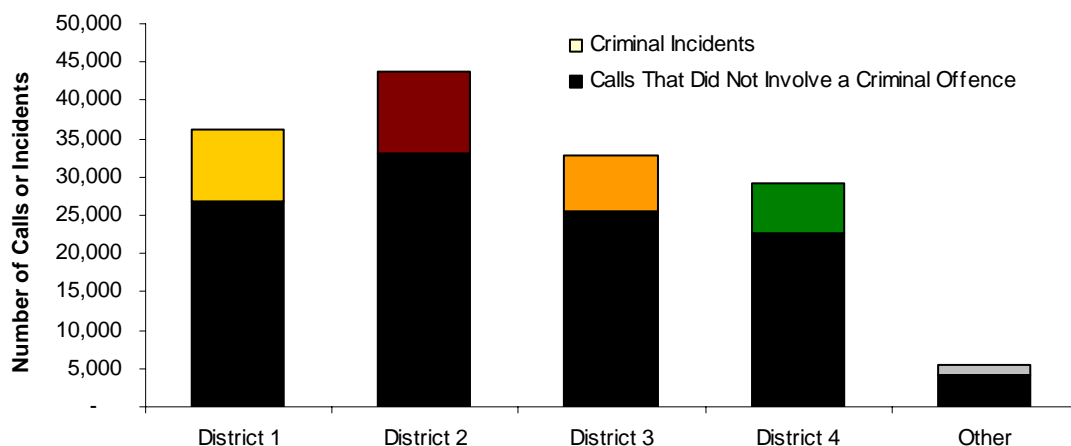
Overall, incidents attended by at least one regular patrol unit accounted for approximately 35,500 of the more than 71,980 criminal code offences recorded by the VPD between 2005-06-01 and 2006-05-31 (approximately 49.3%). Approximately 1,889 additional criminal incidents were attended by at least one patrol supervisor or a patrol wagon. Approximately 25,836 of the remaining criminal incidents were handled by civilian report takers at E-Comm (including 23,443 theft reports, 4,956 property lost or found, 2,048 mischiefs and 1,072 missing persons).

**Figure 4-12 Number of Criminal Incidents by District**



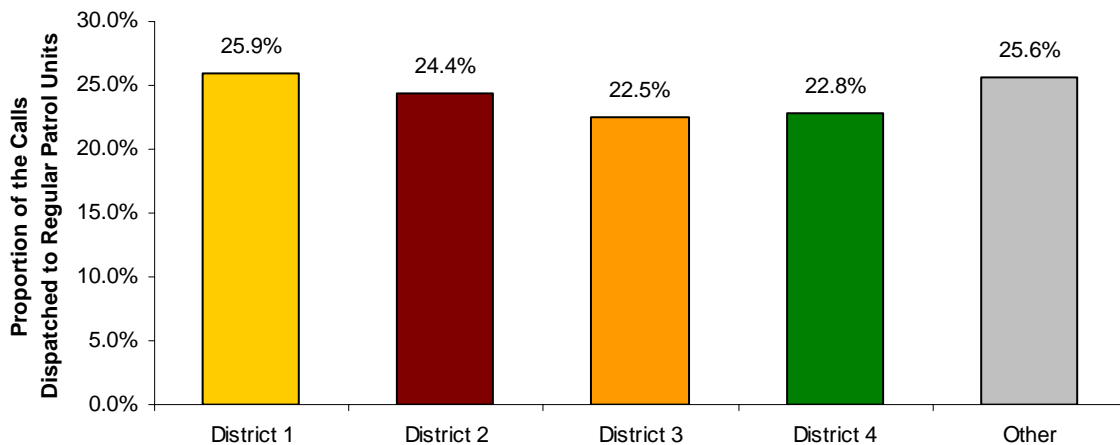
- Regular patrol units in District 1 were dispatched to 9,400 incidents which involved criminal offences. Out of these 9,400 criminal incidents, 4,437 (47.2%) were assaults, thefts, break and enters, mischiefs or robberies. At least 692 additional incidents were drug-related (including 167 trafficking cases).
- Regular patrol units in District 2 were dispatched to 10,652 incidents which involved criminal offences. Out of these 10,652 criminal incidents, 4,142 (38.9%) were assaults, thefts, break and enters, mischiefs or robberies. At least 1,307 additional incidents were drug-related (including 420 trafficking cases).
- Regular patrol units in District 3 were dispatched to 7,381 incidents which involved criminal offences. Out of these 7,381 criminal incidents, 3,530 (47.8%) were assaults, thefts, break and enters, mischiefs or robberies. At least 321 additional incidents were drug-related (including 63 trafficking cases).
- Regular patrol units in District 4 were dispatched to 6,670 incidents which involved criminal offences. Out of these 6,670 criminal incidents, 3,662 (54.9%) were assaults, thefts, break and enters, mischiefs or robberies. At least 131 additional incidents were drug-related (including 10 trafficking cases).
- A total of 1,397 criminal incidents could not be associated with any specific patrol district. At least 378 of these incidents were drug-related (including 98 trafficking cases).

**Figure 4-13 Number of Criminal Incidents and Calls Dispatched to Regular Patrol Units by District**



Overall, approximately the same proportion of calls turned out to involve a criminal offence in each patrol district.

**Figure 4-14 Proportion of Criminal Incidents Among the Calls Dispatched to Regular Patrol Units by District**



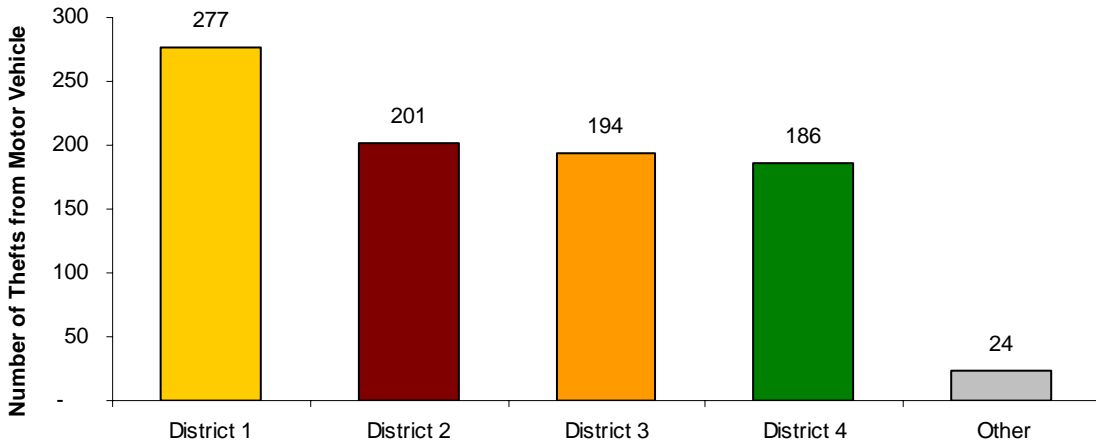
However, a comparison between patrol districts reveals that each patrol district recorded different types of events. For instance:

- Most of the bomb threats tend to occur in District 1. Out of approximately 20 bomb threats handled by at least one regular patrol unit between 2005-06-01 and 2006-05-31, 13 (65.0%) were reported in District 1.
- Proportionally more counterfeit currency cases are reported in District 1. Out of approximately 165 counterfeit currency cases handled by at least one regular patrol unit between 2005-06-01 and 2006-05-31, 60 (36.4%) occurred in District 1.
- Proportionally more individuals are charged for possession of break-in instruments in District 1. Out of approximately 185 cases handled by at least one regular patrol unit between 2005-06-01 and 2006-05-31, 68 (36.4%) were reported in District 1.
- Proportionally more thefts from motor vehicle occur in District 1. Out of approximately 882 thefts from motor vehicle handled by at least one regular



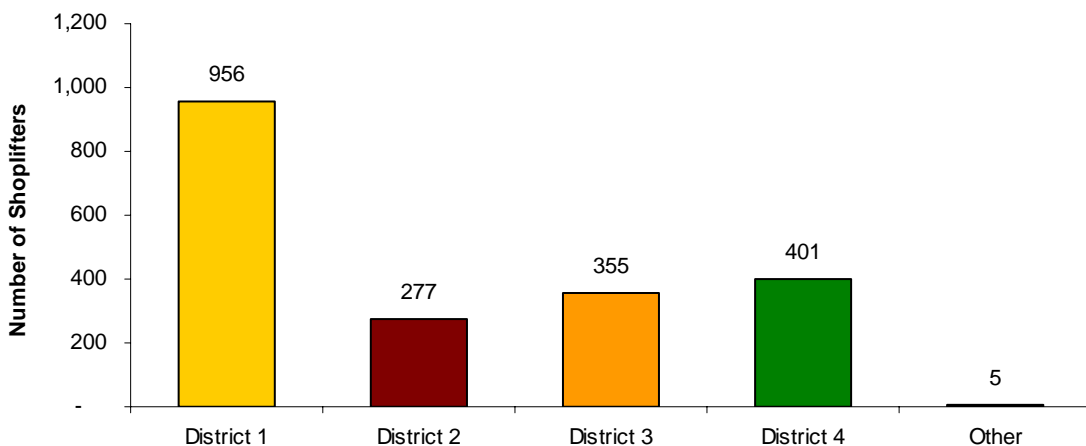
patrol unit between 2005-06-01 and 2006-05-31, 277 (31.4%) were reported in District 1.

**Figure 4-15 Number of Thefts from Motor Vehicle Dispatched to Regular Patrol Units by District**



- Proportionally more shoplifting thefts occur in District 1. Out of approximately 1,994 shoplifting cases handled by at least one regular patrol unit between 2005-06-01 and 2006-05-31, 956 (47.9%) were reported in District 1.

**Figure 4-16 Number of Shoplifters Dispatched to Regular Patrol Units by District**

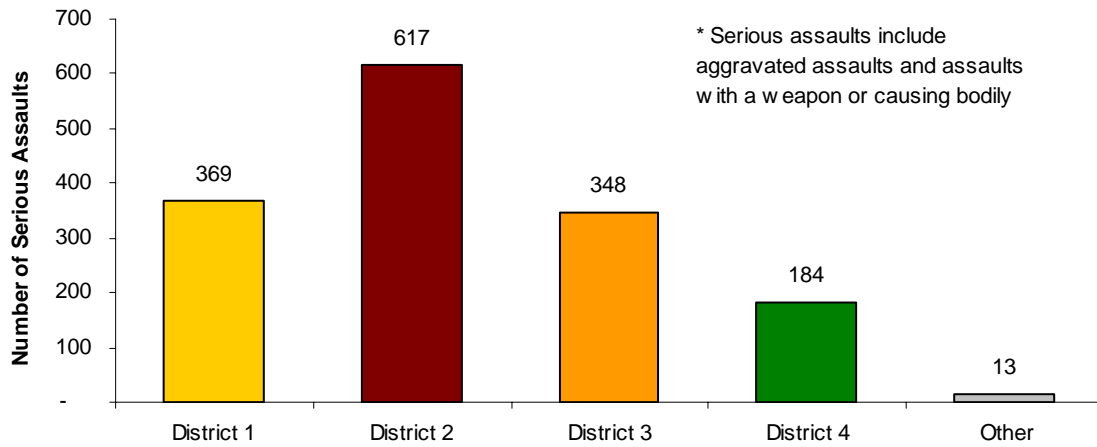


- Proportionally more frauds occur in District 1 and District 4. Out of approximately 1,156 fraud cases handled by at least one regular patrol unit between 2005-06-

01 and 2006-05-31, 787 (38.3%) were reported in District 1 or District 4. In particular, regular patrol units in District 1 and District 4 combined 328 credit or debit card fraud cases (75.1% of the total) and 55 impersonation cases (61.8% of the total) recorded between 2005-06-01 and 2006-05-31.

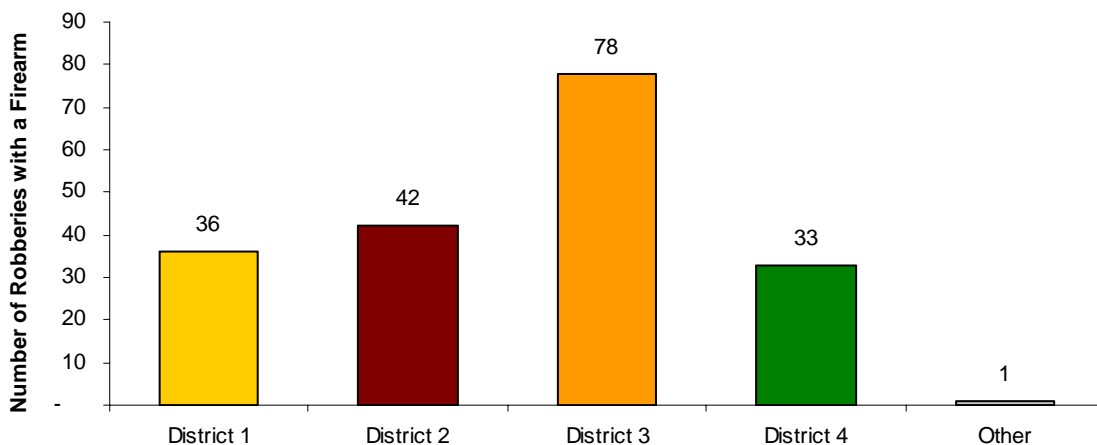
- Most probation breaches and bail violations occur in District 1 or District 2. Out of approximately 1,593 probation breaches and bail violations handled by a regular patrol unit between 2005-06-01 and 2006-05-31, at least 1,048 were reported in District 1 or District 2.
- Proportionally more offensive weapons offences (e.g. possession of an illegal weapon) occur in District 1 or District 2. Out of approximately 929 offensive weapons offences handled by a regular patrol unit between 2005-06-01 and 2006-05-31, at least 588 were reported in District 1 or District 2.
- Proportionally more common assaults and assaults against a police officer occur in District 1 and District 2. Out of approximately 3,571 common assaults and assaults against a police officer handled by at least one regular patrol unit between 2005-06-01 and 2006-05-31, 2,205 (61.7%) were reported in District 1 or District 2.
- Proportionally more aggravated assaults and assaults with a weapon or causing bodily harm occur in District 2. Out of approximately 1,531 aggravated assaults and assaults with a weapon or causing bodily harm handled by at least one regular patrol unit between 2005-06-01 and 2006-05-31, 617 (40.3%) were reported in District 2.

**Figure 4-17 Number of Serious Assaults Dispatched to Regular Patrol Units by District**



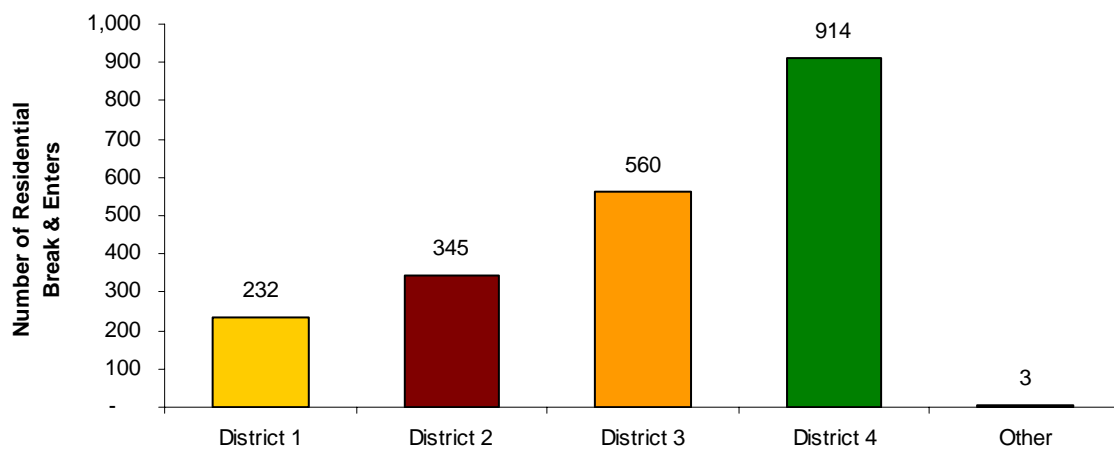
- Proportionally more kidnappings or forcible confinement cases are reported in District 2. Out of approximately 69 kidnappings or forcible confinement cases handled by at least one regular patrol unit between 2005-06-01 and 2006-05-31, 32 (46.4%) occurred in District 2.
- Proportionally more robberies with a firearm occur in District 3. Out of approximately 190 robberies with a firearm handled by at least one regular patrol unit between 2005-06-01 and 2006-05-31, 78 (41.1%) occurred in District 3.

**Figure 4-18 Robberies with a Firearm Dispatched to Regular Patrol Units**



- Proportionally more harassing or obscene phone calls are reported in District 4. Out of approximately 605 harassing phone calls cases handled by at least one regular patrol unit between 2005-06-01 and 2006-05-31, 227 (37.5%) occurred in District 4.
- Most trespassing incidents occur in District 4. Out of approximately 47 trespassing cases handled by at least one regular patrol unit between 2005-06-01 and 2006-05-31, 30 (63.8%) were reported in District 4.
- Proportionally more residential break and enters occur in District 4. Out of approximately 2,054 residential break and enters handled by at least one regular patrol unit between 2005-06-01 and 2006-05-31, 914 (44.5%) were reported in District 4.

**Figure 4-19 Residential Break and Enters Dispatched to Regular Patrol Units**



## 4.2 CALL PRIORITIES

As soon as they are received by call takers at E-Comm, calls for service are prioritized. More serious or urgent calls are assigned a higher priority level. Less serious or routine calls are assigned a lower priority level. Typically, higher priority calls will be handled before the other calls. The VPD currently uses 4 main priority levels to prioritize calls for service:

1. Priority 1 calls are emergency calls that require immediate police attention. They are life threatening calls that can lead to death or grievous bodily harm. In essence, priority 1 calls are the most serious calls that the VPD responds to. Priority 1 calls include armed robberies, assaults in progress, sexual assaults in progress, domestic situations in progress, domestic violence situations, home invasions and shootings.
2. Priority 2 calls are urgent calls that require immediate police attention but do not involve a life threatening situation. Priority 2 calls include abandoned 9-1-1 calls, break and enters in progress, fights, frauds in progress, indecent acts in progress, mischiefs in progress and prowlers.
3. Priority 3 calls are routine calls. Priority 3 calls include assaults (not in progress), sexual assaults (not in progress), noise complaints, disturbing parties, hazardous situations, missing persons and sudden deaths.
4. Priority 4 calls are low priority non-urgent calls. Priority 4 calls include break and enters (not in progress), frauds, mischiefs and thefts.

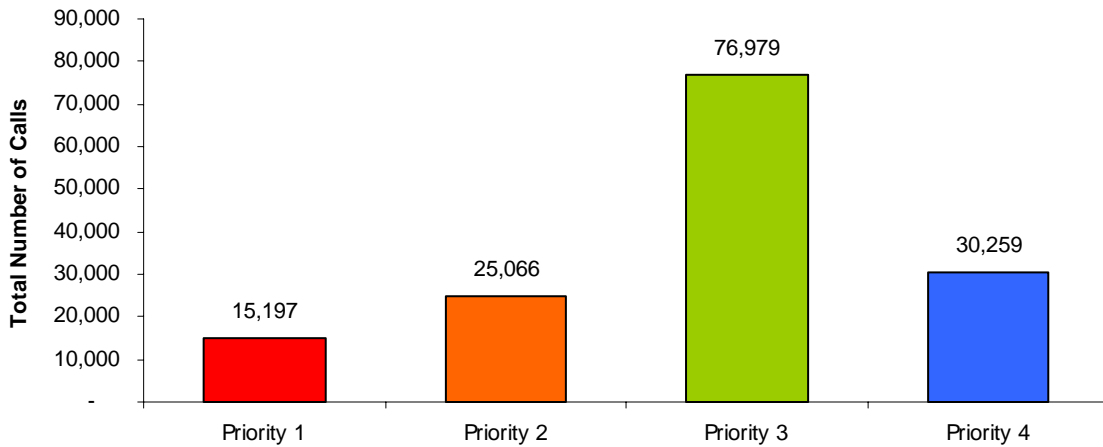
Between 2005-06-01 and 2006-05-31, regular patrol units were dispatched to a total of:

- 15,197 priority 1 calls.
- 25,066 priority 2 calls.
- 76,979 priority 3 calls.
- 30,259 priority 4 calls.

**Table 4-7 Priority Levels**

<b>Priority</b>	<b>Type</b>	<b>Number of Calls</b>
Priority 1	Emergency	15,197
Priority 2	Urgent	25,066
Priority 3	Routine	76,979
Priority 4	Non-Urgent	30,259
<b>Total</b>		<b>147,501</b>

**Figure 4-20 Total Number of Calls Dispatched to Regular Patrol Units by Priority**

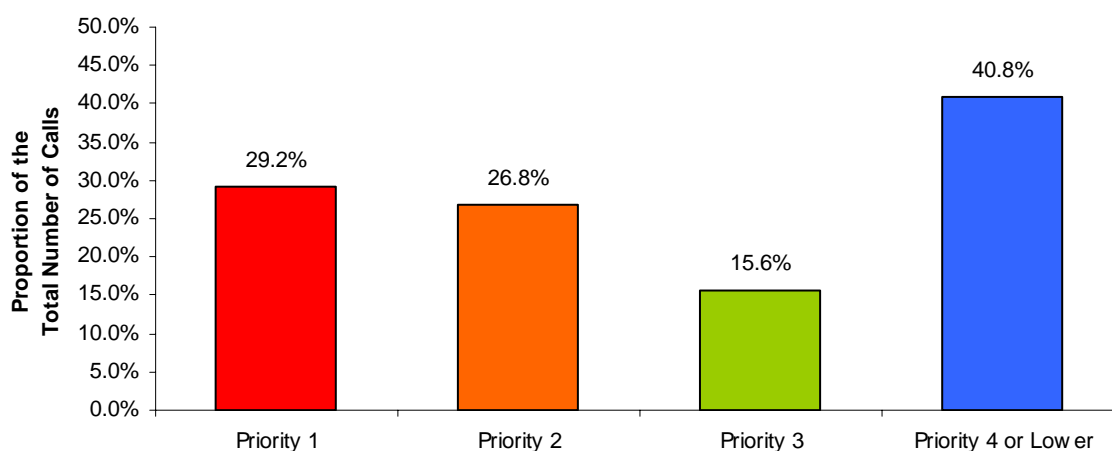


Overall, compared to priority 3 calls for service, priority 1 calls dispatched to a regular patrol unit were proportionally 87.3% more likely to involve a criminal offence. Out of 15,197 priority 1 calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31, approximately 4,437 incidents involved a criminal offence. Similarly, priority 2 calls dispatched to a regular patrol unit were proportionally 72.3% more likely than priority 3 calls to involve a criminal offence. Out of 25,066 priority 2 calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31, approximately 6,730 incidents (more than one priority 2 call out of 4) involved a criminal offence. By comparison, only 11,997 out of 76,979 priority 3 incidents involved a criminal offence between 2005-06-01 and 2006-05-31 (less than one priority 3 call out of 6).

**Table 4-8 Number of Calls and Criminal Incidents Dispatched to Regular Patrol Units by Priority**

Priority	Number of Calls	Number of Criminal Incidents	Proportion of Criminal Incidents
Priority 1	15,197	4,437	29.2%
Priority 2	25,066	6,730	26.8%
Priority 3	76,979	11,997	15.6%
Priority 4 or Lower	30,259	12,336	40.8%
<b>Total</b>	<b>147,501</b>	<b>35,500</b>	<b>24.1%</b>

**Figure 4-21 Proportion of Calls Dispatched to Regular Patrol Units That Involved a Criminal Offence**

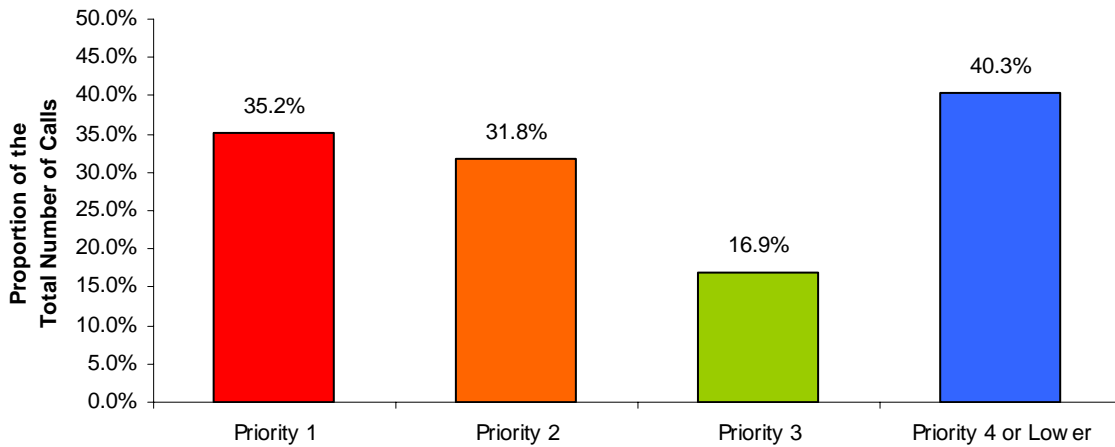


In District 1, priority 1 calls dispatched to a regular patrol unit were proportionally twice more likely than priority 3 calls to involve a criminal offence. Out of 3,129 priority 1 calls dispatched to a regular patrol unit in District 1 between 2005-06-01 and 2006-05-31, approximately 1,102 incidents involved a criminal offence (one priority 1 call out of 3). Similarly, priority 2 calls dispatched to a regular patrol unit in District 1 were proportionally 88.3% more likely than priority 3 calls to involve a criminal offence. Out of 5,976 priority 2 calls dispatched to a regular patrol unit in District 1 between 2005-06-01 and 2006-05-31, approximately 1,898 incidents involved a criminal offence. By comparison, only 3,270 out of 19,388 priority 3 incidents involved a criminal offence in District 1 between 2005-06-01 and 2006-05-31.

**Table 4-9 Number of Calls and Criminal Incidents Dispatched to Regular Patrol Units in District 1 by Priority**

Priority	Number of Calls	Number of Criminal Incidents	Proportion of Criminal Incidents
Priority 1	3,129	1,102	35.2%
Priority 2	5,976	1,898	31.8%
Priority 3	19,388	3,270	16.9%
Priority 4 or Lower	7,766	3,130	40.3%
<b>Total</b>	<b>36,259</b>	<b>9,400</b>	<b>25.9%</b>

**Figure 4-22 Proportion of Calls Dispatched to Regular Patrol Units in District 1 That Involved a Criminal Offence**



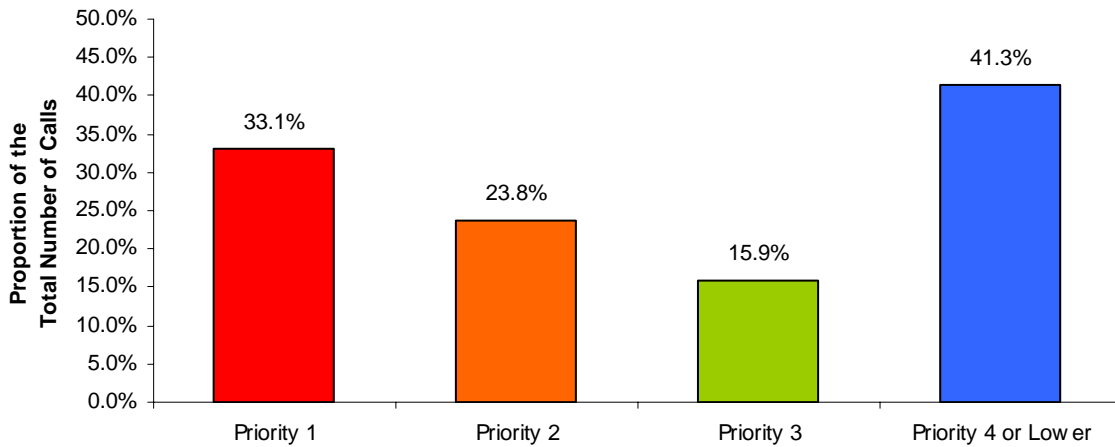
In District 2, priority 1 calls dispatched to a regular patrol unit were proportionally twice more likely than priority 3 calls to involve a criminal offence. Out of 4,106 priority 1 calls dispatched to a regular patrol unit in District 2 between 2005-06-01 and 2006-05-31, approximately 1,359 incidents involved a criminal offence. Similarly, priority 2 calls dispatched to a regular patrol unit in District 2 were proportionally 49.7% more likely than priority 3 calls to involve a criminal offence. Out of 6,903 priority 2 calls dispatched to a regular patrol unit in District 2 between 2005-06-01 and 2006-05-31, approximately 1,641 incidents involved a criminal offence. By comparison, only 3,662 out of 23,065 priority 3 incidents involved a criminal offence in District 2 between 2005-06-01 and 2006-05-31 (slightly more than one priority 3 call out of 6).

**Table 4-10 Number of Calls and Criminal Incidents Dispatched to Regular Patrol Units in District 2 by Priority**

Priority	Number of Calls	Number of Criminal Incidents	Proportion of Criminal Incidents
Priority 1	4,106	1,359	33.1%
Priority 2	6,903	1,641	23.8%
Priority 3	23,065	3,662	15.9%
Priority 4 or Lower	9,651	3,990	41.3%
<b>Total</b>	<b>43,725</b>	<b>10,652</b>	<b>24.4%</b>



**Figure 4-23 Proportion of Calls Dispatched to Regular Patrol Units in District 2 That Involved a Criminal Offence**

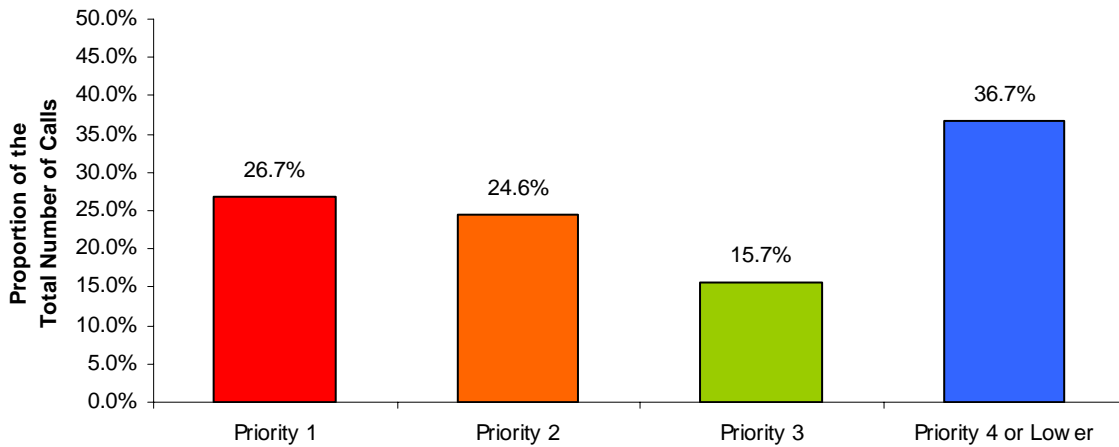


In District 3, priority 1 calls dispatched to a regular patrol unit were proportionally 70.2% more likely than priority 3 calls to involve a criminal offence. Out of 4,596 priority 1 calls dispatched to a regular patrol unit in District 3 between 2005-06-01 and 2006-05-31, approximately 1,229 incidents involved a criminal offence. Similarly, priority 2 calls dispatched to a regular patrol unit in District 3 were proportionally 56.6% more likely than priority 3 calls to involve a criminal offence. Out of 6,456 priority 2 calls dispatched to a regular patrol unit in District 3 between 2005-06-01 and 2006-05-31, approximately 1,588 incidents involved a criminal offence. By comparison, only 2,550 out of 16,231 priority 3 incidents involved a criminal offence in District 3 between 2005-06-01 and 2006-05-31.

**Table 4-11 Number of Calls and Criminal Incidents Dispatched to Regular Patrol Units in District 3 by Priority**

Priority	Number of Calls	Number of Criminal Incidents	Proportion of Criminal Incidents
Priority 1	4,596	1,229	26.7%
Priority 2	6,456	1,588	24.6%
Priority 3	16,231	2,550	15.7%
Priority 4 or Lower	5,495	2,014	36.7%
<b>Total</b>	<b>32,778</b>	<b>7,381</b>	<b>22.5%</b>

**Figure 4-24 Proportion of Calls Dispatched to Regular Patrol Units in District 3 That Involved a Criminal Offence**

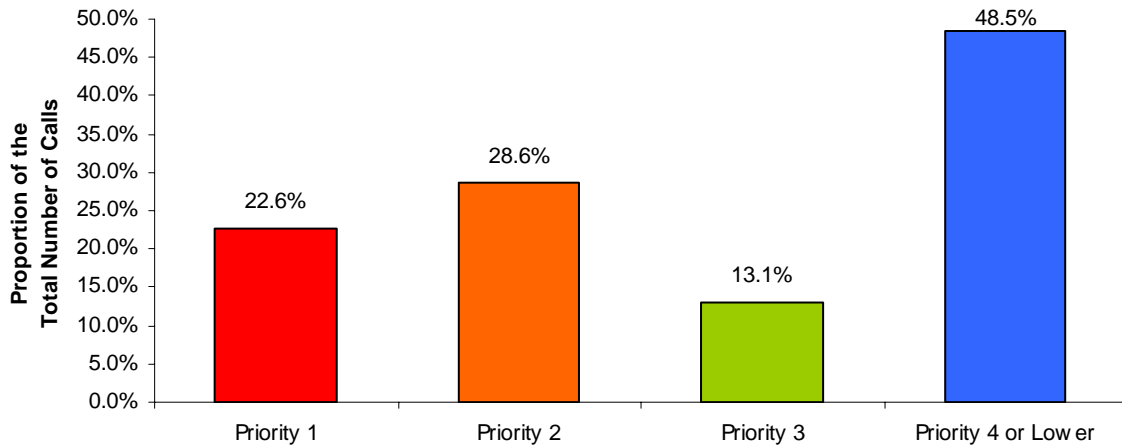


In District 4, priority 1 calls dispatched to a regular patrol unit were proportionally 72.9% more likely than priority 3 calls to involve a criminal offence. Out of 3,258 priority 1 calls dispatched to a regular patrol unit in District 4 between 2005-06-01 and 2006-05-31, approximately 737 incidents involved a criminal offence. Similarly, priority 2 calls dispatched to a regular patrol unit in District 4 were proportionally 118.3% more likely than priority 3 calls to involve a criminal offence. Out of 5,522 priority 2 calls dispatched to a regular patrol unit in District 4 between 2005-06-01 and 2006-05-31, approximately 1,577 incidents involved a criminal offence. By comparison, only 2,062 out of 15,764 priority 3 incidents involved a criminal offence in District 4 between 2005-06-01 and 2006-05-31 (less than one priority 3 call out of 8).

**Table 4-12 Number of Calls and Criminal Incidents Dispatched to Regular Patrol Units in District 4 by Priority**

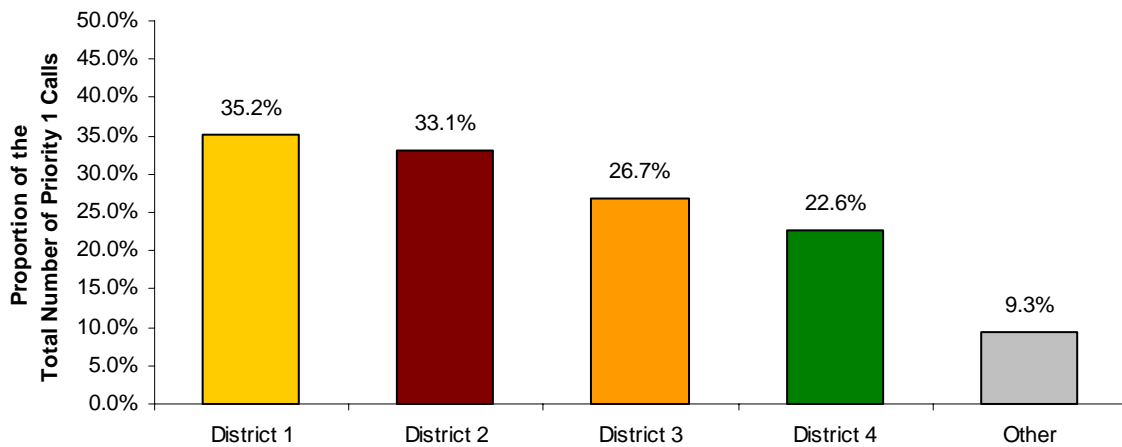
Priority	Number of Calls	Number of Criminal Incidents	Proportion of Criminal Incidents
Priority 1	3,258	737	22.6%
Priority 2	5,522	1,577	28.6%
Priority 3	15,764	2,062	13.1%
Priority 4 or Lower	4,734	2,294	48.5%
<b>Total</b>	<b>29,278</b>	<b>6,670</b>	<b>22.8%</b>

**Figure 4-25 Proportion of Calls Dispatched to Regular Patrol Units in District 4 That Involved a Criminal Offence**



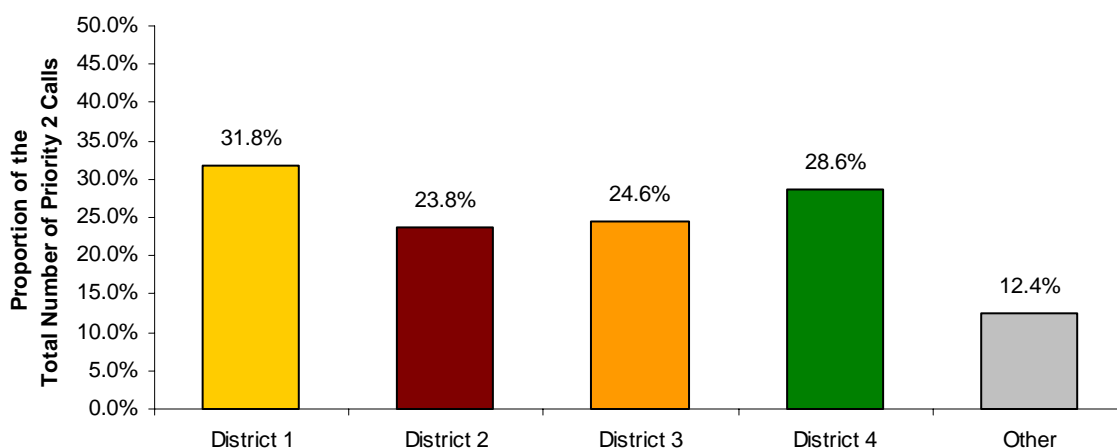
As shown below, priority 1 incidents in District 1 and District 2 are more likely to involve a criminal offence than priority 1 incidents in District 3 and District 4. Overall, priority 1 incidents in District 1 are 31.7% more likely to involve a criminal offence than in District 3 and 55.7% more likely to involve a criminal offence than in District 4. For their part, priority 1 incidents in District 2 are 23.8% more likely to involve a criminal offence than in District 3 and 46.3% more likely to involve a criminal offence than in District 4.

**Figure 4-26 Proportion of Priority 1 Criminal Incidents by District**



Similarly, priority 2 incidents in District 1 are slightly more likely to involve a criminal offence than priority 2 incidents in the remaining patrol districts. Overall, priority 2 incidents in District 1 are 33.6% more likely to involve a criminal offence than in District 2, 29.1% more likely to involve a criminal offence than in District 3 and 11.2% more likely to involve a criminal offence than in District 4.

**Figure 4-27 Proportion of Priority 2 Criminal Incidents by District**

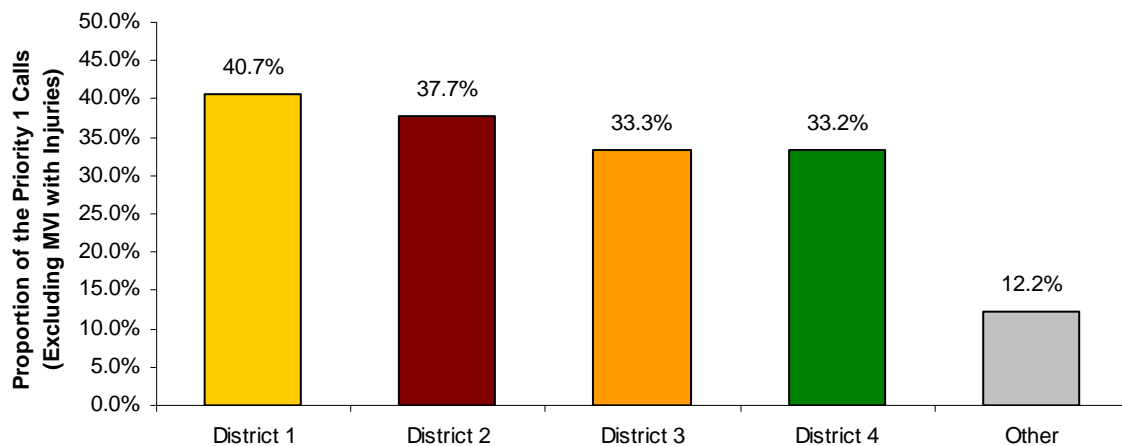


The differences in the proportion of priority 1 calls that turned out to involve a criminal offence in each patrol district can be explained in a large part by the fact that regular patrol units in District 3 and District 4 consistently handle more motor vehicle incidents with injuries prioritized as priority 1 calls and, as expected intuitively, motor vehicle incidents with injuries are relatively less likely to involve a criminal offence compared to most other call types.

Between 2005-06-01 and 2006-05-31, regular patrol units in District 3 and District 4 were dispatched to respectively 1,062 and 1,186 motor vehicle incidents and approximately 95.4% of those incidents were prioritized as priority 1 calls. By contrast, over the same period, regular patrol units in District 1 and District 2 were dispatched to only 519 and 597 motor vehicle incidents respectively (approximately 94.5% of those incidents were prioritized as priority 1 calls).

Once motor vehicle incidents with injuries are excluded, priority 1 incidents in District 1 are only 22.1% more likely to involve a criminal offence than in District 3 and 22.4% more likely to involve a criminal offence than in District 4. For their part, priority 1 incidents in District 2 are 13.2% more likely to involve a criminal offence than in District 3 and 13.4% more likely to involve a criminal offence than in District 4 when motor vehicle incidents with injuries are excluded.

**Figure 4-28 Proportion of Priority 1 Criminal Incidents by District (Excluding MVI with Injuries)**



Interestingly, several types of priority 2 calls in District 1 are more likely to involve a criminal offence than in any of the remaining patrol districts. Between 2005-06-01 and 2006-05-31, for instance:

- 4.0% of all priority 2 abandoned 9-1-1 calls in District 1 involved a criminal offence. By comparison, only 2.5% to 3.0% of all priority 2 abandoned 9-1-1 calls in the other patrol districts involved a criminal offence during the same period. This implies that abandoned 9-1-1 calls in District 1 were 35.0% to 61.0% more likely to involve a criminal offence.
- 28.4% of all priority 2 domestic situations in District 1 involved a criminal offence. By comparison, only 16.4% to 23.4% of all priority 2 domestic situations in the other patrol districts involved a criminal offence during the same period. This

implies that domestic situations in District 1 were 21.4% to 72.5% more likely to involve a criminal offence.

- 16.9% of all priority 2 suspicious persons in District 1 involved a criminal offence. By comparison, only 7.8% to 11.1% of all priority 2 suspicious persons in the other patrol districts involved a criminal offence during the same period. This implies that suspicious persons in District 1 were 51.5% to 116.8% more likely to involve a criminal offence.
- 16.9% of all priority 2 violent persons in District 1 involved a criminal offence. By comparison, only 15.9% to 19.8% of all priority 2 violent persons in the other patrol districts involved a criminal offence during the same period. This implies that violent persons in District 1 were 14.5% to 42.3% more likely to involve a criminal offence.
- 23.6% of all priority 2 shots heard in District 1 involved a criminal offence. By comparison, only 8.7% to 16.8% of all priority 2 shots heard in the other patrol districts involved a criminal offence during the same period. This implies that shots heard in District 1 were 40.3% to 172.8% more likely to involve a criminal offence.

Overall, this is consistent with the fact that the calls dispatched to regular patrol units in District 1 were proportionally more likely to involve a criminal offence.

### **4.3 EMERGENCY 9-1-1 CALLS**

Among the most serious 9-1-1 calls handled by regular patrol units between 2005-06-01 and 2006-05-31, there were:

- 4,689 domestic situations (including 2,677 domestic situations in progress and 378 situations of domestic violence);
- 4,529 assaults (including 2,303 assaults in progress and 236 assaults with a weapon);
- 3,015 abandoned 9-1-1 calls;
- 2,670 motor vehicle incidents with injuries;

- 2,197 assaults in progress prioritized as priority 1 calls;
- 1,227 robberies (including 572 robberies in progress, 131 robberies with a weapon and 143 robberies with a weapon in progress);
- 1,918 other incidents involving weapons (including 109 reports of shots fired and 396 reports of shots being fired);
- 800 suicidal persons.

Regular patrol units also had to deal with 17 reports of abduction (including 4 abductions in progress), 150 arsons (including 21 arsons in progress), 371 reports of sexual assaults (including 42 sexual assaults in progress), 30 bomb threats, 3,706 break and enters (including 1,805 break and enters in progress), 1,940 fights, 46 extortion cases, 55 home invasions, 381 reports of impaired drivers, 764 missing persons (including 134 missing children), 81 overdoses and 503 sudden deaths.

Some less serious 9-1-1 calls included:

- 8,181 annoying circumstances;
- 6,084 requests for assistance from the general public;
- 4,296 suspicious circumstances;
- 4,289 thefts (including 2,264 thefts in progress and 248 thefts of vehicle);
- 4,092 noise complaints;
- 2,562 requests for assistance from the provincial ambulance service;
- 2,299 unwanted persons;
- 2,060 disturbing parties;
- 1,910 mischiefs (including 1,383 mischiefs in progress);
- 1,679 threats;
- 1,262 shoplifters (including 95 violent shoplifters);
- 1,220 suspicious vehicles;
- 956 fraud cases (including 313 frauds in progress);
- 943 hazardous situations;
- 550 alarm calls;
- 409 indecent acts;
- 249 prowlers.

**Table 4-13 Number of Emergency 9-1-1 Calls by Call Type**

<b>Call Type</b>	<b>Number of Calls</b>
ANNOYING CIRCUMSTANCES	8,181
SUSPICIOUS PERSON	7,048
ASSIST GENERAL PUBLIC	6,084
SUSPICIOUS OTHER CIRCUMSTANCES	4,296
DISTURBANCE NOISE	4,092
ABANDONED 911	3,015
DOMESTIC IN PROGRESS	2,677
MVI INJURY	2,670
ASSIST PROVINCIAL AMBULANCE	2,562
ASSAULT IN PROGRESS	2,303
UNWANTED PERSON	2,299
THEFT IN PROGRESS	2,264
DISTURBANCE PARTY	2,060
ASSAULT	1,990
FIGHT	1,940
BREAK AND ENTER	1,901
BREAK AND ENTER IN PROGRESS	1,805
THREATS	1,679
DOMESTIC REPORT	1,634
INTELLIGENCE INFORMATION	1,435
WEAPON IN PROGRESS	1,413
MISCHIEF IN PROGRESS	1,383
SUSPICIOUS VEHICLE	1,220
THEFT	1,217
SHOPLIFTER	1,167
HAZARDOUS SITUATION	943
MVI	841
SUICIDAL PERSON	800
OTHER	21,379
<b>Total</b>	<b>92,298</b>

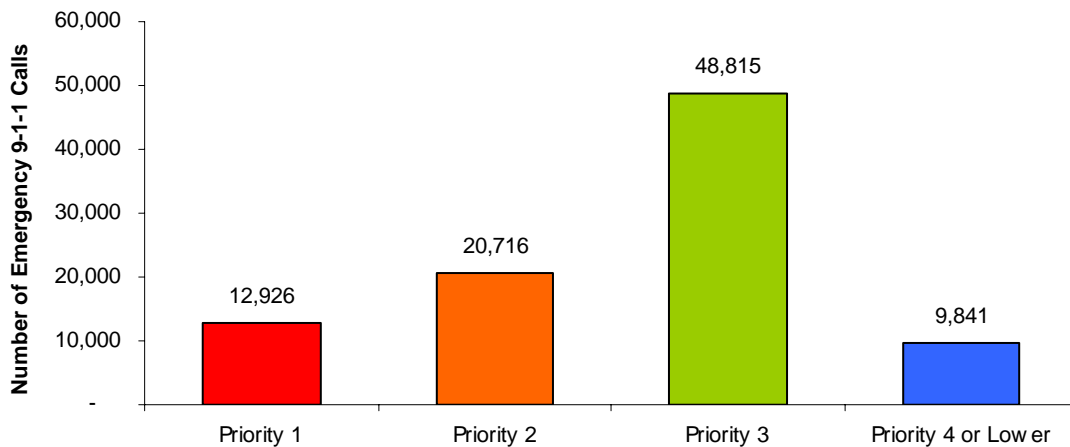
Among the 92,298 emergency 9-1-1 calls handled by regular patrol units between 2005-06-01 and 2006-05-31, there were a total of 12,926 urgent priority 1 calls, 20,716 priority 2 calls, 48,815 priority 3 calls and 9,841 lower priority calls.



**Table 4-14 Number of Emergency 9-1-1 Calls by Priority**

Priority	Number of Calls
Priority 1	12,926
Priority 2	20,716
Priority 3	48,815
Priority 4 or Lower	9,841
<b>Total</b>	<b>92,298</b>

**Figure 4-29 Number of Emergency 9-1-1 Calls by Priority**



Common priority 1 9-1-1 calls included, among others, motor vehicle incidents with injuries (2,548 incidents), domestic situations in progress (2,518 incidents), assaults in progress (2,197 incidents), other incidents in progress involving weapons (1,366 instances), robberies (total of 804 incidents), suicidal persons (757 incidents), screaming persons (641 incidents) and domestic violence situations (370 incidents).

Priority 2 9-1-1 calls included, among others, 2,923 abandoned calls, 2,608 theft reports, 1,929 fights, 1,786 break and enters in progress, 1,781 domestic situations, 1,406 mischiefs and 582 violent persons.

Routine priority 3 9-1-1 calls included, among others, 7,986 annoying circumstances, 5,735 suspicious persons, 5,045 requests for assistance from the general public, 4,024 noise complaints, 2,909 suspicious circumstances, 2,280 requests for assistance from the provincial ambulance service, 2,185 unwanted persons, 1,898 disturbing parties,

1,684 assaults, 1,494 threat reports, 1,153 suspicious vehicles, 1,096 shoplifters, 888 hazardous situations, 780 motor vehicle incidents, 598 missing persons, 410 panhandlers, 346 robberies (but not in progress), 275 reports of sexual assault (but not in progress), 224 neighbour disputes and 215 insecure premises.

Lower priority 9-1-1 calls (e.g. priority 4 calls) included, among others, 1,704 break and enter reports (not in progress), 1,381 intelligence reports, 1,068 theft reports, 573 reported offences related to prostitution, 558 fraud cases, 438 mischiefs (not in progress), 332 parking violations and 247 traffic suspension or driving prohibitions.

**Table 4-15 Number of Emergency 9-1-1 Calls by Priority and Call Type**

<b>Call Type</b>		<b>Total</b>
<b>PRIORITY 1</b>	MVI INJURY	2,548
	DOMESTIC IN PROGRESS	2,518
	ASSAULT IN PROGRESS	2,197
	WEAPON IN PROGRESS	1,366
	SUICIDAL PERSON	757
	DISTURBANCE SCREAMING	641
	ROBBERY IN PROGRESS	556
	DOMESTIC WITH VIOLENCE	370
	SUSPICIOUS OTHER CIRCUMSTANCES	307
	SUSPICIOUS PERSON	171
	ROBBERY WITH WEAPON IN PROGRESS	141
	ASSAULT WITH WEAPON IN PROGRESS	126
	MISSING CHILD	120
	ROBBERY WITH A WEAPON	102
	SHOTS FIRED	97
	ASSIST GENERAL PUBLIC	81
	JUMPER	69
	HOME INVASION	54
	ASSAULT SEXUAL IN PROGRESS	40
	BOMB THREAT	28
	ARSON IN PROGRESS	20
	EXPLOSIVES	14
	SUSPICIOUS VEHICLE	11
	ALARM HOLD UP	5
	ABDUCTION IN PROGRESS	4
	OTHER	583
<b>PRIORITY 1</b>	<b>12,926</b>	

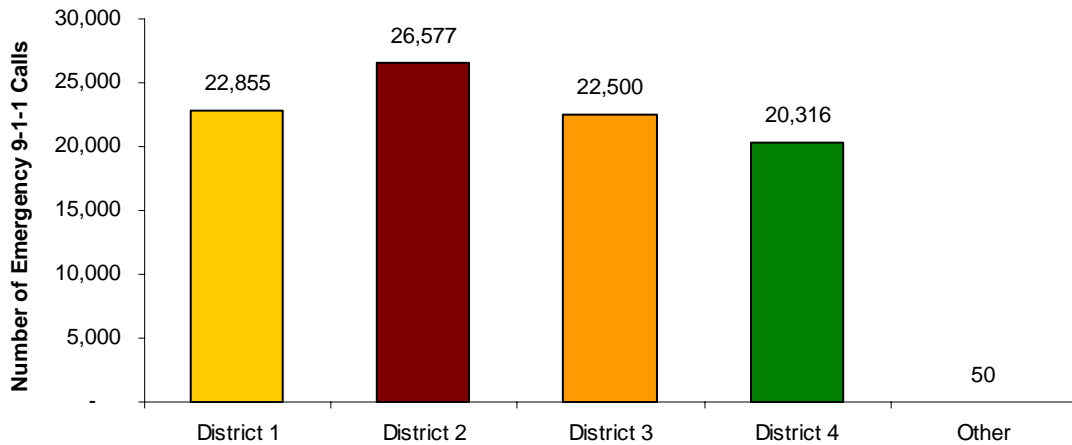
PRIORITY 2	ABANDONED 911	2,923
	THEFT IN PROGRESS	2,233
	FIGHT	1,929
	BREAK AND ENTER IN PROGRESS	1,786
	DOMESTIC REPORT	1,615
	MISCHIEF IN PROGRESS	1,362
	SUSPICIOUS PERSON	1,141
	SUSPICIOUS OTHER CIRCUMSTANCES	1,077
	ASSIST GENERAL PUBLIC	952
	VIOLENT PERSON	582
	SHOTS HEARD	394
	FRAUD IN PROGRESS	307
	ASSAULT	293
	IMPAIRED DRIVER POSSIBLE	266
	PROWLER	244
	INDECENT ACT IN PROGRESS	232
	ASSIST PROVINCIAL AMBULANCE	231
	MVI HIT AND RUN	219
	ANNOYING CIRCUMSTANCES	188
	THEFT OF VEHICLE IN PROGRESS	144
	SHOPLIFTER VIOLENT	94
	OVERDOSE	81
	ALARMS SILENT/PANIC	13
	STALKING IN PROGRESS	3
OTHER	2,407	
<b>PRIORITY 2</b>	<b>20,716</b>	

PRIORITY 3	ANNOYING CIRCUMSTANCES	7,986
	SUSPICIOUS PERSON	5,735
	ASSIST GENERAL PUBLIC	5,045
	DISTURBANCE NOISE	4,024
	SUSPICIOUS OTHER CIRCUMSTANCES	2,909
	ASSIST PROVINCIAL AMBULANCE	2,280
	UNWANTED PERSON	2,185
	DISTURBANCE PARTY	1,898
	ASSAULT	1,684
	THREATS	1,494
	SUSPICIOUS VEHICLE	1,153
	THEFT VEHICLE LOCATED	1,114
	SHOPLIFTER	1,096
	HAZARDOUS SITUATION	888
	MVI	780
	HARASSMENT	714
	MISSING PERSON	598
	ALARM	515
	ASSIST OTHER AGENCY	514
	SUDDEN DEATH	481
	DRUGS IN PROGRESS	447
	ASSAULT SEXUAL	275
	NEIGHBOUR DISPUTE	224
	ASSIST FIRE	187
	INDECENT ACT	161
	ARSON	124
	ASSIST EMERGENCY MENTAL HEALTH	113
	ANIMAL	63
	TRESPASS	49
	STALKING	29
OTHER	4,050	
<b>PRIORITY 3</b>	<b>48,815</b>	

PRIORITY 4	BREAK AND ENTER	1,704
	INTELLIGENCE INFORMATION	1,381
	THEFT	1,068
	PROPERTY RECOVERED	763
	WARRANT	748
	PROSTITUTION	573
	FRAUD	558
	SIPP/DIPP	469
	MISCHIEF	438
	DRUGS	433
	ARREST	272
	TRAFFIC SUSPENSION	247
	THEFT FROM VEHICLE	221
	PROPERTY SEIZED	159
	IMPAIRED DRIVER	99
	THEFT OF VEHICLE	75
	THEFT OF BICYCLE	23
	BREACH THE PEACE	14
	MISSING PERSON HABITUAL	10
	OTHER	573
	<b>PRIORITY 4 AND LOWER</b>	<b>9,828</b>
<b>Total</b>	<b>92,285</b>	

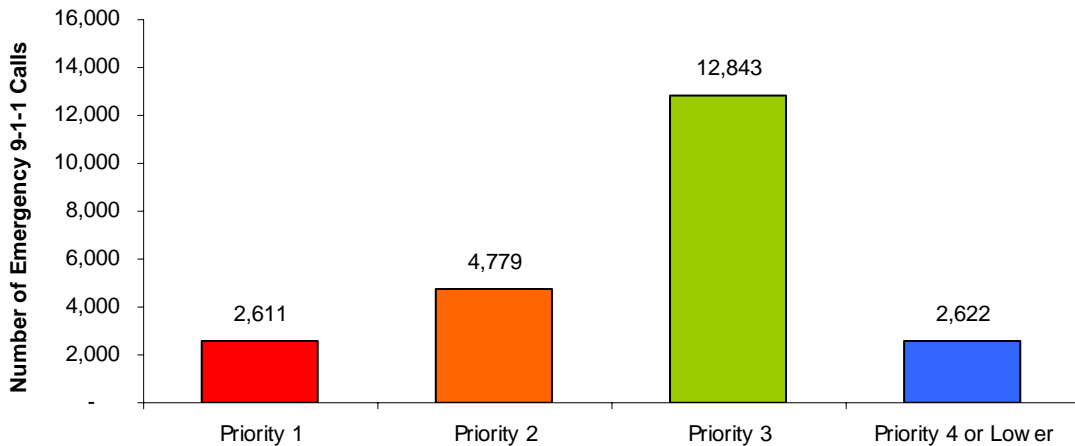
Among the 92,298 emergency 9-1-1 calls handled by regular patrol units between 2005-06-01 and 2006-05-31, approximately 22,855 9-1-1 calls originated from District 1, 26,577 9-1-1 calls originated from District 2, 22,500 9-1-1 calls originated from District 3 and 20,316 9-1-1 calls originated from District 4. A total of 50 9-1-1 calls could not be attributed to any particular patrol district.

**Figure 4-30 Number of Emergency 9-1-1 Calls by District**



Between 2005-06-01 and 2006-05-31, patrol units in District 1 handled a total of 2,611 priority 1, 4,779 priority 2, 12,843 priority 3 and 2,622 priority 4 9-1-1 calls. Among the existing four patrol districts, regular patrol units in District 1 handled the smallest number of priority 1 9-1-1 calls, the second-smallest number of priority 2 9-1-1 calls, the second-largest number of priority 3 9-1-1 calls and the largest number of priority 4 9-1-1 calls.

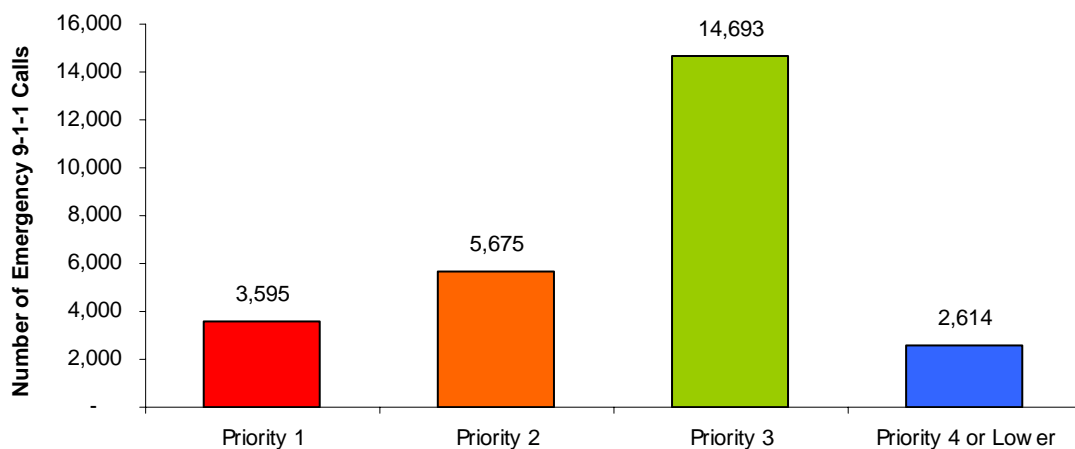
**Figure 4-31 Number of Emergency 9-1-1 Calls in District 1 by Priority**



Between 2005-06-01 and 2006-05-31, patrol units in District 2 handled a total of 3,595 priority 1, 5,675 priority 2, 14,693 priority 3 and 2,614 priority 4 9-1-1 calls. Among the

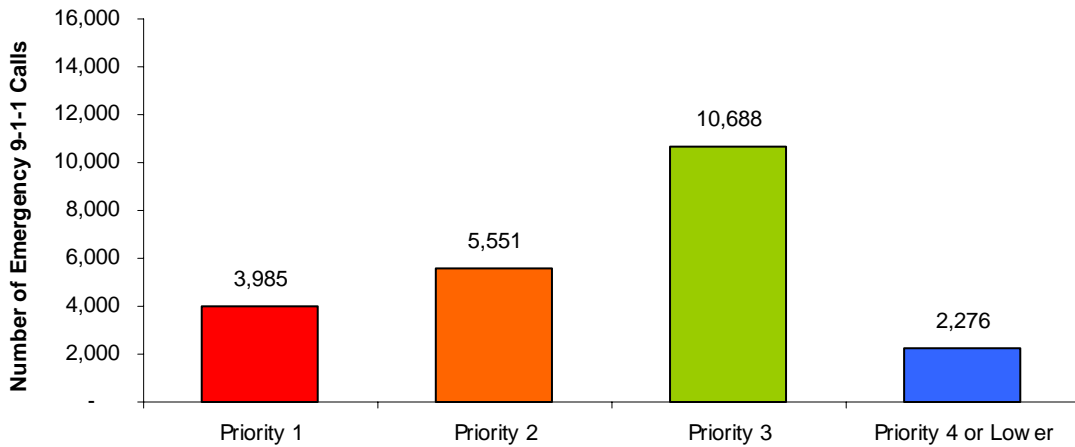
existing four patrol districts, regular patrol units in District 2 handled the second-largest number of priority 1 9-1-1 calls, the largest number of priority 2 9-1-1 calls, the largest number of priority 3 9-1-1 and the second-largest number of priority 4 9-1-1 calls. District 2 is at least partially expected to face a larger demand for service because it has been historically a crime-ridden area and it includes a significant population of individuals with a drug or alcohol addiction and/or mental health issues. Some of the additional demand for service originating from the area can be realistically explained by the fact that, between 2005-06-01 and 2006-05-31, regular patrol units in District 2 handled a total of 2,079 requests for assistance from the general public and 1,009 requests for assistance from the provincial ambulance service. This is respectively 40% to 75% and 65% to 220% more requests than the other districts.

**Figure 4-32 Number of Emergency 9-1-1 Calls in District 2 by Priority**



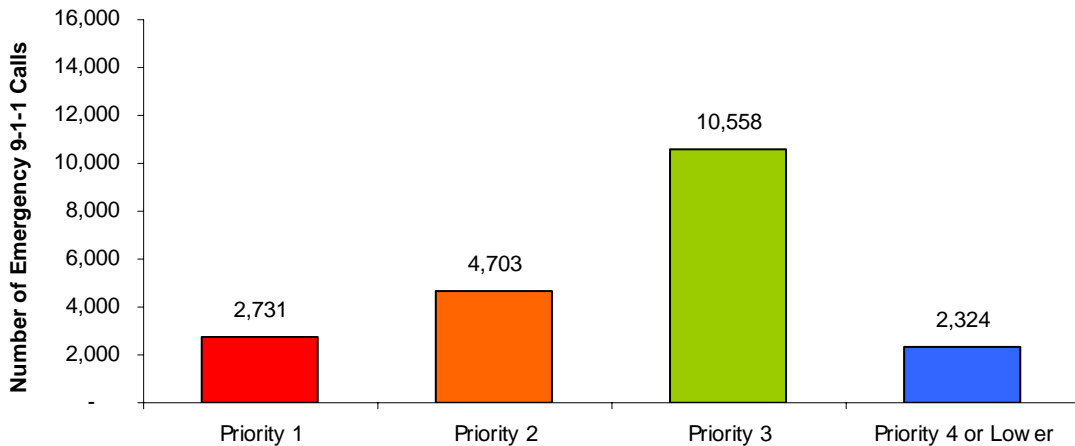
Between 2005-06-01 and 2006-05-31, patrol units in District 3 handled a total of 3,985 priority 1, 5,551 priority 2, 10,688 priority 3 and 2,276 priority 4 9-1-1 calls. Compared to the other districts, regular patrol units in District 3 handled the largest number of priority 1 9-1-1 calls. On the other hand, regular patrol units in District 3 also handled the fewest number of priority 4 9-1-1 calls.

**Figure 4-33 Number of Emergency 9-1-1 Calls in District 3 by Priority**



Between 2005-06-01 and 2006-05-31, patrol units in District 4 handled a total of 2,731 priority 1, 4,703 priority 2, 10,558 priority 3 and 2,324 priority 4 9-1-1 calls. Among the existing four patrol districts, regular patrol units in District 4 handled the second-smallest number of priority 1 9-1-1 calls after District 1, the smallest number of priority 2 9-1-1 calls, the smallest number of priority 3 9-1-1 calls and the second-smallest number of priority 4 9-1-1 calls.

**Figure 4-34 Number of Emergency 9-1-1 Calls in District 4 by Priority**

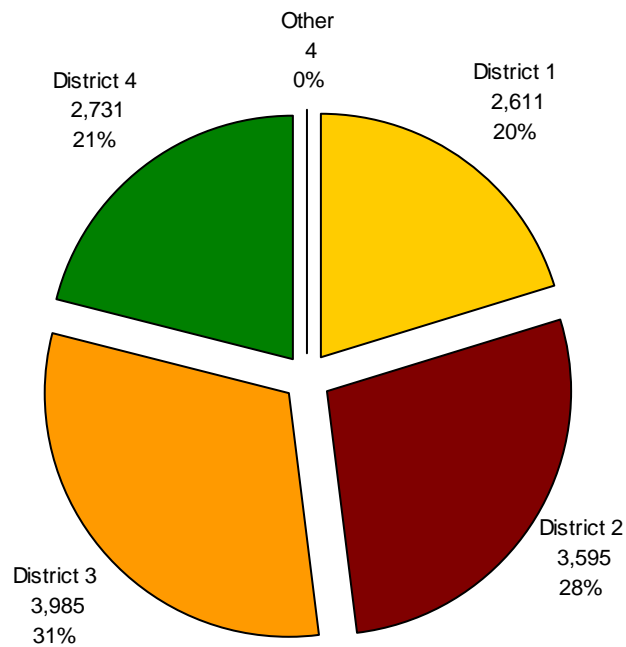




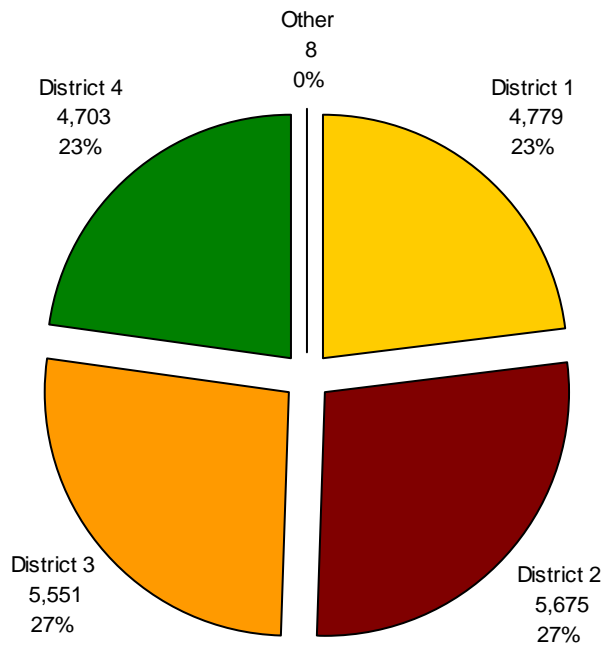
**Table 4-16 Number of Emergency 9-1-1 Calls by District and by Priority**

District	Priority 1 Calls	Priority 2 Calls	Priority 3 Calls	Priority 4 Calls	Total
District 1	2,611	4,779	12,843	2,622	<b>22,855</b>
District 2	3,595	5,675	14,693	2,614	<b>26,577</b>
District 3	3,985	5,551	10,688	2,276	<b>22,500</b>
District 4	2,731	4,703	10,558	2,324	<b>20,316</b>
Other	4	8	33	5	<b>50</b>
<b>Total</b>	<b>12,926</b>	<b>20,716</b>	<b>48,815</b>	<b>9,841</b>	<b>92,298</b>

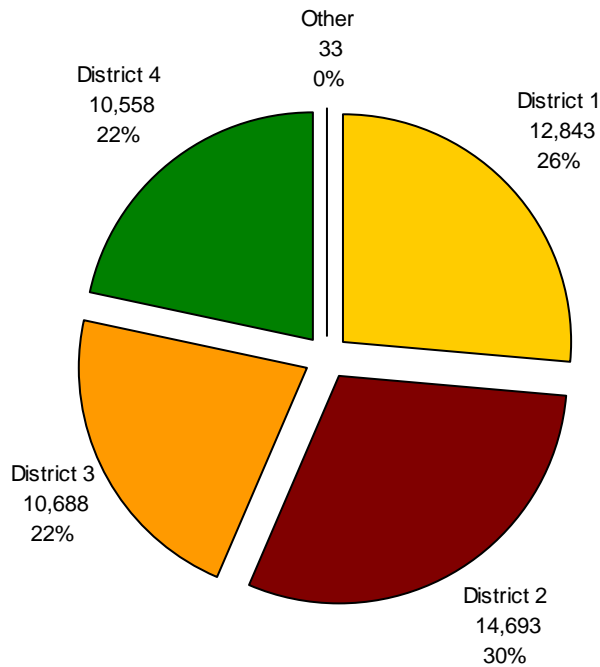
**Figure 4-35 Number of Priority 1 Emergency 9-1-1 Calls by District**



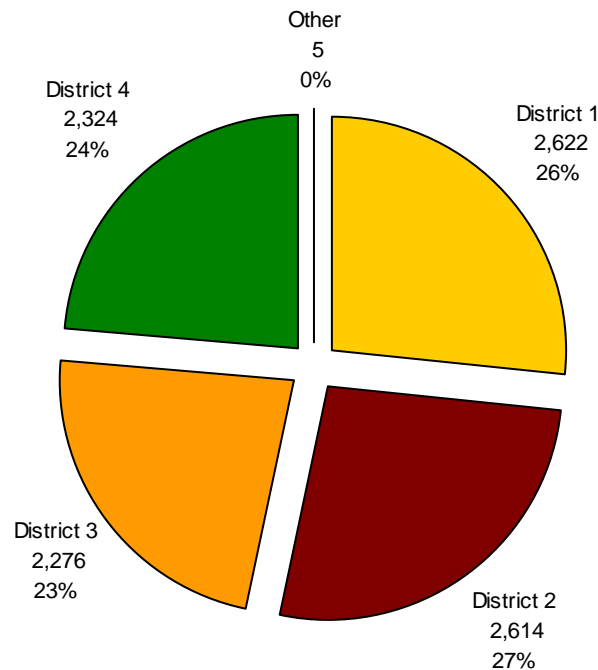
**Figure 4-36 Number of Priority 2 Emergency 9-1-1 Calls by District**



**Figure 4-37 Number of Priority 3 Emergency 9-1-1 Calls by District**



**Figure 4-38 Number of Priority 4 Emergency 9-1-1 Calls by District**



Although the 92,298 emergency 9-1-1 calls handled by regular patrol units between 2005-06-01 and 2006-05-31 were divided relatively equally across the existing four patrol districts, regular patrol units in each district handled a different mix of 9-1-1 calls. For example:

- More than 55% of all shoplifters reported through the 9-1-1 system were handled by regular patrol units in District 1.
- Regular patrol units in both District 1 and District 2 handled significantly more disturbance calls than the regular patrol units in other existing patrol districts.
- Almost 40% of all assaults and more than 50% of all assaults with a weapon reported through the 9-1-1 system were handled by regular patrol units in District 2.
- Close to 65% of all fights reported through the 9-1-1 system were handled by regular patrol units in District 1 or District 2.
- More than 75% of all overdoses reported through the 9-1-1 system were handled by regular patrol units in District 1 or District 2.

- More than 35% of all requests for assistance from the general public or other agencies like the provincial ambulance service or the fire department were handled by regular patrol units in District 2.
- More than 72% of all neighbour disputes reported through the 9-1-1 system were handled by regular patrol units in District 2 or District 3.
- More than 40% of all domestic situations reported through the 9-1-1 system (including 45% of all domestic violence situations) were handled by regular patrol units in District 3.
- More than 65% of all motor vehicle incidents reported through the 9-1-1 system (including 60% of all hit and run) were handled by regular patrol units in District 3 or District 4.
- More than one third of all break and enters reported through the 9-1-1 system were handled by regular patrol units in District 4.

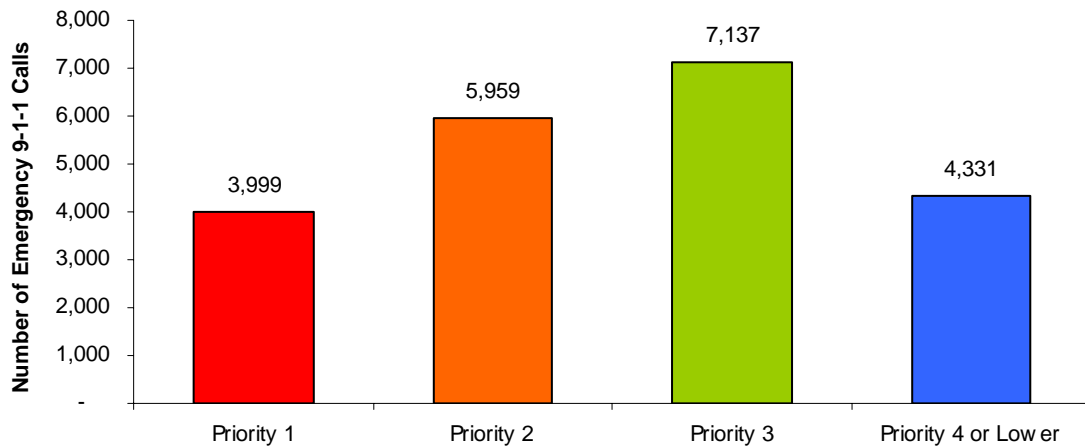
**Table 4-17 Number of Emergency 9-1-1 Calls by District and Call Type**

<b>Call Type</b>	<b>District 1</b>	<b>District 2</b>	<b>District 3</b>	<b>District 4</b>	<b>Other</b>	<b>Total</b>
ANNOYING CIRCUMSTANCES	2,951	2,818	1,249	1,162	1	<b>8,181</b>
SUSPICIOUS PERSON	1,663	1,793	1,778	1,809	5	<b>7,048</b>
ASSIST GENERAL PUBLIC	1,441	2,079	1,416	1,147	1	<b>6,084</b>
SUSPICIOUS OTHER CIRCUMSTANCES	842	1,181	1,172	1,097	4	<b>4,296</b>
DISTURBANCE NOISE	1,033	988	851	1,217	3	<b>4,092</b>
ABANDONED 911	585	801	965	663	1	<b>3,015</b>
DOMESTIC IN PROGRESS	368	688	1,112	509		<b>2,677</b>
MVI INJURY	411	465	834	960		<b>2,670</b>
ASSIST PROVINCIAL AMBULANCE	593	1,009	498	459	3	<b>2,562</b>
ASSAULT IN PROGRESS	666	851	490	295	1	<b>2,303</b>
UNWANTED PERSON	840	807	304	347	1	<b>2,299</b>
THEFT IN PROGRESS	698	543	489	534		<b>2,264</b>
DISTURBANCE PARTY	556	671	370	462	1	<b>2,060</b>
ASSAULT	533	797	401	257	2	<b>1,990</b>
FIGHT	599	660	411	270		<b>1,940</b>
BREAK AND ENTER	324	378	441	758		<b>1,901</b>
BREAK AND ENTER IN PROGRESS	286	405	552	562		<b>1,805</b>
THREATS	399	518	413	348	1	<b>1,679</b>
DOMESTIC REPORT	222	450	678	284		<b>1,634</b>
INTELLIGENCE INFORMATION	338	417	305	373	2	<b>1,435</b>
WEAPON IN PROGRESS	297	516	400	199	1	<b>1,413</b>
MISCHIEF IN PROGRESS	338	371	298	376		<b>1,383</b>
SUSPICIOUS VEHICLE	130	325	435	329	1	<b>1,220</b>
THEFT	419	309	182	306	1	<b>1,217</b>
SHOPLIFTER	658	123	208	178		<b>1,167</b>
HAZARDOUS SITUATION	256	254	197	235	1	<b>943</b>
MVI	160	149	275	256	1	<b>841</b>
SUICIDAL PERSON	179	245	197	177	2	<b>800</b>
OTHER	5,070	5,966	5,579	4,747	17	<b>21,379</b>
<b>Grand Total</b>	<b>22,855</b>	<b>26,577</b>	<b>22,500</b>	<b>20,316</b>	<b>50</b>	<b>92,298</b>

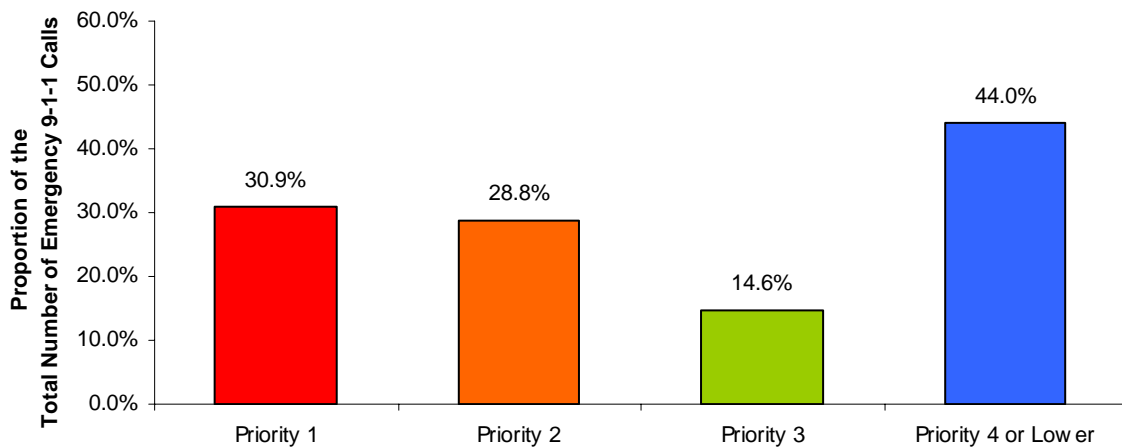
Overall, between 2005-06-01 and 2006-05-31, approximately 21,426 incidents out of the 92,298 9-1-1 calls dispatched to regular patrol units involved a criminal offence

(23.2% of all 9-1-1 calls). Among others, 3,999 out of the 12,926 priority 1 9-1-1 calls, 5,959 out of the 20,716 priority 2 9-1-1 calls, 7,137 out of the 48,815 priority 3 9-1-1 calls and 4,331 out of the 9,841 lower priority 9-1-1 calls involved a criminal offence. In other words, 30.9% of the priority 1 9-1-1 calls, 28.8% of the priority 2 calls, 14.6% of the priority 3 calls and 44.0% of the priority 4 calls in District 1 involved a criminal offence.

**Figure 4-39 Number of Emergency 9-1-1 Calls That Involved a Criminal Offence by Priority**

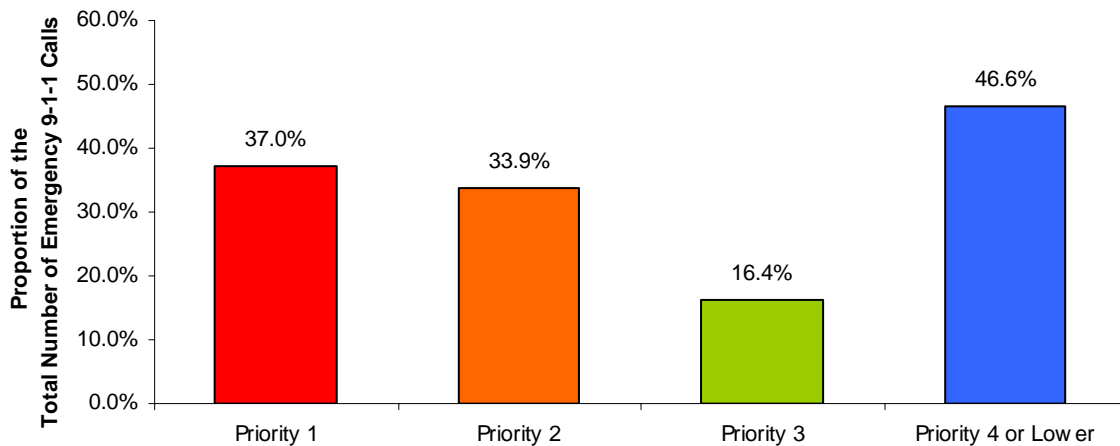


**Figure 4-40 Proportion of Emergency 9-1-1 Calls That Involved a Criminal Offence by Priority**



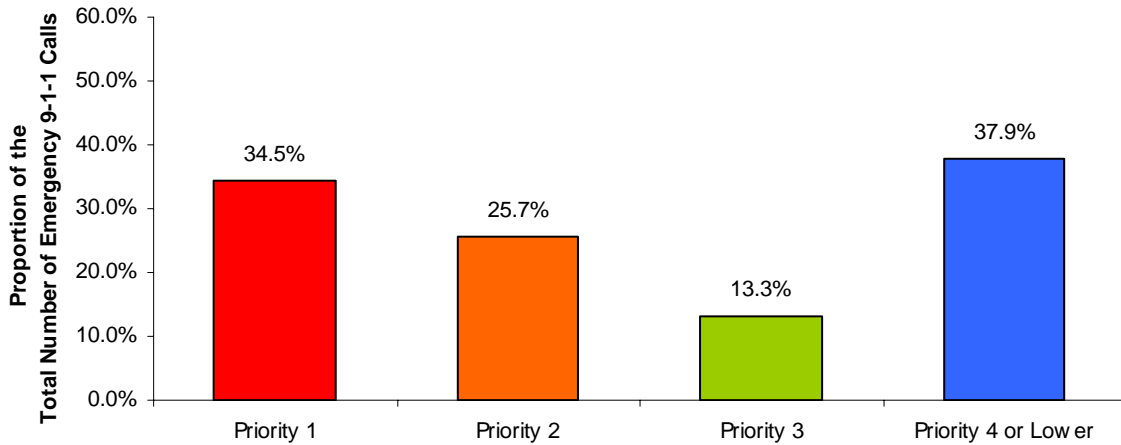
Out of the 22,855 9-1-1 calls dispatched to regular patrol units in District 1 between 2005-06-01 and 2006-05-31, at least 5,913 (25.9%) involved a criminal offence. Among others, 967 out of the 2,611 priority 1 9-1-1 calls, 1,619 out of the 4,779 priority 2 9-1-1 calls, 2,105 out of the 12,843 priority 3 9-1-1 calls and 1,222 out of the 2,622 lower priority 9-1-1 calls in District 1 involved a criminal offence. In other words, 37.0% of the priority 1 9-1-1 calls, 33.9% of the priority 2 calls, 16.4% of the priority 3 calls and 46.6% of the priority 4 calls in District 1 involved a criminal offence.

**Figure 4-41 Proportion of Emergency 9-1-1 Calls in District 1 That Involved a Criminal Offence by Priority**



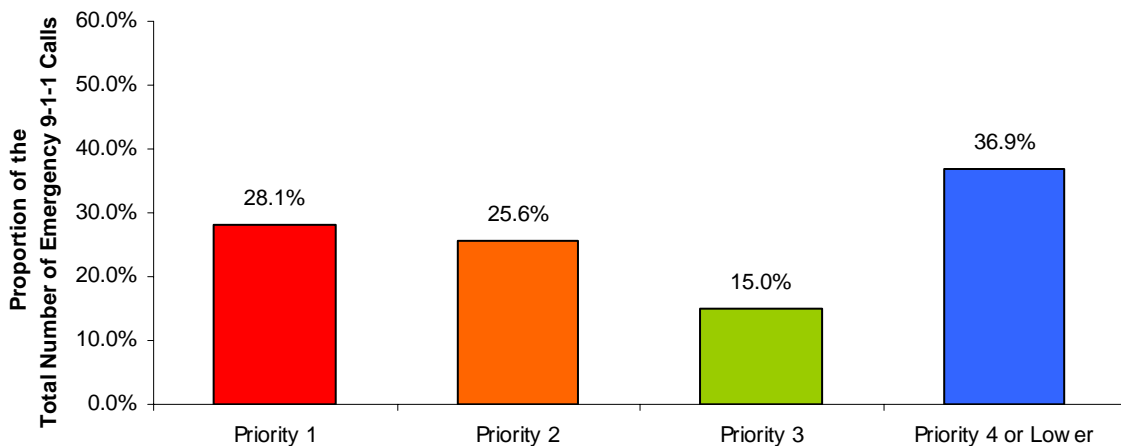
Out of the 26,577 9-1-1 calls dispatched to regular patrol units in District 2 between 2005-06-01 and 2006-05-31, at least 5,637 (21.2%) involved a criminal offence. Among others, 1,240 out of the 3,595 priority 1 9-1-1 calls, 1,458 out of the 5,675 priority 2 9-1-1 calls, 1,949 out of the 14,693 priority 3 9-1-1 calls and 990 out of the 2,614 lower priority 9-1-1 calls in District 2 involved a criminal offence. In other words, 34.5% of the priority 1 9-1-1 calls, 25.7% of the priority 2 calls, 13.3% of the priority 3 calls and 37.9% of the lower priority calls in District 2 involved a criminal offence.

**Figure 4-42 Proportion of Emergency 9-1-1 Calls in District 2 That Involved a Criminal Offence by Priority**



Out of the 22,500 9-1-1 calls dispatched to regular patrol units in District 3 between 2005-06-01 and 2006-05-31, at least 4,984 (22.2%) involved a criminal offence. Among others, 1,118 out of the 3,985 priority 1 9-1-1 calls, 1,423 out of the 5,551 priority 2 9-1-1 calls, 1,604 out of the 10,688 priority 3 9-1-1 calls and 839 out of the 2,276 lower priority 9-1-1 calls in District 3 involved a criminal offence. In other words, 28.1% of the priority 1 9-1-1 calls, 25.6% of the priority 2 calls, 15.0% of the priority 3 calls and 36.9% of the lower priority calls in District 3 involved a criminal offence.

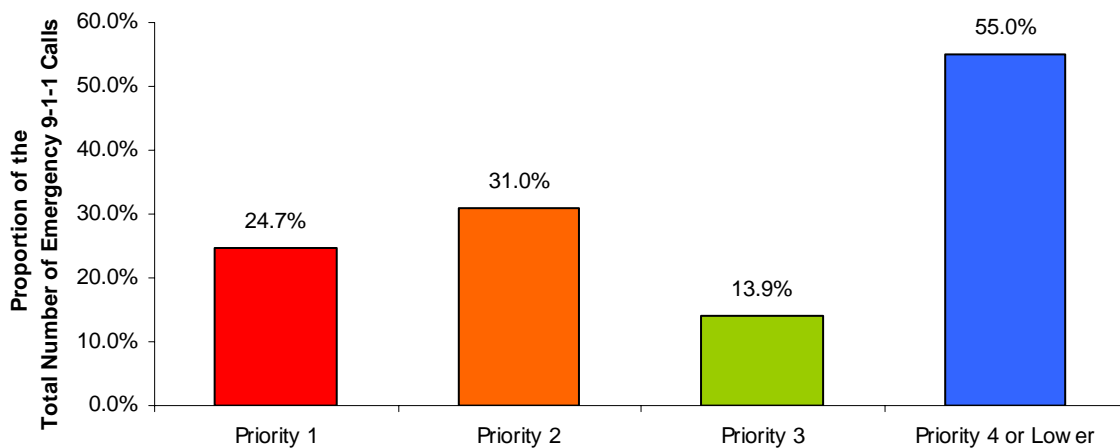
**Figure 4-43 Proportion of Emergency 9-1-1 Calls in District 3 That Involved a Criminal Offence by Priority**





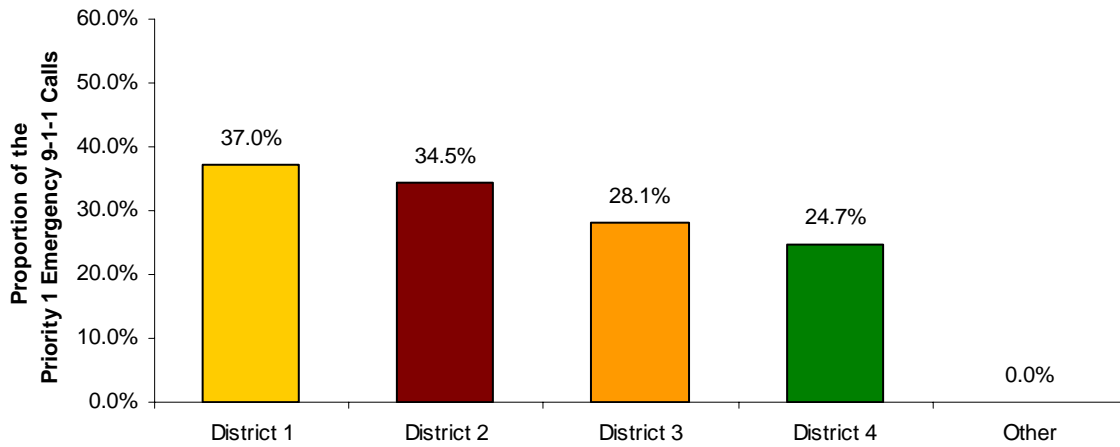
Out of the 20,316 9-1-1 calls dispatched to regular patrol units in District 4 between 2005-06-01 and 2006-05-31, at least 4,880 (24.0%) involved a criminal offence. Among others, 674 out of the 2,731 priority 1 9-1-1 calls, 1,457 out of the 4,703 priority 2 9-1-1 calls, 1,471 out of the 10,558 priority 3 9-1-1 calls and 1,278 out of the 2,324 lower priority 9-1-1 calls in District 4 involved a criminal offence. In other words, 24.7% of the priority 1 9-1-1 calls, 31.0% of the priority 2 calls, 13.9% of the priority 3 calls and 55.0% of the lower priority calls in District 4 involved a criminal offence.

**Figure 4-44 Proportion of Emergency 9-1-1 Calls in District 4 That Involved a Criminal Offence by Priority**



Interestingly, priority 1 9-1-1 calls in District 1 and District 2 were relatively more likely to involve a criminal offence than priority 1 incidents in District 3 and District 4. Overall, priority 1 incidents in District 1 were 32.0% more likely to involve a criminal offence than in District 3 and 50.1% more likely to involve a criminal offence than in District 4. For their part, priority 1 incidents in District 2 were 22.9% more likely to involve a criminal offence than in District 3 and 39.8% more likely to involve a criminal offence than in District 4.

**Figure 4-45 Proportion of Priority 1 Emergency 9-1-1 Calls That Involved a Criminal Offence by District**



As before, the differences in the proportion of priority 1 9-1-1 calls that involved a criminal offence in each patrol district can most likely be explained by the fact that:

- Regular patrol units in District 3 and District 4 handle consistently more motor vehicle incidents with injuries.
- Motor vehicle incidents with injuries are often prioritized as priority 1 calls.
- Motor vehicle incidents with injuries are most often reported using the emergency 9-1-1 system.
- Motor vehicle incidents with injuries are relatively less likely to involve a criminal offence compared to other types of calls.

Between 2005-06-01 and 2006-05-31, regular patrol units in District 3 and District 4 were dispatched to respectively 1,062 and 1,186 motor vehicle incidents and approximately 76.6% of those incidents were dispatched as priority 1 9-1-1 calls. By contrast, over the same period, regular patrol units in District 1 and District 2 were dispatched to only 519 and 597 motor vehicle incidents respectively (approximately 74.0% of those incidents were dispatched as priority 1 9-1-1 calls).

Once motor vehicle incidents with injuries are excluded, priority 1 9-1-1 calls in District 1 are only 24.4% more likely to involve a criminal offence than in District 3 and 20.1% more likely to involve a criminal offence than in District 4. Moreover, priority 1 incidents

in District 2 are 12.3% more likely to involve a criminal offence than in District 3 and 8.4% more likely to involve a criminal offence than in District 4 when motor vehicle incidents with injuries are excluded.

#### **4.4 ON-VIEW CALLS**

Among the most common on-view calls handled by regular patrol units, there were 1,231 instances where a regular patrol unit assisted the general public, 1,601 instances where a regular patrol unit identified individuals who were breaching a court order and 992 instances where VPD officers checked someone's welfare. Regular patrol units also witnessed 592 fights, 1,008 motor vehicle incidents (including 181 accidents with injuries and 51 hit and run), 1,499 suspicious circumstances, 718 suspicious persons and 416 suspicious vehicles. Finally, regular patrol units located 664 stolen vehicles, seized or recovered stolen property on 2,389 different instances, served 2,461 traffic suspensions and enforced a minimum of 5,241 warrants.

The most serious on-view incidents included:

- 325 assault cases (including 43 assaults in progress, 14 assaults with a weapon and 7 assaults with a weapon in progress);
- 187 possible impaired drivers;
- 115 hazardous situations;
- 89 robberies (including 23 robberies in progress and 3 robberies with a weapon in progress);
- 81 domestic situations (including 24 domestic situations in progress and 1 domestic violence situation);
- 34 car thefts (including 2 car thefts in progress);
- 30 vehicle pursuits;
- 27 sexual assault cases;
- 15 foot pursuits (including one incident where three home invasion suspects fled on foot but were ultimately tracked down);
- 14 arson cases (including 2 arsons in progress);

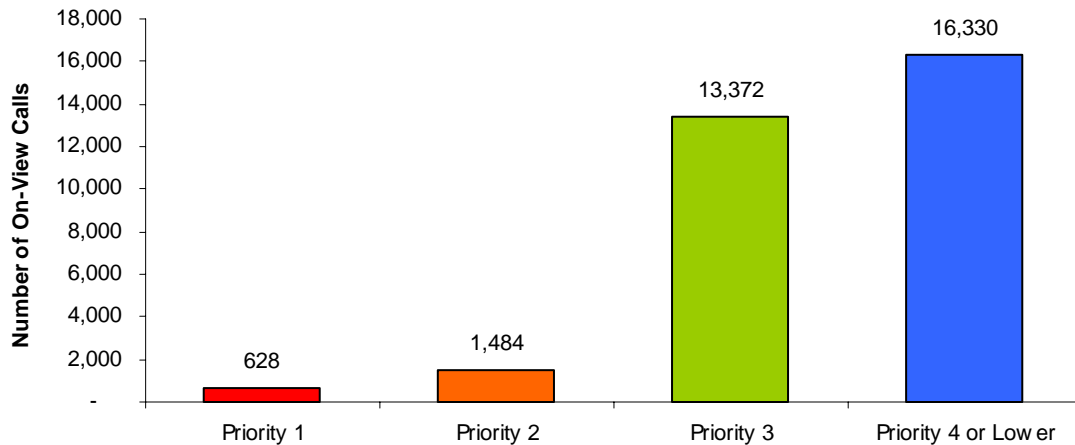
- 5 instances where shots were heard (including at least one incident where the patrol unit was able to retrieve shell casings from the scene 2006-78414);
- 4 overdoses (including at least one drug overdose that occurred at the Vancouver Aquatic Centre where the paramedics acknowledged that the victim would have died in the following 15 to 30 minutes had the officers not found her 2005-163762);
- 2 jumpers (at the Sheraton Wall Centre and on the Cambie Bridge);
- 2 shots fired incidents (including one incident which involved an aggravated assault 2005-232378 and one gang-related incident 2005-200755);
- 1 bomb threat.

**Table 4-18 Number of On-View Calls by Call Type**

<b>Call Type</b>	<b>Number of Calls</b>
WARRANT	5,241
TRAFFIC SUSPENSION	2,461
ARREST	2,323
BREACH COURT ORDER	1,601
SUSPICIOUS OTHER CIRCUMSTANCES	1,499
PROPERTY SEIZED	1,376
ASSIST GENERAL PUBLIC	1,231
PROPERTY RECOVERED	1,013
CHECK WELFARE	992
INTELLIGENCE INFORMATION	742
SUSPICIOUS PERSON	718
THEFT VEHICLE LOCATED	664
SIPP/DIPP	641
MVI	633
FIGHT	592
LIQUOR ACT/LICENSED PREMISES CHECK	548
ANNOYING CIRCUMSTANCES	458
SUSPICIOUS VEHICLE	416
DISTURBANCE PARTY	412
DRUGS	275
ASSAULT	261
THEFT	257
ASSIST PROVINCIAL AMBULANCE	234
LPC	232
DISTURBANCE NOISE	213
MVI INJURY	181
ASSIST OTHER AGENCY	171
THEFT FROM VEHICLE	161
MISCHIEF	148
BREAK AND ENTER	126
HAZARDOUS SITUATION	115
OTHER	5,879
<b>Total</b>	<b>31,814</b>

Among the 31,814 on-view calls handled by regular patrol units between 2005-06-01 and 2006-05-31, there were a total of 628 urgent priority 1 calls, 1,484 priority 2 calls, 13,372 priority 3 calls and 16,327 lower priority calls.

**Figure 4-46 Number of On-View Calls by Priority**



Priority 1 on-view calls included 181 motor vehicle incidents with injuries, 51 incidents in progress involving a weapon, 43 assaults in progress, 30 vehicle pursuits, 28 robberies, 24 screams, 24 domestic situations in progress, 15 foot pursuits and 8 suicidal persons.

Priority 2 on-view calls included 592 fights, 470 man down calls, 56 domestic situations, 51 hit and run (including several that resulted in a criminal investigation or that involved criminal charges), 33 thefts in progress and 17 break and enters in progress.

Routine priority 3 on-view calls included 1,490 suspicious circumstances, 1,230 requests for assistance from the general public, 990 welfare checks, 716 suspicious persons, 632 motor vehicle incidents, 458 annoying circumstances, 413 suspicious vehicles, 412 disturbing parties and 115 hazardous situations.

Lower priority on-view calls (e.g. priority 4 calls) included 2,453 traffic suspensions or driving prohibitions, 2,318 general arrests, 780 license premises checks or infractions to the Liquor Act, 640 individuals intoxicated in a public place, 456 thefts (including 32 vehicle thefts) and 148 mischiefs.

**Table 4-19 Number of On-View Calls by Priority and Call Type**

<b>Call Type</b>		<b>Total</b>
PRIORITY 1	MVI INJURY	181
	WEAPON IN PROGRESS	51
	ASSAULT IN PROGRESS	43
	PURSUIT VEHICLE	30
	DOMESTIC IN PROGRESS	24
	DISTURBANCE SCREAMING	24
	ROBBERY IN PROGRESS	21
	PURSUIT FOOT	15
	SUICIDAL PERSON	8
	ASSAULT WITH WEAPON IN PROGRESS	7
	ROBBERY WITH A WEAPON	5
	MISSING CHILD	4
	SHOTS FIRED	2
	ROBBERY WITH WEAPON IN PROGRESS	2
	JUMPER	2
	ARSON IN PROGRESS	2
	ASSAULT	1
	BOMB THREAT	1
	DOMESTIC WITH VIOLENCE	1
	EXPLOSIVES	1
	SUSPICIOUS PERSON	1
	SUSPICIOUS VEHICLE	1
	THEFT FROM VEHICLE	1
	WEAPON	1
	OTHER	199
	<b>PRIORITY 1</b>	<b>628</b>

PRIORITY 2	FIGHT	592
	MAN DOWN	470
	MVI POLICE VEHICLE	141
	DOMESTIC REPORT	56
	MVI HIT AND RUN	51
	MISCHIEF IN PROGRESS	35
	THEFT IN PROGRESS	33
	IMPAIRED DRIVER POSSIBLE	18
	BREAK AND ENTER IN PROGRESS	17
	VIOLENT PERSON	9
	INDECENT ACT IN PROGRESS	6
	SUSPICIOUS OTHER CIRCUMSTANCES	5
	SHOTS HEARD	5
	OVERDOSE	4
	FRAUD IN PROGRESS	3
	THEFT OF VEHICLE IN PROGRESS	2
	SUSPICIOUS VEHICLE	2
	ROBBERY IN PROGRESS	2
	ROBBERY WITH WEAPON IN PROGRESS	1
	ROBBERY	1
SHOPLIFTER VIOLENT	1	
SUICIDAL PERSON	1	
ASSAULT SEXUAL	1	
OTHER	28	
<b>PRIORITY 2</b>	<b>1,484</b>	

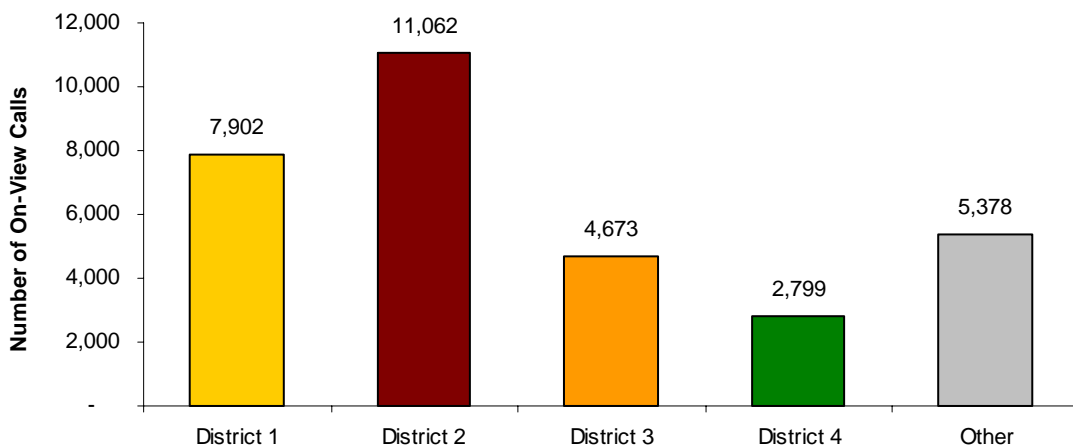
PRIORITY 3	BREACH COURT ORDER	1,597
	SUSPICIOUS OTHER CIRCUMSTANCES	1,490
	ASSIST GENERAL PUBLIC	1,230
	CHECK WELFARE	990
	SUSPICIOUS PERSON	716
	THEFT VEHICLE LOCATED	661
	MVI	632
	ANNOYING CIRCUMSTANCES	458
	SUSPICIOUS VEHICLE	413
	DISTURBANCE PARTY	412
	ASSAULT	260
	ASSIST PROVINCIAL AMBULANCE	234
	FOUND PERSON	213
	DISTURBANCE NOISE	213
	ASSIST OTHER AGENCY	170
	OTHER	3,683
	<b>PRIORITY 3</b>	<b>13,372</b>



PRIORITY 4	WARRANT	5,187
	TRAFFIC SUSPENSION	2,453
	ARREST	2,318
	PROPERTY SEIZED	1,376
	PROPERTY RECOVERED	1,012
	INTELLIGENCE INFORMATION	740
	SIPP/DIPP	640
	LIQUOR ACT/LICENSED PREMISES CHECK	780
	DRUGS	275
	THEFT	257
	IMPAIRED DRIVER	168
	THEFT FROM VEHICLE	160
	MISCHIEF	148
	BREAK AND ENTER	125
	OTHER	691
	<b>PRIORITY 4 AND LOWER</b>	<b>16,330</b>
	<b>Total</b>	<b>31,814</b>

Among the 31,814 on-view calls handled by regular patrol units between 2005-06-01 and 2006-05-31, 7,902 on-view calls originated from District 1, 11,062 on-view calls originated from District 2, 4,673 on-view calls originated from District 3 and 2,799 on-view calls originated from District 4. A total of 5,378 on-view calls could not be attributed to any particular patrol district.

**Figure 4-47 Number of On-View Calls by District**



Between 2005-06-01 and 2006-05-31, patrol units in District 1 handled a total of 154 priority 1, 522 priority 2, 3,008 priority 3 and 4,218 priority 4 on-view calls.

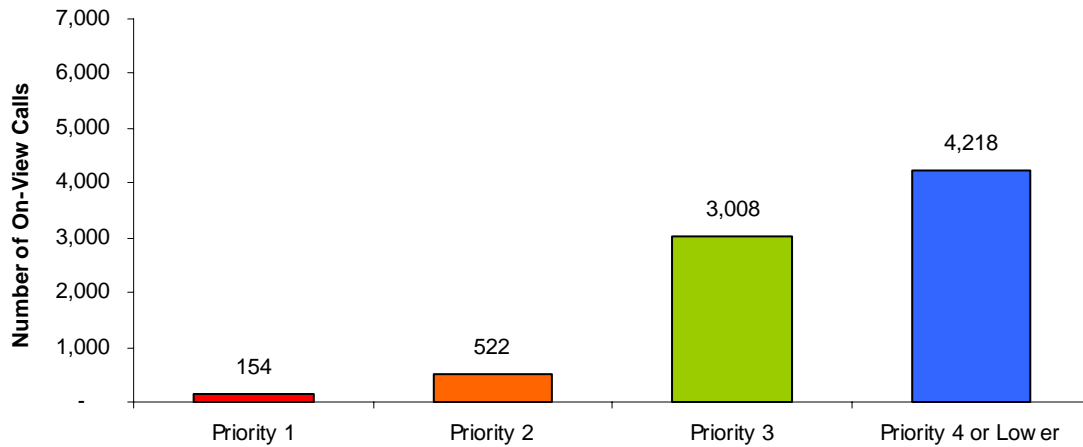
The priority 1 on-view calls in District 1 included 26 motor vehicle incidents with injuries (including one fatal incident), 18 weapon-related incidents in progress (including 2 aggravated assaults), 27 assaults in progress (including 7 aggravated assaults and one road rage incident), 8 domestic situations in progress (including one incident which involved an aggravated assault), 12 robberies (including 4 robberies with a weapon) and 2 shootings (including one which involved an aggravated assault).

The priority 2 on-view calls in District 1 included 287 fights (including 5 that involved an aggravated assault), 22 domestic situations (including 2 incidents that involved an aggravated assault), 11 hit and run (including one incident that involved an impaired driver), 13 mischiefs, 14 thefts in progress and at least 2 commercial break and enters in progress.

The priority 3 on-view calls in District 1 included, among others, 311 court order breaches (including at least 93 bail violations, 48 probation breaches and at least 24 additional drug-related offences), 273 requests for assistance from the general public, 256 annoying circumstances, 238 suspicious circumstances (including 6 incidents which involved a weapon-related offence), 180 suspicious persons, 164 disturbing parties, 116 motor vehicle incidents (including 4 incidents that involved an impaired driver) and 103 welfare checks.

The priority 4 on-view incidents in District 1 included 986 warrants (including at least 25 that were drug-related), 613 arrests (including at least 202 drug-related arrests), 493 traffic suspensions (including 365 incidents involving an impaired driver), 487 licensed premises checks, 479 incidents where property was seized or recovered (including 5 incidents involving counterfeit currency, at least 110 drug-related cases and 68 weapon-related cases) and 316 intelligence calls (including at least 197 that led to a formal intelligence report, of which 92 were gang-related and 47 were drug-related).

**Figure 4-48 Number of On-View Calls in District 1 by Priority**



Between 2005-06-01 and 2006-05-31, patrol units in District 2 handled a total of 151 priority 1, 522 priority 2, 4,375 priority 3 and 6,014 lower priority on-view calls.

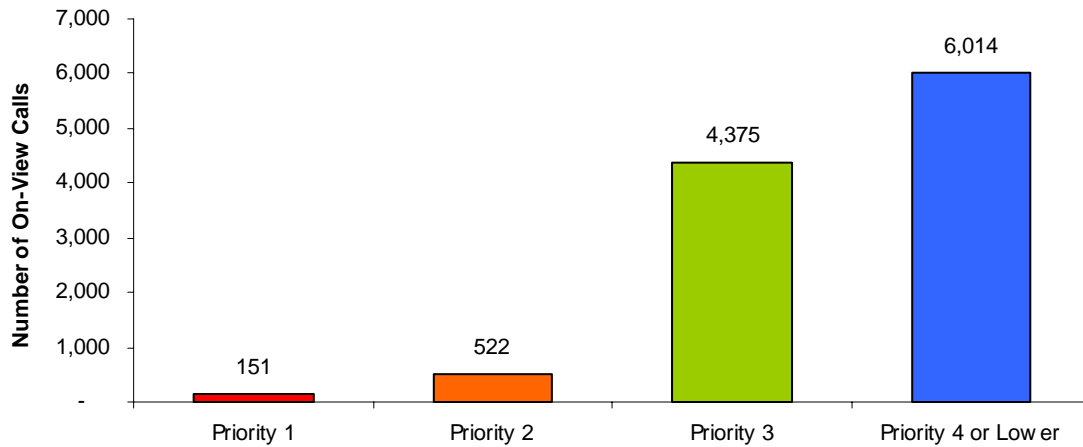
The priority 1 on-view calls in District 2 included 41 motor vehicle incidents with injuries (including one road rage incident), 20 weapon-related incidents (including 9 incidents that involved aggravated assaults and one incident that turned out to be a robbery with a weapon), 14 assaults in progress (including one attempted murder and 5 aggravated assaults), 11 robberies (including 3 robberies with a weapon) and one arson in progress. In one chilling incident, a witness to a violent assault flagged down 2 BET officers after she jumped out of a second floor window (incident VA2006-76856). When the officers arrived at the scene of the incident, they found that one violent individual armed with a kitchen knife had stabbed one female victim and chopped off some of the second victim's hair. Ultimately, the assailant was charged with unlawful confinement and assault.

The priority 2 on-view calls in District 2 included 170 fights (including 4 that involved an aggravated assault), 16 domestic situations (including one incident that involved an aggravated assault), 15 hit and run, 11 thefts in progress, 8 mischiefs and at least 6 break and enters in progress.

The priority 3 on-view calls in District 2 included, among others, 776 court order breaches (including at least 243 bail violations, 96 probation breaches and at least 36 additional drug-related incidents), 602 suspicious circumstances (including 2 incidents which turned out to be commercial break and enters, 3 frauds, at least 8 weapon-related incidents, 11 gang-related incidents, 54 drug-related incidents, one forcible confinement case, one road rage incident and one attempted murder), 446 requests for assistance from the general public, 265 welfare checks (including at least one check that revealed a child abuse case), 182 suspicious persons (including one aggravated assault, one incident that involved a possible sexual assault and one incident that turned out to be a commercial break and enter), 165 disturbing parties, 135 motor vehicle incidents (including 6 incidents that involved an impaired driver) and 132 requests for assistance from the provincial ambulance service (including 4 incidents that involved an aggravated assault).

The priority 4 on-view incidents in District 2 included 2,296 warrants (including at least 54 that were drug-related), 1,026 arrests (including at least 582 drug-related arrests, of which 499 were for possession or trafficking of cocaine), 793 traffic suspensions (including 553 incidents involving an impaired driver), 973 incidents where property was seized or recovered (including 12 incidents involving counterfeit currency, at least 277 drug-related cases and 148 weapon-related cases), 201 persons intoxicated in a public place, 116 additional drug-related calls (including 79 incidents involving the possession or the trafficking of cocaine) and 109 intelligence calls (including at least 52 that led to a formal intelligence report, of which at least 10 were gang-related and 22 were drug-related).

**Figure 4-49 Number of On-View Calls in District 2 by Priority**



Between 2005-06-01 and 2006-05-31, patrol units in District 3 handled a total of 144 priority 1, 130 priority 2, 2,267 priority 3 and 2,132 priority 4 on-view calls.

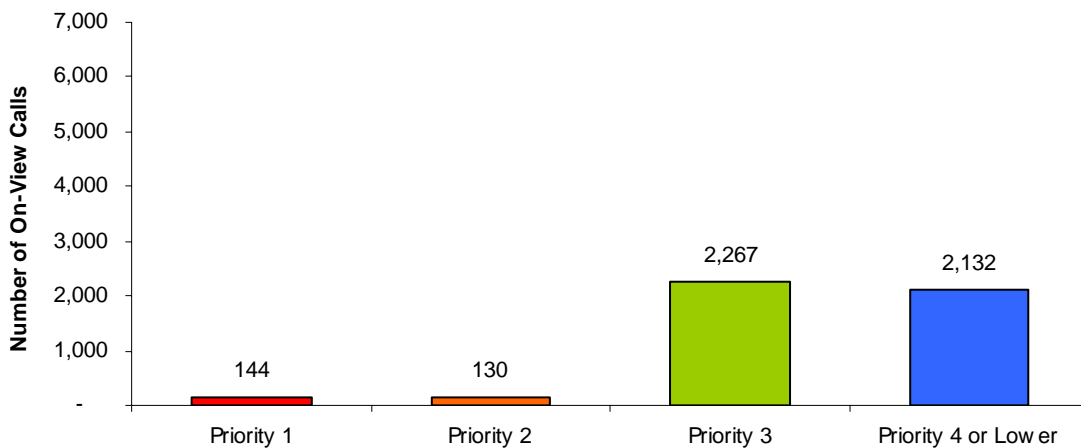
The priority 1 on-view calls in District 3 included 46 motor vehicle incidents with injuries (including one fatal accident and at least 3 hit and run), 7 domestic situations in progress, 6 weapon-related incidents in progress (including one incident which led to an aggravated assault), 4 assaults in progress (including one aggravated assault and one armed robbery), 3 robberies (including one armed robbery) and one arson in progress.

The priority 2 on-view calls in District 3 included 38 men down, 25 fights, 11 hit and run (including at least one incident which involved an impaired driver), 9 domestic situations (including one child abuse case), 3 mischiefs in progress, 2 commercial break and enters in progress and one sexual assault.

The priority 3 on-view calls in District 3 included, among others, 362 welfare checks, 263 suspicious circumstances, 192 court order breaches (including at least 67 bail violations, 23 probation breaches and at least 12 additional drug-related incidents), 143 requests for assistance from the general public, 135 motor vehicle incidents (including 6 incidents that involved an impaired driver), 133 suspicious vehicles and 105 suspicious persons.

The priority 4 on-view incidents in District 3 included 853 warrants, 449 traffic suspensions (including 288 incidents involving an impaired driver), 250 incidents where property was seized or recovered (including 2 incidents involving counterfeit currency, at least 54 drug-related cases and 46 weapon-related cases), 193 arrests (including at least 49 drug-related arrests), 138 intelligence calls (including at least 86 that led to a formal intelligence report, of which at least 27 were gang-related and 27 were drug-related) and 35 persons intoxicated in a public place.

**Figure 4-50 Number of On-View Calls in District 3 by Priority**



Between 2005-06-01 and 2006-05-31, patrol units in District 4 handled a total of 79 priority 1, 110 priority 2, 1,240 priority 3 and 1,370 priority 4 on-view calls.

The priority 1 on-view calls in District 4 included 42 motor vehicle incidents with injuries, 5 weapon-related incidents in progress (including one incident which led to an aggravated assault), 4 domestic situations in progress, one assault in progress, one armed robbery in progress and one child who was reported missing at the Honda Dealership in the 800 block of South-West Marine Drive but was found less than one hour later hiding in the trunk of a car in the lot (incident VA2005-169066).

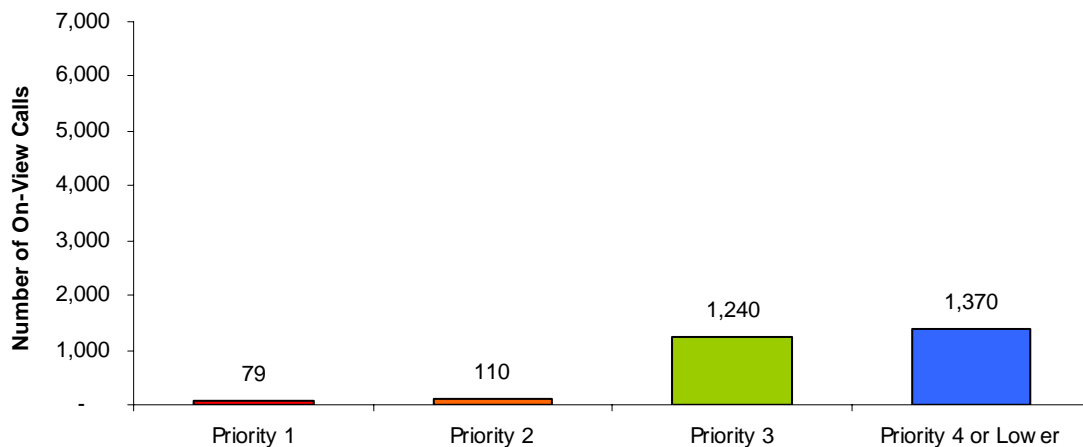
The priority 2 on-view calls in District 4 included 26 men down, 22 fights, 9 hit and run, 7 mischiefs in progress, 6 domestic situations (including one incident which led to an

aggravated assault), 4 impaired drivers, 3 commercial break and enters in progress, one violent person, one shooting and one indecent act in progress.

The priority 3 on-view calls in District 4 included, among others, 154 suspicious circumstances (including one incident that turned out to be an aggravated assault and one road rage incident), 117 motor vehicle incidents (including 3 incidents that involved an impaired driver, one hit and run and one road rage incident), 106 suspicious persons, 106 requests for assistance from the general public and 72 court order breaches (including 16 bail violations and 15 probation breaches).

The priority 4 on-view incidents in District 4 included 431 traffic suspensions (including 330 incidents involving an impaired driver), 261 warrants, 213 incidents where property was seized or recovered (including at least 17 drug-related cases and 18 weapon-related cases), 116 arrests, 58 intelligence calls (including at least 26 that led to a formal intelligence report, of which at least 8 were gang-related and 4 were drug-related) and 34 persons intoxicated in a public place.

**Figure 4-51 Number of On-View Calls in District 4 by Priority**



**Table 4-20 Number of On-View Calls by District and by Priority**

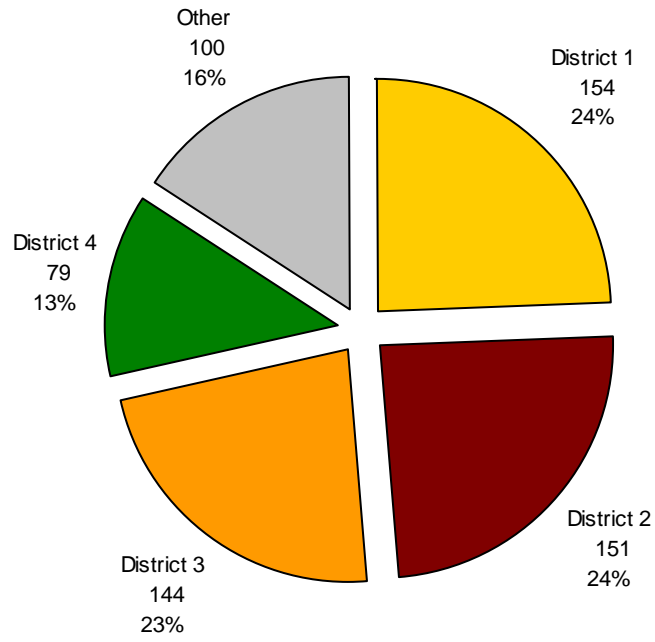
<b>District</b>	<b>Priority 1 Calls</b>	<b>Priority 2 Calls</b>	<b>Priority 3 Calls</b>	<b>Priority 4 Calls</b>	<b>Total</b>
District 1	154	522	3,008	4,218	<b>7,902</b>
District 2	151	522	4,375	6,014	<b>11,062</b>
District 3	144	130	2,267	2,132	<b>4,673</b>
District 4	79	110	1,240	1,370	<b>2,799</b>
Other	100	200	2,482	2,596	<b>5,378</b>
<b>Total</b>	<b>628</b>	<b>1,484</b>	<b>13,372</b>	<b>16,330</b>	<b>31,814</b>

Between 2005-06-01 and 2006-05-31, regular patrol units in District 1 handled the second largest number of on-view calls after District 2. In particular, regular patrol units in District 1 handled more on-view calls than District 3 and District 4 combined. When compared to regular patrol units in District 2, the regular patrol units in District 1 also handled slightly more priority 1 on-view calls and the same number of priority 2 on-view calls. Regular patrol units in District 1 and District 2 respectively handled 46.0% and 45.4% more priority 1 and 2 on-view calls than District 3 and District 4 combined.

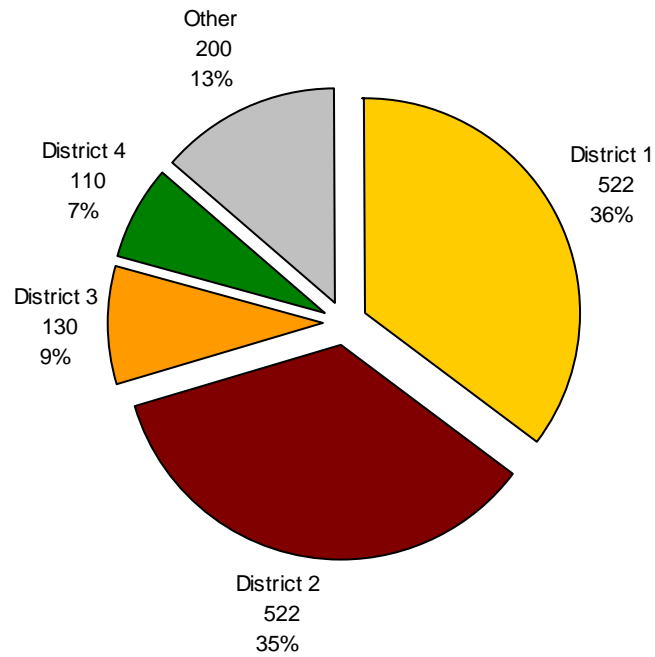
Between 2005-06-01 and 2006-05-31, more on-view calls were dispatched to regular patrol units in District 2 than in any other patrol district. Compared to regular patrol units in District 1, regular patrol units in District 2 were dispatched to 45.4% more priority 3 on-view calls and 42.6% more lower priority on-view calls.



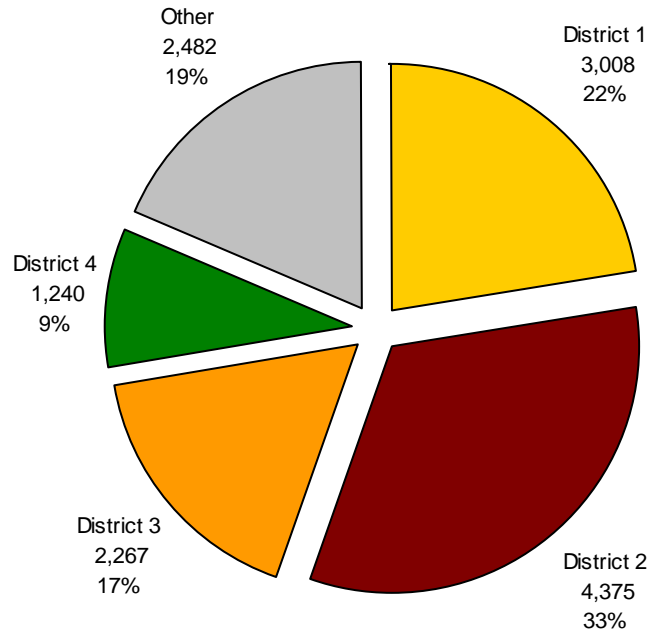
**Figure 4-52 Number of Priority 1 On-View Calls by District**



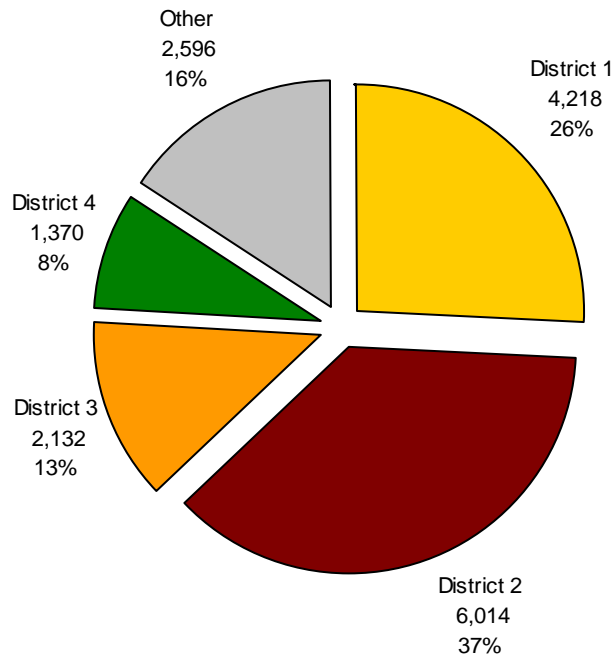
**Figure 4-53 Number of Priority 2 On-View Calls by District**



**Figure 4-54 Number of Priority 3 On-View Calls by District**

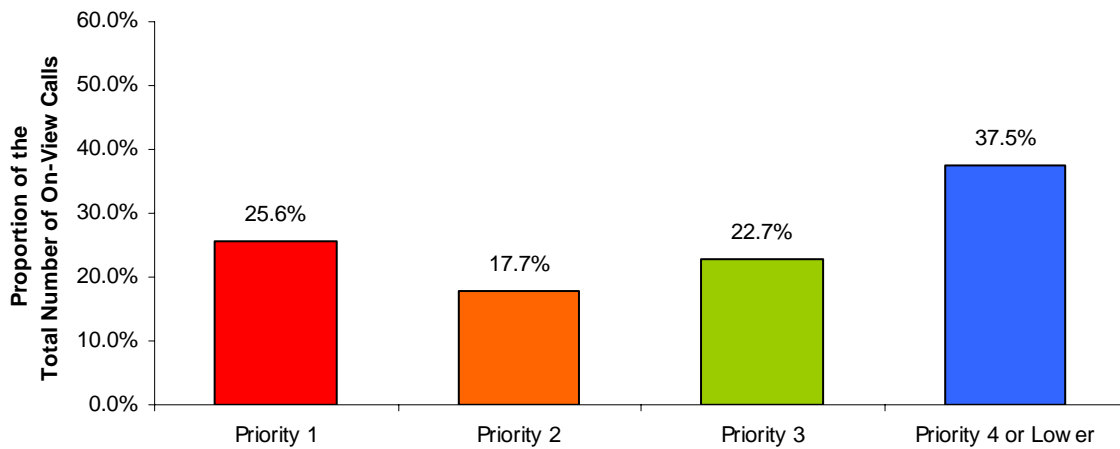


**Figure 4-55 Number of Priority 4 On-View Calls by District**



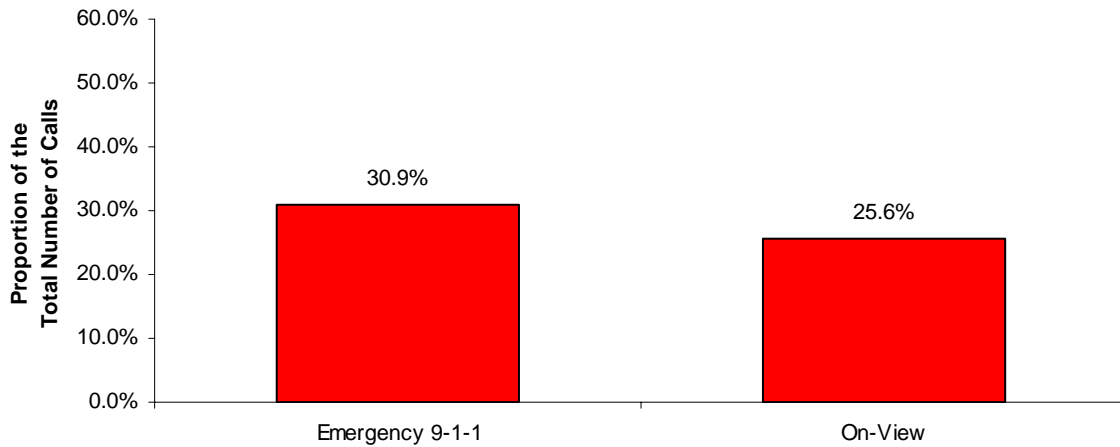
Overall, between 2005-06-01 and 2006-05-31, approximately 9,585 incidents out of the 31,814 on-view incidents dispatched to regular patrol units involved a criminal offence (30.1% of all on-view calls). Among others, 161 out of the 628 priority 1 on-view calls, 263 out of the 1,484 priority 2 on-view calls, 3,033 out of the 13,372 priority 3 on-view calls and 6,128 out of the 16,330 lower priority on-view calls involved a criminal offence. In other words, 25.6% of the priority 1 on-view calls, 17.7% of the priority 2 on-view calls, 22.7% of the priority 3 on-view calls and 37.5% of the priority 4 on-view calls involved a criminal offence.

**Figure 4-56 Proportion of On-View Calls That Involved a Criminal Offence by Priority**



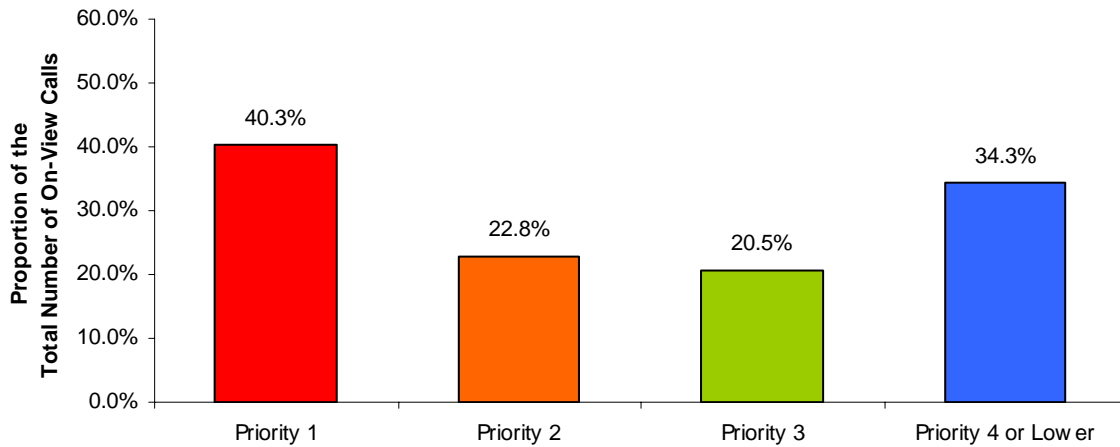
Citywide, priority 1 on-view incidents were slightly less likely than priority 1 9-1-1 calls to involve a criminal offence.

**Figure 4-57 Proportion of Priority 1 Emergency 9-1-1 and On-View Calls That Involved a Criminal Offence**



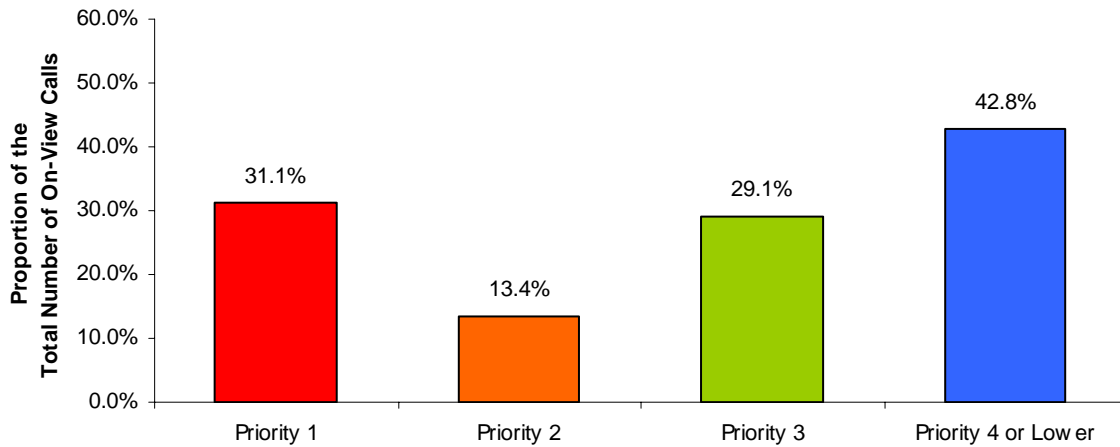
Out of the 7,902 on-view calls dispatched to regular patrol units in District 1 between 2005-06-01 and 2006-05-31, at least 2,245 (28.4%) involved a criminal offence. Among others, 62 out of the 154 priority 1 on-view calls, 119 out of the 522 priority 2 on-view calls, 618 out of the 3,008 priority 3 on-view calls and 1,446 out of the 4,218 lower priority on-view calls in District 1 involved a criminal offence. In other words, 40.3% of the priority 1 on-view calls, 22.8% of the priority 2 on-view calls, 20.5% of the priority 3 on-view calls and 34.3% of the priority 4 on-view calls in District 1 involved a criminal offence.

**Figure 4-58 Proportion of On-View Calls in District 1 That Involved a Criminal Offence**



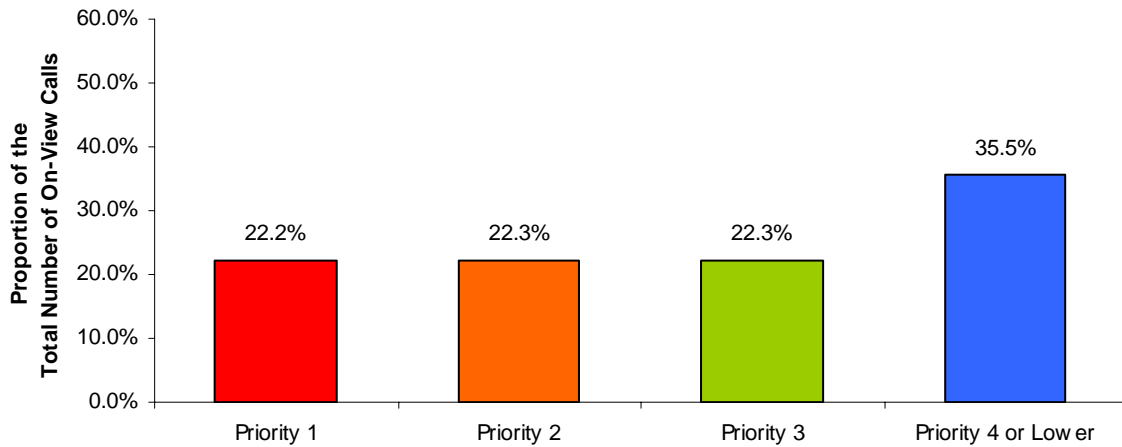
Out of the 11,062 on-view calls dispatched to regular patrol units in District 2 between 2005-06-01 and 2006-05-31, at least 3,961 (35.8%) involved a criminal offence. Among others, 47 out of the 151 priority 1 on-view calls, 70 out of the 522 priority 2 on-view calls, 1,272 out of the 4,375 priority 3 on-view calls and 2,572 out of the 6,014 lower priority on-view calls in District 2 involved a criminal offence. In other words, 31.1% of the priority 1 on-view calls, 13.4% of the priority 2 on-view calls, 29.1% of the priority 3 on-view calls and 42.8% of the priority 4 on-view calls in District 2 involved a criminal offence.

**Figure 4-59 Proportion of On-View Calls in District 2 That Involved a Criminal Offence**



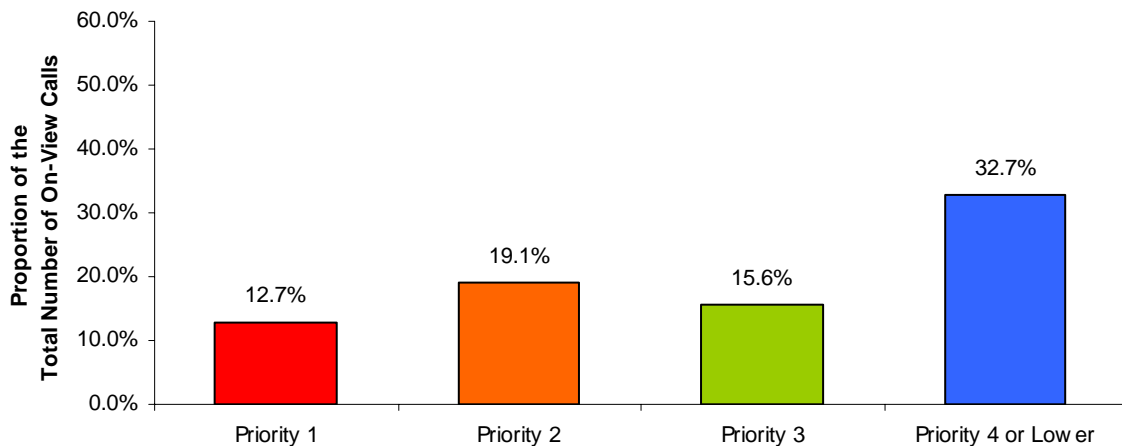
Out of the 4,673 on-view calls dispatched to regular patrol units in District 3 between 2005-06-01 and 2006-05-31, at least 1,324 (28.3%) involved a criminal offence. Among others, 32 out of the 144 priority 1 on-view calls, 29 out of the 130 priority 2 on-view calls, 506 out of the 2,267 priority 3 on-view calls and 757 out of the 2,132 lower priority on-view calls in District 3 involved a criminal offence. In other words, 22.2% of the priority 1 on-view calls, 22.3% of the priority 2 on-view calls, 22.3% of the priority 3 on-view calls and 35.5% of the priority 4 on-view calls in District 3 involved a criminal offence.

**Figure 4-60 Proportion of On-View Calls in District 3 That Involved a Criminal Offence**



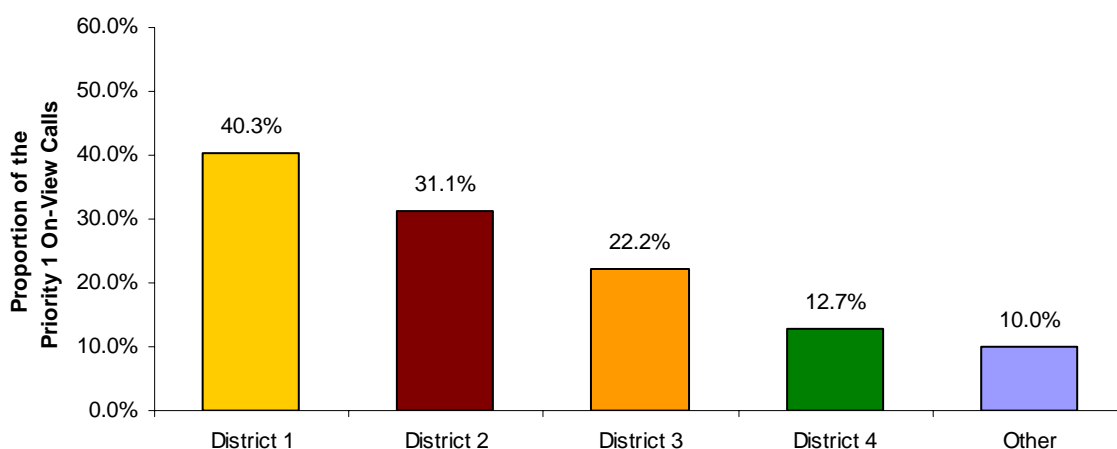
Out of the 2,799 on-view calls dispatched to regular patrol units in District 4 between 2005-06-01 and 2006-05-31, at least 672 (24.0%) involved a criminal offence. Among others, 10 out of the 79 priority 1 on-view calls, 21 out of the 110 priority 2 on-view calls, 193 out of the 1,240 priority 3 on-view calls and 448 out of the 1,370 lower priority on-view calls in District 4 involved a criminal offence. In other words, 12.7% of the priority 1 on-view calls, 19.1% of the priority 2 on-view calls, 15.6% of the priority 3 on-view calls and 32.7% of the priority 4 on-view calls in District 4 involved a criminal offence.

**Figure 4-61 Proportion of On-View Calls in District 4 That Involved a Criminal Offence**



As for 9-1-1 calls, priority 1 on-view incidents in District 1 and District 2 are more likely to involve a criminal offence than priority 1 on-view incidents in District 3 and District 4. Overall, priority 1 incidents in District 1 are 81.2% more likely to involve a criminal offence than in District 3 and 218.1% more likely to involve a criminal offence than in District 4. For their part, priority 1 incidents in District 2 are 40.1% more likely to involve a criminal offence than in District 3 and 145.9% more likely to involve a criminal offence than in District 4.

**Figure 4-62 Proportion of Priority 1 On-View Calls That Involved a Criminal Offence by District**



In the case of on-view incidents, differences in the proportion of priority 1 calls that involved a criminal offence in each patrol district can be explained by the fact that:

- Between 2005-06-01 and 2006-05-31, most of the on-view assaults in progress, robberies in progress and weapons in progress prioritized as priority 1 incidents were recorded in District 1 and in District 2. For instance, 41 out of the 50 on-view assaults in progress handled by regular patrol units occurred in District 1 or District 2. Similarly, 21 out of the 23 on-view robberies in progress and 38 out of the 52 on-view weapon incidents handled by regular patrol units were recorded in District 1 or District 2. Overall, District 1 and District 2 shared 80.0% of all priority 1 on-view assaults in progress, robberies in progress and weapons in progress handled by regular patrol units between 2005-06-01 and 2006-05-31.



- Intuitively, assaults in progress, robberies in progress and weapons in progress are relatively more likely to involve a criminal offence than the remaining types of on-view incidents. Between 2005-06-01 and 2006-05-31, 87 on-view assaults in progress, robberies in progress and weapons in progress turned out to involve a criminal offence (69.6% of all the recorded incidents). By contrast, only 25.6% of all on-view priority 1 incidents involved a criminal offence.

## **4.5 NON-EMERGENCY CALLS**

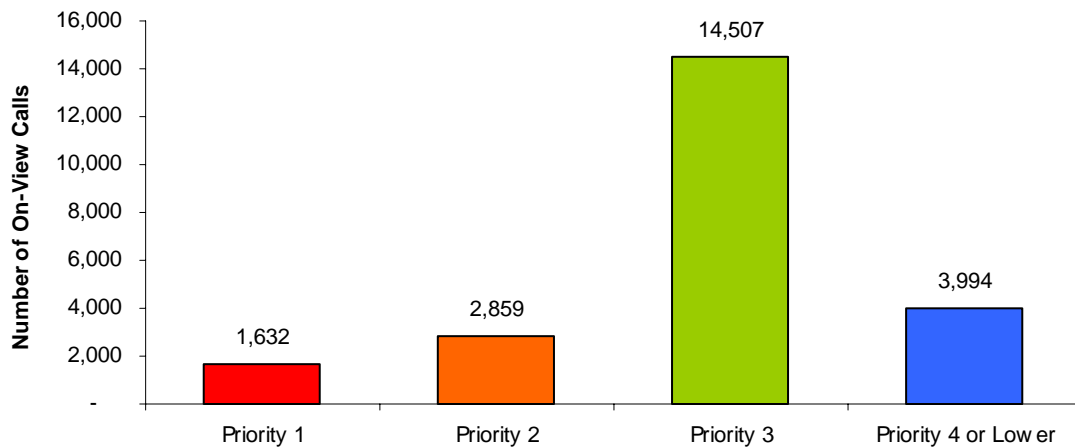
Out of the 22,992 non-emergency calls for service handled by regular patrol units between 2005-06-01 and 2006-05-31, 3,658 (15.9%) were alarms, 3,536 (15.4%) were disturbance calls and 1,901 (8.3%) were suspicious circumstances. A large part of the remaining non-emergency calls were requests for assistance from other agencies (3,009 calls or 13.1%), reports of break and enters (1,142 or 5.0%), thefts (996 or 4.3%) and motor vehicle incidents (749 calls of 3.3%).

Among the most common non-emergency telephone calls handled by regular patrol units, there were 2,916 alarms, 1,878 annoying circumstances, 1,154 requests for assistance from the general public, 1,142 break and enters, 977 noise complaints, 834 suspicious persons and 650 suspicious circumstances.

As expected, most of the non-emergency calls for service dispatched to regular patrol units were relatively less serious than the emergency 9-1-1 calls. This is reflected by the fact that most non-emergency calls for service were associated with a lower priority level.

Among the 22,992 non-emergency telephone calls handled by regular patrol units between 2005-06-01 and 2006-05-31, there were a total of 1,632 urgent priority 1 calls, 2,859 priority 2 calls, 14,507 priority 3 calls and 3,994 lower priority calls.

**Figure 4-63 Number of Telephone Calls by Priority**



Common priority 1 telephone calls included, among others, 497 motor vehicle incidents with injuries, 323 hold-up alarms, 186 domestic situations in progress or with violence, 140 assaults in progress, 113 suicidal persons, 84 weapon-related incidents in progress and 52 robberies (including 19 robberies with a weapon).

Priority 2 non-emergency telephone calls included, among others, 417 silent or panic alarms, 134 fights, 130 domestic situations, 127 thefts in progress, 114 break and enters in progress and 93 suspicious circumstances.

Routine priority 3 non-emergency telephone calls included, among others, 2,860 alarms, 1,859 annoying circumstances, 1,038 requests for assistance from the general public, 969 noise complaints, 729 suspicious persons, 522 suspicious circumstances, 459 requests for assistance from the provincial ambulance service, 432 unwanted persons, 401 suspicious vehicles, 392 requests for assistance from other agencies, 354 threats, 325 shoplifters, 299 assaults and 231 disturbing parties.

Lower priority non-emergency telephone calls (e.g. priority 4 calls) included, among others, 960 break and enters, 471 warrants, 339 intelligence calls, 321 thefts, 201 frauds and 126 mischiefs.

**Table 4-21 Number of Telephone Calls by Priority and Call Type**

<b>Call Type</b>		<b>Total</b>
<b>PRIORITY 1</b>	MVI INJURY	497
	ALARM HOLD UP	323
	DOMESTIC IN PROGRESS	179
	ASSAULT IN PROGRESS	140
	SUICIDAL PERSON	113
	WEAPON IN PROGRESS	84
	ROBBERY IN PROGRESS	34
	ALARM	25
	SUSPICIOUS OTHER CIRCUMSTANCES	21
	OTHER	216
	<b>PRIORITY 1</b>	<b>1,632</b>

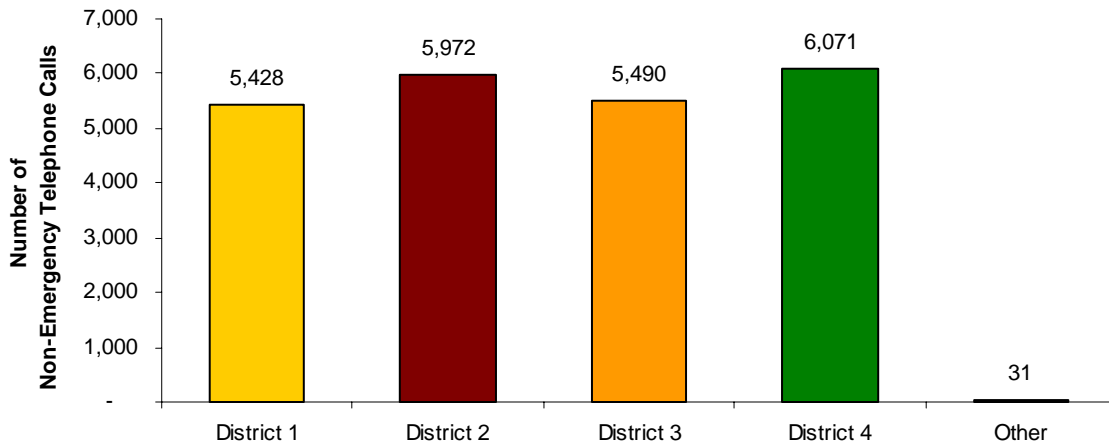
<b>PRIORITY 2</b>	ABANDONED 911	730
	ALARMS SILENT/PANIC	417
	FIGHT	134
	DOMESTIC REPORT	130
	THEFT IN PROGRESS	127
	BREAK AND ENTER IN PROGRESS	114
	SUSPICIOUS OTHER CIRCUMSTANCES	93
	ASSIST GENERAL PUBLIC	90
	MISCHIEF IN PROGRESS	87
	SUSPICIOUS PERSON	87
	OTHER	850
	<b>PRIORITY 2</b>	<b>2,859</b>

PRIORITY 3	ALARM	2,860
	ANNOYING CIRCUMSTANCES	1,859
	ASSIST GENERAL PUBLIC	1,038
	DISTURBANCE NOISE	969
	THEFT VEHICLE LOCATED	783
	ASSIST POLICE	733
	SUSPICIOUS PERSON	729
	SUSPICIOUS OTHER CIRCUMSTANCES	522
	ASSIST PROVINCIAL AMBULANCE	459
	UNWANTED PERSON	432
	SUSPICIOUS VEHICLE	401
	ASSIST OTHER AGENCY	392
	THREATS	354
	SHOPLIFTER	325
	ASSAULT	299
	DISTURBANCE PARTY	231
	HARASSMENT	228
	OTHER	1,893
<b>PRIORITY 3</b>	<b>14,507</b>	

PRIORITY 4 OR LOWER	BREAK AND ENTER	960
	WARRANT	471
	INTELLIGENCE INFORMATION	339
	THEFT	321
	PROPERTY RECOVERED	267
	FRAUD	201
	PROSTITUTION	137
	MISCHIEF	126
	DRUGS	107
	OTHER	1,065
	<b>PRIORITY 4 OR LOWER</b>	<b>3,994</b>
	<b>Total</b>	<b>22,992</b>

Among the 22,992 non-emergency calls handled by regular patrol units between 2005-06-01 and 2006-05-31, 5,428 non-emergency calls originated from District 1, 5,972 non-emergency calls originated from District 2, 5,490 non-emergency calls originated from District 3 and 6,071 non-emergency calls originated from District 4. A total of 31 non-emergency calls could not be attributed to any particular patrol district.

**Figure 4-64 Number of Telephone Calls by District**



Between 2005-06-01 and 2006-05-31, patrol units in District 1 handled a total of 364 priority 1, 675 priority 2, 3,490 priority 3 and 899 lower priority non-emergency telephone calls.

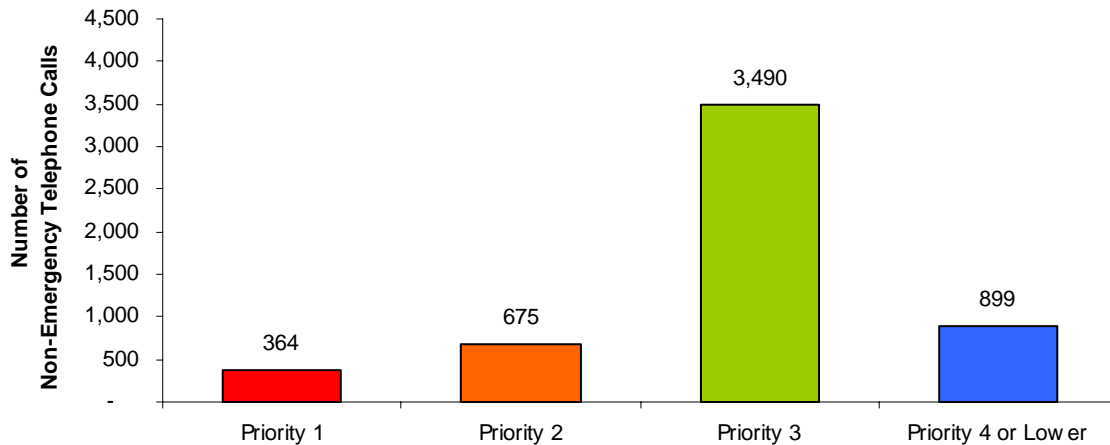
The priority 1 telephone calls in District 1 included 103 hold-up alarms, 77 motor vehicle incidents with injuries, 47 assaults in progress (including 5 with a weapon), 32 suicidal persons and 24 domestic situations in progress.

The priority 2 non-emergency telephone calls in District 1 included 100 silent or panic alarms, 51 thefts in progress, 41 fights and 36 mischiefs in progress.

The priority 3 non-emergency telephone calls in District 1 included, among others, 636 annoying circumstances, 528 alarms, 248 noise complaints, 238 requests for assistance from the general public, 172 shoplifters, 164 unwanted persons, 151 suspicious persons and 112 suspicious circumstances.

The lower priority non-emergency telephone in District 1 included 175 break and enters, 108 warrants, 103 thefts, 75 intelligence calls and 63 frauds.

**Figure 4-65 Number of Telephone Calls in District 1 by Priority**



Between 2005-06-01 and 2006-05-31, patrol units in District 2 handled a total of 353 priority 1, 704 priority 2, 3,914 priority 3 and 1,001 lower priority telephone calls.

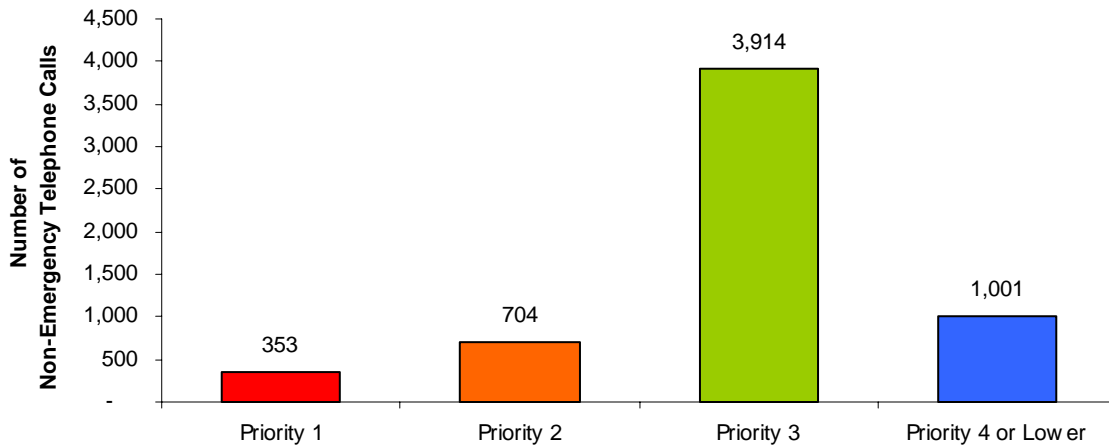
The priority 1 telephone calls in District 2 included 85 motor vehicle incidents with injuries, 60 hold-up alarms, 49 assaults in progress and 39 domestic situations in progress.

The priority 2 non-emergency telephone calls in District 2 included 49 silent or panic alarms, 45 fights, 45 domestic situations, 33 thefts in progress and 31 suspicious circumstances.

The priority 3 non-emergency telephone calls in District 2 included, among others, 635 annoying circumstances, 466 alarms, 387 requests for assistance from the general public, 227 noise complaints, 196 suspicious persons, 181 requests for assistance from the provincial ambulance service, 154 requests for assistance from another agency, 145 suspicious circumstances and 129 unwanted persons.

The priority 4 non-emergency telephone calls in District 2 included 194 break and enters, 161 warrants, 100 intelligence calls and 82 thefts.

**Figure 4-66 Number of Telephone Calls in District 2 by Priority**



Between 2005-06-01 and 2006-05-31, patrol units in District 3 handled a total of 465 priority 1, 771 priority 2, 3,189 priority 3 and 1,065 lower priority telephone calls.

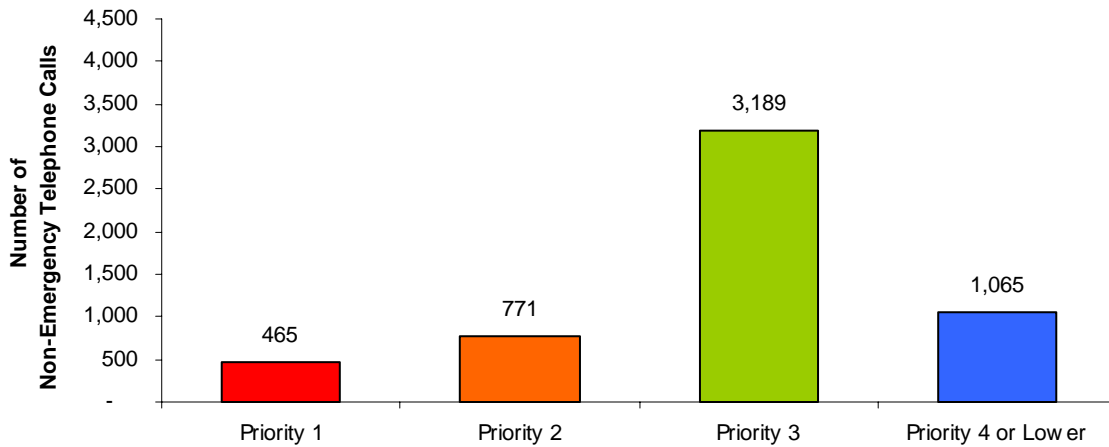
The priority 1 telephone calls in District 3 included 165 motor vehicle incidents with injuries, 87 domestic situations in progress, 50 hold-up alarms and 38 suicidal persons.

The priority 2 non-emergency telephone calls in District 3 included 67 silent or panic alarms, 47 domestic situations, 39 break and enters in progress and 32 fights.

The priority 3 non-emergency telephone calls in District 3 included, among others, 521 alarms, 294 annoying circumstances, 227 requests for assistance from the general public, 193 noise complaints, 178 suspicious persons, 127 suspicious circumstances, 117 suspicious vehicles, 98 requests for assistance from the provincial ambulance service and 94 requests for assistance from another agency.

The priority 4 non-emergency telephone calls in District 3 included 216 break and enters, 151 warrants and 82 intelligence calls.

**Figure 4-67 Number of Telephone Calls in District 3 by Priority**



Between 2005-06-01 and 2006-05-31, patrol units in District 4 handled a total of 446 priority 1, 708 priority 2, 3,900 priority 3 and 1,017 lower priority telephone calls.

The priority 1 telephone calls in District 4 included 170 motor vehicle incidents with injuries, 110 hold-up alarms and 29 domestic situations in progress.

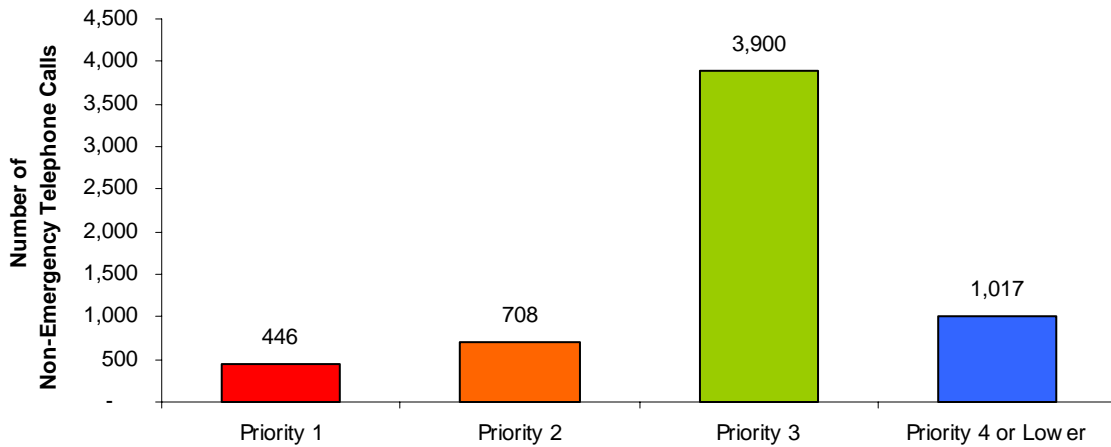
The priority 2 non-emergency telephone calls in District 4 included 201 silent or panic alarms and 29 break and enters in progress.

The priority 3 non-emergency telephone calls in District 4 included, among others, 1,343 alarms, 301 noise complaints, 293 annoying circumstances, 204 suspicious persons, 186 requests for assistance from the general public, 136 suspicious circumstances, 113 suspicious vehicles, 90 threats and 83 requests for assistance from the provincial ambulance service.

The priority 4 non-emergency telephone calls in District 4 included 375 break and enters, 83 thefts and 71 intelligence calls.



**Figure 4-68 Number of Telephone Calls in District 4 by Priority**



**Table 4-22 Number of Telephone Calls by District and by Priority**

District	Priority 1 Calls	Priority 2 Calls	Priority 3 Calls	Priority 4 Calls	Total
District 1	364	675	3,490	899	<b>5,428</b>
District 2	353	704	3,914	1,001	<b>5,972</b>
District 3	465	771	3,189	1,065	<b>5,490</b>
District 4	446	708	3,900	1,017	<b>6,071</b>
Other	4	1	14	12	<b>31</b>
<b>Total</b>	<b>1,632</b>	<b>2,859</b>	<b>14,507</b>	<b>3,994</b>	<b>22,992</b>

Overall, regular patrol units in each of the existing patrol districts were dispatched to virtually the same number of priority 2 and 4 non-emergency telephone calls. However, the regular patrol units in District 2 and District 4 were dispatched to approximately 17.0% more priority 3 telephone calls than the regular patrol units in District 1 and District 3. It is worth noting that the regular patrol units in Districts 3 and 4 were dispatched to approximately 27.1% more priority 1 calls than patrol units in Districts 1 and 2. These totals are for non-emergency telephone calls only and do not include 9-1-1 calls.

This situation can be explained in a large part by the fact that:

- Compared to the regular patrol units in the other patrol districts, regular patrol units in District 2 handled 52.2% to 99.4% more priority 3 requests for assistance from other agencies. More precisely, regular patrol units in District 2 handled

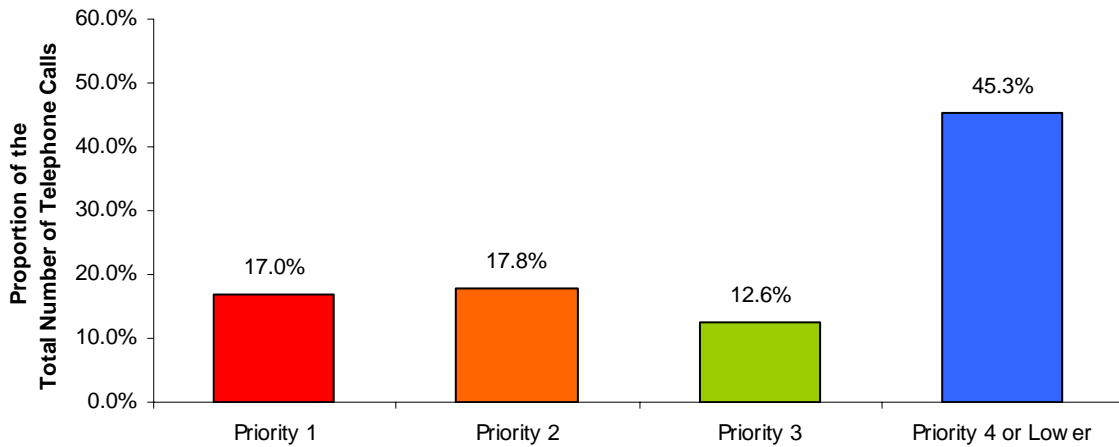
37.3% of all requests for assistance from the general public, 32.5% of all requests for assistance from other police agencies, 39.4% of all requests for assistance from the provincial ambulance service, 43.6% of all requests for assistance from the fire department, 48.7% of all requests for assistance from the emergency mental health service and 39.3% of all requests for assistance from the other agencies dispatched to regular patrol units between 2005-06-01 and 2006-05-31.

- Compared to the regular patrol units in the other patrol districts, regular patrol units in District 4 handled 126.6% to 188.7% more alarms. More precisely, regular patrol units in District 4 handled 47.1% of all regular alarms, 34.1% of all hold-up alarms and 48.3% of all silent or panic alarms dispatched to regular patrol units between 2005-06-01 and 2006-05-31.

Ultimately, the regular patrol units in District 2 would not have handled more non-emergency telephone calls once the priority 3 requests for assistance from other agencies are excluded. Similarly, the regular patrol units in District 4 would not have handled more non-emergency telephone calls once the alarm calls are excluded.

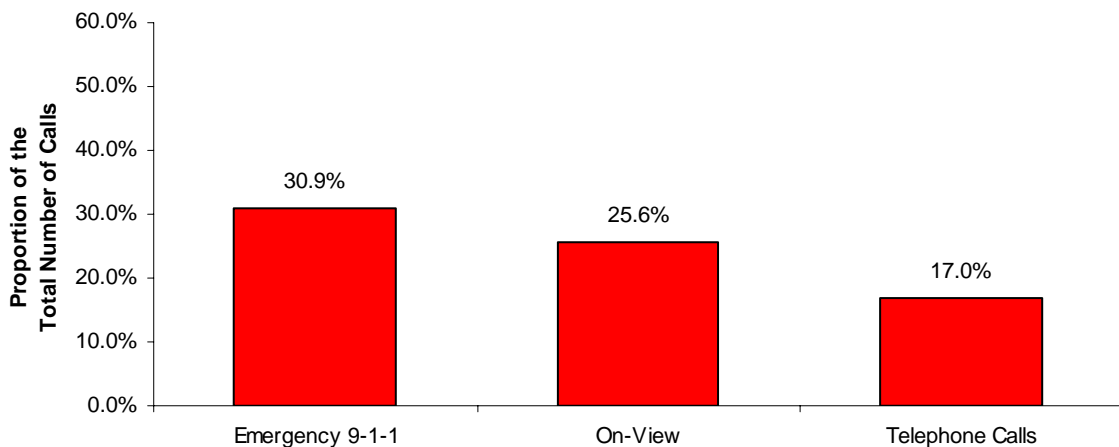
Overall, between 2005-06-01 and 2006-05-31, approximately 4,418 incidents out of the 22,992 non-emergency telephone calls dispatched to regular patrol units involved a criminal offence (19.2% of all non-emergency calls). Among others, 277 out of the 1,632 priority 1 telephone calls, 508 out of the 2,859 priority 2 non-emergency telephone calls, 1,823 out of the 14,507 priority 3 non-emergency telephone calls and 1,810 out of the 3,994 lower priority non-emergency telephone calls involved a criminal offence. In other words, 17.0% of the priority 1 telephone calls, 17.8% of the priority 2 non-emergency telephone calls, 12.6% of the priority 3 non-emergency telephone calls and 45.3% of the priority 4 non-emergency telephone calls involved a criminal offence.

**Figure 4-69 Proportion of Telephone Calls That Involved a Criminal Offence by Priority**



As expected, non-emergency telephone calls were relatively less likely than 9-1-1 calls and on-view incidents to involve a criminal offence. This reflects the fact that non-emergency telephone calls often involved false alarms, disturbance calls, suspicious circumstances and motor vehicle incidents with injuries.

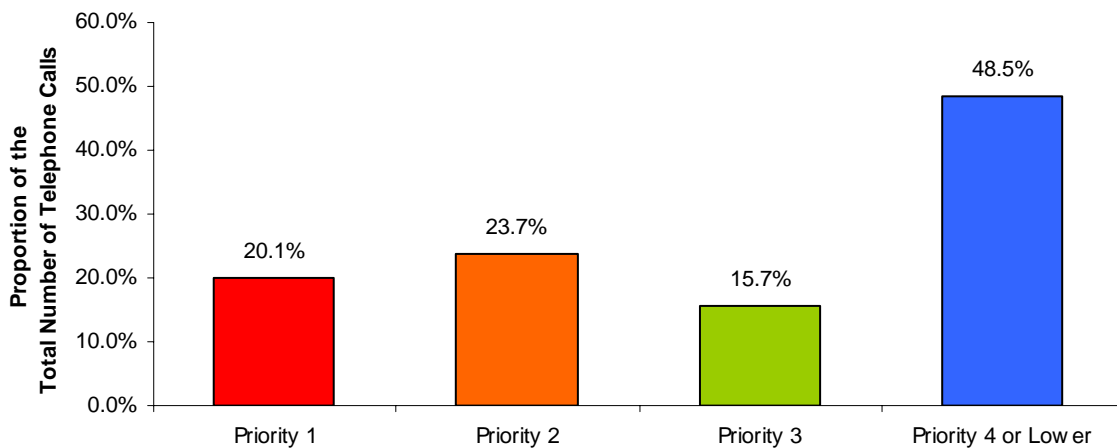
**Figure 4-70 Proportion of Priority 1 Emergency 9-1-1 Calls, On-View Incidents and Telephone Calls That Involved a Criminal Offence**



Out of the 5,428 non-emergency telephone calls dispatched to regular patrol units in District 1 between 2005-06-01 and 2006-05-31, at least 1,216 (22.4%) involved a

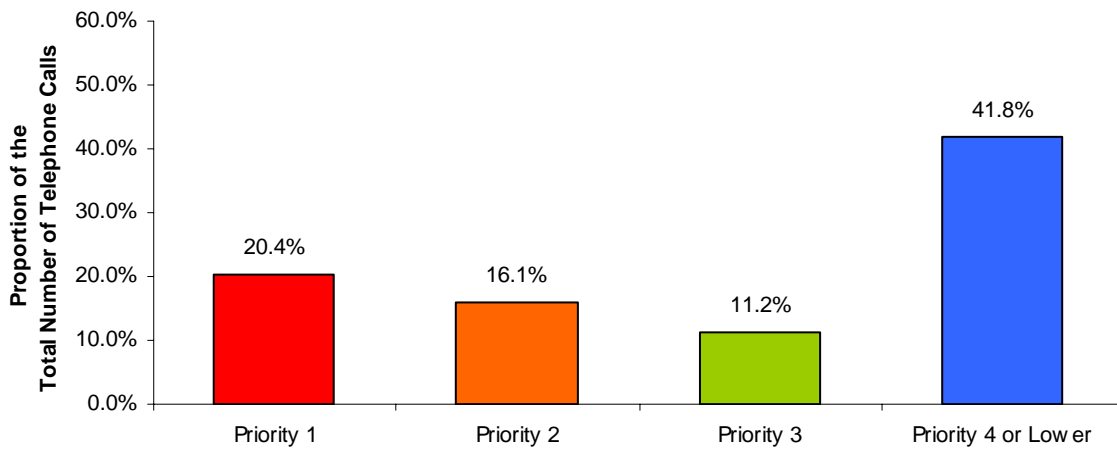
criminal offence. Among others, 73 out of the 364 priority 1 telephone calls, 160 out of the 675 priority 2 non-emergency telephone calls, 547 out of the 3,490 priority 3 non-emergency telephone calls and 436 out of the 899 lower priority non-emergency telephone calls in District 1 involved a criminal offence. In other words, 20.1% of the priority 1 telephone calls, 23.7% of the priority 2 non-emergency telephone calls, 15.7% of the priority 3 non-emergency telephone calls and 48.5% of the priority 4 non-emergency telephone calls in District 1 involved a criminal offence.

**Figure 4-71 Proportion of Telephone Calls in District 1 That Involved a Criminal Offence by Priority**



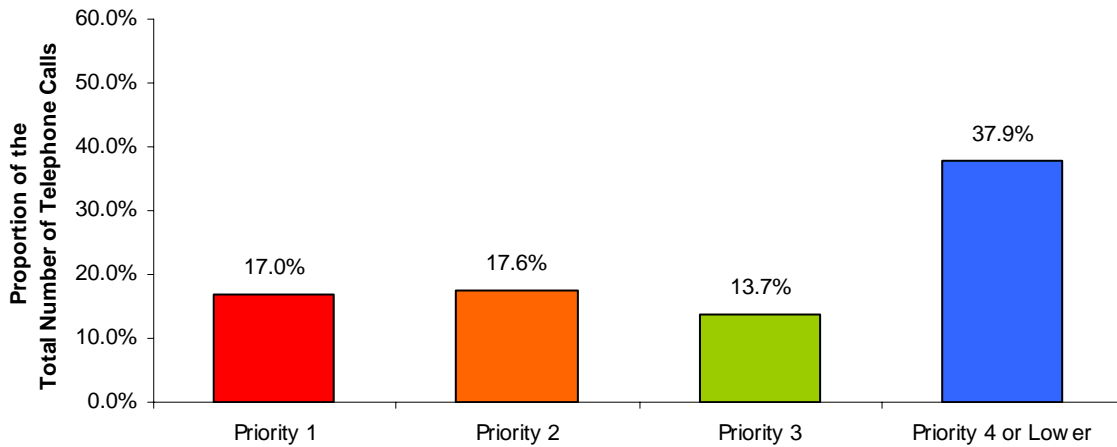
Out of the 5,972 non-emergency telephone calls dispatched to regular patrol units in District 2 between 2005-06-01 and 2006-05-31, at least 1,043 (17.5%) involved a criminal offence. Among others, 72 out of the 353 priority 1 telephone calls, 113 out of the 704 priority 2 non-emergency telephone calls, 440 out of the 3,914 priority 3 non-emergency telephone calls and 418 out of the 1,001 lower priority non-emergency telephone calls in District 2 involved a criminal offence. In other words, 20.4% of the priority 1 telephone calls, 16.1% of the priority 2 non-emergency telephone calls, 11.2% of the priority 3 non-emergency telephone calls and 41.8% of the priority 4 non-emergency telephone calls in District 2 involved a criminal offence.

**Figure 4-72 Proportion of Telephone Calls in District 2 That Involved a Criminal Offence by Priority**



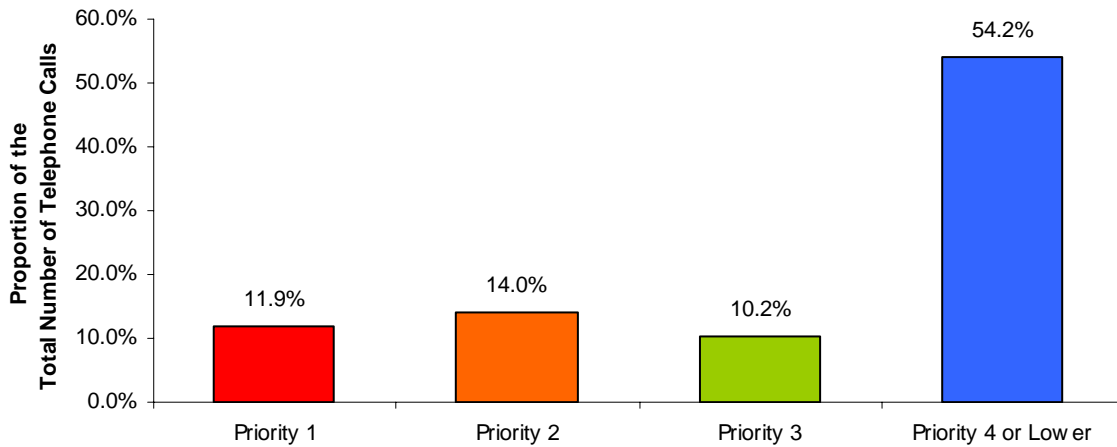
Out of the 5,490 non-emergency telephone calls dispatched to regular patrol units in District 3 between 2005-06-01 and 2006-05-31, at least 1,057 (19.3%) involved a criminal offence. Among others, 79 out of the 465 priority 1 telephone calls, 136 out of the 771 priority 2 non-emergency telephone calls, 438 out of the 3,189 priority 3 non-emergency telephone calls and 404 out of the 1,065 lower priority non-emergency telephone calls in District 3 involved a criminal offence. In other words, 17.0% of the priority 1 telephone calls, 17.6% of the priority 2 non-emergency telephone calls, 13.7% of the priority 3 non-emergency telephone calls and 37.9% of the priority 4 non-emergency telephone calls in District 3 involved a criminal offence.

**Figure 4-73 Proportion of Telephone Calls in District 3 That Involved a Criminal Offence by Priority**



Out of the 6,071 non-emergency telephone calls dispatched to regular patrol units in District 4 between 2005-06-01 and 2006-05-31, at least 1,100 (18.1%) involved a criminal offence. Among others, 53 out of the 446 priority 1 telephone calls, 99 out of the 708 priority 2 non-emergency telephone calls, 397 out of the 3,900 priority 3 non-emergency telephone calls and 551 out of the 1,017 lower priority non-emergency telephone calls in District 4 involved a criminal offence. In other words, 11.9% of the priority 1 telephone calls, 14.0% of the priority 2 non-emergency telephone calls, 10.2% of the priority 3 non-emergency telephone calls and 54.2% of the priority 4 non-emergency telephone calls in District 4 involved a criminal offence.

**Figure 4-74 Proportion of Telephone Calls in District 4 That Involved a Criminal Offence by Priority**

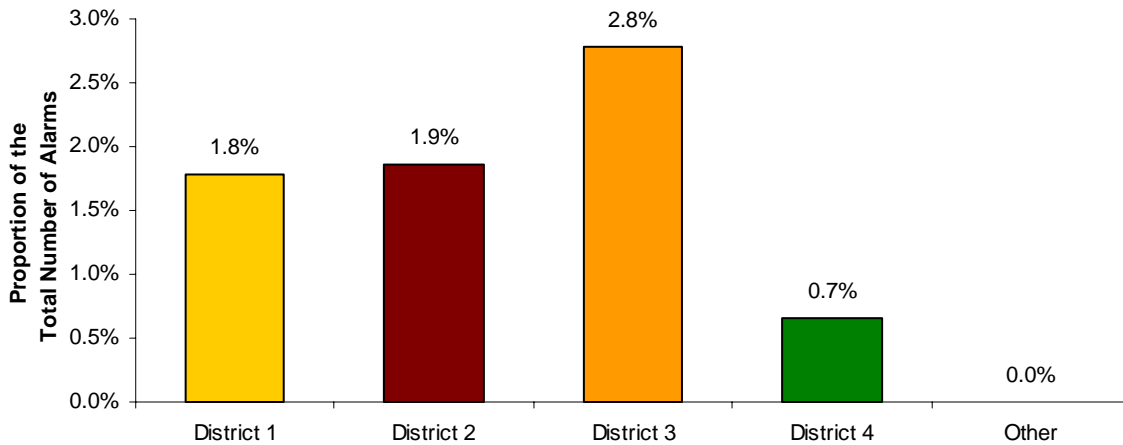


## 4.6 ALARM CALLS AND CRIMINAL OFFENCES

Between 2005-06-01 and 2006-05-31, a total of 5,953 regular patrol units or 10,110 regular patrol officers were dispatched to 4,395 alarm calls citywide. Out of those 4,395 alarms, 3,658 (83.2%) were recorded through the non-emergency telephone line. Moreover, only 64 (1.5%) out of the 4,395 alarm calls turned out to be founded.

- In District 1, 15 (1.8%) of the 841 alarm calls turned out to be founded.
- In District 2, 14 (1.9%) of the 756 alarm calls turned out to be founded.
- In District 3, 22 (2.8%) of the 793 alarm calls turned out to be founded.
- In District 4, 13 (0.7%) of the 1,984 alarm calls turned out to be founded.

**Figure 4-75 Proportion of Founded Alarms by District**

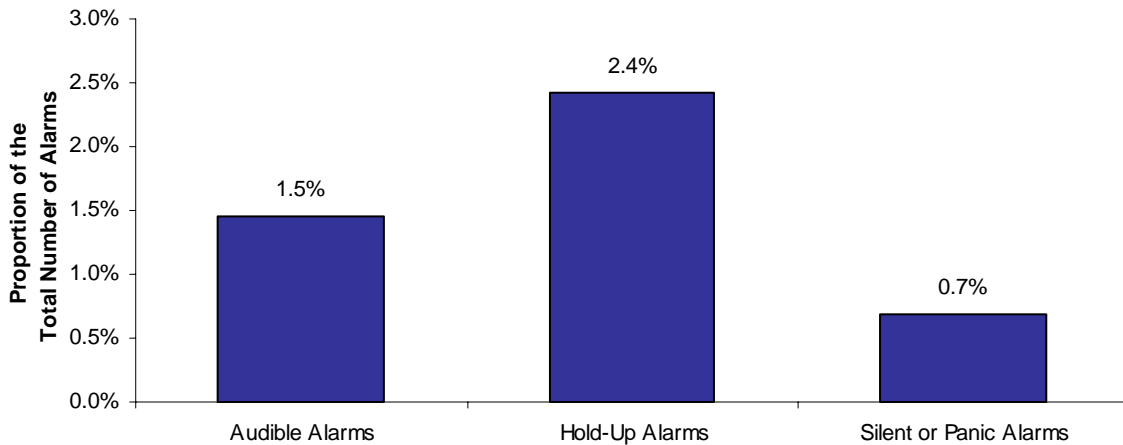


Not surprisingly, hold-up alarms were relatively more likely to be founded than regular alarm calls overall. Out of 330 hold-up alarms dispatched to regular patrol units between 2005-06-01 and 2006-05-31, at least 8 (2.4%) were founded. Half of the founded alarms were in District 3 and 5 of the founded hold-up alarms were initiated during armed robberies.

On the other hand, silent or panic alarms were relatively less likely to be founded than regular alarm calls overall. Out of the 432 silent or panic alarms dispatched to regular patrol units between 2005-06-01 and 2006-05-31, only 3 (0.7%) turned out to be founded. None of those founded silent alarms were residential silent alarms. One of the founded alarm calls turned out to be a commercial break and enter, one turned out to be a break and enter in an elementary school in the 3300 block of Nootka Street and another involved a mischief in an elementary school in the 2000 block of Trimble Street.



**Figure 4-76 Proportion of Founded Alarms by Type of Alarm**



Since the creation of the False Alarm Reduction Program (FARP), regular patrol units have dealt with less and less false alarms. Ultimately, FARP is believed to have diverted a significant amount of patrol resources away from false alarms.

#### **4.7 PROBLEM PREMISES IN THE DOWNTOWN EASTSIDE**

At the beginning of 2006, at the request of retired Inspector Ken Frail and Constable Valerie Spicer, a number of Downtown Eastside problem premises were identified by the VPD. Specific locations associated with an unusual call load were targeted with the purpose of reducing the number of criminal incidents, the number of calls for service and the street disorder generated from these problem areas.

For the purpose of this Patrol Deployment Study, the Planning Analyst Hollie Riordan of the Planning and Research Section extracted a list of 91 problem areas (excluding 312 Main Street) that could potentially be considered problem areas by most standards. These locations were associated with 100 recorded calls or more and therefore required police twice per week at a minimum.

Within the list of problem premises, another subset of 8 addresses (excluding 312 Main Street) associated with at least 365 calls per year was created. These areas required

police at least once a day on average and were therefore identified as prolific consumers of police services. Interestingly, the 8 prolific locations identified by the analysis were located within a 2-block radius from the intersection of Carrall Street and Hastings Street.

The list of potential problem areas is enclosed below. The number of calls dispatched to regular patrol units from each location and the total time spent on these calls by BET units is also shown.<sup>9</sup>

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<sup>9</sup> The threshold used to identify problem locations was 100 recorded calls. Because some of the calls were not dispatched to a regular patrol unit, the list may include some addresses that generated less than 100 dispatched to a regular patrol unit.

**Table 4-23 Problem Locations Associated with 100 Recorded Calls or More**

<b>Street Address or Block</b>	<b>Number of Calls Dispatched to a Regular Patrol Unit</b>	<b>Total Hours Spent on Calls by BET Units</b>	<b>Total Hours Spent on Calls by Regular Patrol Units</b>
HASTINGS ST E 100 BLOCK	872	968	1,091
MAIN ST 401	477	335	383
MAIN ST 400 BLOCK	469	482	551
HASTINGS ST E 0 BLOCK	453	450	479
HASTINGS ST E 166	342	247	293
HASTINGS ST E 100	339	404	436
HASTINGS ST E / MAIN ST	330	291	425
BLOOD ALLEY SQ 36	299	269	326
HASTINGS ST W 0 BLOCK	222	207	226
POWELL ST 400	219	94	260
HASTINGS ST E 160	213	301	349
ABBOTT ST 400 BLOCK	193	148	170
HASTINGS ST W 20	188	156	190
CARRALL ST 300 BLOCK	182	195	229
ALEXANDER ST 590	178	45	282
HASTINGS ST E 400 BLOCK	176	58	142
HASTINGS ST E 0	172	234	242
HASTINGS ST W 100 BLOCK	169	158	172
CORDOVA ST W 50	169	181	271
CARRALL ST / HASTINGS ST E	161	141	185
COLUMBIA ST / HASTINGS ST E	161	196	231
HASTINGS ST E 200 BLOCK	161	114	176
PENDER ST E 100 BLOCK	148	63	152
HASTINGS ST E 177	147	111	128
HASTINGS ST E 25	145	119	148
HASTINGS ST E 700 BLOCK	143	19	124

PENDER ST W 88	141	170	267
CORDOVA ST E 265	140	93	377
CORDOVA ST E 512	136	36	139
ABBOTT ST / HASTINGS ST W	132	211	286
MAIN ST 235	130	78	109
MAIN ST 917	129	23	189
HASTINGS ST E 500 BLOCK	126	40	157
HASTINGS ST E 101	126	126	138
COLUMBIA ST 300 BLOCK	124	119	127
ALEXANDER ST 346	123	34	121
MAIN ST 300 BLOCK	123	79	140
HASTINGS ST W 0	120	135	148
PRINCESS AVE 215	119	48	140
MAIN ST 400	118	134	157
HASTINGS ST E 159	118	111	136
WATER ST 122	115	72	105
POWELL ST 1516	112	1	144
CORDOVA ST E 100	108	80	119
HASTINGS ST E 122	108	139	149
CORDOVA ST E 0 BLOCK	105	80	100
POWELL ST 300 BLOCK	103	31	74
CARRALL ST 399	102	113	121
HASTINGS ST W 74	99	114	144
POWELL ST 707	98	24	90
COLUMBIA ST 303	96	145	167
JACKSON AVE 300 BLOCK	95	22	74
CORDOVA ST E 100 BLOCK	95	75	98
PENDER ST E 200 BLOCK	93	29	113
CORDOVA ST E 500 BLOCK	93	16	51
POWELL ST 329	91	28	77
HASTINGS ST E 139	91	92	96
JACKSON AVE 306	90	21	84
HASTINGS ST W 106	90	67	71
HASTINGS ST E 600 BLOCK	88	18	75
CORDOVA ST E 119	86	75	109
COLUMBIA ST 400 BLOCK	86	65	81
ABBOTT ST / PENDER ST W	85	81	103

PENDER ST W 620	83	1	102
HASTINGS ST E / PRINCESS AVE	83	21	113
HASTINGS ST E 769	82	18	111
POWELL ST 668	80	8	130
PENDER ST W 27	80	48	81
MAIN ST / PENDER ST E	80	76	112
CARRALL ST 400 BLOCK	80	90	104
HASTINGS ST E 475	79	4	31
MAIN ST 1038	76	18	115
CORDOVA ST E / GORE AVE	75	39	78
CORDOVA ST E 420	75	23	104
HASTINGS ST E / JACKSON AVE	74	18	78
POWELL ST 134	74	67	93
HASTINGS ST E 40	74	82	92
CORDOVA ST W 0 BLOCK	73	67	97
HASTINGS ST E 320	69	37	55
ABBOTT ST 455	68	25	57
ABBOTT ST 210	66	51	86
CARRALL ST 488	64	82	124
CAMBIE ST / HASTINGS ST W	64	44	77
WATER ST 100 BLOCK	60	37	67
CORDOVA ST E 450	60	26	119
CAMBIE ST / PENDER ST W	53	25	67
ALEXANDER ST 310	52	16	35
ALEXANDER ST 320	50	13	45
MAIN ST 222	50	44	124
CORDOVA ST W 900	23	-	26
HASTINGS ST E 1100 BLOCK	13	0	8
<b>Average per Location</b>	<b>138.7</b>	<b>107.6</b>	<b>163.4</b>
<b>Total</b>	<b>12,622</b>	<b>9,790</b>	<b>14,870</b>

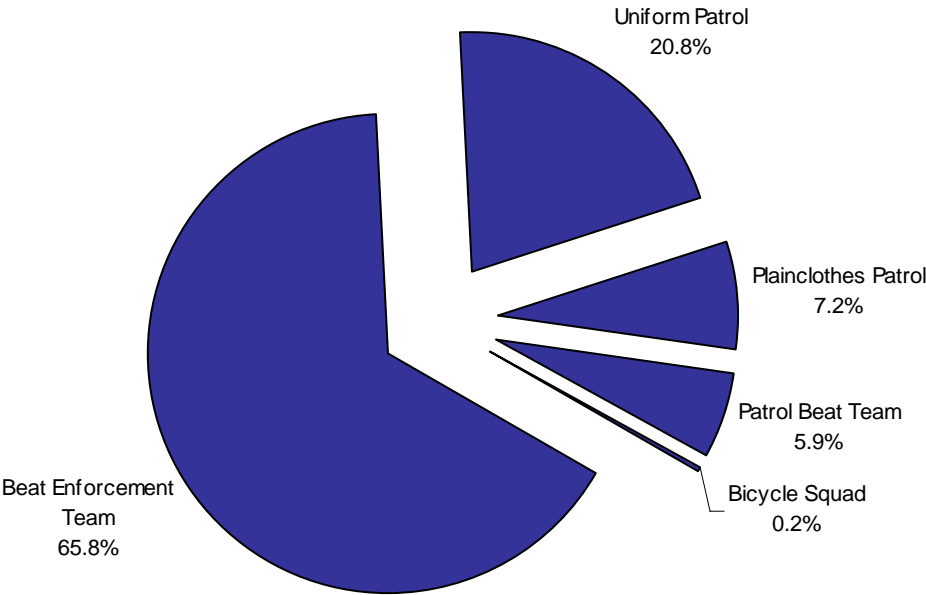
Between 2005-06-01 and 2006-05-31, regular patrol units spent a total of 14,870 hours on the 12,622 calls for service generated from the 91 problem locations. This corresponds to almost 8.6% of the total call load handled by regular patrol units during the same period.

As expected, BET units spent the most time on the calls generated from the problem locations. BET spent 9,760 hours at the 91 problem locations. This amounts to 65.8% of the total time spent by regular patrol units at these locations.

**Table 4-24 Total Service Time Spent by Regular Patrol Units at Problem Locations by Type of Unit**

Type of Unit	Total Hours Spent at Problem Locations
Beat Enforcement Team	9,790
Uniform Patrol	3,100
Plainclothes Patrol	1,077
Patrol Beat Team	878
Bicycle Squad	25
<b>Total</b>	<b>14,870</b>

**Figure 4-77 Total Service Time Spent by Regular Patrol Units at Problem Locations by Type of Unit**



An unusually large proportion of calls that originated from problem locations and were handled by regular patrol units were officer-initiated calls. This reflects the fact that several patrol officers spend a sizeable amount of time patrolling a small area limited to the Downtown Eastside. Out of the 12,622 calls that originated from problem locations, 5,650 (44.8%) were officer-initiated or on-view calls.

**Table 4-25 Total Number of Calls Handled by Regular Patrol Units by Source**

<b>Source</b>	<b>Number of Calls Handled by a Regular Patrol Unit</b>
911 SYSTEM	5,824
ON VIEW	5,650
TELEPHONE	1,135
OTHER	13
<b>Total</b>	<b>12,622</b>

Out of the 5,650 on-view calls generated from problem premises, there were:

- 1,545 warrants
- 715 arrests
- 563 court order breaches
- 322 property seized
- 240 property recovered
- 231 requests for assistance from the general public
- 167 traffic suspensions
- 162 suspicious circumstances
- 142 man down calls
- 126 fights
- 108 disturbing parties
- 104 intoxicated persons
- 88 requests for assistance from the provincial ambulance service
- 87 welfare checks
- 69 assaults
- 67 suspicious persons

Out of the 6,959 emergency 9-1-1 and telephone calls generated from problem premises, there were:

- 1,008 annoying circumstances
- 711 requests for assistance from the general public
- 457 requests for assistance from the provincial ambulance service
- 358 assaults

- 348 unwanted persons
- 310 assaults in progress
- 240 suspicious persons
- 237 fights
- 202 weapons in progress calls
- 201 suspicious circumstances
- 187 disturbing parties
- 155 noise complaints
- 126 abandoned 9-1-1 calls

The most common criminal offences handled by regular patrol units at problem locations included:

- 850 drug-related offences (including 404 cocaine possession cases, 276 cocaine trafficking cases, 51 heroin possession cases and 17 heroin trafficking cases).
- 589 assault cases (including 313 common assaults, 241 assaults with a weapon of causing bodily harm, 9 aggravated assaults, 4 child abuse cases and 20 assaults against a peace officer).
- 244 bail violations.
- 210 liquor infractions (including 200 cases of intoxication in a public place).
- 173 theft cases.
- 143 weapon-related offences.
- 123 robberies (including at least one with a firearm and 35 with another offensive weapon).
- 110 probation breaches.
- 109 cases of possession of stolen property.
- 93 mischiefs.
- 37 break and enters.
- 22 sexual assaults (including at least one aggravated sexual assault and one sexual assault with a weapon or causing bodily harm).
- 16 fraud cases.
- 16 arsons.



As expected, most drug-related (94.1%) and weapon-related (74.8%) offences were officer-initiated. Nevertheless, by saturating a relatively compact area, patrol officers in the Downtown Eastside are also able to react very quickly when a serious crime occurs. This is illustrated by the fact that:

- 112 assault cases (including 46 assaults with a weapon or causing bodily harm and 4 aggravated assaults) were officer-initiated.
- 50 theft cases were officer-initiated.
- 25 robberies (including 7 robberies with a weapon) were officer-initiated.
- 14 mischiefs were officer-initiated.
- 7 fraud cases were officer-initiated.
- 3 break and enters were officer-initiated.
- 2 sexual assault cases were officer-initiated.

As noted in the report *Confident Policing in a Troubled Community* by Dr. Curt Griffiths et al.:

*The results of the analysis indicate that the CET was successful in disrupting the open drug market, reducing the general levels of social disorder, and enhancing the general feelings of safety and security among persons who live and work in the DTES.*

In the past few years, noticeable progress has been accomplished in the Vancouver Downtown Eastside. The creation of the (then) Citywide Enforcement Team in April 2003 led to a surge in proactive enforcement in the area. Moreover, preliminary evidence suggests that recent patrol-based projects specific to the Downtown Eastside have forced criminals to change the way they operate. There is evidence that this has contributed to reduced street disorder, street violence and property crime and has improved the quality of life for the residents of the Downtown Eastside.

## **4.8 POLICING AND THE DOWNTOWN ENTERTAINMENT DISTRICT**

In December 2002, new liquor licensing policies and regulations were implemented by the BC Provincial Government. As part of the reform, possible hours of liquor service were expanded from 0200 to 0400 hours, subject to municipal review and approval.

On 2003-04-08, City Council directed City Staff to consider extending the hours of operation of licensed liquor establishments on a trial basis. A pilot project permitting extended hours of liquor service was initiated in 2003. The objective of the pilot project was to enable police and City staff to identify and evaluate the impacts of later closing hours for licensed liquor establishments such as cabarets, neighbourhood pubs, hotel pubs and lounges and nightclubs. As part of the pilot project:

- Sunday bar hours were extended citywide during a 4-month trial period starting in May 2003.
- Weekend bar hours were extended in the Downtown core during a 3-month trial period starting in July 2003.

Both trial periods were then subsequently continued to the end of November in order to allow City staff to prepare the report back to Council summarizing the outcomes of the pilot project. The trial period was set to coincide with the busiest summer months, when people are more likely to linger outdoors.

A total of 132 liquor establishments operating in the Downtown peninsula (including part of Gastown) were eligible to participate in the 3-month trial project. Ultimately, 57 establishments participated in the experiment (including 24 cabarets, 9 neighbourhood pubs, 23 hotel pubs or lounges and 2 club lounges). The map below shows where these 57 participating establishments were located.

**Figure 4-78 Liquor Establishments Who Participated in the 2003 Pilot Project**



Source: Administrative Report from the Chief License Inspector to the Standing Committee on City Services and Budgets, "Extended Liquor Primary Hours: Trial Period Summary", 2003-11-04, RTS #03541, CC File #2610.

The 57 establishments participating in the 3-month trial were given the opportunity to extend their hours of liquor service up to 0400 hours on the following nights:

- Friday and Saturday nights
- Nights preceding statutory holidays
- Festival nights including the Molson Indy, Vancouver Pride Week and HSBC Celebration of Lights.

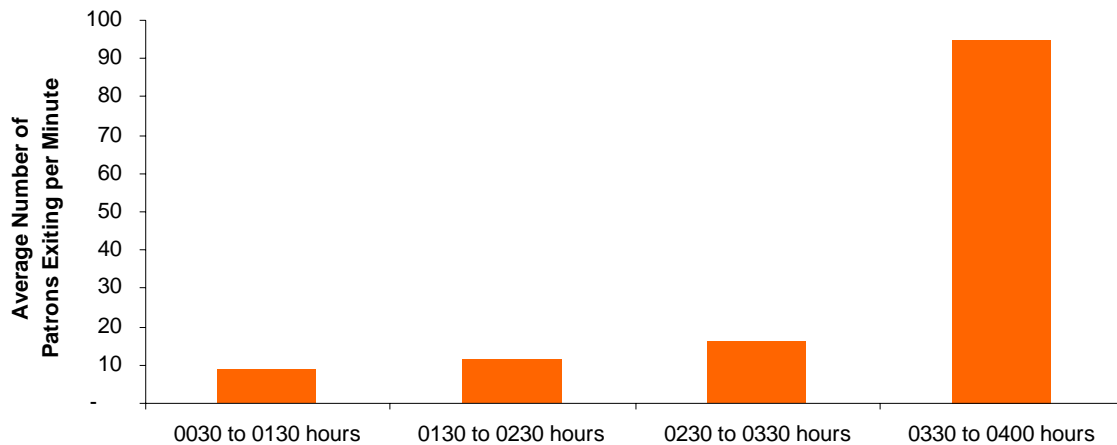
Operators were also granted a 60-minute closing tolerance period, thereby providing customers a full hour to leave the liquor establishments.

Based on weekly status reports indicating closing times and hourly patron counts, City staff estimated the average number of patrons exiting liquor establishments participating in the pilot project. It was determined that, on average, a net total of 533 patrons per night were exiting participating liquor establishments between 0030 and 0130 hours, 698 patrons per night were exiting between 0130 and 0230 hours, 954 patrons per night were exiting between 0230 and 0330 hours and 2,838 patrons per night were exiting between 0330 and 0400 hours.

**Table 4-26 Average Net Number of Patrons Exiting from the Participating Establishments per Night During the 2003 Pilot Project**

	<b>Per Night</b>	<b>Per Minute</b>
0030 to 0130 hours	533	9
0130 to 0230 hours	698	12
0230 to 0330 hours	954	16
0330 to 0400 hours	2,838	95
<b>Total</b>	<b>5,023</b>	<b>84</b>

**Figure 4-79 Average Net Number of Patrons Exiting from the Participating Establishments per Minute During the 2003 Pilot Project**



Based on a survey of the participating establishments, it was also determined that:

- Approximately half of the establishments that extended their hours of operation witnessed an increase of up to 20% in the number of patrons and an increase of

up to 30% in revenues. Approximately one third of the participating establishments indicated that they hired more staff because of the extended hours.

- Patrons seemed to be leaving the participating establishments later on average.
- More people appeared to be consuming more alcohol prior to going to the clubs.

Moreover, establishments in adjacent municipalities such as Burnaby and New Westminster indicated that:

- They witnessed a reduction in revenues since the liquor hours were extended.
- They observed that patrons were leaving their establishment early to go to the downtown clubs who remained open later.

During the 3-month trial period, City staff monitored activities both inside and immediately outside of the participating establishments. Additional police resources were also allocated to patrol the affected areas of the Downtown area on the nights with extended hours. In an administrative report dated 2003-11-04 summarizing the results obtained during the trial period (RTS #03541), the Chief License Inspector explained that:

- The extended hours of liquor service in the Downtown core resulted in residential impacts, created economic hardships for some establishments outside the trial boundaries and raised concerns in terms of monitoring and enforcement by Licensing staff and the police.
- The main issues raised by citizens during the public consultation process included:
  - Street noise
  - Drunken and disorderly conduct
  - Vandalism
  - Street littering
  - Increased alcohol consumption
  - Increased violence and threatening behaviour
  - Increased incidences of drinking and driving

- General disruption to downtown residents

In the same 2003 report, the VPD underlined that:

- It had serious concerns about the later closing hours. Among others, the VPD was concerned about an increase in drinking and driving offences, a dramatic increase in noise and disorder issues and the apparent migration of drinking public into Vancouver from other jurisdictions.
- The benefits promoted prior to the start of the experiment did not materialize. The VPD did not observe any decrease in illegal after-hours venues or any trickle down effect caused by the fact that closing hours were staggered.

In November 2004, City Council approved the Standard Hours of Liquor Service Policy and supported in principle the Extended Hours of Liquor Service Policy for liquor establishments.

Under the Extended Hours Policy, the hours of liquor service are restricted to:

- 0300 hours, 7 days a week, in liquor establishments located in a primarily commercial area (e.g. Granville Street Entertainment District and core of the Central Business District).
- 0300 hours on weekends and 0200 hours on weekdays, in liquor establishments located in a mixed-use area (e.g. Yaletown, Gastown and West End).
- 0200 hours on weekends and midnight on weekdays, in liquor establishments located in a primarily residential area (e.g. Downtown South).

During special events, the hours of liquor service are extended to:

- 0400 hours, 7 days a week, in liquor establishments located in a primarily commercial area.
- 0400 hours on weekends and 0300 hours on weekdays, in liquor establishments located in a mixed-use area.
- 0300 hours on weekends, in liquor establishments located in a primarily residential area.

**Table 4-27 Extended Hours of Liquor Service Policy**

	<b>Weekends</b>	<b>Weekdays</b>
<b>Primarily Commercial</b> E.g. Entertainment District, Business District	0900 to 0300 hours	0900 to 0300 hours
<b>Mixed-Use</b> E.g. Yaletown, Gastown, West End	0900 to 0300 hours	0900 to 0200 hours
<b>Primarily Residential</b>	0900 to 0200 hours	0900 hours to midnight

Using a custom dataset containing data for the months of June to November 2001, 2002, 2003, 2004, 2005 and 2006, the Patrol Deployment Study Project Team was able to empirically confirm that the Extended Hours of Liquor Service Policy had a negative impact on police workload, public order and street violence.<sup>10</sup> This is illustrated by the fact that:

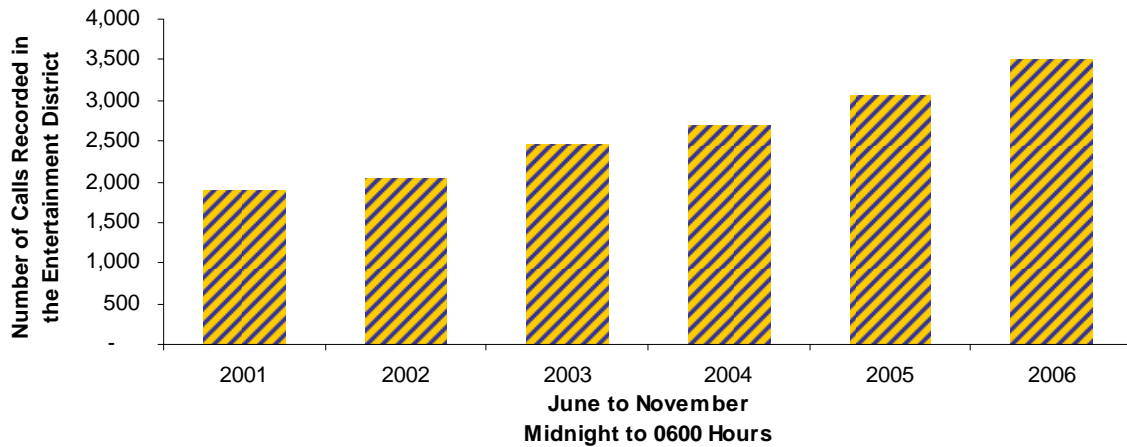
- The number of calls recorded between midnight and 0600 hours in the Entertainment District<sup>11</sup> increased by 20.7% between June-November 2002 and June-November 2003 and by 85.8% between June-November 2001 and June-November 2006. During the same period, the proportion of all the District 1 calls originating from the Entertainment District increased from 30.8% to 41.4%.

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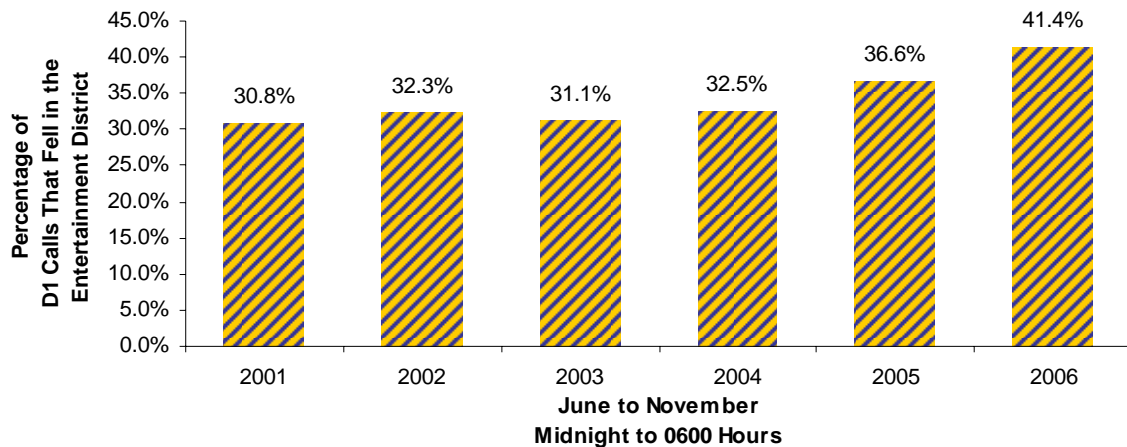
<sup>10</sup> Caution must be exercised when comparing the call data produced by Macro CAD with data generated by Altaris CAD (implemented on 2002-12-11) and Police CAD (implemented on 2005-05-08). The Patrol Deployment Study Project Team was careful to compare calls with similar call types.

<sup>11</sup> For the purpose of this report, the Entertainment District is defined as the rectangular Downtown area delimited by Burrard Street to the Northeast, Robson Street to the Northwest, Homer Street to the Southeast and Pacific Street to the Southwest (zone VAE). At least 20 of the 57 liquor establishments who participated in the 3-month trial project in 2003 were located in that area.

**Figure 4-80 Number of Calls Recorded in the Entertainment District Between June and November**



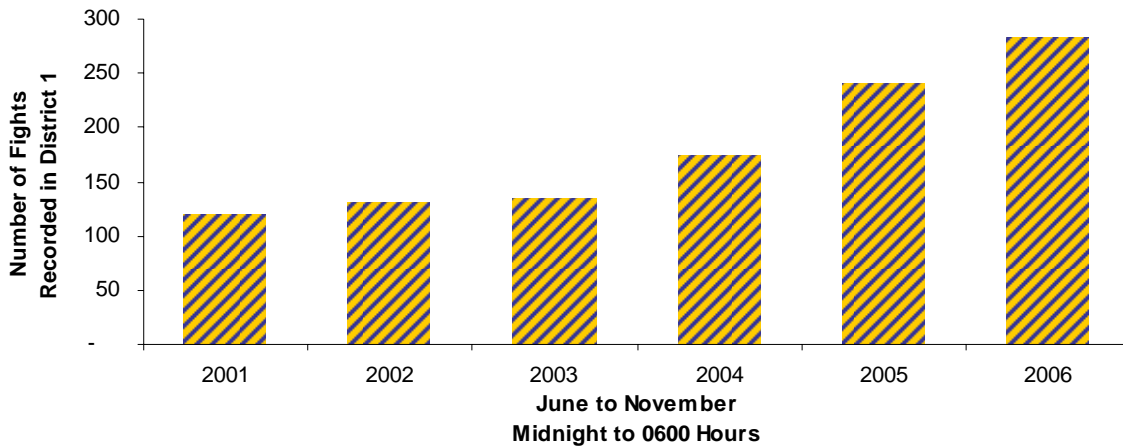
**Figure 4-81 Percentage of District 1 Calls Recorded in the Entertainment District Between June and November**



- The number of fights recorded between midnight and 0600 hours in District 1 (the Downtown core) increased by 32.8% between June-November 2002 and June-November 2003 (when the trial project took place). Overall, it increased 115.6% between June-November 2001 and June-November 2006. In the Entertainment District, the number of fights recorded between midnight and 0600 hours increased by 138.7% between June-November 2001 and June-November 2006.

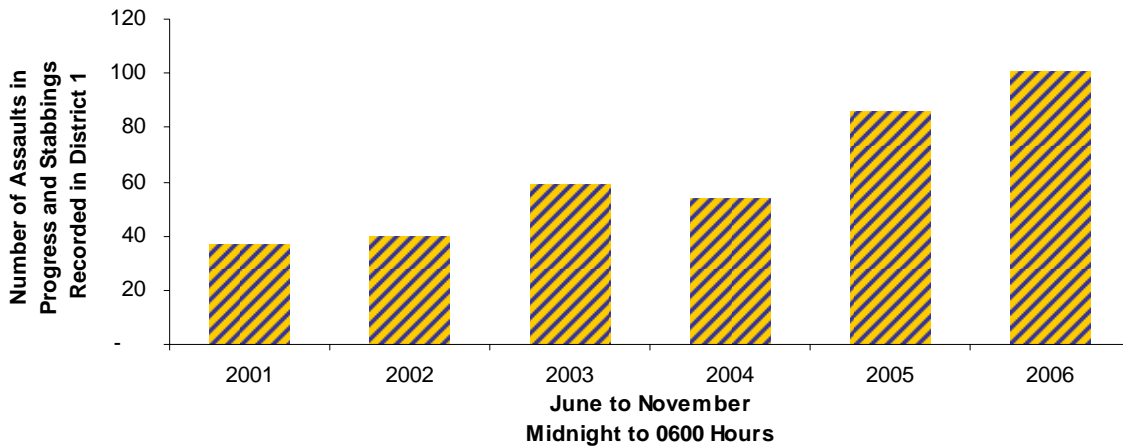


**Figure 4-82 Number of Fights Recorded in the Entertainment District Between June and November**



- The number of assaults in progress and stabbings recorded between midnight and 0600 hours in District 1 increased by 53.3% between June-November 2002 and June-November 2003. Overall, it increased 140.0% between June-November 2001 and June-November 2006. In the Entertainment District, the number of assaults in progress and stabbings recorded between midnight and 0600 hours increased by 47.5% between June-November 2002 and June-November 2003 and 173.0% between June-November 2001 and June-November 2006.

**Figure 4-83 Number of Assaults in Progress and Stabbings Recorded in the Entertainment District Between June and November**

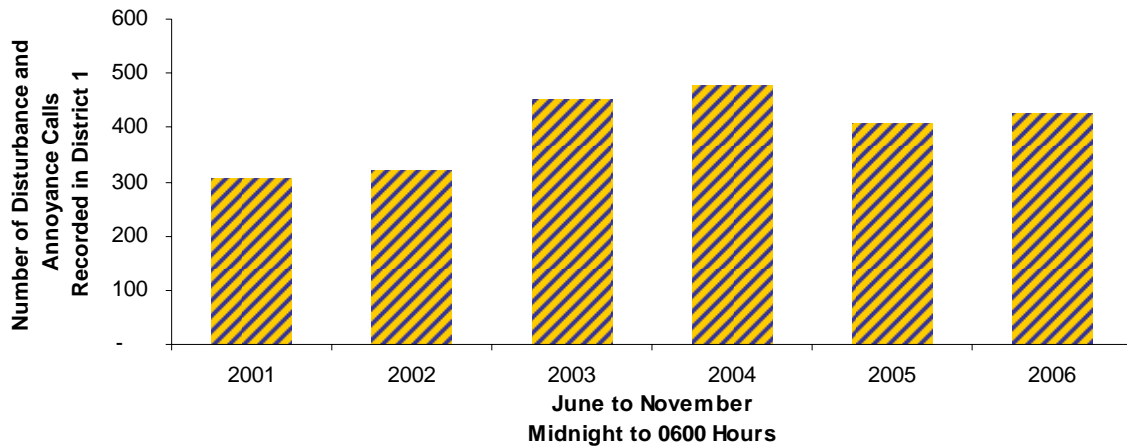


- The number of disturbance and annoyance calls recorded between midnight and 0600 hours in District 1 increased by 48.4% between June-November 2002 and June-November 2003. Overall, it increased 19.1% between June-November 2001 and June-November 2006. In the Entertainment District, the number of disturbance and annoyance calls recorded between midnight and 0600 hours increased by 40.1% between June-November 2002 and June-November 2003 and 40.8% between June-November 2001 and June-November 2006. In Gastown<sup>12</sup>, the number of disturbance and annoyance calls recorded between midnight and 0600 hours increased by 62.5% between June-November 2002 and June-November 2003 and 54.3% between June-November 2001 and June-November 2006.

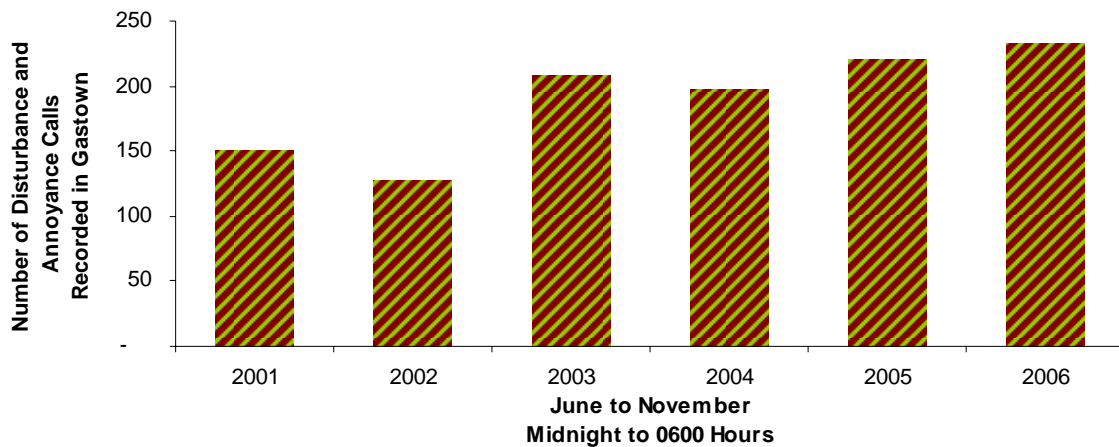
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<sup>12</sup> For the purpose of this report, Gastown is defined as the Downtown area delimited by the Waterfront to the North, Gore Avenue to the East, West Hastings Street to the South and Richards Street to the West (zone VAJ). At least 10 of the 57 liquor establishments who participated in the 3-month trial project in 2003 were located in that area.

**Figure 4-84 Number of Disturbance and Annoyance Calls Recorded in the Entertainment District Between June and November**

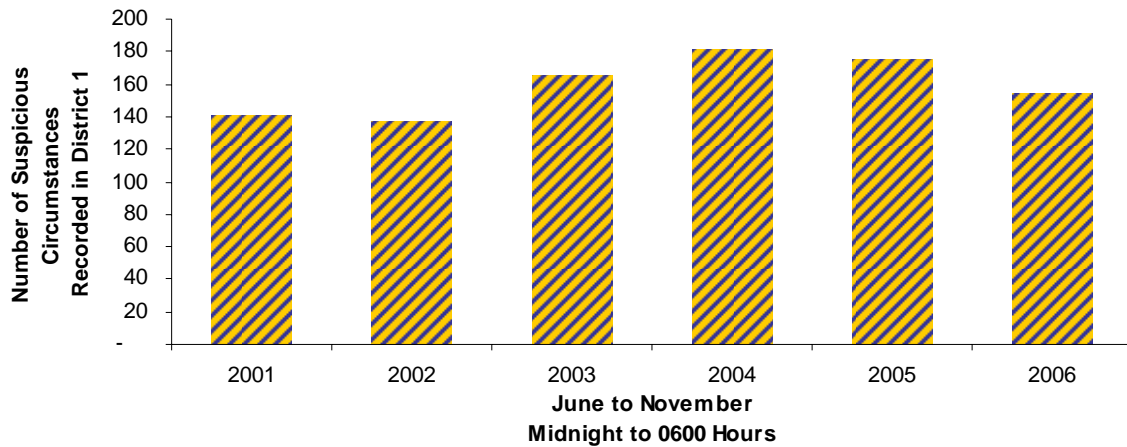


**Figure 4-85 Number of Disturbance and Annoyance Calls Recorded in Gastown Between June and November**



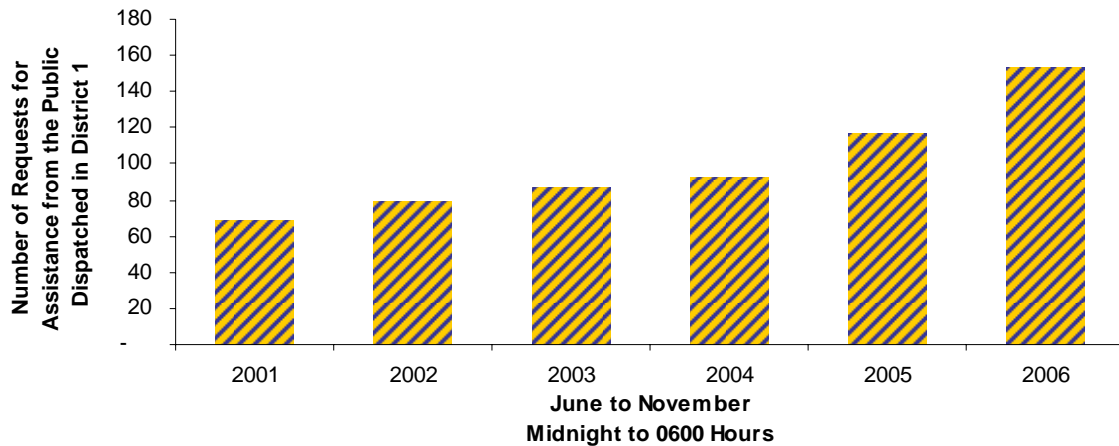
- The number of suspicious circumstances, persons and vehicles recorded between midnight and 0600 hours in District 1 increased by 23.3% between June-November 2002 and June-November 2003. In the Entertainment District, the number of suspicious circumstances, persons and vehicles recorded between midnight and 0600 hours increased by 21.2% between June-November 2002 and June-November 2003.

**Figure 4-86 Number of Suspicious Circumstances, Persons and Vehicles Recorded in the Entertainment District Between June and November**



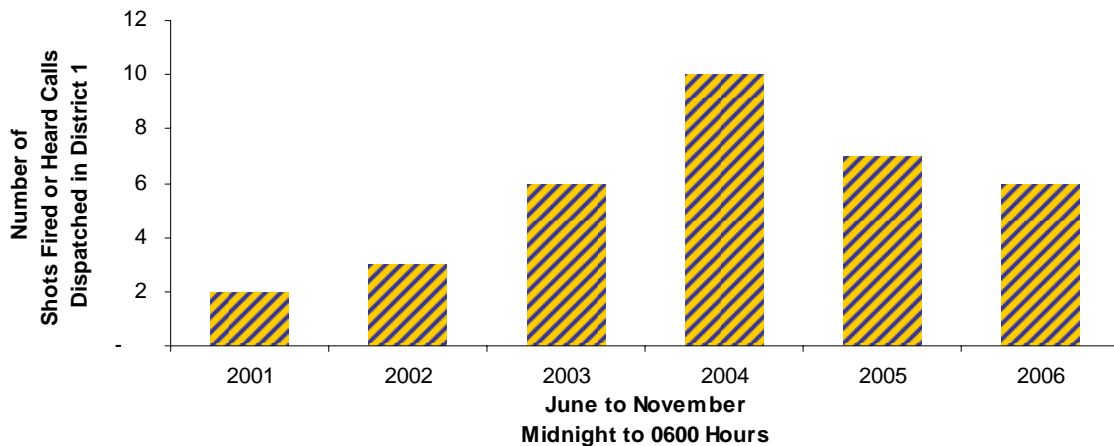
- The number of requests for assistance from the general public dispatched between midnight and 0600 hours in District 1 increased by 16.4% between June-November 2002 and June-November 2003. Overall, it increased 79.6% between June-November 2001 and June-November 2006. In the Entertainment District, the number of requests for assistance from the general public dispatched between midnight and 0600 hours increased by 126.5% between June-November 2001 and June-November 2006.

**Figure 4-87 Number of Requests for Assistance from the General Public Dispatched in the Entertainment District Between June and November**



- The number of shots fired or shots heard calls dispatched between midnight and 0600 hours in District 1 increased by 41.4% between June-November 2002 and June-November 2003. Overall, it increased 114.3% between June-November 2001 and June-November 2006. In the Entertainment District, the number of shots fired or shots heard calls dispatched between midnight and 0600 hours doubled between June-November 2002 and June-November 2003 and tripled between June-November 2001 and June-November 2006.

**Figure 4-88 Number of Shots Fired or Shots Heard Calls Dispatched in the Entertainment District Between June and November**



To summarize, the quantitative evidence available suggests that public order has deteriorated in the Entertainment District and Gastown since some liquor establishments have been allowed to remain open longer. This empirical evidence substantiates the VPD's position that the later closing hours for liquor establishments in the Downtown core are increasing police workload significantly and are creating a drain on police resources. An increase in uniform patrol resources in the Entertainment District would be needed to reduce the risks to public safety and maintain public order.

## 4.9 DISCUSSION

Individual patrol districts typically face different policing problems. Nevertheless, the data confirms that the patrol workload is shared relatively equitably between the existing patrol districts. In most cases, similar trends can be observed across all patrol districts. Most discrepancies between patrol districts can be explained satisfactorily by a careful analysis of the data.

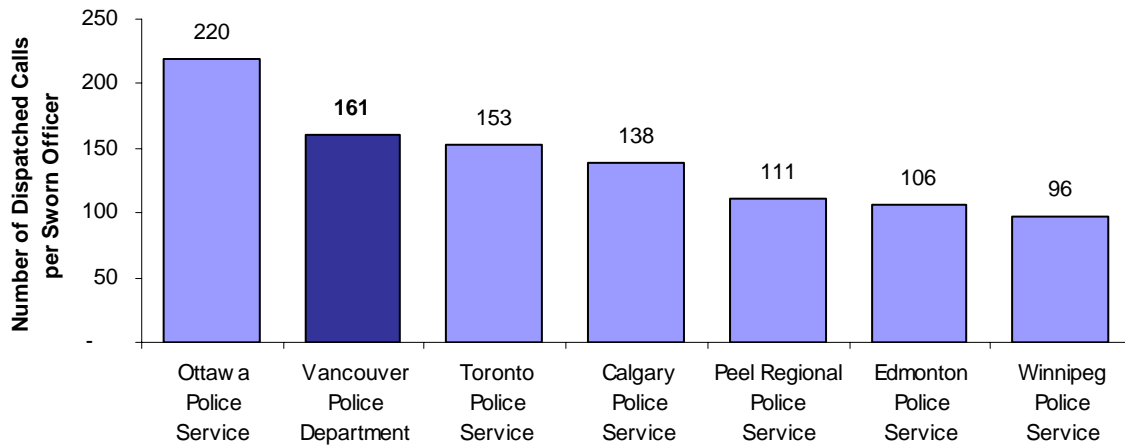
The average call load per officer at the VPD is higher than most other comparable Canadian police agencies. Between 2005-06-01 and 2006-05-31, a total of 188,616 calls were dispatched to a VPD unit. This corresponds to 161 dispatched calls per officer on average. This represents a higher call load per officer than the Toronto Police Service, the Calgary Police Service, the Peel Regional Police Service, the Edmonton Police Service and the Winnipeg Police Service.

**Table 4-28 Average Number of Dispatched Calls per Sworn Officer in Other Canadian Police Agencies**

<b>Agency</b>	<b>Number of Dispatched Calls (2005)</b>	<b>Authorized Sworn Strength (2005)</b>	<b>Number of Dispatched Calls per Sworn Officer</b>
Ottawa Police Service	275,056	1,251	220
<b>Vancouver Police Department</b>	<b>188,616</b>	<b>1,174</b>	<b>161</b>
Toronto Police Service	799,151	5,227	153
Calgary Police Service	205,735	1,489	138
Peel Regional Police Service	185,232	1,669	111
Edmonton Police Service	142,787	1,342	106
Winnipeg Police Service	118,560	1,229	96
<b>Average</b>	<b>273,591</b>	<b>1,912</b>	<b>141</b>

\* The number of dispatched calls for the VPD is reported for the period 2005-06-01 to 2006-05-31.

**Figure 4-89 Average Number of Dispatched Calls per Sworn Officer in Other Canadian Police Agencies**



Between 2005-06-01 and 2006-05-31, regular patrol units at the VPD dealt with various calls for service, incidents, investigations, complainants, witnesses, victims and suspects. Overall, the available empirical evidence suggests that patrol units were generally able to properly deal with most serious situations. However, the sizeable number of cancelled requests for assistance from the general public, noise complaints, disturbing parties, annoying circumstances, unwanted persons, suspicious circumstances and suspicious persons suggests that regular patrol units are not always able to cope with disturbance calls or other “order maintenance” issues. This is a concern for two reasons:

1. A best practice police department in a world-class city should be able to assist citizens and businesses reporting unruly or suspicious behaviour. Maintaining public order, upholding the rule of law and preventing crime is the mission of the VPD. Reducing street disorder is a major component of the VPD Strategic Plan. From a customer service point of view, not being able to responding swiftly to noise complaints, disturbing parties, annoying circumstances and suspicious circumstances is a major concern.
2. Disturbances can rapidly escalate into a violent altercation, an assault or a mischief. Allowing minor issues to worsen or intensify is not an optimal policing

strategy. Order maintenance calls often offer patrol officers valuable opportunities to constructively prevent unfortunate incidents (e.g. an individual who is assaulted when he goes outside to ask his neighbour to turn down the music), potentially uncover criminal activity (e.g. a woman who is sexually assaulted during a raucous party) and to deter mischievous behaviour (e.g. a group of friends who trash a hotel suite).

Best practice police departments have the capability to respond swiftly to most disturbance and order maintenance calls such as noise complaints, disturbing parties, annoying circumstances, unwanted persons, suspicious circumstances and suspicious persons. At the VPD, this ability is often restrained by the heavy call load and the limited amount of patrol resources.



## **5 THE TIMING OF CALLS**

Policing, like other service-based businesses, has a very important temporal component. An efficient deployment model needs to consider the fact that calls are not received at a constant, uniform rate. To optimally adjust the deployment model, it is necessary to know when the call load is concentrated on average and how it will likely fluctuate day after day or even hour after hour.

### **5.1 CALLS BY HOUR OF THE DAY**

Among the 147,501 calls for service dispatched to regular patrol units between 2005-06-01 and 2006-05-31, 79,245 calls were recorded before 0600 hours or after 1800 hours and 68,256 calls were recorded between 0600 and 1800 hours.

As shown in the table below:

- A total of 7,676 calls for service were dispatched to a regular patrol unit between midnight and 0100 hours. From those calls, 4,780 were 9-1-1 calls, 1,966 were officer-initiated and 913 were received through the non-emergency telephone line.
- A total of 7,114 calls for service were dispatched to a regular patrol unit between 0100 and 0200 hours. From those calls, 4,131 were 9-1-1 calls, 2,163 were officer-initiated and 809 were received through the non-emergency telephone line.
- A total of 6,130 calls for service were dispatched to a regular patrol unit between 0200 and 0300 hours. From those calls, 3,582 were 9-1-1 calls, 1,839 were officer-initiated and 704 were received through the non-emergency telephone line.
- A total of 4,656 calls for service were dispatched to a regular patrol unit between 0300 and 0400 hours. From those calls, 2,815 were 9-1-1 calls, 1,216 were officer-initiated and 621 were received through the non-emergency telephone line.

- A total of 3,574 calls for service were dispatched to a regular patrol unit between 0400 and 0500 hours. From those calls, 2,285 were 9-1-1 calls, 757 were officer-initiated and 527 were received through the non-emergency telephone line.
- A total of 3,230 calls for service were dispatched to a regular patrol unit between 0500 and 0600 hours. From those calls, 1,985 were 9-1-1 calls, 716 were officer-initiated and 525 were received through the non-emergency telephone line.
- A total of 3,019 calls for service were dispatched to a regular patrol unit between 0600 and 0700 hours. From those calls, 1,819 were 9-1-1 calls, 686 were officer-initiated and 504 were received through the non-emergency telephone line.
- A total of 3,885 calls for service were dispatched to a regular patrol unit between 0700 and 0800 hours. From those calls, 2,396 were 9-1-1 calls, 789 were officer-initiated and 691 were received through the non-emergency telephone line.
- A total of 4,686 calls for service were dispatched to a regular patrol unit between 0800 and 0900 hours. From those calls, 2,926 were 9-1-1 calls, 846 were officer-initiated and 888 were received through the non-emergency telephone line.
- A total of 5,269 calls for service were dispatched to a regular patrol unit between 0900 and 1000 hours. From those calls, 3,309 were 9-1-1 calls, 926 were officer-initiated and 1,012 were received through the non-emergency telephone line.
- A total of 5,665 calls for service were dispatched to a regular patrol unit between 1000 and 1100 hours. From those calls, 3,573 were 9-1-1 calls, 984 were officer-initiated and 1,082 were received through the non-emergency telephone line.
- A total of 5,695 calls for service were dispatched to a regular patrol unit between 1100 and 1200 hours. From those calls, 3,613 were 9-1-1 calls, 1,013 were officer-initiated and 1,048 were received through the non-emergency telephone line.
- A total of 5,928 calls for service were dispatched to a regular patrol unit between 1200 and 1300 hours. From those calls, 3,821 were 9-1-1 calls, 993 were officer-initiated and 1,093 were received through the non-emergency telephone line.
- A total of 6,025 calls for service were dispatched to a regular patrol unit between 1300 and 1400 hours. From those calls, 3,990 were 9-1-1 calls, 938 were officer-initiated and 1,083 were received through the non-emergency telephone line.

- A total of 6,629 calls for service were dispatched to a regular patrol unit between 1400 and 1500 hours. From those calls, 4,323 were 9-1-1 calls, 1,022 were officer-initiated and 1,266 were received through the non-emergency telephone line.
- A total of 7,088 calls for service were dispatched to a regular patrol unit between 1500 and 1600 hours. From those calls, 4,560 were 9-1-1 calls, 1,217 were officer-initiated and 1,286 were received through the non-emergency telephone line.
- A total of 7,182 calls for service were dispatched to a regular patrol unit between 1600 and 1700 hours. From those calls, 4,630 were 9-1-1 calls, 1,253 were officer-initiated and 1,279 were received through the non-emergency telephone line.
- A total of 7,185 calls for service were dispatched to a regular patrol unit between 1700 and 1800 hours. From those calls, 4,579 were 9-1-1 calls, 1,334 were officer-initiated and 1,260 were received through the non-emergency telephone line.
- A total of 7,142 calls for service were dispatched to a regular patrol unit between 1800 and 1900 hours. From those calls, 4,492 were 9-1-1 calls, 1,466 were officer-initiated and 1,168 were received through the non-emergency telephone line.
- A total of 7,488 calls for service were dispatched to a regular patrol unit between 1900 and 2000 hours. From those calls, 4,700 were 9-1-1 calls, 1,616 were officer-initiated and 1,157 were received through the non-emergency telephone line.
- A total of 7,653 calls for service were dispatched to a regular patrol unit between 2000 and 2100 hours. From those calls, 4,836 were 9-1-1 calls, 1,792 were officer-initiated and 998 were received through the non-emergency telephone line.
- A total of 7,826 calls for service were dispatched to a regular patrol unit between 2100 and 2200 hours. From those calls, 4,886 were 9-1-1 calls, 1,885 were

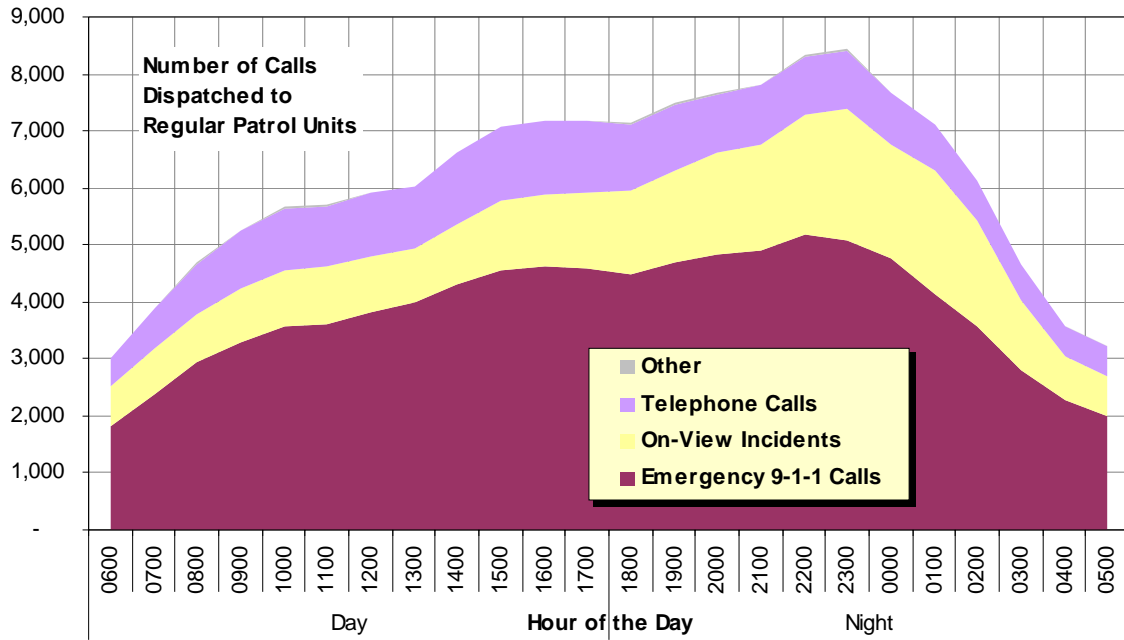
officer-initiated and 1,038 were received through the non-emergency telephone line.

- A total of 8,323 calls for service were dispatched to a regular patrol unit between 2200 and 2300 hours. From those calls, 5,198 were 9-1-1 calls, 2,084 were officer-initiated and 1,013 were received through the non-emergency telephone line.
- A total of 8,433 calls for service were dispatched to a regular patrol unit between 2300 hours and midnight. From those calls, 5,069 were 9-1-1 calls, 2,313 were officer-initiated and 1,027 were received through the non-emergency telephone line.

**Table 5-1 Number of Calls Dispatched to Regular Patrol Units by Hour of the Day**

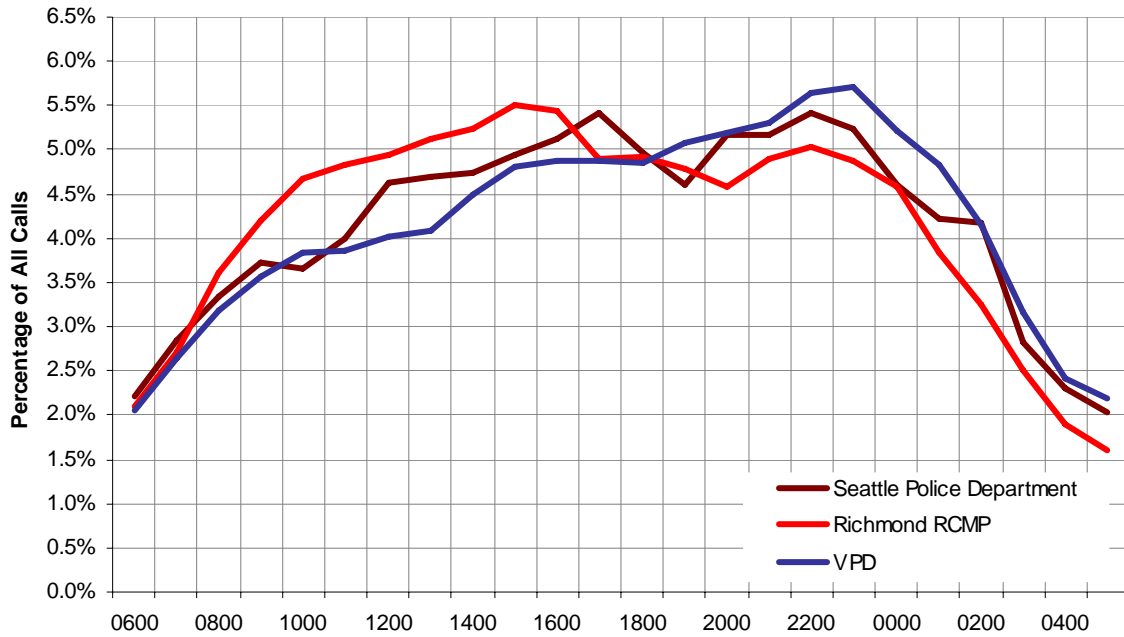
<b>Time of Day</b>	<b>Hour</b>	<b>Emergency 9-1-1 Calls</b>	<b>On-View Incidents</b>	<b>Telephone Calls</b>	<b>Other</b>	<b>Total</b>
<b>Day</b>	0600	1,819	686	504	10	3,019
	0700	2,396	789	691	9	3,885
	0800	2,926	846	888	26	4,686
	0900	3,309	926	1,012	22	5,269
	1000	3,573	984	1,082	26	5,665
	1100	3,613	1,013	1,048	21	5,695
	1200	3,821	993	1,093	21	5,928
	1300	3,990	938	1,083	14	6,025
	1400	4,323	1,022	1,266	18	6,629
	1500	4,560	1,217	1,286	25	7,088
	1600	4,630	1,253	1,279	20	7,182
	1700	4,579	1,334	1,260	12	7,185
<b>Night</b>	1800	4,492	1,466	1,168	16	7,142
	1900	4,700	1,616	1,157	15	7,488
	2000	4,836	1,792	998	27	7,653
	2100	4,886	1,885	1,038	17	7,826
	2200	5,198	2,084	1,013	28	8,323
	2300	5,069	2,313	1,027	24	8,433
	0000	4,780	1,966	913	17	7,676
	0100	4,131	2,163	809	11	7,114
	0200	3,582	1,839	704	5	6,130
	0300	2,815	1,216	621	4	4,656
	0400	2,285	757	527	5	3,574
	0500	1,985	716	525	4	3,230
<b>Total</b>	<b>Total</b>	<b>92,298</b>	<b>31,814</b>	<b>22,992</b>	<b>397</b>	<b>147,501</b>

**Figure 5-1 Number of Calls Citywide by Hour of the Day**



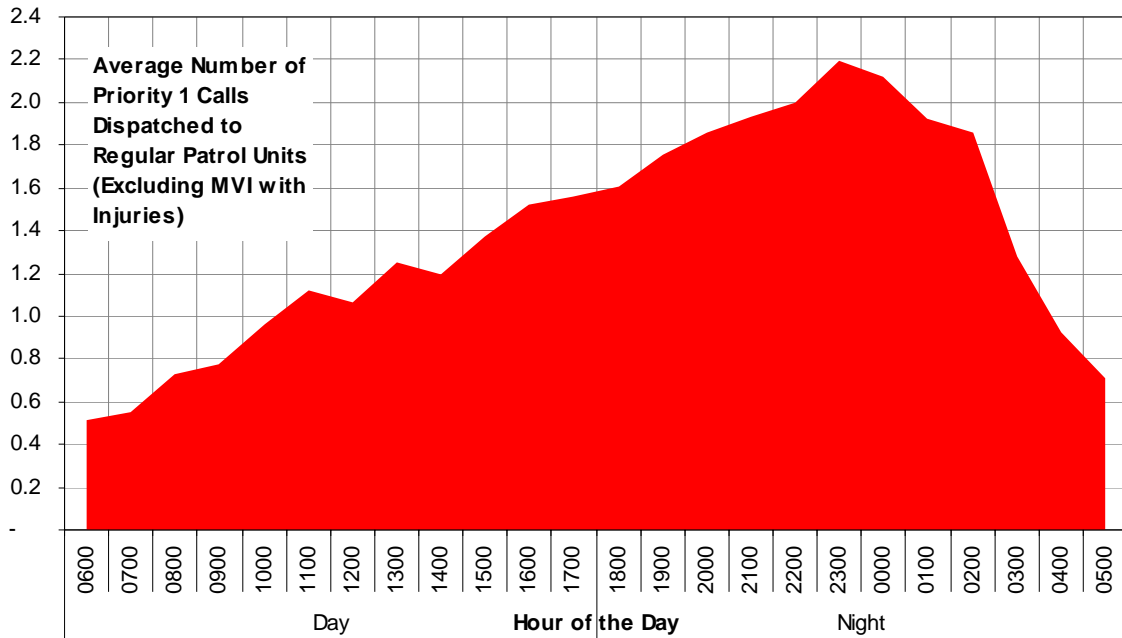
Comparisons with the Seattle Police Department and the Richmond RCMP Detachment show that the call load in these police agencies is distributed similarly to the VPD call load. However, the VPD tends to receive proportionately slightly more calls at night (between 1800 and 0600 hours).

**Figure 5-2 Percentage of Calls by Hour of the Day at the Seattle Police Department and the Richmond RCMP Detachment**

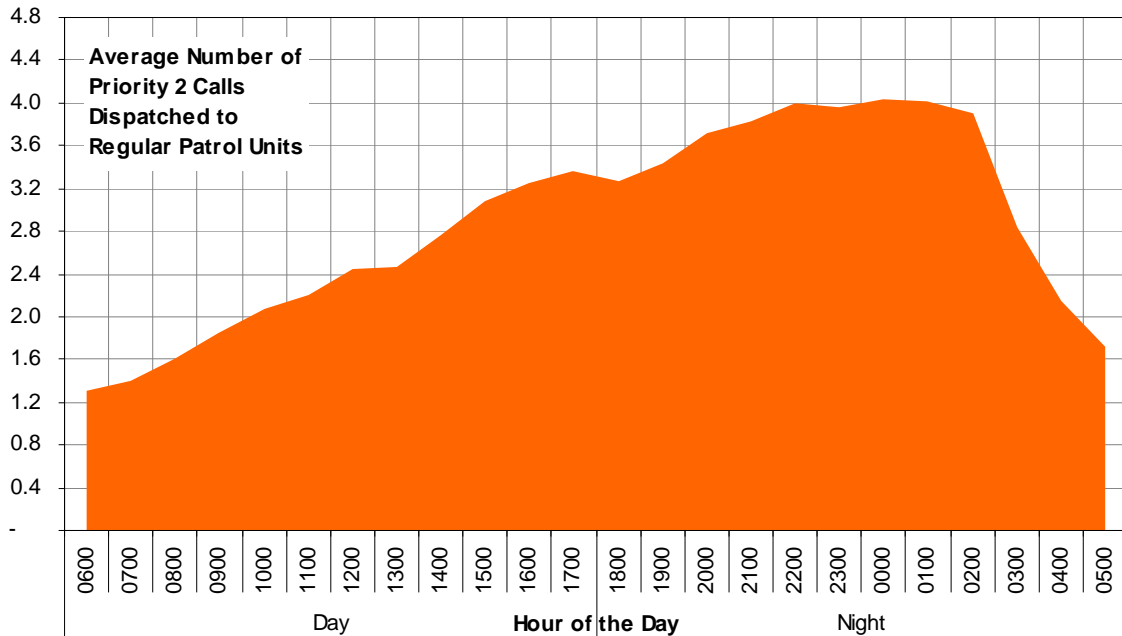


Like the other types of calls, serious priority 1 calls (excluding motor vehicle incidents with injuries) and priority 2 calls were more common between 1200 and 0400 hours.

**Figure 5-3 Average Number of Priority 1 Calls Citywide by Hour of the Day**



**Figure 5-4 Average Number of Priority 2 Calls Citywide by Hour of the Day**



Overall, criminal code offences appeared to be divided relatively equally between the 24 hours of the day in all patrol districts. Between 2005-06-01 and 2006-05-31, however:

- Sexual offences were 50.0% more likely to be reported between 0600 and 1800 hours.
- Thefts were 75.9% more likely to be reported between 0600 and 1800 hours. In particular, shoplifting offences under \$5,000 were 117.8% more likely to be reported between 0600 and 1800 hours.
- Frauds were 112.4% more likely to be reported between 0600 and 1800 hours.
- Commercial break and enters were 66.8% more likely to be reported after 1800 hours or before 0600 hours.
- Arsons were 143.1% more likely to be reported after 1800 hours or before 0600 hours.
- Threats and harassing or obscene phone calls were respectively 72.5% and 76.3% more likely to be reported after 1800 hours or before 0600 hours.
- Robberies were 16.8% more likely to be reported after 1800 hours or before 0600 hours. In particular, robberies with a weapon were 37.1% more common during the night.



**Table 5-2 Number of Criminal Incidents Dispatched to Regular Patrol Units by  
Time of Day**

<b>Criminal Incident</b>	<b>During the Day</b>	<b>% During the Day</b>	<b>At Night</b>	<b>% At Night</b>	<b>Total</b>
Arson	72	29.1%	175	70.9%	<b>247</b>
Commercial Break & Enter	579	37.5%	966	62.5%	<b>1,545</b>
Residential Break & Enter	1,012	49.3%	1,042	50.7%	<b>2,054</b>
Theft (Excluding Shoplifting)	1,753	60.6%	1,142	39.4%	<b>2,895</b>
Shoplifting	1,364	68.4%	630	31.6%	<b>1,994</b>
Theft of Motor Vehicle	194	52.7%	174	47.3%	<b>368</b>
Possession of Stolen Property	516	51.4%	487	48.6%	<b>1,003</b>
Cheque Fraud	182	84.7%	33	15.3%	<b>215</b>
Credit or Debit Card Fraud	309	70.7%	128	29.3%	<b>437</b>
Counterfeit Currency	89	53.9%	76	46.1%	<b>165</b>
Mischief	757	40.9%	1,092	59.1%	<b>1,849</b>
Common Assault	1,549	44.8%	1,906	55.2%	<b>3,455</b>
Assault with a Weapon or CBH	608	40.9%	878	59.1%	<b>1,486</b>
Aggravated Assault	15	33.3%	30	66.7%	<b>45</b>
Sexual Offence	273	60.0%	182	40.0%	<b>455</b>
Robbery	716	46.5%	824	53.5%	<b>1,540</b>
Cocaine Possession	488	48.9%	509	51.1%	<b>997</b>
Heroin Possession	67	54.0%	57	46.0%	<b>124</b>
Cannabis Possession	297	43.8%	381	56.2%	<b>678</b>
Cocaine Trafficking	267	48.5%	283	51.5%	<b>550</b>
Impaired Driving	266	11.0%	2,153	89.0%	<b>2,419</b>
Weapon Possession	417	44.9%	512	55.1%	<b>929</b>
Bail Violation	431	40.4%	635	59.6%	<b>1,066</b>
Criminal Harassment	161	69.1%	72	30.9%	<b>233</b>
Harassing or Obscene Phone Calls	386	63.8%	219	36.2%	<b>605</b>
Indecent Act	107	56.6%	82	43.4%	<b>189</b>
Threats	969	63.3%	562	36.7%	<b>1,531</b>
Other	14,510	48.9%	15,169	51.1%	<b>29,679</b>
<b>Total</b>	<b>28,354</b>	<b>48.3%</b>	<b>30,399</b>	<b>51.7%</b>	<b>58,753</b>

In all patrol districts without exception, more calls for service were recorded before 0600 hours or after 1800 hours between 2005-06-01 and 2006-05-31.

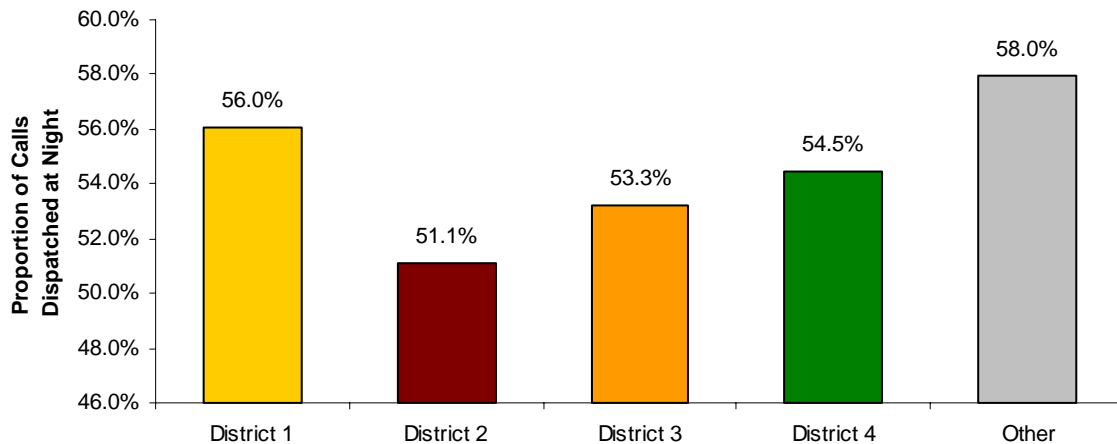
- In District 1, 15,938 calls were recorded between 0600 and 1800 hours and 20,321 calls were recorded before 0600 hours or after 1800 hours. In other words, 27.5% more calls were recorded at night in District 1.

- In District 2, 21,366 calls were recorded between 0600 and 1800 hours and 22,359 calls were recorded before 0600 hours or after 1800 hours. In other words, 4.6% more calls were recorded at night in District 2.
- In District 3, 15,323 calls were recorded between 0600 and 1800 hours and 17,455 calls were recorded before 0600 hours or after 1800 hours. In other words, 13.9% more calls were recorded at night in District 3.
- In District 4, 13,335 calls were recorded between 0600 and 1800 hours and 15,943 calls were recorded before 0600 hours or after 1800 hours. In other words, 19.6% more calls were recorded at night in District 4.

**Table 5-3 Number of Calls by Time of Day by District**

District	Day	Night	Proportion of Calls at Night	Total
District 1	15,938	20,321	56.0%	36,259
District 2	21,366	22,359	51.1%	43,725
District 3	15,323	17,455	53.3%	32,778
District 4	13,335	15,943	54.5%	29,278
Other	2,294	3,167	58.0%	5,461
<b>Total</b>	<b>68,256</b>	<b>79,245</b>	<b>53.7%</b>	<b>147,501</b>

**Figure 5-5 Proportion of Calls Dispatched at Night by District**



As could be expected intuitively, peak call load periods varied slightly by patrol district.

Between 2005-06-01 and 2006-05-31, as shown in the table below:

- A total of 2,037 calls for service were dispatched to a regular patrol unit in District 1 between midnight and 0100 hours. From those calls, 1,196 were 9-1-1 calls, 616 were officer-initiated and 224 were received through the non-emergency telephone line.
- A total of 2,036 calls for service were dispatched to a regular patrol unit in District 1 between 0100 and 0200 hours. From those calls, 1,114 were 9-1-1 calls, 714 were officer-initiated and 208 were received through the non-emergency telephone line.
- A total of 1,825 calls for service were dispatched to a regular patrol unit in District 1 between 0200 and 0300 hours. From those calls, 1,016 were 9-1-1 calls, 615 were officer-initiated and 194 were received through the non-emergency telephone line.
- A total of 1,397 calls for service were dispatched to a regular patrol unit in District 1 between 0300 and 0400 hours. From those calls, 801 were 9-1-1 calls, 420 were officer-initiated and 175 were received through the non-emergency telephone line.
- A total of 988 calls for service were dispatched to a regular patrol unit in District 1 between 0400 and 0500 hours. From those calls, 614 were 9-1-1 calls, 219 were officer-initiated and 152 were received through the non-emergency telephone line.
- A total of 866 calls for service were dispatched to a regular patrol unit in District 1 between 0500 and 0600 hours. From those calls, 526 were 9-1-1 calls, 190 were officer-initiated and 149 were received through the non-emergency telephone line.
- A total of 841 calls for service were dispatched to a regular patrol unit in District 1 between 0600 and 0700 hours. From those calls, 512 were 9-1-1 calls, 190 were officer-initiated and 138 were received through the non-emergency telephone line.
- A total of 941 calls for service were dispatched to a regular patrol unit in District 1 between 0700 and 0800 hours. From those calls, 653 were 9-1-1 calls, 118 were

officer-initiated and 168 were received through the non-emergency telephone line.

- A total of 1,119 calls for service were dispatched to a regular patrol unit in District 1 between 0800 and 0900 hours. From those calls, 762 were 9-1-1 calls, 149 were officer-initiated and 201 were received through the non-emergency telephone line.
- A total of 1,210 calls for service were dispatched to a regular patrol unit in District 1 between 0900 and 1000 hours. From those calls, 802 were 9-1-1 calls, 162 were officer-initiated and 241 were received through the non-emergency telephone line.
- A total of 1,304 calls for service were dispatched to a regular patrol unit in District 1 between 1000 and 1100 hours. From those calls, 875 were 9-1-1 calls, 175 were officer-initiated and 249 were received through the non-emergency telephone line.
- A total of 1,325 calls for service were dispatched to a regular patrol unit in District 1 between 1100 and 1200 hours. From those calls, 925 were 9-1-1 calls, 159 were officer-initiated and 238 were received through the non-emergency telephone line.
- A total of 1,362 calls for service were dispatched to a regular patrol unit in District 1 between 1200 and 1300 hours. From those calls, 948 were 9-1-1 calls, 163 were officer-initiated and 247 were received through the non-emergency telephone line.
- A total of 1,414 calls for service were dispatched to a regular patrol unit in District 1 between 1300 and 1400 hours. From those calls, 986 were 9-1-1 calls, 170 were officer-initiated and 254 were received through the non-emergency telephone line.
- A total of 1,506 calls for service were dispatched to a regular patrol unit in District 1 between 1400 and 1500 hours. From those calls, 1,020 were 9-1-1 calls, 182 were officer-initiated and 298 were received through the non-emergency telephone line.

- A total of 1,636 calls for service were dispatched to a regular patrol unit in District 1 between 1500 and 1600 hours. From those calls, 1,110 were 9-1-1 calls, 251 were officer-initiated and 267 were received through the non-emergency telephone line.
- A total of 1,637 calls for service were dispatched to a regular patrol unit in District 1 between 1600 and 1700 hours. From those calls, 1,079 were 9-1-1 calls, 273 were officer-initiated and 278 were received through the non-emergency telephone line.
- A total of 1,643 calls for service were dispatched to a regular patrol unit in District 1 between 1700 and 1800 hours. From those calls, 1,096 were 9-1-1 calls, 280 were officer-initiated and 266 were received through the non-emergency telephone line.
- A total of 1,637 calls for service were dispatched to a regular patrol unit in District 1 between 1800 and 1900 hours. From those calls, 1,079 were 9-1-1 calls, 299 were officer-initiated and 255 were received through the non-emergency telephone line.
- A total of 1,702 calls for service were dispatched to a regular patrol unit in District 1 between 1900 and 2000 hours. From those calls, 1,067 were 9-1-1 calls, 358 were officer-initiated and 276 were received through the non-emergency telephone line.
- A total of 1,815 calls for service were dispatched to a regular patrol unit in District 1 between 2000 and 2100 hours. From those calls, 1,166 were 9-1-1 calls, 424 were officer-initiated and 222 were received through the non-emergency telephone line.
- A total of 1,891 calls for service were dispatched to a regular patrol unit in District 1 between 2100 and 2200 hours. From those calls, 1,145 were 9-1-1 calls, 513 were officer-initiated and 230 were received through the non-emergency telephone line.
- A total of 2,028 calls for service were dispatched to a regular patrol unit in District 1 between 2200 and 2300 hours. From those calls, 1,196 were 9-1-1 calls, 572

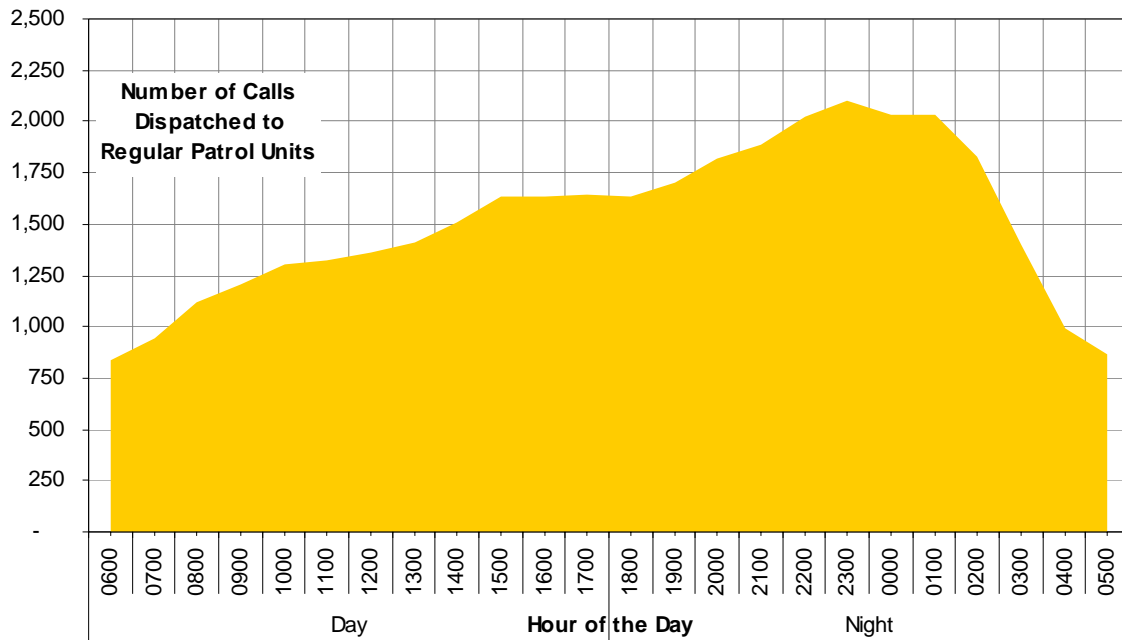
were officer-initiated and 258 were received through the non-emergency telephone line.

- A total of 2,099 calls for service were dispatched to a regular patrol unit in District 1 between 2300 hours and midnight. From those calls, 1,167 were 9-1-1 calls, 690 were officer-initiated and 240 were received through the non-emergency telephone line.

**Table 5-4 Number of Calls in District 1 by Hour of the Day**

<b>Time of Day</b>	<b>Hour</b>	<b>Emergency 9-1-1 Calls</b>	<b>On-View Incidents</b>	<b>Telephone Calls</b>	<b>Other</b>	<b>Total</b>
<b>Day</b>	0600	512	190	138	1	841
	0700	653	118	168	2	941
	0800	762	149	201	7	1,119
	0900	802	162	241	5	1,210
	1000	875	175	249	5	1,304
	1100	925	159	238	3	1,325
	1200	948	163	247	4	1,362
	1300	986	170	254	4	1,414
	1400	1,020	182	298	6	1,506
	1500	1,110	251	267	8	1,636
	1600	1,079	273	278	7	1,637
1700	1,096	280	266	1	1,643	
<b>Night</b>	1800	1,079	299	255	4	1,637
	1900	1,067	358	276	1	1,702
	2000	1,166	424	222	3	1,815
	2100	1,145	513	230	3	1,891
	2200	1,196	572	258	2	2,028
	2300	1,167	690	240	2	2,099
	0000	1,196	616	224	1	2,037
	0100	1,114	714	208		2,036
	0200	1,016	615	194		1,825
	0300	801	420	175	1	1,397
	0400	614	219	152	3	988
0500	526	190	149	1	866	
	<b>Total</b>	<b>22,855</b>	<b>7,902</b>	<b>5,428</b>	<b>74</b>	<b>36,259</b>

**Figure 5-6 Number of Calls in District 1 by Hour of the Day**



Overall, regular patrol units in District 1 were dispatched to an average of approximately 4.1 calls per hour between 2005-06-01 and 2006-05-31. However, 37.9% of all the calls handled by regular patrol units in District 1 were generated during a seven-hour period between 2000 and 0300 hours. This corresponds to a total of 13,731 calls for service or approximately 5.4 calls for service per hour. By comparison, regular patrol units in District 1 handled an average of 3.6 calls for service per hour between 0300 and 2000 hours.

Approximately 35.0% of all 9-1-1 calls handled by regular patrol units in District 1 were generated between 2000 and 0300 hours. This corresponds to a total of 8,000 9-1-1 calls or approximately 3.1 9-1-1 calls per hour. By comparison, regular patrol units in District 1 handled an average of 2.4 9-1-1 calls per hour between 0300 and 2000 hours.

Approximately 52.4% of all officer-initiated calls handled by regular patrol units in District 1 were generated between 2000 and 0300 hours. This corresponds to a total of 4,144 officer-initiated calls or approximately 1.6 officer-initiated calls for service per

hour. By comparison, regular patrol units in District 1 handled an average of 0.6 officer-initiated calls per hour between 0300 and 2000 hours.

Between 2005-06-01 and 2006-05-31, as shown in the table below:

- A total of 2,084 calls for service were dispatched to a regular patrol unit in District 2 between midnight and 0100 hours. From those calls, 1,304 were 9-1-1 calls, 540 were officer-initiated and 231 were received through the non-emergency telephone line.
- A total of 2,021 calls for service were dispatched to a regular patrol unit in District 2 between 0100 and 0200 hours. From those calls, 1,163 were 9-1-1 calls, 639 were officer-initiated and 217 were received through the non-emergency telephone line.
- A total of 1,680 calls for service were dispatched to a regular patrol unit in District 2 between 0200 and 0300 hours. From those calls, 983 were 9-1-1 calls, 529 were officer-initiated and 164 were received through the non-emergency telephone line.
- A total of 1,244 calls for service were dispatched to a regular patrol unit in District 2 between 0300 and 0400 hours. From those calls, 790 were 9-1-1 calls, 302 were officer-initiated and 152 were received through the non-emergency telephone line.
- A total of 997 calls for service were dispatched to a regular patrol unit in District 2 between 0400 and 0500 hours. From those calls, 668 were 9-1-1 calls, 203 were officer-initiated and 126 were received through the non-emergency telephone line.
- A total of 1,006 calls for service were dispatched to a regular patrol unit in District 2 between 0500 and 0600 hours. From those calls, 605 were 9-1-1 calls, 266 were officer-initiated and 135 were received through the non-emergency telephone line.
- A total of 918 calls for service were dispatched to a regular patrol unit in District 2 between 0600 and 0700 hours. From those calls, 545 were 9-1-1 calls, 240 were



officer-initiated and 130 were received through the non-emergency telephone line.

- A total of 1,285 calls for service were dispatched to a regular patrol unit in District 2 between 0700 and 0800 hours. From those calls, 715 were 9-1-1 calls, 366 were officer-initiated and 203 were received through the non-emergency telephone line.
- A total of 1,515 calls for service were dispatched to a regular patrol unit in District 2 between 0800 and 0900 hours. From those calls, 887 were 9-1-1 calls, 378 were officer-initiated and 245 were received through the non-emergency telephone line.
- A total of 1,718 calls for service were dispatched to a regular patrol unit in District 2 between 0900 and 1000 hours. From those calls, 1,021 were 9-1-1 calls, 396 were officer-initiated and 293 were received through the non-emergency telephone line.
- A total of 1,796 calls for service were dispatched to a regular patrol unit in District 2 between 1000 and 1100 hours. From those calls, 1,086 were 9-1-1 calls, 423 were officer-initiated and 278 were received through the non-emergency telephone line.
- A total of 1,815 calls for service were dispatched to a regular patrol unit in District 2 between 1100 and 1200 hours. From those calls, 1,072 were 9-1-1 calls, 453 were officer-initiated and 283 were received through the non-emergency telephone line.
- A total of 1,959 calls for service were dispatched to a regular patrol unit in District 2 between 1200 and 1300 hours. From those calls, 1,181 were 9-1-1 calls, 468 were officer-initiated and 301 were received through the non-emergency telephone line.
- A total of 1,895 calls for service were dispatched to a regular patrol unit in District 2 between 1300 and 1400 hours. From those calls, 1,200 were 9-1-1 calls, 405 were officer-initiated and 287 were received through the non-emergency telephone line.

- A total of 2,032 calls for service were dispatched to a regular patrol unit in District 2 between 1400 and 1500 hours. From those calls, 1,297 were 9-1-1 calls, 391 were officer-initiated and 341 were received through the non-emergency telephone line.
- A total of 2,152 calls for service were dispatched to a regular patrol unit in District 2 between 1500 and 1600 hours. From those calls, 1,319 were 9-1-1 calls, 486 were officer-initiated and 343 were received through the non-emergency telephone line.
- A total of 2,158 calls for service were dispatched to a regular patrol unit in District 2 between 1600 and 1700 hours. From those calls, 1,353 were 9-1-1 calls, 447 were officer-initiated and 355 were received through the non-emergency telephone line.
- A total of 2,123 calls for service were dispatched to a regular patrol unit in District 2 between 1700 and 1800 hours. From those calls, 1,303 were 9-1-1 calls, 497 were officer-initiated and 319 were received through the non-emergency telephone line.
- A total of 2,167 calls for service were dispatched to a regular patrol unit in District 2 between 1800 and 1900 hours. From those calls, 1,279 were 9-1-1 calls, 590 were officer-initiated and 295 were received through the non-emergency telephone line.
- A total of 2,262 calls for service were dispatched to a regular patrol unit in District 2 between 1900 and 2000 hours. From those calls, 1,367 were 9-1-1 calls, 585 were officer-initiated and 308 were received through the non-emergency telephone line.
- A total of 2,155 calls for service were dispatched to a regular patrol unit in District 2 between 2000 and 2100 hours. From those calls, 1,343 were 9-1-1 calls, 564 were officer-initiated and 237 were received through the non-emergency telephone line.
- A total of 2,231 calls for service were dispatched to a regular patrol unit in District 2 between 2100 and 2200 hours. From those calls, 1,348 were 9-1-1 calls, 611

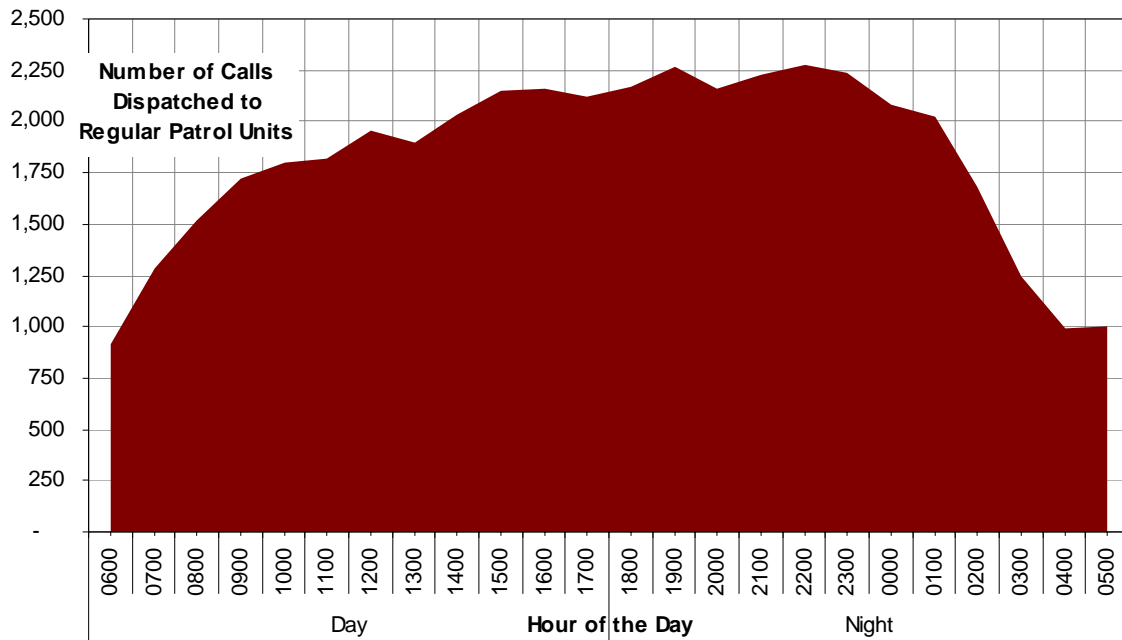
were officer-initiated and 266 were received through the non-emergency telephone line.

- A total of 2,274 calls for service were dispatched to a regular patrol unit in District 2 between 2200 and 2300 hours. From those calls, 1,438 were 9-1-1 calls, 603 were officer-initiated and 224 were received through the non-emergency telephone line.
- A total of 2,238 calls for service were dispatched to a regular patrol unit in District 2 between 2300 hours and midnight. From those calls, 1,310 were 9-1-1 calls, 680 were officer-initiated and 239 were received through the non-emergency telephone line.

**Table 5-5 Number of Calls in District 2 by Hour of the Day**

<b>Time of Day</b>	<b>Hour</b>	<b>Emergency 9-1-1 Calls</b>	<b>On-View Incidents</b>	<b>Telephone Calls</b>	<b>Other</b>	<b>Total</b>
<b>Day</b>	0600	545	240	130	3	918
	0700	715	366	203	1	1,285
	0800	887	378	245	5	1,515
	0900	1,021	396	293	8	1,718
	1000	1,086	423	278	9	1,796
	1100	1,072	453	283	7	1,815
	1200	1,181	468	301	9	1,959
	1300	1,200	405	287	3	1,895
	1400	1,297	391	341	3	2,032
	1500	1,319	486	343	4	2,152
	1600	1,353	447	355	3	2,158
	1700	1,303	497	319	4	2,123
<b>Night</b>	1800	1,279	590	295	3	2,167
	1900	1,367	585	308	2	2,262
	2000	1,343	564	237	11	2,155
	2100	1,348	611	266	6	2,231
	2200	1,438	603	224	9	2,274
	2300	1,310	680	239	9	2,238
	0000	1,304	540	231	9	2,084
	0100	1,163	639	217	2	2,021
	0200	983	529	164	4	1,680
	0300	790	302	152		1,244
	0400	668	203	126		997
	0500	605	266	135		1,006
	<b>Total</b>	<b>26,577</b>	<b>11,062</b>	<b>5,972</b>	<b>114</b>	<b>43,725</b>

**Figure 5-7 Number of Calls in District 2 by Hour of the Day**



Overall, regular patrol units in District 2 were dispatched to an average of approximately 5.0 calls per hour between 2005-06-01 and 2006-05-31. However, 45.2% of all the calls handled by regular patrol units in District 2 were generated during a nine-hour period between 1500 hours and midnight. This corresponds to a total of 19,760 calls for service or approximately 6.0 calls for service per hour. By comparison, regular patrol units in District 2 handled an average of 4.4 calls for service per hour between midnight and 1500 hours.

Approximately 45.4% of all 9-1-1 calls handled by regular patrol units in District 2 were generated between 1500 hours and midnight. This corresponds to a total of 12,060 9-1-1 calls or approximately 3.7 9-1-1 calls per hour. By comparison, regular patrol units in District 2 handled an average of 2.7 9-1-1 calls per hour between 1500 hours and midnight.

Approximately 45.8% of all officer-initiated calls handled by regular patrol units in District 2 were generated between 1500 hours and midnight. This corresponds to a total of 5,063 officer-initiated calls or approximately 1.5 officer-initiated calls for service per

hour. By comparison, regular patrol units in District 2 handled an average of 1.1 officer-initiated calls per hour between 1500 hours and midnight.

Between 2005-06-01 and 2006-05-31, as shown in the table below:

- A total of 1,671 calls for service were dispatched to a regular patrol unit in District 3 between midnight and 0100 hours. From those calls, 1,164 were 9-1-1 calls, 295 were officer-initiated and 207 were received through the non-emergency telephone line.
- A total of 1,399 calls for service were dispatched to a regular patrol unit in District 3 between 0100 and 0200 hours. From those calls, 948 were 9-1-1 calls, 288 were officer-initiated and 160 were received through the non-emergency telephone line.
- A total of 1,128 calls for service were dispatched to a regular patrol unit in District 3 between 0200 and 0300 hours. From those calls, 747 were 9-1-1 calls, 235 were officer-initiated and 145 were received through the non-emergency telephone line.
- A total of 962 calls for service were dispatched to a regular patrol unit in District 3 between 0300 and 0400 hours. From those calls, 637 were 9-1-1 calls, 185 were officer-initiated and 139 were received through the non-emergency telephone line.
- A total of 802 calls for service were dispatched to a regular patrol unit in District 3 between 0400 and 0500 hours. From those calls, 536 were 9-1-1 calls, 148 were officer-initiated and 117 were received through the non-emergency telephone line.
- A total of 679 calls for service were dispatched to a regular patrol unit in District 3 between 0500 and 0600 hours. From those calls, 452 were 9-1-1 calls, 103 were officer-initiated and 122 were received through the non-emergency telephone line.
- A total of 666 calls for service were dispatched to a regular patrol unit in District 3 between 0600 and 0700 hours. From those calls, 442 were 9-1-1 calls, 110 were

officer-initiated and 109 were received through the non-emergency telephone line.

- A total of 849 calls for service were dispatched to a regular patrol unit in District 3 between 0700 and 0800 hours. From those calls, 583 were 9-1-1 calls, 99 were officer-initiated and 165 were received through the non-emergency telephone line.
- A total of 975 calls for service were dispatched to a regular patrol unit in District 3 between 0800 and 0900 hours. From those calls, 664 were 9-1-1 calls, 112 were officer-initiated and 193 were received through the non-emergency telephone line.
- A total of 1,114 calls for service were dispatched to a regular patrol unit in District 3 between 0900 and 1000 hours. From those calls, 766 were 9-1-1 calls, 130 were officer-initiated and 214 were received through the non-emergency telephone line.
- A total of 1,216 calls for service were dispatched to a regular patrol unit in District 3 between 1000 and 1100 hours. From those calls, 808 were 9-1-1 calls, 115 were officer-initiated and 281 were received through the non-emergency telephone line.
- A total of 1,222 calls for service were dispatched to a regular patrol unit in District 3 between 1100 and 1200 hours. From those calls, 839 were 9-1-1 calls, 118 were officer-initiated and 262 were received through the non-emergency telephone line.
- A total of 1,308 calls for service were dispatched to a regular patrol unit in District 3 between 1200 and 1300 hours. From those calls, 940 were 9-1-1 calls, 116 were officer-initiated and 248 were received through the non-emergency telephone line.
- A total of 1,369 calls for service were dispatched to a regular patrol unit in District 3 between 1300 and 1400 hours. From those calls, 988 were 9-1-1 calls, 128 were officer-initiated and 250 were received through the non-emergency telephone line.

- A total of 1,502 calls for service were dispatched to a regular patrol unit in District 3 between 1400 and 1500 hours. From those calls, 1,056 were 9-1-1 calls, 154 were officer-initiated and 288 were received through the non-emergency telephone line.
- A total of 1,616 calls for service were dispatched to a regular patrol unit in District 3 between 1500 and 1600 hours. From those calls, 1,127 were 9-1-1 calls, 167 were officer-initiated and 315 were received through the non-emergency telephone line.
- A total of 1,768 calls for service were dispatched to a regular patrol unit in District 3 between 1600 and 1700 hours. From those calls, 1,227 were 9-1-1 calls, 215 were officer-initiated and 319 were received through the non-emergency telephone line.
- A total of 1,718 calls for service were dispatched to a regular patrol unit in District 3 between 1700 and 1800 hours. From those calls, 1,169 were 9-1-1 calls, 208 were officer-initiated and 335 were received through the non-emergency telephone line.
- A total of 1,693 calls for service were dispatched to a regular patrol unit in District 3 between 1800 and 1900 hours. From those calls, 1,148 were 9-1-1 calls, 221 were officer-initiated and 318 were received through the non-emergency telephone line.
- A total of 1,707 calls for service were dispatched to a regular patrol unit in District 3 between 1900 and 2000 hours. From those calls, 1,180 were 9-1-1 calls, 247 were officer-initiated and 274 were received through the non-emergency telephone line.
- A total of 1,761 calls for service were dispatched to a regular patrol unit in District 3 between 2000 and 2100 hours. From those calls, 1,213 were 9-1-1 calls, 290 were officer-initiated and 252 were received through the non-emergency telephone line.
- A total of 1,807 calls for service were dispatched to a regular patrol unit in District 3 between 2100 and 2200 hours. From those calls, 1,267 were 9-1-1 calls, 268

were officer-initiated and 268 were received through the non-emergency telephone line.

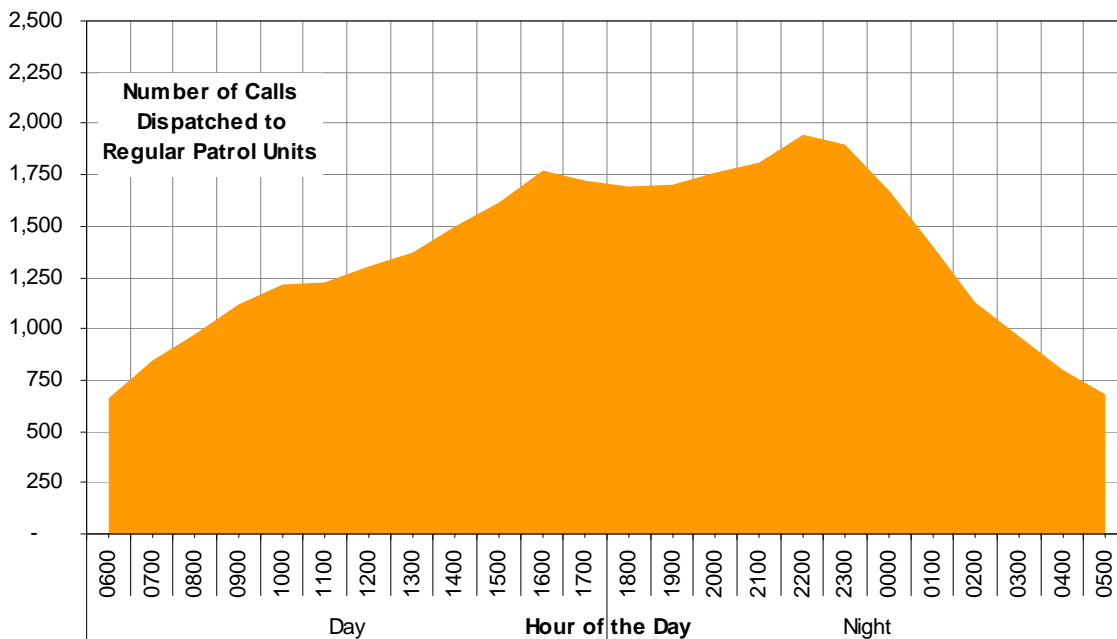
- A total of 1,946 calls for service were dispatched to a regular patrol unit in District 3 between 2200 and 2300 hours. From those calls, 1,328 were 9-1-1 calls, 362 were officer-initiated and 244 were received through the non-emergency telephone line.
- A total of 1,900 calls for service were dispatched to a regular patrol unit in District 3 between 2300 hours and midnight. From those calls, 1,271 were 9-1-1 calls, 359 were officer-initiated and 265 were received through the non-emergency telephone line.

**Table 5-6 Number of Calls in District 3 by Hour of the Day**

Time of Day	Hour	Emergency 9-1-1 Calls	On-View Incidents	Telephone Calls	Other	Total
Day	0600	442	110	109	5	666
	0700	583	99	165	2	849
	0800	664	112	193	6	975
	0900	766	130	214	4	1,114
	1000	808	115	281	12	1,216
	1100	839	118	262	3	1,222
	1200	940	116	248	4	1,308
	1300	988	128	250	3	1,369
	1400	1,056	154	288	4	1,502
	1500	1,127	167	315	7	1,616
	1600	1,227	215	319	7	1,768
	1700	1,169	208	335	6	1,718
Night	1800	1,148	221	318	6	1,693
	1900	1,180	247	274	6	1,707
	2000	1,213	290	252	6	1,761
	2100	1,267	268	268	4	1,807
	2200	1,328	362	244	12	1,946
	2300	1,271	359	265	5	1,900
	0000	1,164	295	207	5	1,671
	0100	948	288	160	3	1,399
	0200	747	235	145	1	1,128
	0300	637	185	139	1	962
	0400	536	148	117	1	802
	0500	452	103	122	2	679
	<b>Total</b>	<b>22,500</b>	<b>4,673</b>	<b>5,490</b>	<b>115</b>	<b>32,778</b>



**Figure 5-8 Number of Calls in District 3 by Hour of the Day**



Overall, regular patrol units in District 3 were dispatched to an average of approximately 3.7 calls per hour between 2005-06-01 and 2006-05-31. However, 53.7% of all the calls handled by regular patrol units in District 3 were generated during a ten-hour period between 1500 and 0100 hours. This corresponds to a total of 17,587 calls for service or approximately 4.8 calls for service per hour. By comparison, regular patrol units in District 3 handled an average of 3.0 calls for service per hour between 0100 and 1500 hours.

Approximately 53.8% of all 9-1-1 calls handled by regular patrol units in District 3 were generated between 1500 and 0100 hours. This corresponds to a total of 12,094 9-1-1 calls or approximately 3.3 9-1-1 calls per hour. By comparison, regular patrol units in District 3 handled an average of 2.0 9-1-1 calls per hour between 0100 and 1500 hours.

Approximately 56.3% of all officer-initiated calls handled by regular patrol units in District 3 were generated between 1500 and 0100 hours. This corresponds to a total of 2,632 officer-initiated calls or approximately 0.7 officer-initiated calls for service per

hour. By comparison, regular patrol units in District 3 handled an average of 0.4 officer-initiated calls per hour between 0100 and 1500 hours.

Between 2005-06-01 and 2006-05-31, as shown in the table below:

- A total of 1,563 calls for service were dispatched to a regular patrol unit in District 4 between midnight and 0100 hours. From those calls, 1,113 were 9-1-1 calls, 201 were officer-initiated and 247 were received through the non-emergency telephone line.
- A total of 1,343 calls for service were dispatched to a regular patrol unit in District 4 between 0100 and 0200 hours. From those calls, 904 were 9-1-1 calls, 211 were officer-initiated and 222 were received through the non-emergency telephone line.
- A total of 1,225 calls for service were dispatched to a regular patrol unit in District 4 between 0200 and 0300 hours. From those calls, 835 were 9-1-1 calls, 191 were officer-initiated and 199 were received through the non-emergency telephone line.
- A total of 884 calls for service were dispatched to a regular patrol unit in District 4 between 0300 and 0400 hours. From those calls, 586 were 9-1-1 calls, 141 were officer-initiated and 155 were received through the non-emergency telephone line.
- A total of 692 calls for service were dispatched to a regular patrol unit in District 4 between 0400 and 0500 hours. From those calls, 466 were 9-1-1 calls, 93 were officer-initiated and 132 were received through the non-emergency telephone line.
- A total of 584 calls for service were dispatched to a regular patrol unit in District 4 between 0500 and 0600 hours. From those calls, 402 were 9-1-1 calls, 63 were officer-initiated and 118 were received through the non-emergency telephone line.
- A total of 499 calls for service were dispatched to a regular patrol unit in District 4 between 0600 and 0700 hours. From those calls, 319 were 9-1-1 calls, 52 were

officer-initiated and 127 were received through the non-emergency telephone line.

- A total of 653 calls for service were dispatched to a regular patrol unit in District 4 between 0700 and 0800 hours. From those calls, 443 were 9-1-1 calls, 52 were officer-initiated and 154 were received through the non-emergency telephone line.
- A total of 934 calls for service were dispatched to a regular patrol unit in District 4 between 0800 and 0900 hours. From those calls, 611 were 9-1-1 calls, 67 were officer-initiated and 248 were received through the non-emergency telephone line.
- A total of 1,054 calls for service were dispatched to a regular patrol unit in District 4 between 0900 and 1000 hours. From those calls, 716 were 9-1-1 calls, 72 were officer-initiated and 262 were received through the non-emergency telephone line.
- A total of 1,133 calls for service were dispatched to a regular patrol unit in District 4 between 1000 and 1100 hours. From those calls, 804 were 9-1-1 calls, 56 were officer-initiated and 273 were received through the non-emergency telephone line.
- A total of 1,104 calls for service were dispatched to a regular patrol unit in District 4 between 1100 and 1200 hours. From those calls, 774 were 9-1-1 calls, 59 were officer-initiated and 263 were received through the non-emergency telephone line.
- A total of 1,100 calls for service were dispatched to a regular patrol unit in District 4 between 1200 and 1300 hours. From those calls, 748 were 9-1-1 calls, 52 were officer-initiated and 296 were received through the non-emergency telephone line.
- A total of 1,176 calls for service were dispatched to a regular patrol unit in District 4 between 1300 and 1400 hours. From those calls, 814 were 9-1-1 calls, 66 were officer-initiated and 292 were received through the non-emergency telephone line.

- A total of 1,375 calls for service were dispatched to a regular patrol unit in District 4 between 1400 and 1500 hours. From those calls, 946 were 9-1-1 calls, 85 were officer-initiated and 339 were received through the non-emergency telephone line.
- A total of 1,455 calls for service were dispatched to a regular patrol unit in District 4 between 1500 and 1600 hours. From those calls, 1,001 were 9-1-1 calls, 92 were officer-initiated and 356 were received through the non-emergency telephone line.
- A total of 1,400 calls for service were dispatched to a regular patrol unit in District 4 between 1600 and 1700 hours. From those calls, 969 were 9-1-1 calls, 101 were officer-initiated and 327 were received through the non-emergency telephone line.
- A total of 1,452 calls for service were dispatched to a regular patrol unit in District 4 between 1700 and 1800 hours. From those calls, 1,007 were 9-1-1 calls, 108 were officer-initiated and 336 were received through the non-emergency telephone line.
- A total of 1,409 calls for service were dispatched to a regular patrol unit in District 4 between 1800 and 1900 hours. From those calls, 982 were 9-1-1 calls, 124 were officer-initiated and 300 were received through the non-emergency telephone line.
- A total of 1,551 calls for service were dispatched to a regular patrol unit in District 4 between 1900 and 2000 hours. From those calls, 1,085 were 9-1-1 calls, 162 were officer-initiated and 299 were received through the non-emergency telephone line.
- A total of 1,590 calls for service were dispatched to a regular patrol unit in District 4 between 2000 and 2100 hours. From those calls, 1,112 were 9-1-1 calls, 184 were officer-initiated and 287 were received through the non-emergency telephone line.
- A total of 1,565 calls for service were dispatched to a regular patrol unit in District 4 between 2100 and 2200 hours. From those calls, 1,124 were 9-1-1 calls, 164

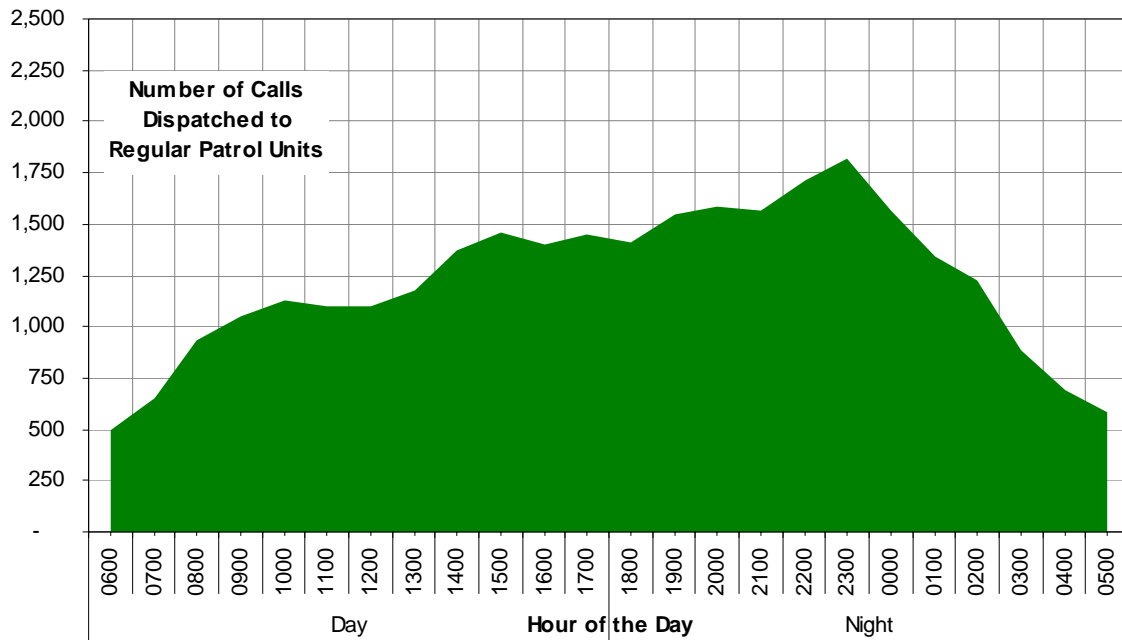
were officer-initiated and 273 were received through the non-emergency telephone line.

- A total of 1,716 calls for service were dispatched to a regular patrol unit in District 4 between 2200 and 2300 hours. From those calls, 1,234 were 9-1-1 calls, 192 were officer-initiated and 285 were received through the non-emergency telephone line.
- A total of 1,821 calls for service were dispatched to a regular patrol unit in District 4 between 2300 hours and midnight. From those calls, 1,321 were 9-1-1 calls, 211 were officer-initiated and 281 were received through the non-emergency telephone line.

**Table 5-7 Number of Calls in District 4 by Hour of the Day**

<b>Time of Day</b>	<b>Hour</b>	<b>Emergency 9-1-1 Calls</b>	<b>On-View Incidents</b>	<b>Telephone Calls</b>	<b>Other</b>	<b>Total</b>
Day	0600	319	52	127	1	499
	0700	443	52	154	4	653
	0800	611	67	248	8	934
	0900	716	72	262	4	1,054
	1000	804	56	273		1,133
	1100	774	59	263	8	1,104
	1200	748	52	296	4	1,100
	1300	814	66	292	4	1,176
	1400	946	85	339	5	1,375
	1500	1,001	92	356	6	1,455
	1600	969	101	327	3	1,400
1700	1,007	108	336	1	1,452	
Night	1800	982	124	300	3	1,409
	1900	1,085	162	299	5	1,551
	2000	1,112	184	287	7	1,590
	2100	1,124	164	273	4	1,565
	2200	1,234	192	285	5	1,716
	2300	1,321	211	281	8	1,821
	0000	1,113	201	247	2	1,563
	0100	904	211	222	6	1,343
	0200	835	191	199		1,225
	0300	586	141	155	2	884
	0400	466	93	132	1	692
0500	402	63	118	1	584	
	<b>Total</b>	<b>20,316</b>	<b>2,799</b>	<b>6,071</b>	<b>92</b>	<b>29,278</b>

**Figure 5-9 Number of Calls in District 4 by Hour of the Day**



Overall, regular patrol units in District 4 were dispatched to an average of approximately 3.3 calls per hour between 2005-06-01 and 2006-05-31. However, 53.0% of all the calls handled by regular patrol units in District 4 were generated during a ten-hour period between 1500 and 0100 hours. This corresponds to a total of 15,522 calls for service or approximately 4.2 calls for service per hour. By comparison, regular patrol units in District 4 handled an average of 2.7 calls for service per hour between 0100 and 1500 hours.

Approximately 53.9% of all 9-1-1 calls handled by regular patrol units in District 4 were generated between 1500 and 0100 hours. This corresponds to a total of 10,948 9-1-1 calls or approximately 3.0 9-1-1 calls per hour. By comparison, regular patrol units in District 4 handled an average of 1.8 9-1-1 calls per hour between 0100 and 1500 hours.

Approximately 55.0% of all officer-initiated calls handled by regular patrol units in District 4 were generated between 1500 and 0100 hours. This corresponds to a total of 1,539 officer-initiated calls or approximately 0.4 officer-initiated calls for service per

hour. By comparison, regular patrol units in District 4 handled an average of less than 0.3 officer-initiated calls per hour between 0100 and 1500 hours.

Between 2005-06-01 and 2006-05-31, more officer-initiated calls tended to be handled by regular patrol units just before and just after midnight, just as more 9-1-1 calls were received. Although they are very valuable and rewarding, these officer-initiated activities magnified the workload problems and staffing shortage in patrol.

As demonstrated above, the proportion of calls recorded at night was proportionately higher in District 1 and District 4. Between 2005-06-01 and 2006-05-31, approximately 27.5% and 19.6% more calls for service were recorded at night in District 1 and District 4 respectively. By comparison, only 4.6% and 13.9% more calls were recorded at night in District 2 and District 3 respectively. This difference between District 1 and District 4 vs. District 2 and 3 can be explained in a large part by the fact that:

- Regular patrol units in District 1 and District 4 tend to respond to more disturbance calls and disturbance calls are much more frequent at night.
- Regular patrol units in District 1 tend to handle more intelligence calls and intelligence calls in District 1 are most frequent at night.
- Regular patrol units in District 1 tend to respond to more fights and fights are much more frequent at night. Moreover, a larger proportion of the fights in District 1 and District 4 occur at night compared to the other patrol districts.
- Regular patrol units in District 2 tend to respond to more common assaults and common assaults in District 2 are slightly more frequent during the day. By contrast, common assaults in District 1 are slightly more frequent during the night.
- Regular patrol units in District 2 and District 3 tend to enforce more warrants during the day.
- Regular patrol units in District 2 and District 3 tend to respond to more suspicious circumstances calls and suspicious circumstances calls are relatively more likely to be recorded during the day.
- Regular patrol units in District 2 and District 3 tend to respond to more sudden deaths and sudden deaths are much more frequent during the day.

- Regular patrol units in District 4 tend to respond to more alarm calls and alarm calls are slightly more likely to occur during the night.
- Compared to the other patrol districts, assaults in progress in District 1 are relatively more likely to occur at night. Regular patrol units in District 1 respond to more than 2 times more assaults in progress during the night compared to the rest of the day. By comparison, regular patrol units in the other patrol districts respond to only 30% to 70% more assaults in progress during the night.
- Compared to District 2 and District 3, regular patrol units in District 1 and District 4 tend to apprehend many more individuals intoxicated in a public place during the night. Regular patrol units in District 1 and District 4 apprehend approximately 6 to 7 times more people for a SIPP during the night compared to the rest of the day. By comparison, regular patrol units in District 2 and District 3 apprehend only 3 times more people for a SIPP during the night.
- Compared to District 2 and District 3, domestic situations in progress in District 1 and District 4 are relatively more likely to occur at night. Regular patrol units in District 1 and District 4 respond to 2 to 3 times more domestic situations in progress during the night compared to the rest of the day. By comparison, regular patrol units in District 2 and District 3 respond to only 60% to 90% more domestic situations in progress during the night.
- Compared to District 2 and District 3, the regular patrol units in District 1 and District 4 generate relatively more traffic suspensions at night. Regular patrol units in District 1 and District 4 generate 9 to 10 times more traffic suspensions during the night compared to the rest of the day. By comparison, regular patrol units in District 2 and District 3 generate approximately only 4 times more traffic suspensions during the night.

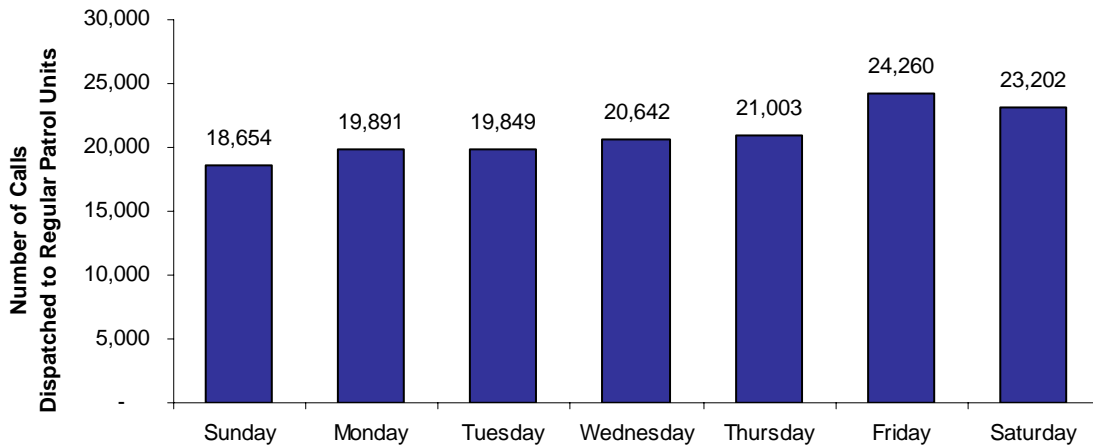
## **5.2 CALLS BY DAY OF THE WEEK**

As expected, proportionally more calls for service were dispatched to a regular patrol unit between Thursday morning and Sunday morning (late Saturday night). From the 147,501 calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31,



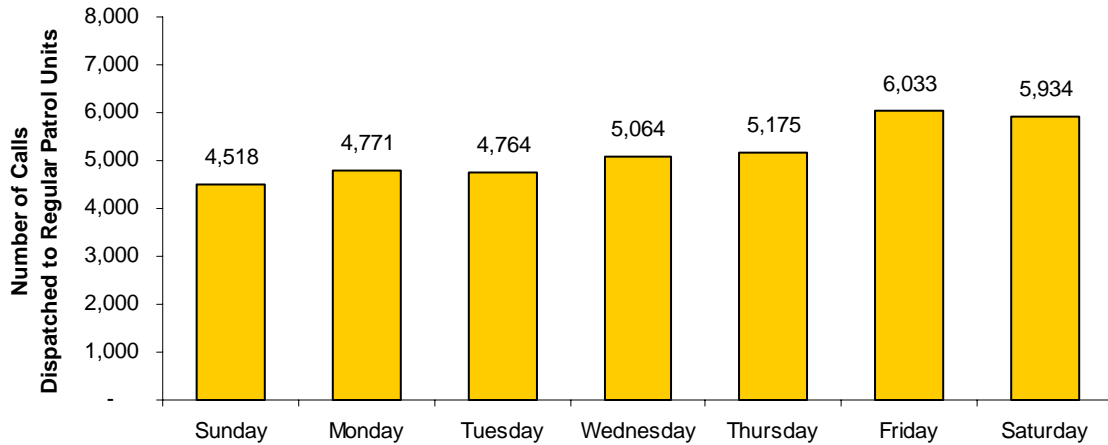
68,465 calls for service were recorded between Thursday and Saturday (46.4% of the calls dispatched to a regular patrol unit). By comparison, only 58,394 calls were recorded between Sunday and Tuesday (39.6% of the calls dispatched to a regular patrol unit).

**Figure 5-10 Number of Calls by Day of the Week Citywide**



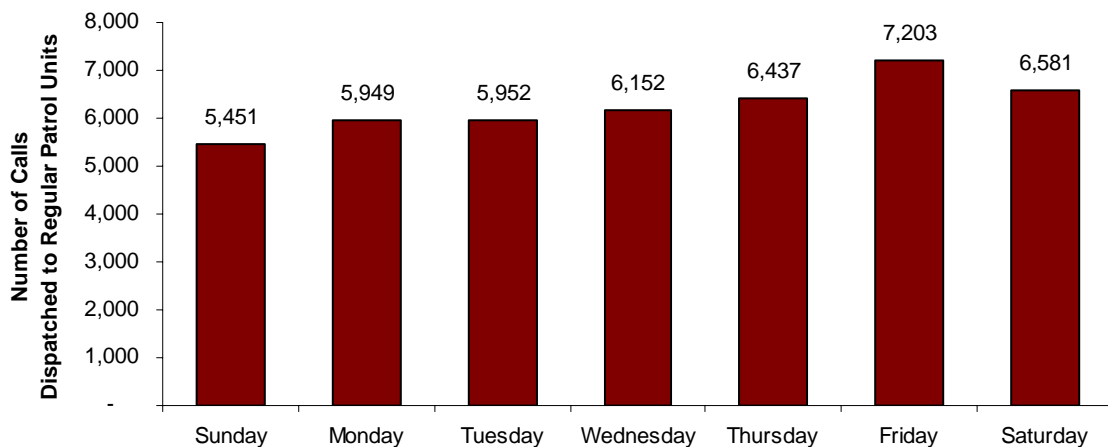
From the 36,259 calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31 in District 1, 17,142 calls for service were recorded between Thursday and Saturday (47.3% of all the calls dispatched to a regular patrol unit in District 1). By comparison, only 14,053 calls were recorded between Sunday and Tuesday (38.8% of the calls dispatched to a regular patrol unit in District 1).

**Figure 5-11 Number of Calls in District 1 by Day of the Week**



From the 43,725 calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31 in District 2, 20,221 calls for service were recorded between Thursday and Saturday (46.2% of all the calls dispatched to a regular patrol unit in District 2). By comparison, only 17,352 calls were recorded between Sunday and Tuesday (39.7% of the calls dispatched to a regular patrol unit in District 2).

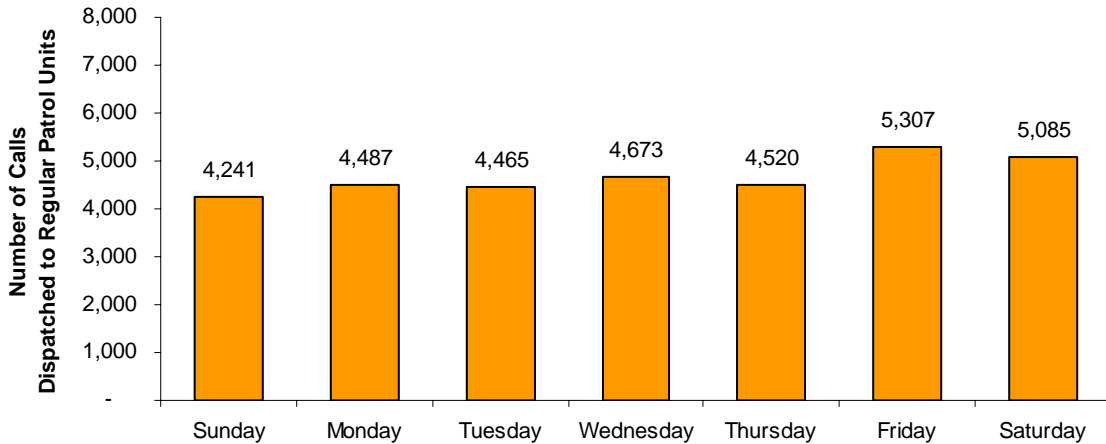
**Figure 5-12 Number of Calls in District 2 by Day of the Week**



From the 32,778 calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31 in District 3, 14,912 calls for service were recorded between Thursday and Saturday (45.5% of all the calls dispatched to a regular patrol unit in District 3). By

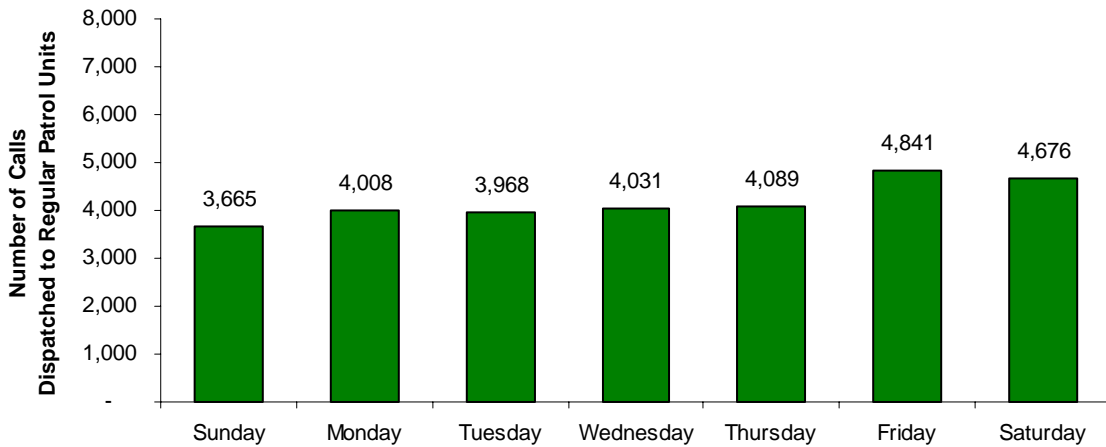
comparison, only 13,193 calls were recorded between Sunday and Tuesday (40.2% of the calls dispatched to a regular patrol unit in District 3).

**Figure 5-13 Number of Calls in District 3 by Day of the Week**



From the 29,278 calls dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31 in District 4, 13,606 calls for service were recorded between Thursday and Saturday (46.5% of all the calls dispatched to a regular patrol unit in District 4). By comparison, only 11,641 calls were recorded between Sunday and Tuesday (39.8% of the calls dispatched to a regular patrol unit in District 4).

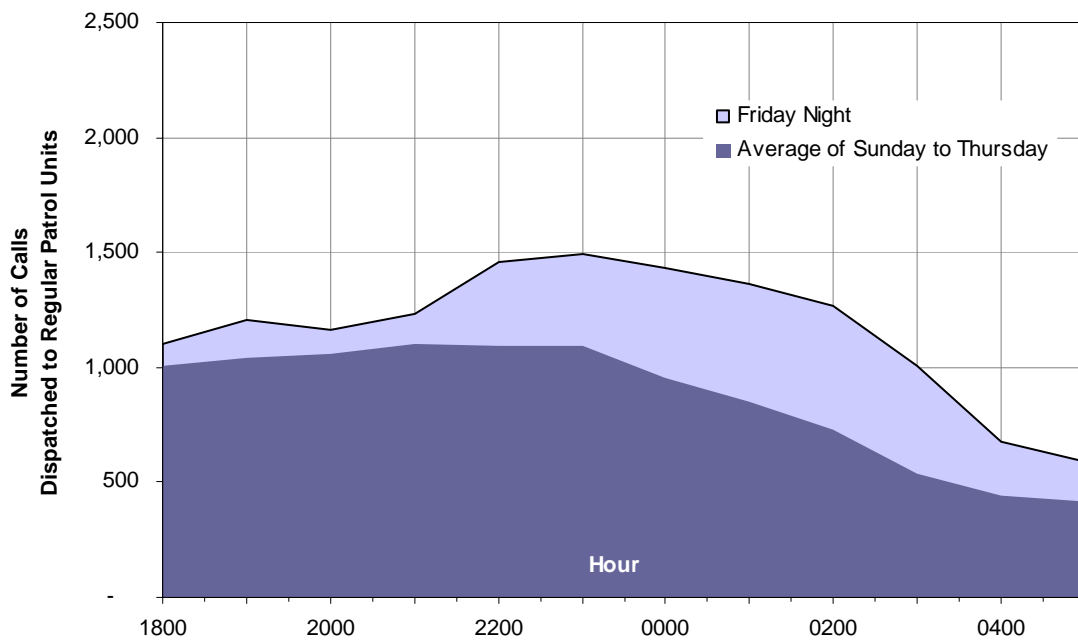
**Figure 5-14 Number of Calls in District 4 by Day of the Week**



### 5.3 PEAK CALL LOAD PERIODS

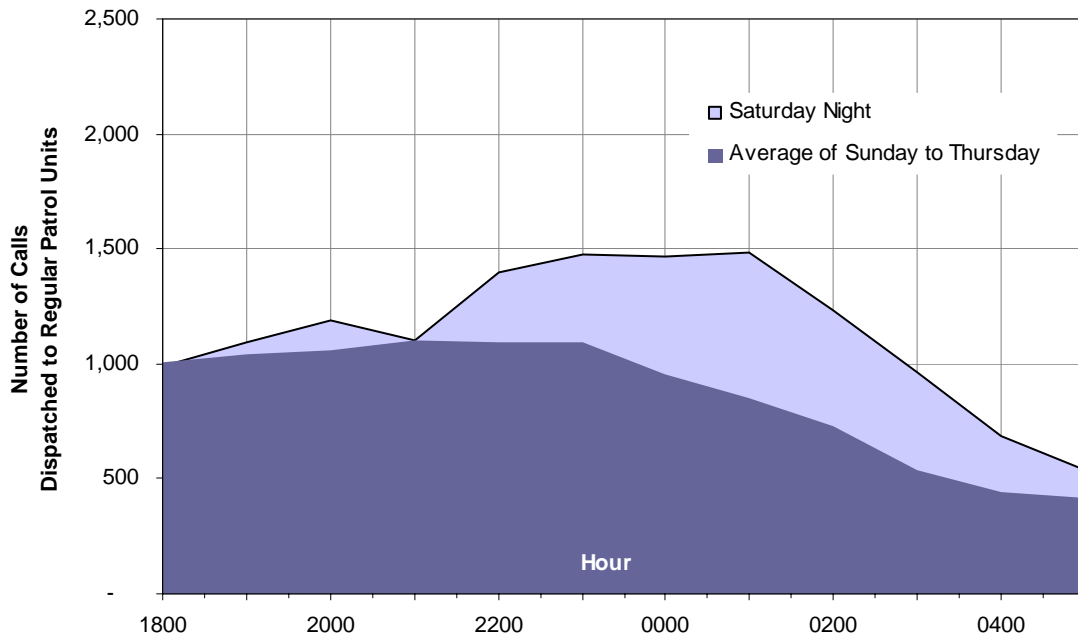
As expected, the number of calls for service peaked on Friday night and Saturday night. During the 9-hour period from 1900 hours on Friday to 0400 hours on Saturday, a total of 11,616 calls for service were dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31. This represented 7.9% of the total number of calls dispatched to a regular patrol unit or a steady flow of 24.8 calls per hour. In turn, this amounted to almost 50% more calls than the overall average rate of 16.8 calls per hour and 24.6% more calls than the average rate of 19.9 calls per hour recorded between 1900 and 0400 hours.

**Figure 5-15 Number of Calls on Friday Night by Hour**



Similarly, during the 9-hour period from 1900 hours on Saturday to 0400 hours on Sunday, a total of 11,397 calls for service were dispatched to a regular patrol unit between 2005-06-01 and 2006-05-31. This represented 7.7% of the total number of calls dispatched to a regular patrol unit or a steady flow of 24.4 calls per hour. In turn, this amounted to 45.2% more calls than the overall average call rate and 22.6% more calls than the average call rate between 1900 and 0400 hours.

**Figure 5-16 Number of Calls on Saturday Night by Hour**



The data on calls waiting to be dispatched supports that idea that patrol units are often overwhelmed on Friday and Saturday night.

On average, between 2005-06-01 and 2006-05-31, 21.5 calls for service were waiting to be dispatched citywide on Friday at midnight. In particular, an average of 3.3 calls for service were waiting to be dispatched in District 1, 5.5 calls for service were waiting to be dispatched in District 2, 7.4 calls for service were waiting to be dispatched in District 3 and 5.1 calls for service were waiting to be dispatched in District 4 on Friday.

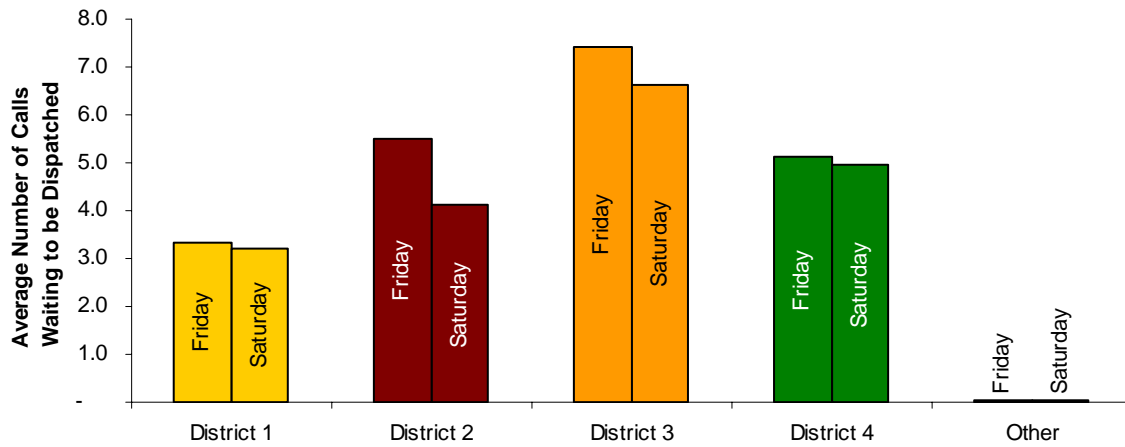
**Table 5-8 Number of Calls Waiting to be Dispatched One Second Before Midnight  
on Friday**

<b>Date</b>	<b>District 1</b>	<b>District 2</b>	<b>District 3</b>	<b>District 4</b>	<b>Other</b>	<b>Total</b>
June 3, 2005	4	5	5	2	-	16
June 10, 2005	2	5	8	3	-	18
June 17, 2005	3	4	3	5	-	15
June 24, 2005	2	10	8	5	-	25
July 1, 2005	2	2	1	4	-	9
July 8, 2005	3	3	2	3	-	11
July 15, 2005	6	3	12	4	-	25
July 22, 2005	5	7	4	8	1	25
July 29, 2005	4	4	5	7	-	20
August 5, 2005	3	7	1	8	-	19
August 12, 2005	3	9	4	10	-	26
August 19, 2005	3	5	7	11	-	26
August 26, 2005	4	9	3	8	-	24
September 2, 2005	1	3	4	6	-	14
September 9, 2005	-	9	2	4	-	15
September 16, 2005	2	4	6	5	-	17
September 23, 2005	3	8	7	3	1	22
September 30, 2005	4	16	10	6	-	36
October 7, 2005	1	2	8	6	-	17
October 14, 2005	6	2	4	1	-	13
October 21, 2005	4	2	8	4	-	18

October 28, 2005	3	10	8	5	-	26
November 4, 2005	3	5	10	12	-	30
November 11, 2005	5	5	4	1	-	15
November 18, 2005	-	2	5	3	-	10
November 25, 2005	-	2	15	8	-	25
December 2, 2005	1	1	6	7	-	15
December 9, 2005	5	6	4	8	-	23
December 16, 2005	7	6	3	6	-	22
December 23, 2005	3	5	4	4	-	16
December 30, 2005	-	6	6	2	-	14
January 6, 2006	4	6	6	3	-	19
January 13, 2006	1	4	5	3	-	13
January 20, 2006	2	4	13	3	-	22
January 27, 2006	2	5	15	7	-	29
February 3, 2006	4	5	5	2	-	16
February 10, 2006	4	10	11	4	-	29
February 17, 2006	2	3	2	5	-	12
February 24, 2006	3	8	13	3	-	27
March 3, 2006	3	6	10	10	-	29
March 10, 2006	3	2	14	2	-	21
March 17, 2006	4	3	15	6	-	28
March 24, 2006	7	12	7	7	-	33
March 31, 2006	2	4	17	5	-	28
April 7, 2006	6	5	11	7	-	29
April 14, 2006	6	5	9	5	-	25
April 21, 2006	8	5	8	5	-	26
April 28, 2006	3	6	8	3	-	20
May 5, 2006	10	3	16	5	-	34
May 12, 2006	1	6	8	2	-	17
May 19, 2006	4	7	5	7	-	23
May 26, 2006	3	11	11	4	-	29
<b>Total</b>	<b>174</b>	<b>287</b>	<b>386</b>	<b>267</b>	<b>2</b>	<b>1,116</b>
<b>Average</b>	<b>3.3</b>	<b>5.5</b>	<b>7.4</b>	<b>5.1</b>	<b>0.0</b>	<b>21.5</b>

At midnight on Saturday, by comparison, 19.0 calls for service were waiting to be dispatched citywide on average. An average of 3.2 calls for service were waiting to be dispatched in District 1, 4.1 calls for service were waiting to be dispatched in District 2, 6.6 calls for service were waiting to be dispatched in District 3 and 4.9 calls for service were waiting to be dispatched in District 4 on Saturday at midnight.

**Figure 5-17 Average Number of Calls Waiting to be Dispatched on Friday and Saturday at Midnight by District**



**Table 5-9 Number of Calls Waiting to be Dispatched One Second Before Midnight on Saturday**

Date	District 1	District 2	District 3	District 4	Other	Total
June 3, 2005	4	5	5	2	-	16
June 10, 2005	2	5	8	3	-	18
June 17, 2005	3	4	3	5	-	15
June 24, 2005	2	10	8	5	-	25
July 1, 2005	2	2	1	4	-	9
July 8, 2005	3	3	2	3	-	11
July 15, 2005	6	3	12	4	-	25
July 22, 2005	5	7	4	8	1	25
July 29, 2005	4	4	5	7	-	20
August 5, 2005	3	7	1	8	-	19
August 12, 2005	3	9	4	10	-	26
August 19, 2005	3	5	7	11	-	26
August 26, 2005	4	9	3	8	-	24
September 2, 2005	1	3	4	6	-	14
September 9, 2005	-	9	2	4	-	15
September 16, 2005	2	4	6	5	-	17
September 23, 2005	3	8	7	3	1	22
September 30, 2005	4	16	10	6	-	36
October 7, 2005	1	2	8	6	-	17
October 14, 2005	6	2	4	1	-	13
October 21, 2005	4	2	8	4	-	18
October 28, 2005	3	10	8	5	-	26



November 4, 2005	3	5	10	12	-	<b>30</b>
November 11, 2005	5	5	4	1	-	<b>15</b>
November 18, 2005	-	2	5	3	-	<b>10</b>
November 25, 2005	-	2	15	8	-	<b>25</b>
December 2, 2005	1	1	6	7	-	<b>15</b>
December 9, 2005	5	6	4	8	-	<b>23</b>
December 16, 2005	7	6	3	6	-	<b>22</b>
December 23, 2005	3	5	4	4	-	<b>16</b>
December 30, 2005	-	6	6	2	-	<b>14</b>
January 6, 2006	4	6	6	3	-	<b>19</b>
January 13, 2006	1	4	5	3	-	<b>13</b>
January 20, 2006	2	4	13	3	-	<b>22</b>
January 27, 2006	2	5	15	7	-	<b>29</b>
February 3, 2006	4	5	5	2	-	<b>16</b>
February 10, 2006	4	10	11	4	-	<b>29</b>
February 17, 2006	2	3	2	5	-	<b>12</b>
February 24, 2006	3	8	13	3	-	<b>27</b>
March 3, 2006	3	6	10	10	-	<b>29</b>
March 10, 2006	3	2	14	2	-	<b>21</b>
March 17, 2006	4	3	15	6	-	<b>28</b>
March 24, 2006	7	12	7	7	-	<b>33</b>
March 31, 2006	2	4	17	5	-	<b>28</b>
April 7, 2006	6	5	11	7	-	<b>29</b>
April 14, 2006	6	5	9	5	-	<b>25</b>
April 21, 2006	8	5	8	5	-	<b>26</b>
April 28, 2006	3	6	8	3	-	<b>20</b>
May 5, 2006	10	3	16	5	-	<b>34</b>
May 12, 2006	1	6	8	2	-	<b>17</b>
May 19, 2006	4	7	5	7	-	<b>23</b>
May 26, 2006	3	11	11	4	-	<b>29</b>
<b>Total</b>	<b>174</b>	<b>287</b>	<b>386</b>	<b>267</b>	<b>2</b>	<b>1,116</b>
<b>Average</b>	<b>3.3</b>	<b>5.5</b>	<b>7.4</b>	<b>5.1</b>	<b>0.0</b>	<b>21.5</b>

Some of the calls waiting to be dispatched were potentially serious. For instance:

- On 2005-06-24, out of the 25 calls waiting in the call queue citywide, there were one priority 2 suspicious circumstances call and 2 mischiefs in progress.
- On 2005-07-15, out of the 25 calls waiting in the call queue citywide, there were 2 sexual assaults (not in progress), one priority 2 domestic report (not in progress) and one priority 3 assault (not in progress). As of midnight, each of these calls had been waiting to be dispatched for more than 50 minutes.

Moreover, one priority 1 domestic situation in progress had been waiting to be dispatched for more than 7 minutes.

- On 2005-07-22, out of the 25 calls waiting in the call queue citywide, there was one priority 2 break and enter in progress that had been waiting to be dispatched for more than 34 minutes.
- On 2005-08-12, out of the 26 calls waiting in the call queue citywide, there were one assault (not in progress) and one sexual assault (not in progress). As of midnight, these 2 calls had been waiting to be dispatched for more than an hour.
- On 2005-08-19, out of the 26 calls waiting in the call queue citywide, there was a total of 6 break and enters (not in progress). On average, each of these 6 calls had been waiting to be dispatched for approximately 6 hours.
- On 2005-08-26, out of the 24 calls waiting in the call queue citywide, there was one priority 1 motor vehicle incident with injuries that had been waiting to be dispatched for more than one hour. Moreover, in District 4 only, 5 disturbance calls were also waiting in the call queue. As of midnight, each of these 5 calls had been waiting to be dispatched for 30 minutes or more.
- On 2005-09-24, out of 27 calls waiting in the call queue citywide, there was one priority 1 domestic situation in progress that had been waiting to be dispatched for more than 2 hours and 25 minutes.
- On 2005-09-30, out of the 15 calls waiting in the call queue citywide, there were several criminal incidents including harassment cases, threatening cases, assaults, frauds, mischiefs, thefts and break and enters. As of midnight, most of these calls had been waiting to be dispatched for more than an hour.
- On 2005-10-08, out of 19 calls waiting in the call queue citywide, there were one priority 1 theft from vehicle call that had been waiting for more than 40 minutes and one priority 1 robbery with a weapon that had been waiting for more than 9 minutes.

**Table 5-10 Call Queue at Midnight on 2005-10-08**

Priority	District	Incident	Call Type	Time Received	Time in Queue
1	3	123462	THEFT FROM VEHICLE	11:17:10 PM	0:42:49
1	3	123463	ROBBERY WITH A WEAPON	11:50:55 PM	0:09:04
2	1	123456	THEFT IN PROGRESS	4:51:08 PM	7:08:51
3	1	123457	DISTURBANCE NOISE	11:40:20 PM	0:19:39
3	1	123458	DISTURBANCE NOISE	11:49:12 PM	0:10:47
3	2	123459	HARASSMENT	9:37:33 PM	2:22:26
3	2	123460	ASSAULT SEXUAL	11:05:39 PM	0:54:20
3	3	123464	ASSAULT	10:10:48 PM	1:49:11
3	3	123465	DISTURBANCE NOISE	11:06:28 PM	0:53:31
3	3	123466	SUSPICIOUS PERSON	11:35:08 PM	0:24:51
3	3	123467	DISTURBANCE NOISE	11:33:33 PM	0:26:26
3	3	123468	ASSIST PROVINCIAL AMBULANCE	11:36:49 PM	0:23:10
3	3	123469	ANNOYING CIRCUMSTANCES	11:58:03 PM	0:01:56
3	4	123471	ASSIST POLICE	11:58:02 PM	0:01:57
4	3	123470	PROSTITUTION	10:44:38 PM	1:15:21
4	4	123472	THEFT FROM VEHICLE	5:08:17 PM	6:51:42
4	4	123473	BREAK AND ENTER	11:10:23 PM	0:49:36
4	4	123474	PARKING	11:47:14 PM	0:12:45

- On 2005-10-15, out of 24 calls waiting in the call queue citywide, there was a priority 2 hit and run that had been waiting for more than 17 minutes.
- As of midnight on 2005-10-28, a victim of a carjacking had been waiting for more than 1 hour and 20 minutes for the police to show up. At that time, 26 calls were waiting in the call queue citywide
- On 2005-11-11, out of the 15 calls waiting in the call queue citywide, there was a priority 2 mischief in progress that had been waiting for more than 7 minutes.
- On 2005-11-25, at approximately 2326 hours, a sex trade worker reported that a client tried to rob her by putting a gun to her head. As of midnight, the call still had not been dispatched. When a patrol unit was finally able to free itself up and was assigned to the case (almost 40 minutes after the initial call was placed by the victim), the victim could not be located. As a consequence, no investigative leads could be obtained and no investigation was conducted. At the time, a total of 25 calls were waiting in the call queue citywide.

- On 2005-12-03, out of the 10 calls waiting in the call queue citywide, there was a priority 2 domestic situation that had been waiting more than one hour.
- On 2005-12-09, in District 3 only, a priority 1 missing 13-year old child, a priority 2 theft in progress and a priority 3 assault with a weapon (not in progress) were waiting in the call queue. As of midnight, each of these calls had been waiting to be dispatched for more than 20 minutes. At the time, a total 23 calls were waiting in the call queue citywide.
- On 2005-12-16, in District 2 only, a priority 2 domestic situation (not in progress) and a priority 3 abduction report were waiting in the call queue. At the time, a total 22 calls were waiting in the call queue citywide.
- On 2005-12-17, in District 3 only, a priority 1 domestic situation in progress and a priority 2 domestic situation (not in progress) were waiting in the call queue. At the time, a total 18 calls were waiting in the call queue citywide.
- On 2005-12-23, out of the 16 calls waiting in the call queue citywide, there was a priority 1 domestic situation in progress that had been waiting for more than 24 minutes.
- On 2006-01-06, out of the 19 calls waiting in the call queue citywide, there was a priority 2 break and enter in progress that had been waiting for more than 30 minutes.
- On 2006-01-13, out of the 13 calls waiting in the call queue citywide, there was a priority 1 assault in progress that had been waiting for more than 17 minutes. The victim of the assault was an Indo-Canadian cab driver who was filling his taxi with gas at the gas station when he was attacked by a group of males who punched him, pulled his turban off and left him with a possible broken nose, a swollen left eye, contusions on his forehead, swollen lips and a possible fractured cheek bone.
- On 2006-01-14, out of the 14 calls waiting in the call queue citywide, there was a priority 1 domestic situation in progress that had been waiting for more than 12 minutes.
- On 2006-01-27, out of the 29 calls waiting in the call queue citywide, there was a priority 1 domestic situation in progress, a priority 2 theft in progress and a

priority 2 mischief in progress. As of midnight, each of these calls had been waiting to be dispatched for more than 7 minutes.

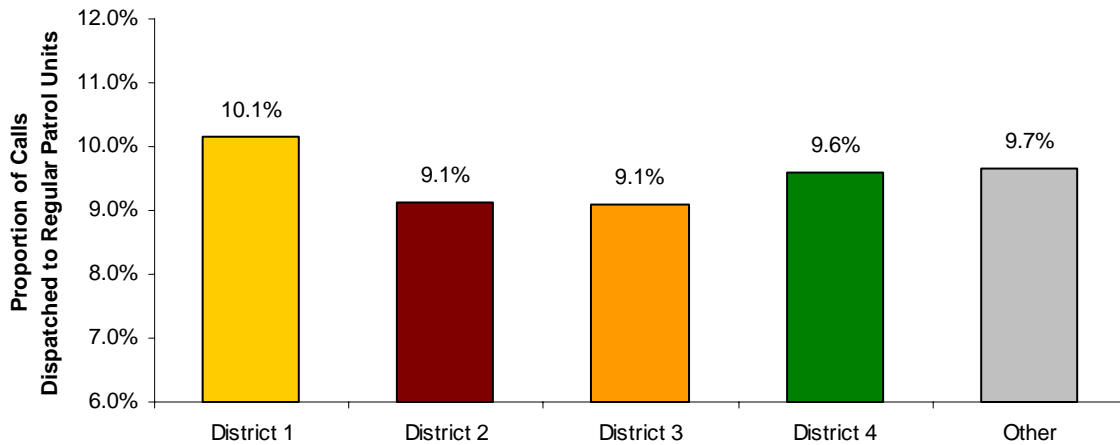
- On 2006-02-03, out of the 16 calls waiting in the call queue citywide, there was a priority 1 suicidal person and a priority 2 domestic situation in progress. As of midnight, each of these calls had been waiting to be dispatched for more than 7 minutes.
- On 2006-02-10, out of the 29 calls waiting in the call queue citywide, there was a total of 5 break and enters (not in progress). As of midnight, each of these calls had been waiting to be dispatched for more than 50 minutes and some had been waiting for up to 5 hours.
- On 2006-02-11, out of the 21 calls waiting in the call queue citywide, there was a priority 2 mischief in progress that had been waiting for more than 26 minutes.
- On 2006-02-24, out of the 27 calls waiting in the call queue citywide, there was a priority 2 suspicious circumstances call that had been waiting for almost 30 minutes.
- On 2006-03-03, out of the 29 calls waiting in the call queue citywide, there was a priority 1 weapon in progress call that had been waiting for more than 16 minutes.
- On 2006-03-24, out of the 33 calls waiting in the call queue citywide, there was a total of 9 break and enters (not in progress). As of midnight, each of these calls had been waiting to be dispatched for more than one hour and some had been waiting for several hours.
- On 2006-03-25, out of the 19 calls waiting in the call queue citywide, there was a priority 2 sexual assault that had been waiting for more than 26 minutes.
- On 2006-04-07, in District 3 only, a priority 2 welfare check, a priority 2 mischief in progress and a priority 2 request for assistance from the provincial ambulance service were waiting in the call queue. As of midnight, these calls had been waiting to be dispatched for more than one hour on average. At the time, a total 29 calls were waiting in the call queue citywide.

- On 2006-04-15, out of the 21 calls waiting in the call queue citywide, there were a priority 1 assault in progress that had been waiting for more than 8 minutes and a priority 2 domestic report that had been waiting for more than 2 hours.
- On 2006-05-19, out of the 23 calls waiting in the call queue citywide, there was a priority 2 domestic situation in progress that had been waiting for more than 18 minutes.
- On 2006-05-26, out of the 29 calls waiting in the call queue citywide, there was a priority 2 fight that had been waiting for more than 9 minutes.

Although every patrol district experienced an increase in the average number of calls on Friday and Saturday night, the peak call load was exacerbated in District 1 and District 4.

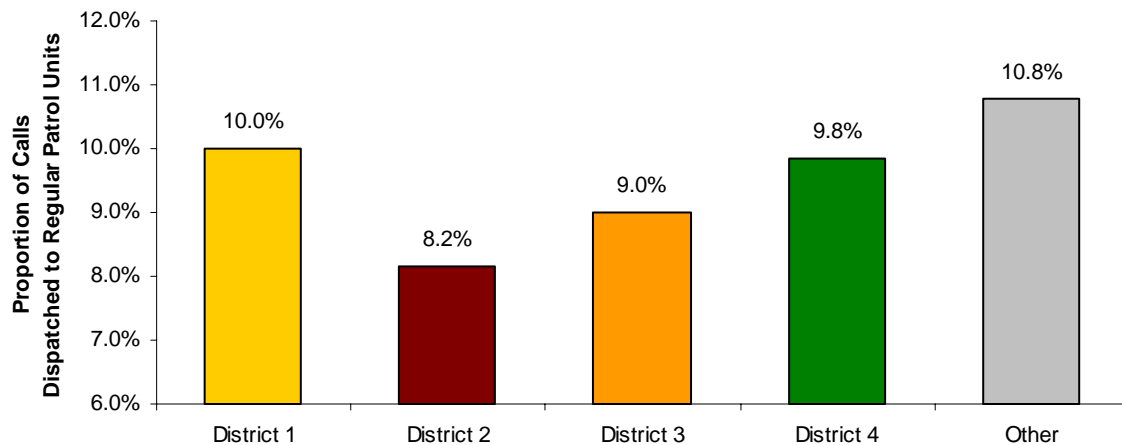
Between 2005-06-01 and 2006-05-31, a total of 3,081 calls for service were dispatched to a regular patrol unit in District 1 from 1900 hours on Friday to 0400 hours on Saturday. This represented 8.5% of the total number of calls dispatched to a regular patrol unit in District 1 or a steady flow of 6.6 calls per hour on average. Similarly, a total of 2,349 calls for service were dispatched to a regular patrol unit in District 4 from 1900 hours on Friday to 0400 hours on Saturday (8.0% of the total number of calls in District 4 or 5.0 calls per hour on average). By comparison, only 3,303 calls for service out of 43,725 were dispatched to a regular patrol unit in District 2 (7.6%) and 2,412 calls for service out of 32,778 (7.4%) were dispatched to a regular patrol unit in District 3 from 1900 hours on Friday to 0400 hours on Saturday.

**Figure 5-18 Proportion of Calls Dispatched on Friday Night by District**



Between 2005-06-01 and 2006-05-31, a total of 3,052 calls for service were dispatched to a regular patrol unit in District 1 from 1900 hours on Saturday to 0400 hours on Sunday. This represented 8.4% of the total number of calls dispatched to a regular patrol unit in District 1 or a steady flow of 6.5 calls per hour on average. Similarly, a total of 2,476 calls for service were dispatched to a regular patrol unit in District 4 from 1900 hours on Saturday to 0400 hours on Sunday (8.5% of the total number of calls in District 4 or 5.3 calls per hour on average). By comparison, only 2,922 calls for service out of 43,725 were dispatched to a regular patrol unit in District 2 (6.7%) and 2,430 calls for service out of 32,778 (7.4%) were dispatched to a regular patrol unit in District 3 from 1900 hours on Saturday to 0400 hours on Sunday.

**Figure 5-19 Proportion of Calls Dispatched on Saturday Night by District**



Among the most common types of calls dispatched to a regular patrol unit between 1900 hours and 0400 hours on Friday or Saturday night, there were:

- 1,750 noise complaints that accounted for 43.9% of all the noise complaints dispatched between 1900 and 0400 hours and 33.1% of all noise complaints.
- 953 fights that accounted for 53.0% of all the fights dispatched between 1900 and 0400 hours and 35.7% of all fights.
- 892 disturbing parties that accounted for 50.5% of all the disturbing parties dispatched between 1900 and 0400 hours and 32.9% of all disturbing parties.
- 831 traffic suspensions that accounted for 41.8% of all the traffic suspensions dispatched between 1900 and 0400 hours and 29.9% of all traffic suspensions.
- 578 domestic situations in progress and 74 domestic violence situations that respectively accounted for 35.8% of all the domestic situations in progress and 35.6% of all the domestic violence situations dispatched between 1900 and 0400 hours.
- 553 requests for assistance from the provincial ambulance service that accounted for 36.8% of all the requests for assistance dispatched between 1900 and 0400 hours.
- 394 assaults and 597 assaults in progress that respectively accounted for 38.9% of all the assaults and 44.8% of all the assaults in progress dispatched between 1900 and 0400 hours.

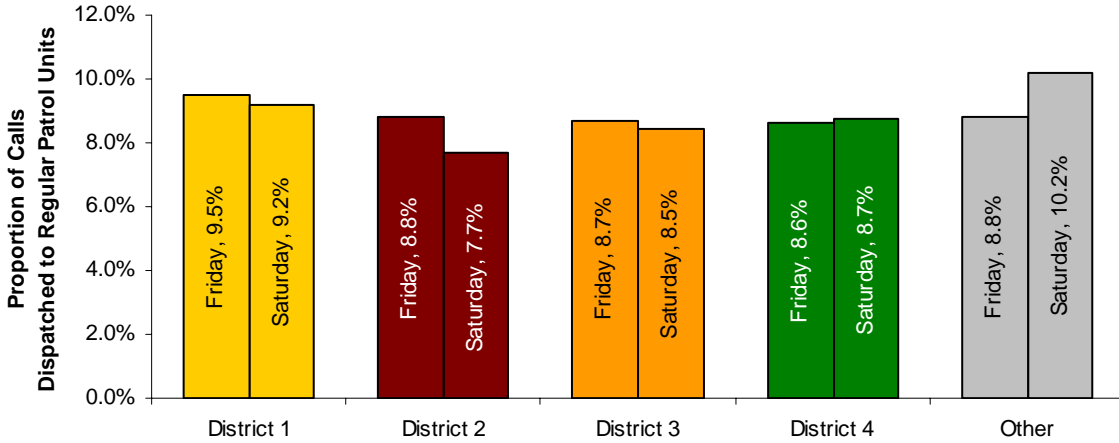


- 224 motor vehicle incidents, 391 motor vehicle incidents with injuries and 74 hit and run that respectively accounted for 39.2% of all the motor vehicle incidents, 37.7% of all motor vehicle incidents with injuries and 47.7% of all the hit and run dispatched between 1900 and 0400 hours.
- 195 licensed premises checks that accounted for 51.5% of all the licenses premises checks handled between 1900 and 0400 hours and 57.3% of all licenses premises checks.
- 100 impaired drivers and 90 possible impaired drivers that respectively accounted for 41.5% of all the impaired drivers and 45.7% of all the possible impaired drivers dispatched between 1900 and 0400 hours.
- 49 sexual assaults that accounted for 40.2% of all the sexual assaults dispatched between 1900 and 0400 hours.

The proportionally larger number of calls for service observed in District 1 and District 4 on Friday and Saturday night can be explained in a large part by the fact that, compared to District 2 and District 3, relatively more disturbance calls were dispatched in both District 1 and District 4 from 1900 hours on Friday to 0400 hours on Saturday and from 1900 hours on Saturday to 0400 hours on Sunday. Moreover, a disproportionately large number of licensed premises checks were conducted in District 1 from 1900 hours on Friday to 0400 hours on Saturday and from 1900 hours on Saturday to 0400 hours on Sunday.

When disturbance calls (e.g. noise complaints and disturbing parties) and licensed premises checks are excluded, the call load handled by regular patrol units in District 1 and District 4 on Friday and Saturday night becomes proportional to the call load in District 2 and District 3. Excluding disturbance calls and licensed premises checks, 18.7% of all calls for service in District 1, 16.5% of all calls for service in District 2, 17.2% of all calls for service in District 3 and 17.4% of all calls for service in District 4 were dispatched on Friday or Saturday night.

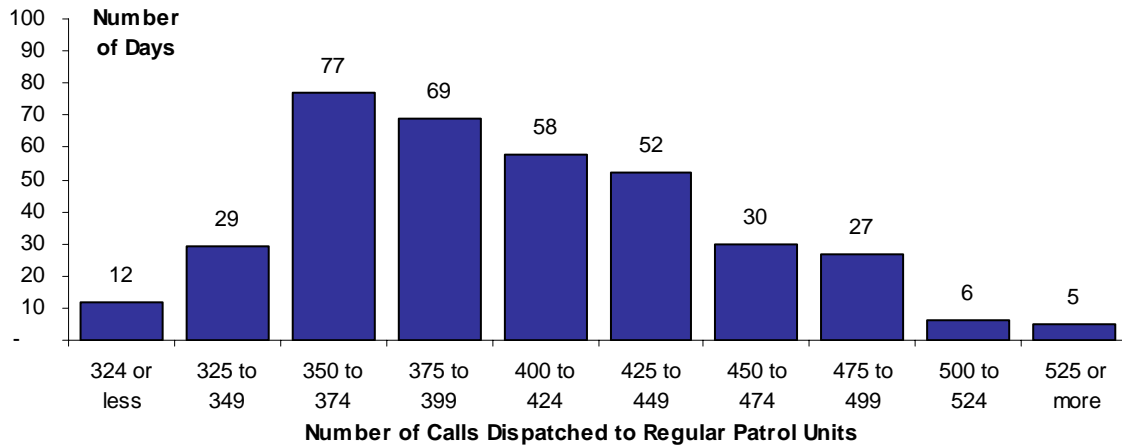
**Figure 5-20 Number of Calls on Friday and Saturday Night by District (Excluding Disturbance Calls and Licensed Premises Checks)**



## 5.4 DAILY FLUCTUATIONS IN THE CALL LOAD

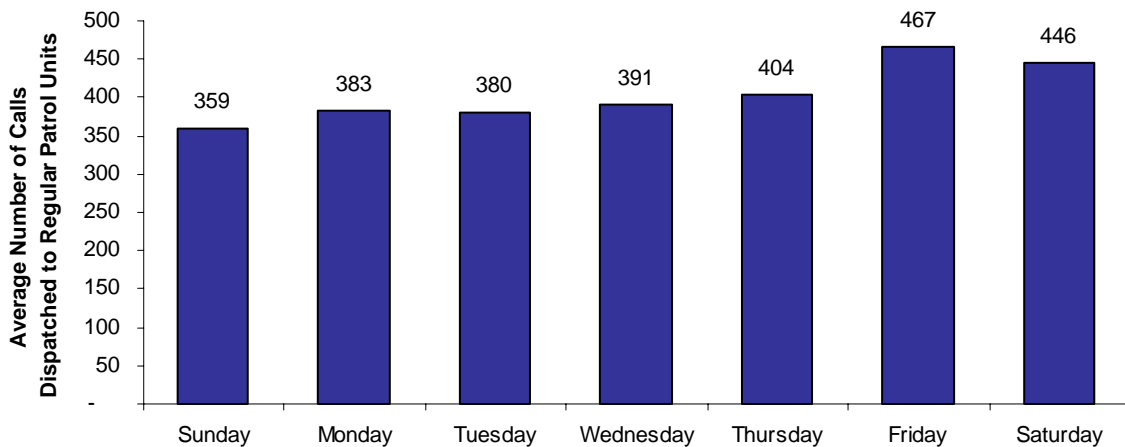
Between 2005-06-01 and 2006-05-31, regular patrol units citywide were dispatched to a total of 288 to 559 calls per day (from 0600 to 0600 the following day). Overall, regular patrol units citywide were dispatched to an average of 404 calls per day between 2005-06-01 and 2006-05-31. On 12 different days, regular patrol units were dispatched to 324 calls or less. On 29 days, regular patrol units were dispatched to between 325 and 349 calls. On 77 days, regular patrol units were dispatched to between 350 and 374 calls. On 69 days, regular patrol units were dispatched to between 375 and 399 calls. On 58 days, regular patrol units were dispatched to between 400 and 424 calls. On 52 days, regular patrol units were dispatched to between 425 and 449 calls. On 30 days, regular patrol units were dispatched to between 450 and 474 calls. On 27 days, regular patrol units were dispatched to between 475 and 499 calls. On 6 days, regular patrol units were dispatched to between 500 and 524 calls. Finally, regular patrol units were dispatched to 525 calls or more on 5 different days.

**Figure 5-21 Distribution of Calls by Day of the Year**



From the 68 days during which regular patrol units were dispatched to 450 calls or more, 58 days fell on a Friday (including early Saturday morning) or a Saturday (including early Sunday morning). Overall, regular patrol units citywide were dispatched to an average of 467 calls on Fridays and 446 calls on Saturdays between 2005-06-01 and 2006-05-31. By comparison, regular patrol units citywide were dispatched to an average of 359 calls on Sundays, 383 calls on Mondays, 380 calls on Tuesdays, 391 calls on Wednesdays and 404 calls on Thursdays.

**Figure 5-22 Average Number of Calls by Day of the Week**



Between 2005-06-01 and 2006-05-31, almost the same average number of calls was dispatched to regular patrol units on "even" or "odd" days. During the 184 "even" days, regular patrol units were dispatched to approximately 74,204 incidents. This represented 403 calls per day on average. During the 181 "odd" days, regular patrol units were dispatched to approximately 73,297 incidents. This represented 405 calls per day on average.

The 25 days during which the most calls were dispatched to regular patrol units citywide accounted for a total of 12,646 calls or 8.6% of all calls for service dispatched to regular patrol units between 2005-06-01 and 2006-05-31. Regular patrol units were dispatched to a daily average of 506 calls on these days (102 additional calls per day or 25.2% more than the overall average for the period 2005-06-01 to 2006-05-31).

- On 2005-07-01 (Friday, Canada Day) regular patrol units citywide were dispatched to 507 calls. Out of those 507 calls, 127 (25.0%) occurred in District 1, 157 (31.0%) occurred in District 2, 91 (17.9%) occurred in District 3 and 95 (18.7%) occurred in District 4.
- On 2005-07-15 (Friday, the day the BC Lions won 30 to 22 against the Toronto Argonauts in Vancouver), regular patrol units citywide were dispatched to 484 calls. Out of those 484 calls, 109 (22.5%) occurred in District 1, 158 (32.6%) occurred in District 2, 105 (21.7%) occurred in District 3 and 99 (20.5%) occurred in District 4.
- On 2005-07-29 (Friday, the day the BC Lions won 40 to 27 against the Calgary Stampeders in Vancouver), regular patrol units citywide were dispatched to 526 calls. Out of those 526 calls, 131 (24.9%) occurred in District 1, 169 (32.1%) occurred in District 2, 104 (19.8%) occurred in District 3 and 102 (19.4%) occurred in District 4.
- On 2005-08-05 (Friday, the day the BC Lions won 25 to 19 against the Edmonton Eskimos in Vancouver), regular patrol units citywide were dispatched to 500 calls. Out of those 500 calls, 120 (24.0%) occurred in District 1, 156 (31.2%) occurred in District 2, 124 (24.8%) occurred in District 3 and 83 (16.6%) occurred in District 4.

- On 2005-08-06 (Saturday, the day of the grand finale for the HSBC Celebration of Light competition), regular patrol units citywide were dispatched to 529 calls. Out of those 529 calls, 128 (24.2%) occurred in District 1, 157 (29.7%) occurred in District 2, 120 (22.7%) occurred in District 3 and 108 (20.4%) occurred in District 4.
- On 2005-08-12 (Friday, the day the BC Lions won 39 to 31 against the Calgary Stampeders in Calgary), regular patrol units citywide were dispatched to 495 calls. Out of those 495 calls, 121 (24.4%) occurred in District 1, 144 (29.1%) occurred in District 2, 120 (24.2%) occurred in District 3 and 85 (17.2%) occurred in District 4.
- On 2005-08-13 (Saturday), regular patrol units citywide were dispatched to 486 calls. Out of those 486 calls, 115 (23.7%) occurred in District 1, 142 (29.2%) occurred in District 2, 112 (23.0%) occurred in District 3 and 111 (22.8%) occurred in District 4.
- On 2005-08-19 (Friday, the day the BC Lions won 39 to 15 against the Hamilton Tiger-Cats in Vancouver), regular patrol units citywide were dispatched to 517 calls. Out of those 517 calls, 127 (24.6%) occurred in District 1, 170 (32.9%) occurred in District 2, 100 (19.3%) occurred in District 3 and 101 (19.5%) occurred in District 4.
- On 2005-08-20 (Saturday), regular patrol units citywide were dispatched to 498 calls. Out of those 498 calls, 110 (22.1%) occurred in District 1, 159 (31.9%) occurred in District 2, 104 (20.9%) occurred in District 3 and 98 (19.7%) occurred in District 4.
- On 2005-08-26 (Friday), regular patrol units citywide were dispatched to 496 calls. Out of those 496 calls, 133 (26.8%) occurred in District 1, 144 (29.0%) occurred in District 2, 101 (20.4%) occurred in District 3 and 99 (20.0%) occurred in District 4.
- On 2005-09-02 (Friday before the Labour Day long weekend), regular patrol units citywide were dispatched to 530 calls. Out of those 530 calls, 123 (23.2%) occurred in District 1, 148 (27.9%) occurred in District 2, 117 (22.1%) occurred in District 3 and 107 (20.2%) occurred in District 4.

- On 2005-09-30 (Friday), regular patrol units citywide were dispatched to 521 calls. Out of those 521 calls, 127 (24.4%) occurred in District 1, 159 (30.5%) occurred in District 2, 123 (23.6%) occurred in District 3 and 102 (19.6%) occurred in District 4.
- On 2005-10-28 (the day the BC Lions lost 22 to 19 against the Edmonton Eskimos in Edmonton), regular patrol units citywide were dispatched to 484 calls. Out of those 484 calls, 120 (24.8%) occurred in District 1, 141 (29.1%) occurred in District 2, 96 (19.8%) occurred in District 3 and 110 (22.7%) occurred in District 4.
- On 2005-10-29 (Saturday, the day the Vancouver Canucks lost 4 to 3 in overtime to the Colorado Avalanche in Colorado), regular patrol units citywide were dispatched to 527 calls. Out of those 527 calls, 124 (23.5%) occurred in District 1, 155 (29.4%) occurred in District 2, 104 (19.7%) occurred in District 3 and 124 (23.5%) occurred in District 4.
- On 2005-10-31 (Monday, Halloween), regular patrol units citywide were dispatched to 559 calls. Out of those 559 calls, 119 (21.3%) occurred in District 1, 145 (25.9%) occurred in District 2, 144 (25.8%) occurred in District 3 and 125 (22.4%) occurred in District 4.
- On 2006-01-27 (Friday), regular patrol units citywide were dispatched to 499 calls. Out of those 499 calls, 121 (24.2%) occurred in District 1, 144 (28.9%) occurred in District 2, 113 (22.6%) occurred in District 3 and 103 (20.6%) occurred in District 4.
- On 2006-01-28 (Saturday, the day the Vancouver Canucks won 4 to 3 in Colorado), regular patrol units citywide were dispatched to 497 calls. Out of those 497 calls, 125 (25.2%) occurred in District 1, 146 (29.4%) occurred in District 2, 112 (22.5%) occurred in District 3 and 92 (18.5%) occurred in District 4.
- On 2006-02-04 (Saturday, the day the Vancouver Canucks lost 3 to 1 to the Edmonton Oilers in Edmonton, also the Super Bowl XL weekend), regular patrol units citywide were dispatched to 513 calls. Out of those 513 calls, 133 (25.9%) occurred in District 1, 139 (27.1%) occurred in District 2, 99 (19.3%) occurred in District 3 and 118 (23.0%) occurred in District 4.

- On 2006-02-10 (Friday, the day the Vancouver Canucks lost 3 to 1 to the Anaheim Mighty Ducks in Vancouver), regular patrol units citywide were dispatched to 493 calls. Out of those 493 calls, 126 (25.6%) occurred in District 1, 147 (29.8%) occurred in District 2, 108 (21.9%) occurred in District 3 and 94 (19.1%) occurred in District 4.
- On 2006-03-17 (Friday, the day the Vancouver Canucks won 3 to 2 to the Columbus Blue Jackets in Columbus), regular patrol units citywide were dispatched to 506 calls. Out of those 506 calls, 140 (27.7%) occurred in District 1, 139 (27.5%) occurred in District 2, 89 (17.6%) occurred in District 3 and 116 (22.9%) occurred in District 4.
- On 2006-03-24 (Friday), regular patrol units citywide were dispatched to 486 calls. Out of those 486 calls, 115 (23.7%) occurred in District 1, 138 (28.4%) occurred in District 2, 116 (23.9%) occurred in District 3 and 102 (21.0%) occurred in District 4.
- On 2006-03-31 (Friday, the day the Vancouver Canucks lost 2 to 1 to the Minnesota Wild in Vancouver), regular patrol units citywide were dispatched to 490 calls. Out of those 490 calls, 134 (27.3%) occurred in District 1, 134 (27.3%) occurred in District 2, 113 (23.1%) occurred in District 3 and 92 (18.8%) occurred in District 4.
- On 2006-04-28 (Friday), regular patrol units citywide were dispatched to 496 calls. Out of those 496 calls, 145 (29.2%) occurred in District 1, 145 (29.2%) occurred in District 2, 86 (17.3%) occurred in District 3 and 106 (21.4%) occurred in District 4.
- On 2006-05-12 (Friday), regular patrol units citywide were dispatched to 498 calls. Out of those 498 calls, 137 (27.5%) occurred in District 1, 158 (31.7%) occurred in District 2, 91 (18.3%) occurred in District 3 and 95 (19.1%) occurred in District 4.
- On 2006-05-19 (Friday), regular patrol units citywide were dispatched to 495 calls. Out of those 495 calls, 136 (27.5%) occurred in District 1, 152 (30.7%) occurred in District 2, 105 (21.2%) occurred in District 3 and 96 (19.3%) occurred in District 4.

**Table 5-11 Top 25 Days with the Largest Number of Calls Citywide**

<b>Date</b>	<b>Number of Calls</b>
Friday, July 01, 2005	507
Friday, July 15, 2005	484
Friday, July 29, 2005	526
Friday, August 05, 2005	500
Saturday, August 06, 2005	529
Friday, August 12, 2005	495
Saturday, August 13, 2005	486
Friday, August 19, 2005	517
Saturday, August 20, 2005	498
Friday, August 26, 2005	496
Friday, September 02, 2005	530
Friday, September 30, 2005	521
Saturday, October 29, 2005	527
Monday, October 31, 2005	559
Saturday, December 31, 2005	498
Friday, January 27, 2006	499
Saturday, January 28, 2006	497
Saturday, February 04, 2006	513
Friday, February 10, 2006	493
Friday, March 17, 2006	506
Friday, March 24, 2006	486
Friday, March 31, 2006	490
Friday, April 28, 2006	496
Friday, May 12, 2006	498
Friday, May 19, 2006	495
<b>Total</b>	<b>12,646</b>

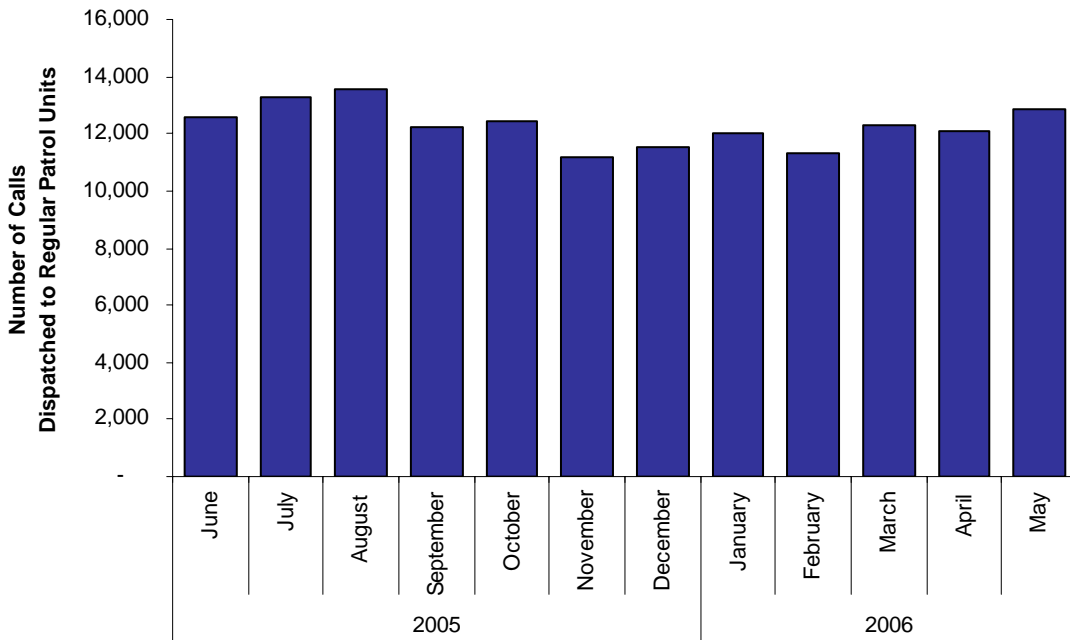
Overall, 12 out of the 25 busiest days were in July, August and September 2005 (the third quarter of the year) and 7 out of those days were in August 2005 alone. March 2006 had 3 of the 25 busiest days while October 2005, January 2006, February 2006 and May 2006 each had 2 of the 25 busiest days each. The remaining busiest days were in December 2005 and April 2006. None of the 25 busiest days were in June 2005 or November 2005.



**Table 5-12 Distribution of Calls by Month**

Year	Month	Number of Calls	Number of Days in the Top 25
2005	June	12,609	0
	July	13,258	3
	August	13,547	7
	September	12,216	2
	October	12,459	2
	November	11,181	0
	December	11,542	1
	2006	January	12,052
February		11,331	2
March		12,316	3
April		12,106	1
May		12,884	2
<b>Total</b>		<b>147,501</b>	<b>25</b>

**Figure 5-23 Distribution of Calls by Month**



Interestingly, 16 out of the 25 busiest days between 2005-06-01 and 2006-05-31 were "even" days. Moreover, 24 of the 25 busiest days were Fridays (17 days) or Saturdays (7 days). In 2005, Halloween fell on a Monday and turned out to be the day on which the most calls were dispatched to patrol units citywide. On Halloween in 2005, a total of

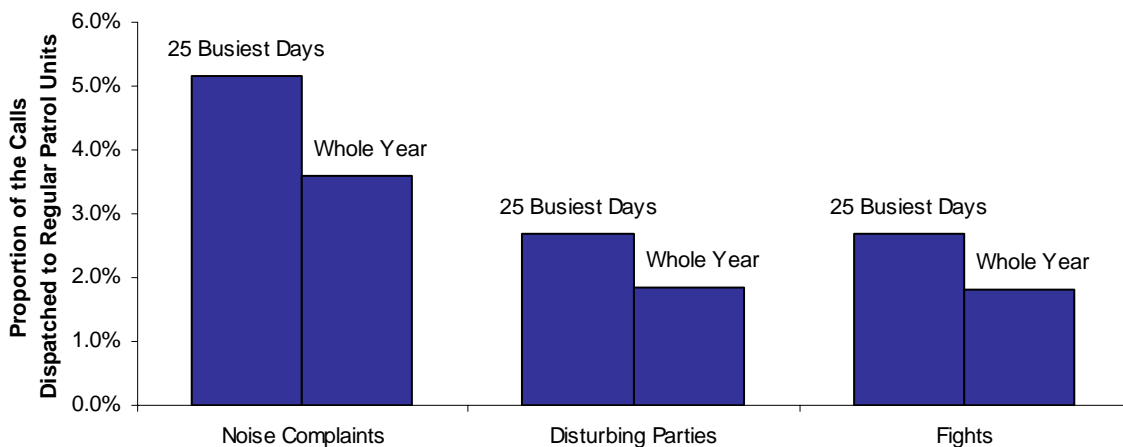
559 calls were dispatched to regular patrol units (one call every 2.6 minutes on average over a 24-hour period).

Most of the differences between the 25 busiest days and the rest of the year can be attributed to a larger proportion of disturbance calls (e.g. noise complaints and disturbing parties) and fights. Between 2005-06-01 and 2006-05-31, 5,282 (3.6%) out of the 147,501 calls dispatched to a regular patrol unit were noise complaints, 2,709 (1.8%) were disturbing parties and 2,668 (1.8%) were fights. By contrast, 652 (5.2%) of the 12,646 calls dispatched to regular patrol units during the 25 busiest days were noise complaints, 338 (2.7%) were disturbing parties and 340 (2.7%) were fights.

**Table 5-13 Number of Disturbance Calls and Fights on the 25 Busiest Days of the Years**

Type of Call	25 Busiest Days		Whole Year	
	Number of Calls	%	Number of Calls	%
Noise Complaints	652	5.2%	5,282	3.6%
Disturbing Parties	338	2.7%	2,709	1.8%
Fights	340	2.7%	2,668	1.8%
Other	11,316	89.5%	136,842	92.8%
<b>Total</b>	<b>12,646</b>	<b>100.0%</b>	<b>147,501</b>	<b>100.0%</b>

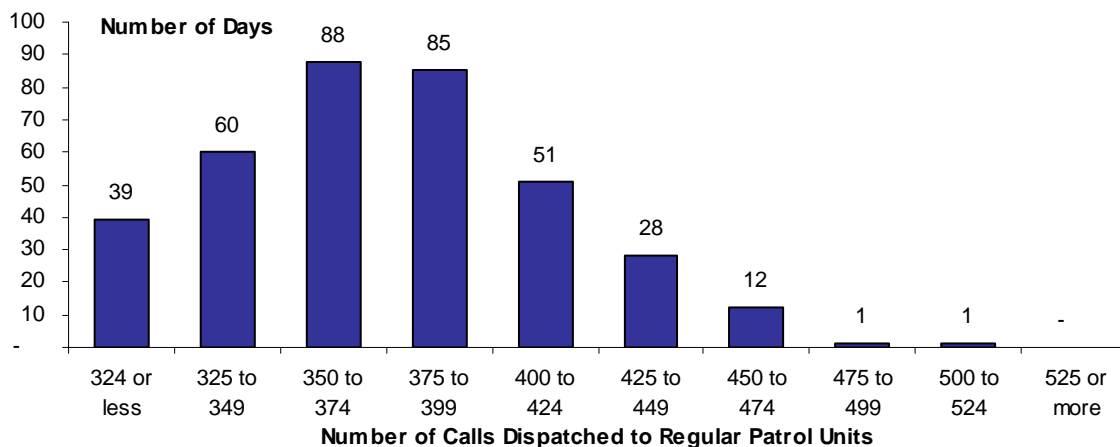
**Figure 5-24 Proportion of Disturbance Calls and Fights on the 25 Busiest Days of the Year**



Once noise complaints, disturbing parties and fights are excluded:

- The list of 25 busiest calls changes slightly. This reflects the fact that peaks in the call rate observed on some days (e.g. 2005-08-12, 2005-08-13, 2005-08-20, 2006-04-28, 2006-05-19) were driven mainly by an increase in the number of disturbance calls and fights.
- The average number of calls dispatched to regular patrol units during each of the 25 busiest days decreases by 53 (10.5%) from 505 to 452 calls per day. Over the whole period, by contrast, the overall average number of calls dispatched to regular patrol units decreases by only 29 (7.2%) from 404 to 375 calls per day. Overall, this implies that the call load on the 25 busiest days becomes approximately 17.9% closer to the average for the whole period.

**Figure 5-25 Distribution of Calls by Day of the Year (Excluding Noise Complaints, Disturbing Parties and Fights)**

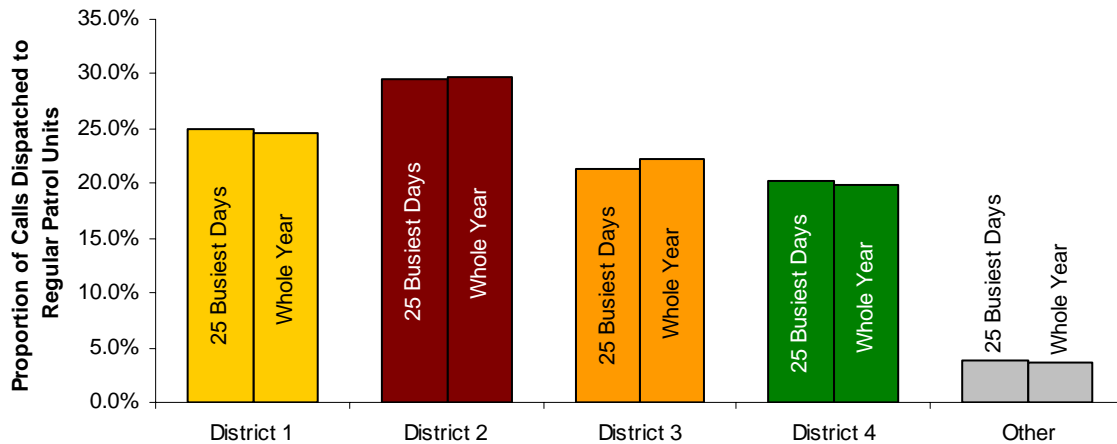


The data confirmed that there were no significant differences in the proportion of calls by patrol district or priority level between the 25 busiest days and the rest of the period between 2005-06-01 and 2006-05-31.

On the 25 busiest days, 3,154 (24.9%) of the 12,646 calls dispatched to regular patrol units occurred in District 1, 3,745 (29.6%) occurred in District 2, 2,705 (21.4%) occurred in District 3 and 2,557 (20.2%) occurred in District 4. Between 2005-06-01 and 2006-05-31, 36,259 (24.6%) of the 147,501 calls dispatched to regular patrol units occurred in

District 1, 43,725 (29.6%) occurred in District 2, 32,778 (22.2%) occurred in District 3 and 29,278 (19.8%) occurred in District 4.

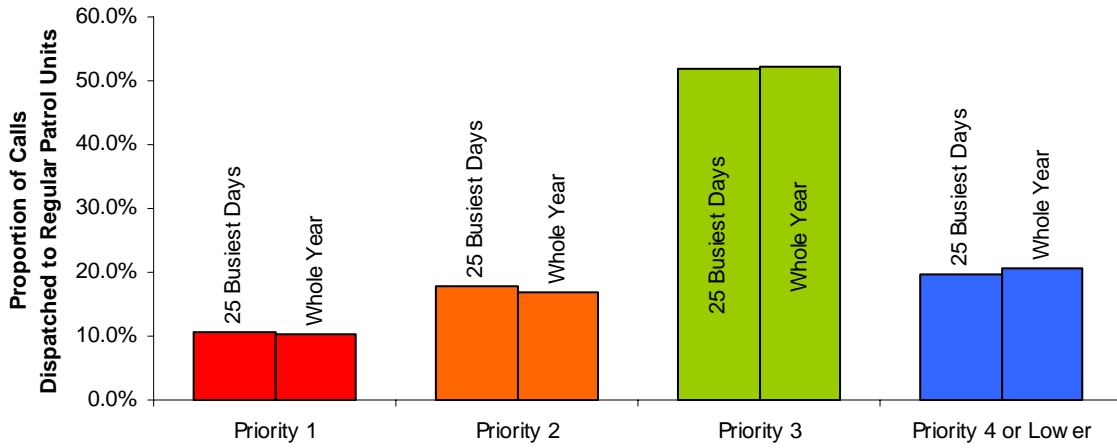
**Figure 5-26 Proportion of Calls by District**



On average, this suggests that each of the four existing patrol districts tend to become busier on the same days.

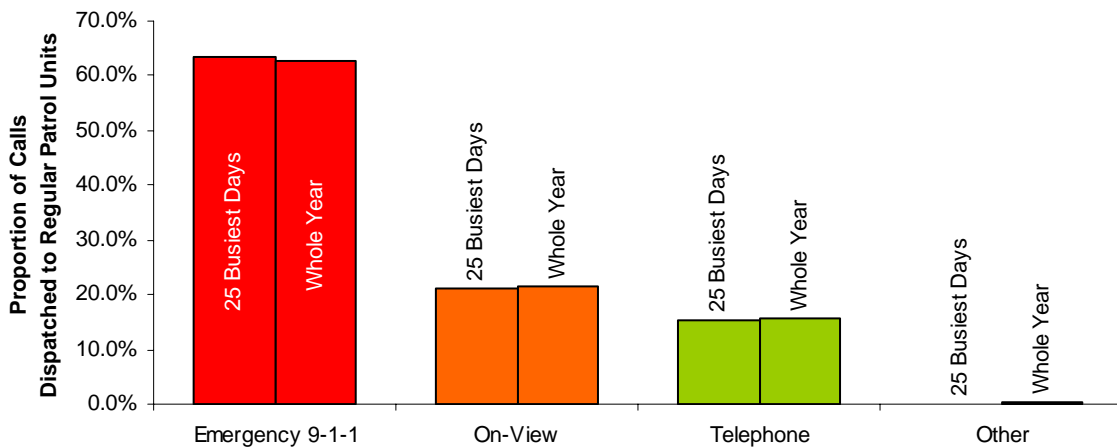
On the 25 busiest days, 1,339 (10.6%) of the 12,646 calls dispatched to regular patrol units were priority 1 calls, 2,268 (17.9%) were priority 2 calls, 6,547 (51.8%) were priority 3 calls and 2,492 (19.7%) were lower priority calls. Between 2005-06-01 and 2006-05-31, 15,197 (10.3%) of the 147,501 calls dispatched to regular patrol units were priority 1 calls, 25,066 (17.0%) were priority 2 calls, 76,979 (52.2%) were priority 3 calls and 30,259 (20.5%) were lower priority calls.

**Figure 5-27 Proportion of Calls by Priority**



On average, there was the same proportion of emergency 9-1-1 calls, on-view calls and non-telephone telephone calls during the 25 busiest days as during the period 2005-06-01 to 2006-05-31. On the 25 busiest days, 8,031 (63.5%) of the 12,646 calls dispatched to regular patrol units were 9-1-1 calls, 2,678 (21.2%) were on-view calls and 1,915 (15.1%) were non-emergency telephone calls. By comparison, during the whole period 2005-06-01 to 2006-05-31, 92,298 (62.6%) of the calls dispatched to regular patrol units were 9-1-1 calls, 31,814 (21.6%) were on-view calls and 22,992 (15.6%) were non-emergency telephone calls.

**Figure 5-28 Proportion of Calls by Source**



## 5.5 DISCUSSION

In general, the empirical evidence presented in this section supports the findings from the Phase 3 report prepared by Special Constable Prox.

First, the call load handled by regular patrol units at the VPD is usually greatest between Wednesday and Saturday. This is illustrated by Figure 5-24 and Table 5-11. However, the current 4-on-4-off scheduling cycle is not adapted to this reality because it does not mirror the 7-day week. As a consequence, it is not possible to schedule more officers or more teams during the weekend. Therefore, a different scheduling pattern must be adopted to match staffing with call load more closely. This new scheduling pattern should have the ability to mirror the 7-day week and ensure that more officers or more teams are working during the weekend. With respect to call load variations according to the day of the week, the VPD is certainly not in a unique position. In the Dallas Police Department Management and Efficiency Study of 2004, management consultants from Berkshire Advisors recommended the creation of a 4-on-3-off 10-hour Power Shift between Wednesday and Saturday.

Secondly, the call load handled by regular patrol units is also usually greatest in the evening and at night. This is illustrated, among others, by Figure 5-1. In that respect, the shifting model currently in place at the VPD is a progressive deployment model because it accounts for most peaks of activity observed early in the evening (e.g. between 1900 and 0100 hours). However, it implies that only two patrol teams are working between 1800 and 1900 hours and between 0100 and 0400 hours, when the call load is still relatively high. Even worse, the current shifting model implies that only Echo patrol units are working between 0400 and 0500 hours. Ultimately, the shifting model needs to be tweaked to match patrol staffing with call load more closely. The new shifting model should be such that more patrol officers are deployed on the streets before 1800 hours (so that they are ready to handle the additional call load when Bravo units sign off) and after midnight (so that they can handle calls between 0100 and 0400 hours).

Finally, there are important variations in the daily call load citywide as well as the call load by district. This is reflected, among others, by Table 5-9 and Figure 5-23. As shown by the Table 5-9, every night on which more than 10 calls for service were waiting in the queue at midnight in any given patrol district, there was at least one or two other patrol districts in which less than 5 calls were waiting. This suggests that the current deployment model creates artificial silos of patrol activity and is not flexible enough to adjust to variations in the daily call load or localized activity spikes (i.e. in one or two districts only). The deployment model should be improved to reduce these silos of activity and add more flexibility to the way patrol officers are deployed.

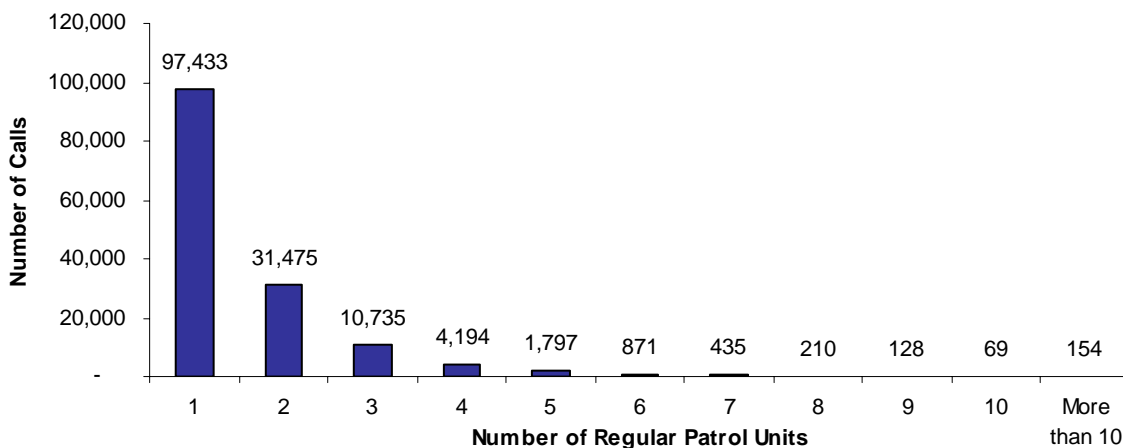
Beyond the shifting and scheduling inefficiencies that sometimes arise in patrol, there is evidence that patrol officers are not in a position to be able to go “beyond the call”, perform proactive policing activities or complete thorough investigations. At midnight on Saturday, approximately 19.0 calls for service are typically waiting to be dispatched citywide on average. At midnight on Friday, approximately 21.5 calls for service were waiting to be dispatched citywide on average. Anecdotal evidence suggests that this excess workload had a detrimental effect on the effectiveness of patrol and led to poor customer service.

## 6 THE PATROL RESPONSE TO CALLS

Regular patrol units were dispatched 232,616 times to a total of 147,501 incidents between 2005-06-01 and 2006-05-31. Overall, approximately 1.6 regular patrol units were dispatched to each call for service on average. As shown below, the average number of regular patrol units dispatched increased with the urgency of the situation and the seriousness of the incident.

Among the incidents handled by regular patrol units, 97,433 calls required the presence of a single regular patrol unit, 31,475 calls required two units, 10,735 calls required three units, 4,194 calls required four units, 1,797 calls required five units, 871 calls required six units, 435 calls required seven units, 210 calls required eight units, 128 calls required nine units, 69 calls required ten units and 154 calls required more than ten regular patrol units.

**Figure 6-1 Distribution of Regular Patrol Units per Call**



### 6.1 PATROL RESPONSE BY INCIDENT

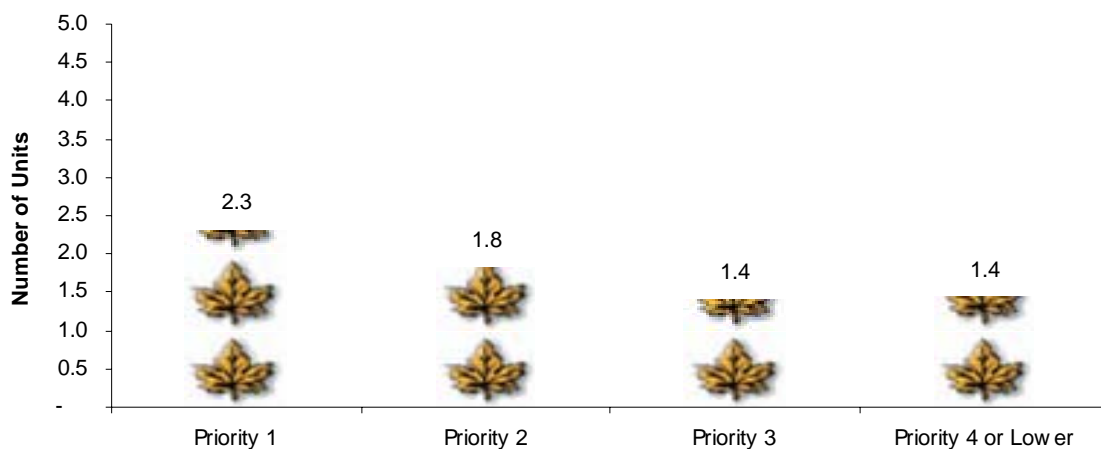
As expected, the average number of regular patrol units dispatched increased with the urgency of the situation and the seriousness of the incident.



First, calls associated with a higher priority level were attended by more regular patrol units overall than calls associated with a lower priority level. For instance:

- On average, 1.4 regular patrol units were dispatched to routine priority 3 and 4 calls.
- On average, 1.8 regular patrol units were dispatched to priority 2 calls.
- On average, 2.3 regular patrol units were dispatched to urgent priority 1 calls.

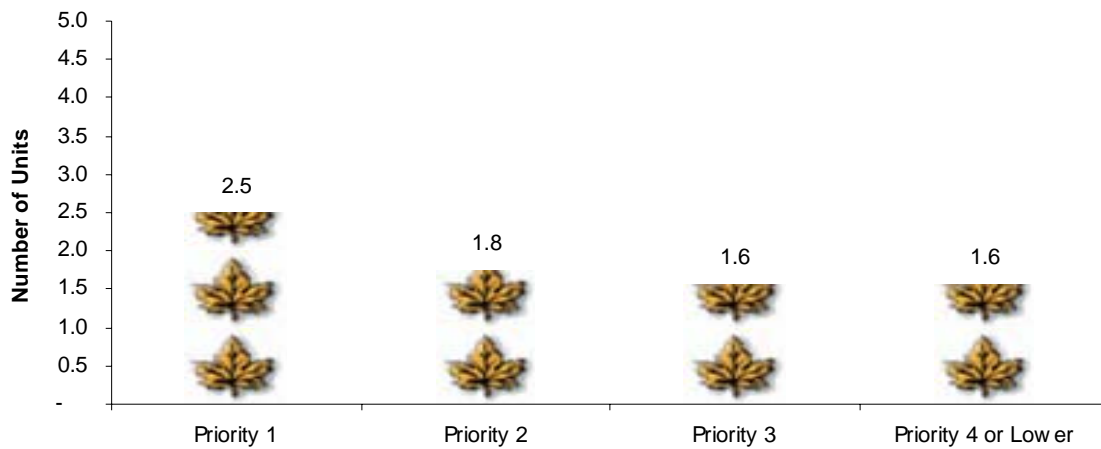
**Figure 6-2 Average Number of Regular Patrol Units by Priority**



As expected, this relationship between the number of units and the priority level was holding for most individual call types as well. For example:

- An average of 1.6 regular patrol units were dispatched to suspicious circumstances classified as priority 3 calls. In comparison, an average of 1.8 regular patrol units were dispatched to suspicious circumstances classified as priority 2 calls and 2.5 regular patrol units were dispatched to suspicious circumstances classified as priority 1 calls.

**Figure 6-3 Average Number of Regular Patrol Units to Suspicious Circumstances by Priority**

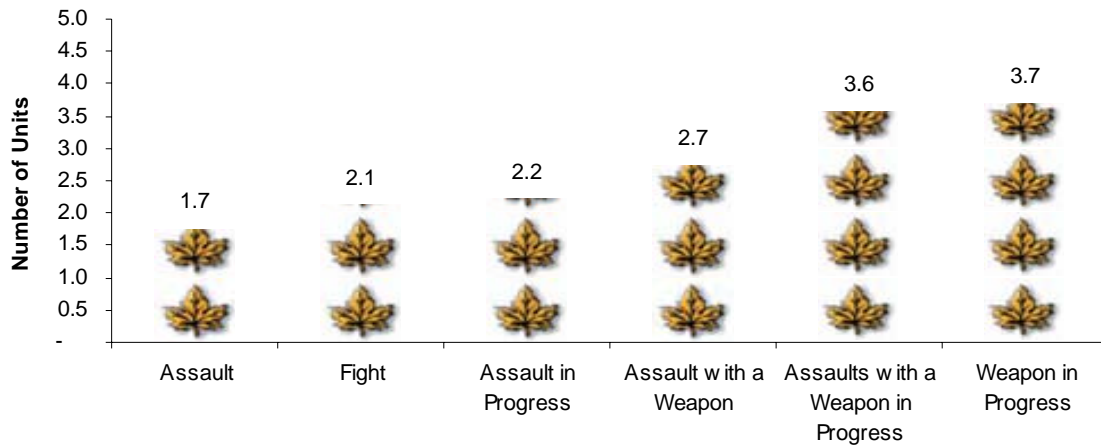


- An average of 1.8 regular patrol units were dispatched to common assaults classified as priority 2 or 3 calls. In comparison, an average of 2.1 regular patrol units were dispatched to common assaults classified as priority 1 calls.

Secondly, incidents that were potentially more serious and crimes in progress also received a larger police response on average. For instance:

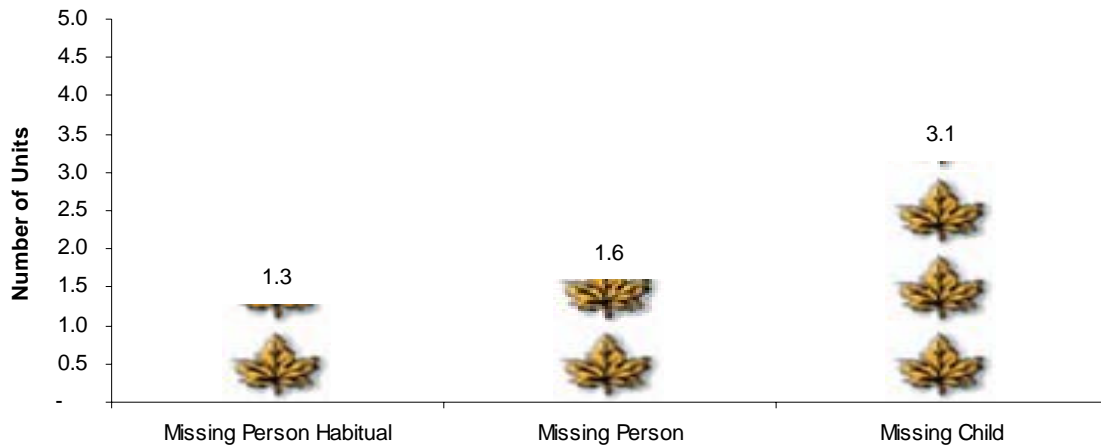
- An average of 1.7 regular patrol units were dispatched to common assaults (excluding assaults in progress and assaults with a weapon) while 2.1 regular patrol units were dispatched to fights, 2.3 regular patrol units were dispatched to assaults in progress (including assaults with a weapon in progress), 3.2 regular patrol units were dispatched to assaults involving a weapon (including assaults with a weapon in progress) and 3.7 regular patrol units were dispatched to various other in progress incidents where weapons were involved.

**Figure 6-4 Average Number of Regular Patrol Units to Fights, Assaults and Weapons in Progress**



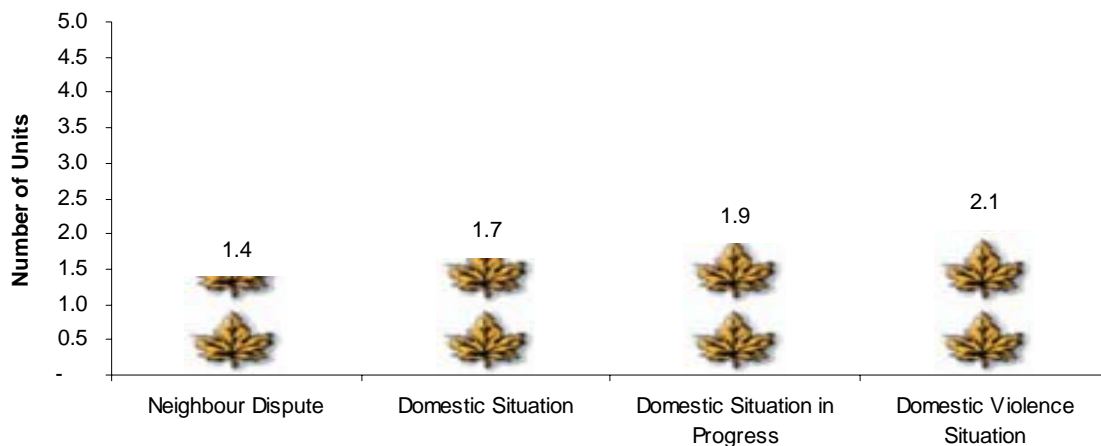
- An average of 2.1 regular patrol units were dispatched to sexual assaults (not in progress) while 3.4 regular patrol units were dispatched to sexual assaults in progress.
- An average of 1.4 regular patrol units were dispatched to suspicious vehicles while 1.5 regular patrol units were dispatched to suspicious persons, 1.7 regular patrol units were dispatched to other suspicious circumstances and 1.9 regular patrol units were dispatched to screaming persons.
- An average of 2.0 regular patrol units were dispatched to deal with suicidal persons (excluding individuals threatening to jump) while 3.5 regular patrol units were dispatched to deal with suicidal persons who were threatening to jump off a bridge or another structure.
- An average of 1.3 regular patrol units were dispatched to search for missing persons who customarily disappear for a few days and then come back while 1.6 regular patrol units were dispatched to search for missing persons (excluding habitual missing persons) and 3.1 regular patrol units were dispatched to search for missing children.

**Figure 6-5 Average Number of Regular Patrol Units to Missing Persons and Missing Children**



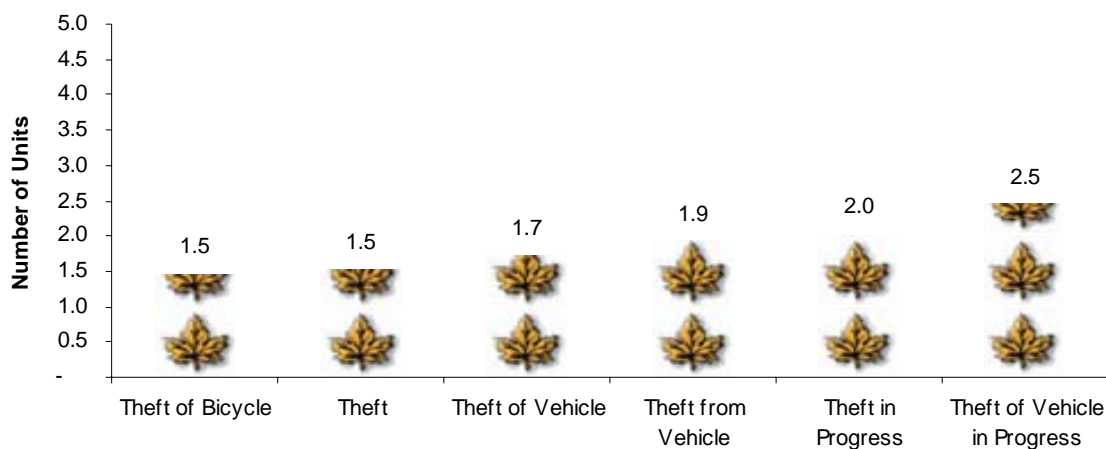
- An average of 1.4 regular patrol units were dispatched to neighbour disputes while 1.7 regular patrol units were dispatched to domestic situations (with no violence) while 1.9 regular patrol units were dispatched to domestic situations in progress and 2.1 regular patrol units were dispatched to incidents of domestic violence.

**Figure 6-6 Average Number of Regular Patrol Units to Neighbour Disputes, Domestic Situations and Domestic Violence Situations**



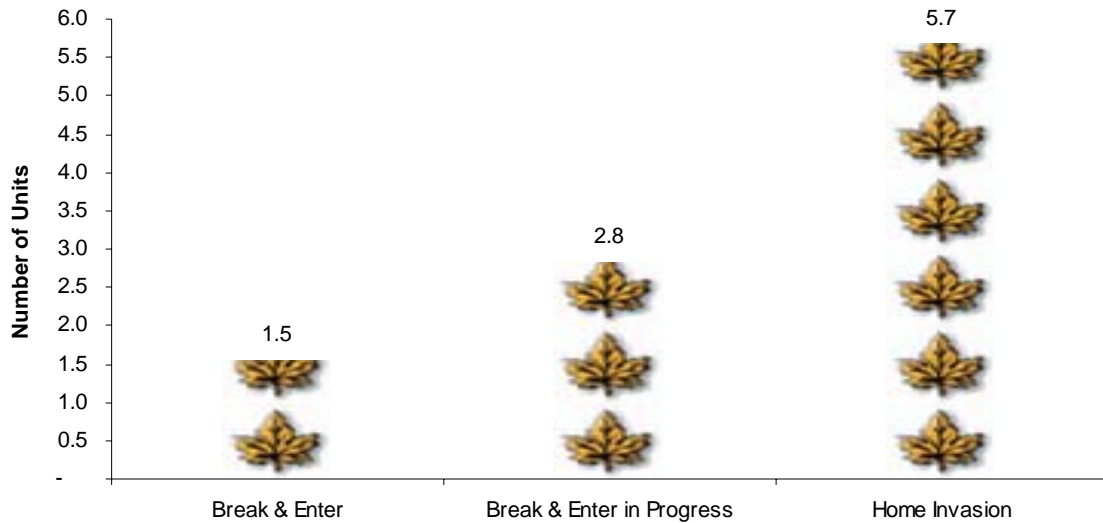
- An average of 1.2 regular patrol units were dispatched to hazardous situations while 1.6 regular patrol units were dispatched to motor vehicle incidents with injuries and 2.3 regular patrol units were dispatched to bomb threats.
- An average of 1.7 regular patrol units were dispatched to mischiefs while 1.9 regular patrol units were dispatched to mischiefs in progress.
- An average of 1.5 regular patrol units were dispatched to thefts (excluding thefts in progress, thefts from vehicle, bicycle thefts and vehicle thefts) while 1.9 regular patrol units were dispatched to thefts of or from vehicle (excluding in progress vehicle thefts) and 2.5 regular patrol units were dispatched to thefts of vehicle in progress.

**Figure 6-7 Average Number of Regular Patrol Units to Thefts, Thefts from Vehicle and Thefts of Vehicle**



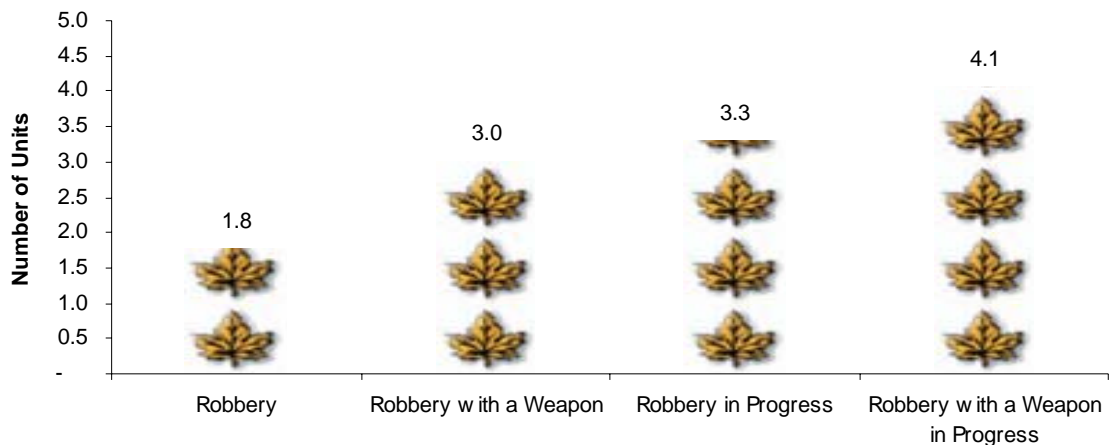
- An average of 1.5 regular patrol units were dispatched to break and enters (not in progress) while 2.8 regular patrol units were dispatched to break and enters in progress and 5.7 regular patrol units were dispatched to home invasions.

**Figure 6-8 Average Number of Regular Patrol Units to Break and Enters and Home Invasions**



- An average of 1.8 regular patrol units were dispatched to robberies (excluding in progress robberies and robberies with a weapon), 3.0 regular patrol units were dispatched to robberies with a weapon (excluding robberies with a weapon in progress), 3.3 regular patrol units were dispatched to robberies in progress (excluding robberies with a weapon in progress) and 4.1 regular patrol units were dispatched to robberies with a weapon in progress.

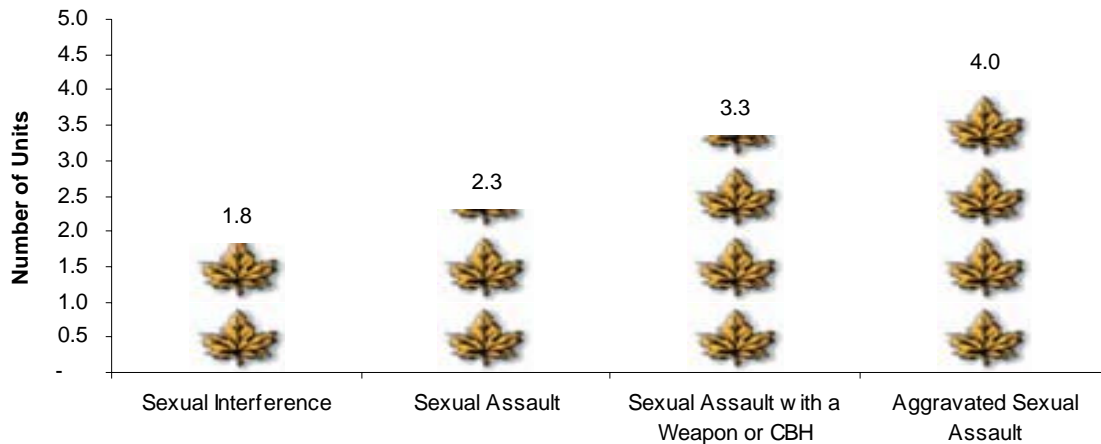
**Figure 6-9 Average Number of Regular Patrol Units to Robberies**



Finally, more regular patrol units were usually dispatched to incidents that turned out to be more serious. Between 2005-06-01 and 2006-05-31, on average:

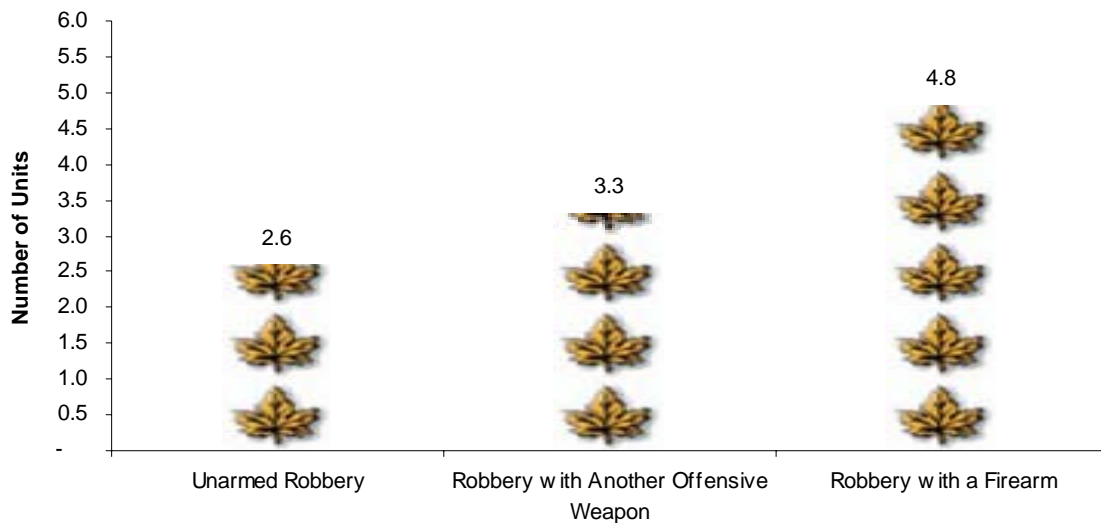
- 10.4 regular patrol units were dispatched to attempted murders and approximately 14.3 units were dispatched to homicides.
- 2.3 regular patrol units were dispatched to sexual assaults, 3.3 regular patrol units were dispatched to sexual assaults with a weapon or causing bodily harm and 4.0 regular patrol units were dispatched to aggravated sexual assaults.

**Figure 6-10 Average Number of Regular Patrol Units to Sexual Assaults**



- 2.6 regular patrol units were dispatched to unarmed robberies, 3.3 regular patrol units were dispatched to robberies with a weapon and 4.8 regular patrol units were dispatched to robberies with a firearm.

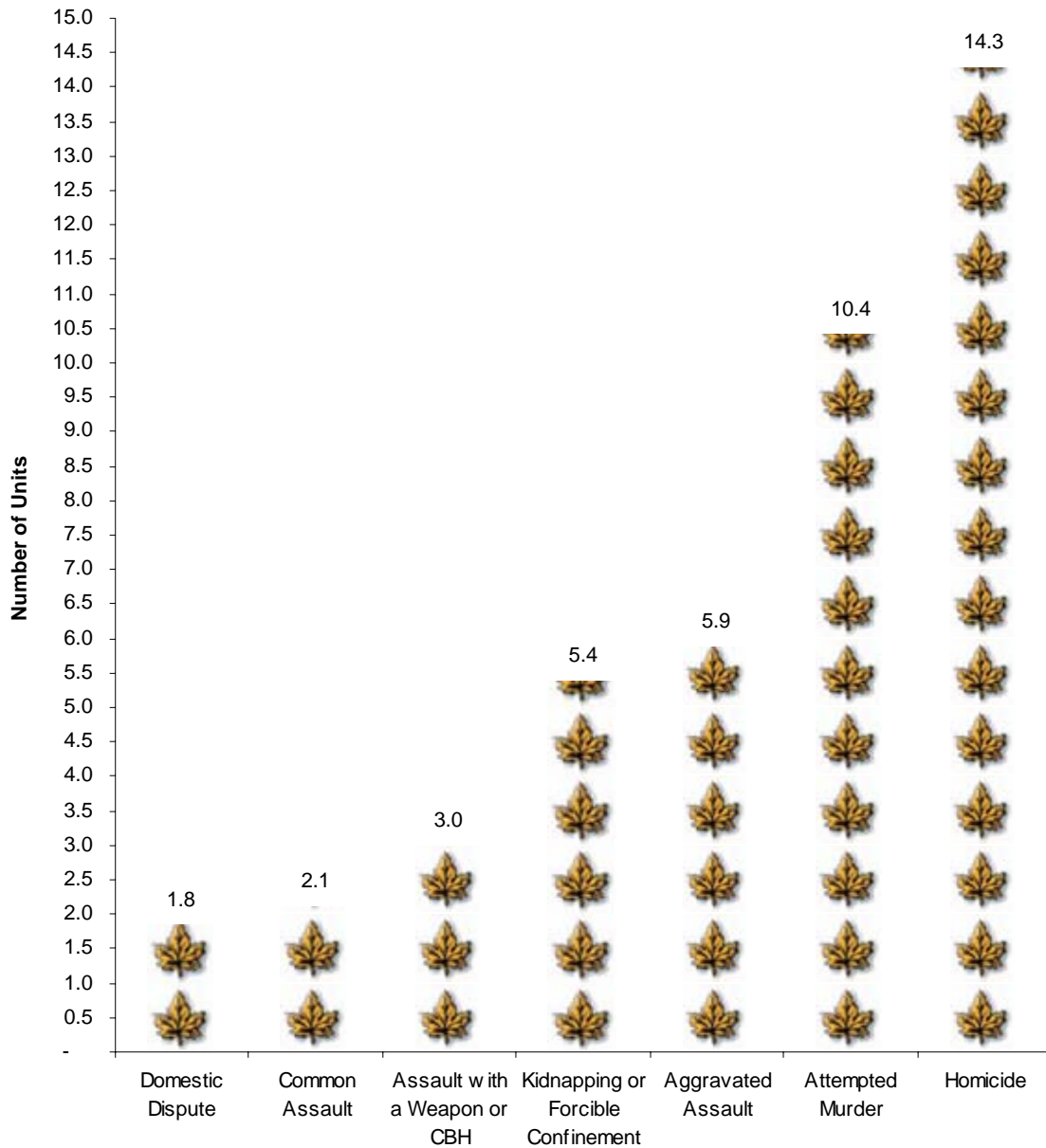
**Figure 6-11 Average Number of Regular Patrol Units to Founded Robberies**



- 2.3 regular patrol units were dispatched to other incidents involving offensive weapons.
- 1.8 regular patrol units were dispatched to incidents that turned out to be domestic disputes (with no assault), 2.1 regular patrol units were dispatched to incidents that involved a common assault, 3.0 regular patrol units were dispatched to incidents that involved an assault with a weapon or causing bodily harm, 5.4 regular patrol units were dispatched to forcible confinement cases and 5.9 regular patrol units were dispatched to incidents that involved an aggravated assault.



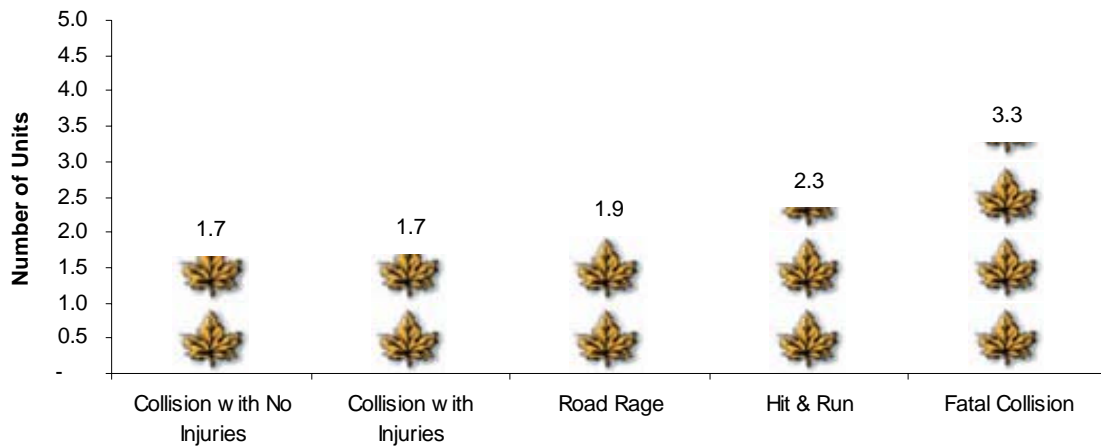
**Figure 6-12 Average Number of Regular Patrol Units to Domestic Disputes, Assaults and Homicides**



- 1.9 regular patrol units were dispatched to residential break and enters and 2.0 regular patrol units were dispatched to commercial break and enters.
- 1.5 regular patrol units were dispatched to incidents involving counterfeit currency while 1.8 regular patrol units were dispatched to cheque frauds and credit or debit card frauds.

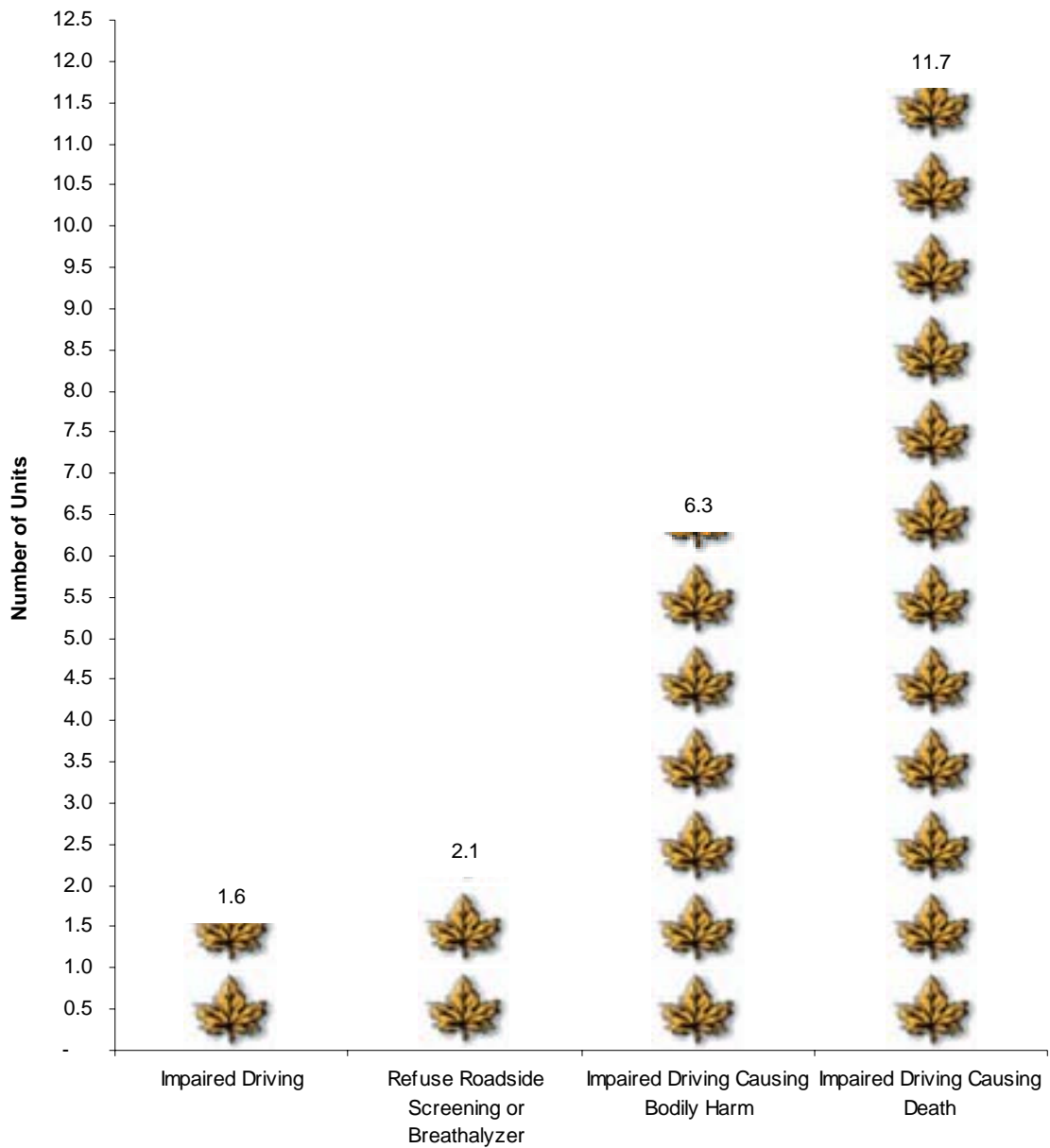
- 1.4 regular patrol units were dispatched to incidents involving the possession of cocaine and 1.8 regular patrol units were dispatched to incidents involving the trafficking of cocaine.
- 1.9 regular patrol units were dispatched to thefts of vehicles under \$5,000 and 2.3 regular patrol units were dispatched to thefts of vehicles over \$5,000.
- 1.6 regular patrol units were dispatched to shoplifters and 1.8 regular patrol units were dispatched to thefts.
- 1.7 regular patrol units were dispatched to motor vehicle incidents with non-fatal injuries, 1.9 regular patrol units were dispatched to road rage incidents, 2.3 regular patrol units were dispatched to hit and runs and 3.3 regular patrol units were dispatched to fatal motor vehicle incidents.

**Figure 6-13 Average Number of Regular Patrol Units to Serious Motor Vehicle Incidents**



- 1.6 regular patrol units were dispatched to impaired driving incidents, 2.1 regular patrol units were dispatched when the driver failed to provide a breath sample or participate in a roadside screening, 6.3 regular patrol units were dispatched to impaired driving incidents causing bodily harm and 11.7 regular patrol units were dispatched to impaired driving incidents causing death.

**Figure 6-14 Average Number of Regular Patrol Units to Founded Impaired Driving Incidents**



Overall, most serious incidents obviously occupied more patrol resources on average. The qualitative evidence available suggests that the additional police presence in those cases was justified and was in line with the best practices in place in other police agencies similar to the VPD.

On the other hand, potentially less serious incidents like alarm calls, annoying circumstances, disturbance calls (including noise or parties), motor vehicle incidents with no injury, neighbour disputes, shoplifters, suspicious circumstances (including suspicious persons and vehicles), traffic offences and unwanted persons are generally attended by one to two regular patrol units. On average, 1.4 regular patrol units were dispatched to these types of incidents between 2005-06-01 and 2006-05-31. There is no evidence suggesting that this is a departure from the best practice in the field of law enforcement.

**Table 6-1 Average Number of Regular Patrol Units Dispatched by Call Type**

<b>Call Type</b>		<b>Number of Calls</b>	<b>Average Number of Units</b>
<b>PRIORITY 1</b>	MVI INJURY	3,226	1.6
	DOMESTIC IN PROGRESS	2,722	1.9
	ASSAULT IN PROGRESS	2,380	2.3
	WEAPON IN PROGRESS	1,501	3.8
	SUICIDAL PERSON	878	2.0
	DISTURBANCE SCREAMING	683	2.0
	ROBBERY IN PROGRESS	611	3.3
	DOMESTIC WITH VIOLENCE	378	2.1
	ALARM HOLD UP	330	2.3
	SUSPICIOUS OTHER CIRCUMSTANCES	328	2.5
	SUSPICIOUS PERSON	183	2.2
	ROBBERY WITH WEAPON IN PROGRESS	153	4.1
	MISSING CHILD	148	3.3
	ASSAULT WITH WEAPON IN PROGRESS	144	3.6
	THEFT FROM VEHICLE	133	2.5
	ROBBERY WITH A WEAPON	115	3.6
	SHOTS FIRED	108	5.6
	ASSIST GENERAL PUBLIC	90	1.9
	JUMPER	85	3.5
	ASSIST PROVINCIAL AMBULANCE	64	2.3
	HOME INVASION	56	5.8
	ASSAULT SEXUAL IN PROGRESS	47	3.4
	ABANDONED 911	38	1.9
	BOMB THREAT	32	2.4
	ARSON IN PROGRESS	22	2.3
	SUSPICIOUS VEHICLE	15	2.8
	EXPLOSIVES	15	2.2
	AIR EMERGENCY	13	1.9
	OTHER	699	2.9
	<b>PRIORITY 1</b>	<b>15,197</b>	<b>2.3</b>

PRIORITY 2	ABANDONED 911	3,654	1.3
	FIGHT	2,655	2.1
	THEFT IN PROGRESS	2,393	2.0
	BREAK AND ENTER IN PROGRESS	1,917	2.8
	DOMESTIC REPORT	1,801	1.7
	MISCHIEF IN PROGRESS	1,484	1.9
	SUSPICIOUS PERSON	1,229	1.6
	SUSPICIOUS OTHER CIRCUMSTANCES	1,175	1.8
	ASSIST GENERAL PUBLIC	1,044	1.5
	VIOLENT PERSON	619	1.8
	MAN DOWN	531	1.2
	ALARMS SILENT/PANIC	430	1.4
	SHOTS HEARD	416	3.4
	FRAUD IN PROGRESS	341	1.8
	ASSAULT	328	1.7
	MVI HIT AND RUN	311	2.0
	IMPAIRED DRIVER POSSIBLE	306	1.5
	ASSIST PROVINCIAL AMBULANCE	294	1.6
	INDECENT ACT IN PROGRESS	254	1.5
	PROWLER	253	1.7
	ANNOYING CIRCUMSTANCES	207	1.4
	THREATS	192	1.7
	DOMESTIC IN PROGRESS	165	1.6
	THEFT OF VEHICLE IN PROGRESS	157	2.5
	SHOPLIFTER VIOLENT	100	1.9
	OVERDOSE	95	1.3
	OTHER	2,715	1.8
<b>PRIORITY 2</b>	<b>25,066</b>	<b>1.8</b>	

PRIORITY 3	ANNOYING CIRCUMSTANCES	10,303	1.2
	ASSIST GENERAL PUBLIC	7,315	1.3
	SUSPICIOUS PERSON	7,180	1.4
	DISTURBANCE NOISE	5,206	1.3
	SUSPICIOUS OTHER CIRCUMSTANCES	4,923	1.6
	ALARM	3,540	1.2
	ASSIST PROVINCIAL AMBULANCE	2,973	1.4
	UNWANTED PERSON	2,661	1.2
	THEFT VEHICLE LOCATED	2,560	1.6
	DISTURBANCE PARTY	2,541	1.5
	ASSAULT	2,243	1.8
	SUSPICIOUS VEHICLE	1,967	1.4
	THREATS	1,901	1.6
	MVI	1,556	1.3
	SHOPLIFTER	1,485	1.4
	HAZARDOUS SITUATION	1,121	1.2
	ASSIST OTHER AGENCY	1,076	1.5
	MISSING PERSON	1,030	1.6
	HARASSMENT	962	1.5
	SUDDEN DEATH	585	1.8
	DRUGS IN PROGRESS	566	1.2
	ASSAULT SEXUAL	371	2.0
	ASSIST FIRE	336	1.7
	NEIGHBOUR DISPUTE	285	1.4
	INDECENT ACT	193	1.5
	ASSIST EMERGENCY MENTAL HEALTH	190	1.4
	ARSON	178	1.7
	ANIMAL	84	1.4
	TRESPASS	55	1.3
	STALKING	44	1.8
	OTHER	11,549	1.5
<b>PRIORITY 3</b>	<b>76,979</b>	<b>1.4</b>	

PRIORITY 4 AND LOWER	WARRANT	6,408	1.3
	BREAK AND ENTER	2,789	1.5
	TRAFFIC SUSPENSION	2,767	1.4
	ARREST	2,677	1.6
	INTELLIGENCE INFORMATION	2,459	1.3
	PROPERTY RECOVERED	2,042	1.2
	THEFT	1,667	1.5
	PROPERTY SEIZED	1,612	1.3
	SIPP/DIPP	1,167	1.7
	FRAUD	835	1.6
	DRUGS	815	1.3
	PROSTITUTION	797	1.1
	MISCHIEF	722	1.7
	THEFT FROM VEHICLE	466	1.6
	IMPAIRED DRIVER	288	1.9
	THEFT OF VEHICLE	172	1.6
	THEFT OF BICYCLE	2	1.0
	MISSING PERSON HABITUAL	1	2.0
	OTHER	2,573	1.6
	<b>PRIORITY 4 AND LOWER</b>	<b>30,259</b>	<b>1.4</b>
	<b>Total</b>	<b>147,501</b>	<b>1.6</b>



**Table 6-2 Average Number of Regular Patrol Units Dispatched by Type of Criminal Case**

<b>Type of Case</b>	<b>Number of Incidents</b>	<b>Average Number of Units</b>
Common Assault	3,455	2.1
Theft (Excluding Shoplifting)	2,895	1.8
Impaired Driving	2,542	1.6
Residential Break & Enter	2,054	1.9
Shoplifting	1,994	1.6
Mischief	1,849	2.0
Commercial Break & Enter	1,545	2.0
Robbery	1,540	3.1
Threats	1,531	2.0
Assault with a Weapon or CBH	1,486	3.0
Bail Violation	1,066	1.5
Possession of Stolen Property	1,003	2.2
Cocaine Possession	997	1.4
Weapon Possession	929	2.3
Cannabis Possession	678	1.6
Harassing or Obscene Phone Calls	605	1.6
Cocaine Trafficking	550	1.8
Credit or Debit Card Fraud	437	1.8
Sexual Offence	409	2.3
Theft of Motor Vehicle	368	2.1
Arson	247	2.1
Criminal Harassment	233	1.9
Cheque Fraud	215	1.8
Indecent Act	189	1.8
Counterfeit Currency	165	1.5
Heroin Possession	124	1.3
Aggravated Assault	45	5.9
Other	6,349	1.3
<b>Total</b>	<b>35,500</b>	<b>1.9</b>

A careful examination of each individual incident that required the attention of more than ten regular patrol units between 2005-06-01 and 2006-05-31 confirmed that these were very serious cases that often involved dangerous criminal activities or life-threatening situations. As illustrated below, the additional police presence, in these cases, was both justified and desirable.

- One incident where an 11 year-old girl went missing in the 400 block of East Hastings Street required a total of 66 regular patrol units (incident VA2006-

104439). The girl was reported missing by her biological father on 2006-05-20 at approximately 2150 hours, less than twelve hours after they checked in together at the Patricia Hotel. Less than two hours after the girl was reported missing, 25 police units had been dispatched to the incident. In an effort to find out what had happened to the missing child, officers canvassed the area, checked several rooms of the hotel, carefully monitored the hotel's lobby, transmitted the relevant information to other police agencies in the region and visited some transition houses admitting sexual offenders. It later became apparent that the girl had been picked up by a 24 year-old drug dealer from the Downtown Eastside who rode in the SkyTrain with her and invited her to his personal residence in Burnaby. The missing girl was ultimately found unharmed and she was reunited with her father 15 hours after she went missing.

- A total of 63 regular patrol units participated in the investigation surrounding the well-publicized kidnapping of 23 year-old Graham McMynn (incident VA2006-69933). On 2006-04-04 at approximately 1045 hours, Graham McMynn and his girlfriend were driving in the area of Blenheim Street and West 51st Avenue in Vancouver when their vehicle was boxed in by the suspects' vehicles. McMynn was removed from his vehicle at gunpoint and was forced into one of the suspect's vehicles. The first police unit was dispatched approximately 2 minutes 47 seconds after the emergency call was received. A total of 8 regular police units were dispatched within an hour to contain the perimeter and collect statements from the witnesses at the scene. More units were dispatched subsequently to canvass the area, secure the evidence, attend the residence of McMynn's parents and guard key locations. In particular, several ex-ERT members were dispatched to contain some addresses that were of interest to the investigators. For the next eight days, McMynn was held captive until he was located by police on 2006-04-12. McMynn was sore but unharmed when he returned to his family. Several suspects were arrested and charged in relation to the incident.
- A criminal arson which took place in the 2400 block of Cassiar Street on 2006-05-15 involved a total of 46 regular patrol units (incident VA2006-99899).

Approximately 38 of these regular patrol units were dispatched less than 14 hours after the incident was reported to police.

- The gang-related murder at the nightclub Richard's On Richards which occurred on 2006-05-05 at approximately 0025 hours required a total of 44 regular patrol units (incident VA2006-92163). All these units were dispatched within the first 24 hours.
- The double homicide that occurred during a robbery in the 3100 block of Main Street on 2006-04-28 was handled by a total of 28 regular patrol units (incident VA2006-86864).
- Approximately 28 regular patrol units responded when a citizen heard what sounded like gun shots in an apartment building located in the 1900 block of Grant Street on 2005-08-30 at approximately 1925 hours (incident VA2005-217401). Inside one of the suites within the apartment building, police found an injured victim. The victim of what was apparently a drug rip-off was transported to the hospital with minor injuries. The main suspect was arrested as he was leaving the scene of the shooting and was returning to his vehicle. Drugs, money and a sawed-off shotgun were also recovered by officers at the scene.
- No less than 28 regular patrol units were dispatched to the area surrounding the 2200 block of Grant Street on 2005-08-28 at approximately 2215 hours when a kidnapped victim managed to escape from his captors and asked for assistance from a neighbour (incident VA2005-215941). The 24 year-old victim, kidnapped at knife point from Douglas College in Coquitlam a day earlier, was able to identify at least one of his captors and a total of five suspects were charged in relation to the incident.
- Approximately 27 regular patrol units were dispatched when a 17 year-old male had his neck slashed in the 1900 block of East 38th Avenue (incident VA2005-208512).
- Approximately 26 regular patrol units were dispatched when a woman was abducted by her distraught ex-common law husband who forced her into his van at knife point on 2006-04-03 at approximately 2230 hours (incident VA2006-69687). The suspect vehicle was located in the 7700 block of Champlain

Crescent in Vancouver by a police unit and patrol cars quickly surrounded the vehicle. After negotiating with the police, but not before threatening to kill his wife and/or himself, the suspect ultimately agreed to exit his vehicle and was charged with forcible confinement and kidnapping.

- Approximately 26 regular patrol units were dispatched when a man was stabbed in a parking lot located in the area of the Drake Hotel in Vancouver on 2005-08-10 at approximately 1545 hours (incident VA2005-200373).
- Approximately 24 regular patrol units were dispatched when a citizen reported that her boyfriend had been stabbed in the 1700 block of East Pender Street on 2005-09-09 at approximately 0450 hours (incident VA2005-224958).
- Approximately 23 regular patrol units were dispatched when an individual was shot to death in the area of Richards Street and West Hastings Street on 2005-12-03 at approximately 0330 hours (incident VA2005-289186).

The other incidents that involved a total of more than ten regular patrol units included:

- 40 assaults (including 31 aggravated assaults and 4 assaults against a police officer).
- 22 robberies or home invasions (including at least 16 cases involving a weapon).
- 14 break and enters (including 12 in progress).
- 11 other weapon-related cases (including at least 4 gang-related incidents).
- 9 attempted murders.
- 7 suicides, attempted suicides or suicidal persons.
- 9 shootings (including at least 3 gang-related incidents).
- 4 missing persons (including 3 missing children).
- 4 drug-related cases (including one case of methamphetamine production and one case of cocaine trafficking).
- 3 forcible confinement cases.
- 3 frauds.
- 3 impaired driving cases (including one causing death and 2 causing bodily harm).
- 2 criminal arsons.

- 2 sudden deaths.
- 2 mischiefs.
- 2 hit and run.
- One large-scale fight at the Plush Nightclub.
- One domestic violence incident that turned out to be manslaughter.
- At least 3 sexual assaults (including one aggravated sexual assault).
- At least one murder.

## **6.2 PATROL RESPONSE BY TIME OF DAY**

Interestingly, slightly more regular patrol units were dispatched on average to high priority (priority 1 or 2) incidents reported before 0600 hours or after 1800 hours (i.e. during the night):

- On average, 2.2 regular patrol units were dispatched to priority 1 calls reported between 0600 and 1800 hours. By comparison, 2.4 regular patrol units were dispatched to priority 1 calls reported at night.
- On average, 1.7 regular patrol units were dispatched to priority 2 calls reported between 0600 and 1800 hours. By comparison, 1.9 regular patrol units were dispatched to priority 2 calls reported at night.

By comparison, an average of 1.4 regular patrol units responded to low priority (e.g. priority 3) incidents both before and after 1800 hours.

The relationship between time of day and the average number of dispatched units to high priority calls held in each of the patrol district without exception:

- In District 1, an average of 2.4 and 1.8 regular patrol units were dispatched to priority 1 and 2 calls respectively between 0600 and 1800 hours. By comparison, 2.6 and 2.1 regular patrol units were dispatched to priority 1 and 2 calls respectively at night.
- In District 2, an average of 2.3 and 1.6 regular patrol units were dispatched to priority 1 and 2 calls respectively between 0600 and 1800 hours. By comparison,

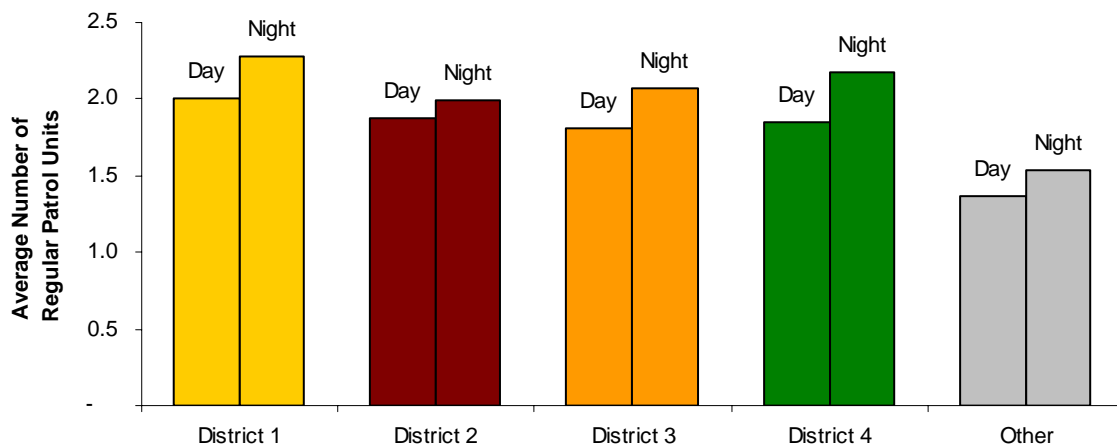
2.4 and 1.8 regular patrol units were dispatched to priority 1 and 2 calls respectively at night.

- In District 3, an average of 2.1 and 1.6 regular patrol units were dispatched to priority 1 and 2 calls respectively between 0600 and 1800 hours. By comparison, 2.4 and 1.9 regular patrol units were dispatched to priority 1 and 2 calls respectively at night.
- In District 4, an average of 2.0 and 1.7 regular patrol units were dispatched to priority 1 and 2 calls respectively between 0600 and 1800 hours. By comparison, 2.4 and 2.1 regular patrol units were dispatched to priority 1 and 2 calls respectively at night.

**Table 6-3 Average Number of Regular Patrol Units Dispatched to High Priority Calls at Night by District**

District	Day	Night
District 1	2.0	2.3
District 2	1.9	2.0
District 3	1.8	2.1
District 4	1.9	2.2
Other	1.4	1.5
<b>Total</b>	<b>1.9</b>	<b>2.1</b>

**Figure 6-15 Average Number of Regular Patrol Units Dispatched to High Priority Calls at Night by District**



This relationship between time of day and the average number of dispatched units also held for several individual types of calls:

- On average, 2.1 regular patrol units were dispatched to assaults in progress reported between 0600 and 1800 hours. By comparison, 2.3 regular patrol units were dispatched to assaults in progress reported at night.
- On average, 1.8 regular patrol units were dispatched to domestic situations in progress between 0600 and 1800 hours. By comparison, 1.9 regular patrol units were dispatched to domestic situations in progress at night (when most incidents occur).
- On average, 1.9 regular patrol units were dispatched to domestic violence situations between 0600 and 1800 hours. By comparison, 2.2 regular patrol units were dispatched to domestic violence situations at night.
- On average, 1.3 regular patrol units were dispatched to motor vehicle incidents between 0600 and 1800 hours. By comparison, 1.5 regular patrol units were dispatched to motor vehicle incidents at night.
- On average, 1.4 regular patrol units were dispatched to motor vehicle incidents with injuries between 0600 and 1800 hours (when most incidents occur). By comparison, 1.8 regular patrol units were dispatched to motor vehicle incidents with injuries at night.
- On average, 1.4 regular patrol units were dispatched to suspicious circumstances (including suspicious persons, suspicious vehicles or other suspicious circumstances) between 0600 and 1800 hours. By comparison, 1.6 regular patrol units were dispatched to suspicious circumstances at night.
- On average, 2.6 regular patrol units were dispatched to break and enters in progress reported between 0600 and 1800 hours. By comparison, 3.0 regular patrol units were dispatched to break and enters in progress reported at night.
- On average, 1.8 regular patrol units were dispatched to fights reported between 0600 and 1800 hours. By comparison, 2.2 regular patrol units were dispatched to fights reported at night (when most fights occur).
- On average, 1.8 regular patrol units were dispatched to mischiefs in progress reported between 0600 and 1800 hours. By comparison, 2.0 regular patrol units

were dispatched to mischiefs in progress reported at night (when most mischiefs occur).

- On average, 1.9 regular patrol units were dispatched to thefts in progress reported between 0600 and 1800 hours. By comparison, 2.1 regular patrol units were dispatched to thefts in progress reported at night.
- On average, 1.6 regular patrol units were dispatched to violent persons reported between 0600 and 1800 hours. By comparison, 1.9 regular patrol units were dispatched to violent persons reported at night.

As expected, the relationship between time of day and the number of dispatched units did not hold for lower priority calls for service. Abandoned 911 calls, annoying circumstances, domestic disturbances that are not in progress, hazardous situations, missing persons and threat reports were attended by the same average number of regular patrol units whether the call was received between 0600 and 1800 hours or at night. Similarly, suicidal persons and weapon in progress calls were also attended by the same average number of regular patrol units whether the call was received between 0600 and 1800 hours or at night.

### **6.3 PATROL RESPONSE BY DISTRICT**

The data available supports the idea that the VPD's operational policies and tactical guidelines are applied relatively homogeneously across the existing four patrol districts. Between 2005-06-01 and 2006-05-31, there were no substantial differences in the average number of patrol units dispatched per call in each district. In all patrol districts, 1.5 to 1.7 regular patrol units were dispatched to each incident on average.

In District 1, an average of 1.7 regular patrol units handled a total of 36,259 incidents. An average of 2.6 regular patrol units handled a total of 3,129 priority 1 calls, an average of 2.0 regular patrol units handled a total of 5,976 priority 2 calls, an average of 1.5 regular patrol units handled a total of 19,388 priority 3 calls and an average of 1.5 regular patrol units handled a total of 7,766 priority 4 calls or other calls.



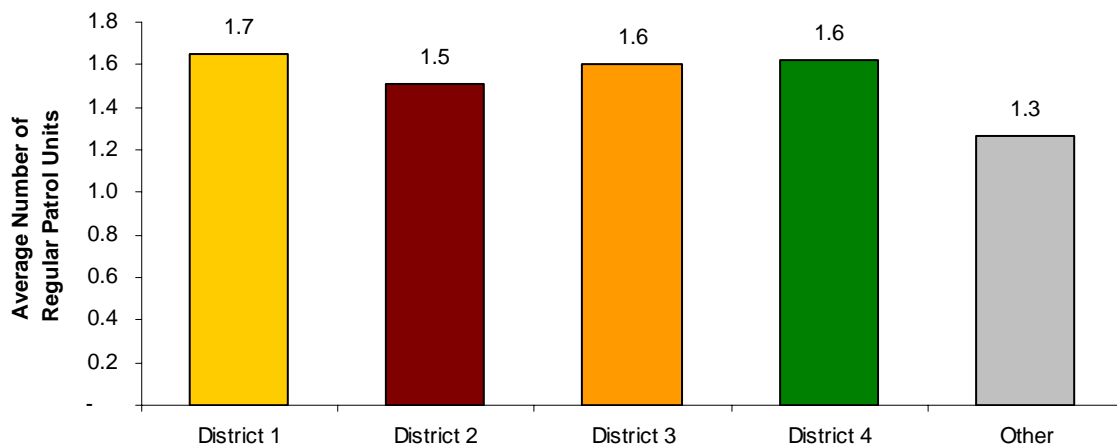
In District 2, an average of 1.5 regular patrol units handled a total of 43,725 incidents. An average of 2.3 regular patrol units handled a total of 4,106 priority 1 calls, an average of 1.7 regular patrol units handled a total of 6,903 priority 2 calls, an average of 1.4 regular patrol units handled a total of 23,065 priority 3 calls and an average of 1.3 regular patrol units handled a total of 9,651 priority 4 calls or other calls.

In District 3, an average of 1.6 regular patrol units handled a total of 32,778 incidents. An average of 2.2 regular patrol units handled a total of 4,596 priority 1 calls, an average of 1.8 regular patrol units handled a total of 6,456 priority 2 calls, an average of 1.4 regular patrol units handled a total of 16,231 priority 3 calls and an average of 1.4 regular patrol units handled a total of 5,495 priority 4 calls or other calls.

In District 4, an average of 1.6 regular patrol units handled a total of 29,278 incidents. An average of 2.2 regular patrol units handled a total of 3,258 priority 1 calls, an average of 1.9 regular patrol units handled a total of 5,522 priority 2 calls, an average of 1.4 regular patrol units handled a total of 15,764 priority 3 calls and an average of 1.5 regular patrol units handled a total of 4,734 priority 4 calls or other calls.

A total of 5,461 calls could not be attributed to one of the four patrol districts. An average of 1.3 regular patrol units handled those calls.

**Figure 6-16 Average Number of Regular Patrol Units Dispatched by District**



**Table 6-4 Average Number of Regular Patrol Units by District and by Priority**

District	Priority 1 Calls	Priority 2 Calls	Priority 3 Calls	Priority 4 Calls	Total
District 1	2.6	2.0	1.5	1.5	<b>1.7</b>
District 2	2.3	1.7	1.4	1.3	<b>1.5</b>
District 3	2.2	1.8	1.4	1.4	<b>1.6</b>
District 4	2.2	1.9	1.4	1.5	<b>1.6</b>
Other	1.6	1.4	1.3	1.2	<b>1.3</b>
<b>Total</b>	<b>2.3</b>	<b>1.8</b>	<b>1.4</b>	<b>1.4</b>	<b>1.6</b>

Across all four districts, almost all individual call types were handled by the same number of units.

**Table 6-5 Average Number of Regular Patrol Units Dispatched by Call Type and by District**

Call Type		D1	D2	D3	D4	Other	Total
PRIORITY 1	MVI INJURY	1.7	1.7	1.5	1.5	1.7	1.6
	DOMESTIC IN PROGRESS	2.2	1.8	1.7	2.1	2.0	1.9
	ASSAULT IN PROGRESS	2.5	2.1	2.2	2.4	1.2	2.3
	WEAPON IN PROGRESS	3.9	3.7	3.8	3.8	1.3	3.8
	SUICIDAL PERSON	2.3	1.9	1.9	2.2	2.0	2.0
	DISTURBANCE SCREAMING	2.1	1.8	2.1	1.9	1.0	2.0
	ROBBERY IN PROGRESS	3.3	3.0	3.5	3.7	1.0	3.3
	DOMESTIC WITH VIOLENCE	2.5	2.1	1.9	2.2	1.0	2.1
	ALARM HOLD UP	2.5	2.1	2.2	2.3	1.0	2.3
	SUSPICIOUS OTHER CIRCUMSTANCES	2.5	2.3	2.6	2.6		2.5
	SUSPICIOUS PERSON	2.5	2.0	2.1	2.2		2.2
	ROBBERY WITH WEAPON IN PROGRESS	4.9	3.7	4.5	3.3		4.1
	MISSING CHILD	2.9	3.7	3.3	2.9		3.3
	ASSAULT WITH WEAPON IN PROGRESS	3.5	3.7	3.7	3.4		3.6
	THEFT FROM VEHICLE	2.3	2.6	2.4	2.7		2.5
	ROBBERY WITH A WEAPON	4.3	3.3	3.4	3.9	3.0	3.6
	SHOTS FIRED	8.1	6.8	5.3	3.8		5.6
	ASSIST GENERAL PUBLIC	1.7	2.0	1.8	2.1		1.9
	JUMPER	3.6	3.2		3.5		3.5
	ASSIST PROVINCIAL AMBULANCE	3.2	2.0	2.2	2.3		2.3
OTHER	2.3	2.4	2.9	3.2	1.7	2.7	
<b>PRIORITY 1</b>	<b>2.6</b>	<b>2.3</b>	<b>2.2</b>	<b>2.2</b>	<b>1.6</b>	<b>2.3</b>	

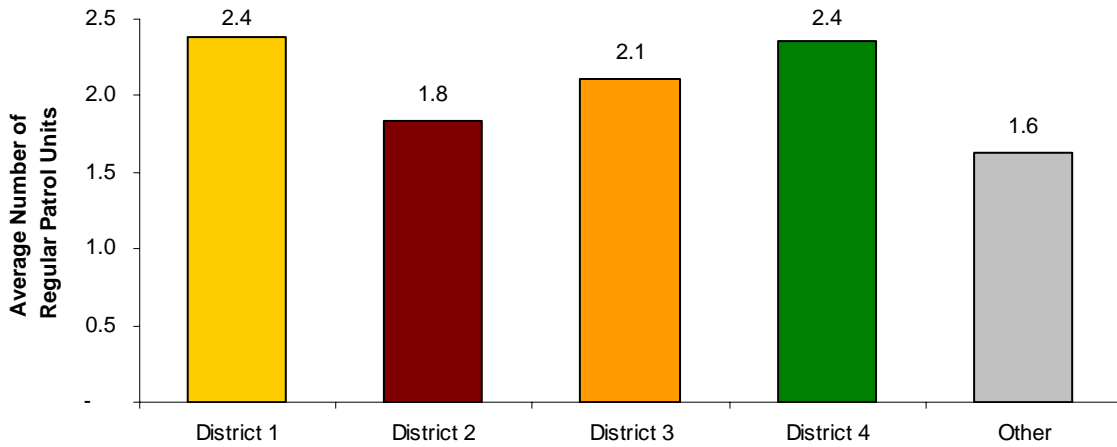
PRIORITY 2	ABANDONED 911	1.4	1.2	1.3	1.3	1.0	1.3
	FIGHT	2.4	1.8	2.1	2.4	1.6	2.1
	THEFT IN PROGRESS	2.0	1.9	2.1	2.1	3.3	2.0
	BREAK AND ENTER IN PROGRESS	3.1	2.7	2.7	2.9		2.8
	DOMESTIC REPORT	2.0	1.5	1.5	1.8	2.0	1.7
	MISCHIEF IN PROGRESS	2.0	1.9	1.8	2.0	1.0	1.9
	SUSPICIOUS PERSON	1.8	1.5	1.7	1.6	1.0	1.6
	SUSPICIOUS OTHER CIRCUMSTANCES	1.9	1.6	1.8	1.8	1.0	1.8
	ASSIST GENERAL PUBLIC	1.7	1.4	1.4	1.7		1.5
	VIOLENT PERSON	2.0	1.5	1.6	1.9	1.3	1.8
	MAN DOWN	1.3	1.2	1.2	1.3	1.1	1.2
	ALARMS SILENT/PANIC	1.7	1.4	1.4	1.3		1.4
	SHOTS HEARD	3.5	4.1	2.9	3.1		3.4
	FRAUD IN PROGRESS	1.8	1.7	1.6	2.3		1.8
	ASSAULT	1.7	1.6	1.6	1.7	2.0	1.7
	MVI HIT AND RUN	1.8	2.1	2.1	1.8	1.3	2.0
	IMPAIRED DRIVER POSSIBLE	1.4	1.4	1.5	1.5	1.2	1.5
	ASSIST PROVINCIAL AMBULANCE	1.7	1.5	1.6	1.7		1.6
	INDECENT ACT IN PROGRESS	1.6	1.4	1.4	1.7	1.0	1.5
	PROWLER	1.5	1.7	1.6	1.8		1.7
	ANNOYING CIRCUMSTANCES	1.4	1.3	1.4	1.3		1.4
	THREATS	2.0	1.6	1.7	1.6		1.7
	DOMESTIC IN PROGRESS	2.3	1.6	1.6	1.5		1.6
	THEFT OF VEHICLE IN PROGRESS	2.1	2.6	2.3	2.9	5.0	2.5
	SHOPLIFTER VIOLENT	2.2	1.8	1.7	1.8		1.9
	OVERDOSE	1.3	1.3	1.2	1.6	1.5	1.3
	OTHER	1.9	1.8	1.8	1.9	1.2	1.8
	<b>PRIORITY 2</b>	<b>2.0</b>	<b>1.7</b>	<b>1.8</b>	<b>1.9</b>	<b>1.4</b>	<b>1.8</b>

PRIORITY 3	ANNOYING CIRCUMSTANCES	1.3	1.2	1.2	1.2	1.1	1.2
	ASSIST GENERAL PUBLIC	1.4	1.3	1.3	1.4	1.2	1.3
	SUSPICIOUS PERSON	1.5	1.3	1.4	1.4	1.3	1.4
	DISTURBANCE NOISE	1.4	1.2	1.3	1.4	1.2	1.3
	SUSPICIOUS OTHER CIRCUMSTANCES	1.6	1.5	1.6	1.6	1.3	1.6
	ALARM	1.4	1.2	1.3	1.2	1.1	1.2
	ASSIST PROVINCIAL AMBULANCE	1.5	1.3	1.3	1.4	1.1	1.4
	UNWANTED PERSON	1.3	1.2	1.3	1.2	1.5	1.2
	THEFT VEHICLE LOCATED	1.5	1.7	1.6	1.3	1.6	1.6
	DISTURBANCE PARTY	1.7	1.4	1.5	1.6	1.3	1.5
	ASSAULT	1.9	1.6	1.8	1.7	1.6	1.8
	SUSPICIOUS VEHICLE	1.4	1.3	1.4	1.3	1.3	1.4
	THREATS	1.6	1.5	1.6	1.6	1.6	1.6
	MVI	1.4	1.3	1.3	1.4	1.1	1.3
	SHOPLIFTER	1.4	1.4	1.3	1.5	1.0	1.4
	HAZARDOUS SITUATION	1.3	1.2	1.2	1.2	1.1	1.2
	ASSIST OTHER AGENCY	1.6	1.4	1.5	1.5	1.4	1.5
	MISSING PERSON	1.6	1.6	1.6	1.5	1.8	1.6
	HARASSMENT	1.6	1.5	1.4	1.6	1.0	1.5
	SUDDEN DEATH	1.9	2.0	1.5	1.7		1.8
	DRUGS IN PROGRESS	1.4	1.2	1.2	1.5	1.5	1.2
	ASSAULT SEXUAL	2.0	2.1	1.9	1.9	2.1	2.0
	ASSIST FIRE	1.5	1.9	1.8	1.7	1.1	1.7
	NEIGHBOUR DISPUTE	1.4	1.3	1.4	1.4		1.4
	INDECENT ACT	1.7	1.4	1.5	1.5	1.0	1.5
	ASSIST EMERGENCY MENTAL HEALTH	1.6	1.4	1.5	1.3	1.0	1.4
	OTHER	1.6	1.4	1.5	1.5	1.3	1.5
	<b>PRIORITY 3</b>	<b>1.5</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.3</b>	<b>1.4</b>

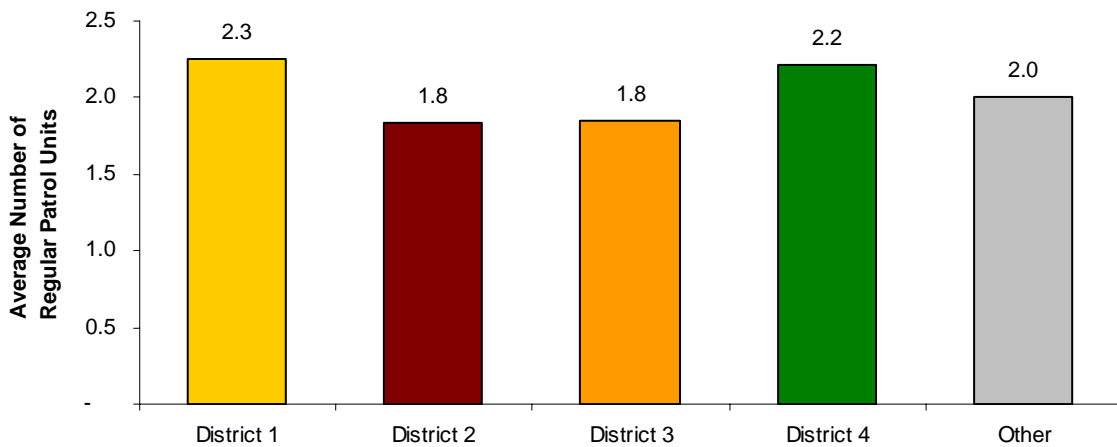
PRIORITY 4 AND LOWER	WARRANT	1.4	1.2	1.3	1.5	1.2	1.3
	BREAK AND ENTER	1.7	1.5	1.4	1.5	1.2	1.5
	TRAFFIC SUSPENSION	1.5	1.4	1.4	1.5	1.3	1.4
	ARREST	1.8	1.5	1.7	1.9	1.3	1.6
	INTELLIGENCE INFORMATION	1.3	1.3	1.2	1.2	1.1	1.3
	PROPERTY RECOVERED	1.3	1.2	1.3	1.3	1.1	1.2
	THEFT	1.5	1.4	1.5	1.6	1.2	1.5
	PROPERTY SEIZED	1.4	1.3	1.4	1.4	1.2	1.3
	SIPP/DIPP	1.8	1.5	1.7	1.9	1.4	1.7
	FRAUD	1.7	1.6	1.5	1.6	1.1	1.6
	DRUGS	1.4	1.2	1.2	1.2	1.2	1.3
	PROSTITUTION	1.6	1.1	1.1	1.3	1.2	1.1
	MISCHIEF	1.8	1.6	1.6	1.8	1.3	1.7
	THEFT FROM VEHICLE	1.5	1.5	1.9	1.7	1.2	1.6
	IMPAIRED DRIVER	1.8	2.1	1.6	2.2	1.4	1.9
	THEFT OF VEHICLE	1.6	1.9	1.5	1.6	1.3	1.6
	OTHER	1.5	1.4	1.8	1.7	1.4	1.6
	<b>PRIORITY 4 AND LOWER</b>	<b>1.5</b>	<b>1.3</b>	<b>1.4</b>	<b>1.5</b>	<b>1.2</b>	<b>1.4</b>
<b>Total</b>	<b>1.7</b>	<b>1.5</b>	<b>1.6</b>	<b>1.6</b>	<b>1.3</b>	<b>1.6</b>	

Two notable exceptions, fights and suicidal person calls required slightly more units on average in District 1 and District 4. Between 2005-06-01 and 2006-05-31, an average of 2.4 regular patrol units were dispatched to a total of 927 and 309 fights in District 1 and District 4, respectively. On the other hand, an average of only 1.8 regular patrol units were dispatched to 876 fights in District 2 and an average of 2.1 regular patrol units were dispatched to 468 fights in District 3.

**Figure 6-17 Average Number of Regular Patrol Units Dispatched to Fights by District**



**Figure 6-18 Average Number of Regular Patrol Units Dispatched to Suicidal Persons by District**



Between 2005-06-01 and 2006-05-31, approximately 35.9% of the fights in District 1 (333 fights) and 37.5% of the fights in District 4 (116 fights) were handled by more than two regular patrol units. Over the same period, 8.8% of the fights in District 1 (82 fights) and 7.8% of the fights in District 4 (24 fights) were handled by five or more regular patrol units. By comparison, only 19.7% of all fights in District 2 (173 fights) and 27.8% of all fights in District 3 (130 fights) were handled by more than two regular patrol units. Only 3.4% of all fights in District 2 (30 fights) and 4.9% of all fights in District 3 (23 fights)

were handled by five or more regular patrol units. Overall, this evidence suggests that the patrol response to fights fluctuates between districts.

**Table 6-6 Average Number of Regular Patrol Units Dispatched to Fights by District**

<b>District</b>	<b>Number of Calls</b>	<b>Average Number of Units</b>
District 1	927	2.4
District 2	876	1.8
District 3	468	2.1
District 4	309	2.4
Other	88	1.6
<b>Total</b>	<b>2,668</b>	<b>2.1</b>

A careful examination of the fights that required an unusual number of regular patrol units in District 1 indicates that the police response was usually proportional with the threat or the potential risk to individuals or private and public property. For instance:

- Five days before Christmas in 2005 at approximately 0210 hours, a violent group of 25 to 30 intoxicated individuals was fighting in front of the Plush Night Club in the 700 block of Pacific Boulevard when a large crowd of over 100 people started to exit the club and erupted into riotous behaviour (incident VA2005-301078). A total of 22 regular patrol units as well as the Emergency Response Team and the Dog Squad were dispatched to the incident. Upon arrival, officers observed a large crowd of people actively fighting each other and challenging the police. During the incident, the attending officers were forced to deploy less-than-lethal force (including the Taser and pepper spray) and at least four individuals were ultimately charged with various offences.
- On 2006-04-09 at approximately 0340 hours, some officers were attempting to arrest an aggressive group of intoxicated individual in the 1000 block of Granville Street when a riotous crowd of 200 to 300 intoxicated individuals formed in front of the Cellar Night Club and around the officers. A total of 15 regular patrol units were dispatched to the incident and dispersed the aggressive crowd.
- On 2006-05-14 at approximately 0120 hours, a total of 9 regular patrol units attended the Stone Temple Club at 1082 Granville Street when an individual was

hit by a glass bottle, sustained a four-inch laceration to the left side of his face and fled the scene (incident VA2006-99157). According to a witness, one of the individuals involved in the incident suggested that he would be coming back with a gun to the club. The victim of the assault was located at St. Paul's Hospital but refused to provide a description of the suspect or to press charges.

- On 2006-01-23 at approximately 2135, there was a physical altercation between a store clerk (victim) and customer (accused) at 1097 Granville Street (VA2006-16521). The store clerk sustained a black eye and a broken nose when he was head butted in the face by the hostile customer. A total of 8 regular patrol units attended the incident and the assailant was charged with assault.

Moreover, several of the remaining District 1 fights that required five or more regular patrol units occurred in front of large night clubs, restaurants or bars, where the potential for violence is arguably more important and escalation is more likely:

- At least eight additional incidents took place at the Plaza of Nations (VA2006-93732, VA2005-258462, VA2005-303249, VA2005-244440, VA2005-242141 and VA2005-150762) or at the Plush Night Club (VA2006-111264 and VA2006-69744).
- At least five incidents took place at the Aqua Club (VA2006-48856, VA2005-238290, VA2005-214319 VA2006-24829, VA2005-267573).
- At least two additional incidents took place at the Cellar Nightclub (VA2006-3696 and VA2006-105347).
- At least two incidents took place at the Caprice Bar (VA2005-241168 and VA2005-230499).
- At least two incidents took place at BC Place (VA2005-305792 and VA2005-305763).
- One additional incident took place at the Stone Temple Club (VA2006-44318).
- One incident took place at the Buffalo Club (VA2006-73438).
- One incident took place at the Piccadilly Pub (VA2006-105271).
- One incident took place at Richard's On Richards (VA2006-63392).
- One incident took place at Brandi's Exotic Nightclub (VA2006-43060).



- One incident took place at Checker's Bar and Grill (VA2005-250778).
- One incident took place at the Commodore Ballroom (VA2006-105306).
- One incident took place at the Au Bar (VA2006-76132).
- One incident took place at the Shenanigans (VA2005-293796).
- One incident took place at the Club Plaza (VA2005-242089).

Among the other District 1 fights that required five or more regular patrol units, at least three fights led to an aggravated assault (assault with a weapon or causing bodily harm) and two fights led to a mischief. In one incident, multiple persons started fighting and breaking items in a suite inside the Landis Hotel on Hornby Street. When the officers arrived, the suite was totally destroyed and the windows were smashed out. During the initial investigation, the patrol officers discovered that one of the suspect's known associates was allegedly hosting parties during which females were invited to a hotel suite, drugged and sexually assaulted.

These incidents were obviously serious and the imposing police presence was necessary to minimize the risk to the persons or the property involved as well as to insure that a thorough investigation is completed. Overall, there is no reason to think that the patrol response to these incidents was excessive on average.

Similarly, several of the fights that required five or more regular patrol units in District 4 were potentially serious incidents:

- On 2006-02-20 at approximately 2345 hours, a complainant placed a 9-1-1 emergency call and explained that six individuals were fighting while at least one female was screaming. When they arrived on-scene, the officers found three intoxicated individuals fighting violently on the grounds of a high school located in the 500 block of West 20th Avenue (VA2006-37258). Ultimately, one individual was sent to the hospital with a cut over his right eye and bylaw tickets were issued to everybody involved in the fight.
- On 2006-01-10 at approximately 1537 hours, the police were advised that a group of 50 to 60 teenagers possibly armed with knives were expected to participate in a fight at Oak Park in the 7500 block of Fremlin Street (VA2006-

7069). When the patrol units arrived on-scene, they confirmed that the menace was unfounded.

- On 2005-12-08 at approximately 0025 hours, a male punched another male in the face at the Saigon Fusion Restaurant in the 900 block of West Broadway. The victim of the assault ended up with a broken nose and a cut on his forehead. A total of 7 regular patrol units attended the incident and/or participated in the police investigation that followed. Ultimately, the assailant was identified, located and charged with aggravated assault.

As in District 1, several of the remaining fights that required five or more regular patrol units in District 4 occurred in front of large night clubs or other public places. For instance, at least 2 incidents occurred at the Bar Code (VA2005-191231 and VA2005-143796), 2 incidents occurred at the Wild Coyote (VA2006-45017 and VA2005-257629), one incident occurred at the Plaza 500 Hotel (VA2005-293969), one incident occurred at the Prince of Wales Park (VA2005-179386) and one incident occurred at Kits Beach (VA2005-175453).

Excluding the fights that involved serious assaults, mischiefs and weapon-related offences or occurred at the above mentioned locations, approximately the same number of regular patrol units was dispatched to fights in each patrol district on average (2.1 regular patrol units in District 1, 1.8 regular patrol units in District 2, 2.0 regular patrol units in District 3 and 2.2 regular patrol units in District 4). In essence, this evidence supports the idea that more regular patrol units tend to be dispatched to fights in District 1 and District 4 because fights there:

- Tend to be more serious on average.
- Are more likely to occur in crowded locations.
- Are more likely to occur at night (as demonstrated in a previous section).

## 6.4 PATROL RESPONSE BY SOURCE OF CALLS

As demonstrated by the following table, the average number of regular patrol units dispatched to emergency 9-1-1 calls and non-emergency telephone calls did not vary significantly across the patrol districts.

**Table 6-7 Average Number of Regular Patrol Units Dispatched by Source and by District**

<b>Source</b>	<b>D1</b>	<b>D2</b>	<b>D3</b>	<b>D4</b>	<b>Other</b>	<b>Total</b>
Emergency 9-1-1 Calls	1.7	1.6	1.7	1.7	1.6	1.7
On-View Incidents	1.5	1.4	1.5	1.5	1.3	1.4
Telephone Calls	1.6	1.5	1.5	1.5	1.5	1.5
Other	1.3	1.5	1.4	1.5	1.0	1.4
<b>Total</b>	<b>1.7</b>	<b>1.5</b>	<b>1.6</b>	<b>1.6</b>	<b>1.3</b>	<b>1.6</b>

However, compared to 9-1-1 calls, officer-initiated or on-view calls required less regular patrol units on average. Between 2005-06-01 and 2006-05-31, an average of 1.7 regular patrol units handled a total of 92,298 emergency 9-1-1 calls while an average of 1.4 regular patrol units handled a total of 31,814 officer-initiated calls.

The difference between the average number of units dispatched to 9-1-1 calls and on-view calls can be explained in a large part by the fact that 9-1-1 calls were more serious incidents on average (as demonstrated in the previous section) and therefore required an increased police presence. Overall, 36.4% of all 9-1-1 calls handled by regular patrol units between 2005-06-01 and 2006-05-31 were priority 1 or 2 calls. During the same period, only 6.6% of all on-view calls handled by regular patrol units were priority 1 or 2 calls.

Ultimately, the same number of regular patrol units is expected to be dispatched to most call types associated with the same priority level, no matter if the call is a 9-1-1 call or an on-view incident. For instance:

- An average of 1.9 regular patrol units were dispatched to 20,716 priority 2 emergency 9-1-1 calls between 2005-06-01 and 2006-05-31. By comparison, an average of 1.8 regular patrol units were dispatched to 1,484 priority 2 on-view

calls and 1.7 regular patrol units were dispatched to 2,859 priority 2 non-emergency telephone calls.

- An average of 1.4 regular patrol units were dispatched to 48,815 priority 3 emergency 9-1-1 calls, 13,372 priority 3 on-view calls and 14,507 priority 3 non-emergency telephone calls.
- An average of 1.6 regular patrol units were dispatched to 2,060 disturbing parties reported through the emergency 9-1-1 line and 237 disturbing parties reported through the non-emergency telephone line. By comparison, an average of 1.5 regular patrol units were dispatched to 412 on-view disturbing parties.
- An average of 2.1 regular patrol units were dispatched to 1,940 fights reported through the emergency 9-1-1 line and 136 fights reported through the non-emergency telephone line. By comparison, an average of 2.2 regular patrol units were dispatched to 592 on-view disturbing parties.

## 6.5 SINGLE-OFFICER AND TWO-OFFICER UNITS

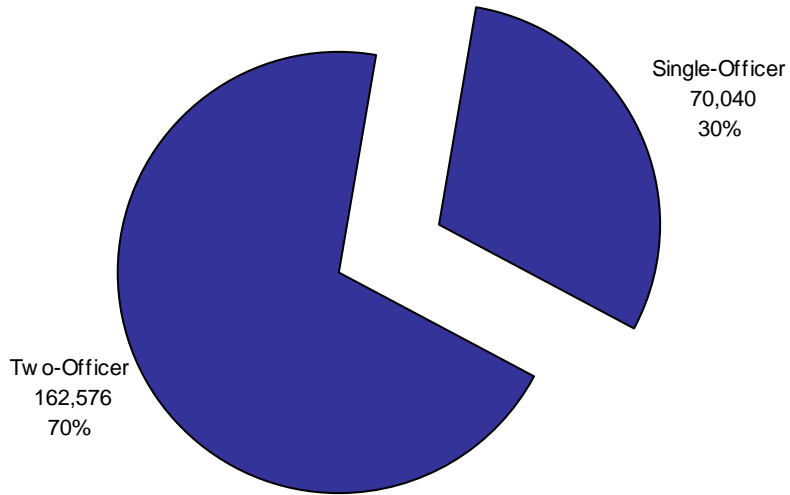
In what follows, a qualified Field Training officer and a Block II recruit are considered to form a single-officer unit. The BC Police Act Regulations stipulate that Block II recruits must be accompanied by a first class Constable to make an arrest and are not qualified police officers until they graduate from Block III at the Police Academy.

Out of the 232,616 regular patrol units dispatched between 2005-06-01 and 2006-05-31, 70,040 (30.1%) were single-officer units and 162,576 (69.9%) were two-officer units.

**Table 6-8 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched Citywide**

	<b>Number of Dispatches</b>	<b>%</b>
Single-Officer	70,040	30.1%
Two-Officer	162,576	69.9%
<b>Total</b>	<b>232,616</b>	<b>100.0%</b>

**Figure 6-19 Proportion of Single-Officer and Two-Officer Regular Patrol Units Dispatched Citywide**

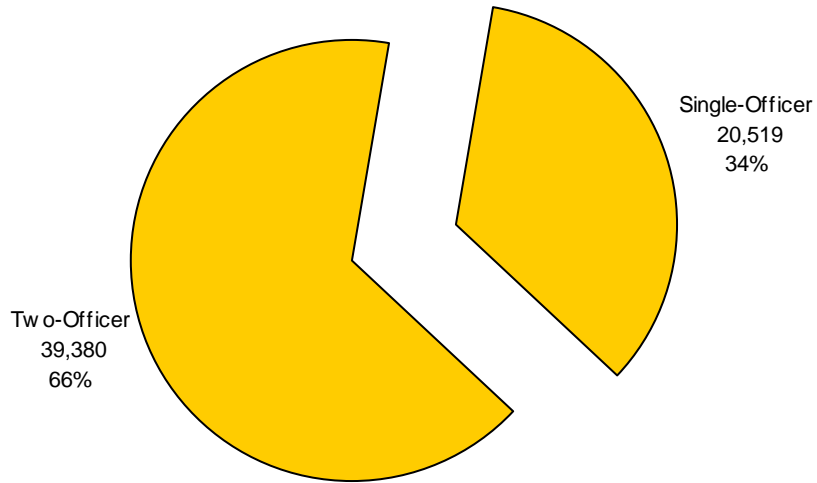


In District 1, a total of 59,899 regular patrol units were dispatched to 36,259 calls for service between 2005-06-01 and 2006-05-31. Out of these 59,899 units, 20,519 (34.3%) were single-officer units and 39,380 (65.7%) were two-officer units.

**Table 6-9 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 1**

	<b>Number of Dispatches</b>	<b>%</b>
Single-Officer	20,519	34.3%
Two-Officer	39,380	65.7%
<b>Total</b>	<b>59,899</b>	<b>100.0%</b>

**Figure 6-20 Proportion of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 1**

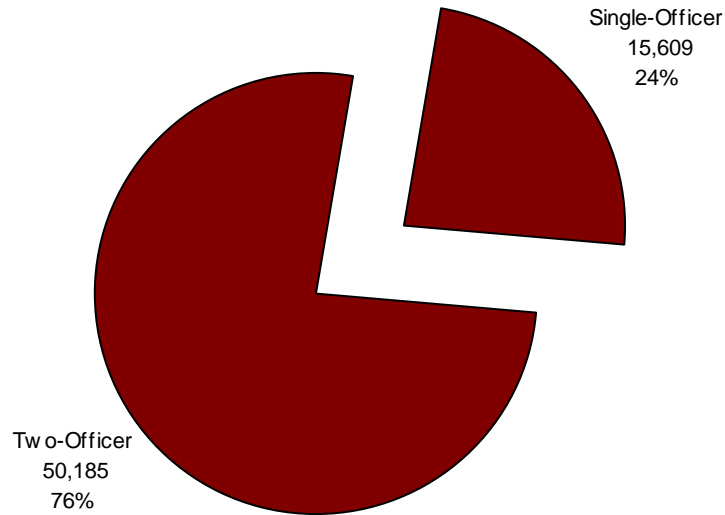


In District 2, a total of 65,794 regular patrol units were dispatched to 43,725 calls for service between 2005-06-01 and 2006-05-31. Out of these 65,794 units, 15,609 (23.7%) were single-officer units and 50,185 (76.3%) were two-officer units.

**Table 6-10 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 2**

	<b>Number of Dispatches</b>	<b>%</b>
Single-Officer	15,609	23.7%
Two-Officer	50,185	76.3%
<b>Total</b>	<b>65,794</b>	<b>100.0%</b>

**Figure 6-21 Proportion of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 2**

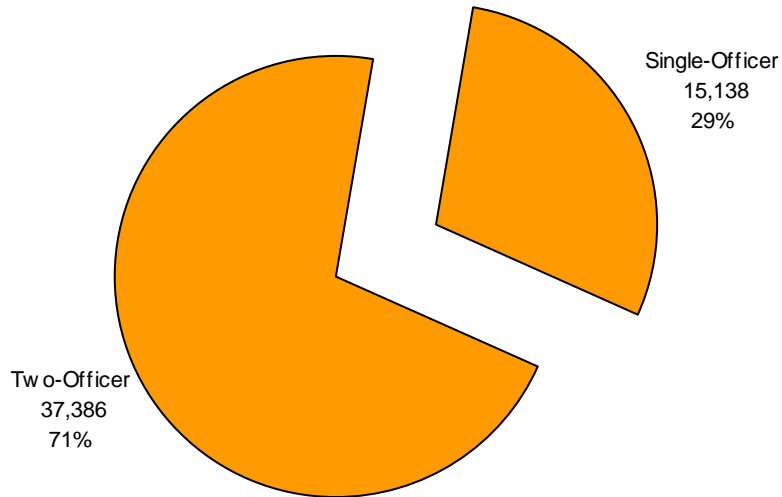


In District 3, a total of 52,524 regular patrol units were dispatched to 32,778 calls for service between 2005-06-01 and 2006-05-31. Out of these 52,524 units, 15,138 (28.8%) were single-officer units and 37,386 (71.2%) were two-officer units.

**Table 6-11 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 3**

	<b>Number of Dispatches</b>	<b>%</b>
Single-Officer	15,138	28.8%
Two-Officer	37,386	71.2%
<b>Total</b>	<b>52,524</b>	<b>100.0%</b>

**Figure 6-22 Proportion of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 3**



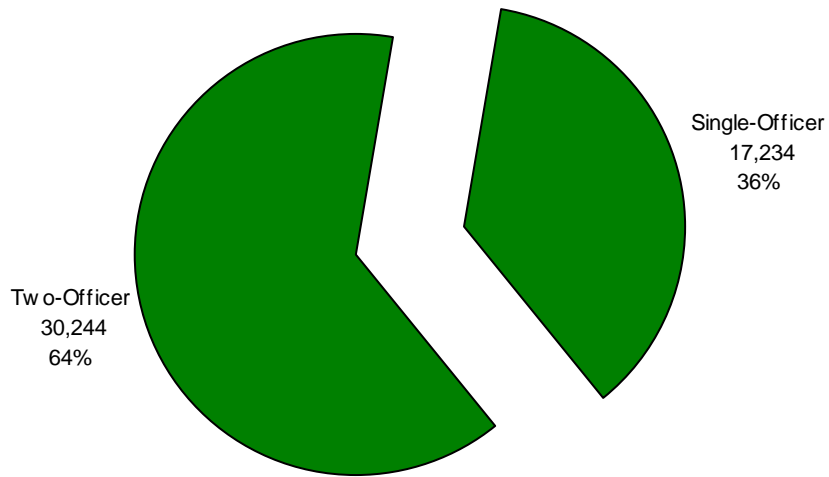
In District 4, a total of 47,478 regular patrol units were dispatched to 29,278 calls for service between 2005-06-01 and 2006-05-31. Out of these 47,478 units, 17,234 (36.3%) were single-officer units and 30,244 (63.7%) were two-officer units.

**Table 6-12 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 4**

	<b>Number of Dispatches</b>	<b>%</b>
Single-Officer	17,234	36.3%
Two-Officer	30,244	63.7%
<b>Total</b>	<b>47,478</b>	<b>100.0%</b>



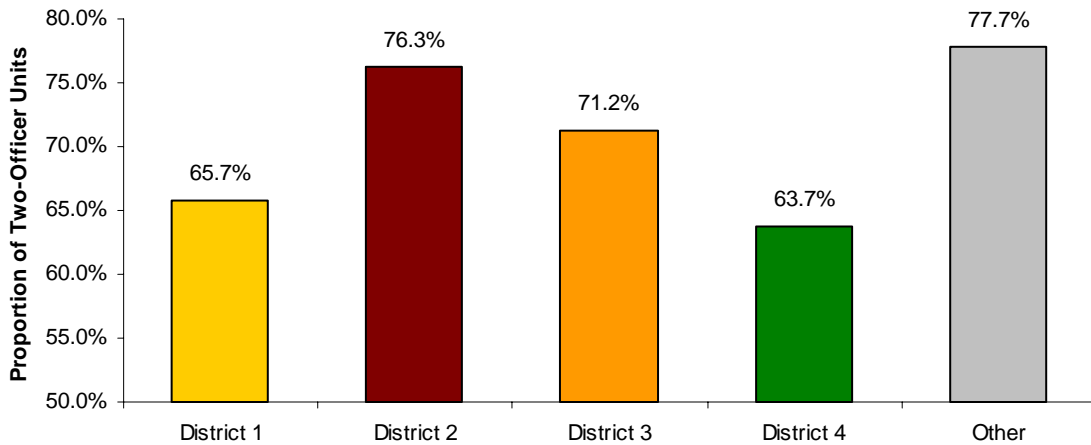
**Figure 6-23 Proportion of Single-Officer and Two-Officer Regular Patrol Units Dispatched in District 4**



A total of 6,921 regular patrol units were dispatched to 5,461 calls for service that could not be attributed to any district. Out of these 6,921 units, 1,540 (22.3%) were single-officer units and 5,381 (77.7%) were two-officer units.

Clearly, the proportion of two-officer units dispatched to calls for service in District 2 and District 3 was significantly higher.

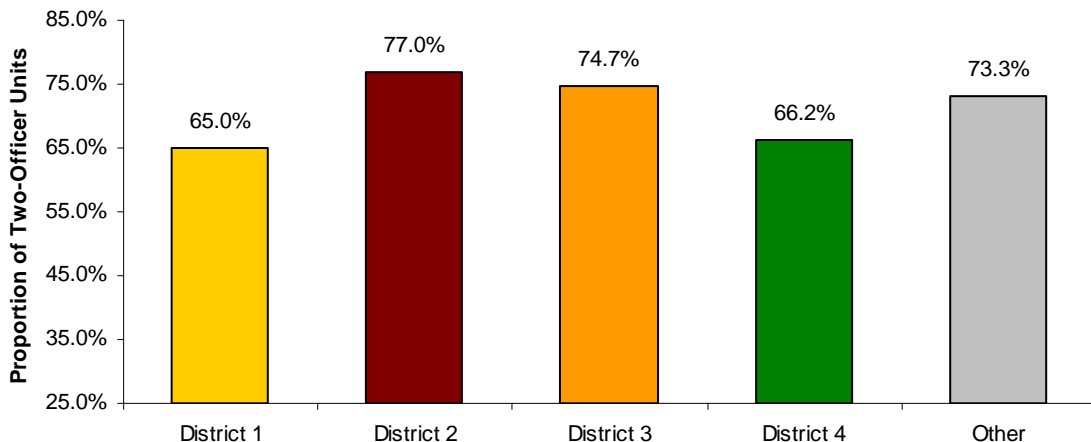
**Figure 6-24 Proportion of Two-Officer Regular Patrol Units Dispatched by District**



This was true for most individual call types as well. For instance:

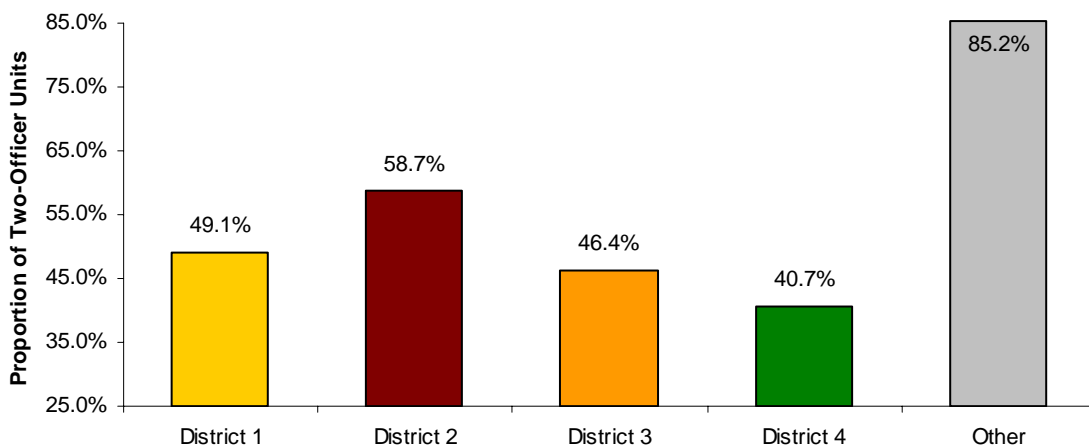
- Approximately 3,166 (77.0%) of the 4,112 regular patrol units dispatched to annoying circumstances in District 2 were two-officer units while 1,378 (74.7%) of the 1,845 regular patrol units dispatched to annoying circumstances in District 3 were two-officer units. By comparison, only 3,146 (65.0%) of the 4,842 regular patrol units dispatched to annoying circumstances in District 1 and 1,212 (66.2%) of the 1,832 regular patrol units dispatched to annoying circumstances in District 4 were two-officer units.

**Figure 6-25 Proportion of Two-Officer Regular Patrol Units Dispatched to Annoying Circumstances by District**



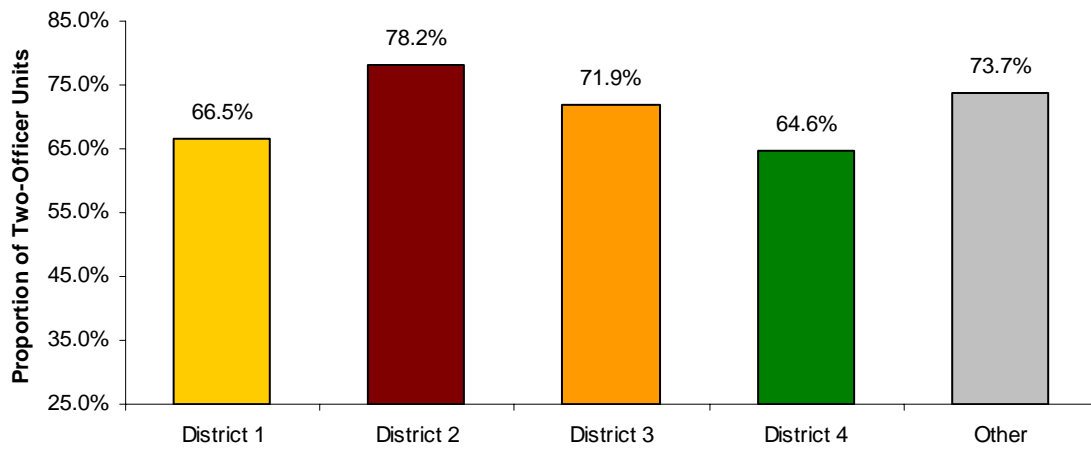
- Approximately 411 (58.7%) of the 700 regular patrol units dispatched to thefts in District 2 were two-officer units. By comparison, only 484 (49.1%) of the 986 regular patrol units dispatched to thefts in District 1, 186 (46.4%) of the 401 regular patrol units dispatched to thefts in District 3 and 280 (40.7%) of the 688 regular patrol units dispatched to thefts in District 4 were two-officer units.

**Figure 6-26 Proportion of Two-Officer Regular Patrol Units Dispatched to Thefts by District**



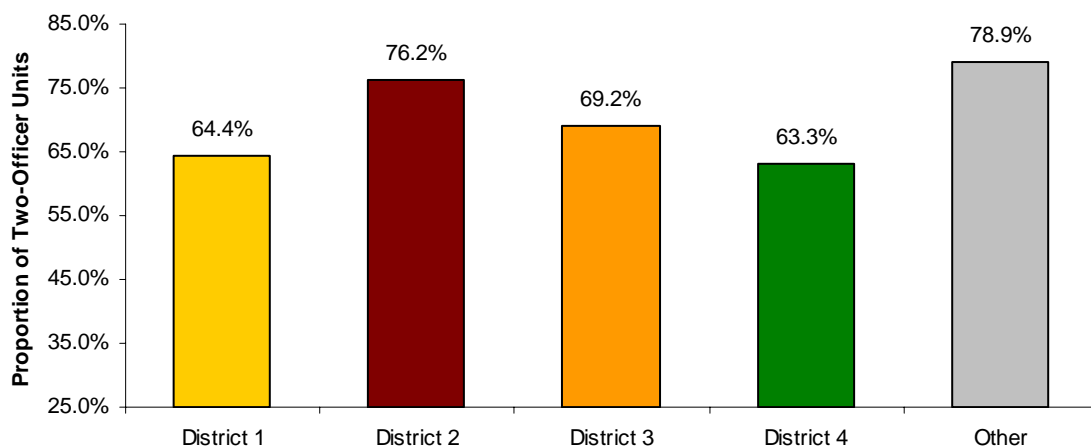
- Approximately 2,991 (77.0%) of the 3,825 regular patrol units dispatched to requests for assistance from the general public in District 2 were two-officer units while 1,795 (71.9%) of the 2,482 regular patrol units dispatched to requests for assistance from the general public in District 3 were two-officer units. By comparison, only 1,935 (66.5%) of the 2,911 regular patrol units dispatched to requests for assistance from the general public in District 1 and 1,383 (64.6%) of the 2,140 regular patrol units dispatched to requests for assistance from the general public in District 4 were two-officer units.

**Figure 6-27 Proportion of Two-Officer Regular Patrol Units Dispatched to Requests for Assistance from the General Public by District**



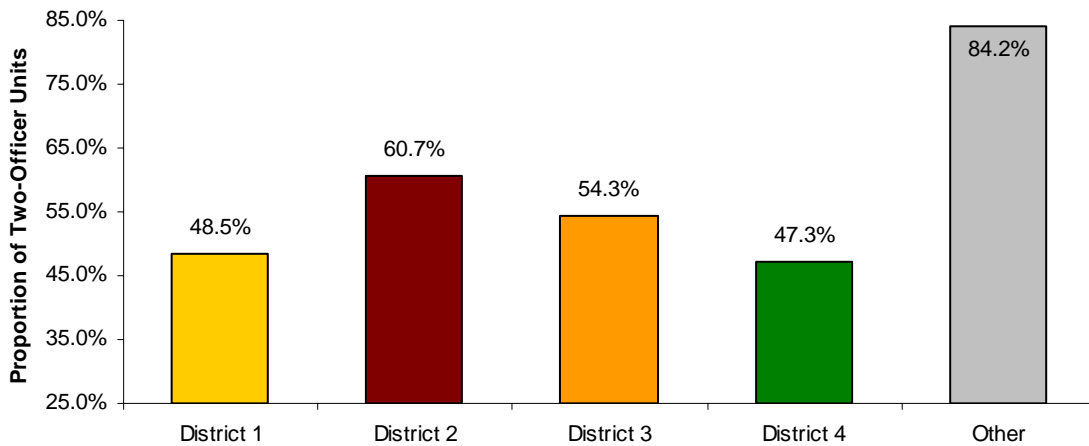
- Approximately 1,211 (76.2%) of the 1,589 regular patrol units dispatched to noise complaints in District 2 were two-officer units. By comparison, only 1,199 (64.4%) of the 1,863 regular patrol units dispatched to noise complaints in District 1, 923 (69.2%) of the 1,334 regular patrol units dispatched to noise complaints in District 3 and 1,319 (63.3%) of the 2,085 regular patrol units dispatched to noise complaints in District 4 were two-officer units.

**Figure 6-28 Proportion of Two-Officer Regular Patrol Units Dispatched to Noise Complaints by District**



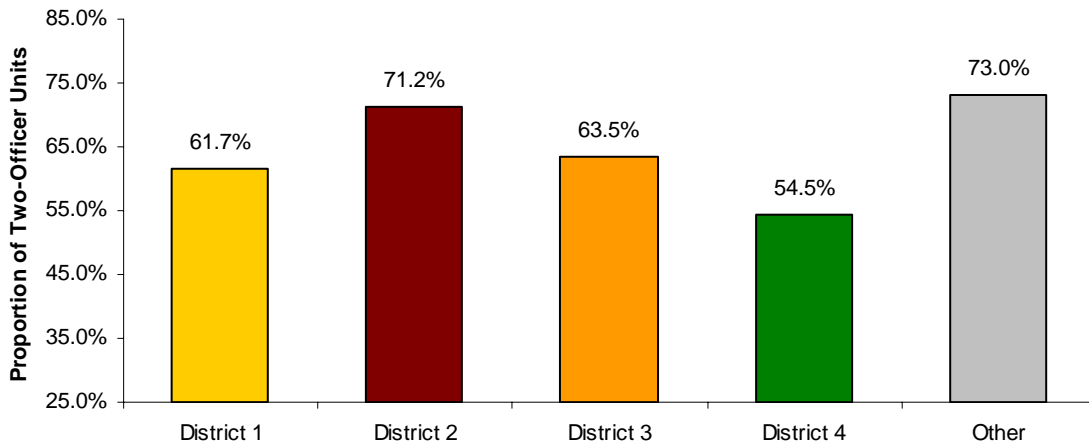
- Approximately 561 (60.7%) of the 924 regular patrol units dispatched to break and enters (excluding break and enters in progress) in District 2 were two-officer units. By comparison, only 448 (48.5%) of the 924 regular patrol units dispatched to break and enters in District 1, 564 (54.3%) of the 1,038 regular patrol units dispatched to break and enters in District 3 and 839 (47.3%) of the 1,775 regular patrol units dispatched to break and enters in District 4 were two-officer units.

**Figure 6-29 Proportion of Two-Officer Regular Patrol Units Dispatched to Break and Enters by District**



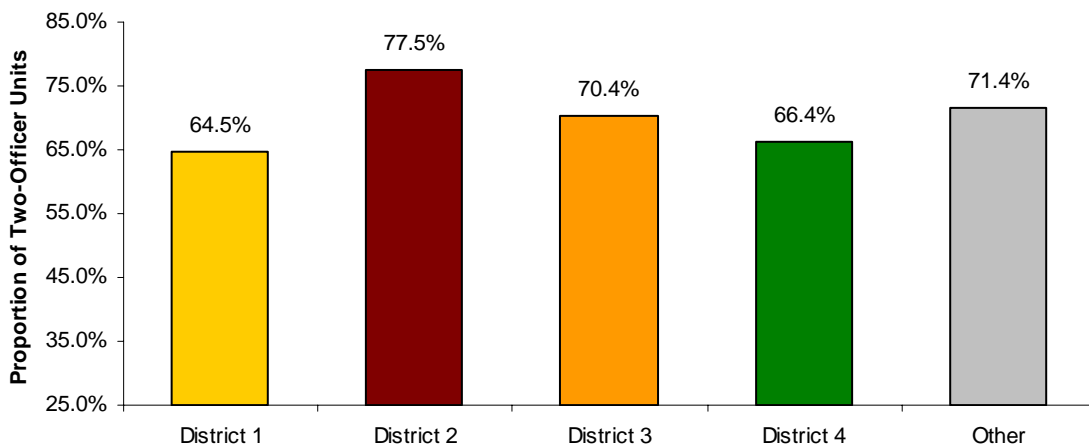
- Approximately 1,191 (71.2%) of the 1,673 regular patrol units dispatched to assaults (excluding assaults in progress) in District 2 were two-officer units. By comparison, only 813 (61.7%) of the 1,318 regular patrol units dispatched to assaults in District 1, 594 (63.5%) of the 936 regular patrol units dispatched to assaults in District 3 and 309 (54.5%) of the 567 regular patrol units dispatched to assaults in District 4 were two-officer units.

**Figure 6-30 Proportion of Two-Officer Regular Patrol Units Dispatched to Assaults by District**



- Approximately 617 (77.5%) of the 796 regular patrol units dispatched to alarms (excluding hold-up, silent and panic alarms) in District 2 were two-officer units. By comparison, only 566 (64.5%) of the 877 regular patrol units dispatched to alarms in District 1, 596 (70.4%) of the 846 regular patrol units dispatched to alarms in District 3 and 1,334 (66.4%) of the 2,009 regular patrol units dispatched to alarms in District 4 were two-officer units.

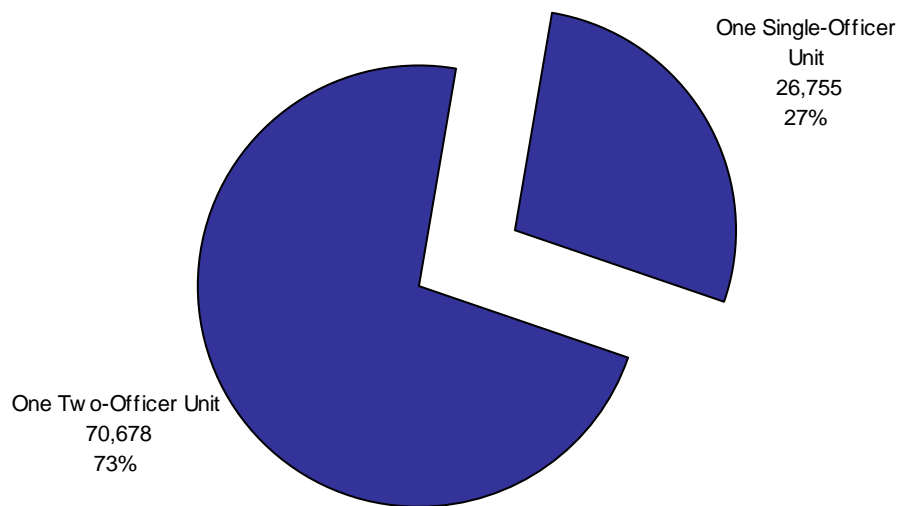
**Figure 6-31 Proportion of Two-Officer Regular Patrol Units Dispatched to Alarms by District**



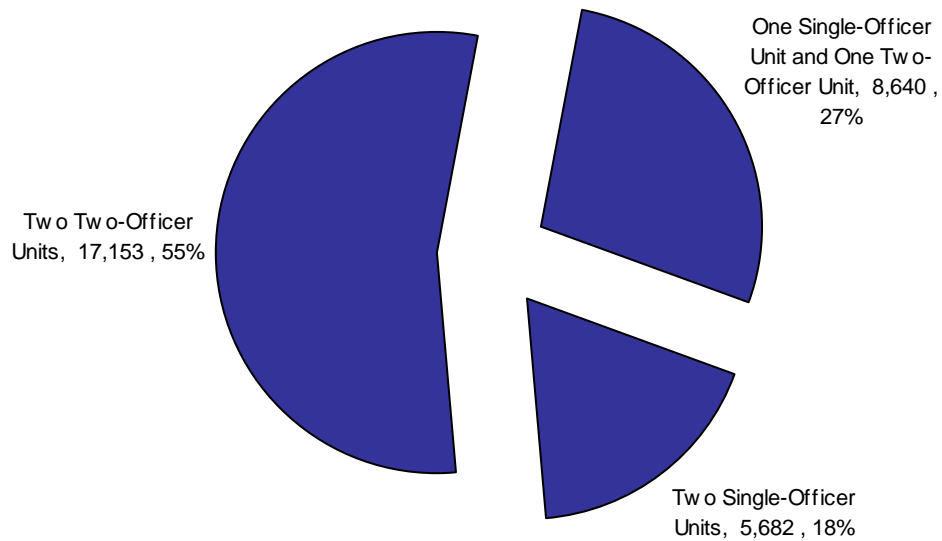
Out of the 147,501 calls dispatched to regular patrol units citywide between 2005-06-01 and 2006-05-31, 97,433 calls were dispatched to only one regular patrol unit (66.1%). Out of those 97,433 calls, 26,755 (27.5%) were dispatched to a single-officer regular patrol unit and 70,678 (72.5%) were dispatched to a two-officer regular patrol unit.

Moreover, 31,475 additional calls were dispatched to only two regular patrol units (21.3%). Out of those 31,475 calls, 5,682 (18.1%) were dispatched to two single-officer units, 17,153 (54.5%) were dispatched to two two-officer units and 8,640 (27.5%) were dispatched to one single-officer unit and one two-officer unit.

**Figure 6-32 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only One Unit Citywide**



**Figure 6-33 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only Two Units Citywide**

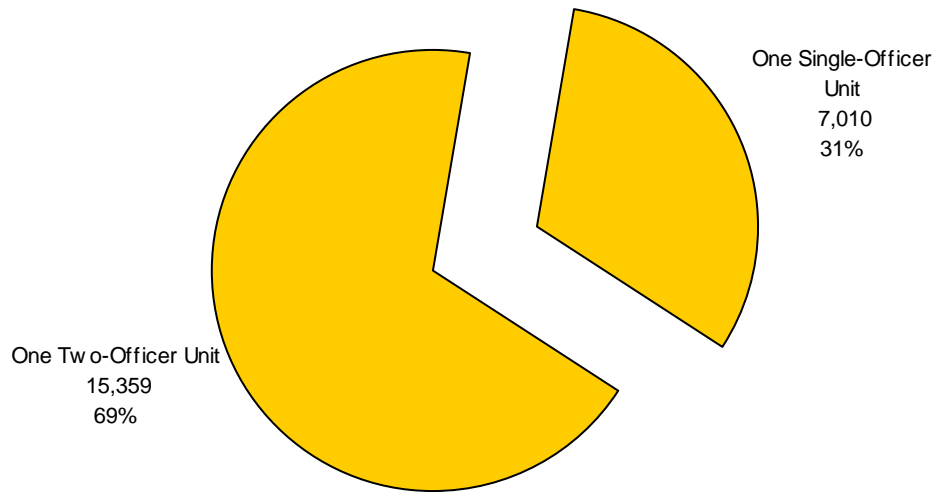


In District 1, 22,369 out of 36,259 calls (61.7%) were dispatched to only one regular patrol unit. Out of those 22,369 calls, 7,010 (31.3%) were dispatched to a single-officer regular patrol unit and 15,359 (68.7%) were dispatched to a two-officer regular patrol unit.

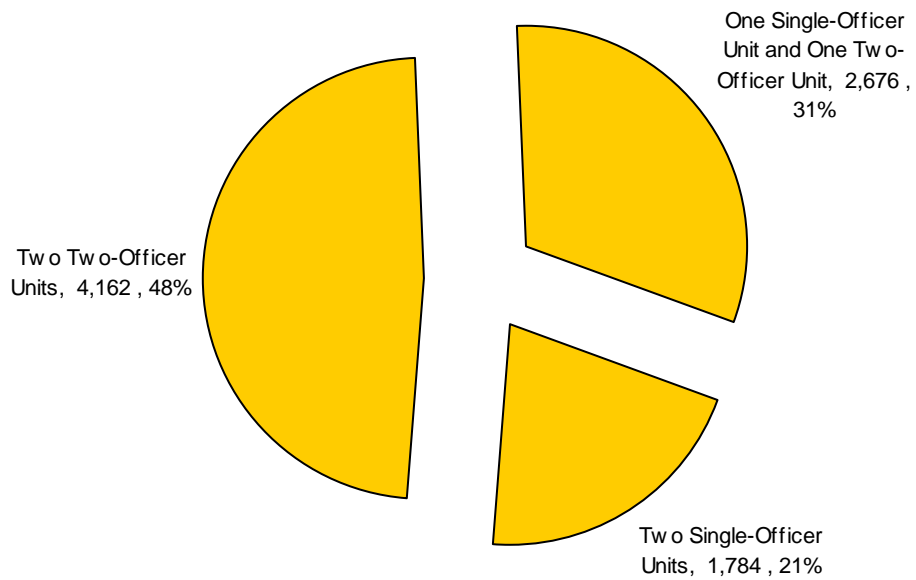
Moreover, 8,622 additional calls in District 1 were dispatched to only two regular patrol units (23.8%). Out of those 8,622 calls, 1,784 (20.7%) were dispatched to two single-officer units, 4,162 (48.3%) were dispatched to two two-officer units and 2,676 (31.0%) were dispatched to one single-officer unit and one two-officer unit.



**Figure 6-34 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only One Unit in District 1**



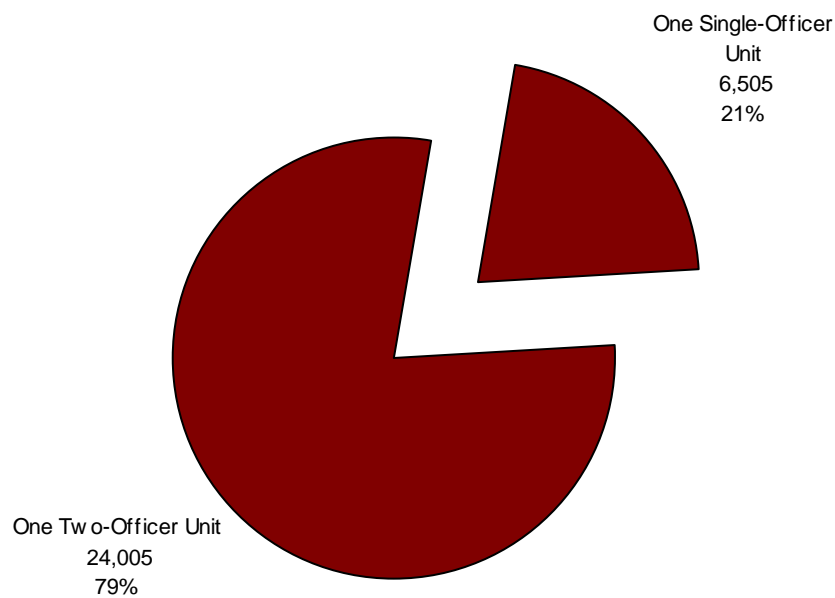
**Figure 6-35 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only Two Units in District 1**



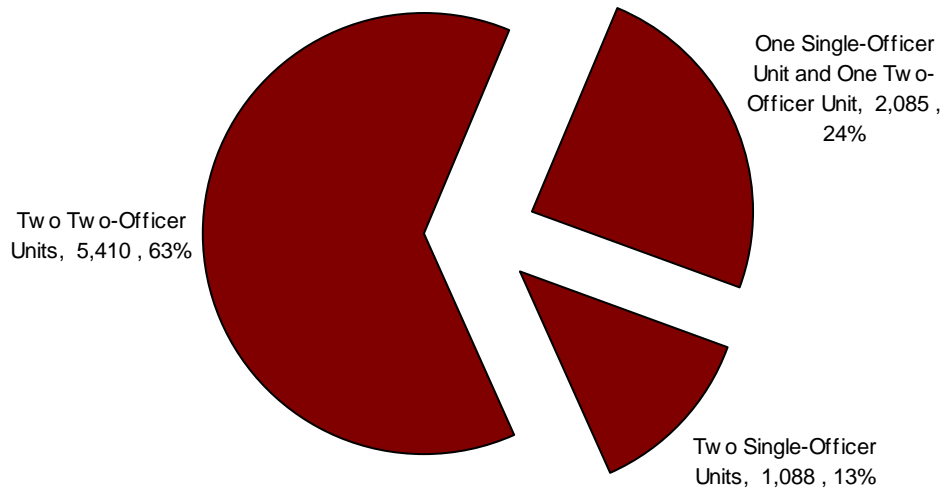
In District 2, 30,510 out of 43,725 calls (69.8%) were dispatched to only one regular patrol unit. Out of those 30,510 calls, 6,505 (21.3%) were dispatched to a single-officer regular patrol unit and 24,005 (78.7%) were dispatched to a two-officer regular patrol unit.

Moreover, 8,583 additional calls in District 2 were dispatched to only two regular patrol units (19.6%). Out of those 8,583 calls, 1,088 (12.7%) were dispatched to two single-officer units, 5,410 (63.0%) were dispatched to two two-officer units and 2,085 (24.3%) were dispatched to one single-officer unit and one two-officer unit.

**Figure 6-36 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only One Unit in District 2**



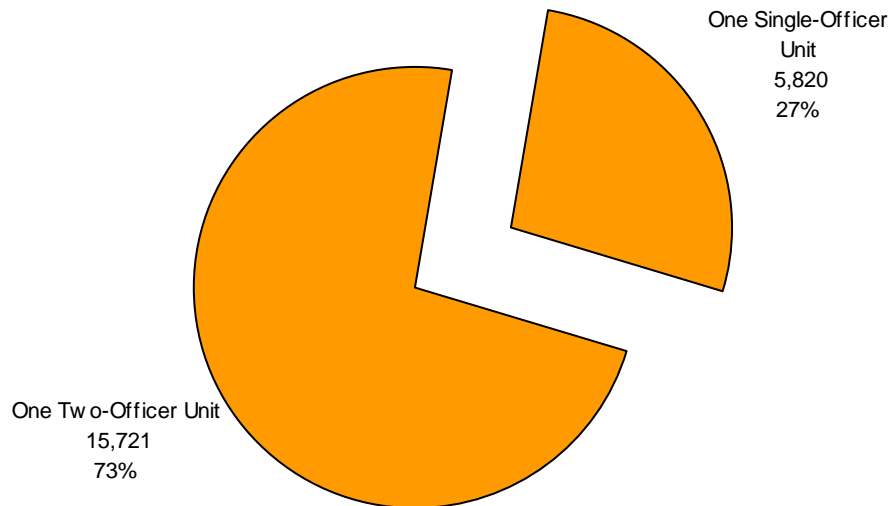
**Figure 6-37 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only Two Units in District 2**



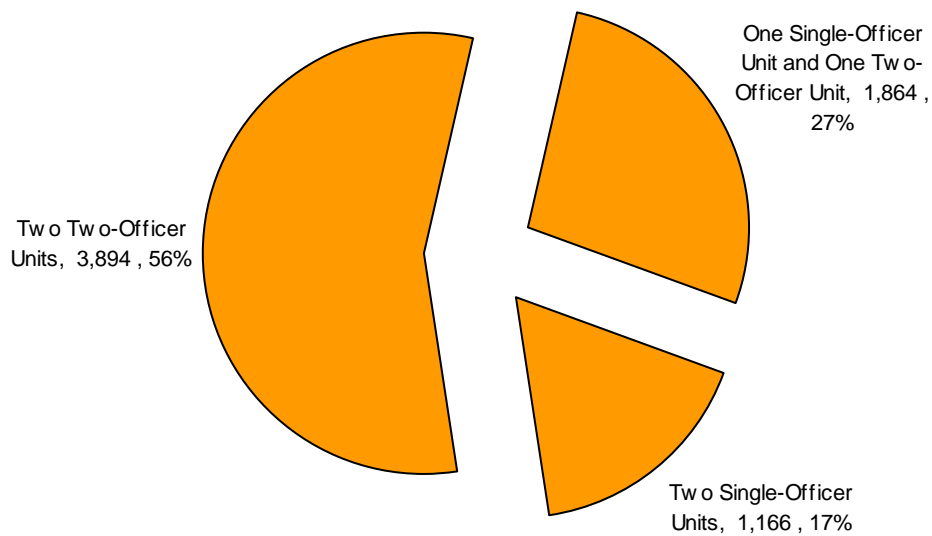
In District 3, 21,541 out of 32,778 calls (65.7%) were dispatched to only one regular patrol unit. Out of those 21,541 calls, 5,820 (27.0%) were dispatched to a single-officer regular patrol unit and 15,721 (73.0%) were dispatched to a two-officer regular patrol unit.

Moreover, 6,924 additional calls in District 3 were dispatched to only two regular patrol units (21.1%). Out of those 6,924 calls, 1,166 (16.8%) were dispatched to two single-officer units, 3,894 (56.2%) were dispatched to two two-officer units and 1,864 (26.9%) were dispatched to one single-officer unit and one two-officer unit.

**Figure 6-38 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only One Unit in District 3**



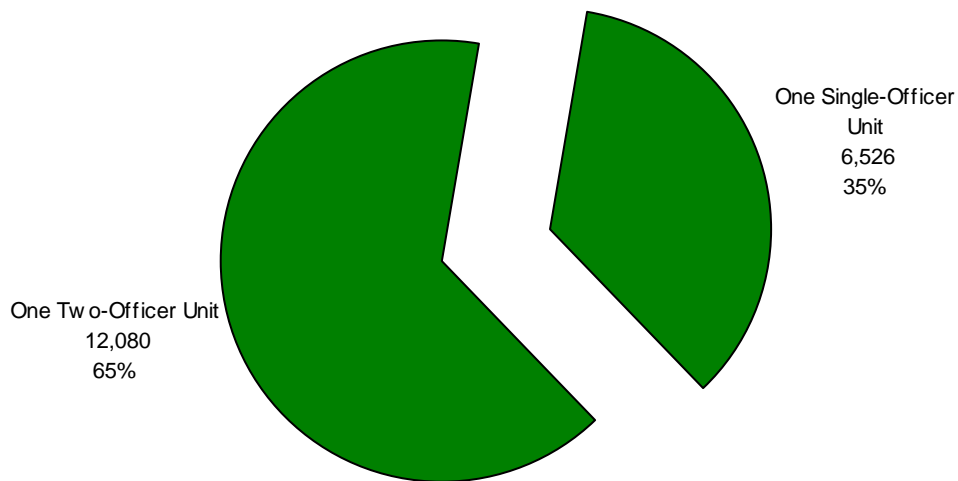
**Figure 6-39 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only Two Units in District 3**



In District 4, 18,606 out of 29,278 calls (63.5%) were dispatched to only one regular patrol unit. Out of those 18,606 calls, 6,526 (35.1%) were dispatched to a single-officer regular patrol unit and 12,080 (64.9%) were dispatched to a two-officer regular patrol unit.

Moreover, 6,568 additional calls in District 4 were dispatched to only two regular patrol units (22.4%). Out of those 6,568 calls, 1,542 (23.5%) were dispatched to two single-officer units, 3,207 (48.8%) were dispatched to two two-officer units and 1,819 (27.7%) were dispatched to one single-officer unit and one two-officer unit.

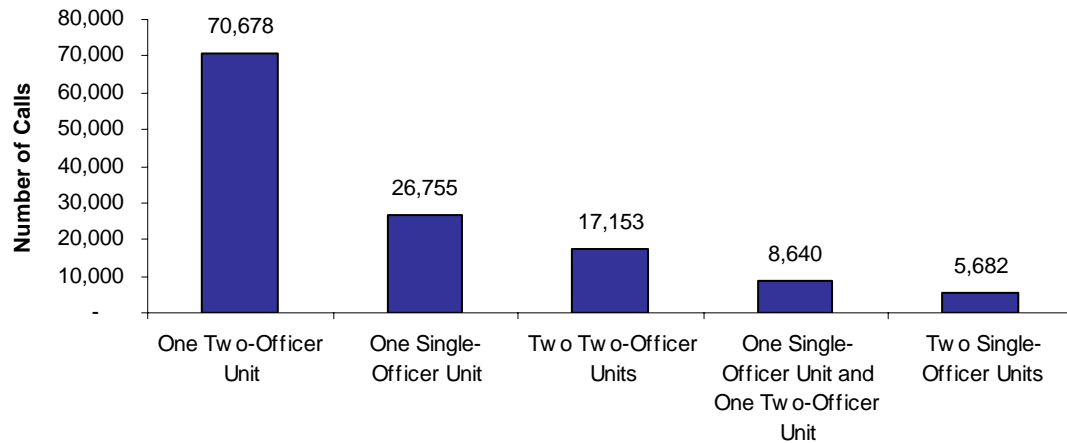
**Figure 6-40 Proportion of Single and Two-Officer Regular Patrol Units Dispatched to Calls with Only One Unit in District 3**



Overall, 128,908 (87.4%) of the 147,501 calls dispatched to regular patrol units citywide were dispatched to only one or two units. A total of 26,755 calls were dispatched to only one single-officer regular patrol unit, 70,678 calls were dispatched to only one two-officer regular patrol unit, 5,682 calls were dispatched to two single-officer units, 17,153

calls were dispatched to two two-officer units and 8,640 calls were dispatched to one single-officer unit and one two-officer unit.

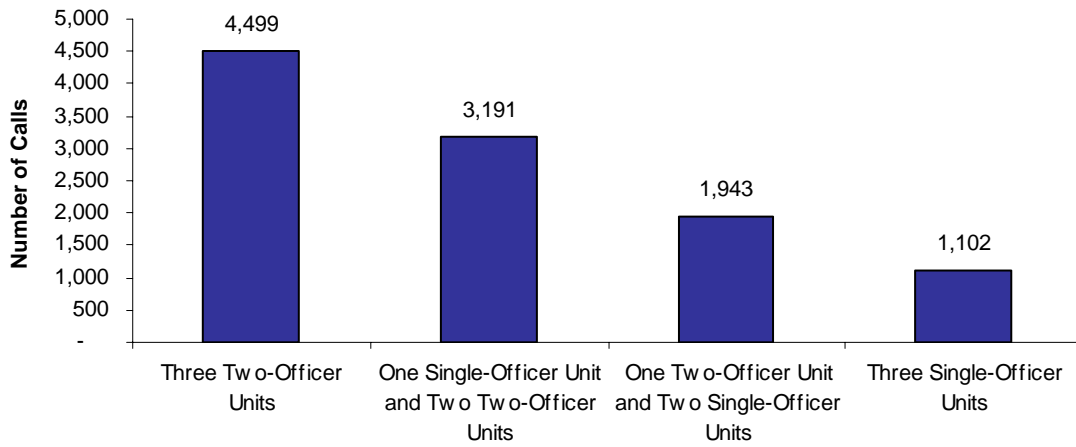
**Figure 6-41 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched to Calls with Only One or Two Units Citywide**



Out of the 18,593 remaining calls dispatched to regular patrol units citywide between 2005-06-01 and 2006-05-31:

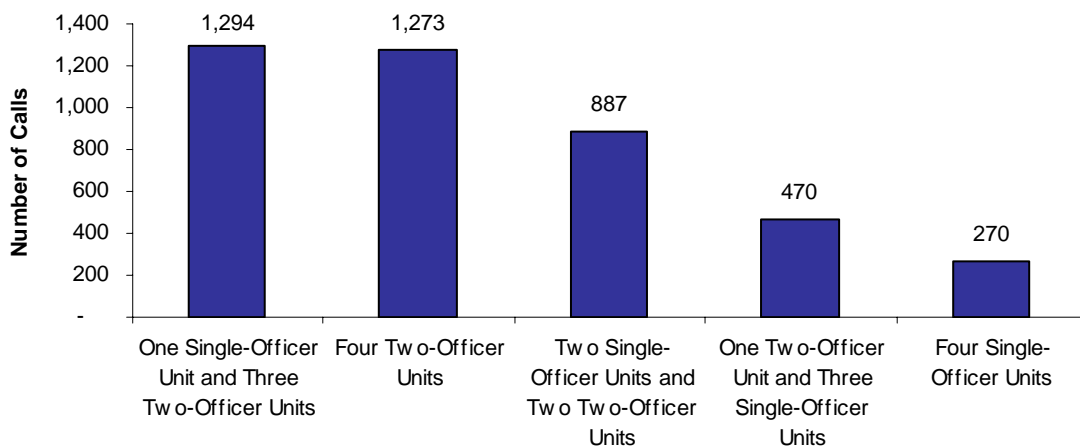
- 10,735 calls were dispatched to 3 regular patrol units. Out of those, 1,102 calls were dispatched to 3 single-officer units, 4,499 calls were dispatched to 3 two-officer units, 3,191 calls were dispatched to one single-officer unit and two two-officer units and 1,943 calls were dispatched to two single-officer units and one two-officer unit.

**Figure 6-42 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched to Calls with Three Units Citywide**



- 4,194 calls were dispatched to 4 regular patrol units. Out of those, 270 calls were dispatched to 4 single-officer units, 1,273 calls were dispatched to 4 two-officer units, 1,294 calls were dispatched to one single-officer unit and 3 two-officer units, 887 calls were dispatched to two one-officer units and two two-officer units and 470 calls were dispatched to 3 single-officer units and one two-officer unit.

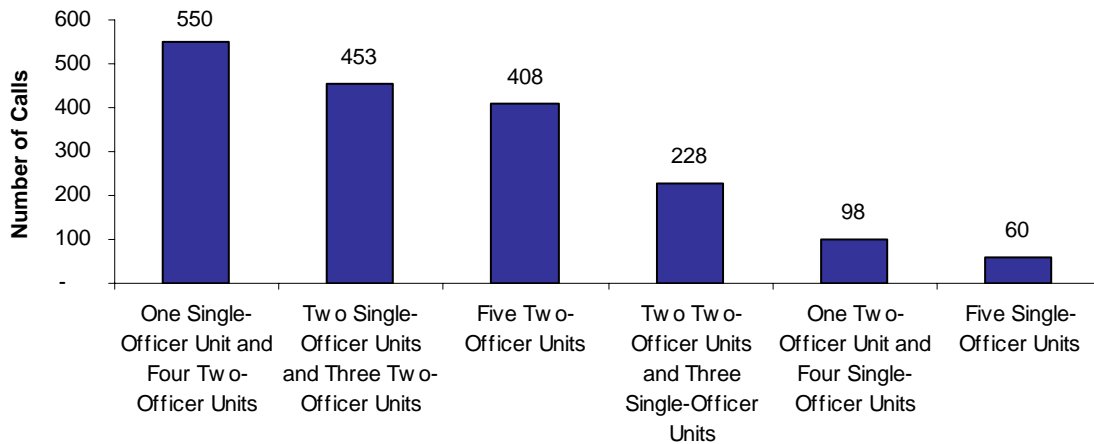
**Figure 6-43 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched to Calls with Four Units Citywide**



- 1,797 calls were dispatched to 5 regular patrol units. Out of those, 60 calls were dispatched to 5 single-officer units, 408 calls were dispatched to 5 two-officer

units, 550 calls were dispatched to one single-officer unit and 4 two-officer units, 453 calls were dispatched to two one-officer units and 3 two-officer units, 228 calls were dispatched to 3 one-officer units and 2 two-officer units and 98 calls were dispatched to 4 single-officer units and one two-officer unit.

**Figure 6-44 Number of Single-Officer and Two-Officer Regular Patrol Units Dispatched to Calls with Five Units Citywide**



- A total of 1,867 calls were dispatched to 6 or more regular patrol units. At least 497 of these calls originated in District 1, 469 calls originated in District 2, 500 calls originated in District 3 and 389 calls originated in District 4 (12 calls dispatched to 6 or more regular patrol units could not be attributed to any district). A total of 14,267 regular patrol units comprised of 24,026 officers were dispatched to these 1,867 calls. In turn, this implies that an average of 7.6 regular patrol units or 12.9 officers were dispatched to each call with 6 or more regular patrol units.

The proportion of two-officer units dispatched to most call types was very close to the overall average. However, as expected, some call types were relatively more likely on average to be handled by two-officer units. Between 2005-06-01 and 2006-05-31, among others:

- A total of 12,491 regular patrol units were dispatched to 8,600 suspicious persons. Out of these 12,491 units, 9,278 (74.3%) were two-officer units.



Moreover, 4,612 of the 5,936 suspicious persons dispatched to only one regular patrol unit were dispatched to a two-officer unit (77.7%).

- A total of 8,667 regular patrol units enforced 6,579 warrants. Out of these 8,667 units, 7,205 (83.1%) were two-officer units. Moreover, 4,470 of the 5,101 warrants enforced by only one regular patrol unit were dispatched to a two-officer unit (87.6%).
- A total of 3,931 regular patrol units handled 2,602 court order breaches. Out of these 3,931 units, 3,030 (77.1%) were two-officer units. Moreover, 1,409 of the 1,712 court order breaches handled by only one regular patrol unit were dispatched to a two-officer unit (82.3%).
- A total of 3,209 regular patrol units handled 2,533 intelligence calls. Out of these 3,209 units, 2,413 (75.2%) were two-officer units. Moreover, 1,557 of the 2,038 intelligence calls dispatched to only one regular patrol unit were dispatched to a two-officer unit (76.4%).
- A total of 2,218 regular patrol units conducted 1,684 welfare checks. Out of these 2,218 units, 1,691 (76.2%) were two-officer units. Moreover, 1,010 of the 1,278 welfare checks conducted by only one regular patrol unit were dispatched to a two-officer unit (79.0%).
- A total of 1,750 regular patrol units were dispatched to 1,400 drugs or drugs in progress calls. Out of these 1,750 units, 1,386 (79.2%) were two-officer units. Moreover, 914 of the 1,128 drugs or drugs in progress calls dispatched to only one regular patrol unit were dispatched to a two-officer unit (81.0%).
- A total of 1,233 regular patrol units conducted 793 licensed premises checks. Out of these 1,233 units, 1,008 (81.8%) were two-officer units. Moreover, 406 of the 478 welfare checks conducted by only one regular patrol unit were conducted by a two-officer unit (84.9%).
- A total of 802 regular patrol units were dispatched to 387 domestic violence incidents. Out of these 802 units, 600 (74.8%) were two-officer units. Moreover, 115 of the 145 domestic violence incidents dispatched to only one regular patrol unit were dispatched to a two-officer unit (79.3%).

Similarly, some call types were relatively more likely on average to be handled by single-officer units. Between 2005-06-01 and 2006-05-31, among others:

- A total of 8,214 regular patrol units were dispatched to 5,343 motor vehicle incidents (with or without injuries, including hit and run). Out of these 8,214 units, only 5,186 (63.1%) were two-officer units. Similarly, 2,357 of the 3,629 motor vehicle incidents dispatched to only one regular patrol unit were dispatched to a two-officer unit (64.9%).
- A total of 4,680 regular patrol units were dispatched to 3,046 break and enters (excluding break and enters in progress). Out of these 4,680 units, only 2,428 (51.9%) were two-officer units. Similarly, 932 of the 1,986 break and enters dispatched to only one regular patrol unit were dispatched to a two-officer unit (46.9%).
- A total of 4,557 regular patrol units were dispatched to 2,606 assaults (excluding assaults in progress and assaults with a weapon). Out of these 4,557 units, only 2,953 (64.8%) were two-officer units. Similarly, 973 of the 1,478 assaults dispatched to only one regular patrol unit were dispatched to a two-officer unit (65.8%).
- A total of 3,372 regular patrol units were dispatched to 2,122 threats. Out of these 3,372 units, only 1,972 (58.5%) were two-officer units. Similarly, 745 of the 1,274 threats dispatched to only one regular patrol unit were dispatched to a two-officer unit (58.5%).
- A total of 2,802 regular patrol units were dispatched to 1,846 thefts (excluding thefts in progress). Out of these 2,802 units, only 1,384 (49.4%) were two-officer units. Similarly, 588 of the 1,192 thefts dispatched to only one regular patrol unit were dispatched to a two-officer unit (49.3%).
- A total of 2,207 regular patrol units were dispatched to 1,569 shoplifters (excluding violent shoplifters). Out of these 2,207 units, only 1,147 (52.0%) were two-officer units. Similarly, 565 of the 1,089 shoplifters dispatched to only one regular patrol unit were dispatched to a two-officer unit (51.9%).
- A total of 1,717 regular patrol units were dispatched to 1,076 missing persons. Out of these 1,717 units, only 971 (56.6%) were two-officer units. Similarly, 363

of the 682 missing persons dispatched to only one regular patrol unit were dispatched to a two-officer unit (53.2%).

- A total of 1,542 regular patrol units were dispatched to 1,003 harassment calls. Out of these 1,542 units, only 698 (45.3%) were two-officer units. Similarly, 270 of the 621 harassment calls dispatched to only one regular patrol unit were dispatched to a two-officer unit (43.5%).
- A total of 1,522 regular patrol units were dispatched to 940 frauds (excluding frauds in progress). Out of these 1,522 units, only 710 (46.6%) were two-officer units. Similarly, 275 of the 574 frauds dispatched to only one regular patrol unit were dispatched to a two-officer unit (47.9%).
- A total of 1,393 regular patrol units were dispatched to 829 mischiefs (excluding mischiefs in progress). Out of these 1,393 units, only 834 (59.9%) were two-officer units. Similarly, 287 of the 492 mischiefs dispatched to only one regular patrol unit were dispatched to a two-officer unit (58.3%).
- A total of 1,463 regular patrol units were dispatched to 761 thefts from vehicle (excluding thefts from vehicle in progress). Out of these 1,463 units, only 916 (62.6%) were two-officer units. Similarly, 222 of the 382 thefts from vehicle dispatched to only one regular patrol unit were dispatched to a two-officer unit (58.1%).
- A total of 1,011 regular patrol units were dispatched to 613 possible impaired drivers. Out of these 1,011 units, only 662 (65.5%) were two-officer units. Similarly, 269 of the 382 possible impaired drivers dispatched to only one regular patrol unit were dispatched to a two-officer unit (70.4%).
- A total of 932 regular patrol units were dispatched to 521 robberies (excluding robberies in progress). Out of these 932 units, only 552 (59.2%) were two-officer units. Similarly, 168 of the 283 robberies dispatched to only one regular patrol unit were dispatched to a two-officer unit (59.4%).
- A total of 366 regular patrol units were dispatched to 211 thefts of vehicle (excluding thefts of vehicle in progress). Out of these 366 units, only 225 (61.5%) were two-officer units. Similarly, 64 of the 126 thefts of vehicle dispatched to only one regular patrol unit were dispatched to a two-officer unit (50.8%).

**Table 6-13 Proportion of Two-Officer Units Dispatched by Call Type Citywide**

<b>Call Type</b>	<b>Number of Calls</b>	<b>Proportion of Single-Officer Units</b>	<b>Proportion of Two-Officer Units</b>
ANNOYING CIRCUMSTANCES	10,517	29.5%	70.5%
SUSPICIOUS PERSON	8,600	25.7%	74.3%
ASSIST GENERAL PUBLIC	8,472	28.7%	71.3%
SUSPICIOUS OTHER CIRCUMSTANCES	6,447	27.5%	72.5%
DISTURBANCE NOISE	5,282	32.2%	67.8%
ABANDONED 911	3,780	28.3%	71.7%
ALARM	3,631	31.2%	68.8%
MVI INJURY	3,390	36.7%	63.3%
ASSIST PROVINCIAL AMBULANCE	3,333	27.3%	72.7%
BREAK AND ENTER	3,046	48.1%	51.9%
DOMESTIC IN PROGRESS	2,891	28.1%	71.9%
UNWANTED PERSON	2,787	27.7%	72.3%
DISTURBANCE PARTY	2,709	29.4%	70.6%
FIGHT	2,668	27.9%	72.1%
ASSAULT	2,606	35.2%	64.8%
INTELLIGENCE INFORMATION	2,533	24.8%	75.2%
ASSAULT IN PROGRESS	2,502	28.3%	71.7%
THEFT IN PROGRESS	2,434	30.5%	69.5%
THREATS	2,122	41.5%	58.5%
PROPERTY RECOVERED	2,088	40.1%	59.9%
SUSPICIOUS VEHICLE	2,053	27.0%	73.0%
BREAK AND ENTER IN PROGRESS	1,945	30.3%	69.7%
THEFT	1,846	50.6%	49.4%
DOMESTIC REPORT	1,822	27.4%	72.6%
MVI	1,631	36.2%	63.8%
SHOPLIFTER	1,569	48.0%	52.0%
WEAPON IN PROGRESS	1,558	28.2%	71.8%
MISCHIEF IN PROGRESS	1,514	30.0%	70.0%
ASSIST OTHER AGENCY	1,194	27.7%	72.3%
HAZARDOUS SITUATION	1,186	32.9%	67.1%
SIPP/DIPP	1,172	26.6%	73.4%
MISSING PERSON	1,076	43.4%	56.6%
HARASSMENT	1,003	54.7%	45.3%
FRAUD	940	53.4%	46.6%
SUICIDAL PERSON	931	26.5%	73.5%
MISCHIEF	829	40.1%	59.9%
OTHER	43,394	27.0%	73.0%
<b>Total</b>	<b>147,501</b>	<b>30.1%</b>	<b>69.9%</b>

**Table 6-14 Proportion of Two-Officer Units Dispatched by Call Type in District 1**

<b>Call Type</b>	<b>Number of Calls</b>	<b>Proportion of Single-Officer Units</b>	<b>Proportion of Two-Officer Units</b>
ANNOYING CIRCUMSTANCES	3,846	35.0%	65.0%
SUSPICIOUS PERSON	2,027	30.8%	69.2%
ASSIST GENERAL PUBLIC	1,976	33.5%	66.5%
DISTURBANCE NOISE	1,357	35.6%	64.4%
SUSPICIOUS OTHER CIRCUMSTANCES	1,218	32.5%	67.5%
UNWANTED PERSON	1,029	31.4%	68.6%
FIGHT	927	31.7%	68.3%
SHOPLIFTER	866	48.7%	51.3%
DISTURBANCE PARTY	776	32.2%	67.8%
THEFT IN PROGRESS	763	34.4%	65.6%
ABANDONED 911	744	34.1%	65.9%
ASSAULT IN PROGRESS	740	33.0%	67.0%
ASSIST PROVINCIAL AMBULANCE	738	33.0%	67.0%
INTELLIGENCE INFORMATION	737	27.9%	72.1%
ASSAULT	698	38.3%	61.7%
THEFT	637	50.9%	49.1%
ALARM	633	35.5%	64.5%
BREAK AND ENTER	534	51.5%	48.5%
THREATS	516	44.0%	56.0%
PROPERTY RECOVERED	492	45.3%	54.7%
DOMESTIC IN PROGRESS	400	33.0%	67.0%
MISCHIEF IN PROGRESS	390	31.8%	68.2%
PROPERTY SEIZED	354	27.5%	72.5%
FRAUD	350	47.7%	52.3%
WEAPON IN PROGRESS	335	31.9%	68.1%
THEFT VEHICLE LOCATED	330	53.7%	46.3%
HAZARDOUS SITUATION	322	43.6%	56.4%
BREAK AND ENTER IN PROGRESS	314	31.1%	68.9%
MVI	301	36.3%	63.7%
DOMESTIC REPORT	262	32.7%	67.3%
SUSPICIOUS VEHICLE	248	41.3%	58.7%
THEFT FROM VEHICLE	244	47.5%	52.5%
ASSIST OTHER AGENCY	234	32.0%	68.0%
HARASSMENT	229	57.7%	42.3%
VIOLENT PERSON	220	33.4%	66.6%
SUICIDAL PERSON	215	29.5%	70.5%
OTHER	10,257	30.8%	69.2%
<b>Total</b>	<b>36,259</b>	<b>34.3%</b>	<b>65.7%</b>

**Table 6-15 Proportion of Two-Officer Units Dispatched by Call Type in District 2**

<b>Call Type</b>	<b>Number of Calls</b>	<b>Proportion of Single-Officer Units</b>	<b>Proportion of Two-Officer Units</b>
ANNOYING CIRCUMSTANCES	3,553	23.0%	77.0%
ASSIST GENERAL PUBLIC	2,944	21.8%	78.2%
SUSPICIOUS PERSON	2,194	20.6%	79.4%
SUSPICIOUS OTHER CIRCUMSTANCES	1,970	21.3%	78.7%
ASSIST PROVINCIAL AMBULANCE	1,351	20.8%	79.2%
DISTURBANCE NOISE	1,282	23.8%	76.2%
ASSAULT	1,020	28.8%	71.2%
ABANDONED 911	991	22.0%	78.0%
UNWANTED PERSON	948	20.8%	79.2%
ASSAULT IN PROGRESS	915	21.3%	78.7%
DISTURBANCE PARTY	902	21.7%	78.3%
FIGHT	876	21.9%	78.1%
DOMESTIC IN PROGRESS	732	23.8%	76.2%
PROPERTY RECOVERED	662	29.0%	71.0%
ALARM	642	22.5%	77.5%
INTELLIGENCE INFORMATION	628	22.0%	78.0%
THREATS	627	33.1%	66.9%
BREAK AND ENTER	620	39.3%	60.7%
MVI INJURY	597	32.8%	67.2%
THEFT IN PROGRESS	592	22.0%	78.0%
WEAPON IN PROGRESS	565	25.1%	74.9%
SUSPICIOUS VEHICLE	537	24.0%	76.0%
DOMESTIC REPORT	511	21.8%	78.2%
THEFT	490	41.3%	58.7%
BREAK AND ENTER IN PROGRESS	437	25.7%	74.3%
ASSIST OTHER AGENCY	405	24.3%	75.7%
MISCHIEF IN PROGRESS	398	23.9%	76.1%
SIPP/DIPP	390	22.0%	78.0%
DRUGS	359	17.6%	82.4%
MVI	313	33.9%	66.1%
HAZARDOUS SITUATION	309	25.8%	74.2%
SUICIDAL PERSON	276	21.3%	78.7%
DRUGS IN PROGRESS	252	23.1%	76.9%
MISCHIEF	251	31.0%	69.0%
MISSING PERSON	230	32.2%	67.8%
VIOLENT PERSON	228	17.6%	82.4%
OTHER	13,728	23.1%	76.9%
<b>Total</b>	<b>43,725</b>	<b>23.7%</b>	<b>76.3%</b>

**Table 6-16 Proportion of Two-Officer Units Dispatched by Call Type in District 3**

<b>Call Type</b>	<b>Number of Calls</b>	<b>Proportion of Single-Officer Units</b>	<b>Proportion of Two-Officer Units</b>
SUSPICIOUS PERSON	2,090	23.6%	76.4%
ASSIST GENERAL PUBLIC	1,818	28.1%	71.9%
SUSPICIOUS OTHER CIRCUMSTANCES	1,607	26.5%	73.5%
ANNOYING CIRCUMSTANCES	1,558	25.3%	74.7%
ABANDONED 911	1,215	27.9%	72.1%
DOMESTIC IN PROGRESS	1,213	26.5%	73.5%
MVI INJURY	1,062	35.2%	64.8%
DISTURBANCE NOISE	1,061	30.8%	69.2%
THEFT VEHICLE LOCATED	949	30.3%	69.7%
DOMESTIC REPORT	735	26.6%	73.4%
BREAK AND ENTER	695	45.7%	54.3%
SUSPICIOUS VEHICLE	692	23.7%	76.3%
ALARM	674	29.6%	70.4%
ASSIST PROVINCIAL AMBULANCE	641	28.4%	71.6%
BREAK AND ENTER IN PROGRESS	597	29.0%	71.0%
INTELLIGENCE INFORMATION	531	22.0%	78.0%
THREATS	523	42.9%	57.1%
ASSAULT	523	36.5%	63.5%
ASSAULT IN PROGRESS	520	28.0%	72.0%
THEFT IN PROGRESS	514	29.4%	70.6%
MVI	469	36.3%	63.8%
FIGHT	468	26.9%	73.1%
WEAPON IN PROGRESS	436	26.9%	73.1%
DISTURBANCE PARTY	431	30.0%	70.0%
UNWANTED PERSON	366	27.5%	72.5%
PROPERTY RECOVERED	337	45.3%	54.7%
MISCHIEF IN PROGRESS	322	28.7%	71.3%
MISSING PERSON	311	42.9%	57.1%
SHOPLIFTER	303	46.6%	53.4%
ASSIST OTHER AGENCY	288	28.0%	72.0%
HARASSMENT	267	51.5%	48.5%
THEFT	264	53.6%	46.4%
SUICIDAL PERSON	238	25.3%	74.7%
HAZARDOUS SITUATION	230	26.6%	73.4%
DISTURBANCE SCREAMING	195	27.5%	72.5%
MISCHIEF	189	37.2%	62.8%
OTHER	8,446	25.9%	74.1%
<b>Total</b>	<b>32,778</b>	<b>28.8%</b>	<b>71.2%</b>

**Table 6-17 Proportion of Two-Officer Units Dispatched by Call Type in District 4**

<b>Call Type</b>	<b>Number of Calls</b>	<b>Proportion of Single-Officer Units</b>	<b>Proportion of Two-Officer Units</b>
SUSPICIOUS PERSON	2,141	27.4%	72.6%
ALARM	1,662	33.6%	66.4%
DISTURBANCE NOISE	1,534	36.7%	63.3%
ANNOYING CIRCUMSTANCES	1,485	33.8%	66.2%
ASSIST GENERAL PUBLIC	1,471	35.4%	64.6%
SUSPICIOUS OTHER CIRCUMSTANCES	1,413	33.2%	66.8%
MVI INJURY	1,186	40.1%	59.9%
BREAK AND ENTER	1,181	52.7%	47.3%
ABANDONED 911	829	30.2%	69.8%
BREAK AND ENTER IN PROGRESS	597	34.2%	65.8%
ASSIST PROVINCIAL AMBULANCE	563	32.8%	67.2%
THEFT IN PROGRESS	562	34.4%	65.6%
DOMESTIC IN PROGRESS	544	32.2%	67.8%
DISTURBANCE PARTY	538	35.9%	64.1%
SUSPICIOUS VEHICLE	511	28.0%	72.0%
INTELLIGENCE INFORMATION	505	28.8%	71.2%
THREATS	447	48.8%	51.2%
UNWANTED PERSON	434	32.2%	67.8%
THEFT	433	59.3%	40.7%
MVI	418	38.6%	61.4%
MISCHIEF IN PROGRESS	400	35.0%	65.0%
PROPERTY RECOVERED	370	54.2%	45.8%
ASSAULT	327	45.5%	54.5%
MISSING PERSON	323	50.6%	49.4%
HARASSMENT	323	60.3%	39.7%
ASSAULT IN PROGRESS	322	34.8%	65.2%
DOMESTIC REPORT	311	32.1%	67.9%
FIGHT	309	30.9%	69.1%
HAZARDOUS SITUATION	294	32.3%	67.7%
FRAUD	282	63.5%	36.5%
SHOPLIFTER	235	48.6%	51.4%
ASSIST OTHER AGENCY	233	29.5%	70.5%
WEAPON IN PROGRESS	218	32.9%	67.1%
ALARMS SILENT/PANIC	207	25.4%	74.6%
SUICIDAL PERSON	198	29.8%	70.2%
MISCHIEF	185	49.7%	50.3%
OTHER	6,287	34.8%	65.2%
<b>Total</b>	<b>29,278</b>	<b>36.3%</b>	<b>63.7%</b>

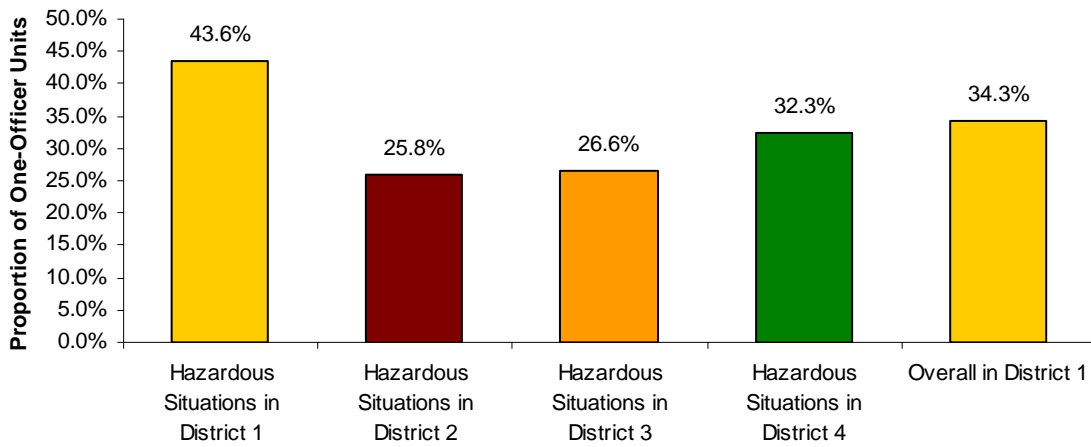


The proportion of two-officer units dispatched to most individual call types was fairly consistent relative to the overall proportion of two-officer units dispatched in each district on average. In other words, calls that were predominantly dispatched to two-officer units in one district were also most likely to be dispatched to a larger proportion of two-officer units in the other patrol districts. Similarly, calls that were predominantly dispatched to single-officer units in one district were also most likely to be dispatched to single-officer units in the other patrol districts.

Hazardous situations in District 1, suspicious vehicles in District 1 and District 4, suspicious persons in District 4 and abandoned 9-1-1 calls in District 4 were the most noteworthy exceptions.

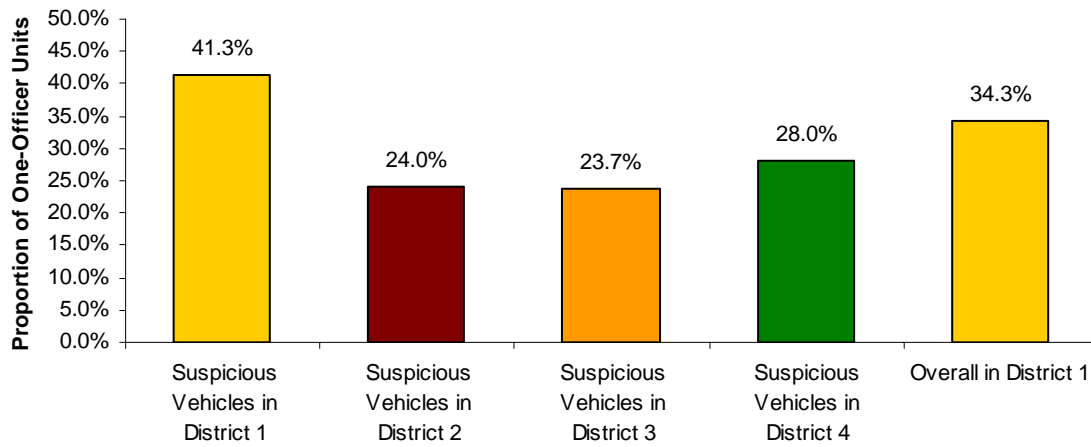
- Single-officer units in District 1 were relatively more likely to be dispatched to hazardous situations. Between 2005-06-01 and 2006-05-31, a total of 415 regular patrol units were dispatched to hazardous situations in District 1. Out of these 415 units, 181 (43.6%) were single-officer units. This is proportionately 27.3% more single-officer units than the other calls in District 1 and 30.7% more single-officer units than the hazardous situations in the other patrol districts. Moreover, 115 of the 256 hazardous situations dispatched to only one regular patrol unit in District 1 were dispatched to a single-officer unit (44.9%). This is proportionately 43.3% more single-officer units than the other calls dispatched to only one regular patrol unit in District 1 and 27.7% more single-officer units than the hazardous situations dispatched to only one regular patrol unit in the other patrol districts.

**Figure 6-45 Proportion of One-Officer Units Dispatched to Hazardous Situations by District**



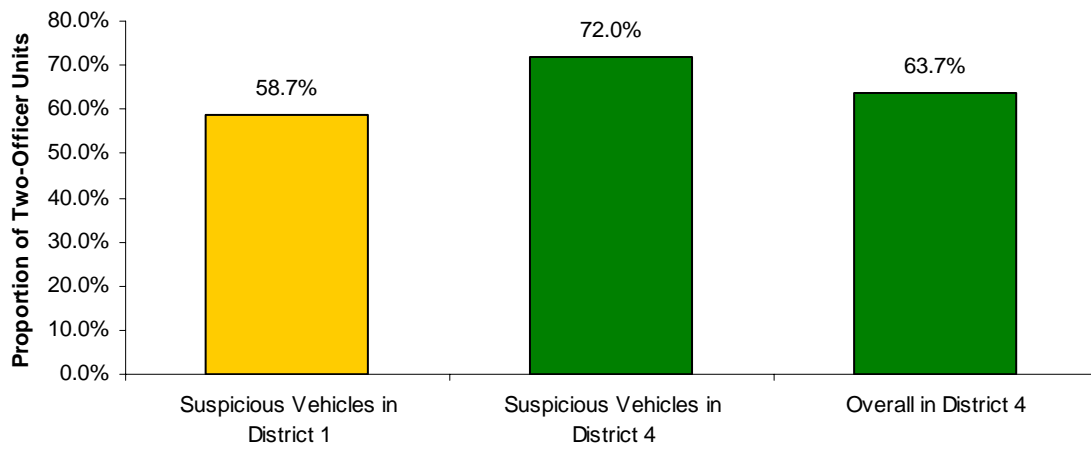
- Single-officer units in District 1 were relatively more likely to be dispatched to suspicious vehicles. Between 2005-06-01 and 2006-05-31, a total of 341 regular patrol units were dispatched to suspicious vehicles in District 1. Out of these 341 units, 141 (41.3%) were single-officer units. This is proportionately 20.7% more single-officer units than the other calls in District 1 and 39.3% more single-officer units than the suspicious vehicles in the other patrol districts. Moreover, 68 of the 181 suspicious vehicles dispatched to only one regular patrol unit in District 1 were dispatched to a single-officer unit (37.6%). This is proportionately 19.9% more single-officer units than the other calls dispatched to only one regular patrol unit in District 1 and 26.1% more single-officer units than the suspicious vehicles dispatched to only one regular patrol unit in the other patrol districts.

**Figure 6-46 Proportion of One-Officer Units Dispatched to Suspicious Vehicles by District**



- Two-officer units in District 4 were relatively more likely to be dispatched to suspicious vehicles. Between 2005-06-01 and 2006-05-31, a total of 682 regular patrol units were dispatched to suspicious vehicles in District 4. Out of these 682 units, 491 (72.0%) were two-officer units. This is proportionately 13.0% more two-officer units than the other calls in District 4 and 11.4% more two-officer units than the suspicious persons in the other patrol districts. Moreover, 275 of the 390 suspicious vehicles dispatched to only one regular patrol unit in District 4 were dispatched to a two-officer unit (70.5%). This is proportionately 8.6% more two-officer units than the other calls dispatched to only one regular patrol unit in District 4 and 9.6% more two-officer units than the suspicious vehicles dispatched to only one regular patrol unit in the other patrol districts.

**Figure 6-47 Proportion of Two-Officer Units Dispatched to Suspicious Vehicles by District**



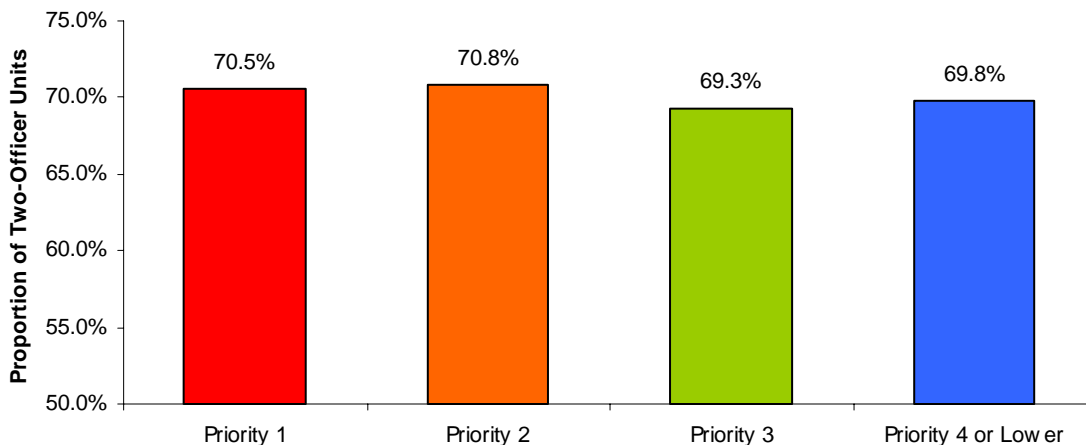
- Two-officer units in District 4 were relatively more likely to be dispatched to suspicious persons. Between 2005-06-01 and 2006-05-31, a total of 3,158 regular patrol units were dispatched to suspicious persons in District 4. Out of these 3,158 units, 2,292 (72.6%) were two-officer units. This is proportionately 13.9% more two-officer units than the other calls in District 4 and 8.0% more two-officer units than the suspicious persons in the other patrol districts. Moreover, 1,092 of the 1,445 suspicious persons dispatched to only one regular patrol unit in District 4 were dispatched to a two-officer unit (75.6%). This is proportionately 16.4% more two-officer units than the other calls dispatched to only one regular patrol unit in District 4 and 9.4% more two-officer units than the suspicious vehicles dispatched to only one regular patrol unit in the other patrol districts.
- Two-officer units in District 4 were relatively more likely to be dispatched to abandoned 9-1-1 calls. Between 2005-06-01 and 2006-05-31, a total of 1,113 regular patrol units were dispatched to abandoned 9-1-1 calls in District 4. Out of these 1,113 units, 777 (69.8%) were two-officer units. This is proportionately 9.6% more two-officer units than the other calls in District 4 and 8.2% more two-officer units than the abandoned 9-1-1 calls in the other patrol districts. Moreover, 439 of the 602 abandoned 9-1-1 calls dispatched to only one regular patrol unit in District 4 were dispatched to a two-officer unit (72.9%). This is proportionately

12.3% more two-officer units than the other calls dispatched to only one regular patrol unit in District 4 and 10.5% more two-officer units than the abandoned 9-1-1 calls dispatched to only one regular patrol unit in the other patrol districts.

Overall, the proportion of two-officer units dispatched to did not vary significantly with the priority level. Between 2005-06-01 and 2006-05-31:

- A total of 35,301 regular patrol units were dispatched to 15,197 priority 1 calls. Out of these 35,301 units, 24,899 (70.5%) were two-officer units. Moreover, 4,580 of the 6,152 priority 1 calls dispatched to only one regular patrol unit were dispatched to a two-officer unit (74.4%).
- A total of 45,982 regular patrol units were dispatched to 25,066 priority 2 calls. Out of these 45,982 units, 32,573 (70.8%) were two-officer units. Moreover, 10,073 of the 13,430 priority 2 calls dispatched to only one regular patrol unit were dispatched to a two-officer unit (75.0%).
- A total of 108,277 regular patrol units were dispatched to 75,059 priority 3 calls. Out of these 108,277 units, 75,059 (69.3%) were two-officer units. Moreover, 40,081 of the 55,958 priority 3 calls dispatched to only one regular patrol unit were dispatched to a two-officer unit (71.6%).
- A total of 42,749 regular patrol units were dispatched to 30,193 priority 4 calls. Out of these 42,749 units, 29,850 (69.8%) were two-officer units. Moreover, 15,936 of the 21,879 priority 4 calls dispatched to only one regular patrol unit were dispatched to a two-officer unit (72.8%).

**Figure 6-48 Proportion of Two-Officer Units by Priority**



For each priority level, the proportion of two-officer units was consistent on average for most call types and each individual district. Within each priority level, most call types were assigned the same proportion of two-officer units (i.e. roughly 68% to 72% depending on the call type). Similarly, within each individual patrol district, the same proportion of two-officer units was dispatched to calls of every priority level on average (i.e. from 63.7% in District 4 to 76.3% in District 2).

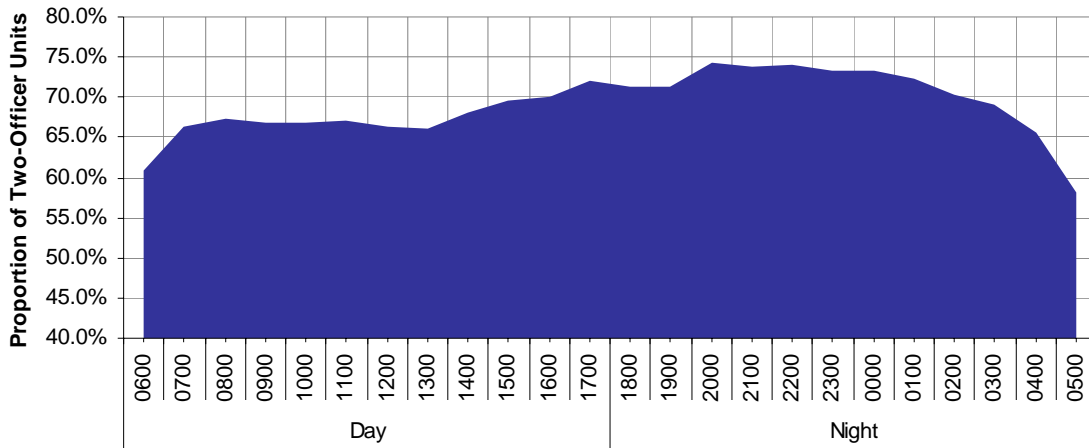
Even though the average proportion of two-officer units dispatched did not depend on the day of the week, time of day influenced the proportion of two-officer units dispatched to most calls.

- Between 0600 and 1800 hours, a total of 102,164 regular patrol units were dispatched to 68,256 calls. Out of these 102,164 units, 69,243 (67.8%) were two-officer units. Moreover, 33,133 of the 47,118 calls dispatched to only one regular patrol unit between 0600 and 1800 hours were dispatched to a two-officer unit (70.3%).
- Between 1800 and 0600 hours, by comparison, a total of 130,452 regular patrol units were dispatched to 79,245 calls. Out of these 130,452 units, 93,333 (71.5%) were two-officer units. Moreover, 37,545 of the 50,315 calls dispatched to only one regular patrol unit between 1800 and 0600 hours were dispatched to a two-officer unit (74.6%).

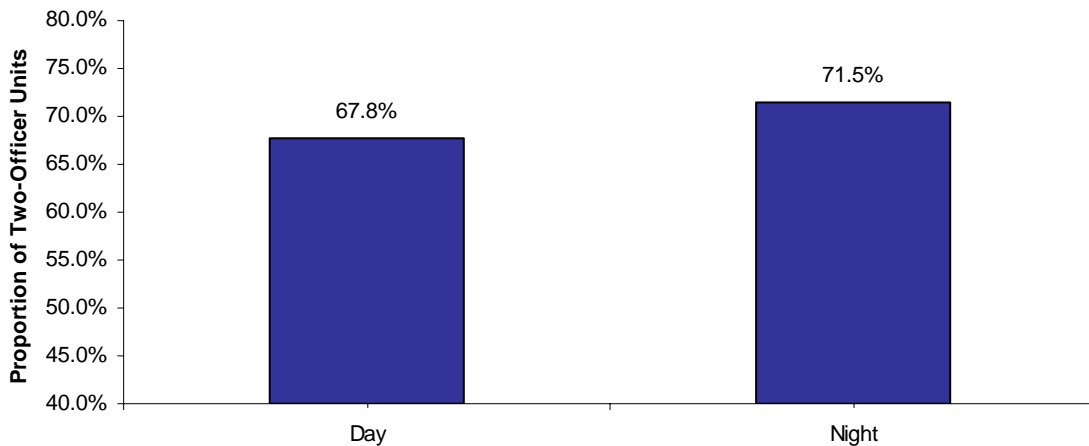
**Table 6-18 Proportion of Two-Officer Units by Hour of the Day Citywide**

Hour	Number of Calls	Proportion of Single-Officer Units	Proportion of Two-Officer Units		
Day	0600	3,019	39.0%	61.0%	
	0700	3,885	33.7%	66.3%	
	0800	4,686	32.7%	67.3%	
	0900	5,269	33.3%	66.7%	
	1000	5,665	33.2%	66.8%	
	1100	5,695	32.9%	67.1%	
	1200	5,928	33.7%	66.3%	
	1300	6,025	33.9%	66.1%	
	1400	6,629	31.8%	68.2%	
	1500	7,088	30.5%	69.5%	
	1600	7,182	29.9%	70.1%	
	1700	7,185	28.1%	71.9%	
	Night	1800	7,142	28.8%	71.2%
		1900	7,488	28.8%	71.2%
2000		7,653	25.8%	74.2%	
2100		7,826	26.1%	73.9%	
2200		8,323	25.9%	74.1%	
2300		8,433	26.7%	73.3%	
0000		7,676	26.8%	73.2%	
0100		7,114	27.8%	72.2%	
0200		6,130	29.7%	70.3%	
0300		4,656	30.9%	69.1%	
0400	3,574	34.5%	65.5%		
0500	3,230	41.8%	58.2%		
<b>Total</b>	<b>147,501</b>	<b>30.1%</b>	<b>69.9%</b>		

**Figure 6-49 Proportion of Two-Officer Units by Hour of the Day Citywide**



**Figure 6-50 Proportion of Two-Officer Units by Time of Day Citywide**

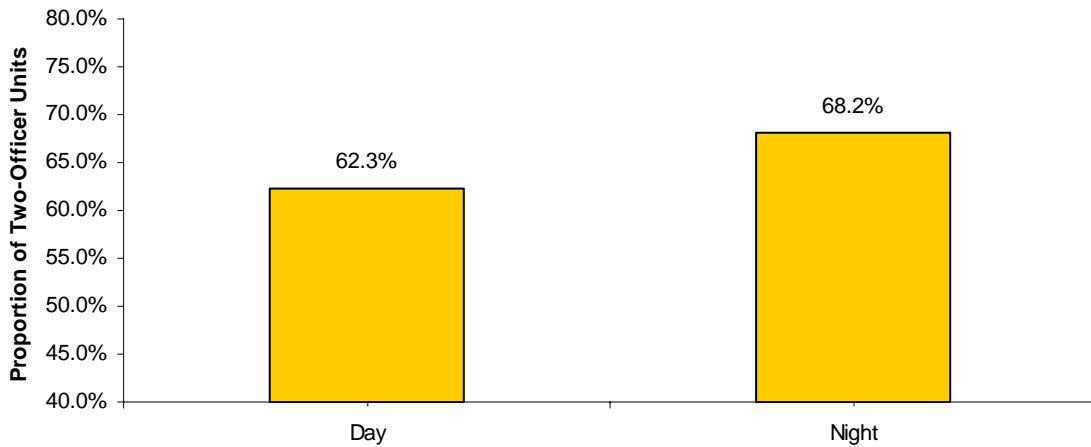


This tenuous relationship between the proportion of two-officer units dispatched and the time of the day also held for most individual call types, every priority levels and each patrol district. Between 2005-06-01 and 2006-05-31, for instance:

- In District 1, a total of 24,805 regular patrol units were dispatched to 15,938 calls between 0600 and 1800 hours. Out of these 24,805 units, 15,454 (62.3%) were two-officer units. By contrast, a total of 35,094 regular patrol units were dispatched to 20,321 calls between 1800 and 0600 hours in District 1. Out of these 35,094 units, 23,926 (68.2%) were two-officer units.

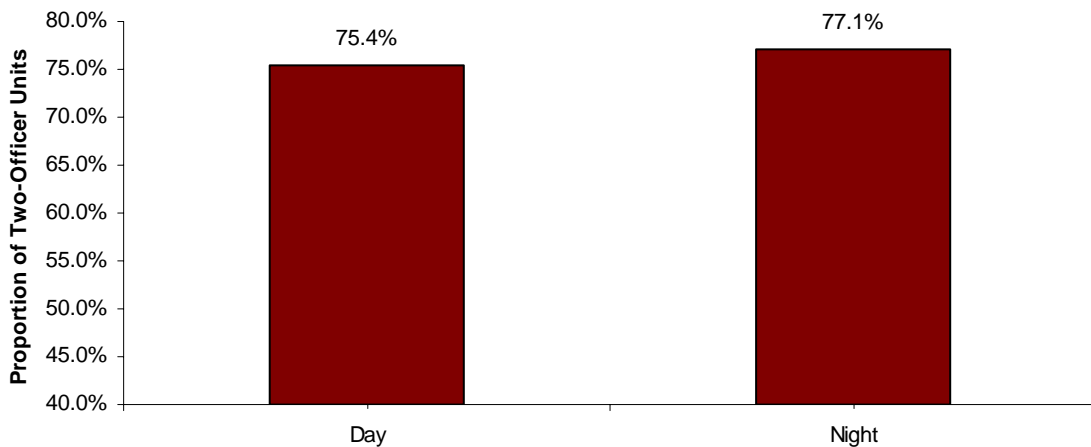


**Figure 6-51 Proportion of Two-Officer Units by Time of Day in District 1**



- In District 2, a total of 31,304 regular patrol units were dispatched to 21,366 calls between 0600 and 1800 hours. Out of these 31,304 units, 23,595 (75.4%) were two-officer units. By contrast, a total of 34,490 regular patrol units were dispatched to 22,359 calls between 1800 and 0600 hours in District 2. Out of these 34,490 units, 26,590 (77.1%) were two-officer units.

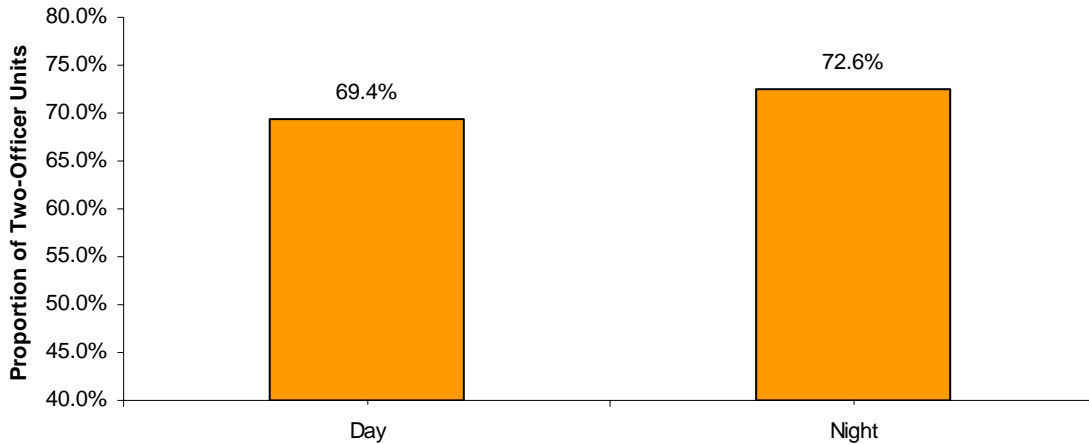
**Figure 6-52 Proportion of Two-Officer Units by Time of Day in District 2**



- In District 3, a total of 23,066 regular patrol units were dispatched to 15,323 calls between 0600 and 1800 hours. Out of these 23,066 units, 16,002 (69.4%) were two-officer units. By contrast, a total of 29,458 regular patrol units were

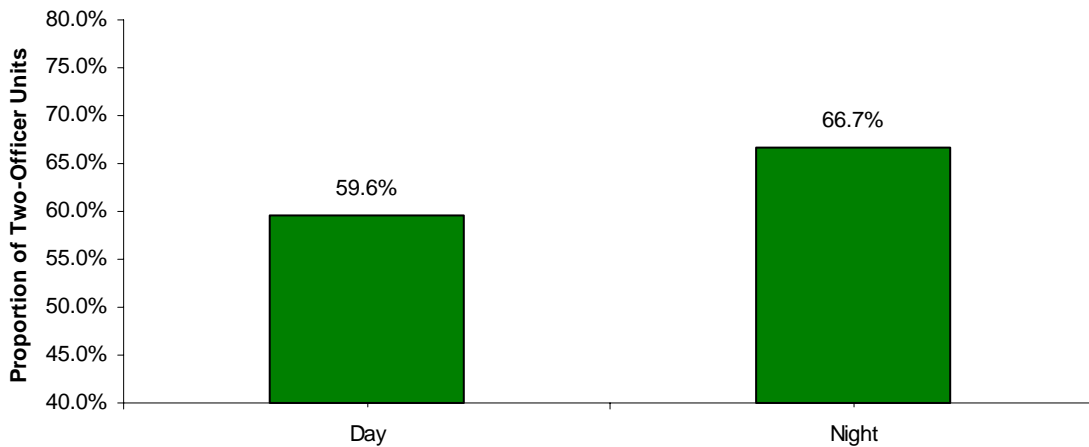
dispatched to 17,455 calls between 1800 and 0600 hours in District 3. Out of these 29,458 units, 21,384 (72.6%) were two-officer units.

**Figure 6-53 Proportion of Two-Officer Units by Time of Day in District 3**



- In District 4, a total of 20,209 regular patrol units were dispatched to 13,335 calls between 0600 and 1800 hours. Out of these 20,209 units, 12,051 (59.6%) were two-officer units. By contrast, a total of 27,269 regular patrol units were dispatched to 15,943 calls between 1800 and 0600 hours in District 4. Out of these 27,269 units, 18,193 (66.7%) were two-officer units.

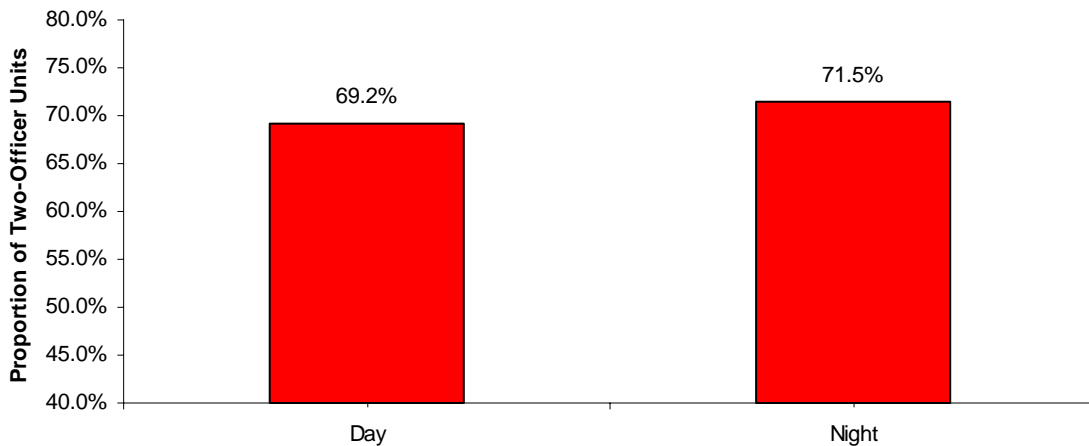
**Figure 6-54 Proportion of Two-Officer Units by Hour of the Day in District 4**



Similarly:

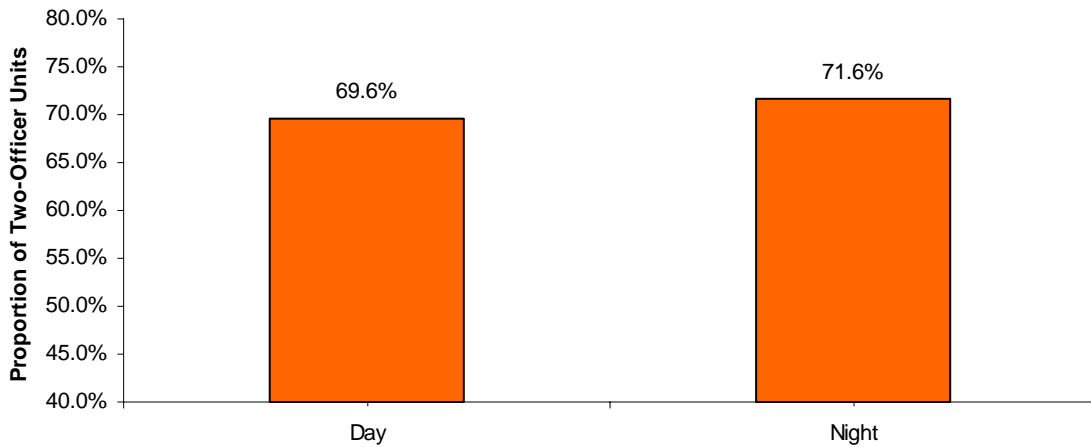
- A total of 14,231 regular patrol units were dispatched to 6,545 priority 1 calls between 0600 and 1800 hours. Out of these 14,231 units, 9,841 (69.2%) were two-officer units. By contrast, a total of 21,070 regular patrol units were dispatched to 8,652 priority 1 calls between 1800 and 0600 hours. Out of these 21,070 units, 15,058 (71.5%) were two-officer units.

**Figure 6-55 Proportion of Two-Officer Units Dispatched to Priority 1 Calls**



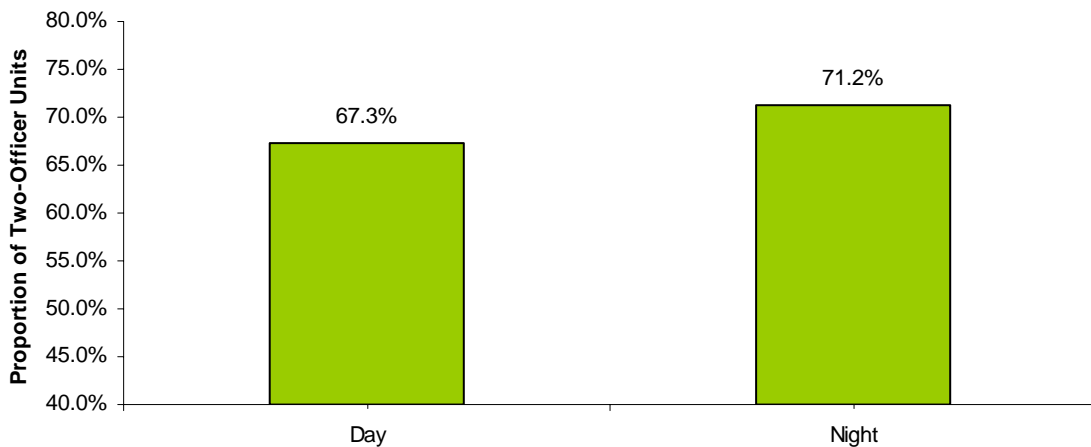
- A total of 17,105 regular patrol units were dispatched to 10,150 priority 2 calls between 0600 and 1800 hours. Out of these 17,105 units, 11,903 (69.6%) were two-officer units. By contrast, a total of 28,877 regular patrol units were dispatched to 14,916 priority 2 calls between 1800 and 0600 hours. Out of these 28,877 units, 20,670 (71.6%) were two-officer units.

**Figure 6-56 Proportion of Two-Officer Units Dispatched to Priority 2 Calls**



- A total of 51,700 regular patrol units were dispatched to 37,774 priority 3 calls between 0600 and 1800 hours. Out of these 51,700 units, 34,798 (67.3%) were two-officer units. By contrast, a total of 56,577 regular patrol units were dispatched to 39,205 priority 3 calls between 1800 and 0600 hours. Out of these 56,577 units, 40,261 (71.2%) were two-officer units.

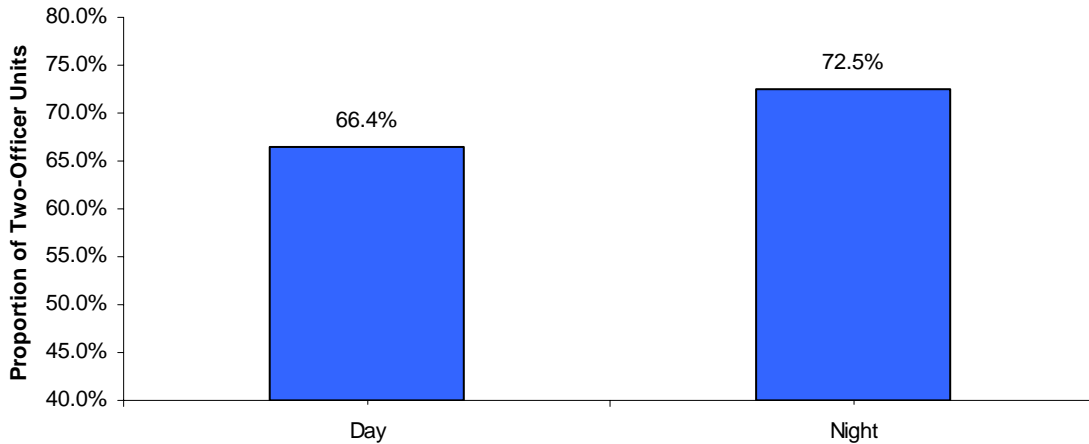
**Figure 6-57 Proportion of Two-Officer Units Dispatched to Priority 3 Calls**



- A total of 18,927 regular patrol units were dispatched to 13,751 priority 4 calls between 0600 and 1800 hours. Out of these 18,927 units, 12,570 (66.4%) were two-officer units. By contrast, a total of 23,822 regular patrol units were

dispatched to 16,442 priority 4 calls between 1800 and 0600 hours. Out of these 23,822 units, 17,280 (72.5%) were two-officer units.

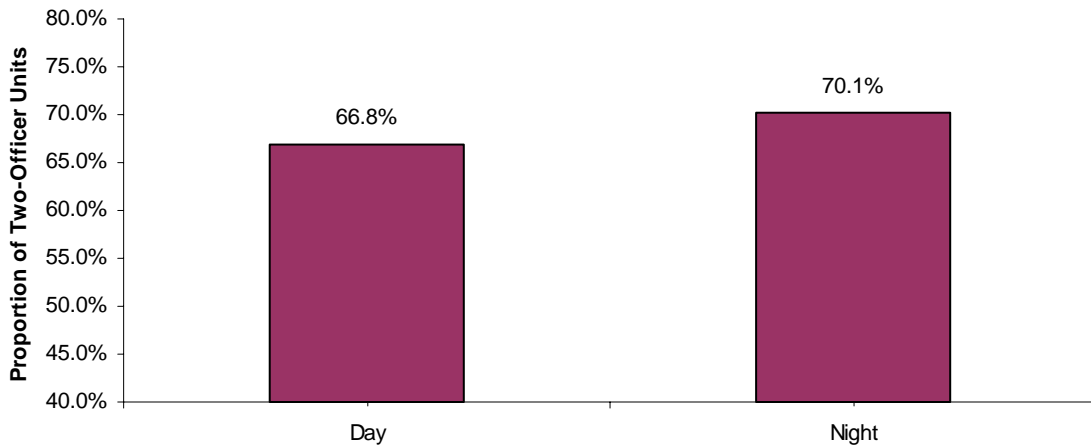
**Figure 6-58 Proportion of Two-Officer Units Dispatched to Priority 4 Calls**



As expected, the relationship between the proportion of two-officer units dispatched and the time of day also held for emergency 9-1-1 calls, on-view calls and non-emergency telephone calls but was fainter. This is reflected by the fact that:

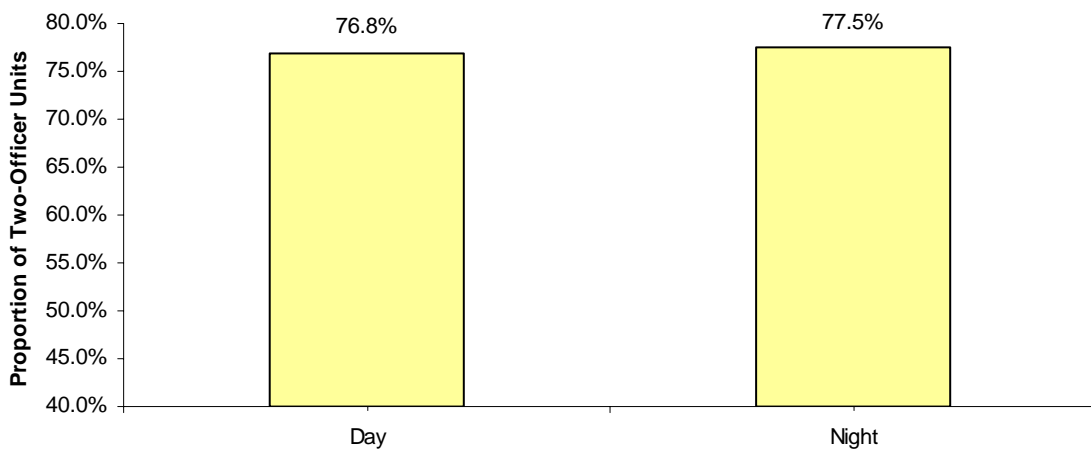
- A total of 67,641 regular patrol units were dispatched to 43,539 emergency 9-1-1 calls between 0600 and 1800 hours. Out of these 67,641 units, 45,182 (66.8%) were two-officer units. By contrast, a total of 84,722 regular patrol units were dispatched to 48,759 emergency 9-1-1 calls between 1800 and 0600 hours. Out of these 84,722 units, 59,413 (70.1%) were two-officer units.

**Figure 6-59 Proportion of Two-Officer Units Dispatched to Emergency 9-1-1 Calls**



- A total of 15,964 regular patrol units were dispatched to 12,001 on-view calls between 0600 and 1800 hours. Out of these 15,964 units, 12,266 (76.8%) were two-officer units. By contrast, a total of 29,019 regular patrol units were dispatched to 19,813 on-view calls between 1800 and 0600 hours. Out of these 29,019 units, 22,498 (77.5%) were two-officer units.

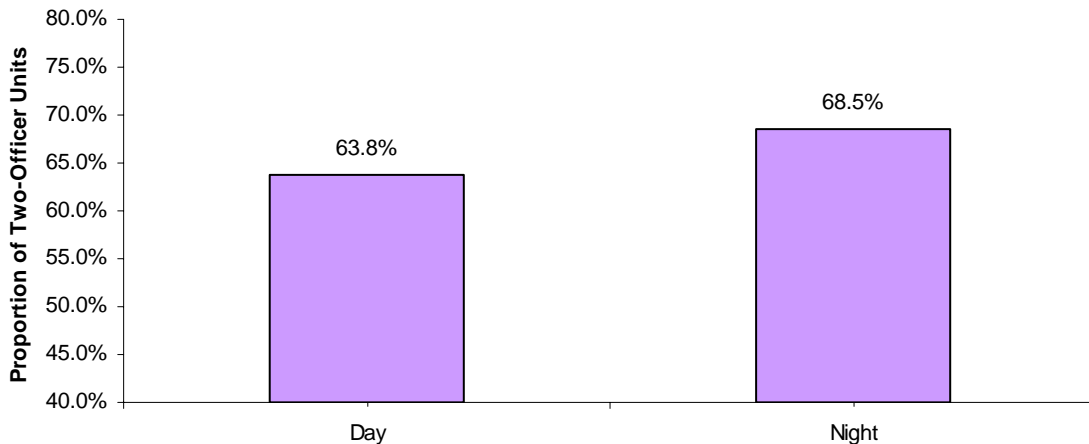
**Figure 6-60 Proportion of Two-Officer Units Dispatched to On-View Calls**



- A total of 18,224 regular patrol units were dispatched to 12,492 non-emergency telephone calls between 0600 and 1800 hours. Out of these 18,224 units, 11,622 (63.8%) were two-officer units. By contrast, a total of 16,472 regular patrol units

were dispatched to 10,500 non-emergency telephone calls between 1800 and 0600 hours. Out of these 16,472 units, 11,281 (68.5%) were two-officer units.

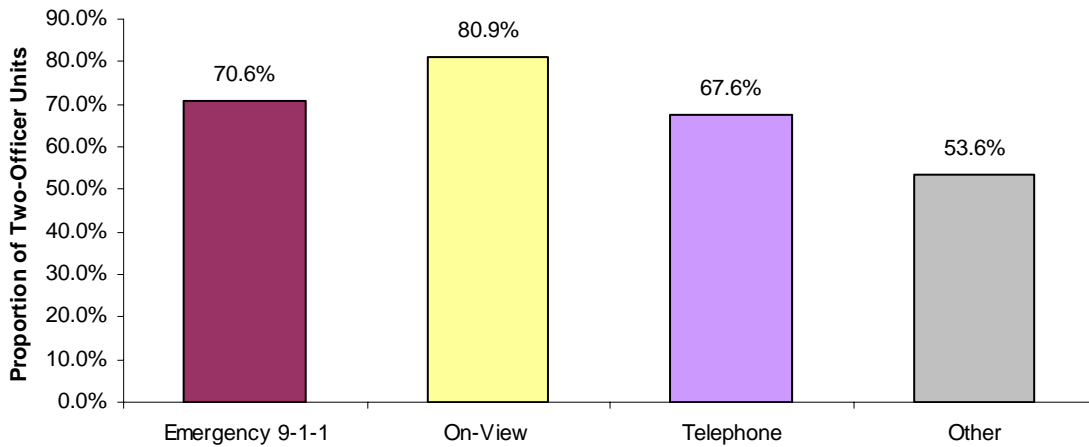
**Figure 6-61 Proportion of Two-Officer Units Dispatched to Telephone Calls**



Between 2005-06-01 and 2005-31, 97,433 of the 147,501 calls dispatched to regular patrol units were dispatched to only one unit. Out of these 97,433 calls, 57,733 (59.3%) were emergency 9-1-1 calls, 23,577 (24.2%) were officer-initiated or on-view calls and 15,845 (16.3%) were non-emergency calls (278 additional calls were generated using another method).

- Out of the 57,733 emergency 9-1-1 calls dispatched to only one regular patrol unit, 40,742 (70.6%) were dispatched to a two-officer unit.
- Out of the 23,577 on-view calls dispatched to only one regular patrol unit, 19,068 (80.9%) were dispatched to a two-officer unit. By comparison, only 65.0% of all regular patrol units were two-officer units.
- Out of the 15,845 non-emergency telephone calls dispatched to only one regular patrol unit, 10,719 (67.6%) were dispatched to a two-officer unit.

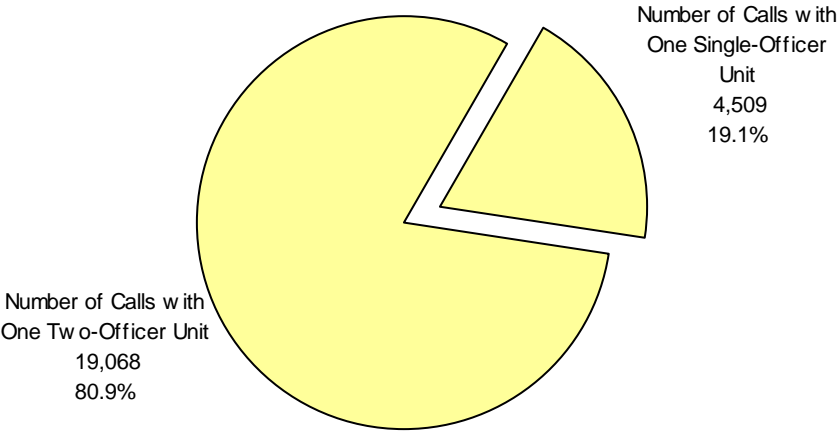
**Figure 6-62 Proportion of Two-Officer Units Dispatched to Calls with Only One Regular Patrol Unit by Source Citywide**



While 65.0% of all the regular patrol units deployed were two-officer regular patrol units, 80.9% of all the on-view calls handled by only one regular patrol unit were handled by a two-officer regular patrol unit. Overall, the larger proportion of on-view calls handled by a two-officer unit supports the idea that two-officer units are relatively more likely to proactively enforce warrants and court orders, dispense traffic suspensions, generate intelligence information, arrest individuals when it turns out to be necessary, seize property, locate stolen vehicles, conduct welfare checks, conduct licensed premises checks, detect drug-related offences, identify possible impaired drivers and investigate suspicious circumstances (including suspicious persons and vehicles).



**Figure 6-63 Proportion of Two-Officer Units That Handled On-View Calls with Only One Regular Patrol Unit Citywide**



For instance:

- Out of the 1,715 officer-initiated serious driving offences reported by a single regular patrol unit between 2005-06-01 and 2006-05-31 (including 1,077 impaired driving offences), 1,333 (77.7%) were reported by a two-officer unit.
- Out of the 1,584 officer-initiated drug-related offences reported by a single regular patrol unit between 2005-06-01 and 2006-05-31 (including 627 for possession of cocaine, 75 for possession of heroin, 15 for heroin trafficking and 304 for cocaine trafficking), 1,293 (81.6%) were reported by a two-officer unit.
- Out of the 1,272 officer-initiated breaches reported by a single regular patrol unit between 2005-06-01 and 2006-05-31 (including 59 breaches of peace, 219 breaches of probation, 5 parole violations and 532 bail violations), 1,126 (88.5%) were reported by a two-officer unit.
- Out of the 710 officer-initiated intelligence reports produced by a single regular patrol unit between 2005-06-01 and 2006-05-31 (including 199 drug-related, 192 gang-related and 117 sex-related intelligence reports), 577 (81.3%) were produced by a two-officer unit.
- Out of the 700 officer-initiated liquor-related infractions reported by a single regular patrol unit between 2005-06-01 and 2006-05-31, 575 (82.1%) were produced by a two-officer unit.

- Out of the 484 officer-initiated weapon-related incidents reported by a single regular patrol unit between 2005-06-01 and 2006-05-31 (including 380 for possession of an illegal weapon), 400 (82.6%) were reported by a two-officer unit.
- Out of the 194 on-view arrests warrants enforced by a single regular patrol unit between 2005-06-01 and 2006-05-31, 167 (86.1%) were enforced by a two-officer unit.
- Out of the 129 officer-initiated bylaw infractions reported by a single regular patrol unit between 2005-06-01 and 2006-05-31, 103 (79.8%) were reported by a two-officer unit.

## **6.6 CALLS ATTENDED BY PATROL SUPERVISORS**

A patrol supervisor was slightly less likely overall to attend calls handled by a two-officer unit than calls handled by a single-officer unit. Between 2005-06-01 and 2006-05-31, at least one patrol supervisor attended 10,429 of the 97,433 calls dispatched to only one regular patrol unit (10.7%). By comparison, a patrol supervisor attended 3,120 of the 26,755 calls dispatched to only one single-officer unit (11.7%) and 7,309 of the 70,678 calls dispatched to only one two-officer unit (10.3%). Overall, this suggests that a patrol supervisor was proportionately 12.8% more likely to attend a call dispatched to a single officer.

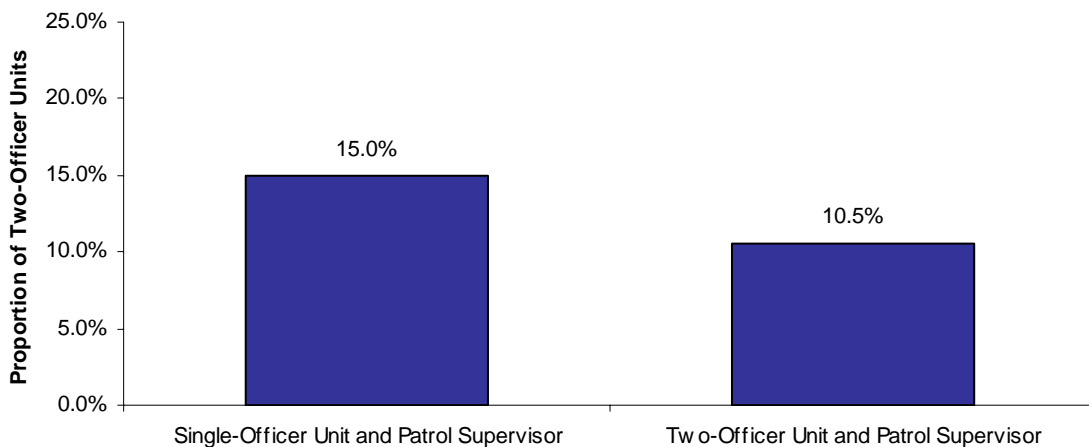
For some call types, the difference between single-officer and two-officer units was more important. In particular, several calls dispatched to only one single officer ended up requiring the presence of the patrol supervisor much more often. Between 2005-06-01 and 2006-05-31, for instance:

- At least one patrol supervisor attended 642 of the 6,179 requests for assistance from the general public dispatched to only one regular patrol unit (10.4%). By comparison, a patrol supervisor attended 231 of the 1,621 requests for assistance from the general public dispatched to only one single-officer unit (14.3%) and 411 of the 4,558 requests for assistance from the general public

dispatched to only one two-officer unit (9.0%). Overall, this suggests that a patrol supervisor was proportionately 58.0% more likely to attend a request for assistance from the general public dispatched to a single officer.

- At least one patrol supervisor attended 683 of the 5,936 suspicious persons dispatched to only one regular patrol unit (11.5%). By comparison, a patrol supervisor attended 198 of the 1,324 suspicious persons dispatched to only one single-officer unit (15.0%) and 485 of the 4,612 suspicious persons dispatched to only one two-officer unit (10.5%). Overall, this suggests that a patrol supervisor was proportionately 42.2% more likely to attend a suspicious person call dispatched to a single officer.

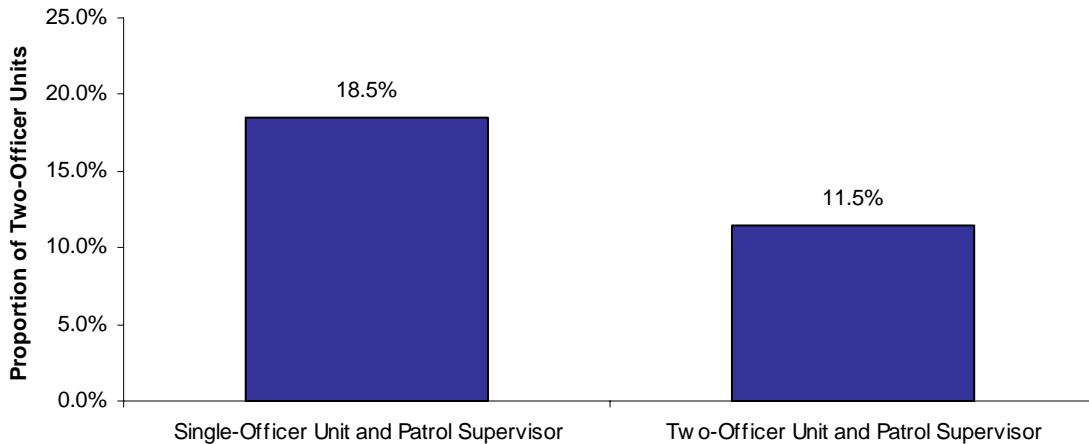
**Figure 6-64 Proportion of Suspicious Persons Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor**



- At least one patrol supervisor attended 224 of the 5,101 warrants enforced by only one regular patrol unit (4.4%). By comparison, a patrol supervisor attended 57 of the 631 warrants enforced by only one single-officer unit (9.0%) and 167 of the 4,470 warrants enforced by only one two-officer unit (3.7%). Overall, this suggests that a patrol supervisor was proportionately 141.8% more likely to attend a warrant enforced by a single officer.
- At least one patrol supervisor attended 380 of the 2,868 abandoned 9-1-1 calls dispatched to only one regular patrol unit (13.2%). By comparison, a patrol supervisor attended 134 of the 724 abandoned 9-1-1 calls dispatched to only one

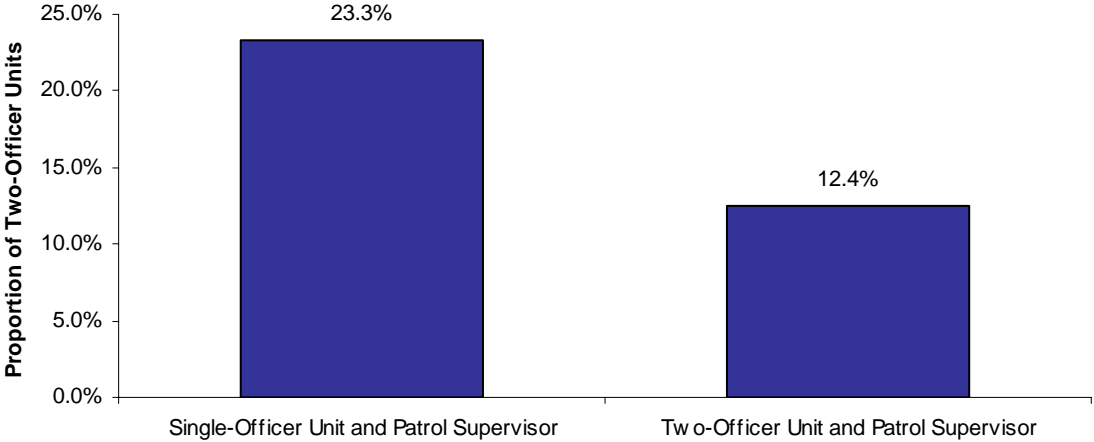
single-officer unit (18.5%) and 246 of the 2,144 abandoned 9-1-1 calls dispatched to only one two-officer unit (11.5%). Overall, this suggests that a patrol supervisor was proportionately 61.3% more likely to attend an abandoned 9-1-1 call dispatched to a single officer.

**Figure 6-65 Proportion of Abandoned 9-1-1 Calls Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor**



- At least one patrol supervisor attended 354 of the 2,377 requests for assistance from the provincial ambulance service dispatched to only one regular patrol unit (14.9%). By comparison, a patrol supervisor attended 125 of the 537 requests for assistance from the provincial ambulance service dispatched to only one single-officer unit (23.3%) and 229 of the 1,611 requests for assistance from the provincial ambulance service dispatched to only one two-officer unit (12.4%). Overall, this suggests that a patrol supervisor was proportionately 87.0% more likely to attend a request for assistance from the provincial ambulance service dispatched to a single officer.

**Figure 6-66 Proportion of Requests for Assistance from the Provincial Ambulance Service Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor**



- At least one patrol supervisor attended 257 of the 2,230 motor vehicle incidents with injuries dispatched to only one regular patrol unit (11.5%). By comparison, a patrol supervisor attended 102 of the 762 motor vehicle incidents with injuries dispatched to only one single-officer unit (13.4%) and 155 of the 1,468 motor vehicle incidents with injuries dispatched to only one two-officer unit (10.6%). Overall, this suggests that a patrol supervisor was proportionately 26.8% more likely to attend a suspicious person call dispatched to a single officer.
- At least one patrol supervisor attended 149 of the 2,038 intelligence calls dispatched to only one regular patrol unit (7.3%). By comparison, a patrol supervisor attended 53 of the 481 intelligence calls dispatched to only one single-officer unit (11.0%) and 96 of the 1,557 intelligence calls dispatched to only one two-officer unit (6.2%). Overall, this suggests that a patrol supervisor was proportionately 78.7% more likely to attend an intelligence call dispatched to a single officer.
- At least one patrol supervisor attended 137 of the 1,712 court order breaches dispatched to only one regular patrol unit (8.0%). By comparison, a patrol supervisor attended 43 of the 303 court order breaches dispatched to only one single-officer unit (14.2%) and 94 of the 1,409 court order breaches dispatched to

only one two-officer unit (6.7%). Overall, this suggests that a patrol supervisor was proportionately 112.7% more likely to attend a court order breach dispatched to a single officer.

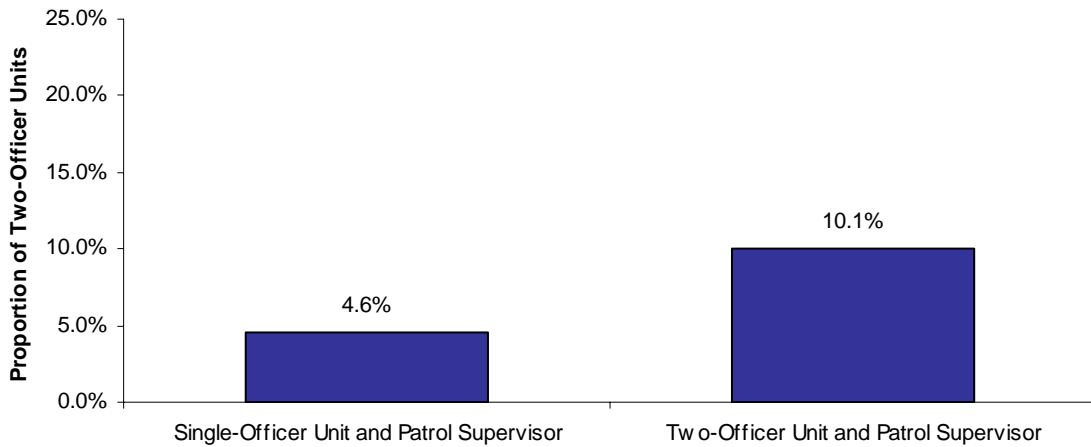
- At least one patrol supervisor attended 326 of the 1,310 domestic situations in progress dispatched to only one regular patrol unit (24.9%). By comparison, a patrol supervisor attended 78 of the 235 domestic situations in progress dispatched to only one single-officer unit (33.2%) and 248 of the 1,075 domestic situations in progress dispatched to only one two-officer unit (23.1%). Overall, this suggests that a patrol supervisor was proportionately 43.9% more likely to attend a domestic situation in progress dispatched to a single officer.
- At least one patrol supervisor attended 101 of the 1,278 welfare checks conducted by only one regular patrol unit (7.9%). By comparison, a patrol supervisor attended 30 of the 268 welfare checks conducted by only one single-officer unit (11.2%) and 71 of the 1,010 welfare checks conducted by only one two-officer unit (7.0%). Overall, this suggests that a patrol supervisor was proportionately 59.2% more likely to attend a welfare check conducted by a single officer.
- At least one patrol supervisor attended 296 of the 1,089 fights dispatched to only one regular patrol unit (27.2%). By comparison, a patrol supervisor attended 73 of the 236 fights dispatched to only one single-officer unit (30.9%) and 223 of the 853 fights dispatched to only one two-officer unit (26.1%). Overall, this suggests that a patrol supervisor was proportionately 18.3% more likely to attend a fight dispatched to a single officer.
- At least one patrol supervisor attended 176 of the 1,024 domestic disturbances (not in progress) dispatched to only one regular patrol unit (17.2%). By comparison, a patrol supervisor attended 63 of the 216 domestic disturbances dispatched to only one single-officer unit (29.2%) and 113 of the 808 domestic disturbances dispatched to only one two-officer unit (14.0%). Overall, this suggests that a patrol supervisor was proportionately 43.9% more than twice as likely to attend a domestic disturbance dispatched to a single officer.

- At least one patrol supervisor attended 143 of the 402 suicidal persons dispatched to only one regular patrol unit (35.6%). By comparison, a patrol supervisor attended 37 of the 82 suicidal persons dispatched to only one single-officer unit (45.1%) and 106 of the 320 suicidal persons dispatched to only one two-officer unit (33.1%). Overall, this suggests that a patrol supervisor was proportionately 36.2% more likely to attend a suicidal person call dispatched to a single officer.
- At least one patrol supervisor attended 16 of the 170 hit and run dispatched to only one regular patrol unit (9.4%). By comparison, a patrol supervisor attended 10 of the 72 hit and run dispatched to only one single-officer unit (13.9%) and 6 of the 98 hit and run dispatched to only one two-officer unit (6.1%). Overall, this suggests that a patrol supervisor was proportionately 126.9% more likely to attend a hit and run dispatched to a single officer.
- At least one patrol supervisor attended 45 of the 145 domestic violence situations dispatched to only one regular patrol unit (31.0%). By comparison, a patrol supervisor attended 14 of the 30 domestic violence situations dispatched to only one single-officer unit (46.7%) and 31 of the 115 domestic violence situations dispatched to only one two-officer unit (27.0%). Overall, this suggests that a patrol supervisor was proportionately 73.1% more likely to attend a domestic violence situation dispatched to a single officer.

On the other hand, a patrol supervisor appeared to be more likely to attend some specific calls dispatched to only one two-officer unit. For instance:

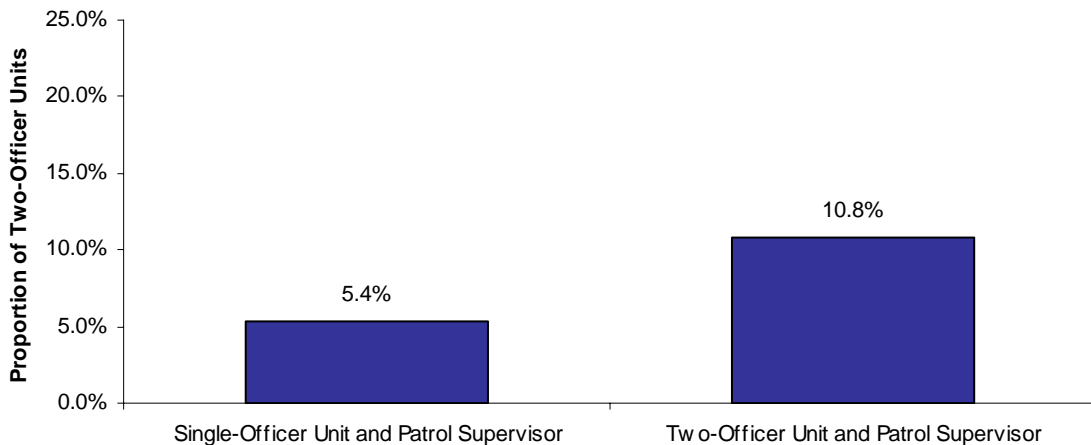
- At least one patrol supervisor attended 142 of the 1,986 break and enters (not in progress) dispatched to only one regular patrol unit (7.2%). By comparison, a patrol supervisor attended 48 of the 1,054 break and enters dispatched to only one single-officer unit (4.6%) and 94 of the 932 break and enters dispatched to only one two-officer unit (10.1%). Overall, this suggests that a patrol supervisor was proportionately 121.5% more likely to attend a break and enter dispatched to a two-officer unit.

**Figure 6-67 Proportion of Break and Enters Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor**



- At least one patrol supervisor attended 42 of the 492 mischiefs (not in progress) dispatched to only one regular patrol unit (8.5%). By comparison, a patrol supervisor attended 11 of the 205 mischiefs dispatched to only one single-officer unit (5.4%) and 31 of the 287 mischiefs dispatched to only one two-officer unit (10.8%). Overall, this suggests that a patrol supervisor was proportionately twice more likely to attend a mischief dispatched to a two-officer unit.

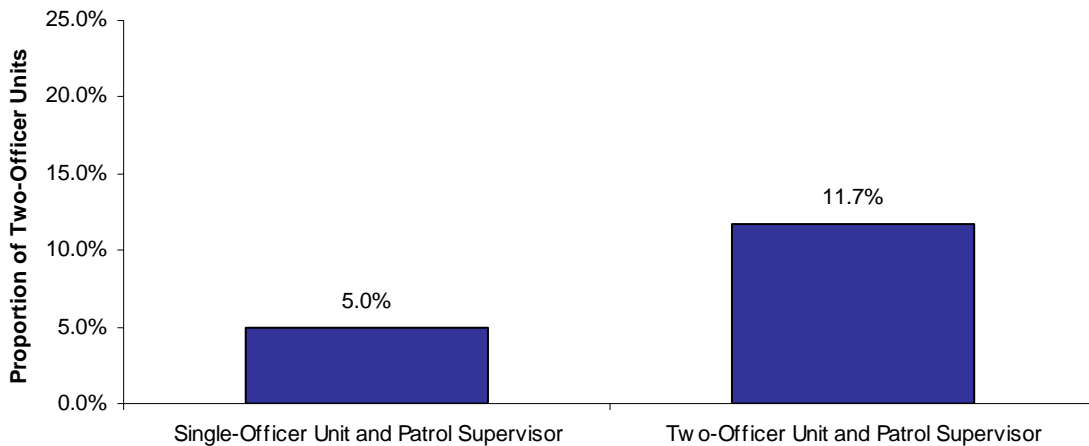
**Figure 6-68 Proportion of Mischiefs Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor**





- At least one patrol supervisor attended 34 of the 382 thefts from vehicle (not in progress) dispatched to only one regular patrol unit (8.9%). By comparison, a patrol supervisor attended 8 of the 160 thefts from vehicle dispatched to only one single-officer unit (5.0%) and 26 of the 222 thefts from vehicle dispatched to only one two-officer unit (11.7%). Overall, this suggests that a patrol supervisor was proportionately 134.2% more likely to attend a theft from vehicle dispatched to a two-officer unit.

**Figure 6-69 Proportion of Thefts from Motor Vehicle Dispatched to Only One Regular Patrol Unit Attended by a Patrol Supervisor**



Realistically, patrol supervisors probably attended more frequently some of the calls dispatched to a solo officer because:

- They were hoping to compensate for a lack of available patrol resources and attended the calls to cover the primary officer attending. This is likely the case for at least the warrants enforced by only one single-officer unit, the domestic situations in progress dispatched to only one single-officer unit, the fights dispatched to only one single-officer unit, the suicidal persons dispatched to only one single-officer unit and the domestic violence situations dispatched to only one single-officer unit.

2. They wanted to make sure that the right decisions and the correct procedures would be followed by the single officer attending the call.

On the other hand, patrol supervisors most likely attended a larger proportion of break and enters, mischiefs and thefts from vehicle (not in progress) dispatched to one two-officer unit because:

1. The break and enters, mischiefs and thefts from vehicle that were dispatched to one two-officer unit turned out to be more serious on average than the break and enters, mischiefs and thefts from vehicle dispatched to a solo officer. Empirically, this is supported by the fact that a proportionately larger share of the commercial break and enters dispatched to only one regular patrol unit was dispatched to a two-officer unit and patrol supervisors were almost three times more likely to attend commercial break and enters than residential break and enters.
2. Patrol supervisors attended apparently less serious calls (like break and enters, mischiefs and thefts from vehicle) to make sure that patrol resources were being used efficiently and, in particular, that no two-officer unit was attending a report call that could have been as efficiently handled by a single officer working alone.

Overall, there is convincing evidence that patrol supervisors take seriously their mandate of optimizing the way patrol officers handle calls.

## **6.7 SERVICE TIME**

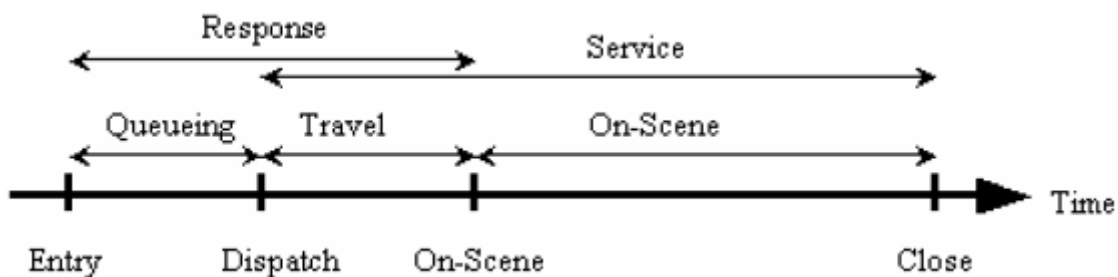
Typically, at the VPD:

- When a call for service is received by E-Comm, the call taker records the relevant information about the complaint (including, for instance, the location and the name of the complainant).
- When a patrol unit becomes available to take the call, it is dispatched (or assigned) to the call. The time it takes to dispatch the call after it is recorded by the call taker is called the queuing delay. Once it is dispatched to a call, the

patrol unit travels to the scene of the reported call or incident. The time it takes the first patrol unit to arrive on-scene after it is officially dispatched the call is called the travel time. It is usually a function of the distance the patrol unit has to travel, the traffic level, the driving speed and the road conditions, for instance. The sum of the queuing delay and the travel time is the response time. The response time is the delay that the citizens observe when they request police assistance.

- At the scene of the incident, the patrol unit conducts the investigation, interview the witnesses, speak to the complainant or the victim and, hopefully solve the problem and successfully complete the investigation.
- When the patrol unit has completed its investigation, it returns to service by closing the call (or by clearing the call if other patrol units are still assigned to the call). The time it takes the patrol unit to close the call after it has arrived at the scene of the incident is the on-scene time. It is usually a function of the complexity of the call and, when applicable, the investigation. The sum of the travel time and the on-scene time is the service time. The service time represents the total time during which a unit is assigned to the call.

**Figure 6-70 Queuing Delay, Travel Time, On-Scene Time, Response Time and Service Time**



Source: COPS: Whatcha Gonna Do?, Christopher M. Rump, INFORMS Transactions on Education 2:2 (47-55).

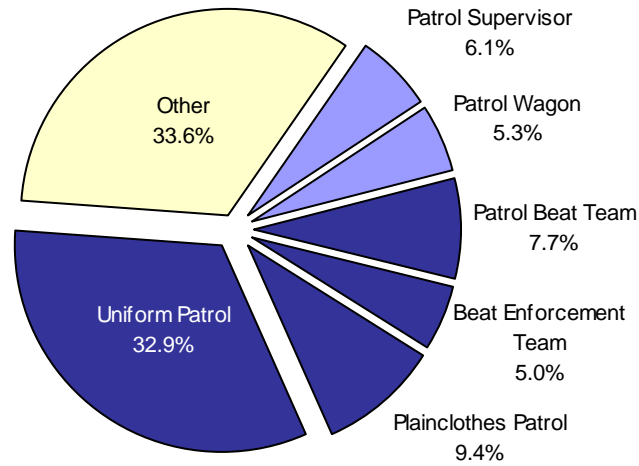
Between 2005-06-01 and 2006-05-31, police units at the VPD spent a total of 310,698 unit-hours on 188,616 calls for service. On average, this implies that VPD units spent a total of 1 hour and 39 minutes on each call for service they were dispatched to.

A total of 232,616 regular patrol units spent a total of approximately 196,778 unit-hours on 147,501 calls for service citywide. On average, this implies that regular patrol units spent a total of 1 hour and 20 minutes on each call for service they were dispatched to. In turn, each regular patrol unit spent approximately 51 minutes on each call it was dispatched to.

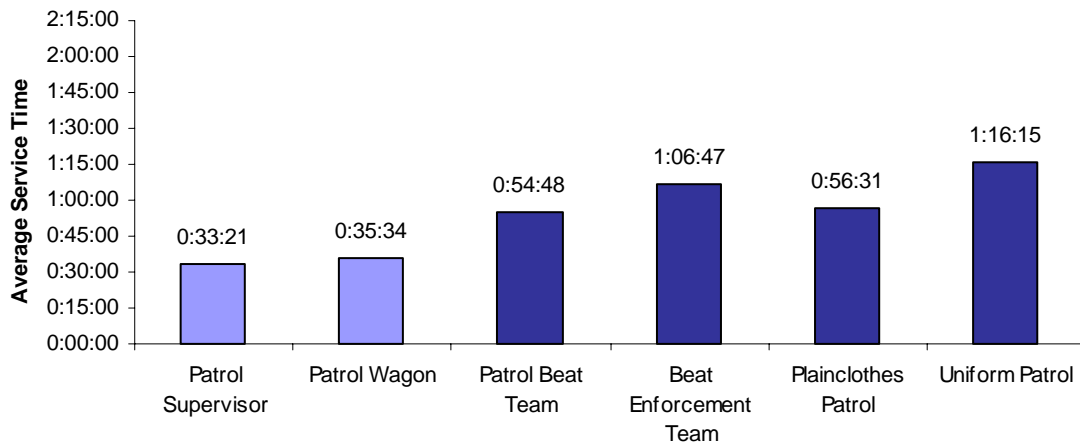
- Uniform patrol units spent a total of approximately 117,439 unit-hours on 92,421 calls for service citywide. On average, this implies that uniform patrol units spent a total of 1 hour and 16 minutes on each call for service they were dispatched to. Out of the 117,439 unit-hours spent by uniform patrol units on calls for service, 60,762 (51.7%) were spent by two-officer uniform patrol units. The remaining 56,677 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units spent a total of approximately 33,591 unit-hours on 35,657 calls for service citywide. On average, this implies that plainclothes patrol units spent a total of 57 minutes on each call for service they were dispatched to.
- Patrol beat units (including the Patrol Beat Team and the Commercial Drive Patrol Beat Team) spent a total of approximately 27,523 unit-hours on 30,130 calls for service citywide. On average, this implies that patrol beat units spent a total of 55 minutes on each call for service they were dispatched to.
- In District 2, BET units spent a total of approximately 17,747 unit-hours on 15,945 calls for service citywide. On average, this implies that BET units spent a total of 1 hour and 7 minutes on each call for service they were dispatched to.

For their part, patrol supervisors spent a total of approximately 21,960 hours on 39,511 calls for service citywide. On average, this implies that patrol supervisors spent a total of 33 minutes on each call for service they were dispatched to. Similarly, patrol wagons spent a total of approximately 19,060 hours on 32,162 calls for service citywide. On average, this implies that patrol wagons spent a total of 36 minutes on each call for service they were dispatched to.

**Figure 6-71 Total Service Time by Type of Unit**



**Figure 6-72 Average Service Time by Type of Unit**

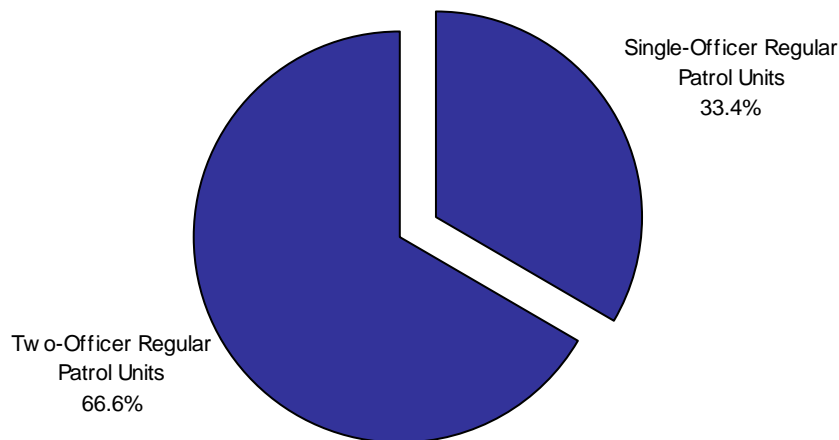


A total of 70,040 single-officer regular patrol units spent a total of approximately 65,744 unit-hours on 53,213 calls for service citywide. On average, this implies that single-officer regular patrol units spent a total of 1 hour and 14 minutes on each call for service they were dispatched to. In turn, each single-officer regular patrol unit spent approximately 56 minutes on each call it was dispatched to.

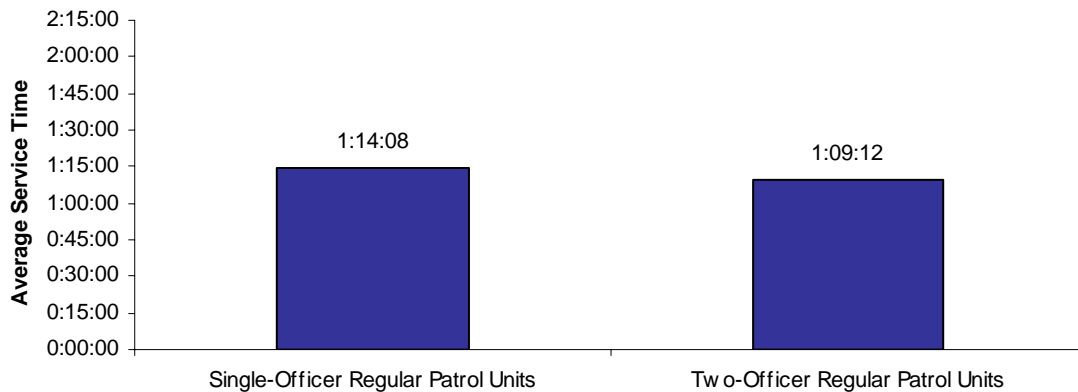
A total of 162,576 two-officer regular patrol units spent a total of approximately 131,034 unit-hours on 113,605 calls for service citywide. On average, this implies that two-officer regular patrol units spent a total of 1 hour and 9 minutes on each call for service they

were dispatched to. In turn, each two-officer regular patrol unit spent approximately 48 minutes on each call it was dispatched to.

**Figure 6-73 Total Service Time by Single-Officer and Two-Officer Regular Patrol Units**



**Figure 6-74 Average Service Time by Single-Officer and Two-Officer Regular Patrol Units**



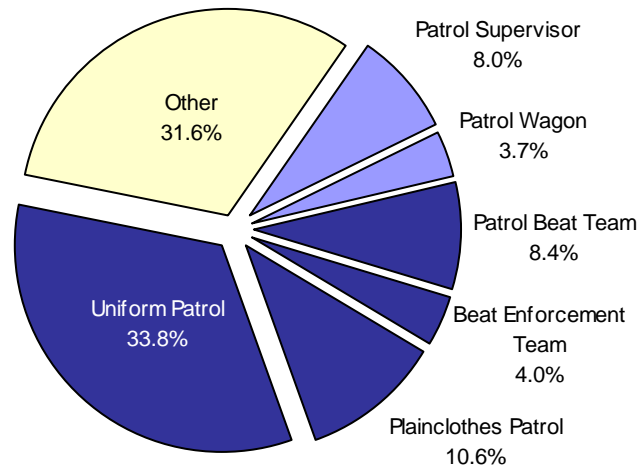
Between 2005-06-01 and 2006-05-31, police units at the VPD spent a total of 60,862 unit-hours on 16,169 priority 1 calls for service. On average, this implies that VPD units spent a total of 3 hours and 46 minutes on each priority 1 call for service they were dispatched to.

A total of 35,301 regular patrol units spent a total of approximately 39,269 unit-hours on 15,197 priority 1 calls for service citywide. On average, this implies that regular patrol units spent a total of 2 hours and 35 minutes on each priority 1 call for service they were dispatched to. In turn, each regular patrol unit spent approximately 1 hour and 7 minutes on each priority 1 call it was dispatched to.

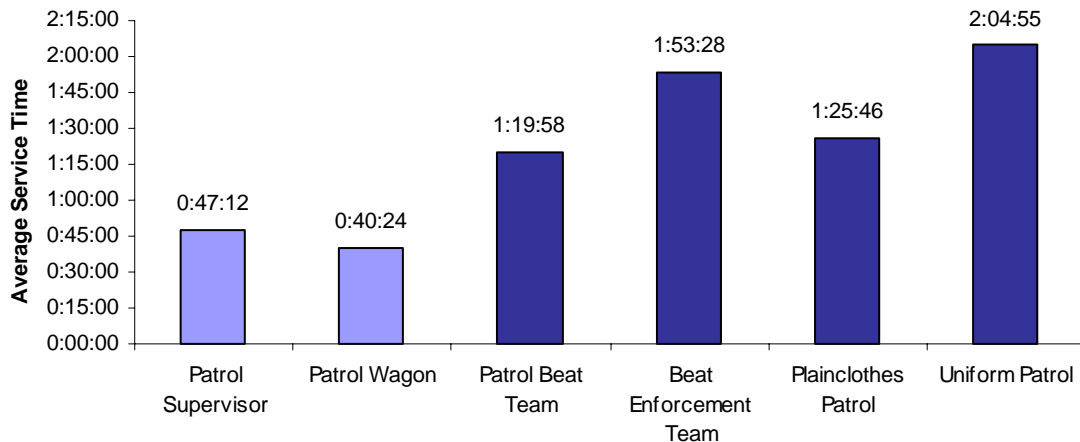
- Uniform patrol units spent a total of approximately 23,358 unit-hours on 11,219 priority 1 calls for service citywide. On average, this implies that uniform patrol units spent a total of 2 hours and 5 minutes on each priority 1 call for service they were dispatched to. Out of the 23,358 unit-hours spent by uniform patrol units on priority 1 calls for service, 12,743 (54.6%) were spent by two-officer uniform patrol units. The remaining 10,615 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units spent a total of approximately 7,339 unit-hours on 5,134 priority 1 calls for service citywide. On average, this implies that plainclothes patrol units spent a total of 1 hour and 26 minutes on each priority 1 call for service they were dispatched to.
- Patrol beat units spent a total of approximately 5,777 unit-hours on 4,335 priority 1 calls for service citywide. On average, this implies that patrol beat units spent a total of 1 hour and 20 minutes on each priority 1 call for service they were dispatched to.
- In District 2, BET units spent a total of approximately 2,738 unit-hours on 1,448 priority 1 calls for service citywide. On average, this implies that BET units spent a total of 1 hour and 53 minutes on each priority 1 call for service they were dispatched to.

For their part, patrol supervisors spent a total of approximately 5,545 hours on 7,049 priority 1 calls for service citywide. On average, this implies that patrol supervisors spent a total of 47 minutes on each priority 1 call for service they were dispatched to. Similarly, patrol wagons spent a total of approximately 2,545 hours on 3,780 priority 1 calls for service citywide. On average, this implies that patrol wagons spent a total of 40 minutes on each priority 1 call for service they were dispatched to.

**Figure 6-75 Total Service Time on Priority 1 Calls by Type of Unit**



**Figure 6-76 Average Service Time on Priority 1 Calls by Type of Unit**



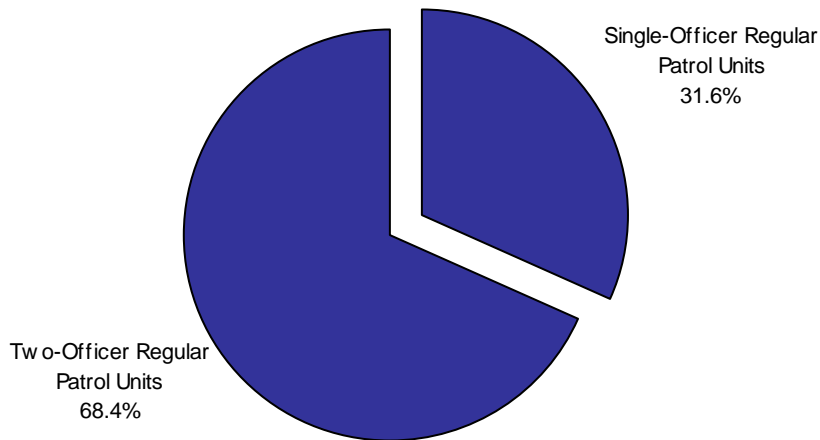
A total of 10,402 single-officer regular patrol units spent a total of approximately 12,405 hours on 6,816 priority 1 calls for service citywide. On average, this implies that single-officer regular patrol units spent a total of 1 hour and 49 minutes on each priority 1 call for service they were dispatched to. In turn, each single-officer regular patrol unit spent approximately 1 hour and 12 minutes on each priority 1 call it was dispatched to.

A total of 24,899 two-officer regular patrol units spent a total of approximately 26,864 unit-hours on 12,866 priority 1 calls for service citywide. On average, this implies that two-officer regular patrol units spent a total of 2 hours and 5 minutes on each priority 1

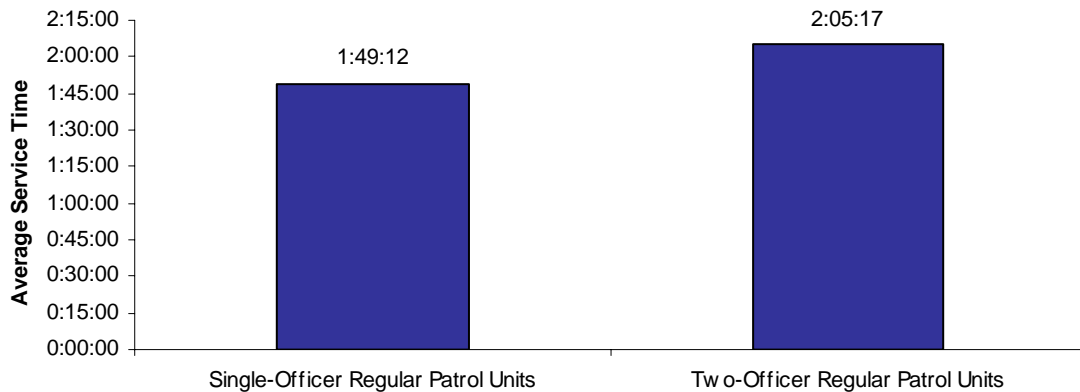


call for service they were dispatched to. In turn, each two-officer regular patrol unit spent approximately 1 hour and 5 minutes on each priority 1 call it was dispatched to.

**Figure 6-77 Total Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units**



**Figure 6-78 Average Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units**



Between 2005-06-01 and 2006-05-31, police units at the VPD spent a total of 50,428 unit-hours on 27,842 priority 2 calls for service. On average, this implies that VPD units

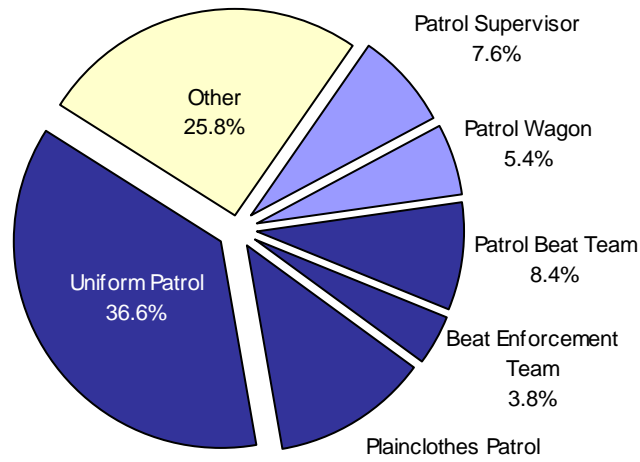
spent a total of 1 hour and 49 minutes on each priority 2 call for service they were dispatched to.

A total of 45,982 regular patrol units spent a total of approximately 35,858 unit-hours on 25,066 priority 2 calls for service citywide. On average, this implies that regular patrol units spent a total of 1 hour and 26 minutes on each priority 2 call for service they were dispatched to. In turn, each regular patrol unit spent approximately 47 minutes on each priority 2 call it was dispatched to.

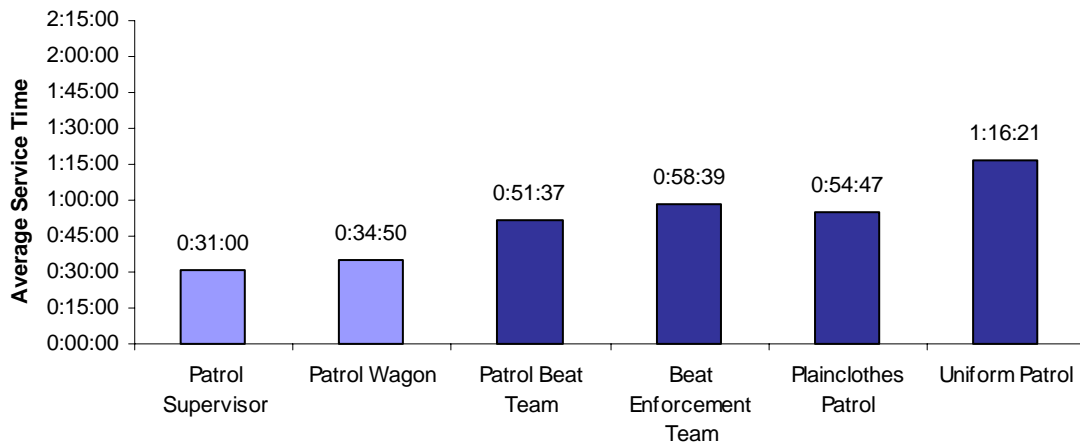
- Uniform patrol units spent a total of approximately 21,442 unit-hours on 16,850 priority 2 calls for service citywide. On average, this implies that uniform patrol units spent a total of 1 hour and 16 minutes on each priority 2 call for service they were dispatched to. Out of the 21,442 unit-hours spent by uniform patrol units on priority 2 calls for service, 11,655 (54.4%) were spent by two-officer uniform patrol units. The remaining 9,787 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units spent a total of approximately 7,232 unit-hours on 7,921 priority 2 calls for service citywide. On average, this implies that plainclothes patrol units spent a total of 55 minutes on each priority 2 call for service they were dispatched to.
- Patrol beat units spent a total of approximately 4,913 unit-hours on 5,711 priority 2 calls for service citywide. On average, this implies that patrol beat units spent a total of 52 minutes on each priority 2 call for service they were dispatched to.
- In District 2, BET units spent a total of approximately 2,198 unit-hours on 2,249 priority 2 calls for service citywide. On average, this implies that BET units spent a total of 59 minutes on each priority 2 call for service they were dispatched to.

For their part, patrol supervisors spent a total of approximately 4,442 hours on 8,598 priority 2 calls for service citywide. On average, this implies that patrol supervisors spent a total of 31 minutes on each priority 2 call for service they were dispatched to. Similarly, patrol wagons spent a total of approximately 3,183 hours on 5,482 priority 2 calls for service citywide. On average, this implies that patrol wagons spent a total of 35 minutes on each priority 2 call for service they were dispatched to.

**Figure 6-79 Total Service Time on Priority 2 Calls by Type of Unit**



**Figure 6-80 Average Service Time on Priority 2 Calls by Type of Unit**

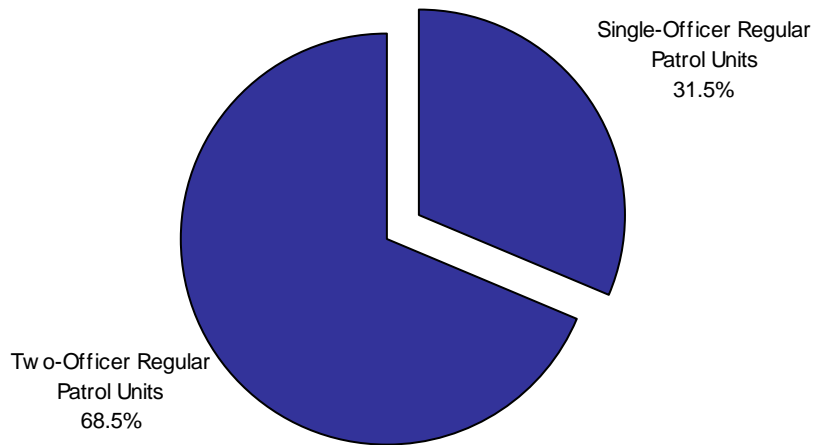


A total of 13,409 single-officer regular patrol units spent a total of approximately 11,281 hours on 9,776 priority 2 calls for service citywide. On average, this implies that single-officer regular patrol units spent a total of 1 hour and 9 minutes on each priority 2 call for service they were dispatched to. In turn, each single-officer regular patrol unit spent approximately 50 minutes on each priority 2 call it was dispatched to.

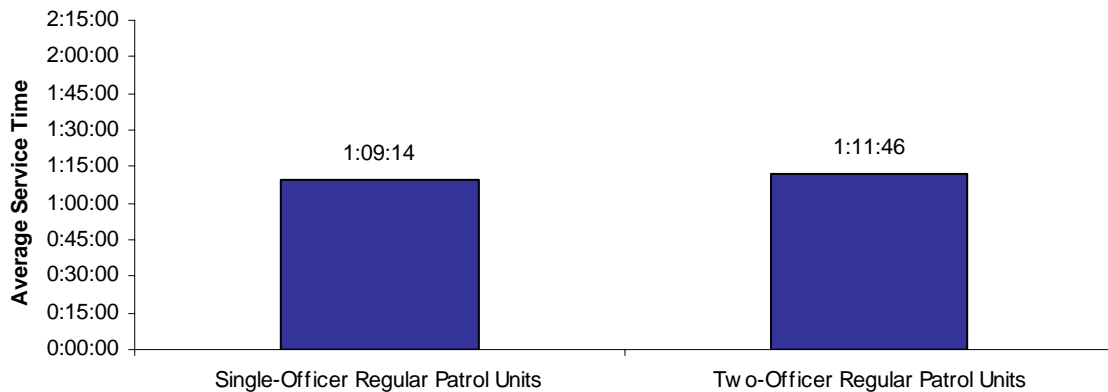
A total of 32,573 two-officer regular patrol units spent a total of approximately 24,577 unit-hours on 20,550 priority 2 calls for service citywide. On average, this implies that two-officer regular patrol units spent a total of 1 hour and 12 minutes on each priority 2

call for service they were dispatched to. In turn, each two-officer regular patrol unit spent approximately 45 minutes on each priority 2 call it was dispatched to.

**Figure 6-81 Total Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units**



**Figure 6-82 Average Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units**



Between 2005-06-01 and 2006-05-31, police units at the VPD spent a total of 119,432 unit-hours on 97,732 priority 3 calls for service. On average, this implies that VPD units

spent a total of 1 hour and 13 minutes on each priority 3 call for service they were dispatched to.

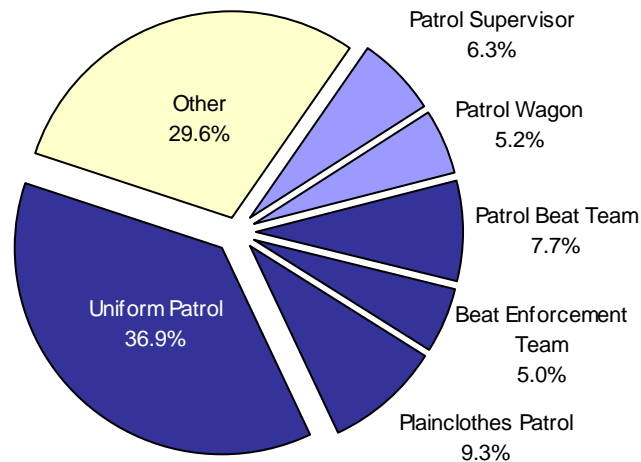
A total of 108,277 regular patrol units spent a total of approximately 80,881 unit-hours on 76,979 priority 3 calls for service citywide. On average, this implies that regular patrol units spent a total of 1 hour and 3 minutes on each priority 3 call for service they were dispatched to. In turn, each regular patrol unit spent approximately 45 minutes on each priority 3 call it was dispatched to.

- Uniform patrol units spent a total of approximately 50,567 unit-hours on 47,988 priority 3 calls for service citywide. On average, this implies that uniform patrol units spent a total of 1 hour and 3 minutes on each priority 3 call for service they were dispatched to. Out of the 50,567 unit-hours spent by uniform patrol units on priority 3 calls for service, 26,192 (51.8%) were spent by two-officer uniform patrol units. The remaining 24,375 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units spent a total of approximately 12,739 unit-hours on 16,757 priority 3 calls for service citywide. On average, this implies that plainclothes patrol units spent a total of 46 minutes on each priority 3 call for service they were dispatched to.
- Patrol beat units spent a total of approximately 10,501 unit-hours on 13,568 priority 3 calls for service citywide. On average, this implies that patrol beat units spent a total of 46 minutes on each priority 3 call for service they were dispatched to.
- In District 2, BET units spent a total of approximately 6,850 unit-hours on 7,498 priority 3 calls for service citywide. On average, this implies that BET units spent a total of 55 minutes on each priority 3 call for service they were dispatched to.

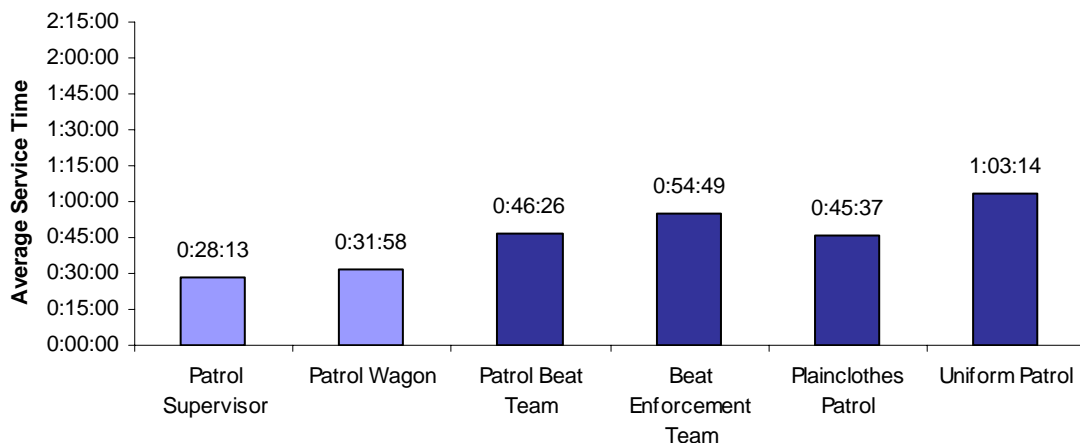
For their part, patrol supervisors spent a total of approximately 8,659 hours on 18,414 priority 3 calls for service citywide. On average, this implies that patrol supervisors spent a total of 28 minutes on each priority 3 call for service they were dispatched to. Similarly, patrol wagons spent a total of approximately 7,063 hours on 13,257 priority 3

calls for service citywide. On average, this implies that patrol wagons spent a total of 32 minutes on each priority 3 call for service they were dispatched to.

**Figure 6-83 Total Service Time on Priority 3 Calls by Type of Unit**



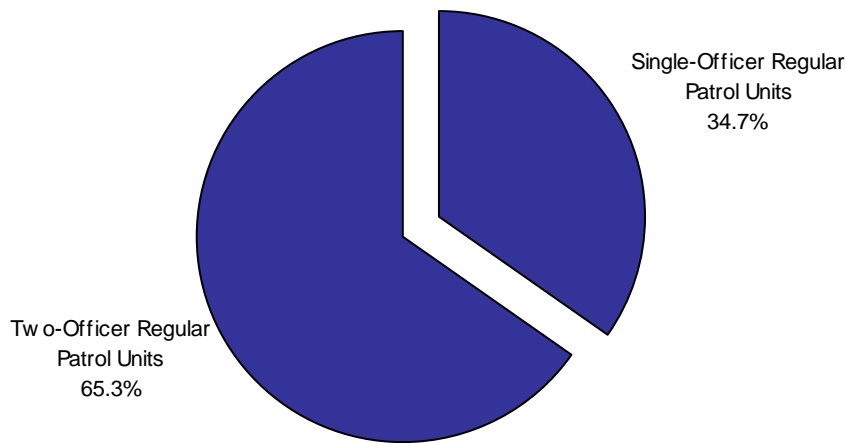
**Figure 6-84 Average Service Time on Priority 3 Calls by Type of Unit**



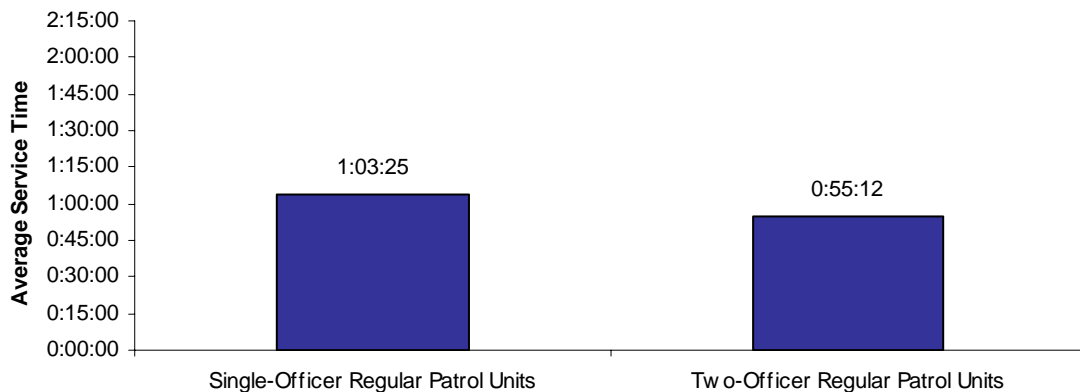
A total of 33,218 single-officer regular patrol units spent a total of approximately 28,045 hours on 26,532 priority 3 calls for service citywide. On average, this implies that single-officer regular patrol units spent a total of 1 hour and 3 minutes on each priority 3 call for service they were dispatched to. In turn, each single-officer regular patrol unit spent approximately 51 minutes on each priority 3 call it was dispatched to.

A total of 75,059 two-officer regular patrol units spent a total of approximately 52,836 unit-hours on 57,424 priority 3 calls for service citywide. On average, this implies that two-officer regular patrol units spent a total of 55 minutes on each priority 3 call for service they were dispatched to. In turn, each two-officer regular patrol unit spent approximately 42 minutes on each priority 3 call it was dispatched to.

**Figure 6-85 Total Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units**



**Figure 6-86 Average Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units**



Between 2005-06-01 and 2006-05-31, police units at the VPD spent a total of 79,975 unit-hours on 30,259 lower priority calls for service (e.g. priority 4 calls). On average, this implies that VPD units spent a total of 2 hours and 39 minutes on each priority 4 call for service they were dispatched to.

A total of 43,056 regular patrol units spent a total of approximately 40,770 unit-hours on 30,259 priority 4 calls for service citywide. On average, this implies that regular patrol units spent a total of 1 hour and 21 minutes on each priority 4 call for service they were dispatched to. In turn, each regular patrol unit spent approximately 57 minutes on each priority 4 call it was dispatched to.

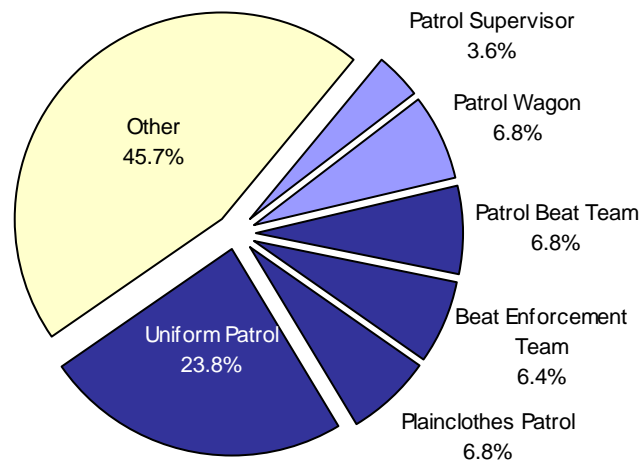
- Uniform patrol units spent a total of approximately 22,071 unit-hours on 16,364 priority 4 calls for service citywide. On average, this implies that uniform patrol units spent a total of 1 hour and 21 minutes on each priority 4 call for service they were dispatched to. Out of the 22,071 unit-hours spent by uniform patrol units on priority 4 calls for service, 10,171 (46.1%) were spent by two-officer uniform patrol units. The remaining 11,900 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units spent a total of approximately 6,279 unit-hours on 5,845 priority 4 calls for service citywide. On average, this implies that plainclothes patrol units spent a total of 1 hour and 4 minutes on each priority 4 call for service they were dispatched to.
- Patrol beat units spent a total of approximately 6,331 unit-hours on 6,516 priority 4 calls for service citywide. On average, this implies that patrol beat units spent a total of 58 minutes on each priority 4 call for service they were dispatched to.
- In District 2, BET units spent a total of approximately 5,961 unit-hours on 4,750 priority 4 calls for service citywide. On average, this implies that BET units spent a total of 1 hour and 15 minutes on each priority 4 call for service they were dispatched to.

For their part, patrol supervisors spent a total of approximately 3,314 hours on 5,450 priority 4 calls for service citywide. On average, this implies that patrol supervisors spent a total of 36 minutes on each priority 4 call for service they were dispatched to.

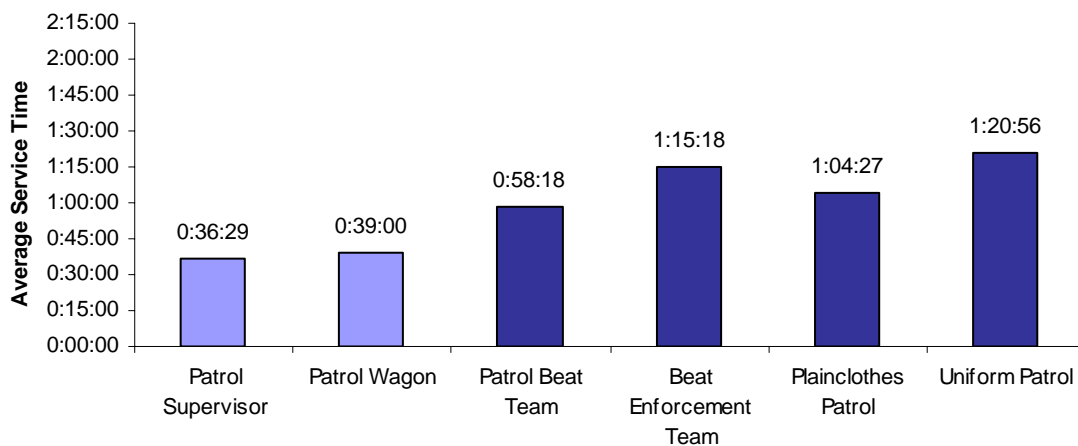


Similarly, patrol wagons spent a total of approximately 6,269 hours on 9,643 priority 4 calls for service citywide. On average, this implies that patrol wagons spent a total of 39 minutes on each priority 4 call for service they were dispatched to.

**Figure 6-87 Total Service Time on Priority 4 Calls by Type of Unit**



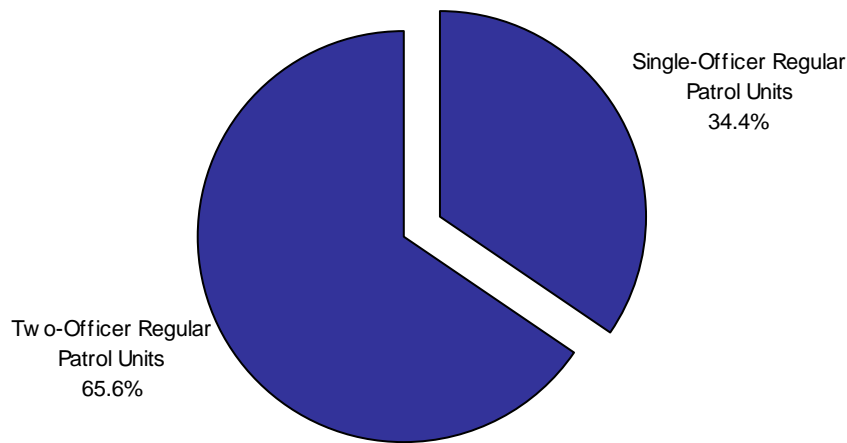
**Figure 6-88 Average Service Time on Priority 4 Calls by Type of Unit**



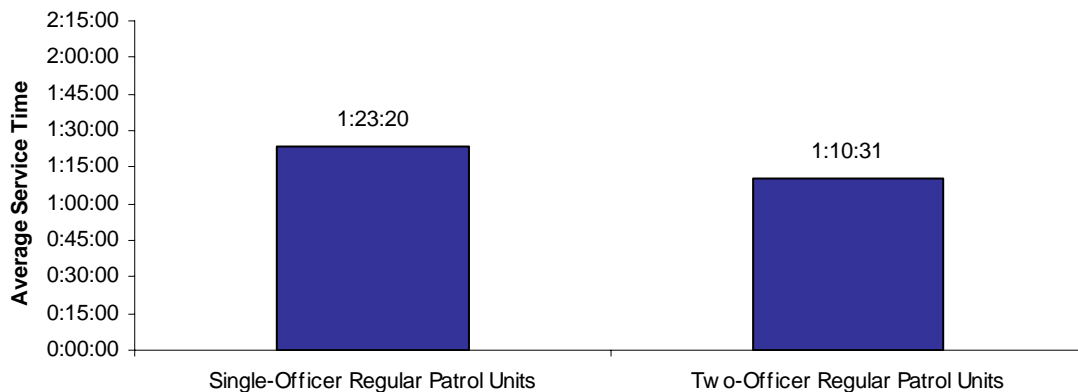
A total of 13,011 single-officer regular patrol units spent a total of approximately 14,014 hours on 10,089 priority 4 calls for service citywide. On average, this implies that single-officer regular patrol units spent a total of 1 hour and 23 minutes on each priority 4 call for service they were dispatched to. In turn, each single-officer regular patrol unit spent approximately 1 hour and 5 minutes on each priority 4 call it was dispatched to.

A total of 30,045 two-officer regular patrol units spent a total of approximately 26,756 unit-hours on 22,765 priority 4 calls for service citywide. On average, this implies that two-officer regular patrol units spent a total of 1 hour and 11 minutes on each priority 4 call for service they were dispatched to. In turn, each two-officer regular patrol unit spent approximately 53 minutes on each priority 4 call it was dispatched to.

**Figure 6-89 Total Service Time on Priority 4 Calls by Single-Officer and Two-Officer Regular Patrol Units**

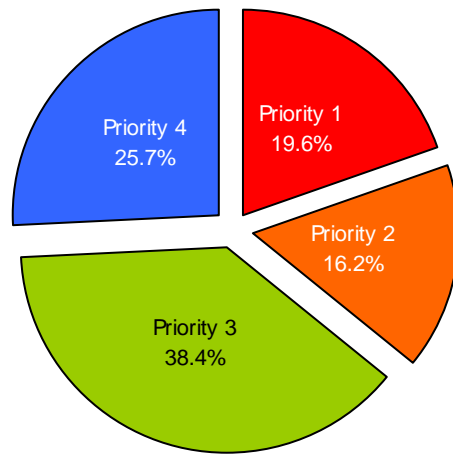


**Figure 6-90 Average Service Time on Priority 4 Calls by Single-Officer and Two-Officer Regular Patrol Units**

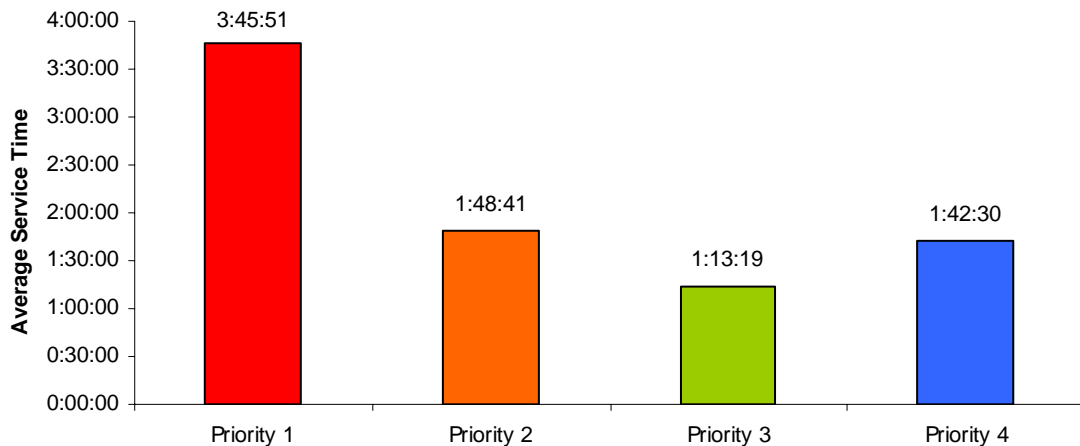


As expected, relatively more time was spent by police units on high-priority calls (priority 1 or 2 calls). Out of the 310,698 unit-hours police units at the VPD spent on calls for service between 2005-06-01 and 2006-05-31, 60,862 (19.6%) were spent on priority 1 calls, 50,428 (16.2%) were spent on priority 2 calls, 119,432 (38.4%) were spent on priority 3 calls and 79,975 (25.7%) were spent on lower priority calls. In proportion to the number of calls, VPD units spent 107.8% more time on priority 1 calls compared to priority 2 calls and 48.2% more time on priority 2 calls compared to priority 3 calls. Interestingly, VPD units spent proportionately 28.4% less time on priority 3 calls compared to priority 4 calls.

**Figure 6-91 Total Service Time by Priority**

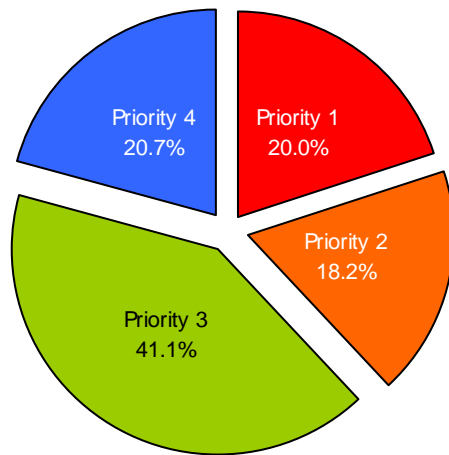


**Figure 6-92 Average Service Time by Priority**

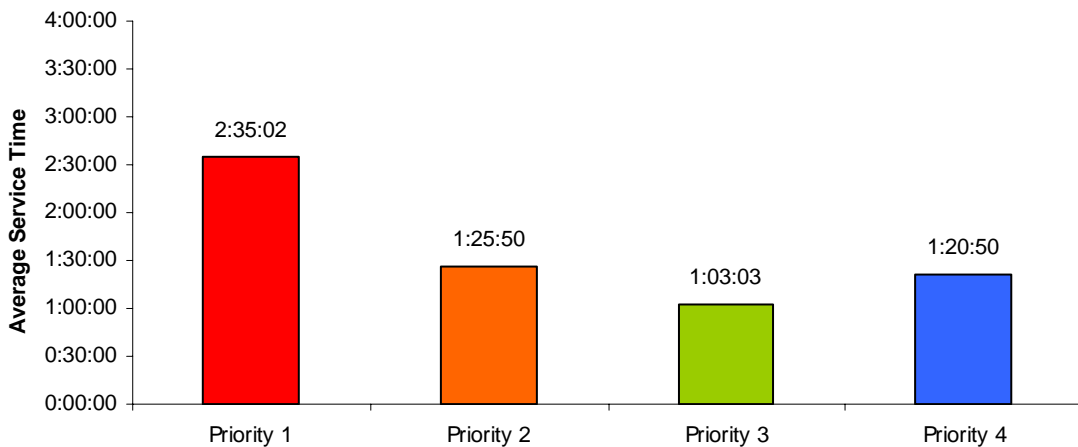


Out of the 196,778 unit-hours regular patrol units spent on calls for service between 2005-06-01 and 2006-05-31, 39,269 (20.0%) were spent on priority 1 calls, 35,858 (18.2%) were spent on priority 2 calls, 80,881 (41.1%) were spent on priority 3 calls and 40,770 (20.7%) were spent on lower priority calls. In proportion to the number of calls, regular patrol units spent 61.9% more time on priority 1 calls compared to priority 2 calls and 16.3% more time on priority 2 calls compared to priority 3 calls. Interestingly, regular patrol units spent proportionately 22.6% less time on priority 3 calls compared to priority 4 calls.

**Figure 6-93 Total Service Time of Regular Patrol Units by Priority**



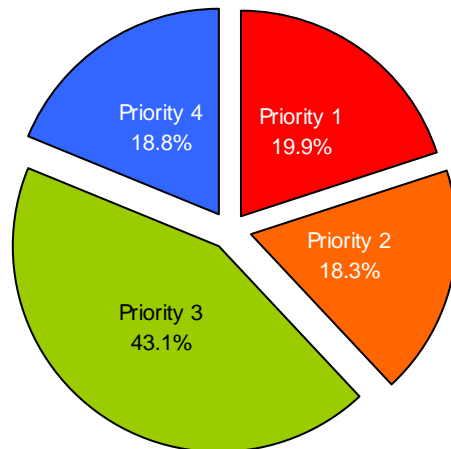
**Figure 6-94 Average Service Time of Regular Patrol Units by Priority**



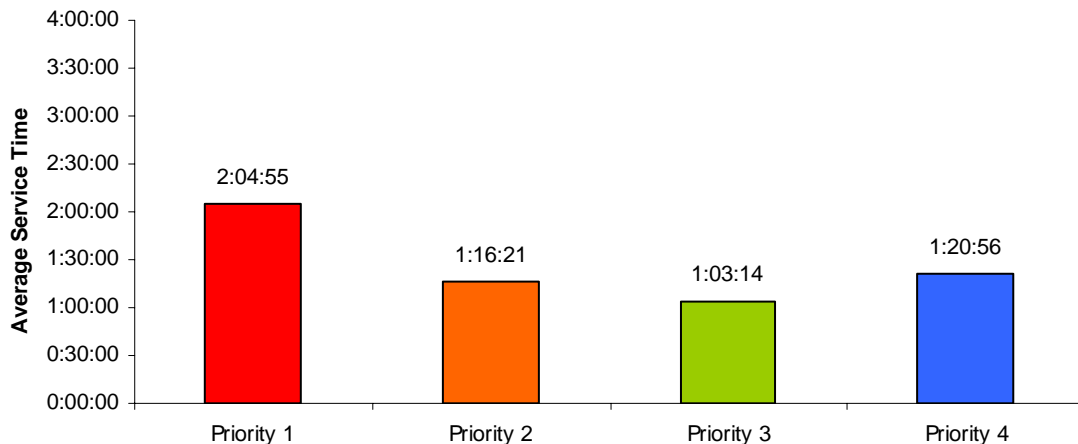
This finding was consistent for all the different types of patrol units:

- Out of the 117,439 unit-hours uniform patrol units spent on calls for service between 2005-06-01 and 2006-05-31, 23,358 (19.9%) were spent on priority 1 calls, 21,442 (18.3%) were spent on priority 2 calls, 50,567 (43.1%) were spent on priority 3 calls and 22,071 (18.8%) were spent on lower priority calls. In proportion to the number of calls, uniform patrol units spent 63.6% more time on priority 1 calls compared to priority 2 calls and 20.8% more time on priority 2 calls compared to priority 3 calls. Uniform patrol units spent proportionately 21.8% less time on priority 3 calls compared to priority 4 calls.

**Figure 6-95 Total Service Time of Uniform Patrol Units by Priority**

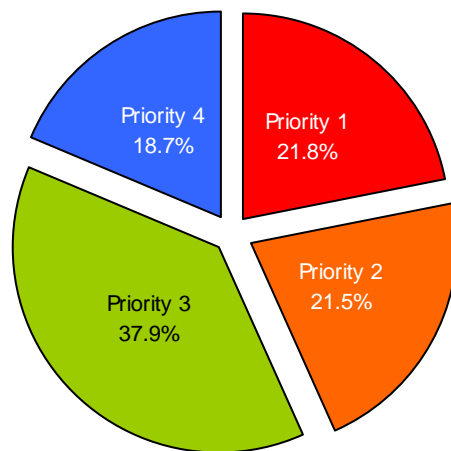


**Figure 6-96 Average Service Time of Uniform Patrol Units by Priority**

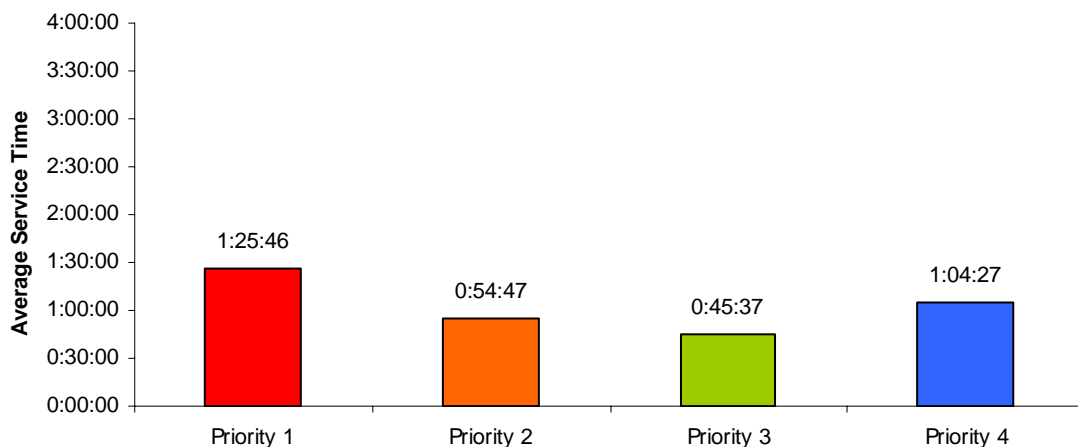


- Out of the 33,591 unit-hours plainclothes patrol units spent on calls for service between 2005-06-01 and 2006-05-31, 7,339 (21.8%) were spent on priority 1 calls, 7,232 (21.5%) were spent on priority 2 calls, 12,739 (37.9%) were spent on priority 3 calls and 6,279 (18.7%) were spent on lower priority calls. In proportion to the number of calls, plainclothes patrol units spent 56.6% more time on priority 1 calls compared to priority 2 calls and 20.1% more time on priority 2 calls compared to priority 3 calls. Plainclothes patrol units spent proportionately 29.2% less time on priority 3 calls compared to priority 4 calls.

**Figure 6-97 Total Service Time of Plainclothes Patrol Units by Priority**

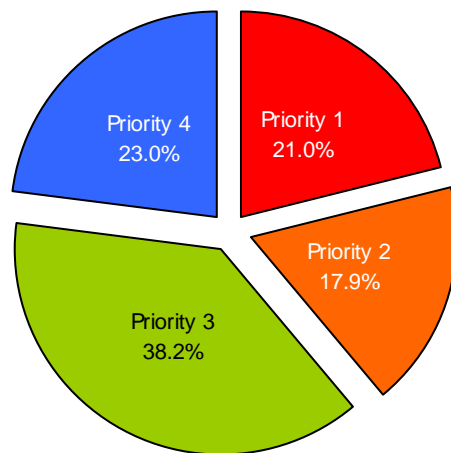


**Figure 6-98 Average Service Time of Plainclothes Patrol Units by Priority**

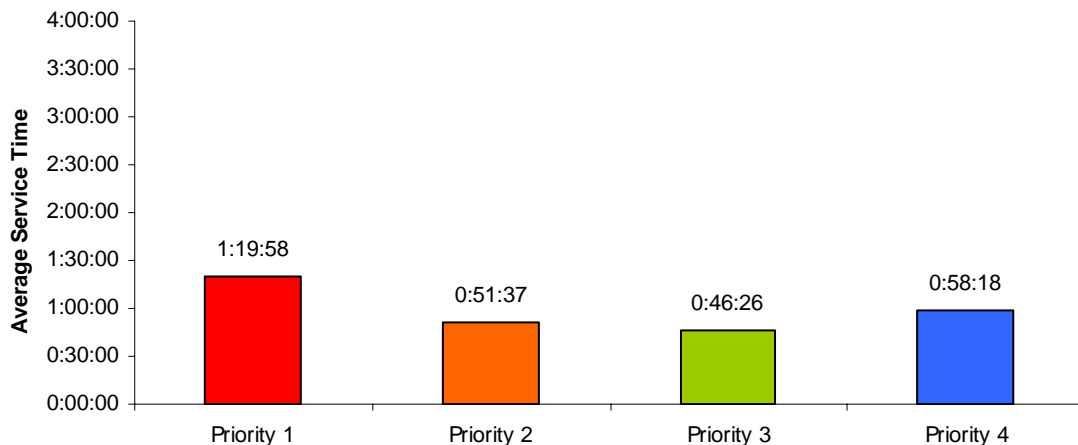


- Out of the 27,523 unit-hours patrol beat units spent on calls for service between 2005-06-01 and 2006-05-31, 5,777 (21.0%) were spent on priority 1 calls, 4,913 (17.9%) were spent on priority 2 calls, 10,501 (38.2%) were spent on priority 3 calls and 6,331 (23.0%) were spent on lower priority calls. In proportion to the number of calls, patrol beat units spent 54.9% more time on priority 1 calls compared to priority 2 calls and 11.2% more time on priority 2 calls compared to priority 3 calls. Patrol beat units spent proportionately 20.3% less time on priority 3 calls compared to priority 4 calls.

**Figure 6-99 Total Service Time of Patrol Beat Units by Priority**

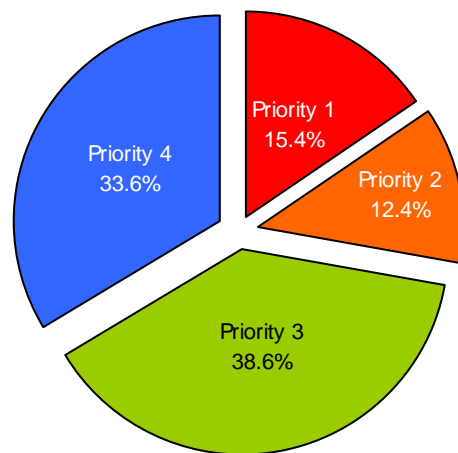


**Figure 6-100 Average Service Time of Patrol Beat Units by Priority**

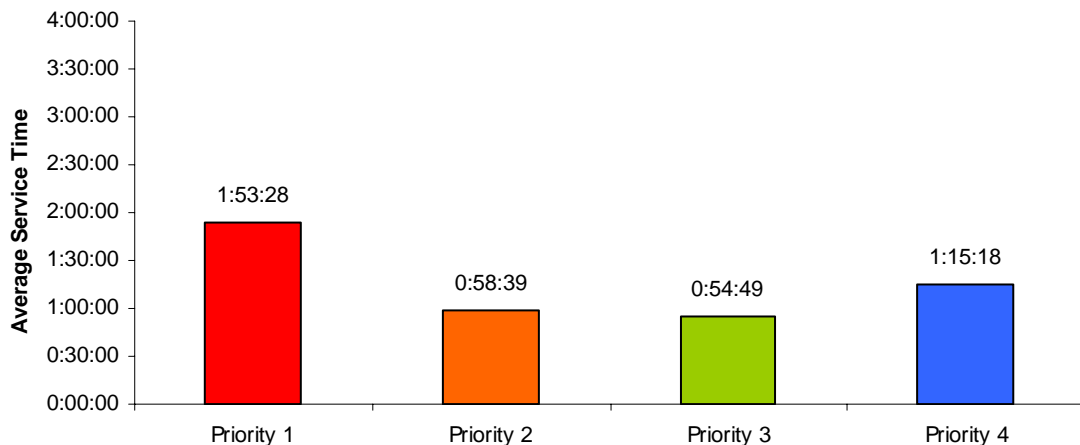


- Out of the 17,747 unit-hours BET units spent on calls for service in District 2 between 2005-06-01 and 2006-05-31, 2,738 (15.4%) were spent on priority 1 calls, 2,198 (12.4%) were spent on priority 2 calls, 6,850 (38.6%) were spent on priority 3 calls and 5,961 (33.6%) were spent on lower priority calls. In proportion to the number of calls, BET units spent 93.5% more time on priority 1 calls compared to priority 2 calls and 7.0% more time on priority 2 calls compared to priority 3 calls. BET units spent proportionately 27.1% less time on priority 3 calls compared to priority 4 calls.

**Figure 6-101 Total Service Time of BET Units by Priority**



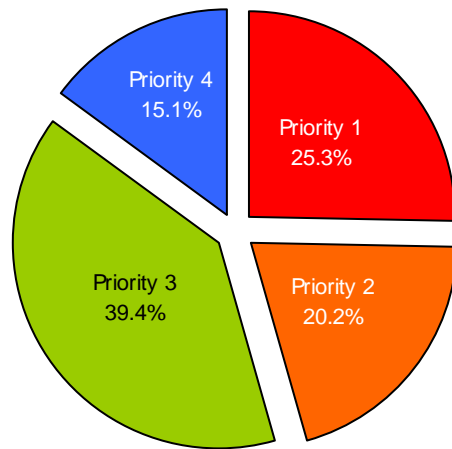
**Figure 6-102 Average Service Time of BET Units by Priority**



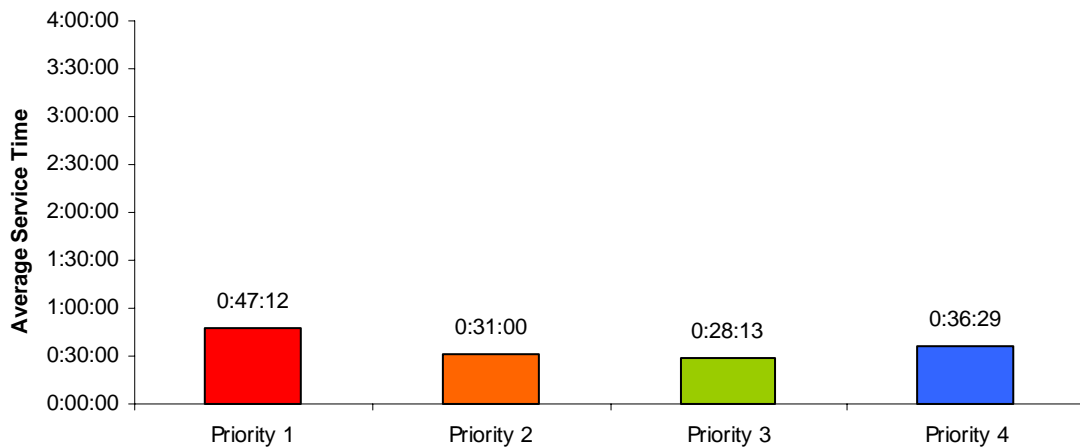


Out of the 21,960 unit-hours patrol supervisors spent on calls for service between 2005-06-01 and 2006-05-31, 5,545 (25.3%) were spent on priority 1 calls, 4,442 (20.2%) were spent on priority 2 calls, 8,659 (39.4%) were spent on priority 3 calls and 3,314 (15.1%) were spent on lower priority calls. In proportion to the number of calls, patrol supervisors spent 52.3% more time on priority 1 calls compared to priority 2 calls and 9.9% more time on priority 2 calls compared to priority 3 calls. Patrol supervisors spent proportionately 22.2% less time on priority 3 calls compared to priority 4 calls.

**Figure 6-103 Total Service Time of Patrol Supervisors by Priority**

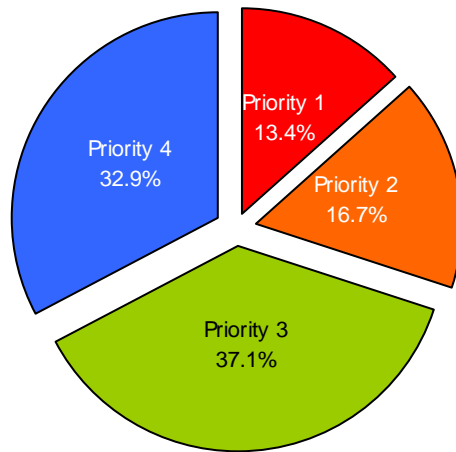


**Figure 6-104 Average Service Time of Patrol Supervisors by Priority**

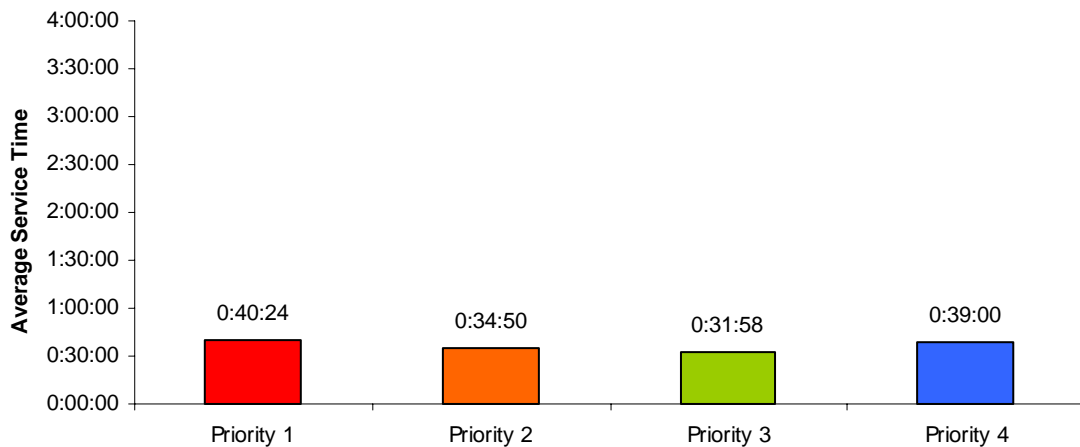


Out of the 19,060 unit-hours patrol wagons spent on calls for service between 2005-06-01 and 2006-05-31, 2,545 (13.4%) were spent on priority 1 calls, 3,183 (16.7%) were spent on priority 2 calls, 7,063 (37.1%) were spent on priority 3 calls and 6,268 (32.8%) were spent on lower priority calls. In proportion to the number of calls, patrol wagons spent 15.9% more time on priority 1 calls compared to priority 2 calls and 9.0% more time on priority 2 calls compared to priority 3 calls. Patrol wagons spent proportionately 18.1% less time on priority 3 calls compared to priority 4 calls.

**Figure 6-105 Total Service Time of Patrol Wagons by Priority**

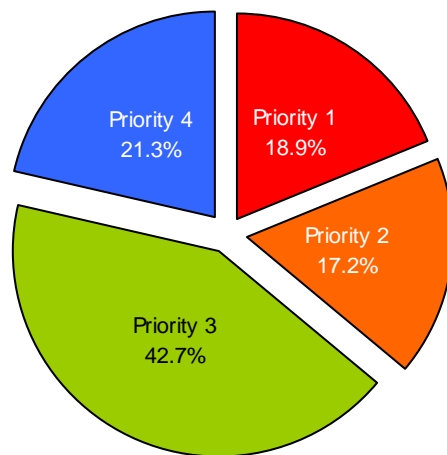


**Figure 6-106 Average Service Time of Patrol Wagons by Priority**

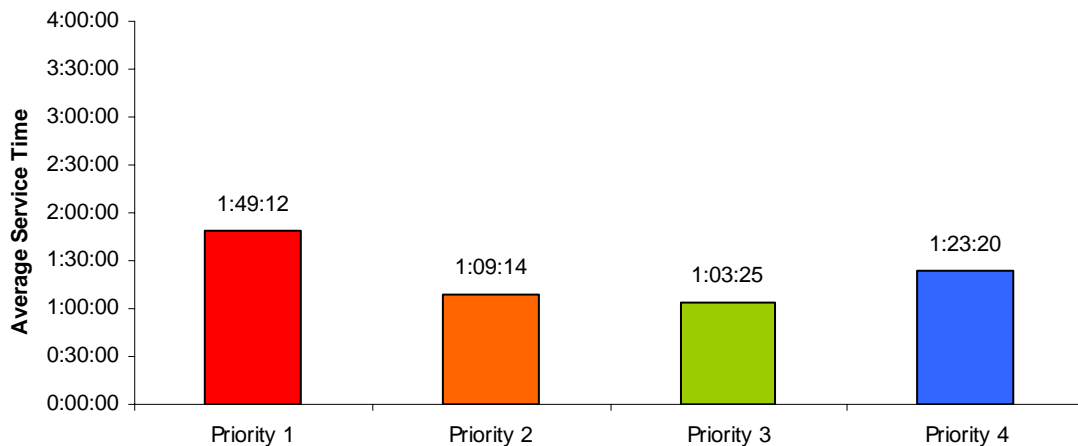


Out of the 65,744 unit-hours single-officer regular patrol units spent on calls for service between 2005-06-01 and 2006-05-31, 12,405 (18.9%) were spent on priority 1 calls, 11,281 (17.2%) were spent on priority 2 calls, 28,045 (42.7%) were spent on priority 3 calls and 13,969 (21.2%) were spent on lower priority calls. In proportion to the number of calls, single-officer regular patrol units spent 57.7% more time on priority 1 calls compared to priority 2 calls and 9.2% more time on priority 2 calls compared to priority 3 calls. Single-officer regular patrol units spent proportionately 24.0% less time on priority 3 calls compared to priority 4 calls.

**Figure 6-107 Total Service Time of Single-Officer Regular Patrol Units by Priority**

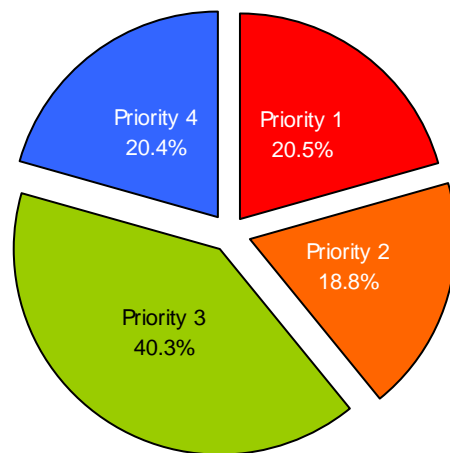


**Figure 6-108 Average Service Time of Single-Officer Regular Patrol Units by Priority**

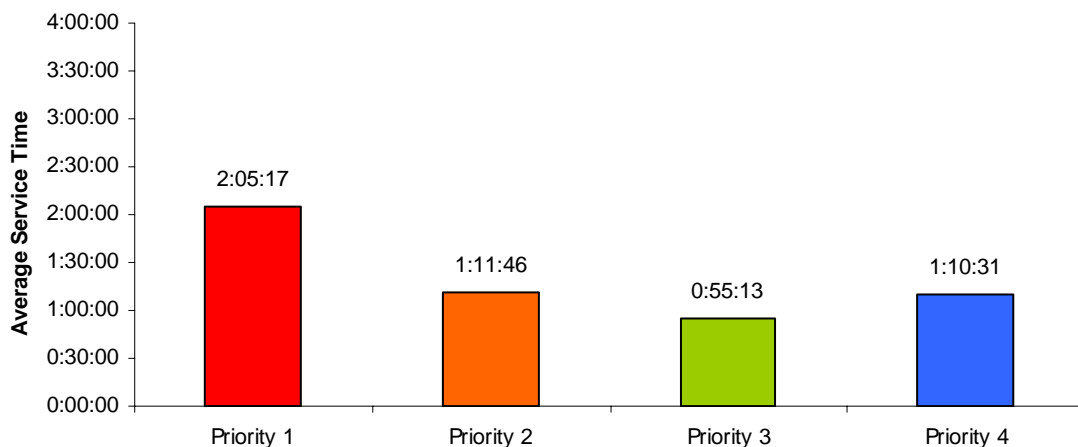


Out of the 131,034 unit-hours two-officer regular patrol units spent on calls for service between 2005-06-01 and 2006-05-31, 26,864 (20.5%) were spent on priority 1 calls, 24,577 (18.8%) were spent on priority 2 calls, 52,836 (40.3%) were spent on priority 3 calls and 26,756 (20.4%) were spent on lower priority calls. In proportion to the number of calls, two-officer regular patrol units spent 74.6% more time on priority 1 calls compared to priority 2 calls and 30.0% more time on priority 2 calls compared to priority 3 calls. Two-officer regular patrol units spent proportionately 21.6% less time on priority 3 calls compared to priority 4 calls.

**Figure 6-109 Total Service Time of Two-Officer Regular Patrol Units by Priority**



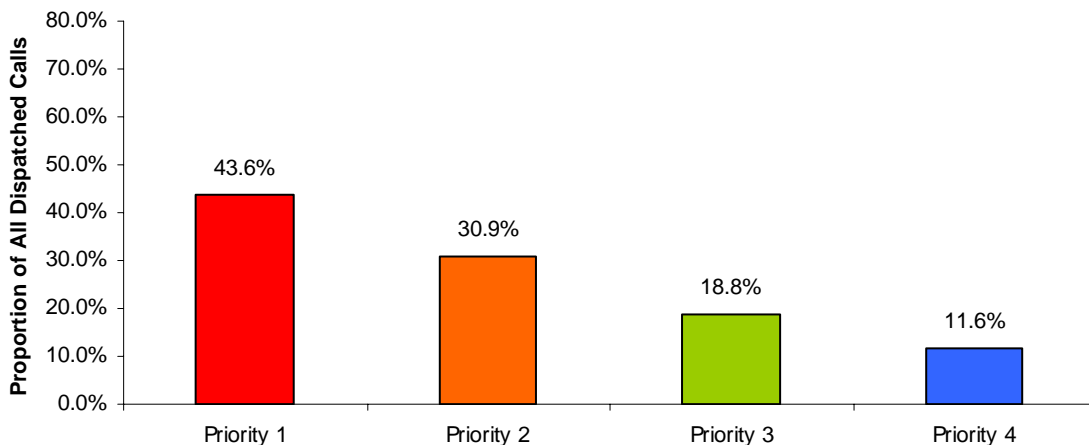
**Figure 6-110 Average Service Time of Two-Officer Regular Patrol Units by Priority**



Compared to the other patrol units, patrol supervisors were relatively more likely to be dispatched to priority 1 calls than calls associated with a lower priority level. Patrol supervisors were 73.1% more likely to be dispatched to a priority 1 call than other lower priority calls. In particular, BET supervisors were 74.1% more likely to be dispatched to a priority 1 call than any other call. Between 2005-06-01 and 2006-05-31, by comparison:

- Patrol beat units were 39.1% more likely to be dispatched to a priority 1 call. In particular, patrol beat units on Commercial Drive were 49.0% more likely to be dispatched to a priority 1 call.
- Plainclothes patrol units were 39.7% more likely to be dispatched to a priority 1 call.
- Uniform patrol units were only 17.8% more likely to be dispatched to a priority 1 call.
- Patrol wagons were only 14.1% more likely to be dispatched to a priority 1 call.
- BET units were actually 11.9% less likely to be dispatched to a priority 1 call.

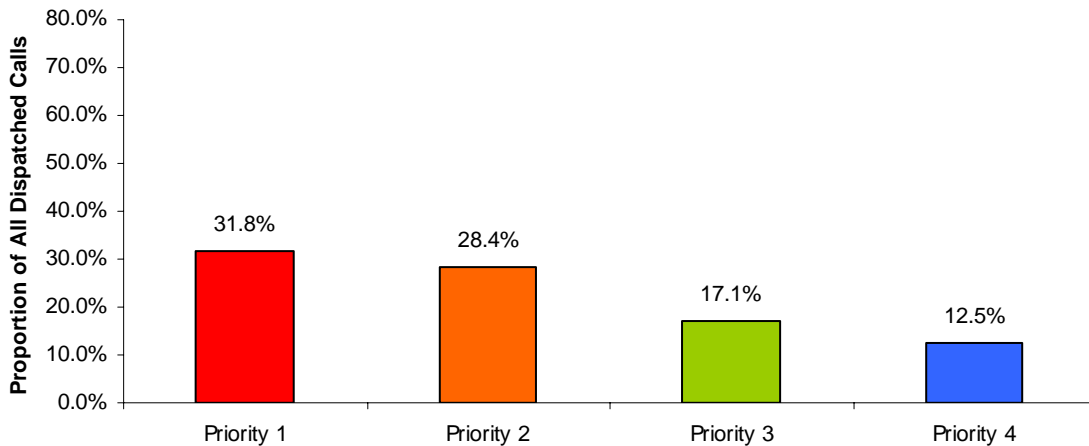
**Figure 6-111 Proportion of Dispatched Calls Attended by Patrol Supervisors by Priority**



Compared to the other patrol units, plainclothes patrol units were relatively more likely to be dispatched to a priority 2 call than a call associated with any other priority level. On average, plainclothes patrol units were 30.7% more likely to be dispatched to a

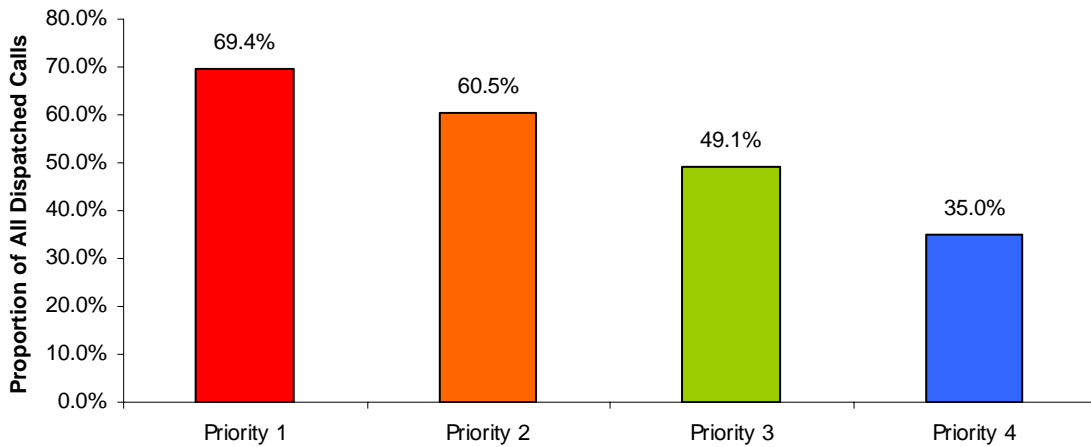
priority 2 call. By comparison, uniform patrol units were only 7.3% more likely to be dispatched to a priority 2 call while patrol beat units were 11.5% more likely to be dispatched to a priority 2 call.

**Figure 6-112 Proportion of Dispatched Calls Attended by Plainclothes Patrol Units by Priority**



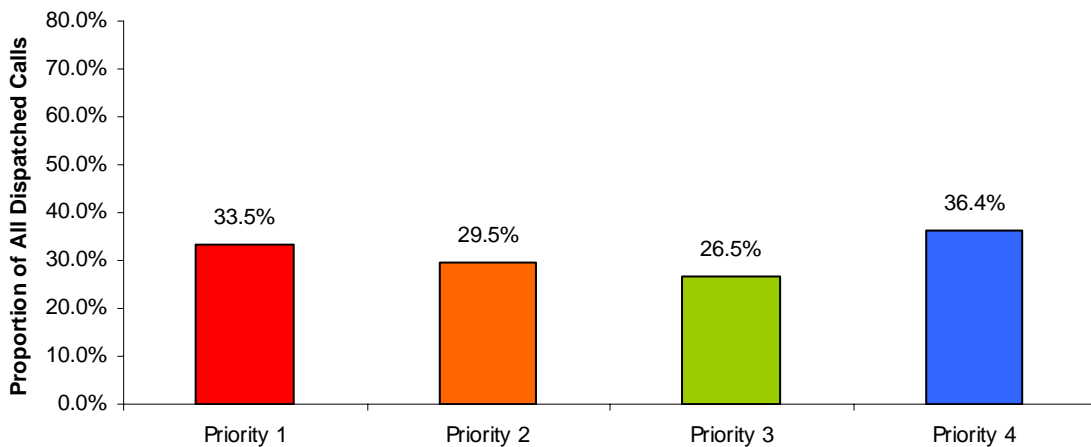
Uniform patrol units were the only patrol units relatively as likely to be dispatched to a priority 3 call as a call associated with any other priority level. By comparison, plainclothes patrol units and BET units were 10.0% less likely to be dispatched to a priority 3 call while patrol wagons were 21.0% less likely to be dispatched to a priority 3 call.

**Figure 6-113 Proportion of Dispatched Calls Attended by Uniform Patrol Units by Priority**

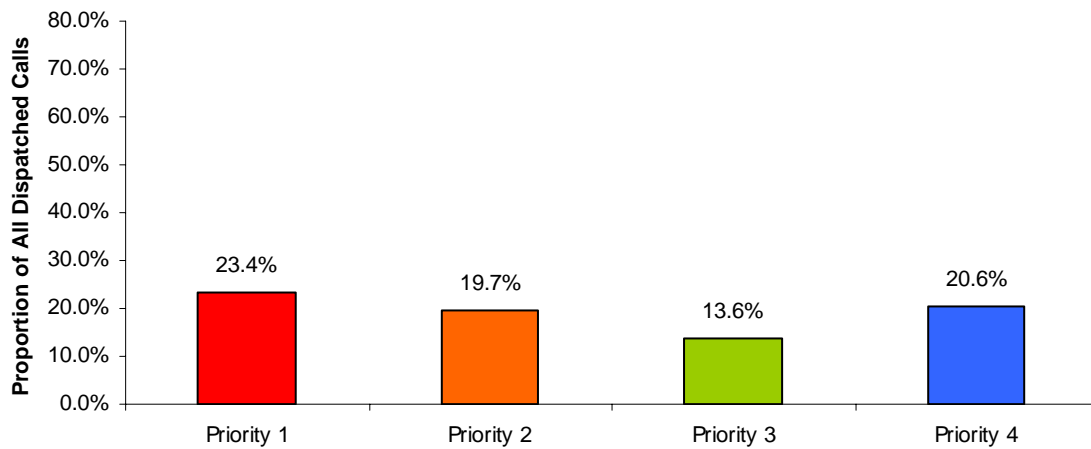


Compared to the other patrol units, BET units and patrol wagons were relatively more likely to be dispatched to a priority 4 call than a call associated with any other priority level. On average, BET units were 45.2% more likely to be dispatched to a priority 4 call and patrol wagons were 46.2% more likely to be dispatched to a priority 4 call. By comparison, plainclothes patrol units were 20.1% less likely to be dispatched to a priority 4 call, uniform patrol units were 13.7% less likely to be dispatched to a priority 4 call and patrol supervisors were 34.3% less likely to be dispatched to a priority 4 call.

**Figure 6-114 Proportion of Dispatched Calls Attended by BET Units by Priority**



**Figure 6-115 Proportion of Dispatched Calls Attended by Patrol Wagons by Priority**



Between 2005-06-01 and 2006-05-31, VPD units spent a total of 186,727 unit-hours on 111,224 emergency 9-1-1 calls. On average, this implies that VPD units spent a total of 1 hour and 41 minutes on each emergency 9-1-1 call they were dispatched to.

A total of 152,363 regular patrol units spent a total of approximately 130,030 unit-hours on 92,298 emergency 9-1-1 calls. On average, this implies that regular patrol units spent a total of 1 hour and 25 minutes on each emergency 9-1-1 call they were dispatched to. In turn, each regular patrol unit spent approximately 51 minutes on each emergency 9-1-1 call it was dispatched to.

- Uniform patrol units spent a total of approximately 83,260 unit-hours on 62,543 emergency 9-1-1 calls. On average, this implies that uniform patrol units spent a total of 1 hour and 20 minutes on each emergency 9-1-1 call they were dispatched to. Out of the 83,260 unit-hours spent by uniform patrol units on emergency 9-1-1 calls, 43,110 (51.8%) were spent by two-officer uniform patrol units. The remaining 40,150 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units spent a total of approximately 21,984 unit-hours on 23,532 emergency 9-1-1 calls. On average, this implies that plainclothes patrol

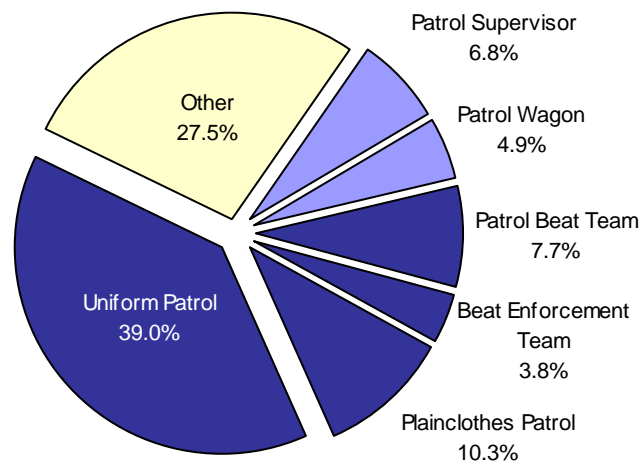


units spent a total of 56 minutes on each emergency 9-1-1 call they were dispatched to.

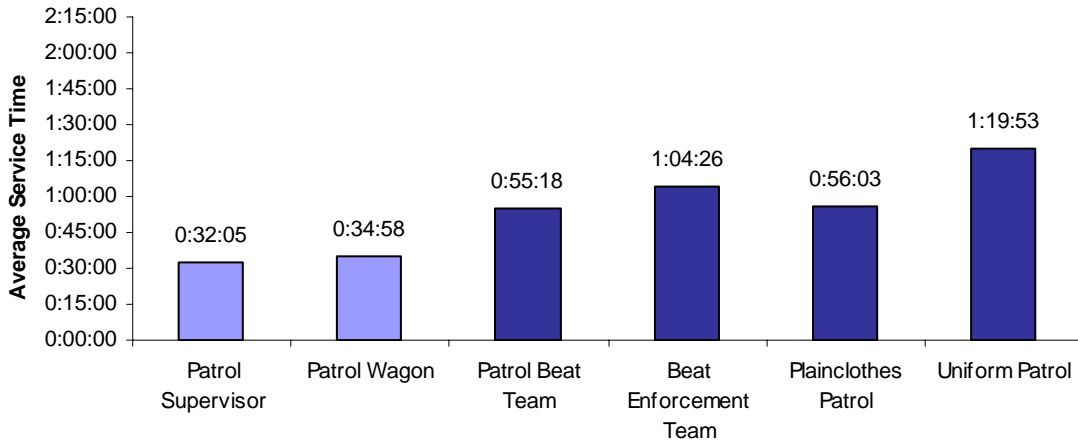
- Patrol beat units spent a total of approximately 16,397 unit-hours on 17,789 emergency 9-1-1 calls. On average, this implies that patrol beat units spent a total of 55 minutes on each emergency 9-1-1 call they were dispatched to.
- BET units in District 2 spent an additional 8,142 unit-hours on 7,583 emergency 9-1-1 calls. On average, this implies that BET units spent a total of 1 hour and 4 minutes on each emergency 9-1-1 call they were dispatched to.

For their part, patrol supervisors spent a total of approximately 14,588 hours on 27,278 emergency 9-1-1 calls. On average, this implies that patrol supervisors spent a total of 32 minutes on each emergency 9-1-1 call they were dispatched to. Similarly, patrol wagons spent a total of approximately 10,512 hours on 18,037 emergency 9-1-1 calls. On average, this implies that patrol wagons spent a total of 35 minutes on each emergency 9-1-1 call they were dispatched to.

**Figure 6-116 Total Service Time on Emergency 9-1-1 Calls by Type of Unit**



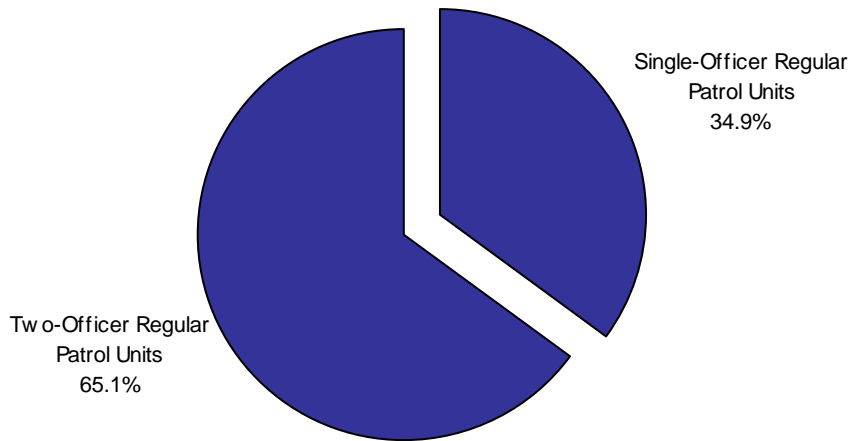
**Figure 6-117 Average Service Time on Emergency 9-1-1 Calls by Type of Unit**



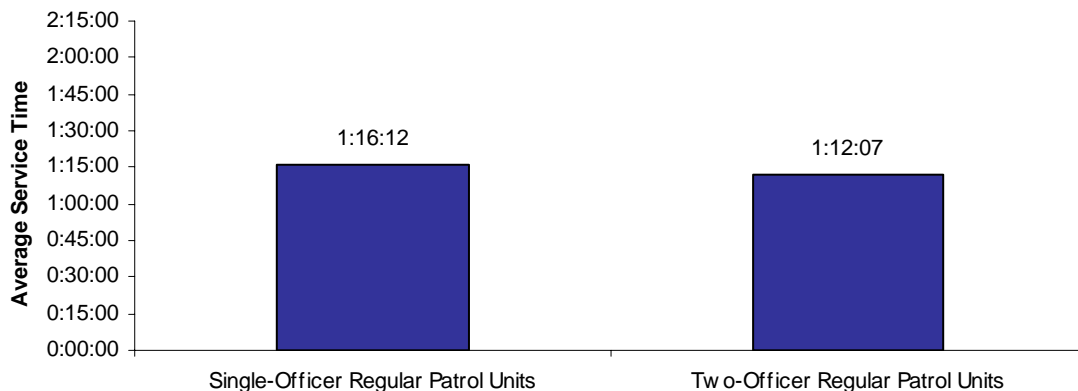
A total of 47,768 single-officer regular patrol units spent a total of approximately 45,427 unit-hours on 35,772 emergency 9-1-1 calls. On average, this implies that single-officer regular patrol units spent a combined total (with other patrol units) of 1 hour and 16 minutes on each emergency 9-1-1 call they were dispatched to. In turn, each single-officer regular patrol unit individually spent approximately 57 minutes on each emergency 9-1-1 call it was dispatched to.

A total of 104,595 two-officer regular patrol units spent a total of approximately 84,603 unit-hours on 70,385 emergency 9-1-1 calls. On average, this implies that two-officer regular patrol units spent a combined total (with other patrol units) of 1 hour and 12 minutes on each emergency 9-1-1 call they were dispatched to. In turn, each two-officer regular patrol unit individually spent approximately 49 minutes on each emergency 9-1-1 call it was dispatched to.

**Figure 6-118 Total Service Time on Emergency 9-1-1 Calls by Single-Officer and Two-Officer Regular Patrol Units**



**Figure 6-119 Average Service Time on Emergency 9-1-1 Calls by Single-Officer and Two-Officer Regular Patrol Units**



Between 2005-06-01 and 2006-05-31, VPD units spent a total of 46,319 unit-hours on 29,704 telephone calls. On average, this implies that VPD units spent a total of 1 hour and 34 minutes on each telephone call they were dispatched to.

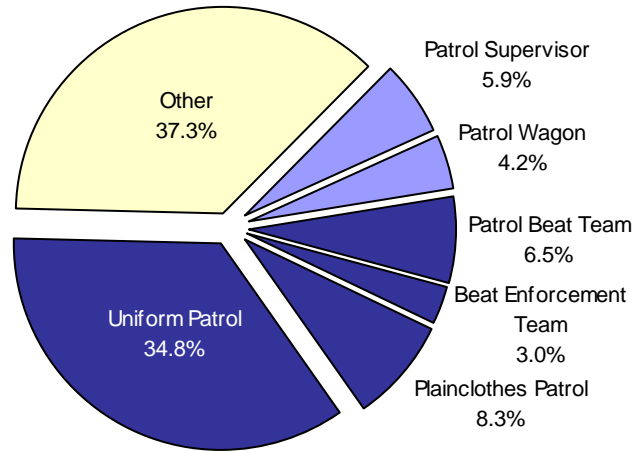
A total of 34,696 regular patrol units spent a total of approximately 27,384 unit-hours on 22,992 telephone calls. On average, this implies that regular patrol units spent a combined total (with other patrol units) of 1 hour and 11 minutes on each telephone call

they were dispatched to. In turn, each regular patrol unit individually spent approximately 47 minutes on each telephone call it was dispatched to.

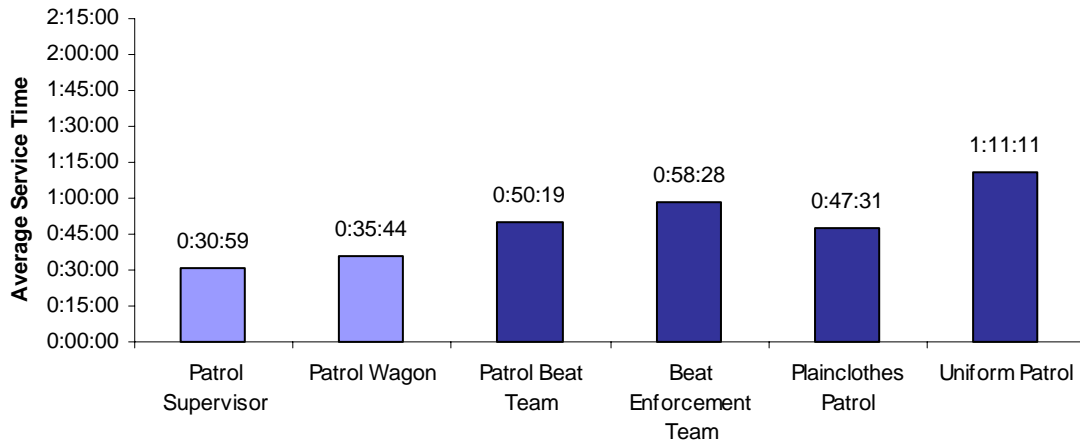
- Uniform patrol units spent a total of approximately 18,050 unit-hours on 15,213 telephone calls. On average, this implies that uniform patrol units spent a total of 1 hour and 11 minutes on each telephone call they were dispatched to. Out of the 18,050 unit-hours spent by uniform patrol units on telephone calls, 8,597 (47.6%) were spent by two-officer uniform patrol units. The remaining 9,453 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units spent a total of approximately 4,293 unit-hours on 5,421 telephone calls. On average, this implies that plainclothes patrol units spent a total of 48 minutes on each telephone call they were dispatched to.
- Patrol beat units spent a total of approximately 3,389 unit-hours on 4,041 telephone calls. On average, this implies that patrol beat units spent a total of 50 minutes on each telephone call they were dispatched to.
- BET units in District 2 spent an additional 1,566 unit-hours on 1,608 telephone calls. On average, this implies that BET units spent a total of 58 minutes on each telephone call they were dispatched to.

For their part, patrol supervisors spent a total of approximately 3,041 hours on 5,889 telephone calls. On average, this implies that patrol supervisors spent a total of 31 minutes on each telephone call they were dispatched to. Similarly, patrol wagons spent a total of approximately 2,181 hours on 3,662 telephone calls. On average, this implies that patrol wagons spent a total of 36 minutes on each telephone call they were dispatched to.

**Figure 6-120 Total Service Time on Telephone Calls by Type of Unit**



**Figure 6-121 Average Service Time on Telephone Calls by Type of Unit**

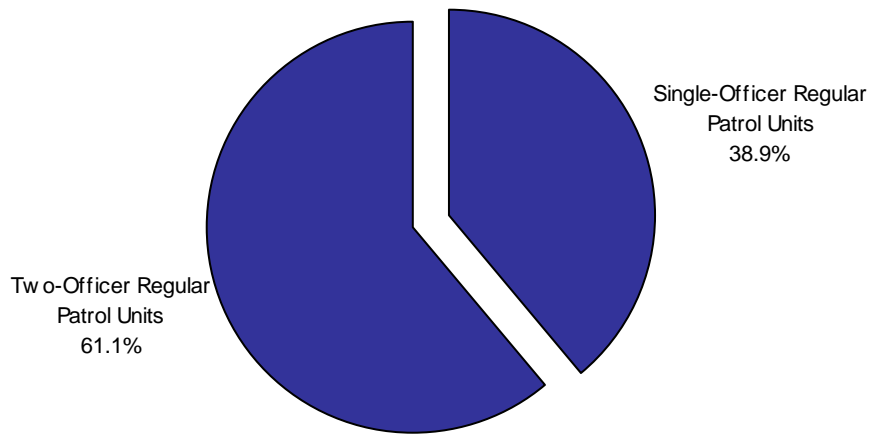


A total of 11,793 single-officer regular patrol units spent a total of approximately 10,651 unit-hours on 9,011 telephone calls. On average, this implies that single-officer regular patrol units spent a combined total (with other patrol units) of 1 hour and 11 minutes on each telephone call they were dispatched to. In turn, each single-officer regular patrol unit individually spent approximately 54 minutes on each telephone call it was dispatched to.

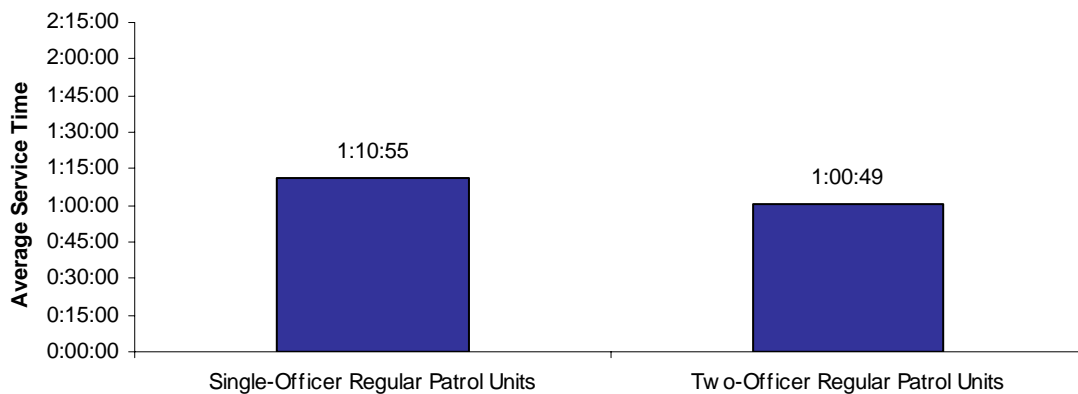
A total of 22,903 two-officer regular patrol units spent a total of approximately 16,733 unit-hours on 16,507 telephone calls. On average, this implies that two-officer regular

patrol units spent a combined total (with other patrol units) of 1 hour and 1 minute on each telephone call they were dispatched to. In turn, each two-officer regular patrol unit individually spent approximately 44 minutes on each on-view call it was dispatched to.

**Figure 6-122 Total Service Time on Telephone Calls by Single-Officer and Two-Officer Regular Patrol Units**



**Figure 6-123 Average Service Time on Telephone Calls by Single-Officer and Two-Officer Regular Patrol Units**



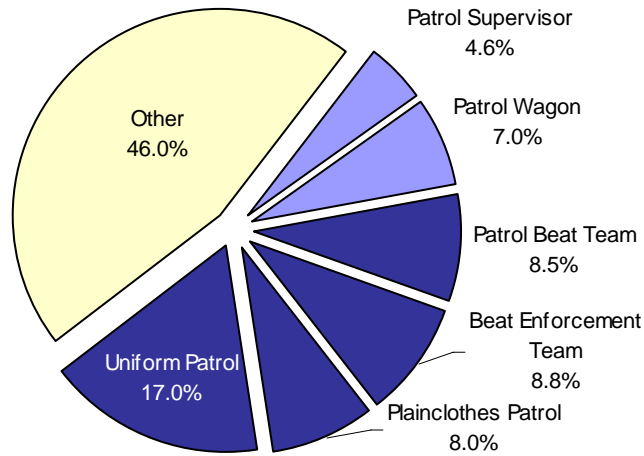
Between 2005-06-01 and 2006-05-31, VPD units spent a total of 76,672 unit-hours on 46,898 on-view calls. On average, this implies that VPD units spent a total of 1 hour and 38 minutes on each on-view call they were dispatched to.

A total of 44,983 regular patrol units spent a total of approximately 38,589 unit-hours on 31,814 on-view calls. On average, this implies that regular patrol units spent a combined total (with other patrol units) of 1 hour and 13 minutes on each on-view call they were dispatched to. In turn, each regular patrol unit individually spent approximately 51 minutes on each on-view call it was dispatched to.

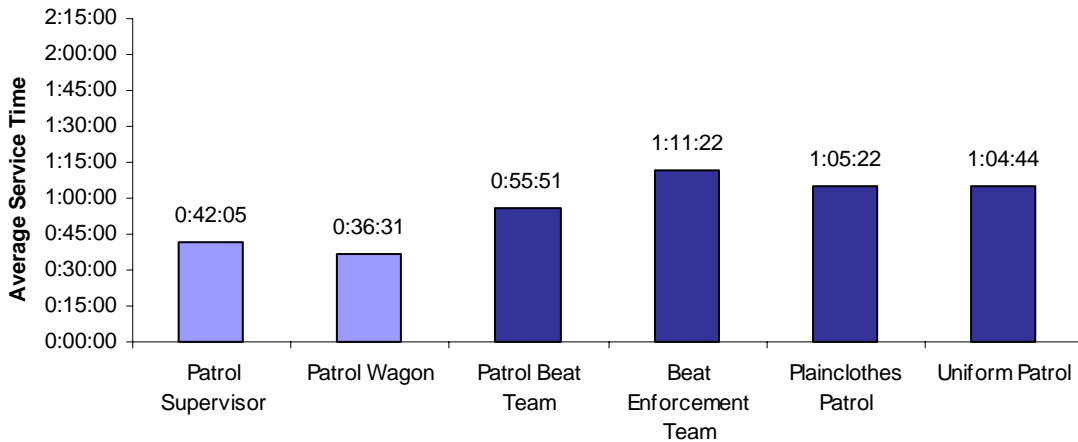
- Uniform patrol units spent a total of approximately 15,467 unit-hours on 14,337 on-view calls. On average, this implies that uniform patrol units spent a total of 1 hour and 5 minutes on each on-view call they were dispatched to. Out of the 15,467 unit-hours spent by uniform patrol units on on-view calls, 8,774 (56.7%) were spent by two-officer uniform patrol units. The remaining 6,693 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units spent a total of approximately 7,266 unit-hours on 6,670 on-view calls. On average, this implies that plainclothes patrol units spent a total of 1 hour and 5 minutes on each on-view call they were dispatched to.
- Patrol beat units spent a total of approximately 7,694 unit-hours on 8,266 on-view calls. On average, this implies that patrol beat units spent a total of 56 minutes on each on-view call they were dispatched to.
- BET units in District 2 spent an additional 8,014 unit-hours on 6,738 on-view calls. On average, this implies that BET units spent a total of 1 hour and 11 minutes on each on-view call they were dispatched to.

For their part, patrol supervisors spent a total of approximately 4,207 hours on 5,999 on-view calls. On average, this implies that patrol supervisors spent a total of 42 minutes on each on-view call they were dispatched to. Similarly, patrol wagons spent a total of approximately 6,360 hours on 10,449 on-view calls. On average, this implies that patrol wagons spent a total of 37 minutes on each on-view call they were dispatched to.

**Figure 6-124 Total Service Time on On-View Calls by Type of Unit**



**Figure 6-125 Average Service Time on On-View Calls by Type of Unit**



Overall, regular patrol units spent relatively less time on on-view calls compared to the other units at the VPD. Between 2005-06-01 and 2006-05-31, VPD units spent a total of 76,672 unit-hours on on-view calls. Out of these 76,672 hours, 38,589 (50.3%) could be attributed to regular patrol units. By comparison, 63.3% of the total time spent by VPD units on calls for service was spent by regular patrol units.

Compared to the other types of regular patrol units, BET units and patrol beat units both spent proportionately much more time on on-view calls. Between 2005-06-01 and 2006-05-31, regular patrol units spent a total of 38,589 unit-hours on on-view calls. Out of

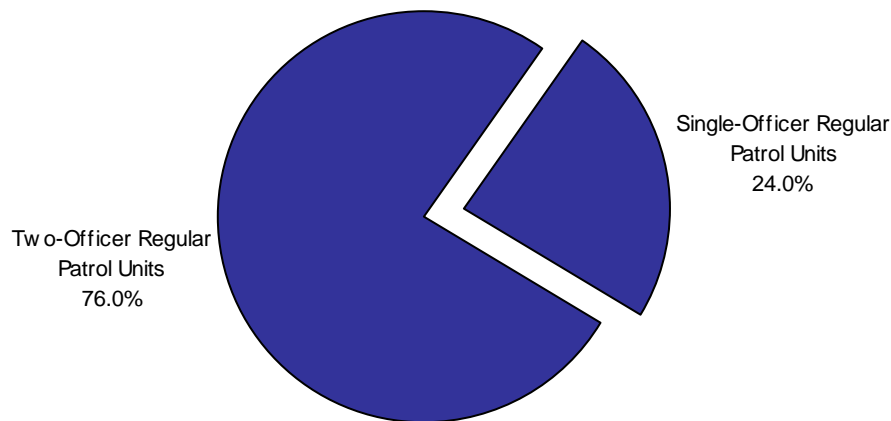


these 38,589 hours, 15,709 (40.7%) could be attributed to BET units or patrol beat units. By comparison, only 18.9% of the total time spent on emergency 9-1-1 calls and 18.1% of the total time spent on telephone calls could be attributed to BET units or patrol beat units. Overall, this implies that BET and patrol beat units spent more time on on-view calls than uniform patrol units, even though uniform patrol units spent 159.4% more time on calls for service than BET and patrol beat units.

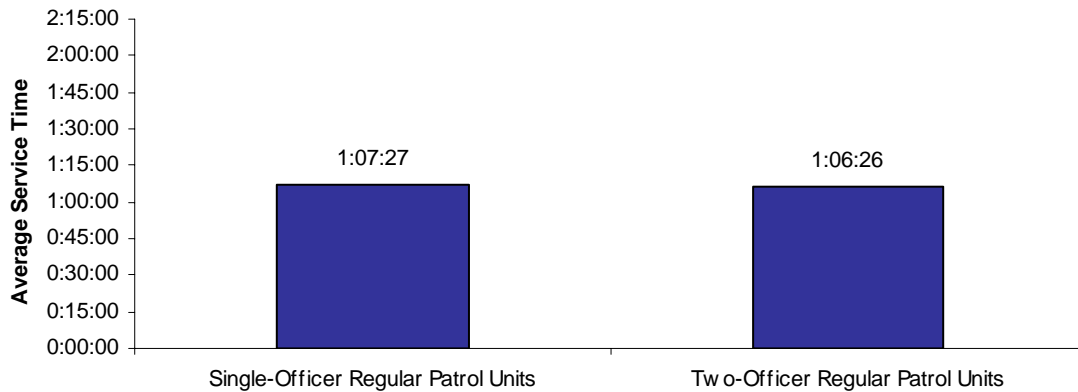
A total of 10,219 single-officer regular patrol units spent a total of approximately 9,263 unit-hours on 8,238 on-view calls. On average, this implies that single-officer regular patrol units spent a combined total (with other patrol units) of 1 hour and 7 minutes on each on-view call they were dispatched to. In turn, each single-officer regular patrol unit individually spent approximately 54 minutes on each on-view call it was dispatched to.

A total of 34,764 two-officer regular patrol units spent a total of approximately 29,326 unit-hours on 26,486 on-view calls. On average, this implies that two-officer regular patrol units spent a combined total (with other patrol units) of 1 hour and 6 minutes on each on-view call they were dispatched to. In turn, each two-officer regular patrol unit individually spent approximately 51 minutes on each on-view call it was dispatched to.

**Figure 6-126 Total Service Time on On-View Calls by Single-Officer and Two-Officer Regular Patrol Units**



**Figure 6-127 Average Service Time on On-View Calls by Single-Officer and Two-Officer Regular Patrol Units**

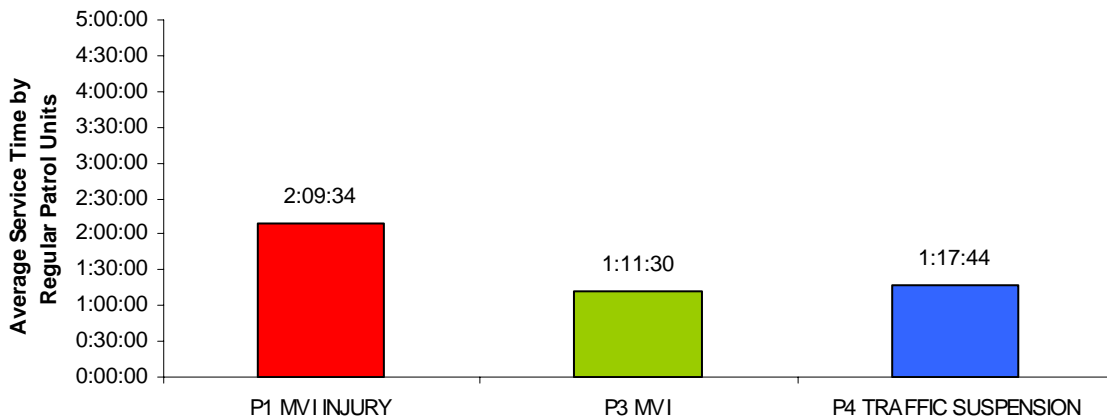


As expected, more time was spent on more serious incidents on average. On the other hand, less time was spent on routine calls for service. Between 2005-06-01 and 2006-05-31, for instance:

- VPD units spent a total of 11,869 hours on 3,711 priority 1 motor vehicle incidents with injuries (an average of 3 hours and 12 minutes per priority 1 motor vehicle incident with injuries). For their part, regular patrol units spent a total of 6,967 hours on 3,226 incidents (an average of 2 hours and 10 minutes per incident). Approximately 75.8% of the total time spent by regular patrol units on priority 1 vehicle incidents with injuries was spent by uniform patrol units and 58.9% was spent by two-officer units.
- VPD units spent a total of 3,008 hours on 2,128 priority 3 motor vehicle incidents (an average of 1 hour and 25 minutes per incident). For their part, regular patrol units spent a total of 1,854 hours on 1,556 priority 3 motor vehicle incidents (an average of 1 hour and 12 minutes per incident). Approximately 84.4% of the total time spent by regular patrol units on priority 3 motor vehicle incidents was spent by uniform and plainclothes patrol units and 58.7% was spent by two-officer units.
- VPD units spent a total of 7,245 hours on 4,891 priority 4 traffic suspensions (an average of 1 hour and 29 minutes per suspension). For their part, regular patrol

units spent a total of 3,585 hours on 2,767 priority 4 traffic suspensions (an average of 1 hour and 18 minutes per suspension). Approximately 75.3% of the total time spent by regular patrol units on priority 4 traffic suspensions was spent by uniform or plainclothes patrol units and 70.0% was spent by two-officer units.

**Figure 6-128 Average Service Time by Regular Patrol Units on Motor Vehicle Incidents and Traffic Suspensions**

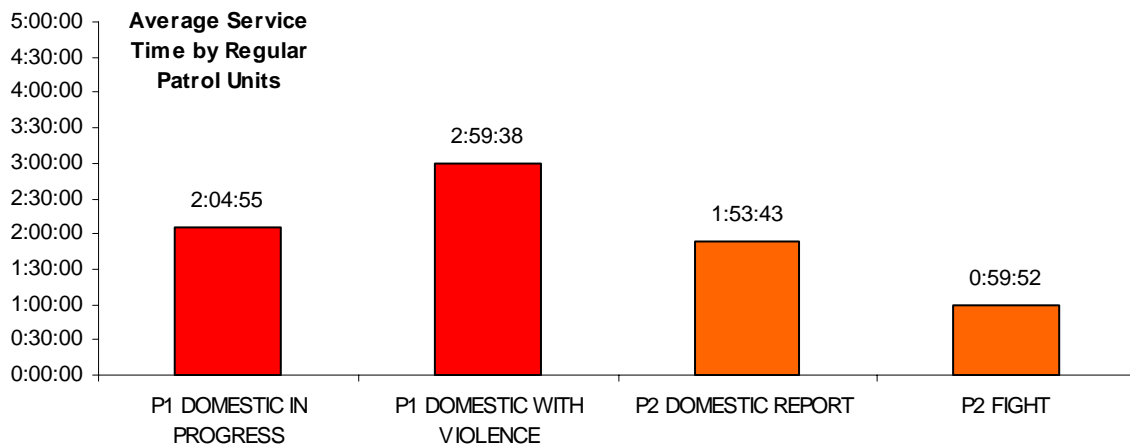


- VPD units spent a total of 6,975 hours on 2,801 priority 1 domestic situations in progress (an average of 2 hours and 29 minutes per incident). For their part, regular patrol units spent a total of 5,667 hours on 2,722 incidents (an average of 2 hours and 5 minutes per incident). Approximately 84.0% of the total time spent by regular patrol units on priority 1 domestic situations in progress was spent by uniform or plainclothes patrol units and 71.2% was spent by two-officer units.
- VPD units spent a total of 1,463 hours on 385 priority 1 domestic violence situations (an average of 3 hours and 48 minutes per incident). For their part, regular patrol units spent a total of 1,132 hours on 378 incidents (an average of 3 hours per incident). Approximately 79.0% of the total time spent by regular patrol units on priority 1 domestic violence situations was spent by uniform or plainclothes patrol units and 72.5% was spent by two-officer units.
- VPD units spent a total of 4,068 hours on 1,901 priority 2 domestic situations (an average of 2 hours and 8 minutes per incident). For their part, regular patrol units spent a total of 3,413 hours on 1,801 priority 2 domestic situations (an average of

1 hour and 54 minutes per incident). Approximately 83.6% of the total time spent by regular patrol units on priority 2 domestic situations was spent by uniform or plainclothes patrol units and 71.0% was spent by two-officer units.

- VPD units spent a total of 4,109 hours on 2,977 priority 2 fights (an average of 1 hour and 23 minutes per priority 2 fights). For their part, regular patrol units spent a total of 2,649 hours on 2,655 priority 2 fights (an average of 1 hour per fight). Approximately 31.0% of the total time spent by regular patrol units on priority 2 fights was spent by BET or patrol beat units and 72.3% was spent by two-officer units.

**Figure 6-129 Average Service Time by Regular Patrol Units on Domestic Situations, Domestic Violence Situations and Fights**

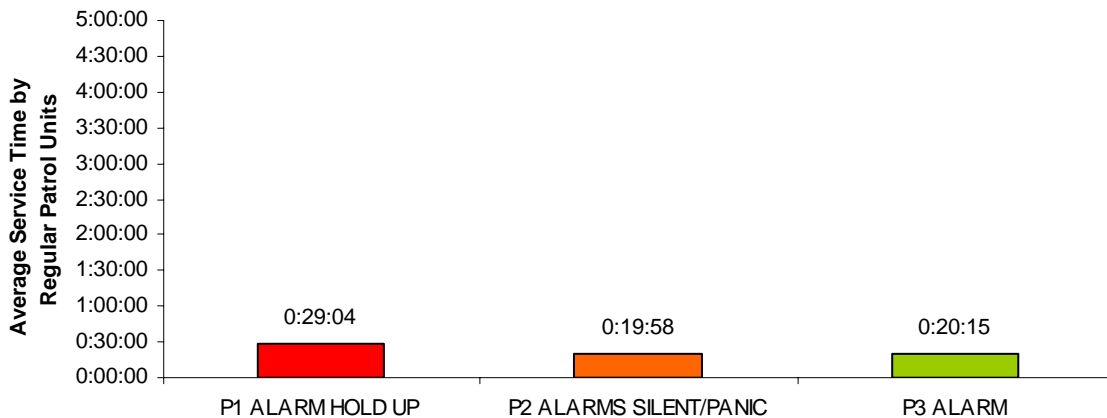


- VPD units spent a total of 234 hours on 343 priority 1 hold-up alarms (an average of 41 minutes per incident). For their part, regular patrol units spent a total of 160 hours on 330 incidents (an average of 29 minutes per incident). Approximately 81.0% of the total time spent by regular patrol units on priority 1 hold-up alarms was spent by uniform or plainclothes patrol units and 74.2% was spent by two-officer units.
- VPD units spent a total of 201 hours on 476 priority 2 silent or panic alarms (an average of 25 minutes per incident). For their part, regular patrol units spent a total of 143 hours on 430 priority 2 silent or panic alarms (an average of 20 minutes per incident). Approximately 85.6% of the total time spent by regular

patrol units on priority 2 silent or panic alarms was spent by uniform or plainclothes patrol units and 71.9% was spent by two-officer units.

- VPD units spent a total of 1,626 hours on 4,445 priority 3 alarms (an average of 22 minutes per alarm). For their part, regular patrol units spent a total of 1,195 hours on 3,540 priority 3 alarms (an average of 20 minutes per alarm). Approximately 86.9% of the total time spent by regular patrol units on priority 3 alarms was spent by uniform and plainclothes patrol units and 68.8% was spent by two-officer units.

**Figure 6-130 Average Service Time by Regular Patrol Units on Alarms**

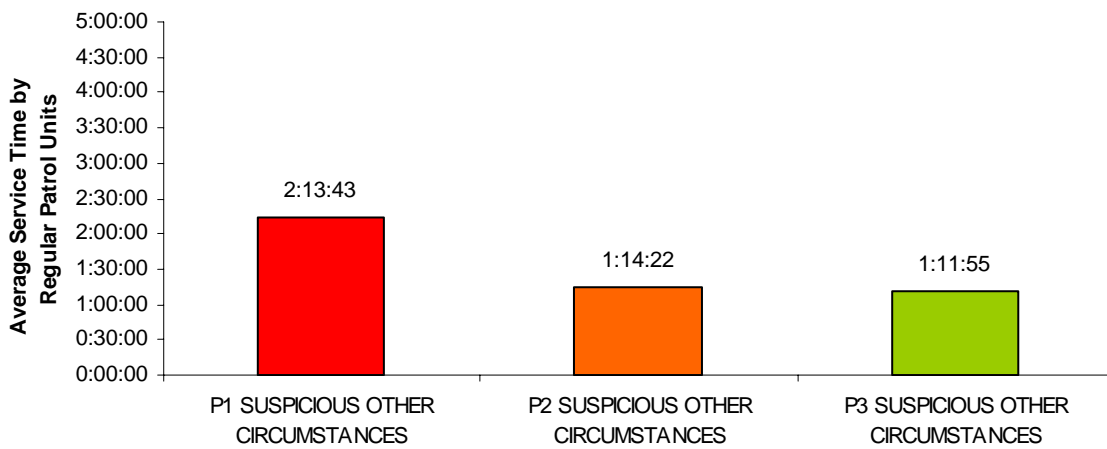


- VPD units spent a total of 1,230 hours on 349 priority 1 suspicious circumstances (an average of 3 hours and 31 minutes per incident). For their part, regular patrol units spent a total of 731 hours on 328 incidents (an average of 2 hours and 14 minutes per incident). Approximately 84.2% of the total time spent by regular patrol units on priority 1 suspicious circumstances was spent by uniform or plainclothes patrol units and 63.4% was spent by two-officer units.
- VPD units spent a total of 2,029 hours on 1,302 priority 2 suspicious circumstances (an average of 1 hour and 34 minutes per incident). For their part, regular patrol units spent a total of 1,456 hours on 1,175 priority 2 suspicious circumstances (an average of 1 hour and 14 minutes per incident). Approximately 83.2% of the total time spent by regular patrol units on priority 2

suspicious circumstances was spent by uniform or plainclothes patrol units and 69.0% was spent by two-officer units.

- VPD units spent a total of 8,745 hours on 6,017 priority 3 suspicious circumstances (an average of 1 hour and 27 minutes per incident). For their part, regular patrol units spent a total of 5,901 hours on 4,923 priority 3 suspicious circumstances (an average of 1 hour and 12 minutes per incident). Approximately 79.2% of the total time spent by regular patrol units on priority 3 suspicious circumstances was spent by uniform and plainclothes patrol units and 69.8% was spent by two-officer units.

**Figure 6-131 Average Service Time by Regular Patrol Units on Suspicious Circumstances and Annoying Circumstances**

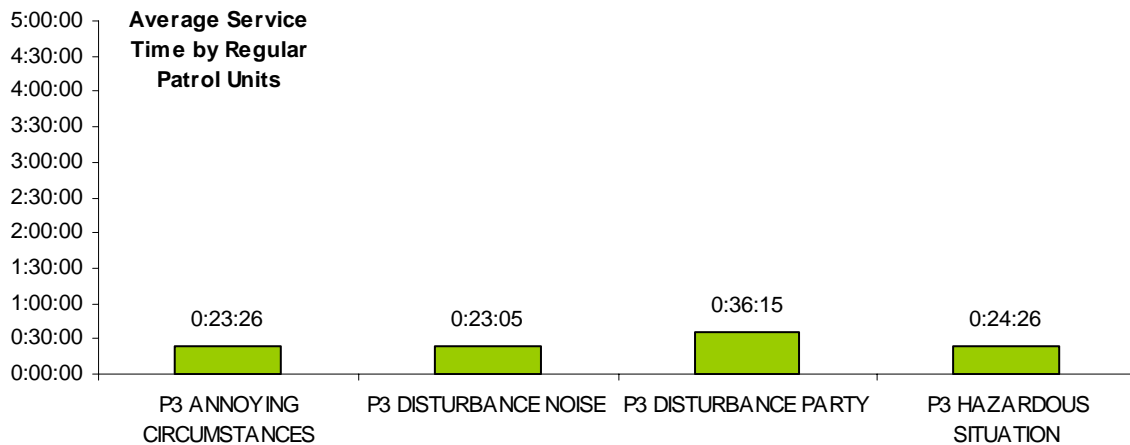


- VPD units spent a total of 5,374 hours on 12,913 priority 3 annoying circumstances (an average of 25 minutes per call). For their part, regular patrol units spent a total of 4,025 hours on 10,303 priority 3 annoying circumstances (an average of 23 minutes per call). Approximately 27.0% of the total time spent by regular patrol units on priority 3 annoying circumstances was spent by BET and beat patrol units and 70.0% was spent by two-officer units.
- VPD units spent a total of 2,707 hours on 6,802 priority 3 noise complaints (an average of 24 minutes per noise complaint). For their part, regular patrol units spent a total of 2,003 hours on 5,206 priority 3 noise complaints (an average of 23 minutes per noise complaint). Approximately 80.7% of the total time spent by

regular patrol units on priority 3 suspicious persons was spent by uniform and plainclothes patrol units and 67.7% was spent by two-officer units.

- VPD units spent a total of 2,146 hours on 3,081 priority 3 disturbing parties (an average of 42 minutes per party). For their part, regular patrol units spent a total of 1,535 hours on 2,541 priority 3 disturbing parties (an average of 36 minutes per party). Approximately 28.2% of the total time spent by regular patrol units on priority 3 disturbing parties was spent by BET and beat patrol units and 70.5% was spent by two-officer units.
- VPD units spent a total of 1,056 hours on 1,626 priority 3 hazardous situations (an average of 39 minutes per incident). For their part, regular patrol units spent a total of 457 hours on 1,121 priority 3 hazardous situations (an average of 24 minutes per incident). Approximately 81.3% of the total time spent by regular patrol units on priority 3 hazardous situations was spent by uniform and plainclothes patrol units and 66.8% was spent by two-officer units.

**Figure 6-132 Average Service Time by Regular Patrol Units on Annoying Circumstances, Noise Complaints, Disturbing Parties and Hazardous Situations**



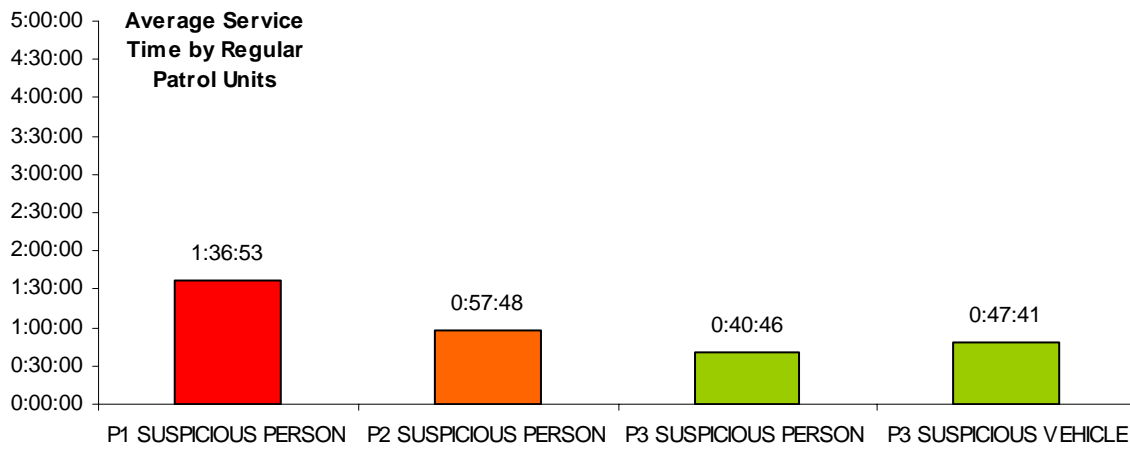
- VPD units spent a total of 402 hours on 191 priority 1 suspicious persons (an average of 2 hours and 6 minutes per incident). For their part, regular patrol units spent a total of 295 hours on 183 incidents (an average of 1 hour and 37 minutes per incident). Approximately 77.0% of the total time spent by regular patrol units

on priority 1 suspicious persons was spent by uniform or plainclothes patrol units and 64.2% was spent by two-officer units.

- VPD units spent a total of 1,635 hours on 1,374 priority 2 suspicious persons (an average of 1 hour and 11 minutes per incident). For their part, regular patrol units spent a total of 1,184 hours on 1,229 priority 2 suspicious persons (an average of 58 minutes per incident). Approximately 80.7% of the total time spent by regular patrol units on priority 2 suspicious persons was spent by uniform or plainclothes patrol units and 73.8% was spent by two-officer units.
- VPD units spent a total of 7,098 hours on 8,452 priority 3 suspicious persons (an average of 50 minutes per incident). For their part, regular patrol units spent a total of 4,878 hours on 7,180 priority 3 suspicious persons (an average of 41 minutes per incident). Approximately 81.4% of the total time spent by regular patrol units on priority 3 suspicious persons was spent by uniform and plainclothes patrol units and 72.9% was spent by two-officer units.
- VPD units spent a total of 2,221 hours on 2,381 priority 3 suspicious vehicles (an average of 56 minutes per incident). For their part, regular patrol units spent a total of 1,563 hours on 1,967 priority 3 suspicious vehicles (an average of 48 minutes per incident). Approximately 85.8% of the total time spent by regular patrol units on priority 3 suspicious vehicles was spent by uniform and plainclothes patrol units and 71.6% was spent by two-officer units.



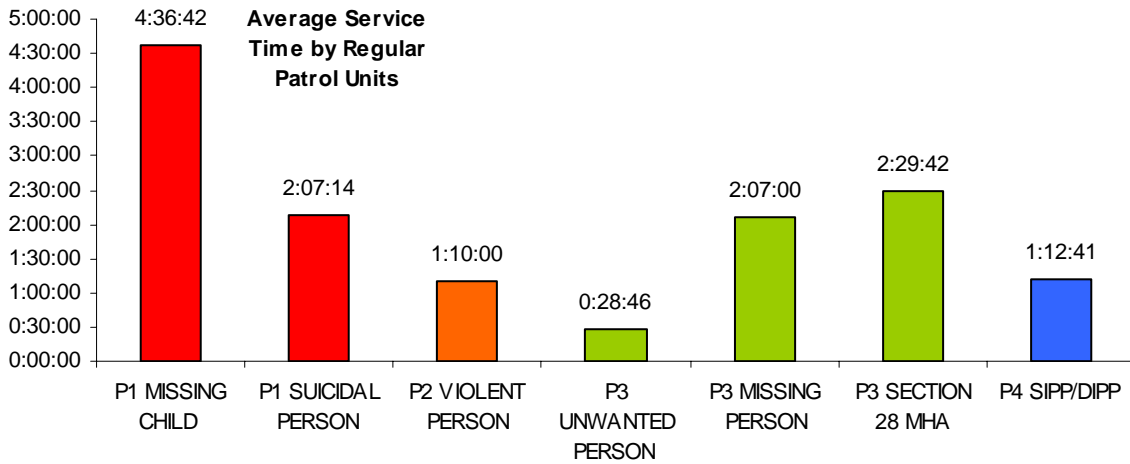
**Figure 6-133 Average Service Time by Regular Patrol Units on Suspicious Persons and Suspicious Vehicles**



- VPD units spent a total of 1,179 hours on 166 priority 1 missing children (an average of 7 hours and 6 minutes per incident). For their part, regular patrol units spent a total of 683 hours on 148 incidents (an average of 4 hours and 37 minutes per incident). Approximately 27.4% of the total time spent by regular patrol units on priority 1 missing children was spent by BET or patrol beat units and 67.8% was spent by two-officer units.
- VPD units spent a total of 2,533 hours on 920 priority 1 suicidal persons (an average of 2 hours and 45 minutes per incident). For their part, regular patrol units spent a total of 1,862 hours on 878 incidents (an average of 2 hours and 7 minutes per incident). Approximately 78.8% of the total time spent by regular patrol units on priority 1 suicidal persons was spent by uniform or plainclothes patrol units and 73.4% was spent by two-officer units.
- VPD units spent a total of 996 hours on 673 priority 2 violent persons (an average of 1 hour and 29 minutes per incident). For their part, regular patrol units spent a total of 722 hours on 619 priority 2 violent persons (an average of 1 hour and 10 minutes per incident). Approximately 30.9% of the total time spent by regular patrol units on priority 2 violent persons was spent by BET or beat patrol units and 72.3% was spent by two-officer units.

- VPD units spent a total of 1,684 hours on 3,175 priority 3 unwanted persons (an average of 32 minutes per incident). For their part, regular patrol units spent a total of 1,275 hours on 2,661 priority 3 unwanted persons (an average of 29 minutes per incident). Approximately 25.1% of the total time spent by regular patrol units on priority 3 unwanted persons was spent by BET and beat patrol units and 70.2% was spent by two-officer units.
- VPD units spent a total of 2,602 hours on 1,318 priority 3 missing persons (an average of 1 hour and 58 minutes per missing person). For their part, regular patrol units spent a total of 2,180 hours on 1,030 priority 3 missing persons (an average of 2 hour and 7 minutes per missing person). Approximately 88.8% of the total time spent by regular patrol units on priority 3 missing persons was spent by uniform and plainclothes patrol units and 52.2% was spent by two-officer units.
- VPD units spent a total of 3,304 hours on 1,085 priority 3 disturbed persons or individuals with mental health issues (an average of 3 hours and 3 minutes per disturbed person). For their part, regular patrol units spent a total of 2,333 hours on 935 priority 3 disturbed persons (an average of 2 hours and 30 minutes per disturbed person). Approximately 76.0% of the total time spent by regular patrol units on priority 3 disturbed persons was spent by uniform and plainclothes patrol units and 71.2% was spent by two-officer units.
- VPD units spent a total of 2,823 hours on 1,610 priority 4 intoxicated persons in a public place (an average of 1 hour and 45 minutes per intoxicated person). For their part, regular patrol units spent a total of 1,414 hours on 1,167 priority 4 intoxicated persons (an average of 1 hour and 13 minutes per intoxicated person). Approximately 34.2% of the total time spent by regular patrol units on priority 4 intoxicated persons was spent by BET and beat patrol units and 72.2% was spent by two-officer units.

**Figure 6-134 Average Service Time by Regular Patrol Units on Missing Children, Suicidal, Violent, Unwanted, Missing, Disturbed and Intoxicated Persons**



- VPD units spent a total of 4,058 hours on 539 priority 3 sudden deaths (an average of 6 hours and 53 minutes per sudden death). For their part, regular patrol units spent a total of 2,880 hours on 585 priority 3 sudden deaths (an average of 4 hours and 55 minutes per sudden death). Approximately 76.8% of the total time spent by regular patrol units on priority 3 sudden deaths was spent by uniform patrol units alone and 71.1% was spent by two-officer units.
- VPD units spent a total of 955 hours on 722 priority 1 disturbance screaming calls (an average of 1 hours and 19 minutes per incident). For their part, regular patrol units spent a total of 674 hours on 683 incidents (an average of 59 minutes per incident). Approximately 81.2% of the total time spent by regular patrol units on priority 1 disturbance screaming calls was spent by uniform or plainclothes patrol units and 69.4% was spent by two-officer units.
- VPD units spent a total of 1,704 hours on 1,173 priority 2 requests for assistance from the general public (an average of 1 hour and 27 minutes per incident). For their part, regular patrol units spent a total of 1,262 hours on 1,044 priority 2 requests for assistance from the general public (an average of 1 hour and 13 minutes per incident). Approximately 78.5% of the total time spent by regular patrol units on priority 2 requests for assistance from the general public was

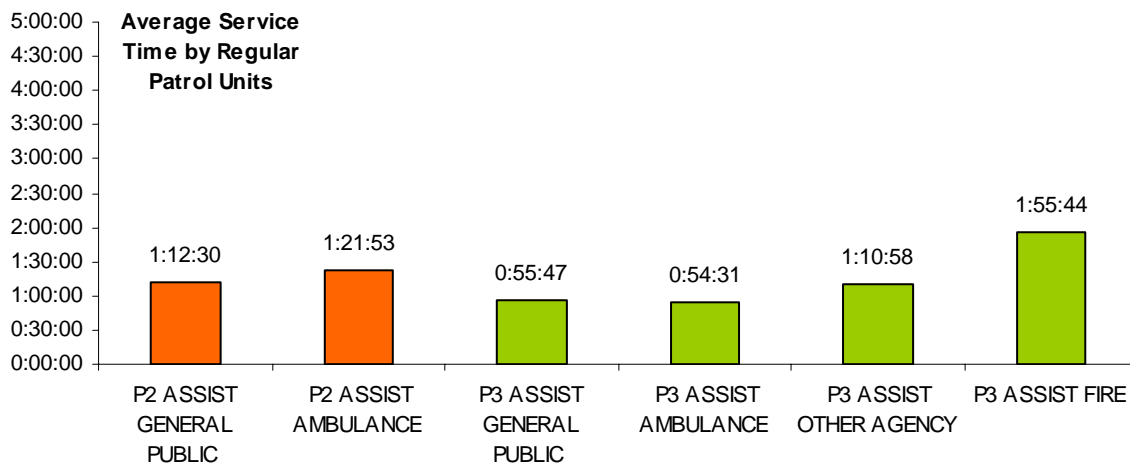
spent by uniform or plainclothes patrol units and 71.5% was spent by two-officer units.

- VPD units spent a total of 557 hours on 337 priority 2 requests for assistance from the provincial ambulance service (an average of 1 hour and 39 minutes per incident). For their part, regular patrol units spent a total of 401 hours on 294 priority 2 requests for assistance from the provincial ambulance service (an average of 1 hour and 22 minutes per incident). Approximately 76.0% of the total time spent by regular patrol units on priority 2 requests for assistance from the provincial ambulance service was spent by uniform or plainclothes patrol units and 72.7% was spent by two-officer units.
- VPD units spent a total of 9,592 hours on 9,129 priority 3 requests for assistance from the general public (an average of 1 hour and 3 minutes per call). For their part, regular patrol units spent a total of 6,802 hours on 7,315 priority 3 requests for assistance from the general public (an average of 56 minutes per call). Approximately 77.6% of the total time spent by regular patrol units on priority 3 requests for assistance from the general public was spent by uniform or plainclothes patrol units and 68.5% was spent by two-officer units.
- VPD units spent a total of 4,767 hours on 4,682 priority 3 requests for assistance from the provincial ambulance service (an average of 1 hour and 1 minute per call). For their part, regular patrol units spent a total of 2,701 hours on 2,973 priority 3 requests for assistance from the provincial ambulance service (an average of 55 minutes per call). Approximately 29.1% of the total time spent by regular patrol units on priority 3 requests for assistance from the provincial ambulance service was spent by BET and beat patrol units and 72.4% was spent by two-officer units.
- VPD units spent a total of 2,450 hours on 1,593 priority 3 requests for assistance from other agencies (an average of 1 hour and 32 minutes per call). For their part, regular patrol units spent a total of 1,273 hours on 1,076 priority 3 requests for assistance from other agencies (an average of 1 hour and 11 minutes per call). Approximately 81.0% of the total time spent by regular patrol units on

priority 3 requests for assistance from other agencies was spent by uniform or plainclothes patrol units and 69.6% was spent by two-officer units.

- VPD units spent a total of 2,151 hours on 433 priority 3 requests for assistance from the fire department (an average of 4 hours and 58 minutes per call). For their part, regular patrol units spent a total of 648 hours on 336 priority 3 requests for assistance from the fire department (an average of 1 hour and 56 minutes per call). Approximately 76.3% of the total time spent by regular patrol units on priority 3 requests for assistance from the fire department was spent by uniform or plainclothes patrol units and 64.4% was spent by two-officer units.

**Figure 6-135 Average Service Time by Regular Patrol Units on Requests for Assistance from the General Public, the Provincial Ambulance Service, Other Agencies and the Fire Department**

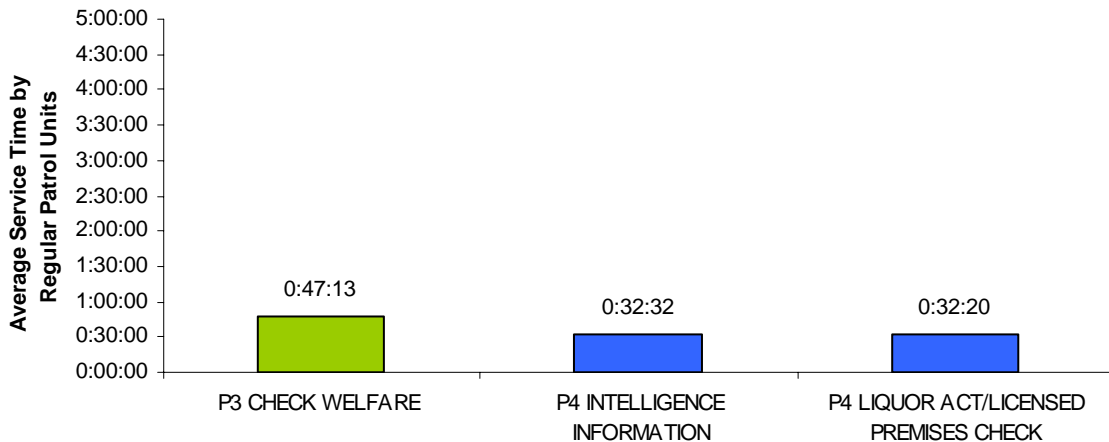


- VPD units spent a total of 2,184 hours on 4,253 priority 2 abandoned 9-1-1 calls (an average of 31 minutes per priority 2 abandoned 9-1-1 call). For their part, regular patrol units spent a total of 1,693 hours on 3,654 priority 2 abandoned 9-1-1 calls (an average of 28 minutes per call). Approximately 80.3% of the total time spent by regular patrol units on priority 2 abandoned 9-1-1 calls was spent by uniform or plainclothes patrol units and 71.7% was spent by two-officer units.
- VPD units spent a total of 2,450 hours on 4,412 priority 4 intelligence calls (an average of 33 minutes per priority 4 intelligence call). For their part, regular patrol

units spent a total of 1,333 hours on 2,459 priority 4 intelligence calls (an average of 33 minutes per call). Approximately 30.4% of the total time spent by regular patrol units on priority 4 intelligence calls was spent by BET or beat patrol units and 79.2% was spent by two-officer units.

- VPD units spent a total of 2,999 hours on 3,067 priority 3 welfare checks (an average of 59 minutes per check). For their part, regular patrol units spent a total of 1,263 hours on 1,605 priority 3 welfare checks (an average of 47 minutes per check). Approximately 34.9% of the total time spent by regular patrol units on priority 3 welfare checks was spent by BET and beat patrol units and 74.5% was spent by two-officer units.
- VPD units spent a total of 1,119 hours on 1,566 priority 4 licensed premises checks (an average of 43 minutes per check). For their part, regular patrol units spent a total of 427 hours on 792 priority 4 licensed premises checks (an average of 32 minutes per check). Approximately 51.1% of the total time spent by regular patrol units on priority 4 licensed premises checks was spent by beat patrol units alone and 79.2% was spent by two-officer units.

**Figure 6-136 Average Service Time by Regular Patrol Units on Welfare Checks, Intelligence Calls and Licensed Premises Checks**

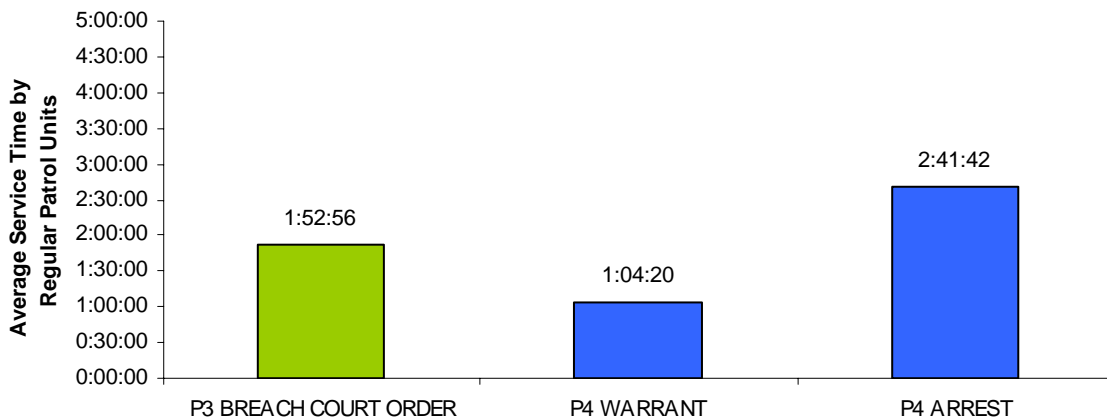


- VPD units spent a total of 6,969 hours on 2,897 priority 3 court order breaches (an average of 2 hours and 24 minutes per breach). For their part, regular patrol units spent a total of 4,764 hours on 2,531 priority 3 court order breaches (an

average of 1 hour and 53 minutes per breach). Approximately 22.7% of the total time spent by regular patrol units on priority 3 court order breaches was spent by BET units alone and 73.7% was spent by two-officer units.

- VPD units spent a total of 12,535 hours on 7,605 priority 4 warrants (an average of 1 hour and 39 minutes per warrant). For their part, regular patrol units spent a total of 6,871 hours on 6,408 priority 4 warrants (an average of 1 hour and 4 minutes per warrant). Approximately 27.4% of the total time spent by regular patrol units on priority 4 warrants was spent by BET units alone and 81.9% was spent by two-officer units.
- VPD units spent a total of 11,439 hours on 3,425 priority 4 arrests (an average of 3 hours and 20 minutes per arrest). For their part, regular patrol units spent a total of 7,215 hours on 2,677 priority 4 arrests (an average of 2 hours and 42 minutes per arrest). Approximately 26.6% of the total time spent by regular patrol units on priority 4 arrests was spent by BET units alone and 77.4% was spent by two-officer units.

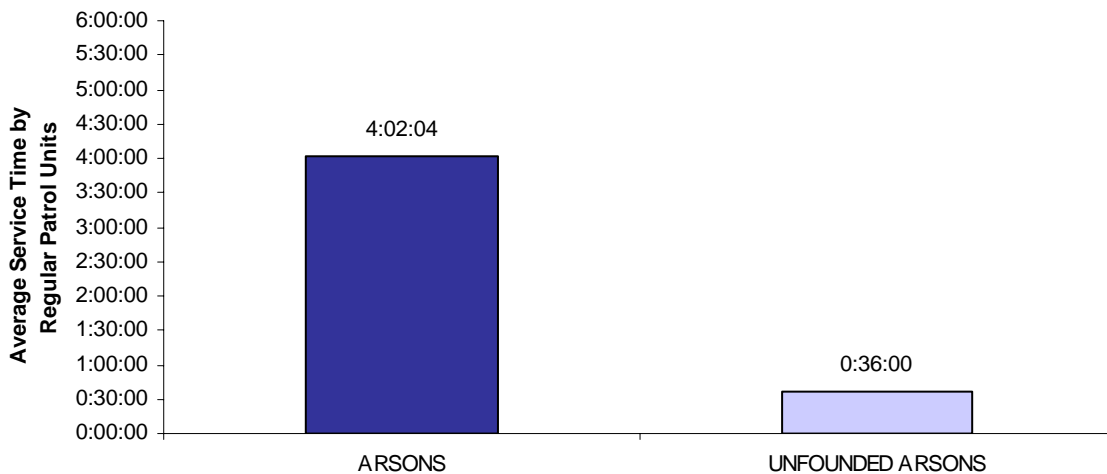
**Figure 6-137 Average Service Time by Regular Patrol Units on Court Order Breaches, Warrants and Arrests**



As expected, relatively more time was spent by patrol units on serious criminal incidents. Moreover, more complex cases required significantly more patrol resources on average. Between 2005-06-01 and 2006-05-31, for instance:

- VPD units spent a total of 2,117 hours on 255 founded arsons (an average of 8 hours and 18 minutes per case). For their part, regular patrol units spent a total of 997 hours on 247 arsons (an average of 3 hours and 57 minutes per case). Approximately 82.4% of the total time spent by regular patrol units on arsons was spent by uniform or plainclothes units and 59.5% was spent by two-officer units. In particular, VPD units spent a total of 1,191 hours on 7 arsons with disregard for human life (an average of 170 hours and 5 minutes per case). For their part, regular patrol units spent a total of 309 hours on those 7 arsons with disregard for human life (an average of 44 hours and 12 minutes per case). Moreover, VPD units spent a total of 23 hours on 33 unfounded arsons (an average of 42 minutes per unfounded incident) while regular patrol units spent a total of 17 hours on 28 unfounded incidents (an average of 36 minutes per unfounded incident).

**Figure 6-138 Average Service Time by Regular Patrol Units on Arsons and Unfounded Arsons**

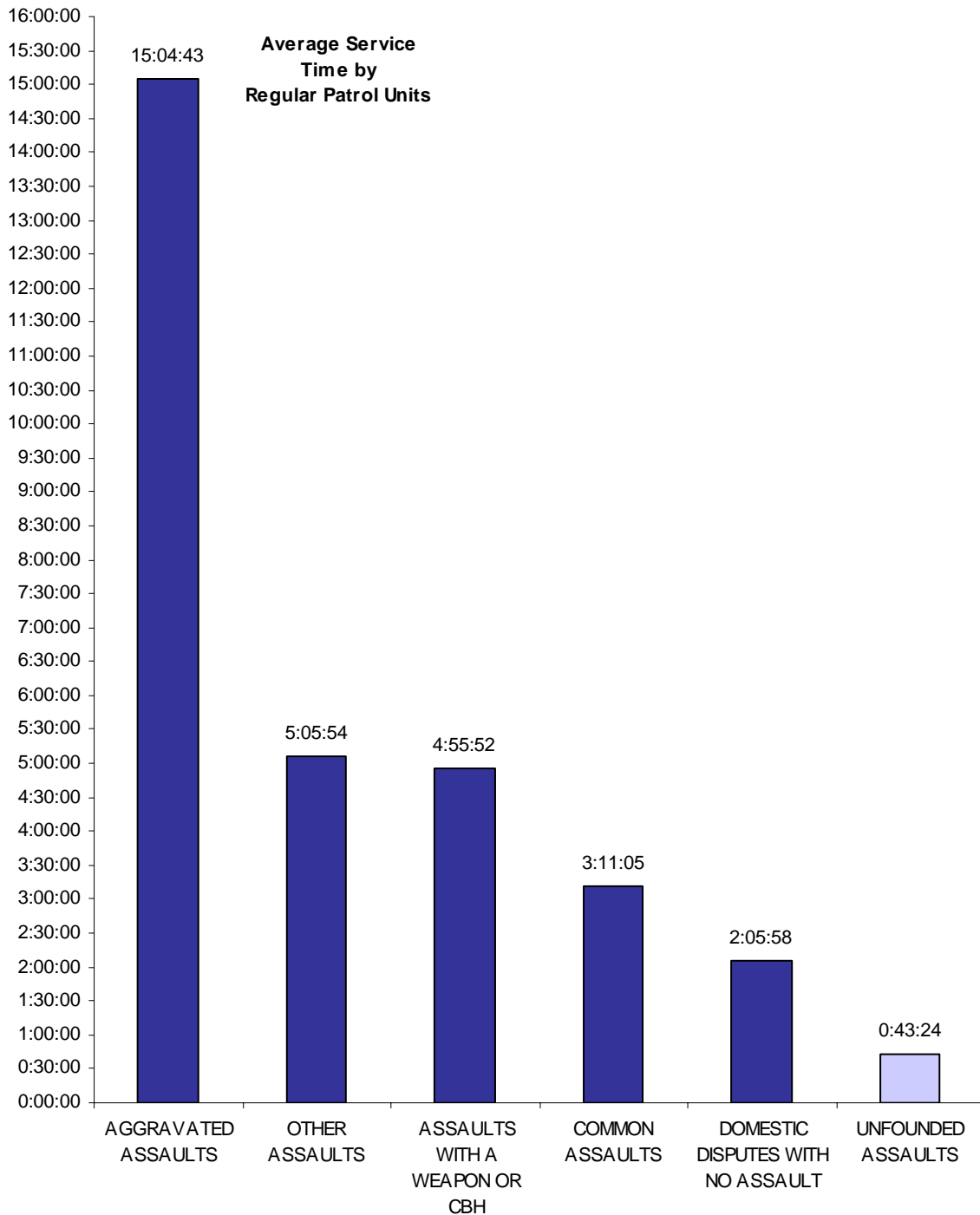


- VPD units spent a total of 26,523 hours on 5,409 founded assaults (an average of 4 hours and 54 minutes per case). For their part, regular patrol units spent a total of 20,003 hours on 5,181 assaults (an average of 3 hours and 52 minutes per case). Approximately 74.9% of the total time spent by regular patrol units on assaults was spent by uniform or plainclothes units and 66.4% was spent by two-



officer units. In particular, VPD units spent a total of 806 hours on 102 assaults against a police officer (an average of 7 hours and 54 minutes per case), 1,032 hours on 46 aggravated assaults (an average of 22 hours and 26 minutes per case), 13,601 hours on 3,611 common assaults (an average of 3 hours and 46 minutes per case) and 10,456 hours on 1,534 assaults with a weapon or causing bodily harm (an average of 6 hours and 49 minutes per case). For their part, regular patrol units spent a total of 534 hours on 90 assaults against a police officer (an average of 5 hours and 56 minutes per case), 679 hours on 45 aggravated assaults (an average of 15 hours and 5 minutes per case), 11,003 hours on 3,455 common assaults (an average of 3 hours and 11 minutes per case) and 7,328 hours on 1,486 assaults with a weapon or causing bodily harm (an average of 4 hours and 56 minutes). Moreover, VPD units spent a total of 1,805 hours on 2,166 unfounded assaults (an average of 50 minutes per unfounded incident) while regular patrol units spent a total of 1,398 hours on 1,933 unfounded assaults (an average of 43 minutes per unfounded incident).

**Figure 6-139 Average Service Time by Regular Patrol Units on Assaults and Unfounded Assaults**

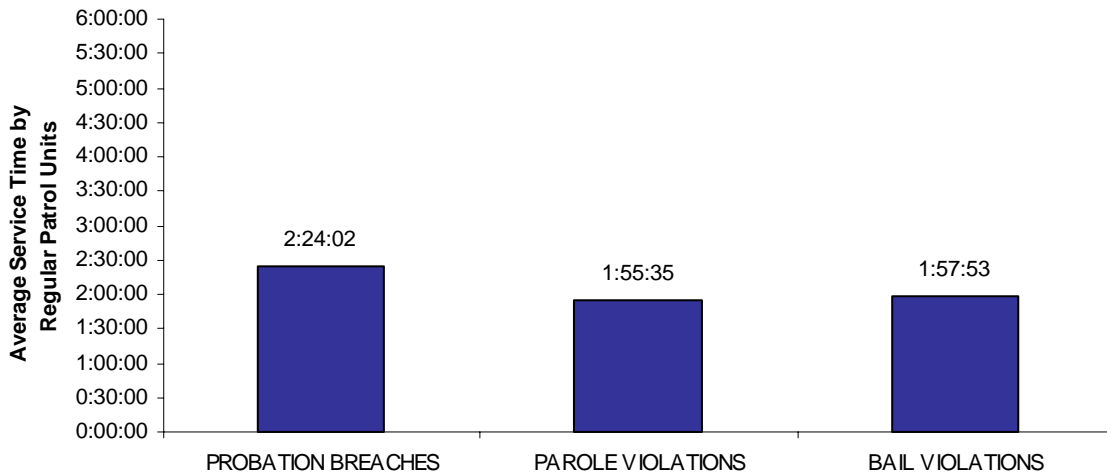


- VPD units spent at least 2,071 hours on 26 homicides and attempted murders (an average of 79 hours and 39 minutes per case). For their part, regular patrol

units spent a total of 927 hours on those 26 cases (an average of 35 hours and 39 minutes per case). Approximately 71.5% of the total time spent by regular patrol units on homicides and attempted murders was spent by uniform or plainclothes units and 63.2% was spent by two-officer units.

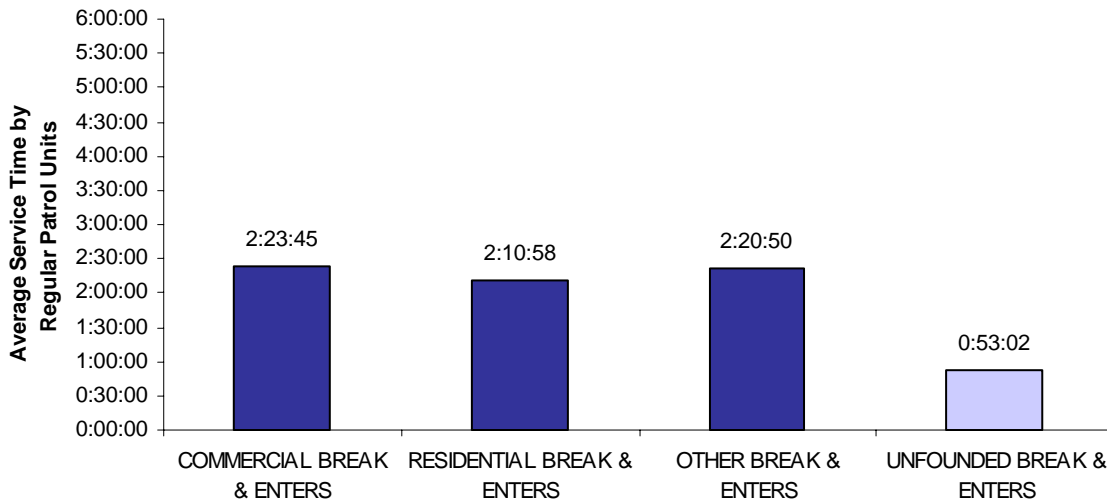
- VPD units spent a total of 97 hours on 54 road rage incidents (an average of 1 hour and 48 minutes per incident). For their part, regular patrol units spent a total of 83 hours on 47 road rage incidents (an average of 1 hour and 46 minutes per incident). Approximately 86.1% of the total time spent by regular patrol units on road rage incidents was spent by uniform or plainclothes units and 53.1% was spent by two-officer units.
- VPD units spent a total of 140 hours on 24 bomb threats (an average of 5 hours and 50 minutes per incident). For their part, regular patrol units spent a total of 77 hours on 23 bomb threats (an average of 3 hours and 21 minutes per incident). Approximately 85.7% of the total time spent by regular patrol units on bomb threats was spent by uniform or plainclothes units and 54.5% was spent by two-officer units.
- VPD units spent a total of 4,933 hours on 1,819 probation breaches, parole violations and bail violations (an average of 2 hours and 43 minutes per case). For their part, regular patrol units spent a total of 3,412 hours on 1,620 probation breaches, parole violations and bail violations (an average of 2 hours and 6 minutes per case). Approximately 36.0% of the total time spent by regular patrol units on probation breaches, parole violations and bail violations was spent by BET and beat patrol units and 72.2% was spent by two-officer units.

**Figure 6-140 Average Service Time by Regular Patrol Units on Probation Breaches, Parole Violations and Bail Violations**



- VPD units spent a total of 20,237 hours on 8,048 founded break and enters (an average of 2 hours and 31 minutes per case). For their part, regular patrol units spent a total of 8,950 hours on 3,925 break and enters (an average of 2 hours and 17 minutes per case). Approximately 86.8% of the total time spent by regular patrol units on break and enters was spent by uniform or plainclothes units and 55.7% was spent by two-officer units. In particular, VPD units spent a total of 9,973 hours on 4,083 residential break and enters (an average of 2 hours and 27 minutes per case), 7,883 hours on 2,886 commercial break and enters (an average of 2 hours and 44 minutes per case) and 2,379 hours on 1,078 other break and enters (an average of 2 hours and 12 minutes per case). For their part, regular patrol units spent a total of 4,483 hours on 2,054 residential break and enters (an average of 2 hours and 11 minutes per case), 3,701 hours on 1,545 commercial break and enters (an average of 2 hours and 24 minutes per case) and 765 hours on 326 other break and enters (an average of 2 hours and 21 minutes). Moreover, VPD units spent a total of 1,564 hours on 1,324 unfounded break and enters (an average of 1 hour and 11 minutes per unfounded incident) while regular patrol units spent a total of 962 hours on 1,088 unfounded break and enters (an average of 53 minutes per unfounded incident).

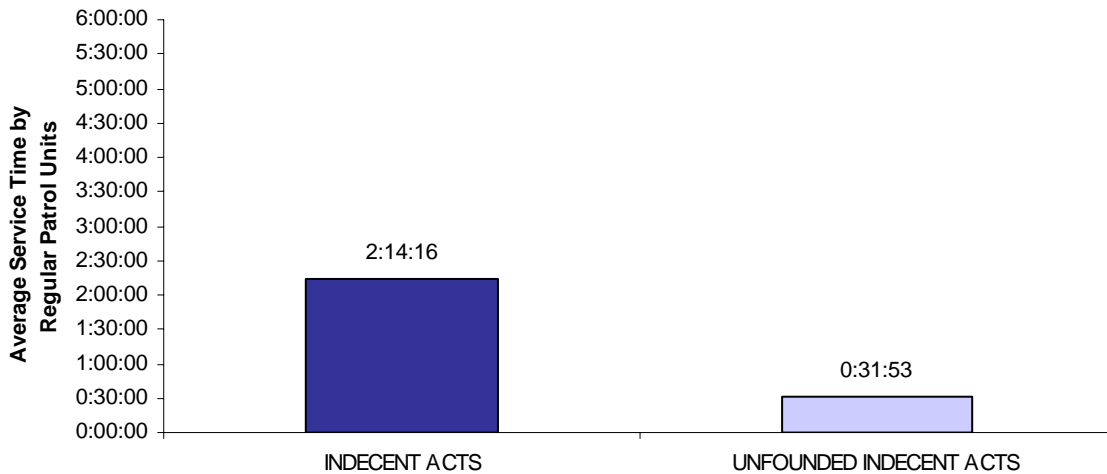
**Figure 6-141 Average Service Time by Regular Patrol Units on Break and Enters and Unfounded Break and Enters**



- VPD units spent a total of 42 hours on 8 child pornography cases (an average of 5 hours and 12 minutes per case). For their part, regular patrol units spent a total of 21 hours on 4 child pornography cases (an average of 5 hours and 18 minutes per case). Approximately 98.2% of the total time spent by regular patrol units on child pornography cases was spent by uniform patrol units alone and 81.9% was spent by one-officer units.
- VPD units spent a total of 19 hours on 8 animal cruelty cases (an average of 2 hours and 26 minutes per case). For their part, regular patrol units spent a total of 17 hours on 7 animal cruelty cases (an average of 2 hours and 24 minutes per case). Approximately 93.5% of the total time spent by regular patrol units on animal cruelty cases was spent by uniform or plainclothes patrol units and 63.5% was spent by two-officer units.
- VPD units spent a total of 530 hours on 205 founded indecent acts (an average of 2 hours and 35 minutes per case). For their part, regular patrol units spent a total of 423 hours on 189 indecent acts (an average of 2 hours and 14 minutes per case). Approximately 84.9% of the total time spent by regular patrol units on indecent acts was spent by uniform or plainclothes patrol units and 55.4% was spent by two-officer units. Moreover, VPD units spent a total of 186 hours on 303

unfounded indecent acts (an average of 37 minutes per unfounded incident) while regular patrol units spent a total of 141 hours on 266 unfounded indecent acts (an average of 32 minutes per unfounded incident).

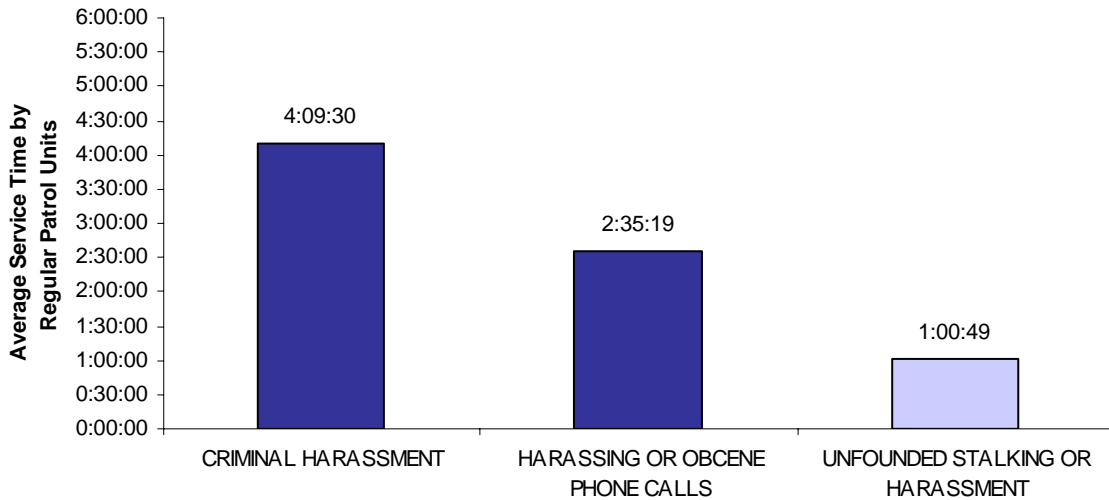
**Figure 6-142 Average Service Time by Regular Patrol Units on Indecent Acts and Unfounded Indecent Acts**



- VPD units spent a total of 2,892 hours on 954 founded criminal harassment cases and obscene phone calls (an average of 3 hours and 2 minutes per case). For their part, regular patrol units spent a total of 2,535 hours on 838 criminal harassment cases and obscene phone calls (an average of 3 hours and 2 minutes per case). Approximately 90.4% of the total time spent by regular patrol units on criminal harassment cases and obscene phone calls was spent by uniform or plainclothes patrol units and 54.1% was spent by one-officer units. More precisely, VPD units spent a total of 1,127 hours on 241 criminal harassment cases (an average of 4 hours and 41 minutes per case) and 1,765 hours on 713 obscene phone calls (an average of 2 hours and 29 minutes per case). For their part, regular patrol units spent a total of 969 hours on 233 criminal harassment cases (an average of 4 hours and 10 minutes per case) and 1,566 hours on 605 obscene phone calls (an average of 2 hours and 35 minutes per case). Moreover, VPD units spent a total of 378 hours on 427 unfounded stalking and harassment cases (an average of 53 minutes per unfounded

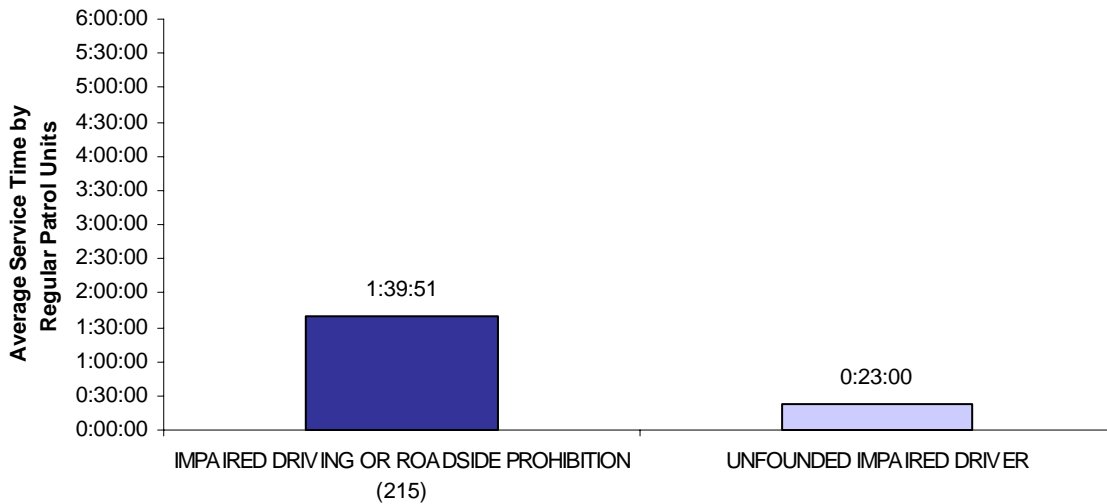
incident) while regular patrol units spent a total of 312 hours on 308 unfounded stalking and harassment cases (an average of 1 hour and 1 minute per unfounded incident).

**Figure 6-143 Average Service Time by Regular Patrol Units on Criminal Harassment Cases, Harassing Phone Calls and Unfounded Stalking or Harassment Calls**



- VPD units spent a total of 8,408 hours on 4,626 founded impaired driving cases (an average of 1 hour and 49 minutes per case). For their part, regular patrol units spent a total of 4,464 hours on 2,571 impaired driving cases (an average of 1 hour and 44 minutes per case). In particular, VPD units spent a total of 212 hours on 3 impaired driving cases causing death (an average of 70 hours and 44 minutes per case) and 200 hours on 7 impaired driving cases causing bodily harm (an average of 28 hours and 31 minutes per case). For their part, regular patrol units spent a total of 91 hours on 3 impaired driving cases causing death (an average of 30 hours and 28 minutes per case) and 111 hours on 7 impaired driving cases causing bodily harm (an average of 15 hours and 48 minutes per case). Moreover, VPD units spent a total of 187 hours on 403 unfounded impaired driving cases (an average of 28 minutes per unfounded incident) while regular patrol units spent a total of 108 hours on 282 unfounded impaired driving cases (an average of 23 minutes per unfounded incident).

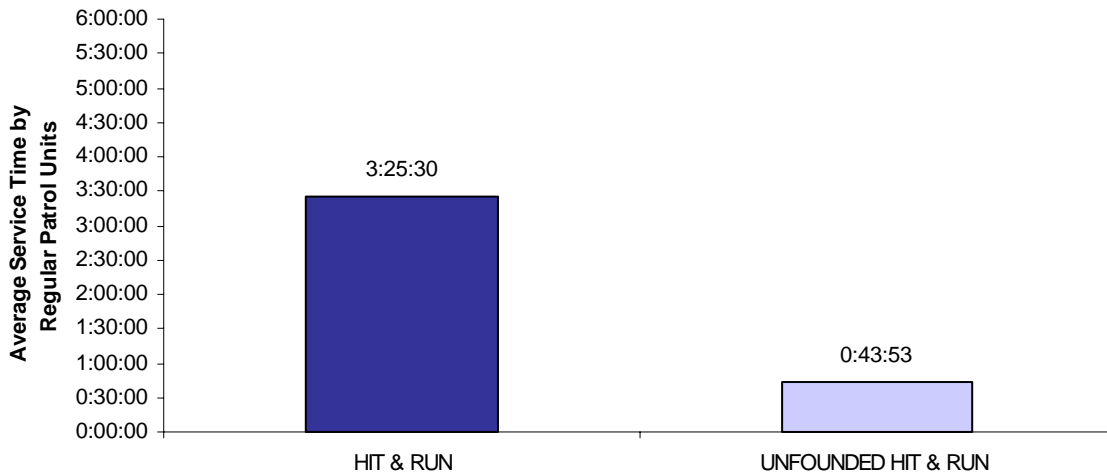
**Figure 6-144 Average Service Time by Regular Patrol Units on Impaired Driving Cases and Unfounded Impaired Drivers**



- VPD units spent a total of 1,645 hours on 554 founded hit and run cases (an average of 2 hours and 58 minutes per case). For their part, regular patrol units spent a total of 1,247 hours on 364 hit and run (an average of 3 hours and 25 minutes per case). Moreover, VPD units spent a total of 109 hours on 134 unfounded hit and run cases (an average of 49 minutes per unfounded incident) while regular patrol units spent a total of 78 hours on 107 unfounded hit and run cases (an average of 44 minutes per unfounded incident).

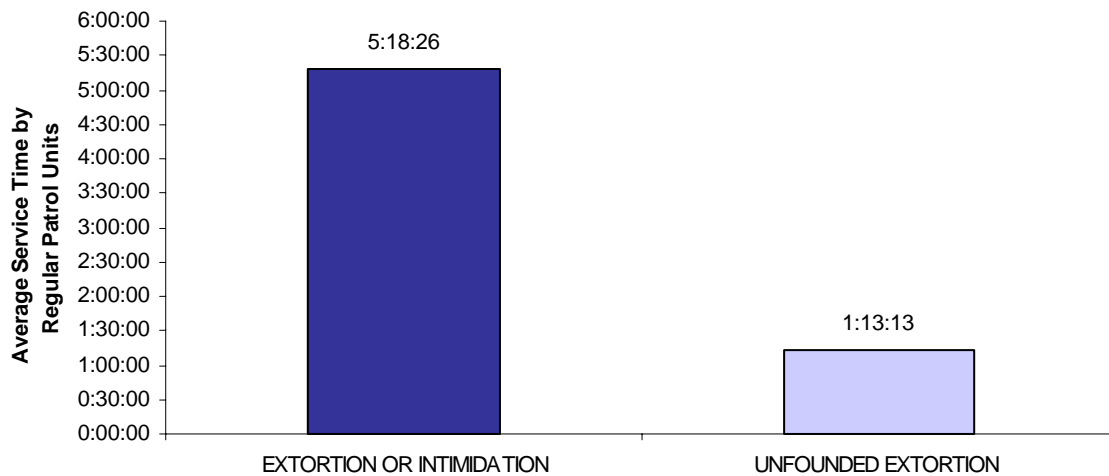


**Figure 6-145 Average Service Time by Regular Patrol Units on Hit and Run and Unfounded Hit and Run**



- VPD units spent a total of 371 hours on 61 founded extortion and intimidation cases (an average of 6 hours and 5 minutes per case). For their part, regular patrol units spent a total of 297 hours on 56 extortion and intimidation cases (an average of 5 hours and 18 minutes per case). Approximately 90.9% of the total time spent by regular patrol units on extortion cases was spent by uniform or plainclothes patrol units and 68.4% was spent by two-officer units. Moreover, VPD units spent a total of 19 hours on 18 unfounded extortion cases (an average of 1 hour and 2 minutes per unfounded case) while regular patrol units spent a total of 18 hours on 15 unfounded extortion cases (an average of 1 hour and 13 minutes per unfounded case).

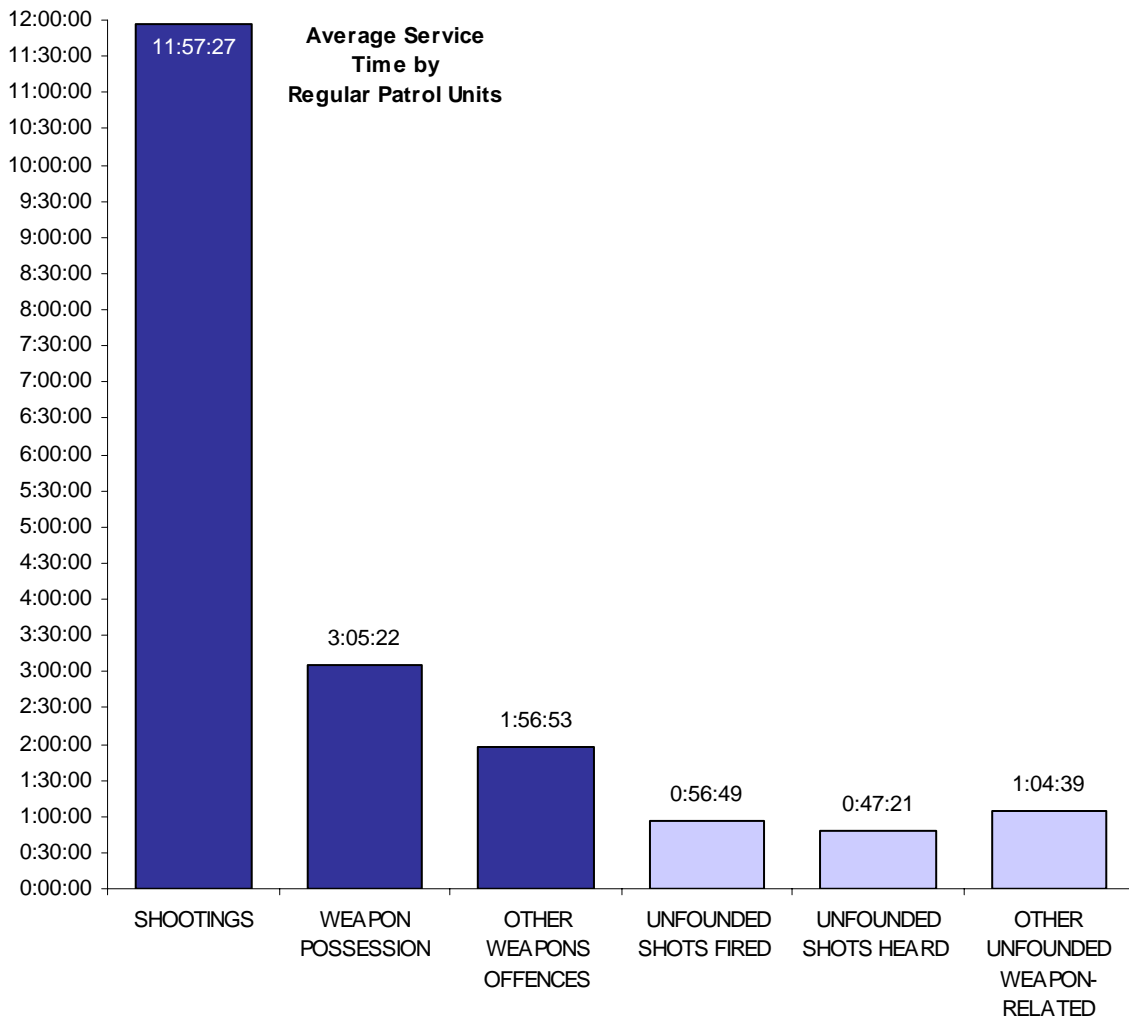
**Figure 6-146 Average Service Time by Regular Patrol Units on Extortion or Intimidation Cases and Unfounded Extortion Calls**



- VPD units spent a total of 2,781 hours on 71 kidnappings and forcible confinement cases (an average of 39 hours and 10 minutes per case). For their part, regular patrol units spent a total of 1,264 hours on 69 kidnappings and forcible confinement cases (an average of 18 hours and 19 minutes per case). Approximately 26.5% of the total time spent by regular patrol units on kidnappings and forcible confinement cases was spent by BET or beat patrol units and 76.6% was spent by two-officer units.
- VPD units spent a total of 6,411 hours on at least 1,580 founded weapon-related incidents (an average of 4 hours and 3 minutes per incident). For their part, regular patrol units spent a total of 4,032 hours on 1,352 weapon-related incidents (an average of 2 hours and 59 minutes per incident). In particular, VPD units spent a total of 719 hours on 73 shootings (an average of 9 hours and 51 minutes per incident) and 4,441 hours on 1,058 weapon possession cases (an average of 4 hours and 12 minutes per case). For their part, regular patrol units spent a total of 448 hours on 68 shootings (an average of 6 hours and 35 minutes per incident) and 2,932 hours on 949 weapon possession cases (an average of 3 hours and 5 minutes per case). Moreover, VPD units spent a total of 112 hours on 56 unfounded shots fired incidents (an average of 2 hours per

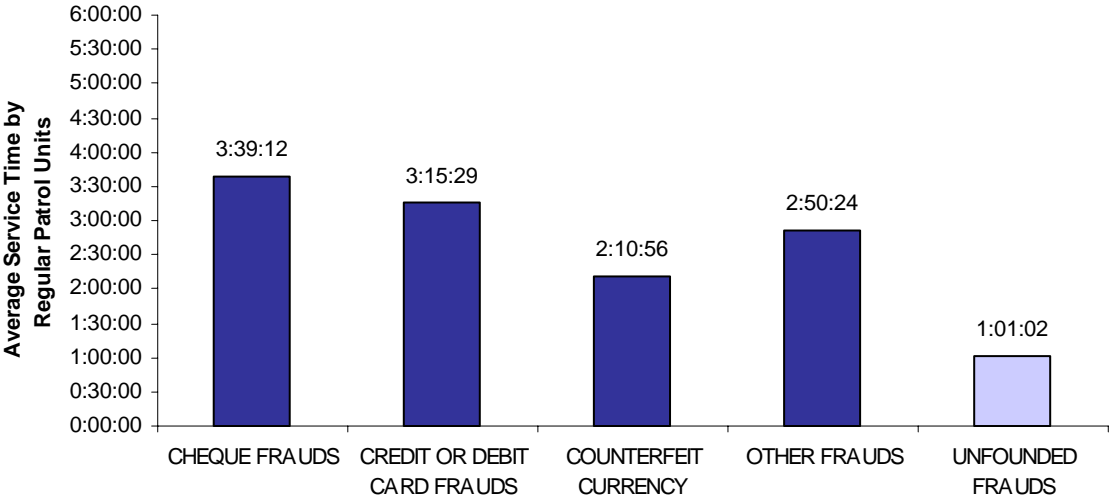
unfounded incident), 455 hours on 365 unfounded shots heard incidents (an average of 1 hour and 15 minutes per unfounded incident) and 1,184 hours on 640 other unfounded weapon-related incidents (an average of 1 hour and 51 minutes per unfounded incident). Meanwhile, regular patrol units spent a total of 47 hours on 50 unfounded shots fired incidents (an average of 57 minutes per unfounded incident), 273 hours on 346 unfounded shots heard incidents (an average of 47 minutes per unfounded incident) and 659 hours on 612 other unfounded weapon-related incidents (an average of 1 hour and 5 minutes per unfounded incident).

**Figure 6-147 Average Service Time by Regular Patrol Units on Shootings, Weapon-Related Incidents and Unfounded Weapon-Related Incidents**



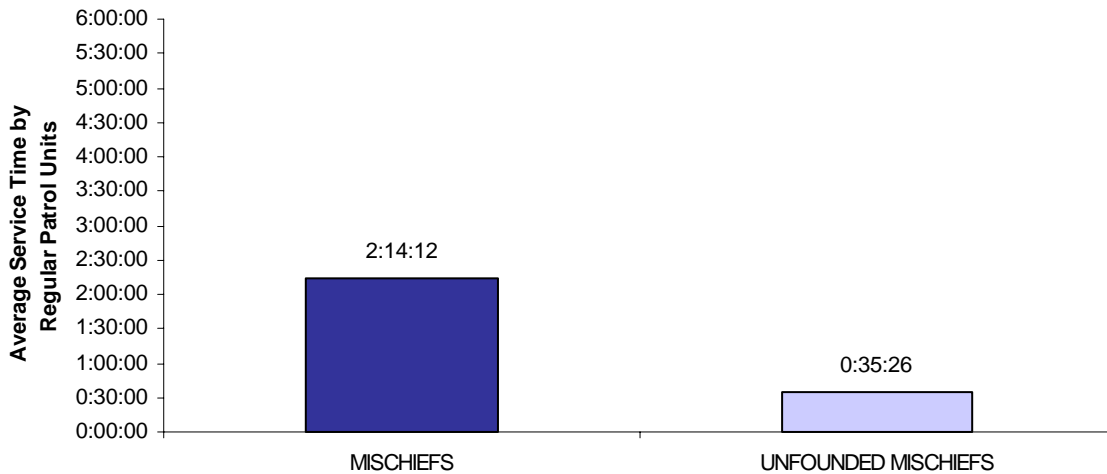
- VPD units spent a total of 5,371 hours on 1,783 frauds and counterfeit currency cases (an average of 3 hours and 1 minute per case). For their part, regular patrol units spent a total of 4,004 hours on 1,322 frauds and counterfeit currency cases (an average of 3 hours and 2 minutes per case). Approximately 85.0% of the total time spent by regular patrol units on fraud and counterfeit currency cases was spent by uniform or plainclothes patrol units and 56.2% was spent by two-officer units. In particular, VPD units spent a total of 460 hours on 186 counterfeit currency cases (an average of 2 hours and 28 minutes per case), 984 hours on 263 cheque frauds (an average of 3 hours and 44 minutes per case), 1,944 hours on 643 credit or debit card frauds (an average of 3 hours and 1 minute) and 508 hours on 176 impersonation cases (an average of 2 hours and 53 minutes per case). For their part, regular patrol units spent a total of 360 hours on 165 counterfeit currency cases (an average of 2 hours and 11 minutes per case), 785 hours on 215 cheque frauds (an average of 3 hours and 39 minutes per case), 1,424 hours on 437 credit or debit card frauds (an average of 3 hours and 15 minutes per case) and 317 hours on 89 impersonation cases (an average of 3 hours and 34 minutes per case). Moreover, VPD units spent a total of 393 hours on 462 unfounded fraud or counterfeit currency cases (an average of 51 minutes per unfounded incident) while regular patrol units spent a total of 273 hours on 268 unfounded fraud or counterfeit currency cases (an average of 1 hour and 1 minute per unfounded incident).

**Figure 6-148 Average Service Time by Regular Patrol Units on Frauds, Counterfeit Currency Cases and Unfounded Frauds**



- VPD units spent a total of 5,742 hours on 2,124 mischiefs (an average of 2 hours and 42 minutes per case). For their part, regular patrol units spent a total of 4,244 hours on 1,898 mischiefs (an average of 2 hours and 14 minutes per case). Approximately 78.9% of the total time spent by regular patrol units on mischiefs was spent by uniform or plainclothes patrol units and 63.9% was spent by two-officer units. Moreover, VPD units spent a total of 733 hours on 1,064 unfounded mischiefs (an average of 41 minutes per unfounded incident) while regular patrol units spent a total of 533 hours on 903 unfounded mischiefs (an average of 35 minutes per unfounded incident).

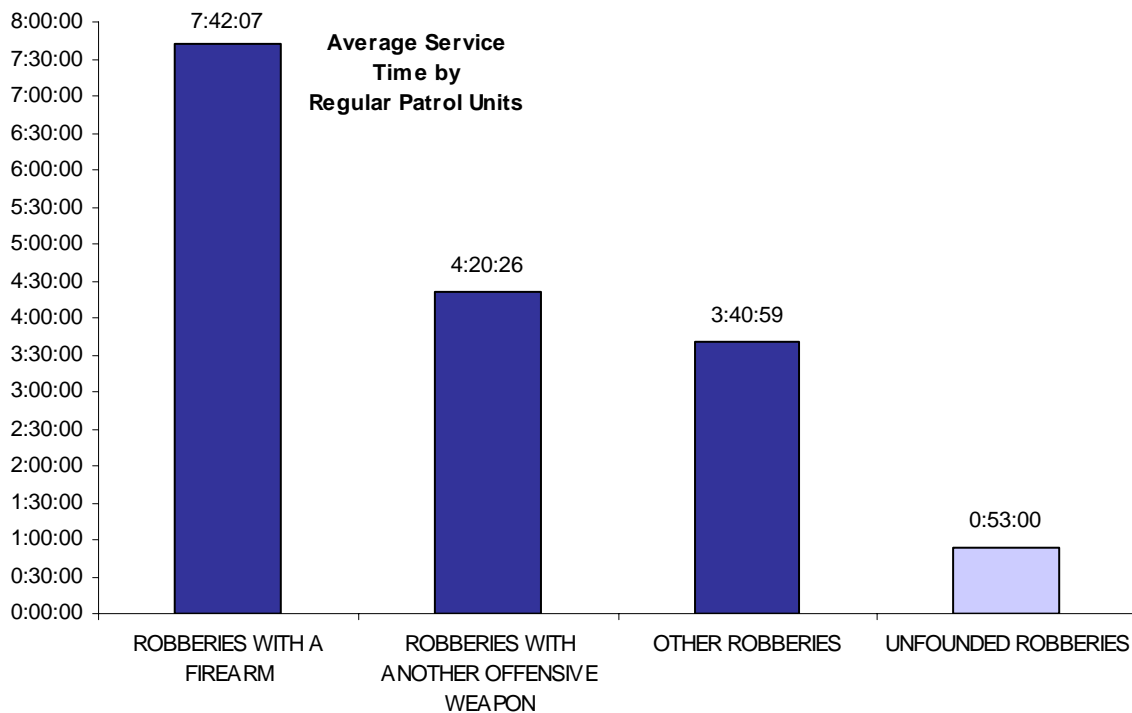
**Figure 6-149 Average Service Time by Regular Patrol Units on Mischiefs and Unfounded Mischiefs**



- VPD units spent a total of 1,150 hours on 219 possession of break-in instruments cases (an average of 5 hours and 15 minutes per case). For their part, regular patrol units spent a total of 668 hours on 185 possession of break-in instruments cases (an average of 3 hours and 37 minutes per case). Approximately 78.2% of the total time spent by regular patrol units on possession of break-in instruments cases was spent by uniform or plainclothes patrol units and 65.7% was spent by two-officer units.
- VPD units spent a total of 5,802 hours on 1,171 possession of stolen property cases (an average of 4 hours and 57 minutes per case). For their part, regular patrol units spent a total of 3,623 hours on 1,003 possession of stolen property cases (an average of 3 hours and 37 minutes per case). Approximately 75.7% of the total time spent by regular patrol units on possession of stolen property cases was spent by uniform or plainclothes patrol units and 71.4% was spent by two-officer units.
- VPD units spent a total of 10,023 hours on 1,595 robberies (an average of 6 hours and 17 minutes per case). For their part, regular patrol units spent a total of 6,798 hours on 1,540 robberies (an average of 4 hours and 25 minutes per case). In particular, VPD units spent a total of 3,374 hours on 571 robberies with

a weapon (an average of 5 hours and 55 minutes per case) and 2,472 hours on 191 robberies with a firearm (an average of 12 hours and 56 minutes per case). For their part, regular patrol units spent a total of 2,396 hours on 552 robberies with a weapon (an average of 4 hours and 20 minutes per case) and 1,463 hours on 190 robberies with a firearm (an average of 7 hours and 42 minutes per case). Moreover, VPD units spent a total of 237 hours on 236 unfounded robberies (an average of 1 hour per unfounded incident) while regular patrol units spent a total of 186 hours on 211 unfounded robberies (an average of 53 minutes per unfounded robbery).

**Figure 6-150 Average Service Time by Regular Patrol Units on Robberies and Unfounded Robberies**

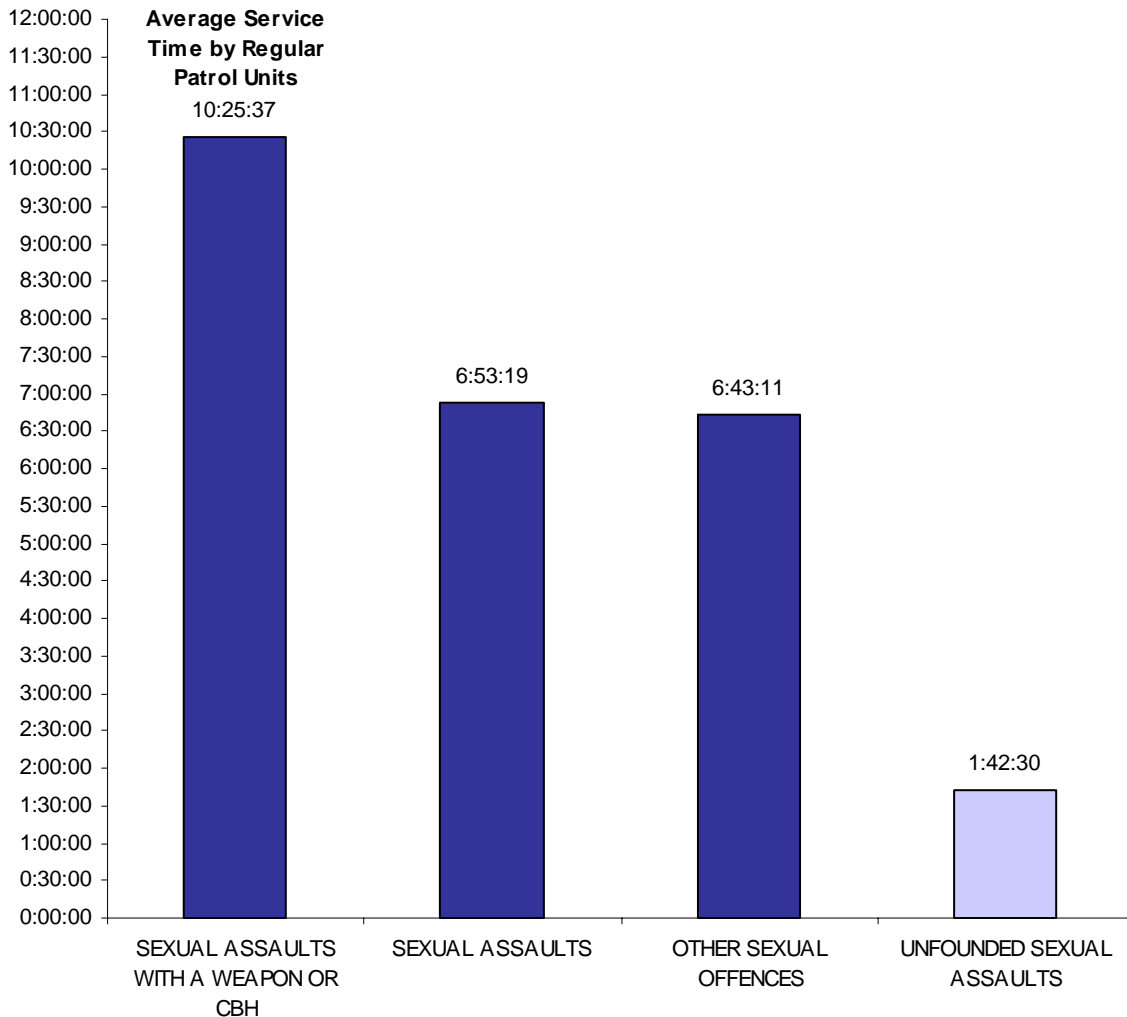


- VPD units spent a total of 3,997 hours on 478 sexual offences (an average of 8 hours and 22 minutes per case). For their part, regular patrol units spent a total of 3,239 hours on 455 sexual offences (an average of 7 hours and 7 minutes per case). Approximately 85.2% of the total time spent by regular patrol units on sexual offences was spent by uniform or plainclothes patrol units and 66.9% was

spent by two-officer units. In particular, VPD units spent a total of 3,420 hours on 427 sexual assaults (an average of 8 hours per case), 365 hours on 23 sexual assaults with a weapon or causing bodily harm (an average of 15 hours and 53 minutes per case) and 53 hours on 3 aggravated sexual assaults (an average of 17 hours and 34 minutes per case). For their part, regular patrol units spent a total of 2,817 hours on 409 sexual assaults (an average of 6 hours and 53 minutes per case), 240 hours on 23 sexual assaults with a weapon or causing bodily harm (an average of 10 hours and 26 minutes per case) and 47 hours on 3 aggravated sexual assaults (an average of 15 hours and 44 minutes per case). Moreover, VPD units spent a total of 118 hours on 58 unfounded sexual assault cases (an average of 2 hours and 2 minutes per unfounded case) while regular patrol units spent a total of 85 hours on 50 unfounded sexual assault cases (an average of 1 hour and 42 minutes per unfounded case).



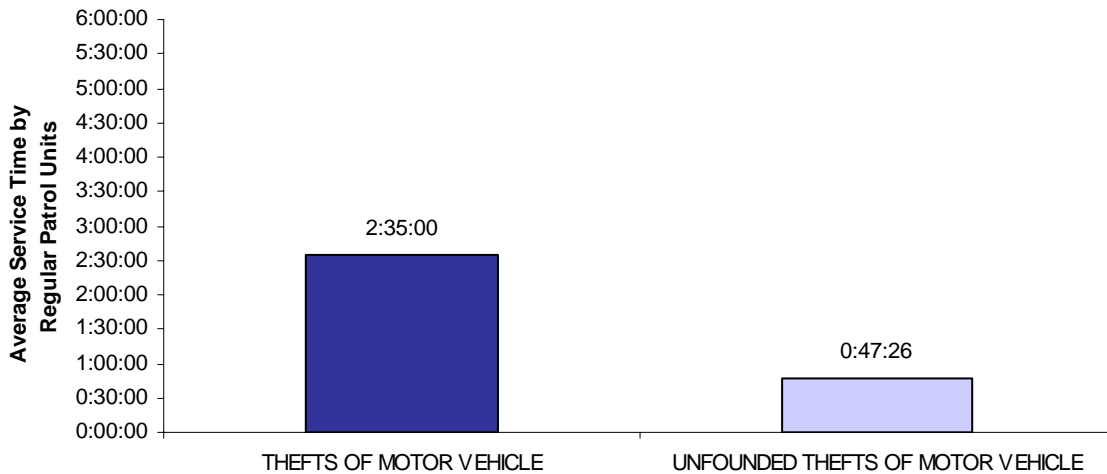
**Figure 6-151 Average Service Time by Regular Patrol Units on Sexual Assaults and Unfounded Sexual Assaults**



- VPD units spent a total of 1,314 hours on 414 thefts of motor vehicle (an average of 3 hours and 10 minutes per case). For their part, regular patrol units spent a total of 951 hours on 368 thefts of motor vehicle (an average of 2 hours and 35 minutes per case). Approximately 84.0% of the total time spent by regular patrol units on thefts of motor vehicle was spent by uniform or plainclothes patrol units and 59.1% was spent by two-officer units. Moreover, VPD units spent a total of 160 hours on 118 unfounded thefts of motor vehicle (an average of 1 hour and 21 minutes per unfounded incident) while regular patrol units spent a total of 82

hours on 104 unfounded thefts of motor vehicle (an average of 47 minutes per unfounded incident).

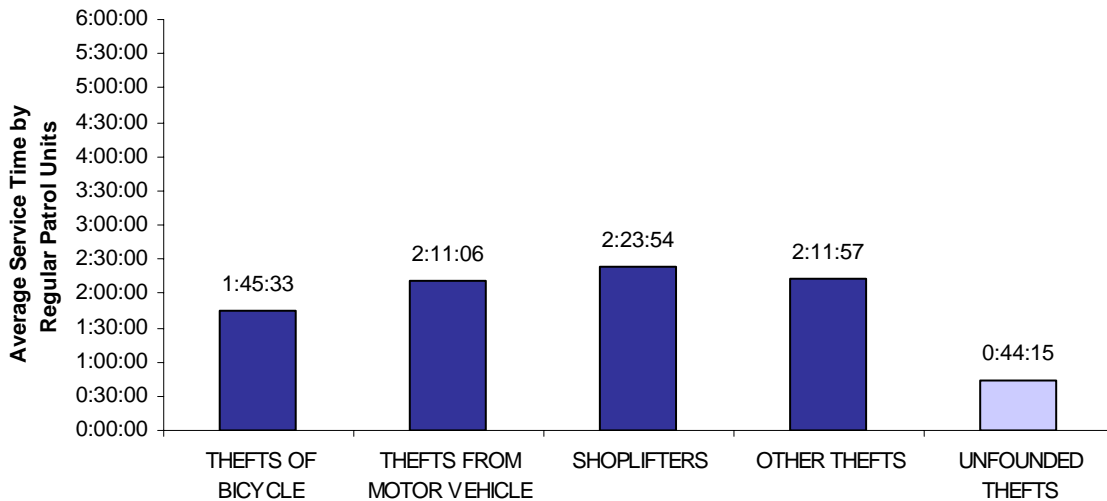
**Figure 6-152 Average Service Time by Regular Patrol Units on Thefts of Motor Vehicles and Unfounded Thefts of Motor Vehicles**



- VPD units spent a total of 14,570 hours on 5,751 other thefts (an average of 2 hours and 32 minutes per case). For their part, regular patrol units spent a total of 11,071 hours on 4,889 other thefts (an average of 2 hours and 16 minutes per case). Approximately 84.8% of the total time spent by regular patrol units on other thefts was spent by uniform or plainclothes patrol units and 52.3% was spent by two-officer units. In particular, VPD units spent a total of 341 hours on 180 thefts of bicycles (an average of 1 hour and 54 minutes per case), 2,923 hours on 1,140 thefts from auto (an average of 2 hours and 34 minutes per case) and 6,107 hours on 2,223 shoplifters (an average of 2 hours and 45 minutes per case). For their part, regular patrol units spent a total of 262 hours on 149 thefts of bicycles (an average of 1 hour and 46 minutes per case), 1,927 hours on 882 thefts from auto (an average of 2 hours and 11 minutes per case) and 4,782 hours on 1,994 shoplifters (an average of 2 hours and 24 minutes per case). Moreover, VPD units spent a total of 1,805 hours on 2,143 unfounded thefts (an average of 51 minutes per unfounded incident) while regular patrol units spent a

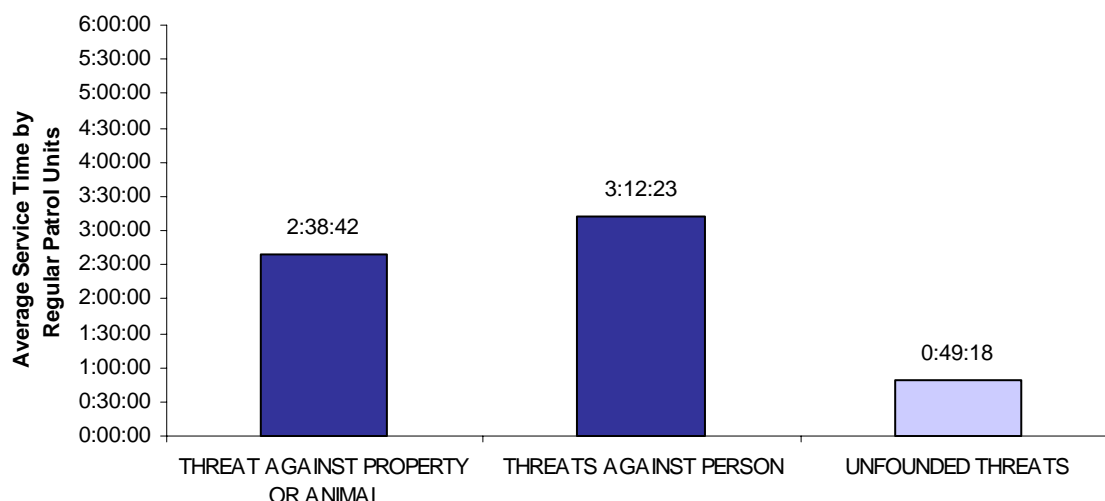
total of 1,297 hours on 1,759 unfounded thefts (an average of 44 minutes per unfounded incident).

**Figure 6-153 Average Service Time by Regular Patrol Units on Thefts and Unfounded Thefts**



- VPD units spent a total of 6,091 hours on 1,616 threatening cases (an average of 3 hours and 46 minutes per case). For their part, regular patrol units spent a total of 4,894 hours on 1,531 threatening cases (an average of 3 hours and 12 minutes per case). Approximately 82.3% of the total time spent by regular patrol units on threatening cases was spent by uniform or plainclothes patrol units and 60.5% was spent by two-officer units. More precisely, VPD units spent a total of 86 hours on 31 threatening cases against property or animals (an average of 2 hours and 46 minutes per case) and 6,005 hours on 1,585 threatening cases against persons (an average of 3 hours and 47 minutes per case). For their part, regular patrol units spent a total of 71 hours on 27 threatening cases against property or animals (an average of 2 hours and 39 minutes per case) and 4,822 hours on 1,504 threatening cases against persons (an average of 3 hours and 12 minutes per case). Moreover, VPD units spent a total of 643 hours on 808 unfounded threatening cases (an average of 48 minutes per unfounded incident) while regular patrol units spent a total of 516 hours on 628 unfounded threatening cases (an average of 49 minutes per unfounded incident).

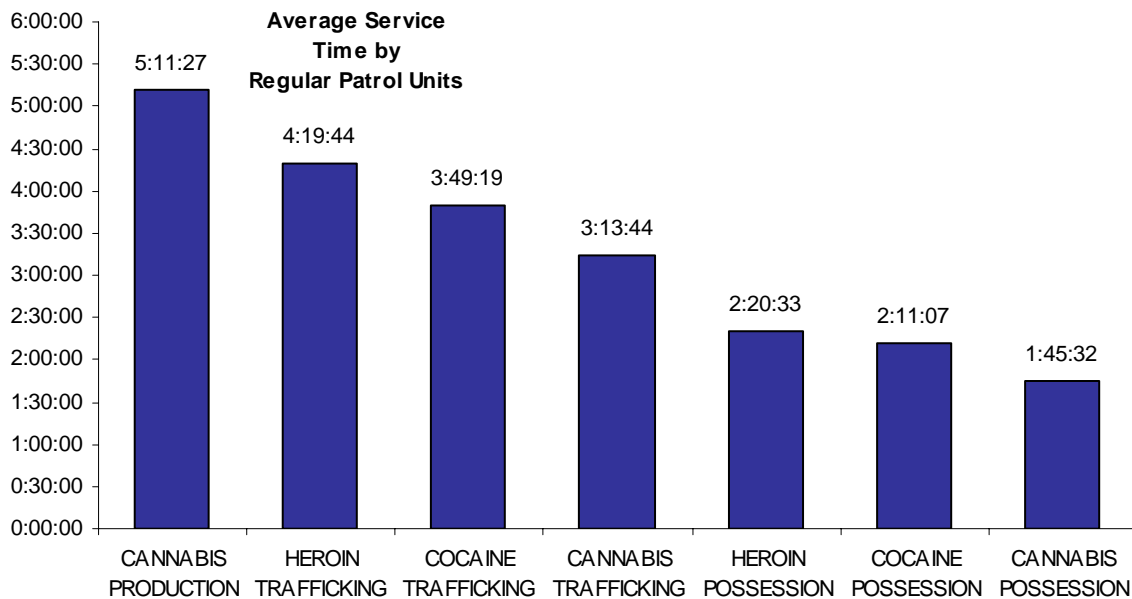
**Figure 6-154 Average Service Time by Regular Patrol Units on Threats and Unfounded Threats**



- VPD units spent a total of at least 12,066 hours on 4,014 drug-related cases (an average of 3 hours per drug case). For their part, regular patrol units spent a total of 7,986 hours on 3,195 drug-related cases (an average of 2 hours and 30 minutes per case). Approximately 46.3% of the total time spent by regular patrol units on drug-related cases was spent by BET or beat patrol units and 79.9% was spent by two-officer units. In particular, VPD units spent a total of 2,827 hours on 1,085 cocaine possession cases (an average of 2 hours and 36 minutes per case), 2,855 hours on 707 cocaine trafficking cases (an average of 4 hours and 2 minutes per case), 1,851 hours on 914 cannabis possession cases (an average of 2 hours and 2 minutes per case), 716 hours on 164 cannabis trafficking cases (an average of 4 hours and 22 minutes per case), 959 hours on 155 cannabis production cases (an average of 6 hours and 11 minutes per case), 357 hours on 136 heroin possession cases (an average of 2 hours and 37 minutes per case), 180 hours on 32 heroin trafficking cases (an average of 5 hours and 37 minutes per case) and 687 hours on 490 drug-related intelligence reports (an average of 1 hour and 24 minutes per report). For their part, regular patrol units spent a total of 2,179 hours on 997 cocaine possession cases (an average of 2 hours and 11 minutes per case), 2,102 hours on 550 cocaine

trafficking cases (an average of 3 hours and 49 minutes per case), 1,193 hours on 678 cannabis possession cases (an average of 1 hour and 46 minutes per case), 371 hours on 115 cannabis trafficking cases (an average of 3 hours and 14 minutes per case), 311 hours on 60 cannabis production cases (an average of 5 hours and 11 minutes per case), 290 hours on 124 heroin possession cases (an average of 2 hours and 21 minutes per case), 139 hours on 32 heroin trafficking cases (an average of 4 hours and 20 minutes per case) and 472 hours on 368 drug-related intelligence reports (an average of 1 hour and 17 minutes per report).

**Figure 6-155 Average Service Time by Regular Patrol Units on Drug-Related Cases**



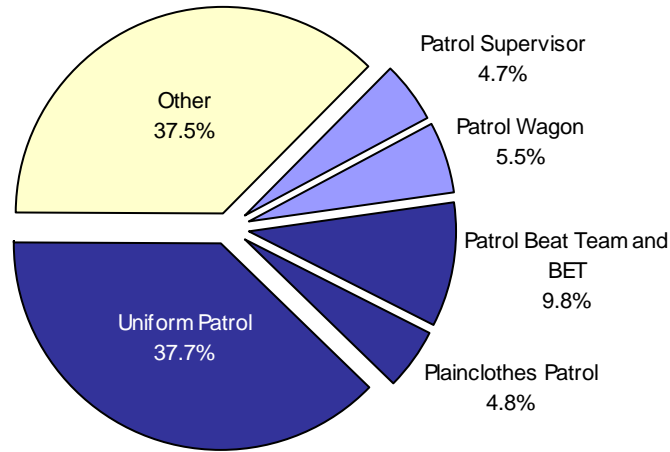
Between 2005-06-01 and 2006-05-31, VPD units in District 1 spent a total of 71,761 unit-hours on 46,006 calls for service. On average, this implies that VPD units in District 1 spent a total of 1 hour and 34 minutes on each call they were dispatched to.

A total of 59,899 regular patrol units in District 1 spent a total of approximately 44,527 unit-hours on 36,259 calls for service. On average, this implies that regular patrol units in District 1 spent a total of 1 hour and 14 minutes on each call for service they were dispatched to. In turn, each regular patrol unit in District 1 spent approximately 45 minutes on each call it was dispatched to.

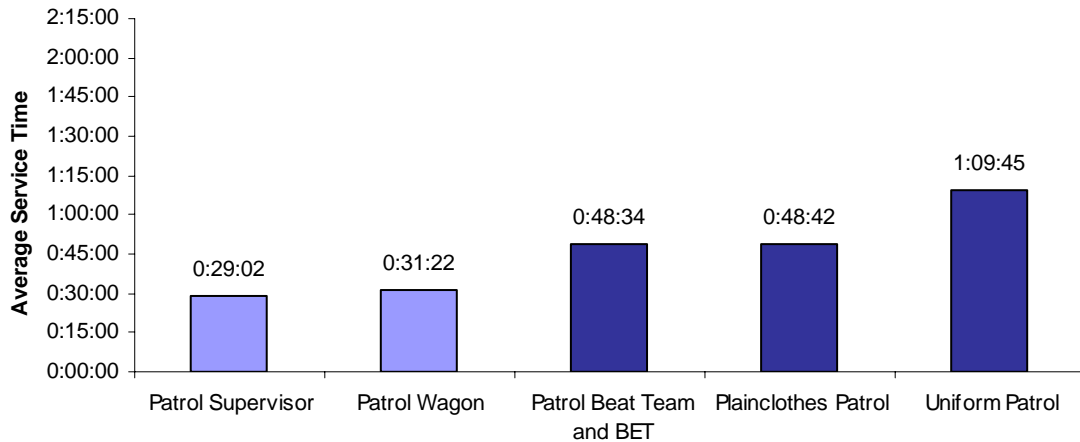
- Uniform patrol units in District 1 spent a total of approximately 31,825 unit-hours on 27,374 calls for service. On average, this implies that uniform patrol units spent a total of 1 hour and 10 minutes on each call for service they were dispatched to in District 1. Out of the 31,825 unit-hours spent by uniform patrol units on calls for service in District 1, 16,786 (52.7%) were spent by two-officer uniform patrol units. The remaining 15,039 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units in District 1 spent a total of approximately 4,043 unit-hours on 4,982 calls for service. On average, this implies that plainclothes patrol units in District 1 spent a total of 49 minutes on each call for service they were dispatched to.
- Patrol beat units in District 1 spent a total of approximately 7,971 unit-hours on 9,976 calls for service. On average, this implies that patrol beat units in District 1 spent a total of 48 minutes on each call for service they were dispatched to.
- Bicycle units in District 1 spent an additional 377 unit-hours on 229 calls. On average, this implies that bicycle units in District 1 spent a total of 1 hour and 39 minutes on each call for service they were dispatched to.

For their part, patrol supervisors in District 1 spent a total of approximately 3,943 hours on 8,147 calls for service. On average, this implies that patrol supervisors in District 1 spent a total of 29 minutes on each call for service they were dispatched to. Similarly, patrol wagons in District 1 spent a total of approximately 4,627 hours on 8,854 calls for service. On average, this implies that patrol wagons in District 1 spent a total of 31 minutes on each call for service they were dispatched to.

**Figure 6-156 Total Service Time by Type of Unit in District 1**



**Figure 6-157 Average Service Time by Type of Unit in District 1**

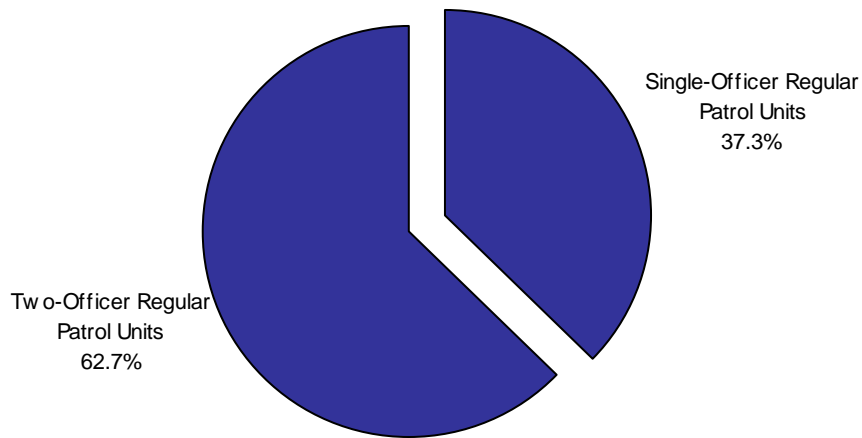


A total of 20,519 single-officer regular patrol units in District 1 spent a total of approximately 16,614 unit-hours on 15,146 calls for service. On average, this implies that single-officer regular patrol units in District 1 spent a combined total (with other patrol units) of 1 hour and 6 minutes on each call for service they were dispatched to. In turn, each single-officer regular patrol unit in District 1 individually spent approximately 49 minutes on each call it was dispatched to.

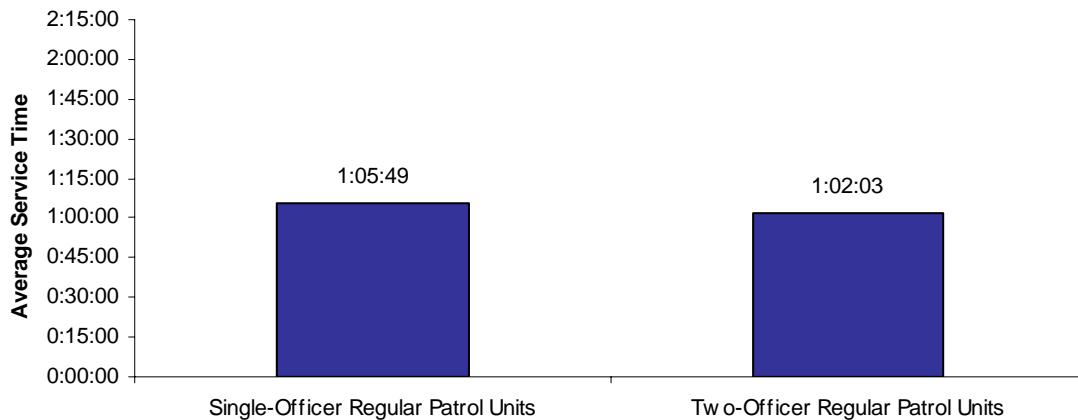
A total of 39,380 two-officer regular patrol units in District 1 spent a total of approximately 27,913 unit-hours on 26,991 calls for service. On average, this implies

that two-officer regular patrol units in District 1 spent a combined total (with other patrol units) of 1 hour and 2 minutes on each call for service they were dispatched to. In turn, each two-officer regular patrol unit in District 1 individually spent approximately 43 minutes on each call it was dispatched to.

**Figure 6-158 Total Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 1**



**Figure 6-159 Average Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 1**



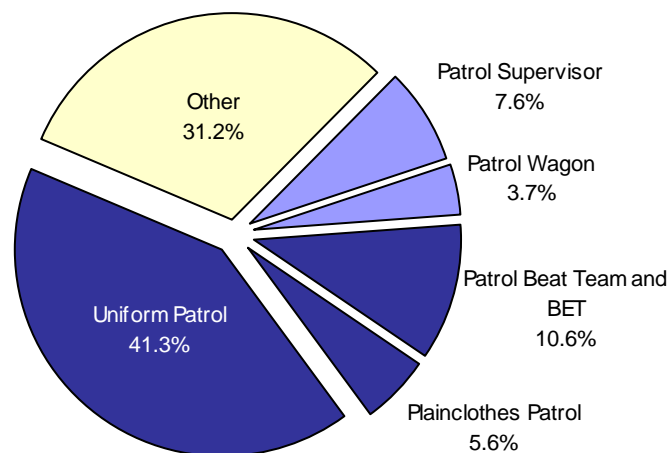


Between 2005-06-01 and 2006-05-31, VPD units in District 1 spent a total of 11,150 unit-hours on 3,320 priority 1 calls. This implies that VPD units in District 1 spent an average of 3 hours and 22 minutes on each priority 1 call they were dispatched to.

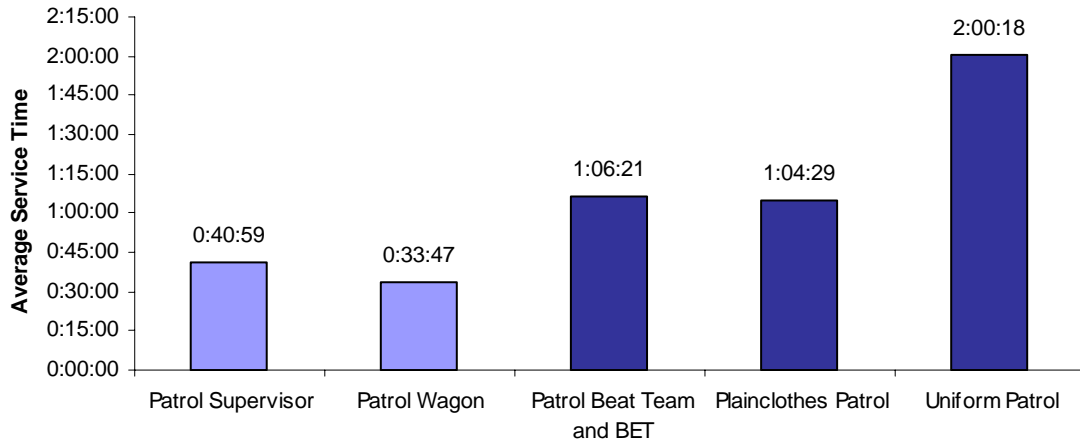
For their part, regular patrol units in District 1 spent a total of 7,494 unit-hours on 3,129 priority 1 calls. This implies that regular patrol units in District 1 spent an average of 2 hours and 24 minutes on each priority 1 call they were dispatched to.

- Uniform patrol units in District 1 spent a total of approximately 5,351 unit-hours on 2,669 priority 1 calls. On average, this implies that uniform patrol units in District 1 spent a total of 2 hours on each priority 1 call they were dispatched to.
- Plainclothes patrol units in District 1 spent a total of approximately 721 unit-hours on 671 priority 1 calls. On average, this implies that plainclothes patrol units in District 1 spent a total of 1 hour and 4 minutes on each priority 1 call they were dispatched to.
- Patrol beat units in District 1 spent a total of approximately 1,320 unit-hours on 1,202 priority 1 calls. On average, this implies that patrol beat units in District 1 spent a total of 1 hour and 6 minutes on each priority 1 call they were dispatched to.

**Figure 6-160 Total Service Time on Priority 1 Calls by Type of Unit in District 1**

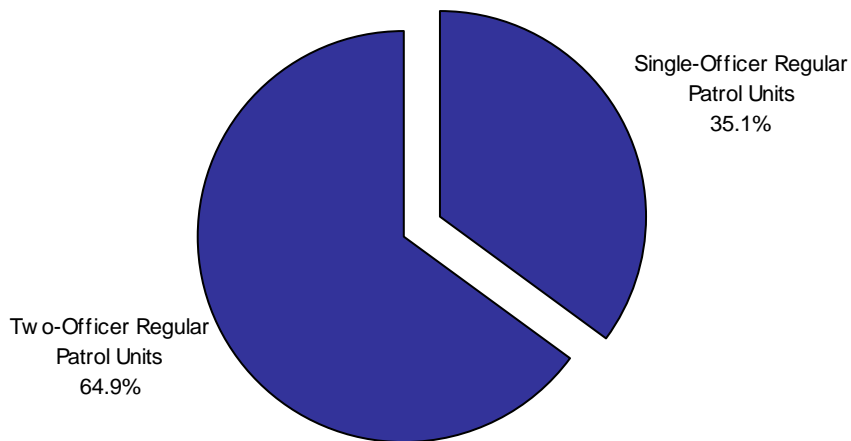


**Figure 6-161 Average Service Time on Priority 1 Calls by Type of Unit in District 1**

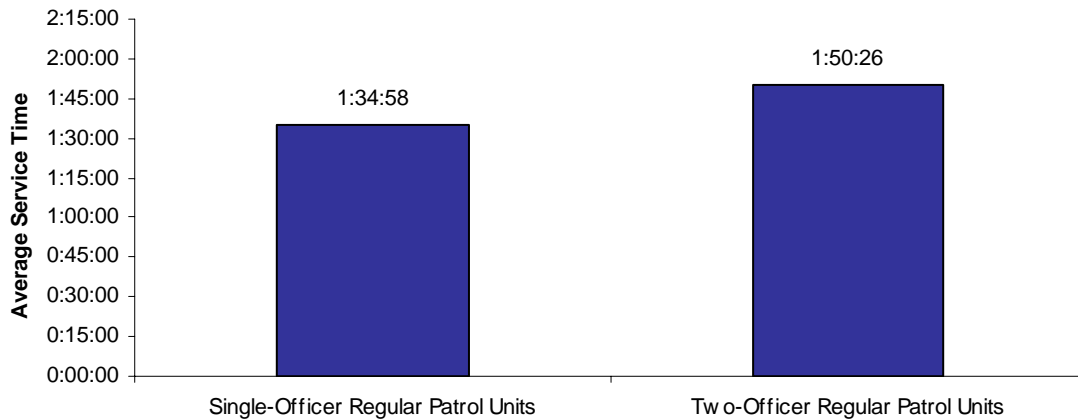


Single-officer regular patrol units in District 1 spent a total of approximately 2,628 unit-hours on 1,660 priority 1 calls. On average, this implies that single-officer regular patrol units in District 1 spent a total of 1 hour and 35 minutes on each priority 1 call they were dispatched to. By comparison, two-officer regular patrol units in District 1 spent a total of approximately 4,867 unit-hours on 2,644 priority 1 calls. On average, this implies that two-officer regular patrol units in District 1 spent a total of 1 hour and 50 minutes on each priority 1 call they were dispatched to.

**Figure 6-162 Total Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1**



**Figure 6-163 Average Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1**

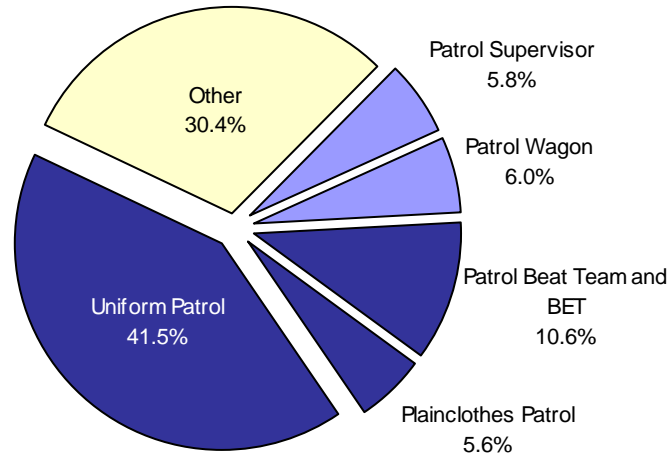


Between 2005-06-01 and 2006-05-31, VPD units in District 1 spent a total of 11,714 unit-hours on 6,660 priority 2 calls. This implies that VPD units in District 1 spent an average of 1 hour and 46 minutes on each priority 2 call they were dispatched to.

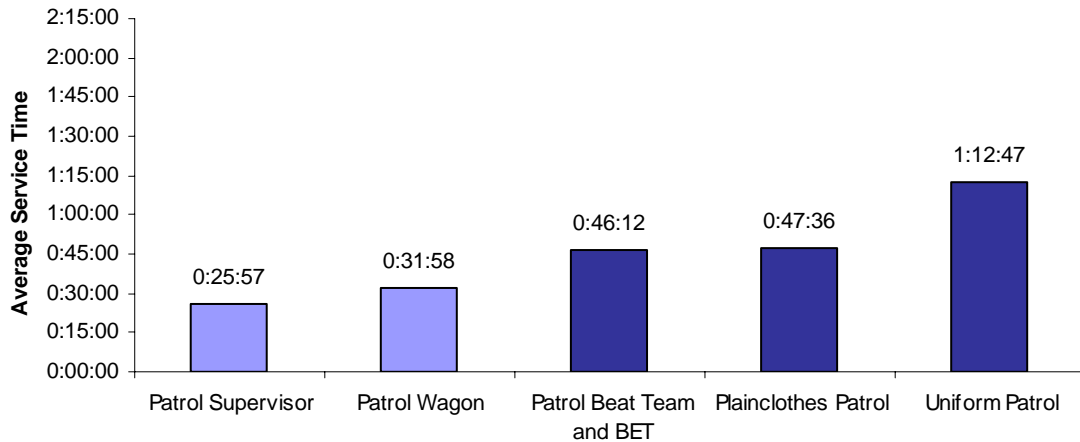
For their part, regular patrol units in District 1 spent a total of 8,169 unit-hours on 5,976 priority 2 calls. This implies that regular patrol units in District 1 spent an average of 1 hour and 22 minutes on each priority 2 call they were dispatched to.

- Uniform patrol units in District 1 spent a total of approximately 5,824 unit-hours on 4,801 priority 2 calls. On average, this implies that uniform patrol units in District 1 spent a total of 1 hour and 13 minutes on each priority 2 call they were dispatched to.
- Plainclothes patrol units in District 1 spent a total of approximately 786 unit-hours on 990 priority 2 calls. On average, this implies that plainclothes patrol units in District 1 spent a total of 48 minutes on each priority 2 call they were dispatched to.
- Patrol beat units in District 1 spent a total of approximately 1,460 unit-hours on 1,895 priority 2 calls. On average, this implies that patrol beat units in District 1 spent a total of 46 minutes on each priority 2 call they were dispatched to.

**Figure 6-164 Total Service Time on Priority 2 Calls by Type of Unit in District 1**

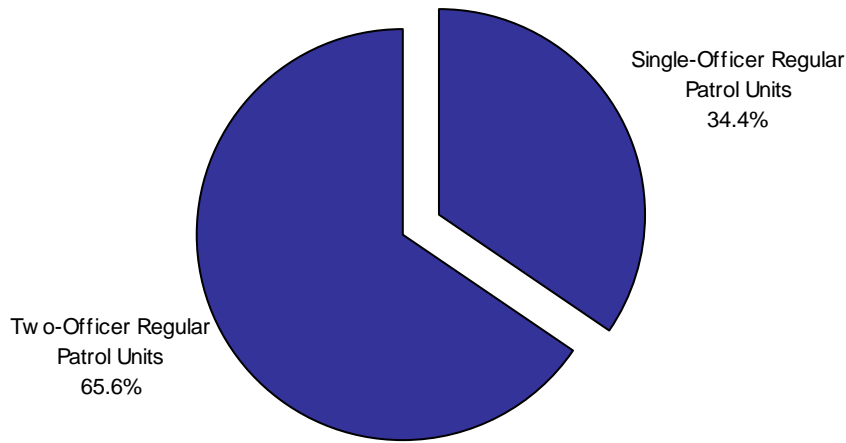


**Figure 6-165 Average Service Time on Priority 2 Calls by Type of Unit in District 1**

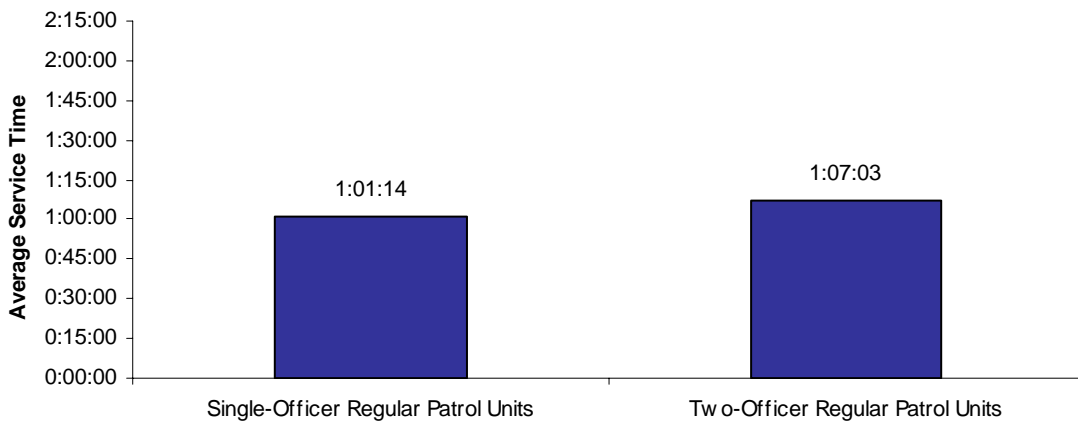


Single-officer regular patrol units in District 1 spent a total of approximately 2,811 unit-hours on 2,754 priority 2 calls. On average, this implies that single-officer regular patrol units in District 1 spent a total of 1 hour and 1 minute on each priority 2 call they were dispatched to. By comparison, two-officer regular patrol units in District 1 spent a total of approximately 5,358 unit-hours on 4,795 priority 2 calls. On average, this implies that two-officer regular patrol units in District 1 spent a total of 1 hour and 7 minutes on each priority 2 call they were dispatched to.

**Figure 6-166 Total Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1**



**Figure 6-167 Average Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1**

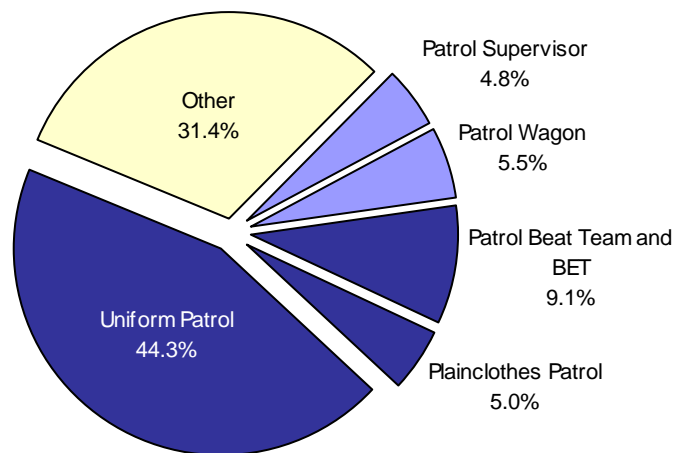


Between 2005-06-01 and 2006-05-31, VPD units in District 1 spent a total of 27,144 unit-hours on 23,678 priority 3 calls. This implies that VPD units in District 1 spent an average of 1 hour and 9 minutes on each priority 3 call they were dispatched to.

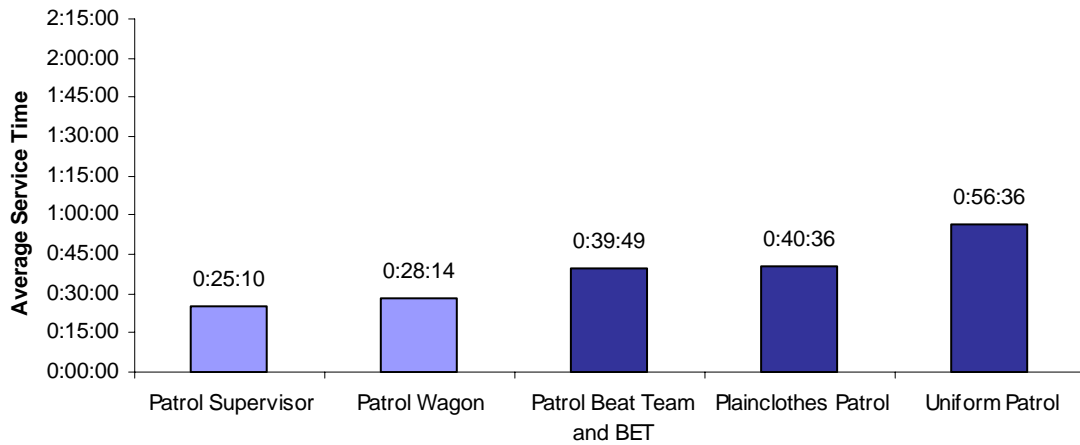
For their part, regular patrol units in District 1 spent a total of 18,646 unit-hours on 19,388 priority 3 calls. This implies that regular patrol units in District 1 spent an average of 58 minutes on each priority 3 call they were dispatched to.

- Uniform patrol units in District 1 spent a total of approximately 14,011 unit-hours on 14,854 priority 3 calls. On average, this implies that uniform patrol units in District 1 spent a total of 57 minutes on each priority 3 call they were dispatched to.
- Plainclothes patrol units in District 1 spent a total of approximately 1,570 unit-hours on 2,320 priority 3 calls. On average, this implies that plainclothes patrol units in District 1 spent a total of 41 minutes on each priority 3 call they were dispatched to.
- Patrol beat units in District 1 spent a total of approximately 2,753 unit-hours on 4,226 priority 3 calls. On average, this implies that patrol beat units in District 1 spent a total of 39 minutes on each priority 3 call they were dispatched to.

**Figure 6-168 Total Service Time on Priority 3 Calls by Type of Unit in District 1**

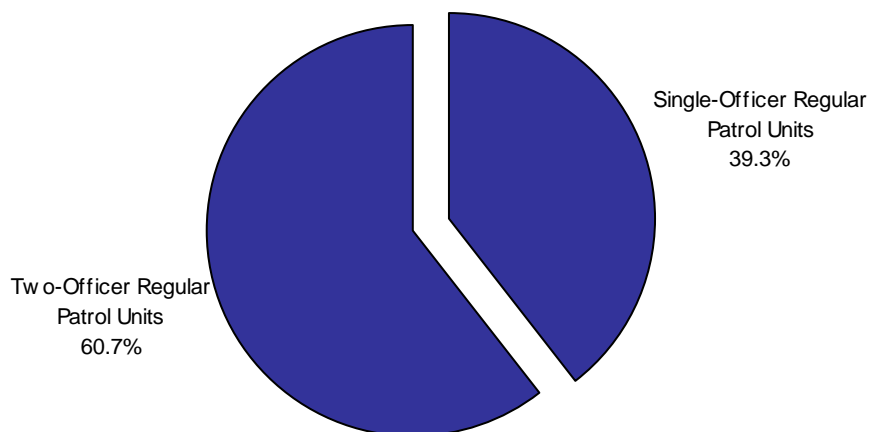


**Figure 6-169 Average Service Time on Priority 3 Calls by Type of Unit in District 1**

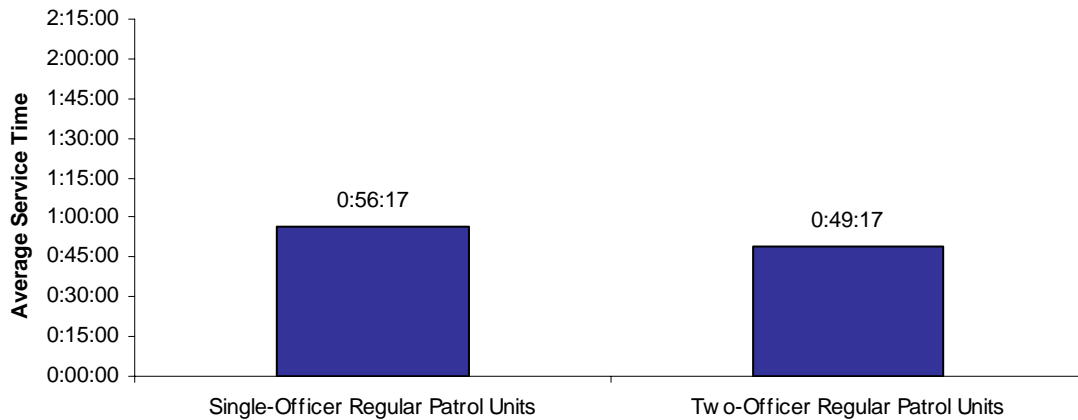


Single-officer regular patrol units in District 1 spent a total of approximately 7,330 unit-hours on 7,813 priority 3 calls. On average, this implies that single-officer regular patrol units in District 1 spent a total of 56 minutes on each priority 3 call they were dispatched to. By comparison, two-officer regular patrol units in District 1 spent a total of approximately 11,316 unit-hours on 13,779 priority 3 calls. On average, this implies that two-officer regular patrol units in District 1 spent a total of 49 minutes on each priority 3 call they were dispatched to.

**Figure 6-170 Total Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1**



**Figure 6-171 Average Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1**



Between 2005-06-01 and 2006-05-31, VPD units in District 1 spent a total of 21,727 unit-hours on 12,338 priority 4 calls. This implies that VPD units in District 1 spent an average of 1 hour and 46 minutes on each priority 4 call they were dispatched to.

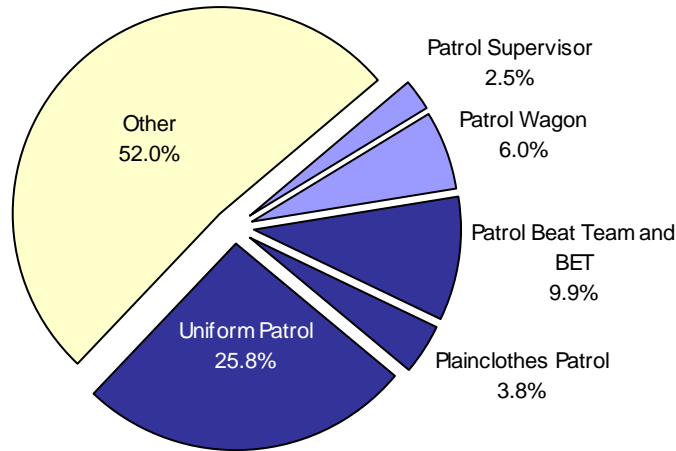
For their part, regular patrol units in District 1 spent a total of 10,195 unit-hours on 7,758 priority 4 calls. This implies that regular patrol units in District 1 spent an average of 1 hour and 19 minutes on each priority 4 call they were dispatched to.

- Uniform patrol units in District 1 spent a total of approximately 6,626 unit-hours on 5,043 priority 4 calls. On average, this implies that uniform patrol units in District 1 spent a total of 1 hour and 19 minutes on each priority 4 call they were dispatched to.
- Plainclothes patrol units in District 1 spent a total of approximately 965 unit-hours on 1,000 priority 4 calls. On average, this implies that plainclothes patrol units in District 1 spent a total of 58 minutes on each priority 4 call they were dispatched to.
- Patrol beat units in District 1 spent a total of approximately 2,431 unit-hours on 2,650 priority 4 calls. On average, this implies that patrol beat units in District 1 spent a total of 55 minutes on each priority 4 call they were dispatched to.

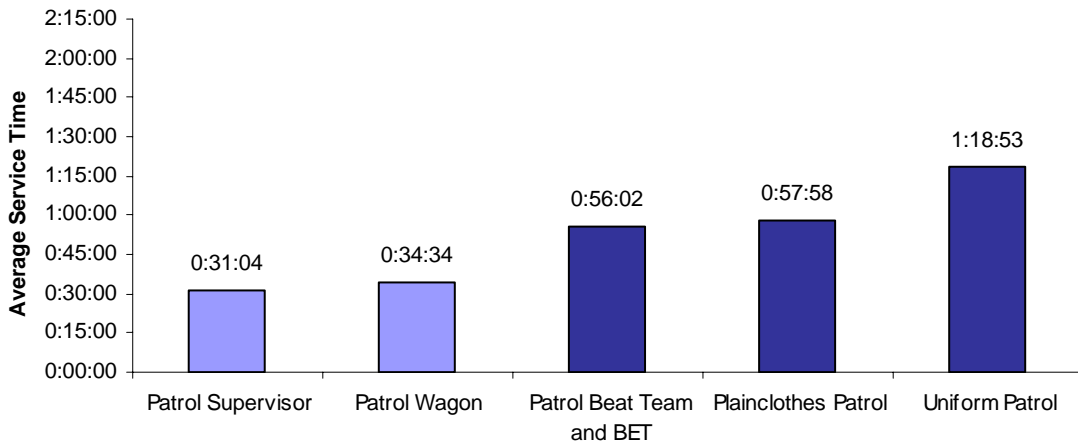


**Figure 6-172 Total Service Time on Lower Priority Calls by Type of Unit in District**

1



**Figure 6-173 Average Service Time on Lower Priority Calls by Type of Unit in District 1**

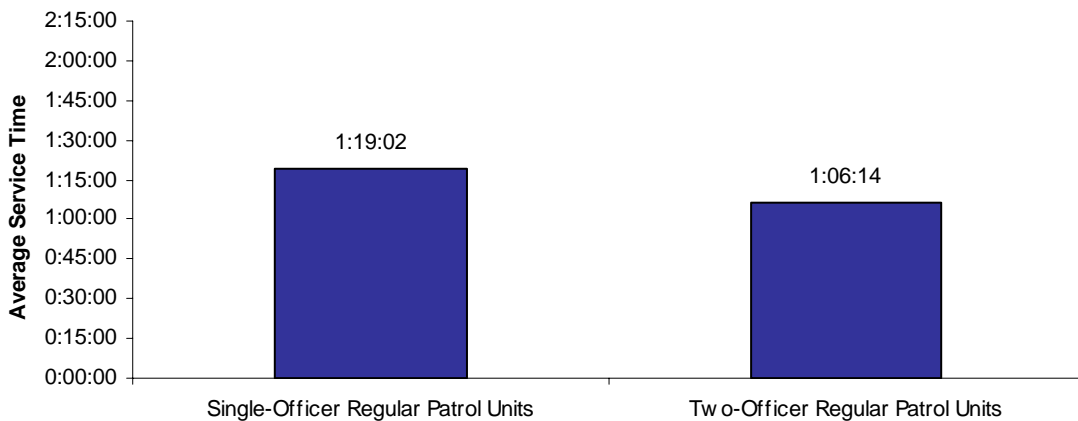


Single-officer regular patrol units in District 1 spent a total of approximately 3,841 unit-hours on 2,915 priority 4 calls. On average, this implies that single-officer regular patrol units in District 1 spent a total of 1 hour and 19 minutes on each priority 4 call they were dispatched to. By comparison, two-officer regular patrol units in District 1 spent a total of approximately 6,355 unit-hours on 5,765 priority 4 calls. On average, this implies that two-officer regular patrol units in District 1 spent a total of 1 hour and 6 minutes on each priority 4 call they were dispatched to.

**Figure 6-174 Total Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1**



**Figure 6-175 Average Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 1**



Between 2005-06-01 and 2006-05-31, VPD units in District 2 spent a total of 87,417 unit-hours on 53,324 calls for service. On average, this implies that VPD units in District 2 spent a total of 1 hour and 38 minutes on each call they were dispatched to.

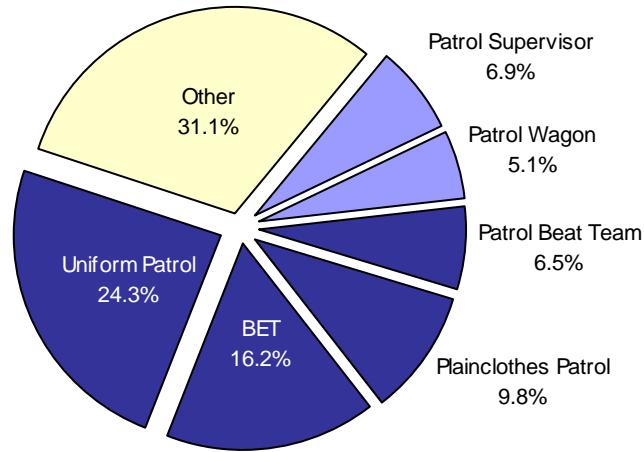
A total of 65,794 regular patrol units in District 2 spent a total of approximately 56,356 unit-hours on 43,725 calls for service. On average, this implies that regular patrol units in District 2 spent a total of 1 hour and 17 minutes on each call for service they were

dispatched to. In turn, each regular patrol unit in District 2 spent approximately 51 minutes on each call it was dispatched to.

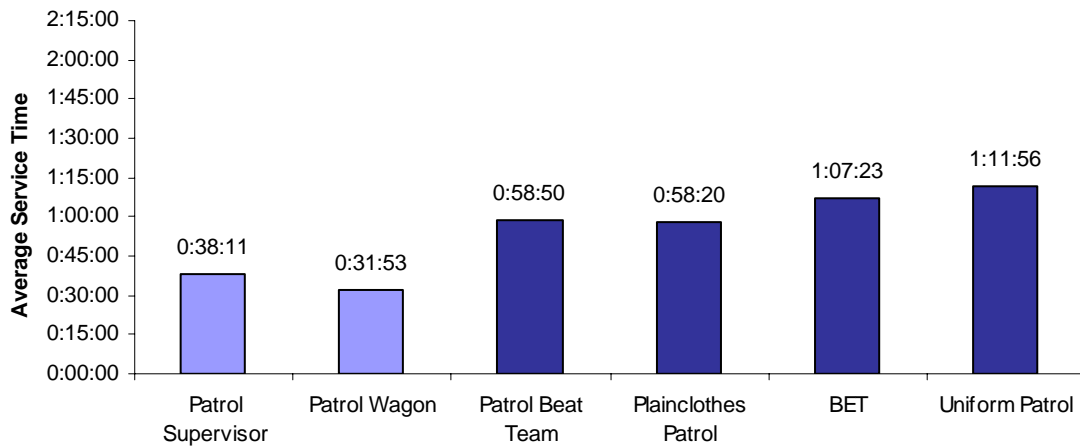
- Uniform patrol units in District 2 spent a total of approximately 24,073 unit-hours on 20,080 calls for service. On average, this implies that uniform patrol units in District 2 spent a total of 1 hour and 12 minutes on each call for service they were dispatched to. Out of the 24,073 unit-hours spent by uniform patrol units in District 2 on calls for service, 13,446 (55.9%) were spent by two-officer uniform patrol units. The remaining 10,627 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units in District 2 spent a total of approximately 9,724 unit-hours on 10,003 calls for service. On average, this implies that plainclothes patrol units in District 2 spent a total of 58 minutes on each call for service they were dispatched to.
- Patrol beat units in District 2 spent a total of approximately 6,471 unit-hours on 6,600 calls for service (in particular, patrol beat beats on Commercial Drive spent a total of approximately 1,413 hours on 1,687 calls for service). On average, this implies that patrol beat units in District 2 spent a total of 59 minutes on each call for service they were dispatched to.
- In District 2, BET units spent an additional 16,012 unit-hours on 14,258 calls. On average, this implies that BET units spent a total of 1 hour and 7 minutes on each call for service they were dispatched to.

For their part, patrol supervisors in District 2 spent a total of approximately 6,875 hours on 10,802 calls for service (in particular, BET supervisors spent a total of approximately 1,873 hours on 2,922 calls for service). On average, this implies that patrol supervisors in District 2 spent a total of 38 minutes on each call for service they were dispatched to. Similarly, patrol wagons in District 2 spent a total of approximately 5,084 hours on 9,566 calls for service. On average, this implies that patrol wagons in District 2 spent a total of 32 minutes on each call for service they were dispatched to.

**Figure 6-176 Total Service Time by Type of Unit in District 2**



**Figure 6-177 Average Service Time by Type of Unit in District 2**

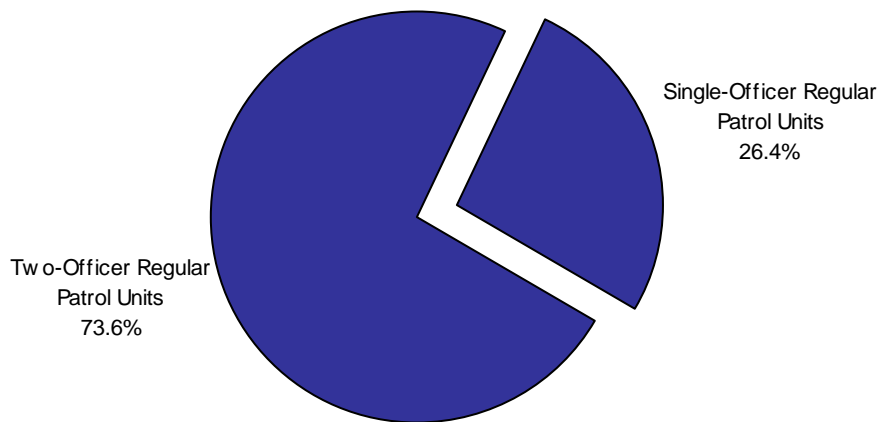


A total of 15,609 single-officer regular patrol units in District 2 spent a total of approximately 14,871 unit-hours on 12,371 calls for service. On average, this implies that single-officer regular patrol units in District 2 spent a total of 1 hour and 12 minutes on each call for service they were dispatched to. In turn, each single-officer regular patrol unit in District 2 spent approximately 57 minutes on each call it was dispatched to.

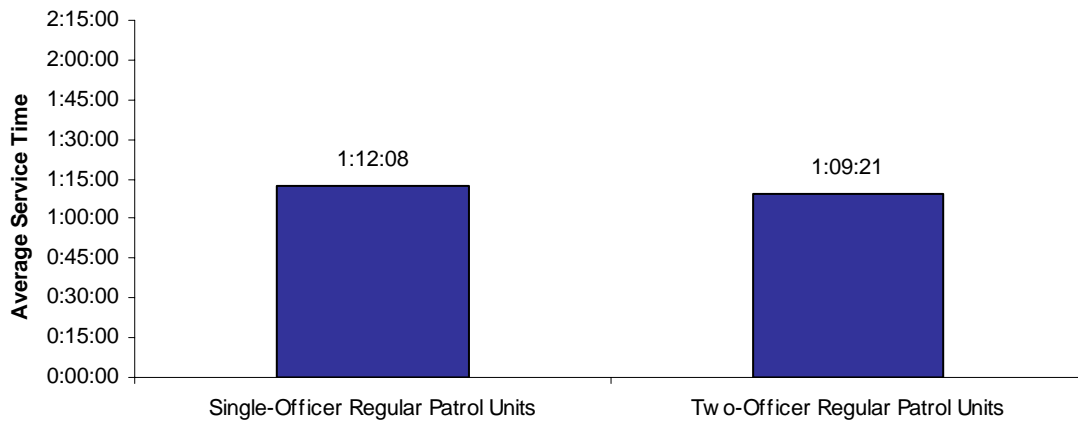
A total of 50,185 two-officer regular patrol units in District 2 spent a total of approximately 41,485 unit-hours on 35,890 calls for service. On average, this implies that two-officer regular patrol units in District 2 spent a total of 1 hour and 9 minutes on

each call for service they were dispatched to. In turn, each two-officer regular patrol unit in District 2 spent approximately 50 minutes on each call it was dispatched to.

**Figure 6-178 Total Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 2**



**Figure 6-179 Average Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 2**

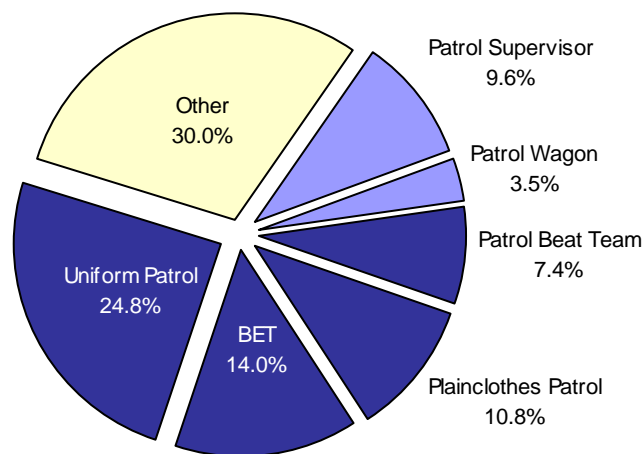


Between 2005-06-01 and 2006-05-31, VPD units in District 2 spent a total of 16,756 unit-hours on 4,328 priority 1 calls. This implies that VPD units in District 2 spent an average of 3 hours and 52 minutes on each priority 1 call they were dispatched to.

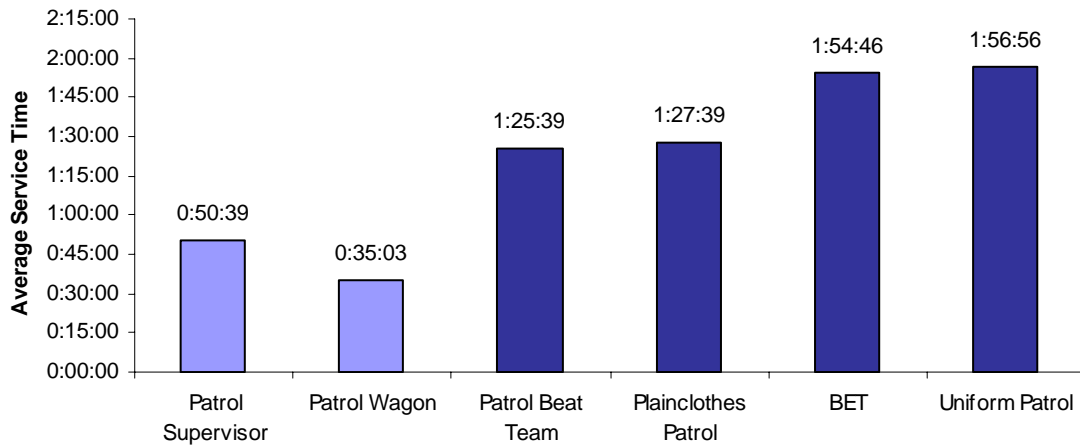
For their part, regular patrol units in District 2 spent a total of 10,711 unit-hours on 4,106 priority 1 calls. This implies that regular patrol units in District 2 spent an average of 2 hours and 37 minutes on each priority 1 call they were dispatched to.

- Uniform patrol units in District 2 spent a total of approximately 4,667 unit-hours on 2,395 priority 1 calls. On average, this implies that uniform patrol units in District 2 spent a total of 1 hour and 57 minutes on each priority 1 call they were dispatched to.
- Plainclothes patrol units in District 2 spent a total of approximately 2,023 unit-hours on 1,385 priority 1 calls. On average, this implies that plainclothes patrol units in District 2 spent a total of 1 hour and 28 minutes on each priority 1 call they were dispatched to.
- Patrol beat units in District 2 spent a total of approximately 1,390 unit-hours on 974 priority 1 calls. On average, this implies that patrol beat units in District 2 spent a total of 1 hour and 26 minutes on each priority 1 call they were dispatched to.
- BET units in District 2 spent a total of approximately 2,624 unit-hours on 1,372 priority 1 calls. On average, this implies that BET units in District 2 spent a total of 1 hour and 55 minutes on each priority 1 call they were dispatched to.

**Figure 6-180 Total Service Time on Priority 1 Calls by Type of Unit in District 2**

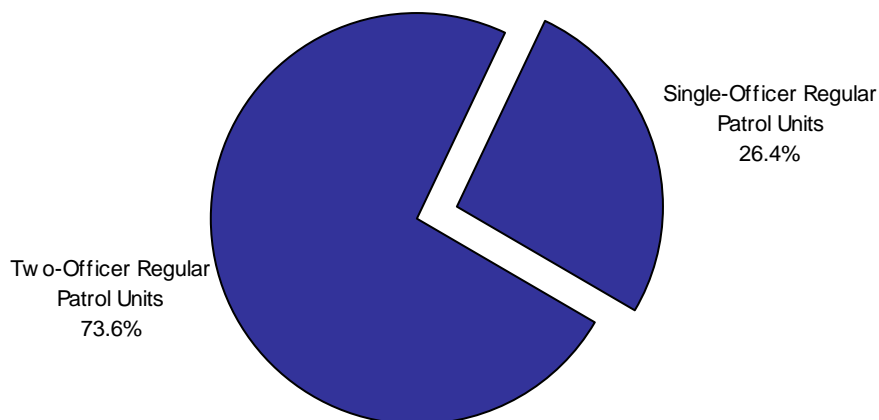


**Figure 6-181 Average Service Time on Priority 1 Calls by Type of Unit in District 2**

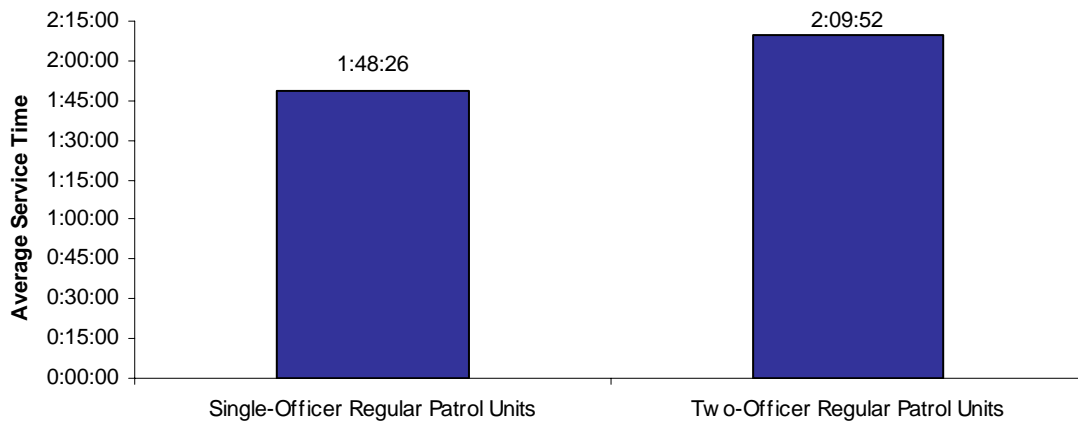


Single-officer regular patrol units in District 2 spent a total of approximately 2,832 unit-hours on 1,567 priority 1 calls. On average, this implies that single-officer regular patrol units in District 2 spent a total of 1 hour and 48 minutes on each priority 1 call they were dispatched to. By comparison, two-officer regular patrol units in District 2 spent a total of approximately 7,879 unit-hours on 3,640 priority 1 calls. On average, this implies that two-officer regular patrol units in District 2 spent a total of 2 hours and 10 minutes on each priority 1 call they were dispatched to.

**Figure 6-182 Total Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2**



**Figure 6-183 Average Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2**



Between 2005-06-01 and 2006-05-31, VPD units in District 2 spent a total of 13,042 unit-hours on 7,625 priority 2 calls. This implies that VPD units in District 2 spent an average of 1 hour and 43 minutes on each priority 2 call they were dispatched to.

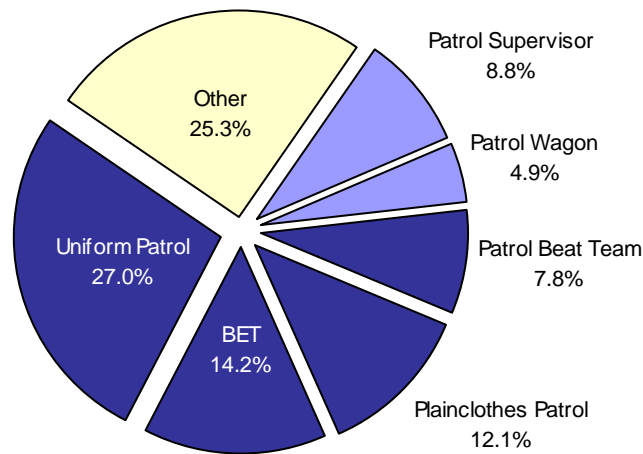
For their part, regular patrol units in District 2 spent a total of 9,118 unit-hours on 6,903 priority 2 calls. This implies that regular patrol units in District 2 spent an average of 1 hour and 19 minutes on each priority 2 call they were dispatched to.

- Uniform patrol units in District 2 spent a total of approximately 4,027 unit-hours on 3,502 priority 2 calls. On average, this implies that uniform patrol units in District 2 spent a total of 1 hour and 9 minutes on each priority 2 call they were dispatched to.
- Plainclothes patrol units in District 2 spent a total of approximately 1,803 unit-hours on 1,990 priority 2 calls. On average, this implies that plainclothes patrol units in District 2 spent a total of 54 minutes on each priority 2 call they were dispatched to.
- Patrol beat units in District 2 spent a total of approximately 1,167 unit-hours on 1,193 priority 2 calls. On average, this implies that patrol beat units in District 2 spent a total of 59 minutes on each priority 2 call they were dispatched to.

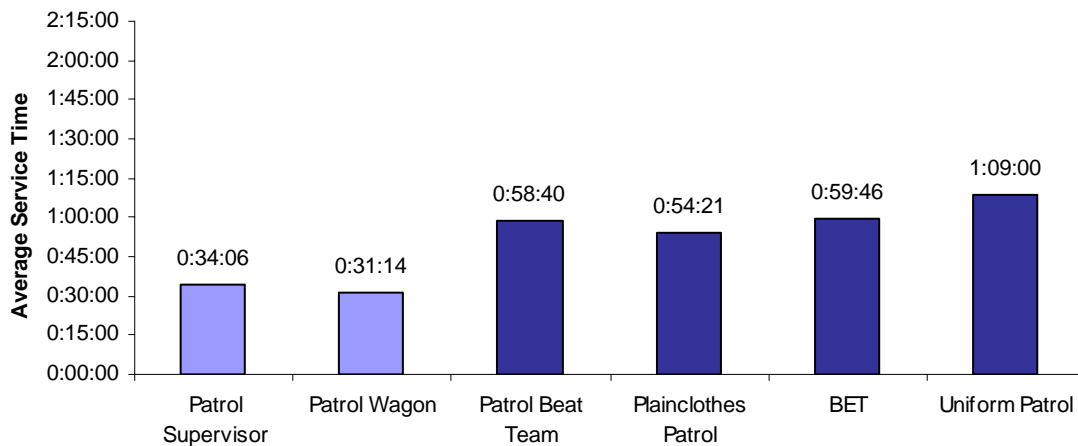


- BET units in District 2 spent a total of approximately 2,120 unit-hours on 2,128 priority 2 calls. On average, this implies that BET units in District 2 spent a total of 1 hour on each priority 2 call they were dispatched to.

**Figure 6-184 Total Service Time on Priority 2 Calls by Type of Unit in District 2**



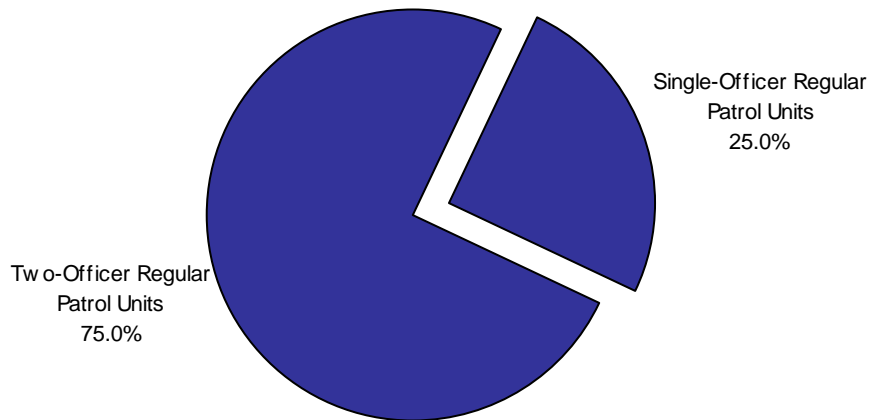
**Figure 6-185 Average Service Time on Priority 2 Calls by Type of Unit in District 2**



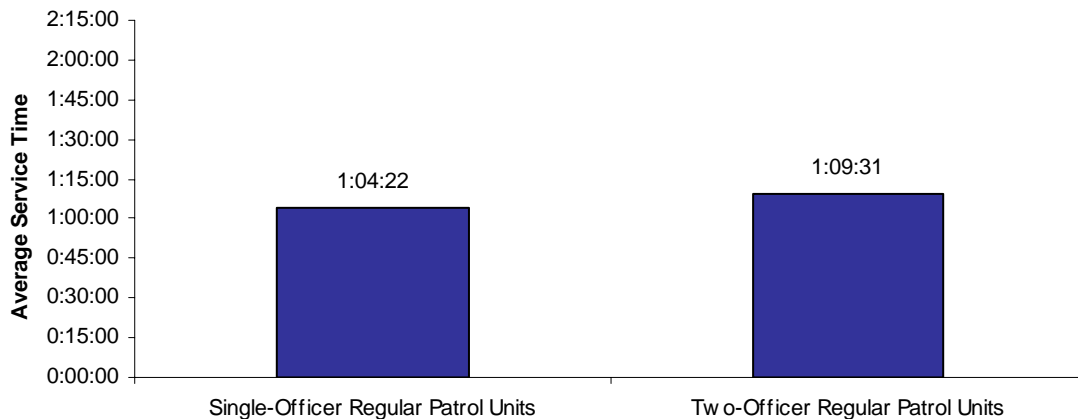
Single-officer regular patrol units in District 2 spent a total of approximately 2,283 unit-hours on 2,128 priority 2 calls. On average, this implies that single-officer regular patrol units in District 2 spent a total of 1 hour and 4 minutes on each priority 2 call they were dispatched to. By comparison, two-officer regular patrol units in District 2 spent a total of approximately 6,835 unit-hours on 5,900 priority 2 calls. On average, this implies that

two-officer regular patrol units in District 2 spent a total of 1 hour and 10 minutes on each priority 2 call they were dispatched to.

**Figure 6-186 Total Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2**



**Figure 6-187 Average Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2**

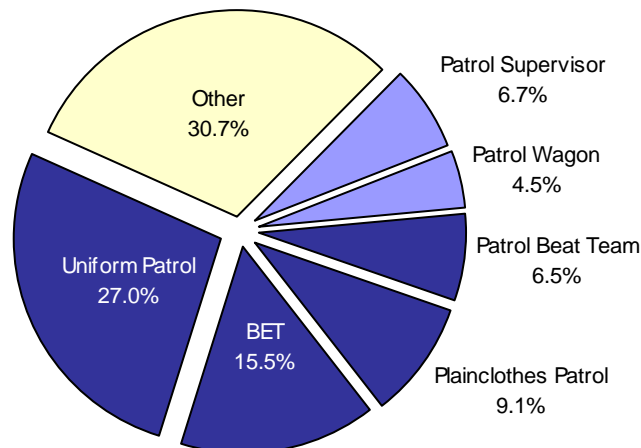


Between 2005-06-01 and 2006-05-31, VPD units in District 2 spent a total of 35,787 unit-hours on 28,317 priority 3 calls. This implies that VPD units in District 2 spent an average of 1 hour and 16 minutes on each priority 3 call they were dispatched to.

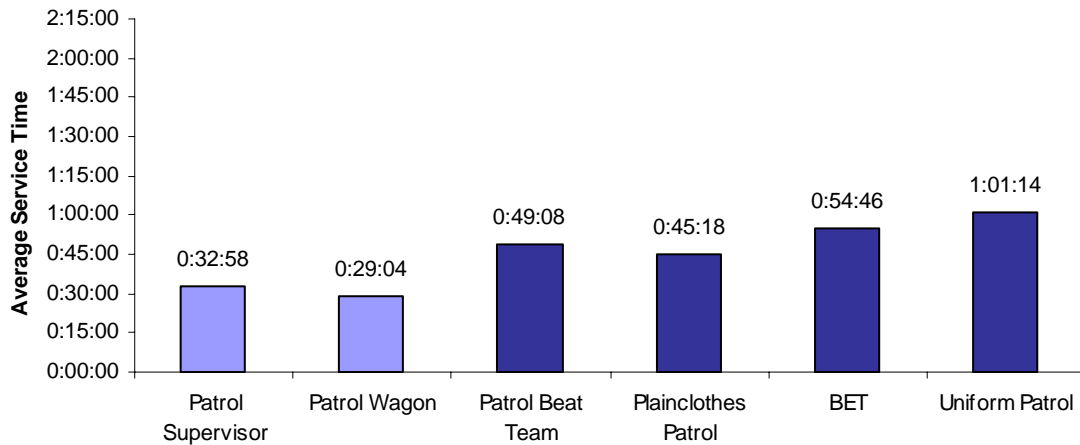
For their part, regular patrol units in District 2 spent a total of 23,383 unit-hours on 23,065 priority 3 calls. This implies that regular patrol units in District 2 spent an average of 1 hour and 1 minute on each priority 3 call they were dispatched to.

- Uniform patrol units in District 2 spent a total of approximately 10,840 unit-hours on 10,620 priority 3 calls. On average, this implies that uniform patrol units in District 2 spent a total of 1 hour and 1 minute on each priority 3 call they were dispatched to.
- Plainclothes patrol units in District 2 spent a total of approximately 3,675 unit-hours on 4,867 priority 3 calls. On average, this implies that plainclothes patrol units in District 2 spent a total of 45 minutes on each priority 3 call they were dispatched to.
- Patrol beat units in District 2 spent a total of approximately 2,628 unit-hours on 3,210 priority 3 calls. On average, this implies that patrol beat units in District 2 spent a total of 49 minutes on each priority 3 call they were dispatched to.
- BET units in District 2 spent a total of approximately 6,219 unit-hours on 6,814 priority 3 calls. On average, this implies that BET units in District 2 spent a total of 55 minutes on each priority 3 call they were dispatched to.

**Figure 6-188 Total Service Time on Priority 3 Calls by Type of Unit in District 2**

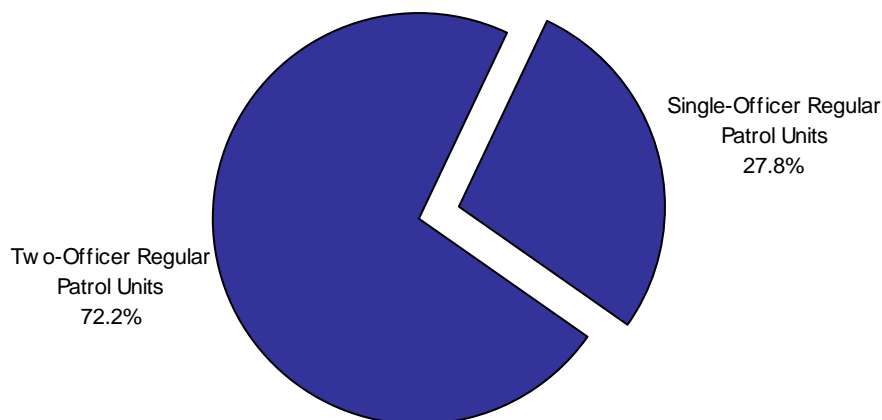


**Figure 6-189 Average Service Time on Priority 3 Calls by Type of Unit in District 2**

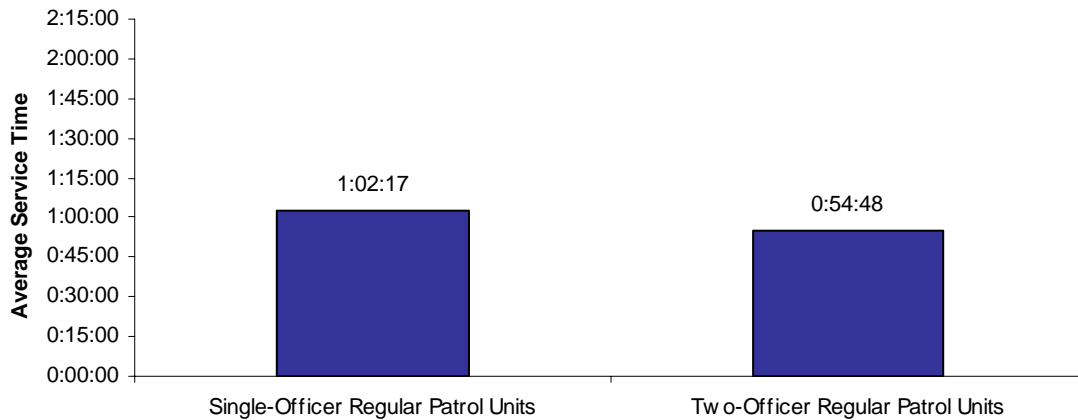


Single-officer regular patrol units in District 2 spent a total of approximately 6,491 unit-hours on 6,254 priority 3 calls. On average, this implies that single-officer regular patrol units in District 2 spent a total of 1 hour and 2 minutes on each priority 3 call they were dispatched to. By comparison, two-officer regular patrol units in District 2 spent a total of approximately 16,892 unit-hours on 18,492 priority 3 calls. On average, this implies that two-officer regular patrol units in District 2 spent a total of 55 minutes on each priority 3 call they were dispatched to.

**Figure 6-190 Total Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2**



**Figure 6-191 Average Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2**



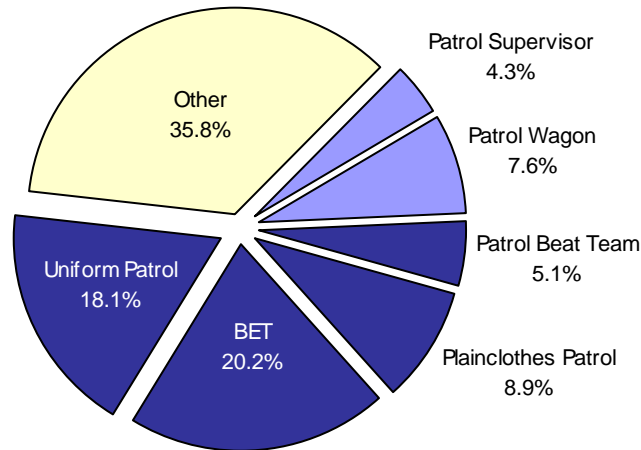
Between 2005-06-01 and 2006-05-31, VPD units in District 2 spent a total of 21,795 unit-hours on 13,034 priority 4 calls. This implies that VPD units in District 2 spent an average of 1 hour and 40 minutes on each priority 4 call they were dispatched to.

For their part, regular patrol units in District 2 spent a total of 13,116 unit-hours on 9,635 priority 4 calls. This implies that regular patrol units in District 2 spent an average of 1 hour and 22 minutes on each priority 4 call they were dispatched to.

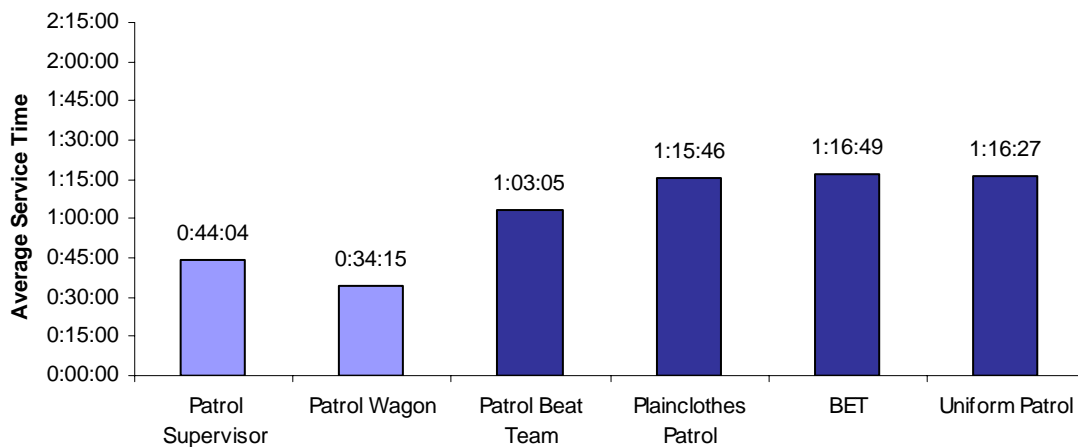
- Uniform patrol units in District 2 spent a total of approximately 4,533 unit-hours on 3,555 priority 4 calls. On average, this implies that uniform patrol units in District 2 spent a total of 1 hour and 17 minutes on each priority 4 call they were dispatched to.
- Plainclothes patrol units in District 2 spent a total of approximately 2,221 unit-hours on 1,754 priority 4 calls. On average, this implies that plainclothes patrol units in District 2 spent a total of 1 hour and 16 minutes on each priority 4 call they were dispatched to.
- Patrol beat units in District 2 spent a total of approximately 1,281 unit-hours on 1,222 priority 4 calls. On average, this implies that patrol beat units in District 2 spent a total of 1 hour and 3 minutes on each priority 4 call they were dispatched to.

- BET units in District 2 spent a total of approximately 5,037 unit-hours on 3,937 priority 4 calls. On average, this implies that BET units in District 2 spent a total of 1 hour and 17 minutes on each priority 4 call they were dispatched to.

**Figure 6-192 Total Service Time on Lower Priority Calls by Type of Unit in District 2**



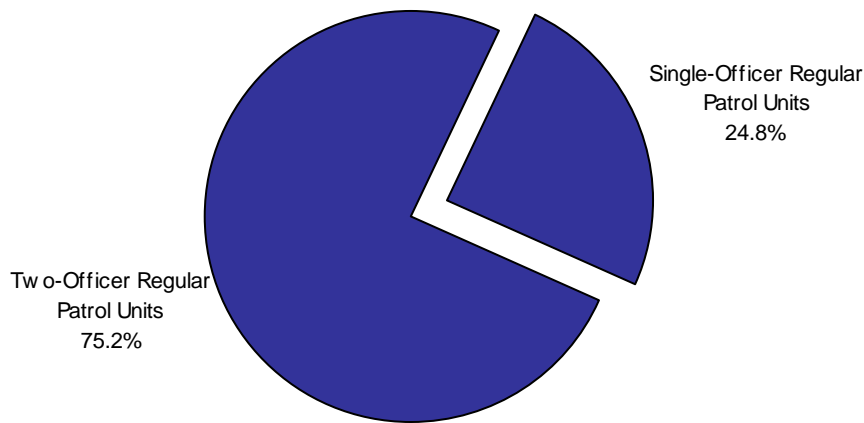
**Figure 6-193 Average Service Time on Lower Priority Calls by Type of Unit in District 2**



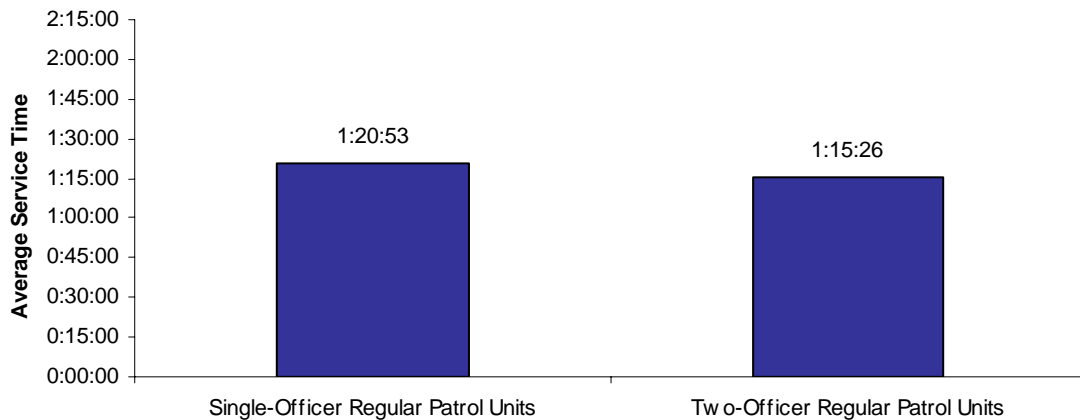
Single-officer regular patrol units in District 2 spent a total of approximately 3,262 unit-hours on 2,418 priority 4 calls. On average, this implies that single-officer regular patrol units in District 2 spent a total of 1 hour and 21 minutes on each priority 4 call they were

dispatched to. By comparison, two-officer regular patrol units in District 2 spent a total of approximately 9,854 unit-hours on 7,844 priority 4 calls. On average, this implies that two-officer regular patrol units in District 2 spent a total of 1 hour and 15 minutes on each priority 4 call they were dispatched to.

**Figure 6-194 Total Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2**



**Figure 6-195 Average Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 2**



Between 2005-06-01 and 2006-05-31, VPD units spent a total of 74,105 unit-hours on 42,945 calls for service in District 3. On average, this implies that VPD units in District 3 spent a total of 1 hour and 44 minutes on each call they were dispatched to.

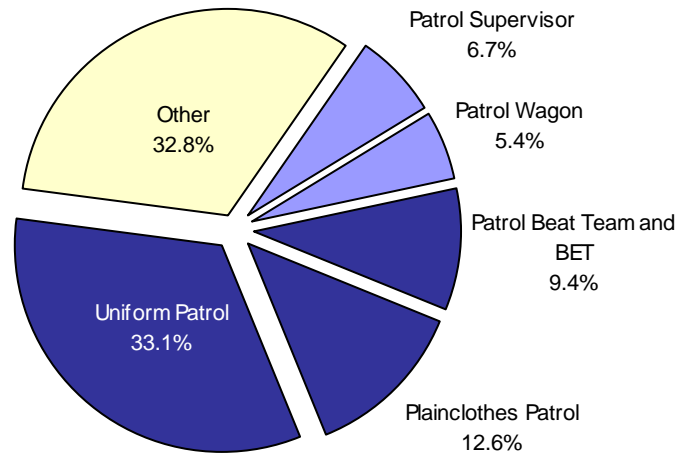
A total of 52,524 regular patrol units in District 3 spent a total of approximately 47,959 unit-hours on 32,778 calls for service. On average, this implies that regular patrol units in District 3 spent a total of 1 hour and 28 minutes on each call for service they were dispatched to. In turn, each regular patrol unit in District 3 spent approximately 55 minutes on each call it was dispatched to.

- Uniform patrol units in District 3 spent a total of approximately 28,817 unit-hours on 20,618 calls for service. On average, this implies that uniform patrol units in District 3 spent a total of 1 hour and 24 minutes on each call for service they were dispatched to. Out of the 28,817 unit-hours spent by uniform patrol units in District 3 on calls for service, 14,775 (51.3%) were spent by two-officer uniform patrol units. The remaining 14,042 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units in District 3 spent a total of approximately 10,961 unit-hours on 11,015 calls for service. On average, this implies that plainclothes patrol units in District 3 spent a total of 1 hour on each call for service they were dispatched to.
- Patrol beat units in District 3 spent a total of approximately 8,099 unit-hours on 8,436 calls for service. On average, this implies that patrol beat units in District 3 spent a total of 58 minutes on each call for service they were dispatched to.

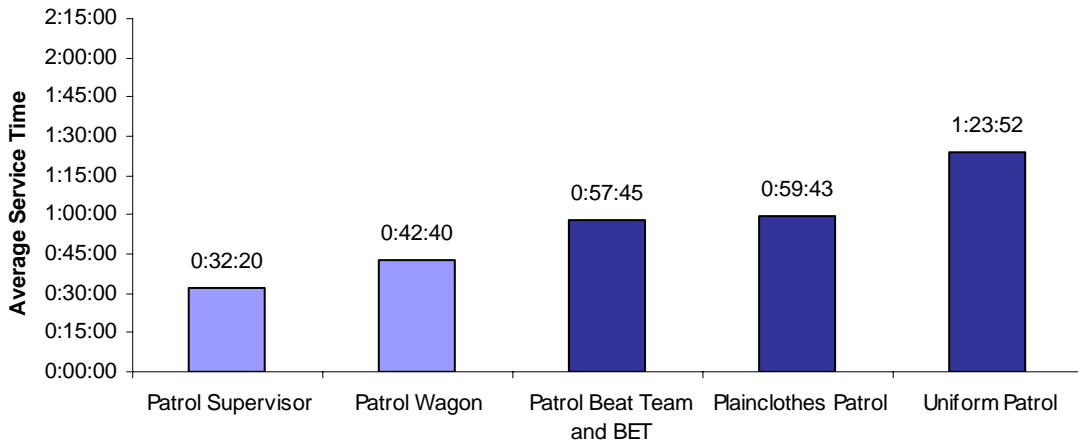
For their part, patrol supervisors in District 3 spent a total of approximately 5,812 hours on 10,785 calls for service. On average, this implies that patrol supervisors in District 3 spent a total of 32 minutes on each call for service they were dispatched to. Similarly, patrol wagons in District 3 spent a total of approximately 4,668 hours on 6,565 calls for service. On average, this implies that patrol wagons in District 3 spent a total of 43 minutes on each call for service they were dispatched to.



**Figure 6-196 Total Service Time by Type of Unit in District 3**



**Figure 6-197 Average Service Time by Type of Unit in District 3**

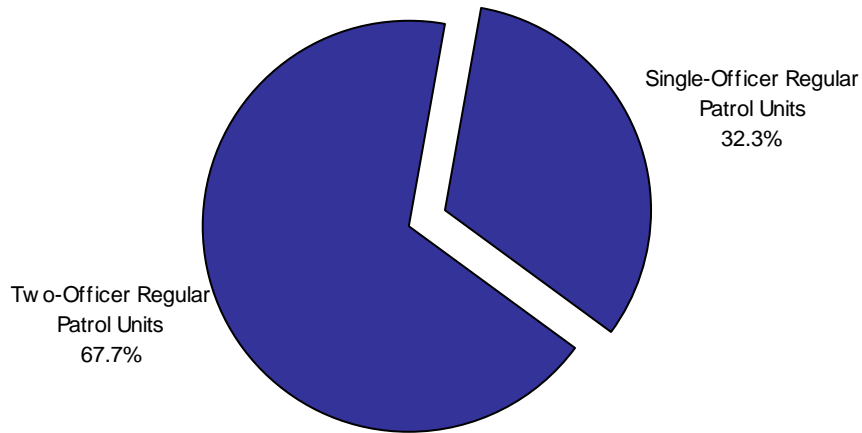


A total of 15,138 single-officer regular patrol units in District 3 spent a total of approximately 15,505 unit-hours on 11,594 calls for service. On average, this implies that single-officer regular patrol units in District 3 spent a total of 1 hour and 20 minutes on each call for service they were dispatched to. In turn, each single-officer regular patrol unit in District 3 spent approximately 1 hour and 1 minute on each call it was dispatched to.

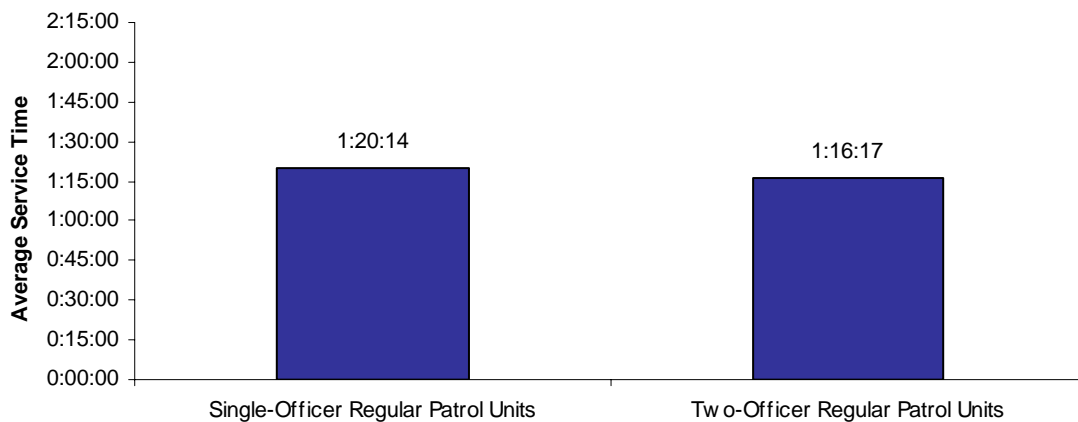
A total of 37,386 two-officer regular patrol units in District 3 spent a total of approximately 32,454 unit-hours on 25,524 calls for service. On average, this implies

that two-officer regular patrol units in District 3 spent a total of 1 hour and 16 minutes on each call for service they were dispatched to. In turn, each two-officer regular patrol unit in District 3 spent approximately 52 minutes on each call it was dispatched to.

**Figure 6-198 Total Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 3**



**Figure 6-199 Average Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 3**

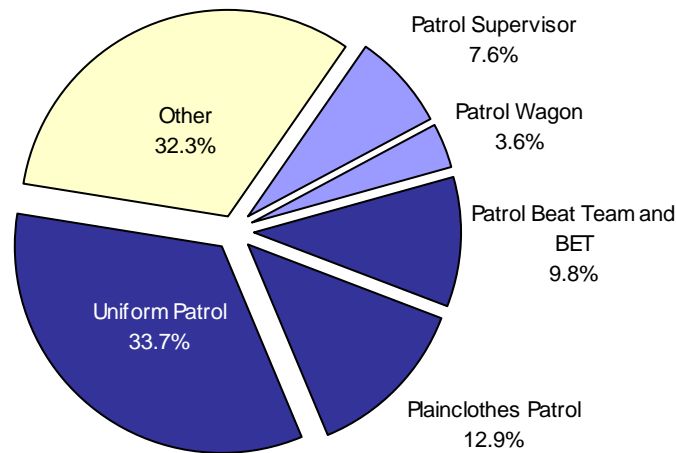


Between 2005-06-01 and 2006-05-31, VPD units in District 3 spent a total of 18,799 unit-hours on 4,902 priority 1 calls. This implies that VPD units in District 3 spent an average of 3 hours and 50 minutes on each priority 1 call they were dispatched to.

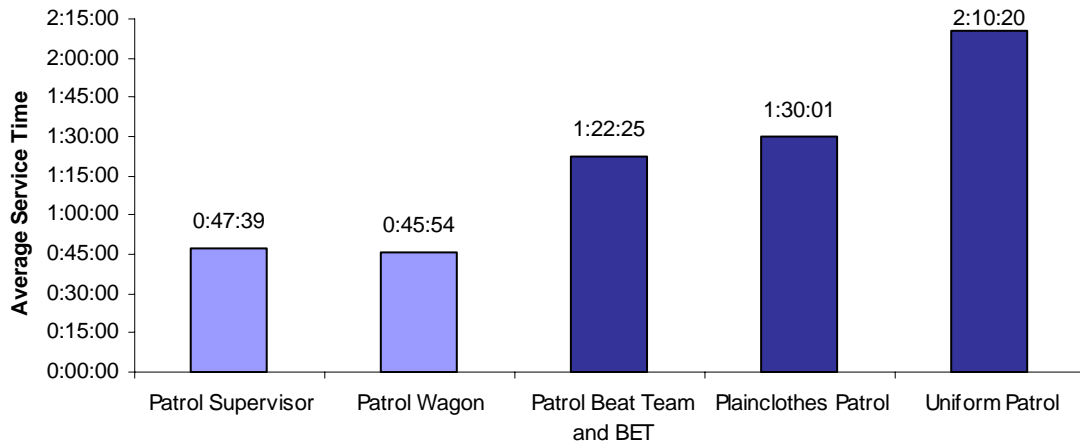
For their part, regular patrol units in District 3 spent a total of 12,259 unit-hours on 4,596 priority 1 calls. This implies that regular patrol units in District 3 spent an average of 2 hours and 40 minutes on each priority 1 call they were dispatched to.

- Uniform patrol units in District 3 spent a total of approximately 7,326 unit-hours on 3,373 priority 1 calls. On average, this implies that uniform patrol units in District 3 spent a total of 2 hours and 10 minutes on each priority 1 call they were dispatched to.
- Plainclothes patrol units in District 3 spent a total of approximately 2,799 unit-hours on 1,866 priority 1 calls. On average, this implies that plainclothes patrol units in District 3 spent a total of 1 hour and 30 minutes on each priority 1 call they were dispatched to.
- Patrol beat units in District 3 spent a total of approximately 2,112 unit-hours on 1,540 priority 1 calls. On average, this implies that patrol beat units in District 3 spent a total of 1 hour and 22 minutes on each priority 1 call they were dispatched to.

**Figure 6-200 Total Service Time on Priority 1 Calls by Type of Unit in District 3**

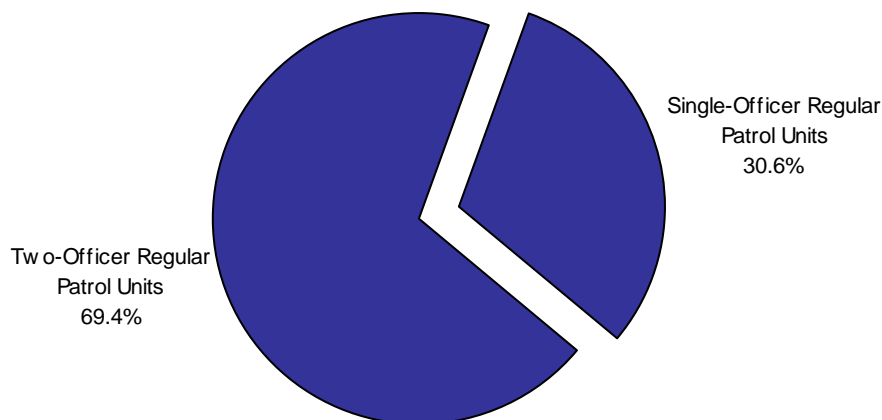


**Figure 6-201 Average Service Time on Priority 1 Calls by Type of Unit in District 3**

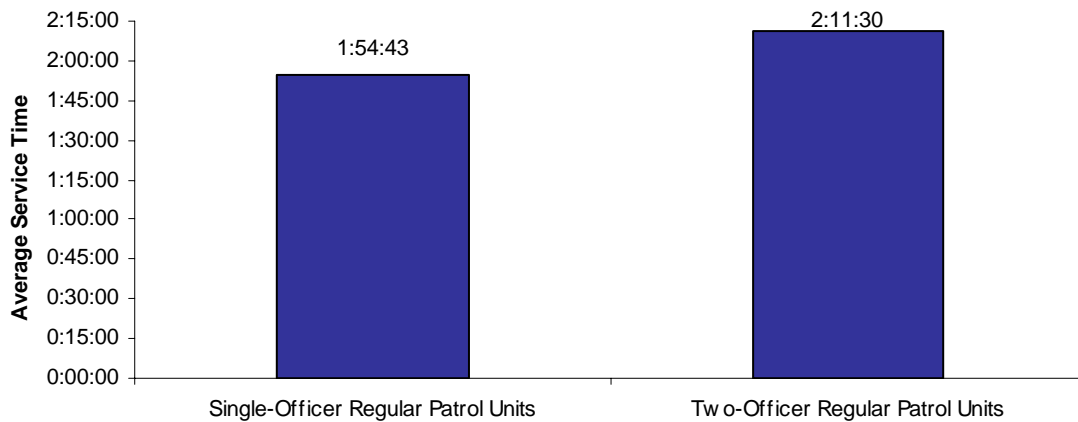


Single-officer regular patrol units in District 3 spent a total of approximately 3,755 unit-hours on 1,964 priority 1 calls. On average, this implies that single-officer regular patrol units in District 3 spent a total of 1 hour and 55 minutes on each priority 1 call they were dispatched to. By comparison, two-officer regular patrol units in District 3 spent a total of approximately 8,504 unit-hours on 3,880 priority 1 calls. On average, this implies that two-officer regular patrol units in District 3 spent a total of 2 hours and 12 minutes on each priority 1 call they were dispatched to.

**Figure 6-202 Total Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3**



**Figure 6-203 Average Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3**

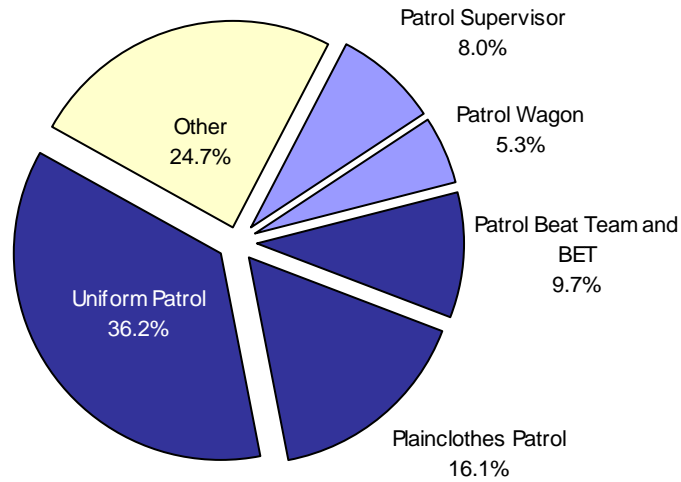


Between 2005-06-01 and 2006-05-31, VPD units in District 3 spent a total of 13,171 unit-hours on 7,205 priority 2 calls. This implies that VPD units in District 3 spent an average of 1 hour and 50 minutes on each priority 2 call they were dispatched to.

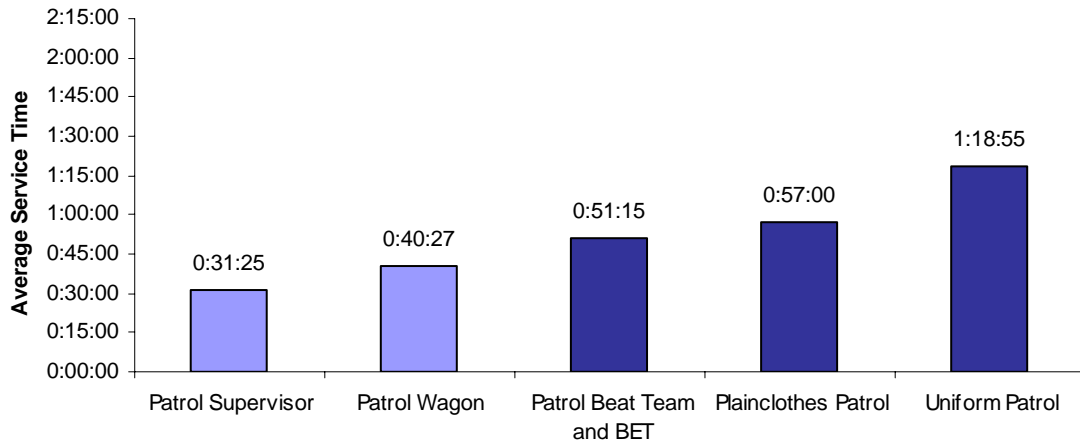
For their part, regular patrol units in District 3 spent a total of 9,603 unit-hours on 6,456 priority 2 calls. This implies that regular patrol units in District 3 spent an average of 1 hour and 29 minutes on each priority 2 call they were dispatched to.

- Uniform patrol units in District 3 spent a total of approximately 5,609 unit-hours on 4,264 priority 2 calls. On average, this implies that uniform patrol units in District 3 spent a total of 1 hour and 19 minutes on each priority 2 call they were dispatched to.
- Plainclothes patrol units in District 3 spent a total of approximately 2,496 unit-hours on 2,628 priority 2 calls. On average, this implies that plainclothes patrol units in District 3 spent a total of 57 minutes on each priority 2 call they were dispatched to.
- Patrol beat units in District 3 spent a total of approximately 1,482 unit-hours on 1,742 priority 2 calls. On average, this implies that patrol beat units in District 3 spent a total of 51 minutes on each priority 2 call they were dispatched to.

**Figure 6-204 Total Service Time on Priority 2 Calls by Type of Unit in District 3**

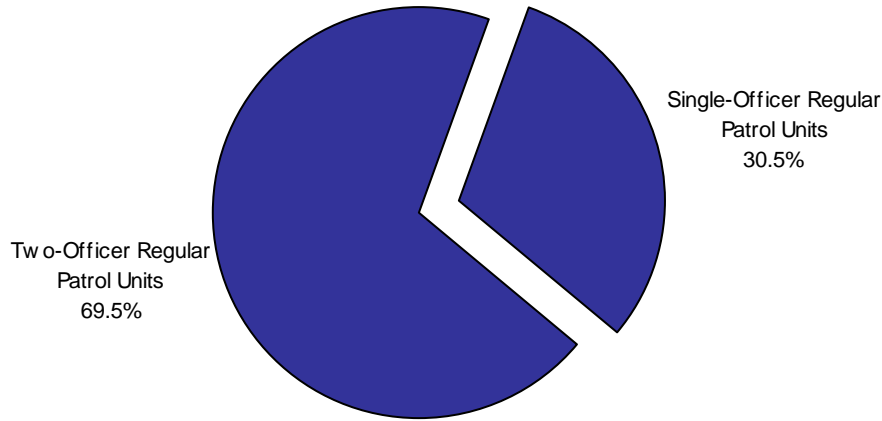


**Figure 6-205 Average Service Time on Priority 2 Calls by Type of Unit in District 3**

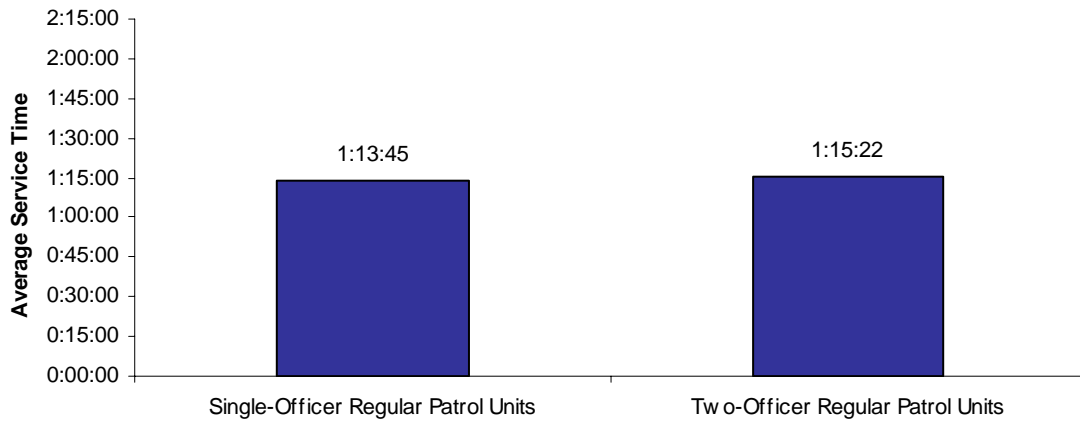


Single-officer regular patrol units in District 3 spent a total of approximately 2,933 unit-hours on 2,386 priority 2 calls. On average, this implies that single-officer regular patrol units in District 3 spent a total of 1 hour and 14 minutes on each priority 2 call they were dispatched to. By comparison, two-officer regular patrol units in District 3 spent a total of approximately 6,670 unit-hours on 5,310 priority 2 calls. On average, this implies that two-officer regular patrol units in District 3 spent a total of 1 hour and 15 minutes on each priority 2 call they were dispatched to.

**Figure 6-206 Total Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3**



**Figure 6-207 Average Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3**

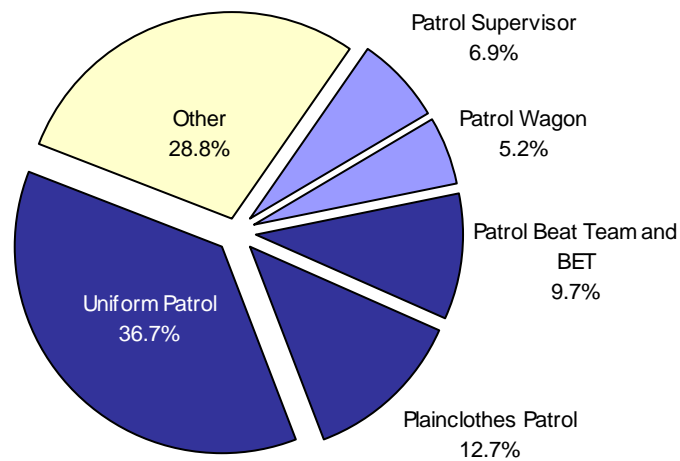


Between 2005-06-01 and 2006-05-31, VPD units in District 3 spent a total of 27,527 unit-hours on 21,542 priority 3 calls. This implies that VPD units in District 3 spent an average of 1 hour and 17 minutes on each priority 3 call they were dispatched to.

For their part, regular patrol units in District 3 spent a total of 19,116 unit-hours on 16,231 priority 3 calls. This implies that regular patrol units in District 3 spent an average of 1 hour and 11 minutes on each priority 3 call they were dispatched to.

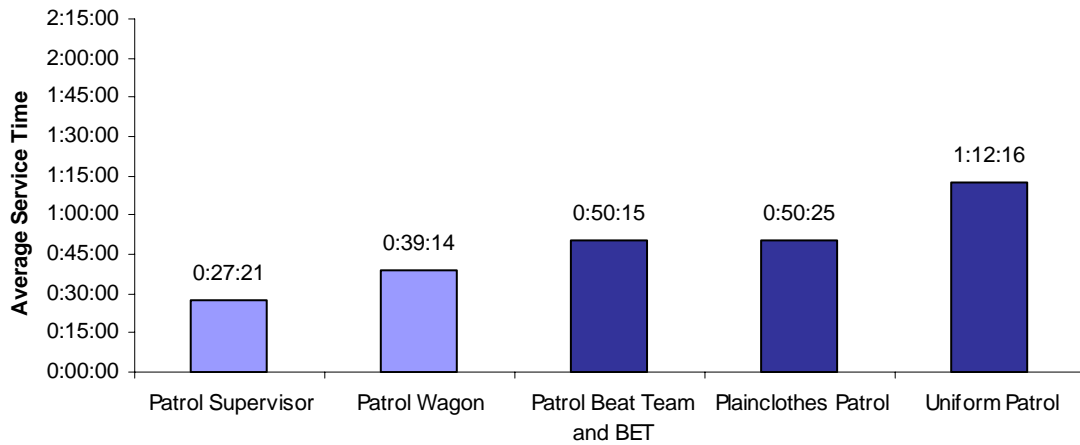
- Uniform patrol units in District 3 spent a total of approximately 11,860 unit-hours on 9,847 priority 3 calls. On average, this implies that uniform patrol units in District 3 spent a total of 1 hour and 12 minutes on each priority 3 call they were dispatched to.
- Plainclothes patrol units in District 3 spent a total of approximately 4,122 unit-hours on 4,906 priority 3 calls. On average, this implies that plainclothes patrol units in District 3 spent a total of 50 minutes on each priority 3 call they were dispatched to.
- Patrol beat units in District 3 spent a total of approximately 3,107 unit-hours on 3,716 priority 3 calls. On average, this implies that patrol beat units in District 3 spent a total of 50 minutes on each priority 3 call they were dispatched to.

**Figure 6-208 Total Service Time on Priority 3 Calls by Type of Unit in District 3**



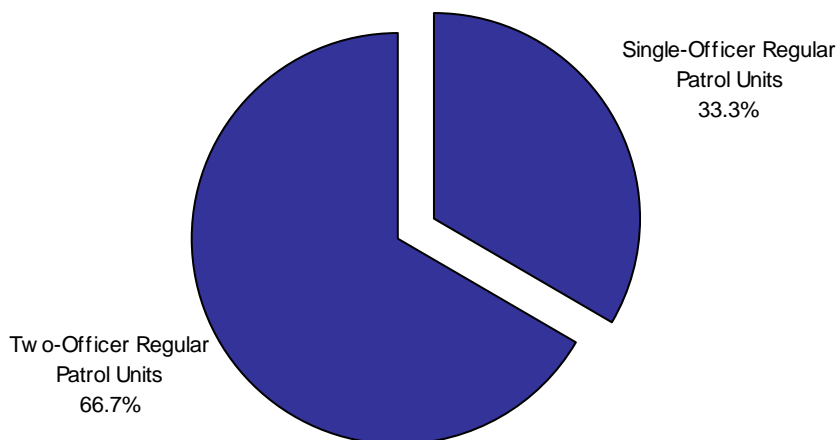


**Figure 6-209 Average Service Time on Priority 3 Calls by Type of Unit in District 3**

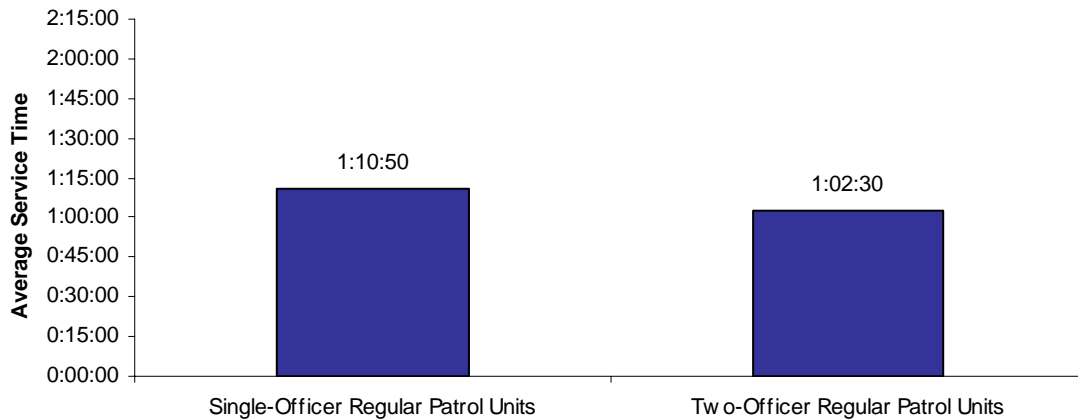


Single-officer regular patrol units in District 3 spent a total of approximately 6,367 unit-hours on 5,393 priority 3 calls. On average, this implies that single-officer regular patrol units in District 3 spent a total of 1 hour and 11 minutes on each priority 3 call they were dispatched to. By comparison, two-officer regular patrol units in District 3 spent a total of approximately 12,748 unit-hours on 12,239 priority 3 calls. On average, this implies that two-officer regular patrol units in District 3 spent a total of 1 hour and 3 minutes on each priority 3 call they were dispatched to.

**Figure 6-210 Total Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3**



**Figure 6-211 Average Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3**



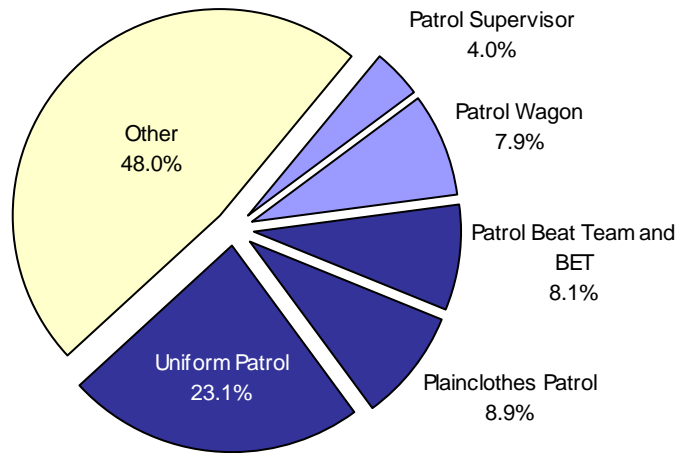
Between 2005-06-01 and 2006-05-31, VPD units in District 3 spent a total of 14,490 unit-hours on 9,264 priority 4 calls. This implies that VPD units in District 3 spent an average of 1 hour and 34 minutes on each priority 4 call they were dispatched to.

For their part, regular patrol units in District 3 spent a total of 6,912 unit-hours on 5,468 priority 4 calls. This implies that regular patrol units in District 3 spent an average of 1 hour and 16 minutes on each priority 4 call they were dispatched to.

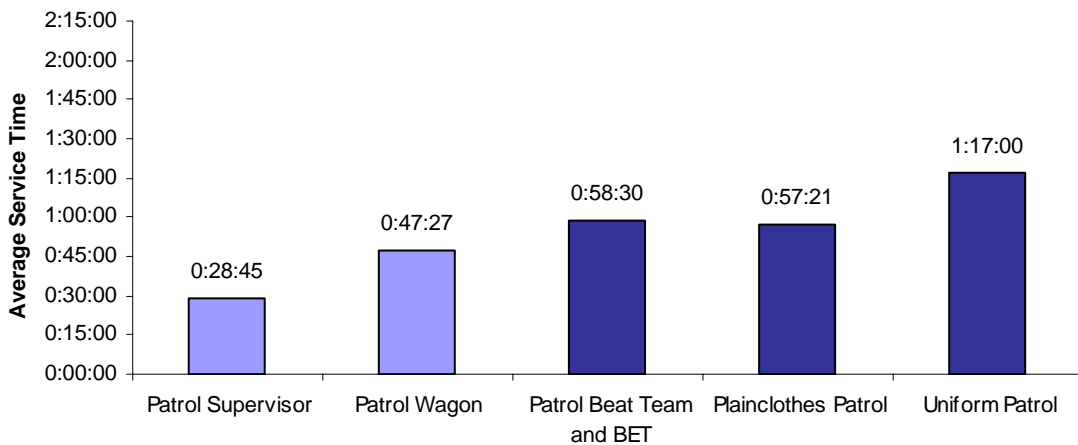
- Uniform patrol units in District 3 spent a total of approximately 3,984 unit-hours on 3,110 priority 4 calls. On average, this implies that uniform patrol units in District 3 spent a total of 1 hour and 17 minutes on each priority 4 call they were dispatched to.
- Plainclothes patrol units in District 3 spent a total of approximately 1,521 unit-hours on 1,601 priority 4 calls. On average, this implies that plainclothes patrol units in District 3 spent a total of 57 minutes on each priority 4 call they were dispatched to.
- Patrol beat units in District 3 spent a total of approximately 1,389 unit-hours on 1,430 priority 4 calls. On average, this implies that patrol beat units in District 3 spent a total of 58 minutes on each priority 4 call they were dispatched to.

**Figure 6-212 Total Service Time on Lower Priority Calls by Type of Unit in District**

**3**

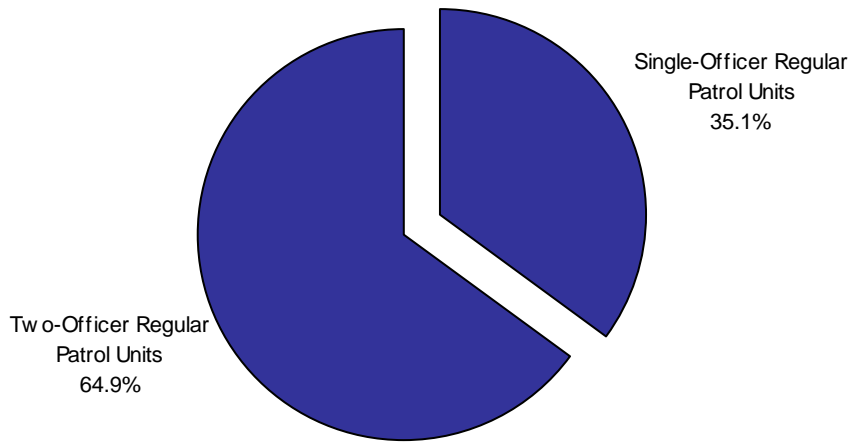


**Figure 6-213 Average Service Time on Lower Priority Calls by Type of Unit in District 3**

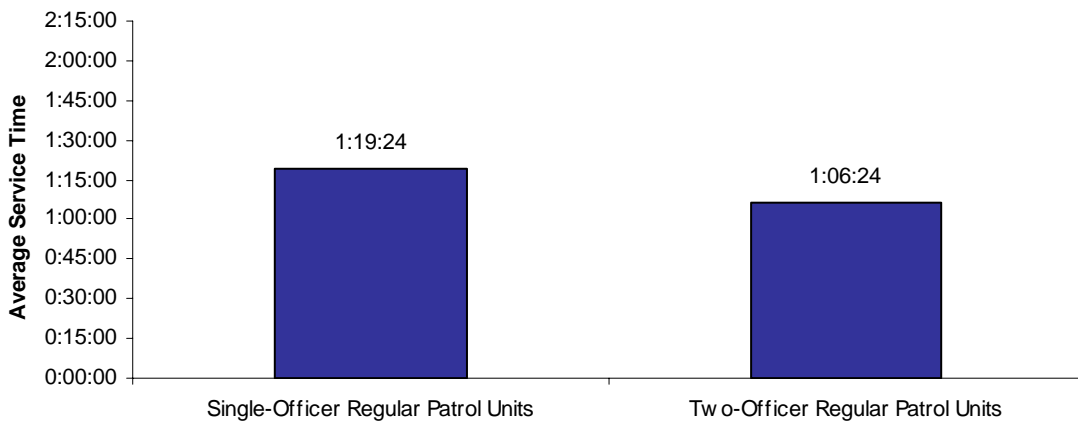


Single-officer regular patrol units in District 3 spent a total of approximately 2,423 unit-hours on 1,830 priority 4 calls. On average, this implies that single-officer regular patrol units in District 3 spent a total of 1 hour and 19 minutes on each priority 4 call they were dispatched to. By comparison, two-officer regular patrol units in District 3 spent a total of approximately 4,489 unit-hours on 4,073 priority 4 calls. On average, this implies that two-officer regular patrol units in District 3 spent a total of 1 hour and 6 minutes on each priority 4 call they were dispatched to.

**Figure 6-214 Total Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3**



**Figure 6-215 Average Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 3**



Between 2005-06-01 and 2006-05-31, VPD units in District 4 spent a total of 67,063 unit-hours on 37,937 calls for service. On average, this implies that VPD units in District 4 spent a total of 1 hour and 46 minutes on each call they were dispatched to.

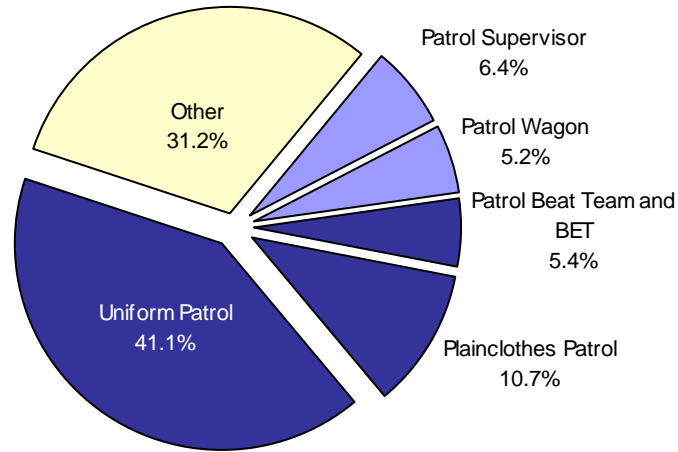
A total of 47,478 regular patrol units in District 4 spent a total of approximately 42,849 unit-hours on 29,278 calls for service. On average, this implies that regular patrol units in District 4 spent a total of 1 hour and 28 minutes on each call for service they were

dispatched to. In turn, each regular patrol unit in District 4 spent approximately 54 minutes on each call it was dispatched to.

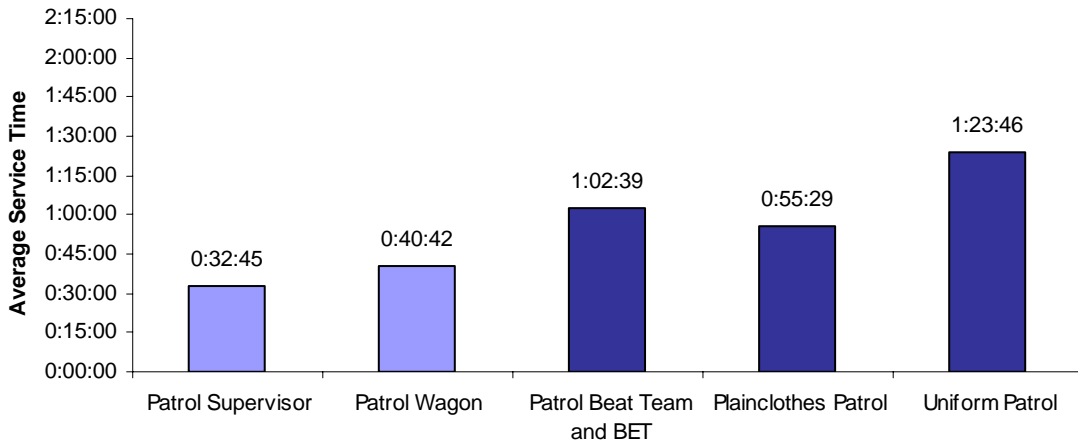
- Uniform patrol units in District 4 spent a total of approximately 30,821 unit-hours on 22,076 calls for service. On average, this implies that uniform patrol units in District 4 spent a total of 1 hour and 24 minutes on each call for service they were dispatched to. Out of the 30,821 unit-hours spent by uniform patrol units in District 4 on calls for service, 14,686 (47.6%) were spent by two-officer uniform patrol units. The remaining 16,135 unit-hours were spent by single-officer uniform patrol units.
- Plainclothes patrol units in District 4 spent a total of approximately 8,005 unit-hours on 8,658 calls for service. On average, this implies that plainclothes patrol units in District 4 spent a total of 55 minutes on each call for service they were dispatched to.
- Patrol beat units in District 4 spent a total of approximately 3,958 unit-hours on 3,801 calls for service. On average, this implies that patrol beat units in District 4 spent a total of 1 hour and 2 minutes on each call for service they were dispatched to.

For their part, patrol supervisors in District 4 spent a total of approximately 4,818 hours on 8,827 calls for service. On average, this implies that patrol supervisors in District 4 spent a total of 33 minutes on each call for service they were dispatched to. Similarly, patrol wagons in District 4 spent a total of approximately 3,913 hours on 5,769 calls for service. On average, this implies that patrol wagons in District 4 spent a total of 41 minutes on each call for service they were dispatched to.

**Figure 6-216 Total Service Time by Type of Unit in District 4**



**Figure 6-217 Average Service Time by Type of Unit in District 4**

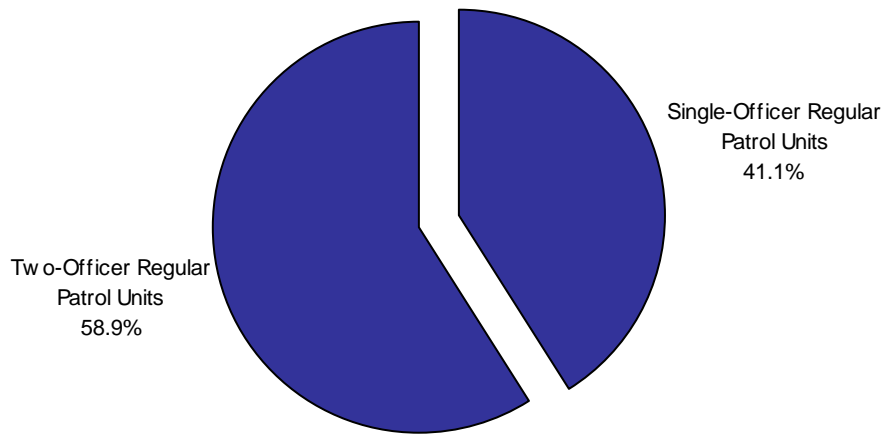


A total of 17,234 single-officer regular patrol units in District 4 spent a total of approximately 17,591 unit-hours on 12,767 calls for service. On average, this implies that single-officer regular patrol units in District 4 spent a total of 1 hour and 23 minutes on each call for service they were dispatched to. In turn, each single-officer regular patrol unit in District 4 spent approximately 1 hour and 1 minute on each call it was dispatched to.

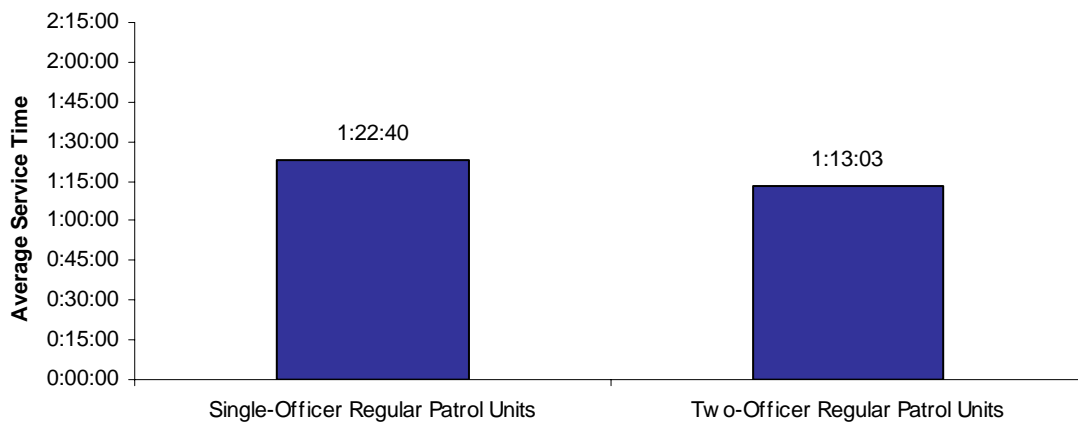
A total of 30,244 two-officer regular patrol units in District 4 spent a total of approximately 25,258 unit-hours on 20,745 calls for service. On average, this implies

that two-officer regular patrol units in District 4 spent a total of 1 hour and 13 minutes on each call for service they were dispatched to. In turn, each two-officer regular patrol unit in District 4 spent approximately 50 minutes on each call it was dispatched to.

**Figure 6-218 Total Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 4**



**Figure 6-219 Average Service Time by Single-Officer and Two-Officer Regular Patrol Units in District 4**

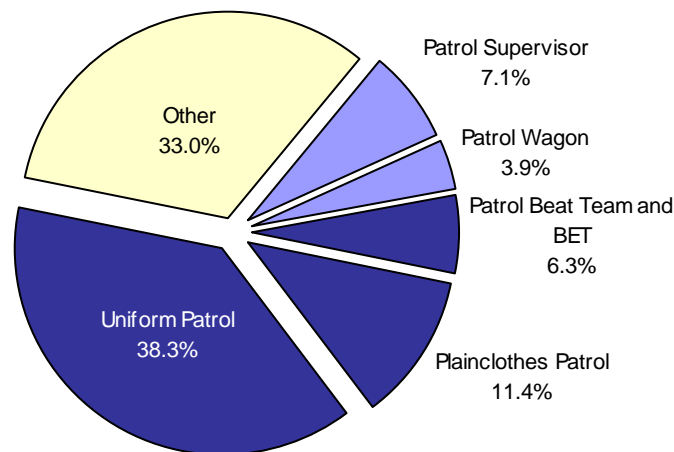


Between 2005-06-01 and 2006-05-31, VPD units in District 4 spent a total of 13,976 unit-hours on 3,484 priority 1 calls. This implies that VPD units in District 4 spent an average of 4 hours and 1 minute on each priority 1 call they were dispatched to.

For their part, regular patrol units in District 4 spent a total of 8,712 unit-hours on 3,258 priority 1 calls. This implies that regular patrol units in District 4 spent an average of 2 hours and 40 minutes on each priority 1 call they were dispatched to.

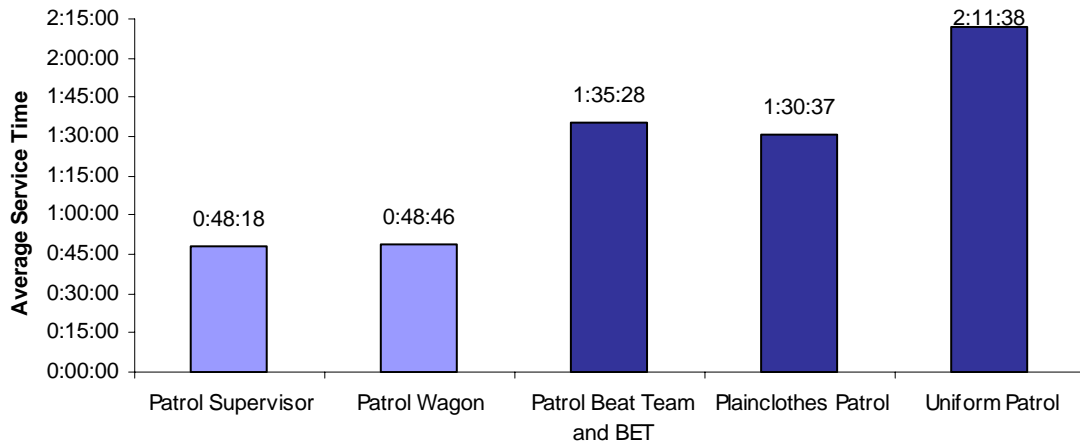
- Uniform patrol units in District 4 spent a total of approximately 5,959 unit-hours on 2,716 priority 1 calls. On average, this implies that uniform patrol units in District 4 spent a total of 2 hours and 12 minutes on each priority 1 call they were dispatched to.
- Plainclothes patrol units in District 4 spent a total of approximately 1,778 unit-hours on 1,177 priority 1 calls. On average, this implies that plainclothes patrol units in District 4 spent a total of 1 hour and 31 minutes on each priority 1 call they were dispatched to.
- Patrol beat units in District 4 spent a total of approximately 950 unit-hours on 601 priority 1 calls. On average, this implies that patrol beat units in District 4 spent a total of 1 hour and 35 minutes on each priority 1 call they were dispatched to.

**Figure 6-220 Total Service Time on Priority 1 Calls by Type of Unit in District 4**





**Figure 6-221 Average Service Time on Priority 1 Calls by Type of Unit in District 4**

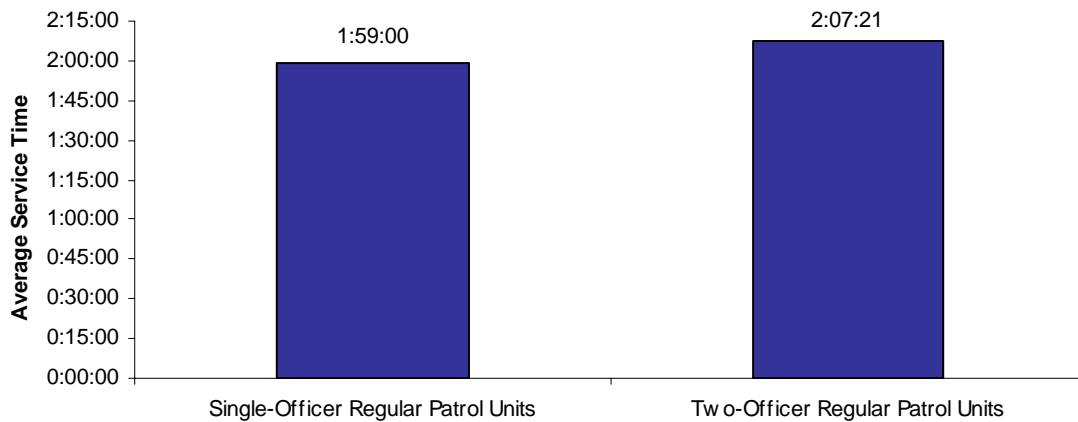


Single-officer regular patrol units in District 4 spent a total of approximately 3,167 unit-hours on 1,597 priority 1 calls. On average, this implies that single-officer regular patrol units in District 4 spent a total of 1 hour and 59 minutes on each priority 1 call they were dispatched to. By comparison, two-officer regular patrol units in District 4 spent a total of approximately 5,544 unit-hours on 2,612 priority 1 calls. On average, this implies that two-officer regular patrol units in District 4 spent a total of 2 hours and 7 minutes on each priority 1 call they were dispatched to.

**Figure 6-222 Total Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4**



**Figure 6-223 Average Service Time on Priority 1 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4**

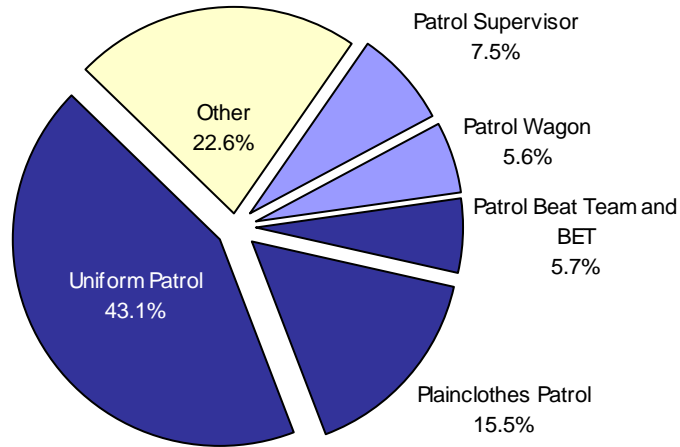


Between 2005-06-01 and 2006-05-31, VPD units in District 4 spent a total of 12,153 unit-hours on 6,061 priority 2 calls. This implies that VPD units in District 4 spent an average of 2 hours on each priority 2 call they were dispatched to.

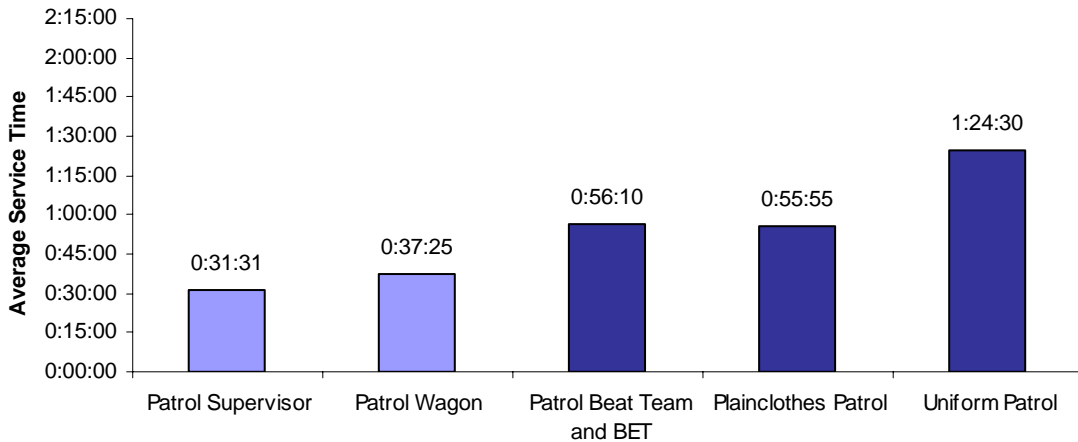
For their part, regular patrol units in District 4 spent a total of 8,811 unit-hours on 5,522 priority 2 calls. This implies that regular patrol units in District 4 spent an average of 1 hour and 36 minutes on each priority 2 call they were dispatched to.

- Uniform patrol units in District 4 spent a total of approximately 5,901 unit-hours on 4,190 priority 2 calls. On average, this implies that uniform patrol units in District 4 spent a total of 1 hour and 25 minutes on each priority 2 call they were dispatched to.
- Plainclothes patrol units in District 4 spent a total of approximately 2,130 unit-hours on 2,286 priority 2 calls. On average, this implies that plainclothes patrol units in District 4 spent a total of 56 minutes on each priority 2 call they were dispatched to.
- Patrol beat units in District 4 spent a total of approximately 777 unit-hours on 828 priority 2 calls. On average, this implies that patrol beat units in District 4 spent a total of 56 minutes on each priority 2 call they were dispatched to.

**Figure 6-224 Total Service Time on Priority 2 Calls by Type of Unit in District 4**

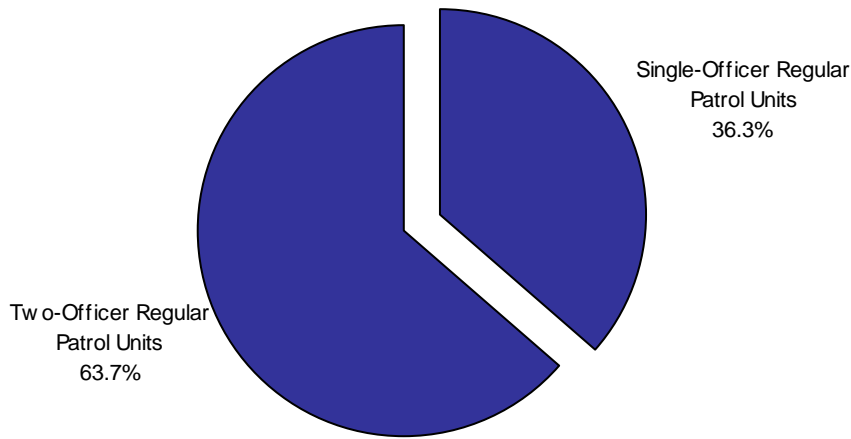


**Figure 6-225 Average Service Time on Priority 2 Calls by Type of Unit in District 4**

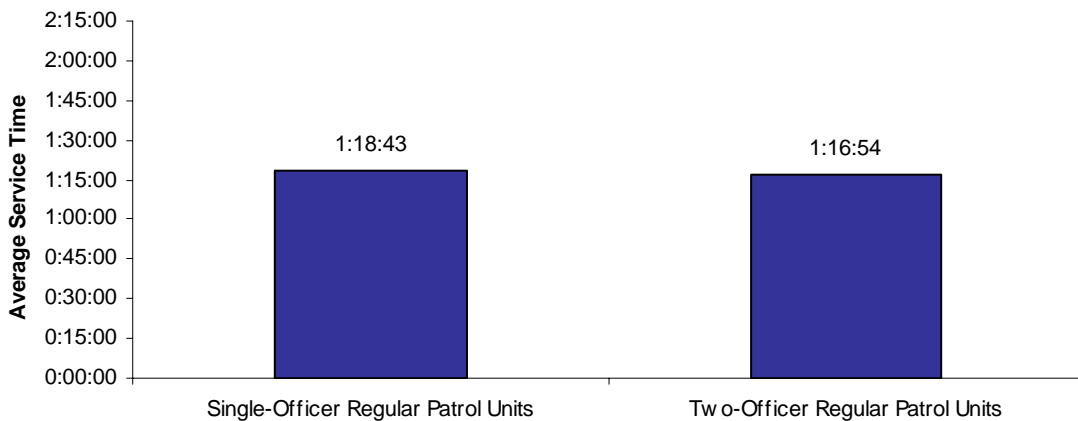


Single-officer regular patrol units in District 4 spent a total of approximately 3,199 unit-hours on 2,438 priority 2 calls. On average, this implies that single-officer regular patrol units in District 4 spent a total of 1 hour and 19 minutes on each priority 2 call they were dispatched to. By comparison, two-officer regular patrol units in District 4 spent a total of approximately 5,612 unit-hours on 4,379 priority 2 calls. On average, this implies that two-officer regular patrol units in District 4 spent a total of 1 hour and 17 minutes on each priority 2 call they were dispatched to.

**Figure 6-226 Total Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4**



**Figure 6-227 Average Service Time on Priority 2 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4**

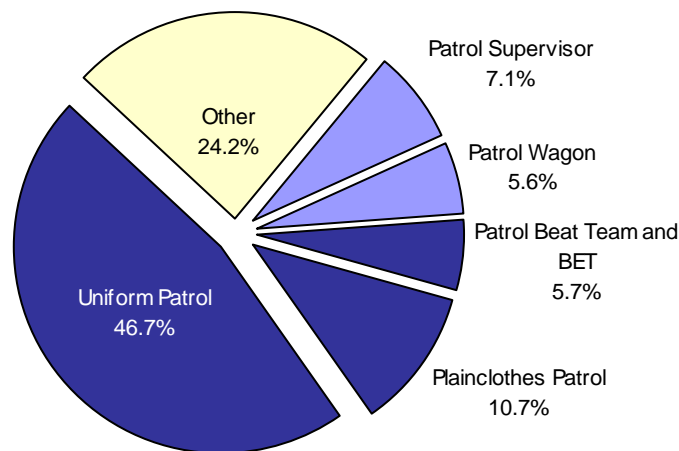


Between 2005-06-01 and 2006-05-31, VPD units in District 4 spent a total of 24,814 unit-hours on 20,351 priority 3 calls. This implies that VPD units in District 4 spent an average of 1 hour and 13 minutes on each priority 3 call they were dispatched to.

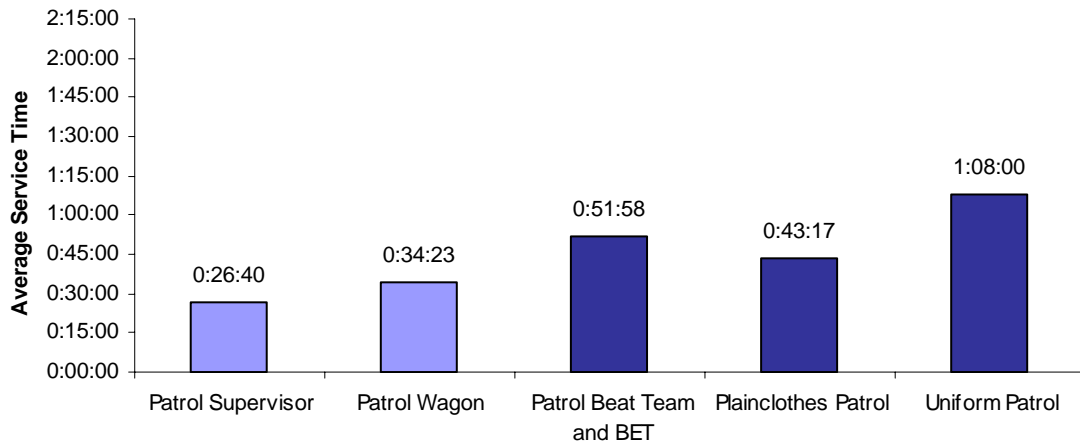
For their part, regular patrol units in District 4 spent a total of 17,662 unit-hours on 15,764 priority 3 calls. This implies that regular patrol units in District 4 spent an average of 1 hour and 7 minutes on each priority 3 call they were dispatched to.

- Uniform patrol units in District 4 spent a total of approximately 13,061 unit-hours on 11,524 priority 3 calls. On average, this implies that uniform patrol units in District 4 spent a total of 1 hour and 8 minutes on each priority 3 call they were dispatched to.
- Plainclothes patrol units in District 4 spent a total of approximately 2,997 unit-hours on 4,155 priority 3 calls. On average, this implies that plainclothes patrol units in District 4 spent a total of 43 minutes on each priority 3 call they were dispatched to.
- Patrol beat units in District 4 spent a total of approximately 1,577 unit-hours on 1,826 priority 3 calls. On average, this implies that patrol beat units in District 4 spent a total of 52 minutes on each priority 3 call they were dispatched to.

**Figure 6-228 Total Service Time on Priority 3 Calls by Type of Unit in District 4**

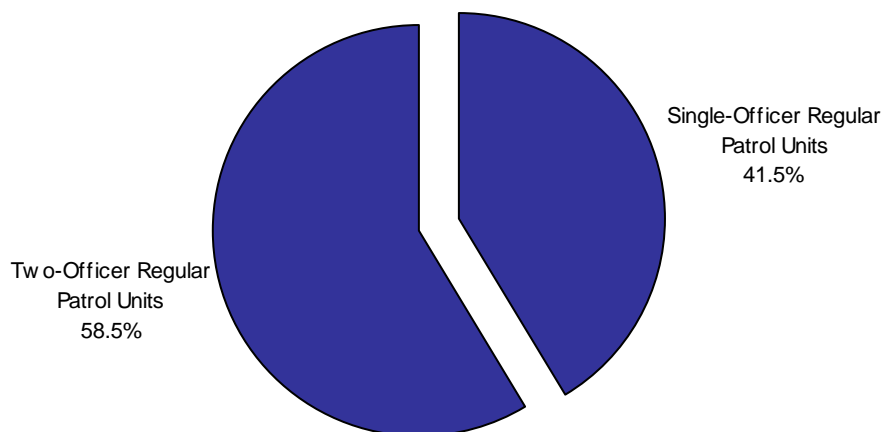


**Figure 6-229 Average Service Time on Priority 3 Calls by Type of Unit in District 4**

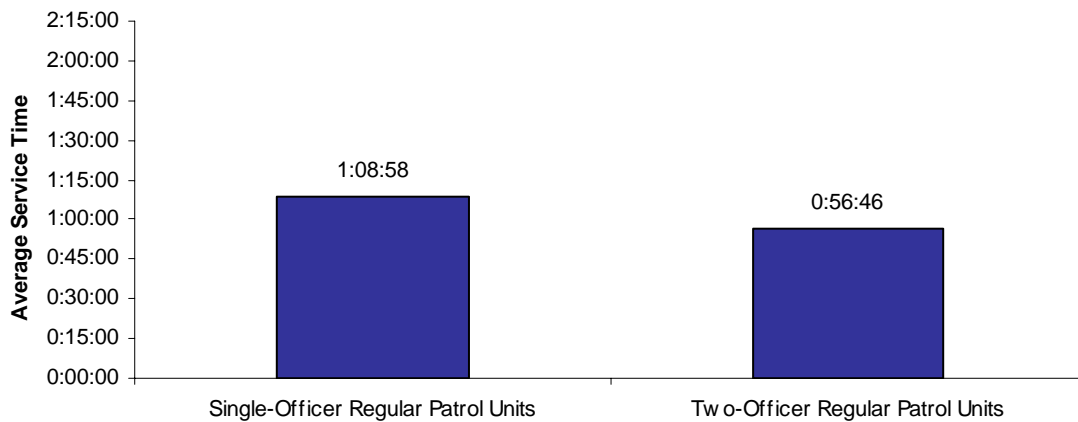


Single-officer regular patrol units in District 4 spent a total of approximately 7,330 unit-hours on 6,377 priority 3 calls. On average, this implies that single-officer regular patrol units in District 4 spent a total of 1 hour and 9 minutes on each priority 3 call they were dispatched to. By comparison, two-officer regular patrol units in District 4 spent a total of approximately 10,332 unit-hours on 10,918 priority 3 calls. On average, this implies that two-officer regular patrol units in District 4 spent a total of 57 minutes on each priority 3 call they were dispatched to.

**Figure 6-230 Total Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4**



**Figure 6-231 Average Service Time on Priority 3 Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4**



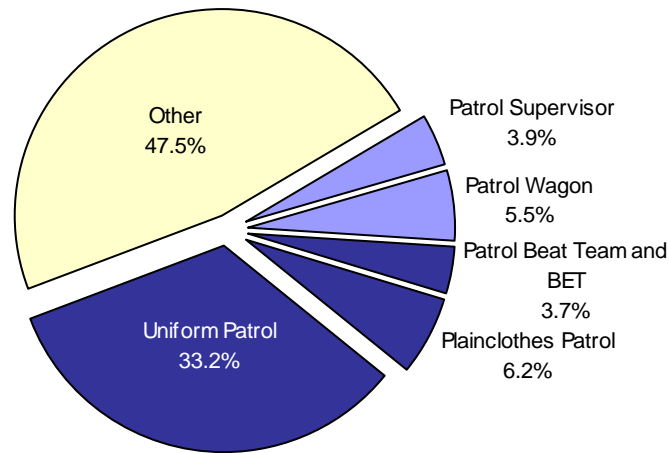
Between 2005-06-01 and 2006-05-31, VPD units in District 4 spent a total of 16,067 unit-hours on 8,018 priority 4 calls. This implies that VPD units in District 4 spent an average of 2 hours on each priority 4 call they were dispatched to.

For their part, regular patrol units in District 4 spent a total of 7,630 unit-hours on 4,719 priority 4 calls. This implies that regular patrol units in District 4 spent an average of 1 hour and 37 minutes on each priority 4 call they were dispatched to.

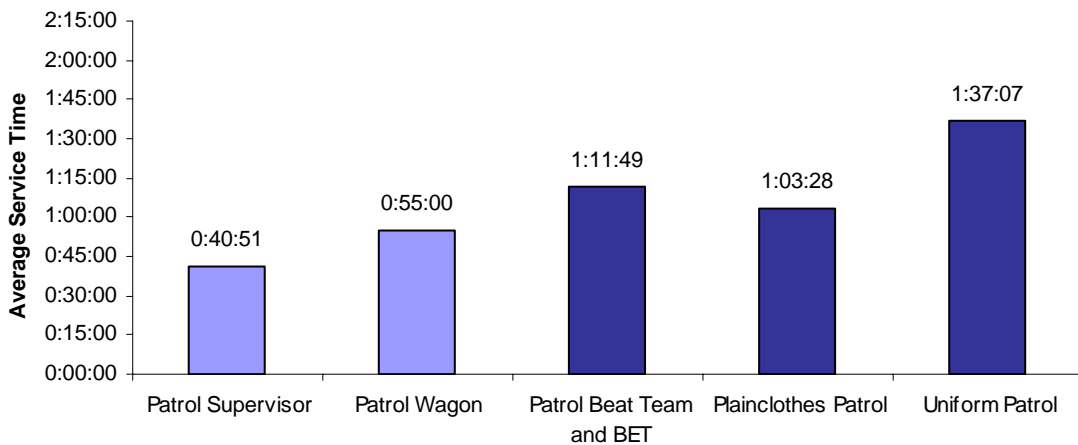
- Uniform patrol units in District 4 spent a total of approximately 5,875 unit-hours on 3,633 priority 4 calls. On average, this implies that uniform patrol units in District 4 spent a total of 1 hour and 37 minutes on each priority 4 call they were dispatched to.
- Plainclothes patrol units in District 4 spent a total of approximately 1,094 unit-hours on 1,032 priority 4 calls. On average, this implies that plainclothes patrol units in District 4 spent a total of 1 hour and 4 minutes on each priority 4 call they were dispatched to.
- Patrol beat units in District 4 spent a total of approximately 652 unit-hours on 541 priority 4 calls. On average, this implies that patrol beat units in District 4 spent a total of 1 hour and 12 minutes on each priority 4 call they were dispatched to.

**Figure 6-232 Total Service Time on Lower Priority Calls by Type of Unit in District**

**4**



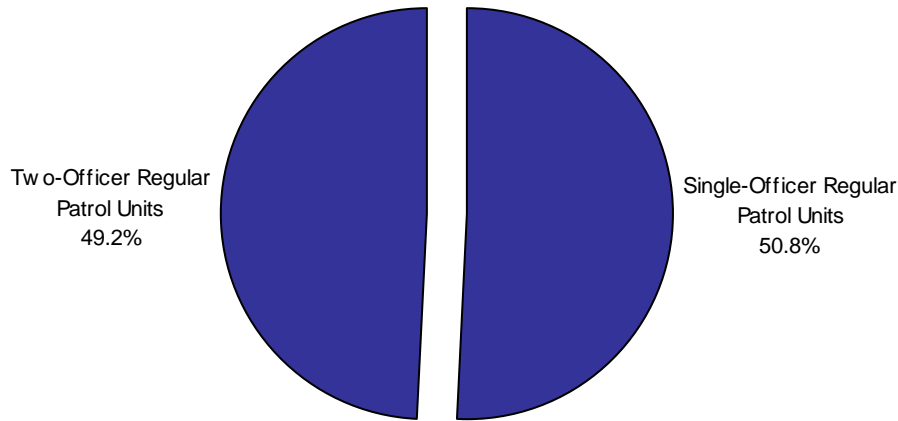
**Figure 6-233 Average Service Time on Lower Priority Calls by Type of Unit in District 4**



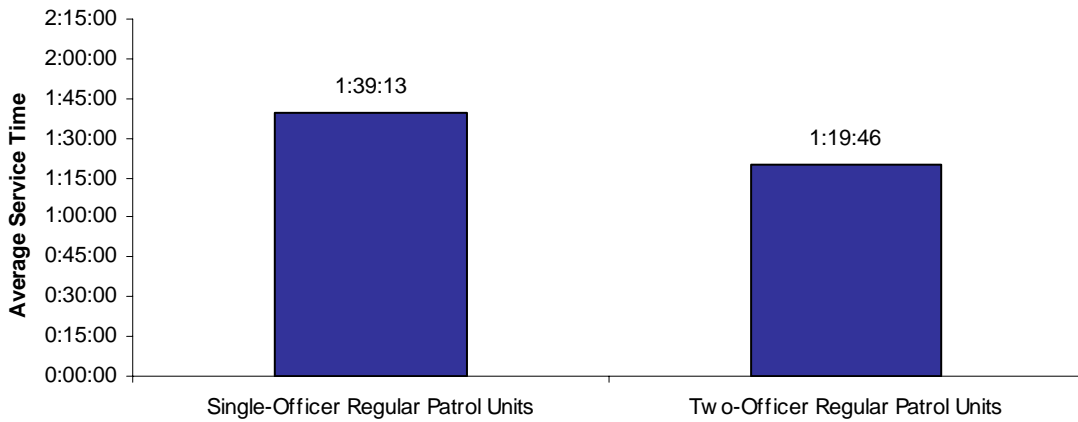
Single-officer regular patrol units in District 4 spent a total of approximately 3,883 unit-hours on 2,345 priority 4 calls. On average, this implies that single-officer regular patrol units in District 4 spent a total of 1 hour and 39 minutes on each priority 4 call they were dispatched to. By comparison, two-officer regular patrol units in District 4 spent a total of approximately 3,746 unit-hours on 2,823 priority 4 calls. On average, this implies that two-officer regular patrol units in District 4 spent a total of 1 hour and 20 minutes on each priority 4 call they were dispatched to.



**Figure 6-234 6-235 Total Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4**



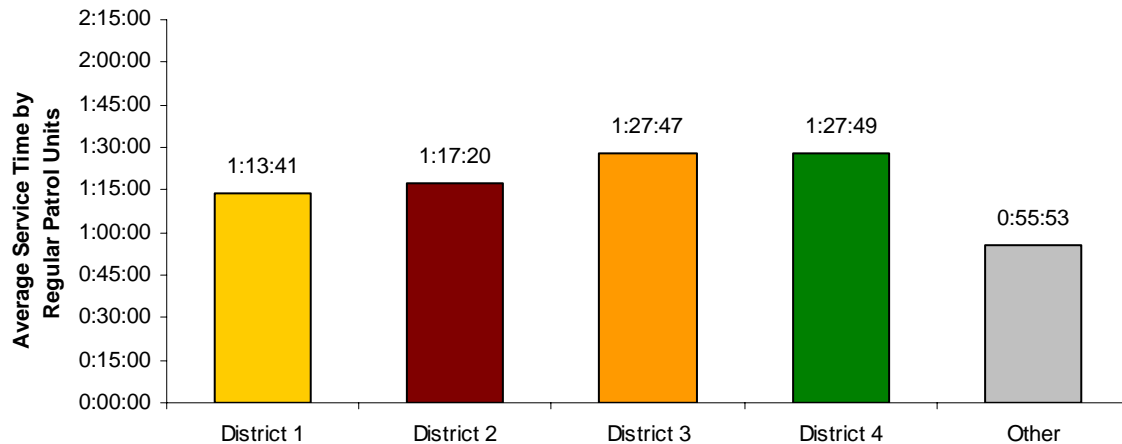
**Figure 6-236 Average Service Time on Lower Priority Calls by Single-Officer and Two-Officer Regular Patrol Units in District 4**



Overall, between 2005-06-01 and 2006-05-31, the average service time was fairly consistent across all four existing patrol districts. When all VPD units are included, the average service time ranged from 1 hour and 34 minutes in District 1 to 1 hour and 46 minutes in District 4. When only regular patrol units are included, the average service time ranged from 1 hour and 14 minutes in District 1 to 1 hour and 28 minutes in District

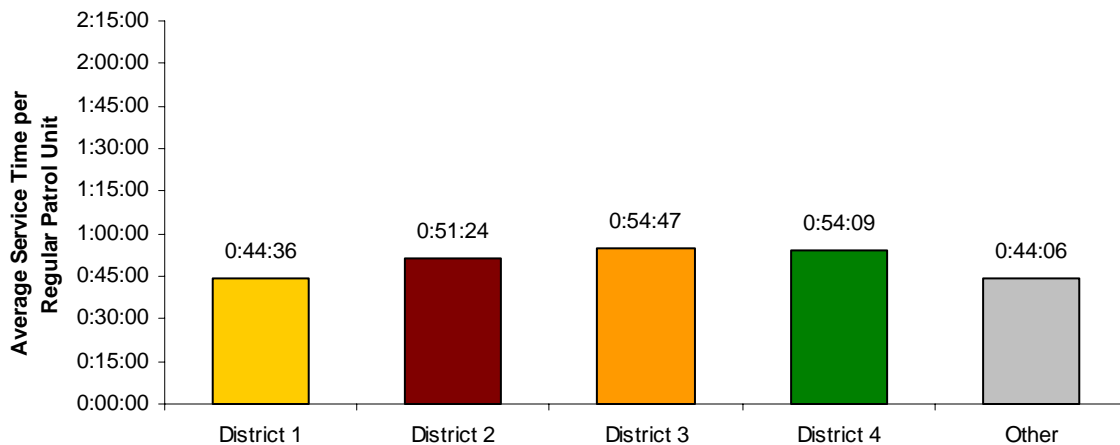
3 and District 4. Differences in the average service time by district can most likely be explained by the fact that District 3 and District 4 are noticeably larger than District 1 and District 2 and the travel time (included in the service time) is therefore longer in District 3 and District 4.

**Figure 6-237 Average Service Time by Regular Patrol Units per Call by District**



On average, individual regular patrol units spent between 45 minutes (in District 1) and 55 minutes (in District 3) on each call they were dispatched to. Single-officer regular patrol units spent between 49 minutes (in District 1) and 61 minutes (in District 3 and District 4) each on calls they were dispatched to. Two-officer regular patrol units spent between 43 minutes (in District 1) and 52 minutes (in District 3) each on calls they were dispatched to.

**Figure 6-238 Average Service Time per Dispatched Regular Patrol Unit by District**

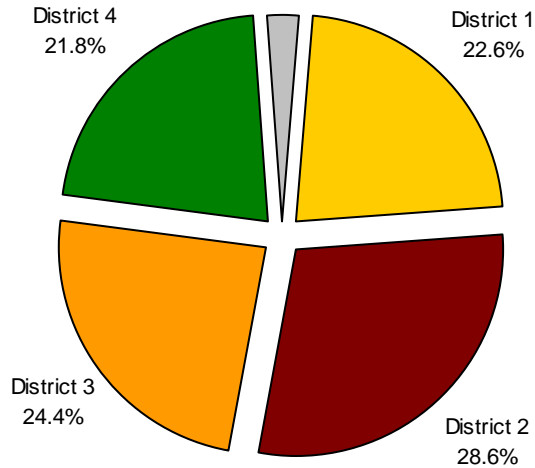


Overall, more time was spent on calls for service in District 2 than in any other patrol district. This was true both for regular patrol units and patrol supervisors. This is expected because more calls are recorded in District 2 than in any other patrol district. As well, the Beat Enforcement Team and the Commercial Drive Beat Team operate almost strictly in District 2.

Between 2005-06-01 and 2006-05-31, 87,417 unit-hours were spent on calls in District 2. This represents 28.1% of the total time spent on calls for service by VPD units. Similarly, 56,356 (28.6%) of the 196,778 unit-hours spent on calls by regular patrol units were spent in District 2 (including 16,012 unit-hours spent by BET units and 1,413 unit-hours spent by Commercial Drive patrol beat units). By comparison:

- Only 44,527 unit-hours were spent by regular patrol units in District 1 (22.6% of the total).
- Only 47,959 unit-hours were spent by regular patrol units in District 3 (24.4% of the total).
- Only 42,849 unit-hours were spent by regular patrol units in District 4 (21.8% of the total).

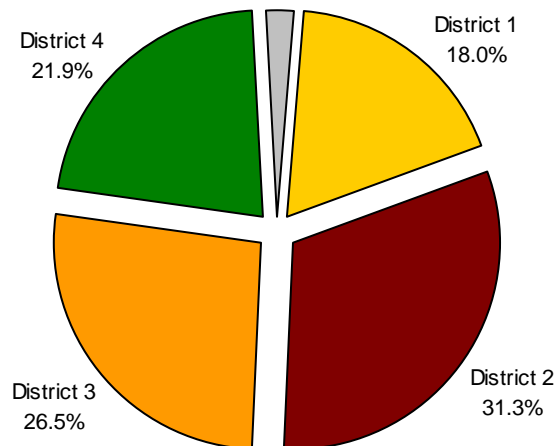
**Figure 6-239 Total Service Time by Regular Patrol Units by District**



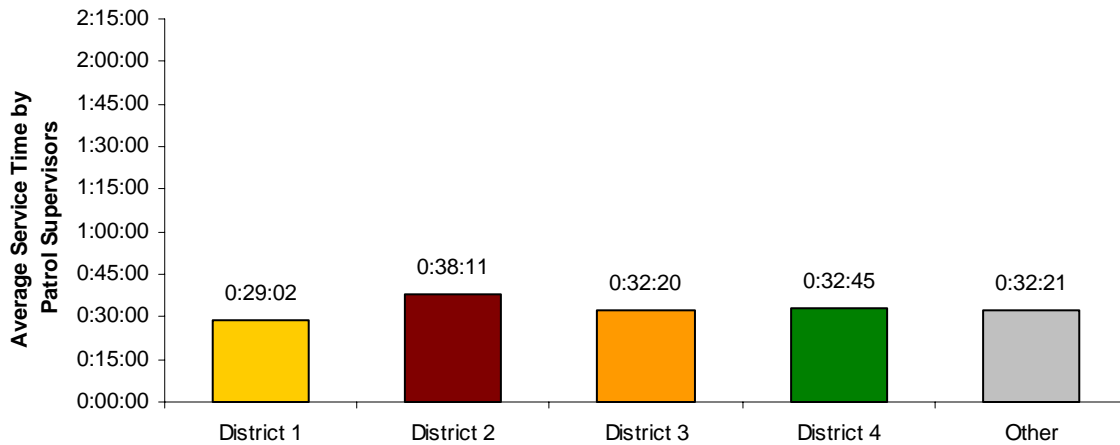
Between 2005-06-01 and 2006-05-31, 6,875 (31.3%) of the 21,960 unit-hours spent by patrol supervisors were spent in District 2. In particular, 1,873 hours were spent by BET supervisors in District 2 (8.5% of the total). By comparison:

- Only 3,943 hours were spent by patrol supervisors in District 1 (18.0% of the total).
- Only 5,812 hours were spent by regular patrol units in District 3 (26.5% of the total).
- Only 4,818 hours were spent by regular patrol units in District 4 (21.9% of the total).

**Figure 6-240 Total Service Time by Patrol Supervisors by District**



**Figure 6-241 Average Service Time by Patrol Supervisors per Call by District**



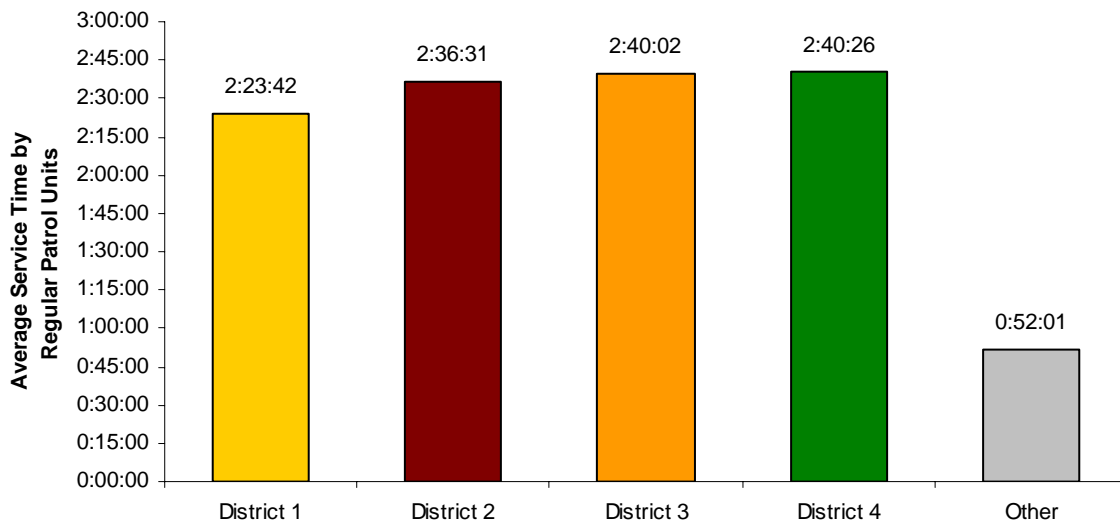
Between 2005-06-01 and 2006-05-31, the average service time on priority 1 calls was similar in District 2, District 3 and District 4. However, the average service time on priority 1 calls was consistently lower in District 1. When all VPD units are included, the average service time on priority 1 calls was 3 hours and 22 minutes in District 1. By comparison, it was 30 minutes (15.3%) longer in District 2, 28 minutes (14.2%) longer in District 3 and 39 minutes (19.4%) longer in District 4.

In particular:

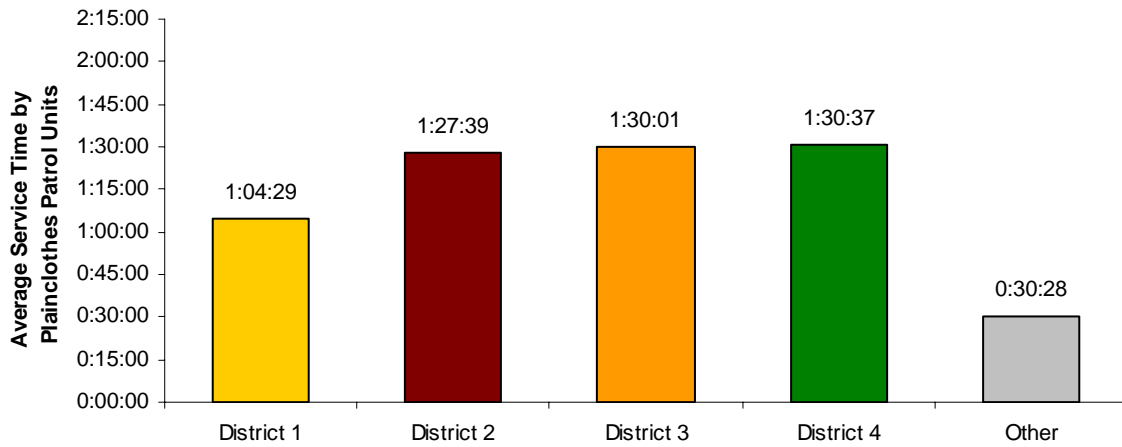
- The average service time by regular patrol units on priority 1 calls was 2 hours and 24 minutes in District 1. By comparison, it was 13 minutes (8.9%) longer in District 2 and 16 minutes (11.5%) longer in District 3 and District 4.
- The average service time by plainclothes patrol units on priority 1 calls was 1 hour and 4 minutes in District 1. By comparison, it was 24 minutes (35.9%) longer in District 2, 26 minutes (39.6%) longer in District 3 and 27 minutes (40.5%) longer in District 4.
- The average service time by patrol beat units on priority 1 calls was 1 hour and 6 minutes in District 1. By comparison, it was 20 minutes (30.0%) longer in District 2, 16 minutes (24.9%) longer in District 3 and 29 minutes (44.0%) longer in District 4.

- The average service time by single-officer regular patrol units on priority 1 calls was 1 hour and 35 minutes in District 1. By comparison, it was 13 minutes (14.2%) longer in District 2, 20 minutes (20.8%) longer in District 3 and 24 minutes (25.3%) longer in District 4.
- The average service time by two-officer regular patrol units on priority 1 calls was 1 hour and 50 minutes in District 1. By comparison, it was 20 minutes (17.6%) longer in District 2, 22 minutes (19.1%) longer in District 3 and 17 minutes (15.3%) longer in District 4.

**Figure 6-242 Average Service Time by Regular Patrol Units per Priority 1 Call by District**

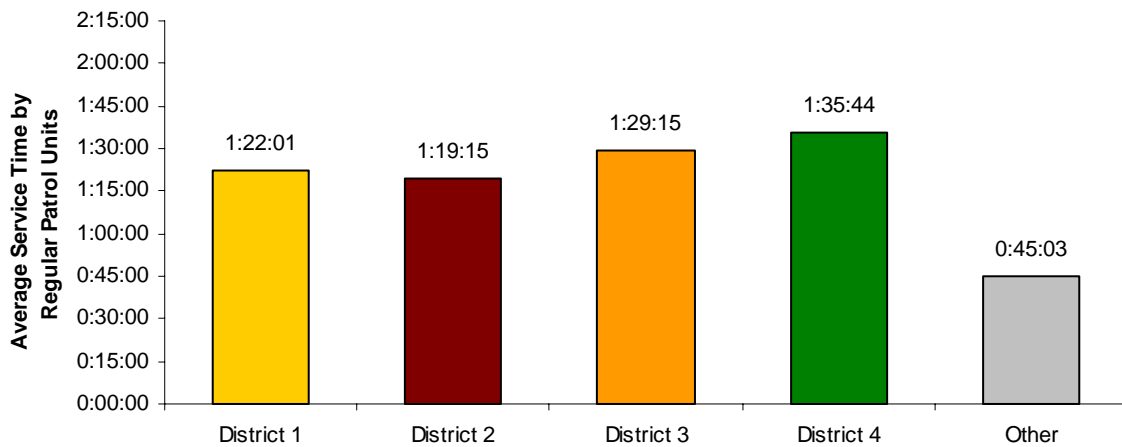


**Figure 6-243 Average Service Time by Plainclothes Patrol Units per Priority 1 Call by District**



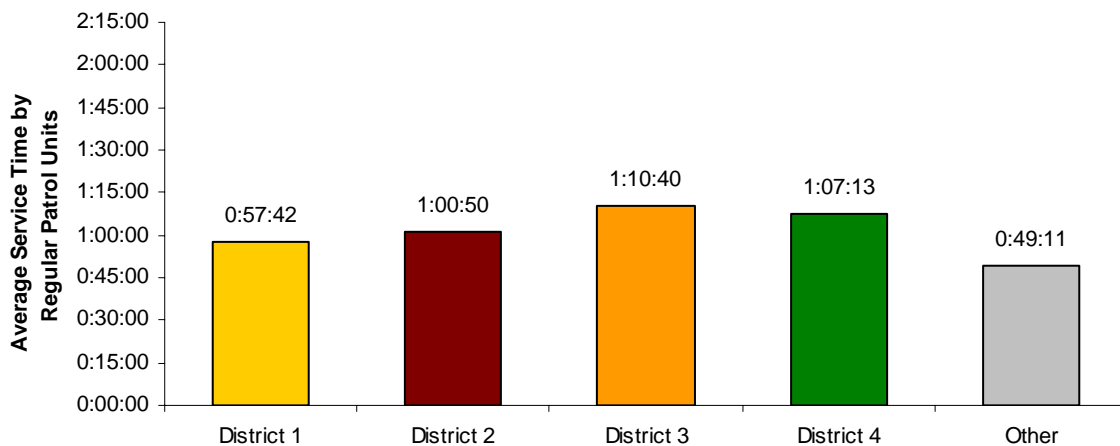
The average service time on priority 2 calls also varied slightly across the four patrol districts. When all VPD units are included, the average service time on priority 2 calls ranged from 1 hour and 43 minutes (in District 2) to 2 hours (in District 4). When only regular patrol units are included, the average service time ranged from 1 hour and 19 minutes (in District 2) to 1 hour and 36 minutes (in District 4).

**Figure 6-244 Average Service Time by Regular Patrol Units per Priority 2 Call by District**



Compared to priority 1 and 2 calls, the average service time on priority 3 calls was relatively consistent across all four patrol districts. When all VPD units are included, the average service time on priority 3 calls ranged from 1 hour and 9 minutes (in District 1) to 1 hour and 17 minutes (in District 3). When only regular patrol units are included, the average service time ranged from 58 minutes (in District 1) to 1 hour and 11 minutes (in District 3).

**Figure 6-245 Average Service Time by Regular Patrol Units per Priority 3 Call by District**



Interestingly, the average service time on priority 4 calls was similar in District 1, District 2 and District 3. However, the average service time on priority 4 calls was consistently higher in District 4. When all VPD units are included, the average service time on priority 4 calls was 2 hours in District 4. By comparison, it was 14 minutes (12.1%) shorter in District 1, 20 minutes (16.6%) shorter in District 2 and 26 minutes (21.9%) shorter in District 4.

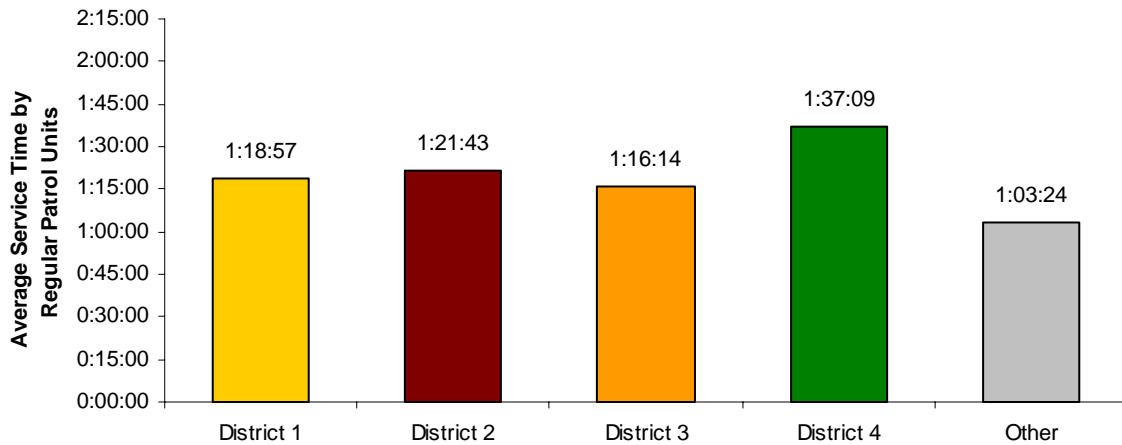
In particular:

- The average service time by regular patrol units on priority 4 calls was 1 hour and 37 minutes in District 4. By comparison, it was 18 minutes (18.7%) shorter in District 1, 15 minutes (15.8%) shorter in District 2 and 21 minutes (21.8%) shorter in District 3.

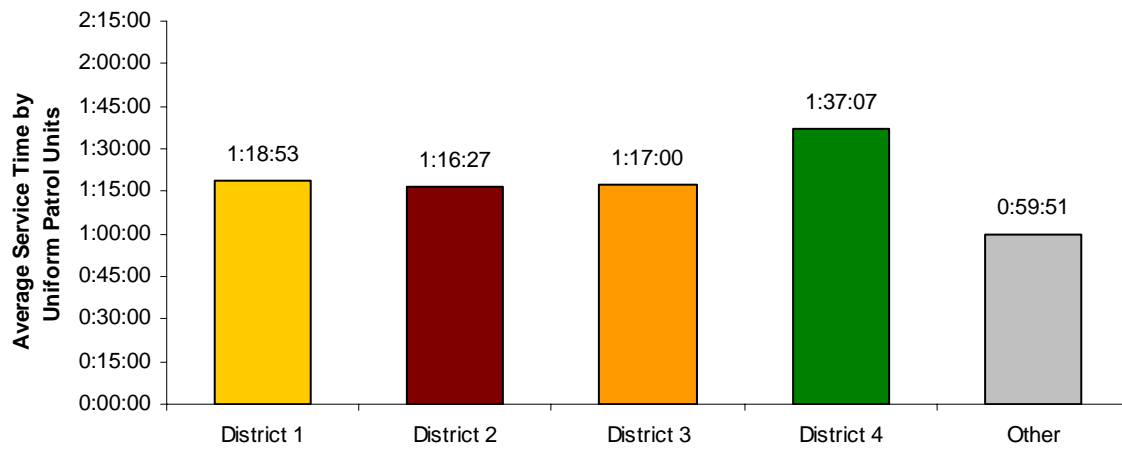


- The average service time by uniform patrol units on priority 4 calls was 1 hour and 37 minutes in District 4. By comparison, it was 18 minutes (18.7%) shorter in District 1 and 20 minutes (21.0%) shorter in District 2 and District 3.
- The average service time by patrol beat units on priority 4 calls was 1 hour and 12 minutes in District 4. By comparison, it was 17 minutes (23.9%) shorter in District 1, 9 minutes (13.1%) shorter in District 2 and 14 minutes (19.5%) shorter in District 3.
- The average service time by single-officer regular patrol units on priority 4 calls was 1 hour and 39 minutes in District 4. By comparison, it was 20 minutes (20.4%) shorter in District 1, 18 minutes (18.5%) shorter in District 2 and 20 minutes (20.0%) shorter in District 4.
- The average service time by two-officer regular patrol units on priority 4 calls was 1 hour and 20 minutes in District 4. By comparison, it was 14 minutes (17.0%) shorter in District 1 and District 3 and 5 minutes (5.3%) shorter in District 2.

**Figure 6-246 Average Service Time by Regular Patrol Units per Lower Priority Call by District**



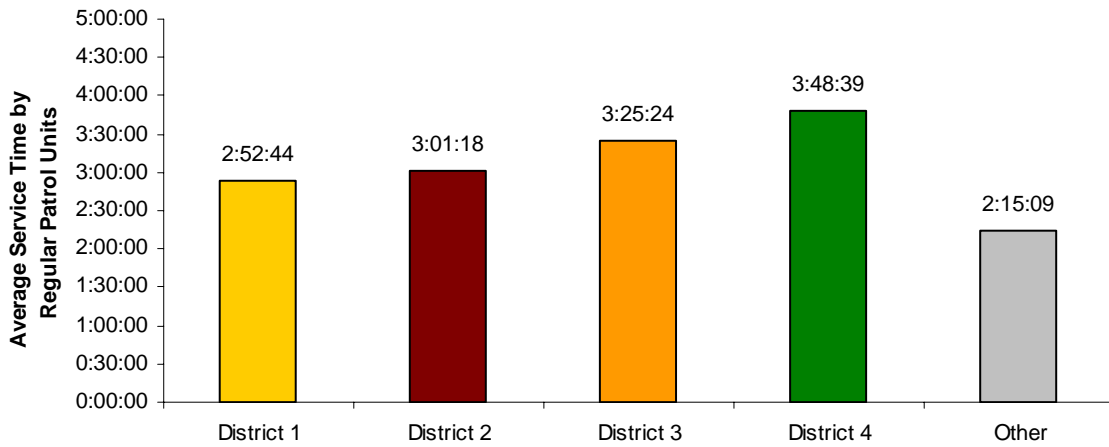
**Figure 6-247 Average Service Time by Uniform Patrol Units per Lower Priority Call by District**



Interestingly, the average service time varied significantly across patrol districts for many similar incidents. In particular, the average service time to some specific types of incidents was significantly shorter or longer in some patrol districts. For instance:

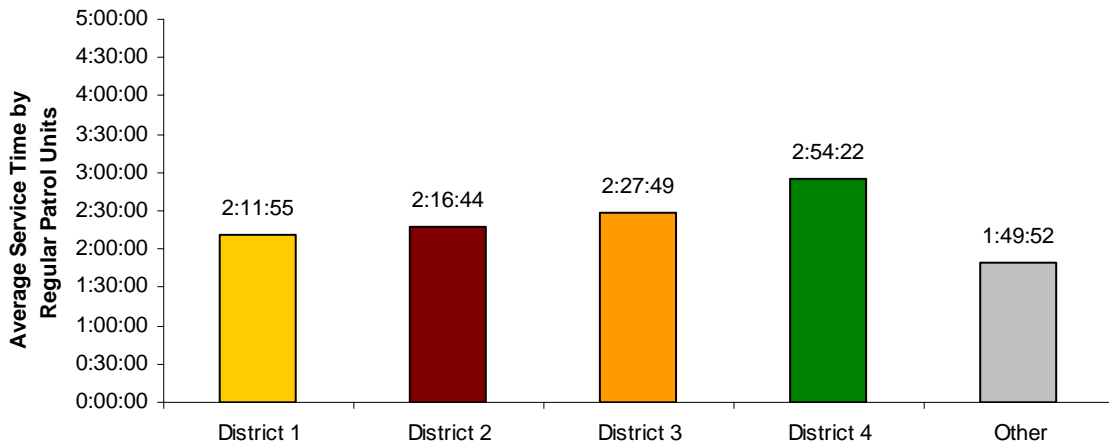
- The average service time by regular patrol units on common assaults was 2 hours and 53 minutes in District 1. By comparison, it was 9 minutes (5.0%) longer in District 2, 24 minutes (18.9%) longer in District 3 and 23 minutes (32.4%) longer in District 4. Moreover, the average service time by regular patrol units on unfounded assault calls was 39 minutes in District 1. By comparison, it was 2 minutes (4.0%) longer in District 2, 9 minutes (23.5%) longer in District 3 and 16 minutes (41.2%) longer in District 4.

**Figure 6-248 Average Service Time by Regular Patrol Units on Common Assaults by District**



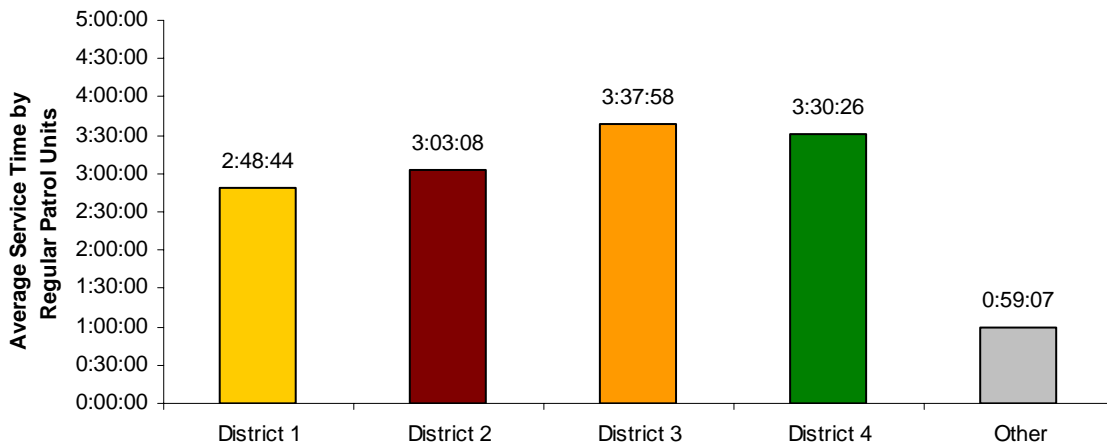
- The average service time by regular patrol units on shoplifting cases was 2 hours and 12 minutes in District 1. By comparison, it was 5 minutes (3.7%) longer in District 2, 11 minutes (12.3%) longer in District 3 and 26 minutes (31.7%) longer in District 4. In the case of unfounded shoplifter calls, the situation was reversed. The average service time by regular patrol units on unfounded shoplifter calls was 47 minutes in District 1. By comparison, it was 2 minutes shorter in District 2, 1 minute shorter in District 3 and 14 minutes shorter in District 4.

**Figure 6-249 Average Service Time by Regular Patrol Units on Shoplifters by District**



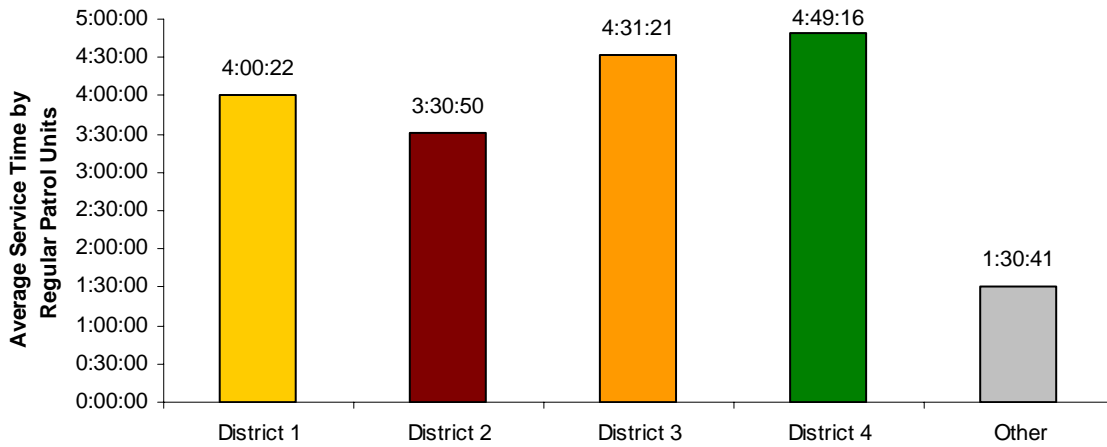
- The average service time by regular patrol units on threats against persons was 2 hours and 49 minutes in District 1. By comparison, it was 14 minutes (8.5%) longer in District 2, 49 minutes (29.2%) longer in District 3 and 42 minutes (24.7%) longer in District 4. By comparison, the average service time by regular patrol units on unfounded threats calls was 46 minutes in District 1, 44 minutes in District 2, 51 minutes in District 3 and 1 hour and 3 minutes in District 4.

**Figure 6-250 Average Service Time by Regular Patrol Units on Threatening Cases by District**



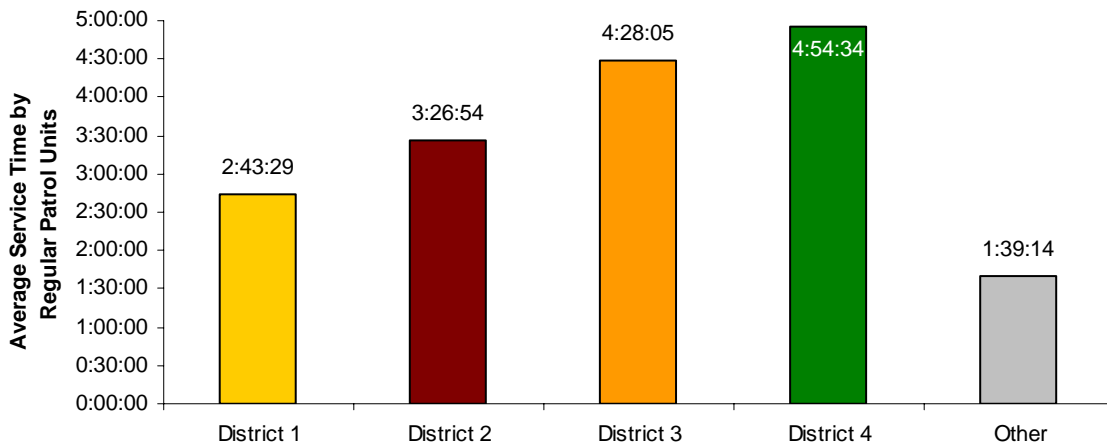
- The average service time by regular patrol units on criminal harassment cases was 3 hours and 31 minutes in District 2. By comparison, it was 30 minutes (14.0%) longer in District 1, 1 hour and 1 minute (28.7%) longer in District 3 and 1 hour and 18 minutes (37.2%) longer in District 4. Moreover, the average service time by regular patrol units on unfounded harassment calls was 46 minutes in District 2. By comparison, it was 15 minutes (32.2%) longer in District 1, 13 minutes (28.5%) longer in District 3 and 22 minutes (49.2%) longer in District 4.

**Figure 6-251 Average Service Time by Regular Patrol Units on Criminal Harassment Cases by District**



- The average service time by regular patrol units on possession of stolen property cases was 2 hours and 43 minutes in District 1. By comparison, it was 43 minutes (26.6%) longer in District 2, 1 hour and 45 minutes (64.0%) longer in District 3 and 2 hours and 11 minutes (80.2%) longer in District 4.

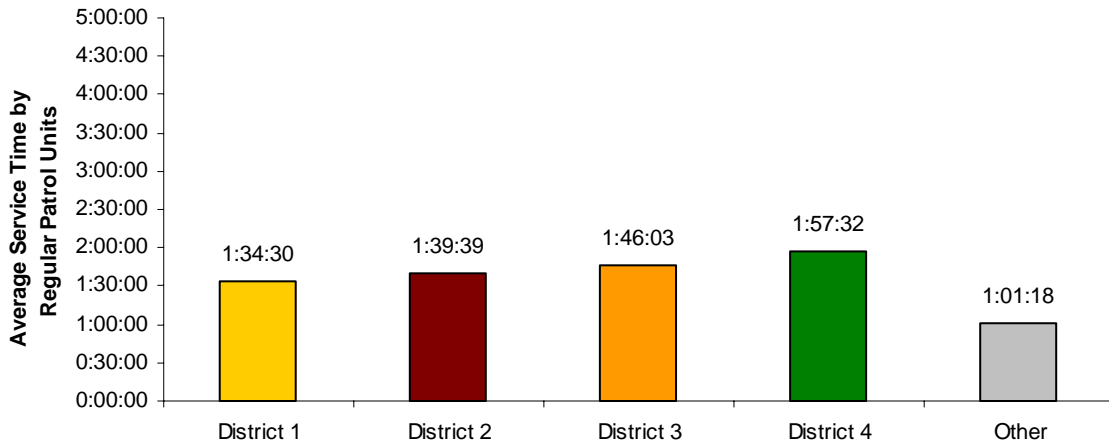
**Figure 6-252 Average Service Time by Regular Patrol Units on Possession of Stolen Property Cases by District**



- The average service time by regular patrol units on impaired driving cases was 1 hour and 57 minutes in District 1. By comparison, it was 15 minutes (12.5%) longer in District 2, 23 minutes (19.2%) longer in District 3 and 31 minutes

(26.6%) longer in District 4. Moreover, the average service time by regular patrol units on unfounded impaired driving calls was 17 minutes in District 1. By comparison, it was 3 minutes (20.2%) longer in District 2, 5 minutes (28.8%) longer in District 3 and 14 minutes (84.1%) longer in District 4.

**Figure 6-253 Average Service Time by Regular Patrol Units on Impaired Driving Cases by District**



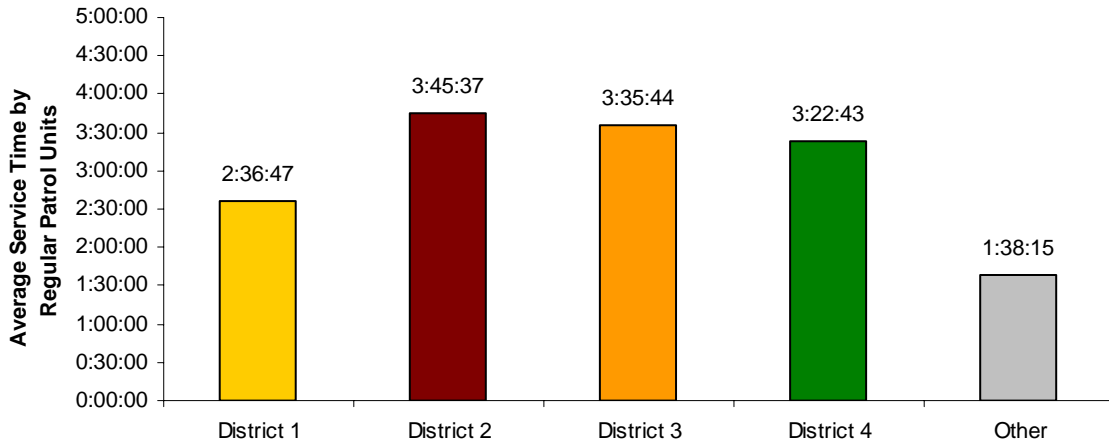
**Figure 6-254 Average Service Time by Regular Patrol Units on Unfounded Impaired Drivers by District**



- The average service time by regular patrol units on hit and run cases was 2 hours and 44 minutes in District 1. By comparison, it was 1 hour and 23 minutes

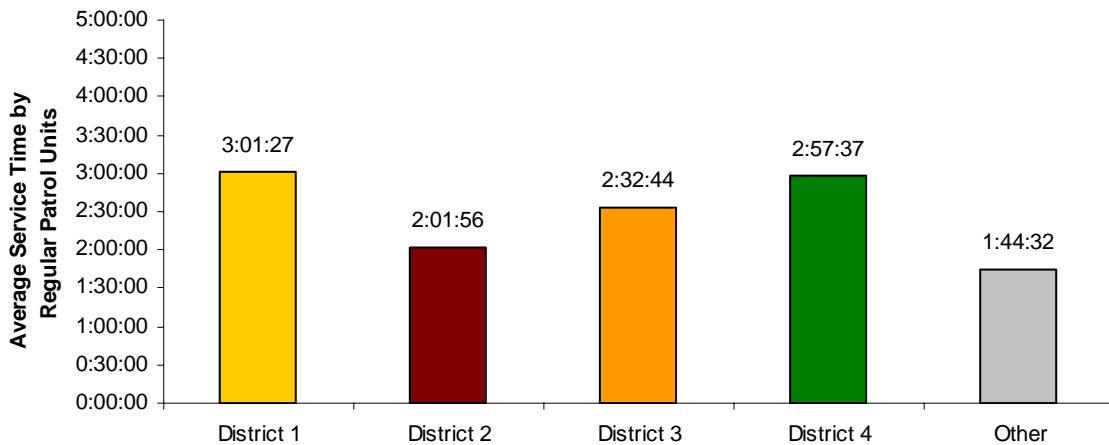
(50.6%) longer in District 2, 59 minutes (35.9%) longer in District 3 and 55 minutes (33.8%) longer in District 4.

**Figure 6-255 Average Service Time by Regular Patrol Units on Hit and Run by District**



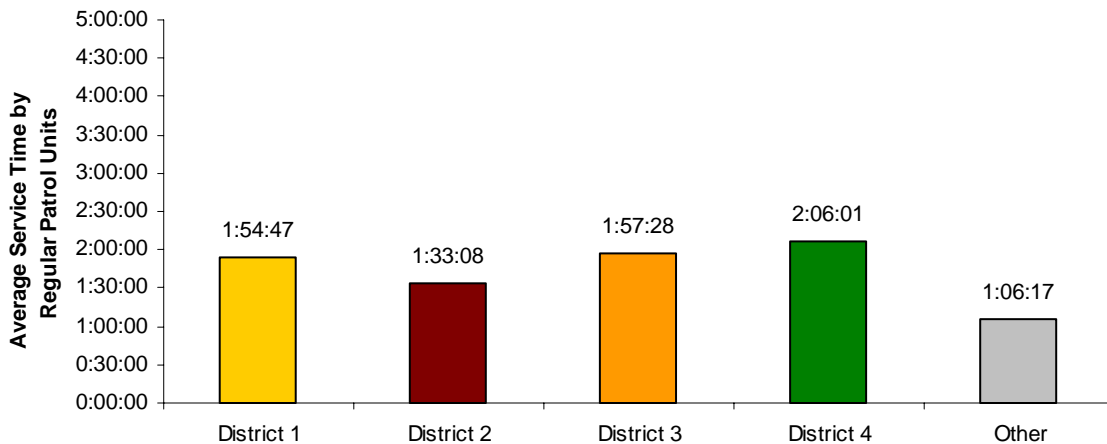
- The average service time by regular patrol units on cocaine possession cases was 2 hours and 2 minutes in District 2. By comparison, it was 1 hour (48.8%) longer in District 1, 31 minutes (25.3%) longer in District 3 and 56 minutes (45.7%) longer in District 4.

**Figure 6-256 Average Service Time by Regular Patrol Units on Cocaine Possession Cases by District**



- The average service time by regular patrol units on cannabis possession cases was 1 hour and 33 minutes in District 2. By comparison, it was 22 minutes (23.2%) longer in District 1, 24 minutes (26.1%) longer in District 3 and 33 minutes (35.3%) longer in District 4.

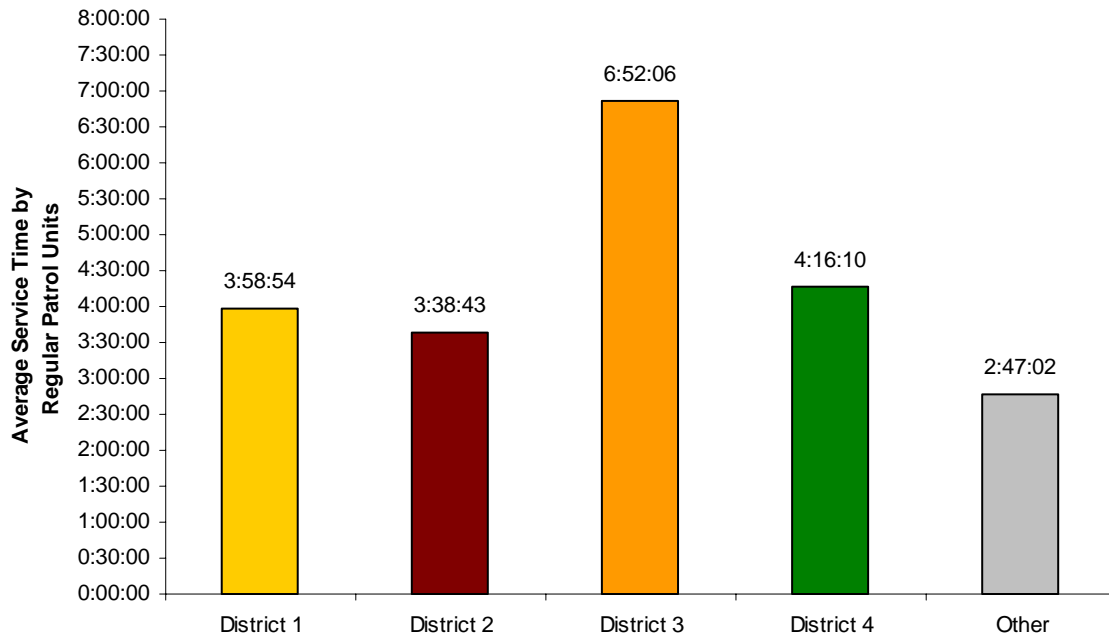
**Figure 6-257 Average Service Time by Regular Patrol Units on Cannabis Possession Cases by District**



- The average service time by regular patrol units on cocaine trafficking cases was 3 hours and 39 minutes in District 2. By comparison, it was 20 minutes (9.2%) longer in District 1, 3 hours and 13 minutes (88.4%) longer in District 3 and 37 minutes (17.1%) longer in District 4.

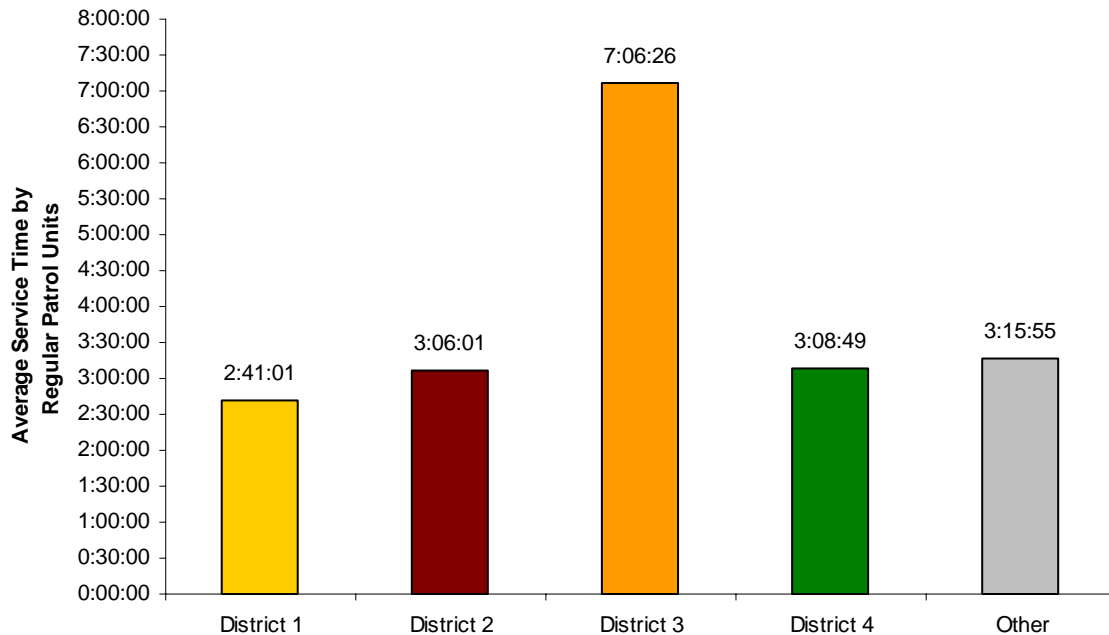


**Figure 6-258 Average Service Time by Regular Patrol Units on Cocaine Trafficking Cases by District**



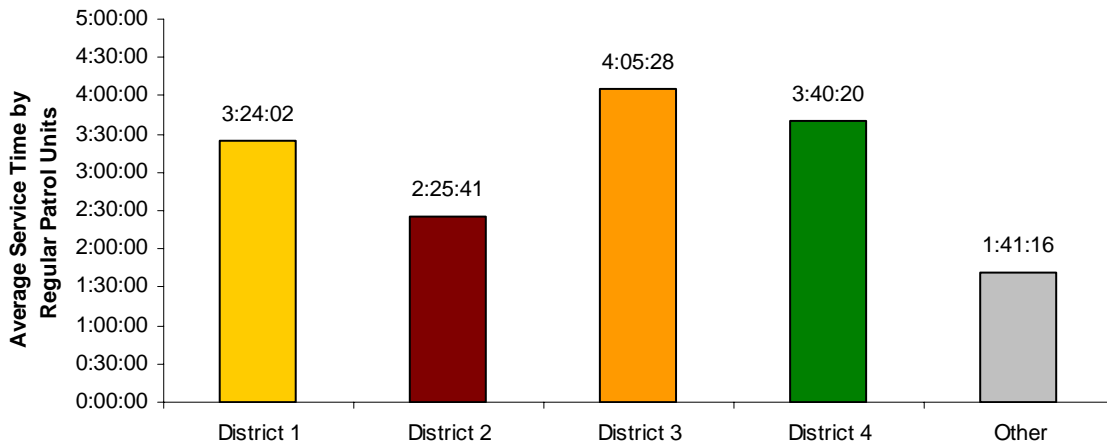
- The average service time by regular patrol units on cannabis trafficking cases was 2 hours and 41 minutes in District 1. By comparison, it was 25 minutes (15.5%) longer in District 2, 4 hours and 25 minutes (164.8%) longer in District 3 and 28 minutes (17.3%) longer in District 4.

**Figure 6-259 Average Service Time by Regular Patrol Units on Cannabis Trafficking Cases by District**



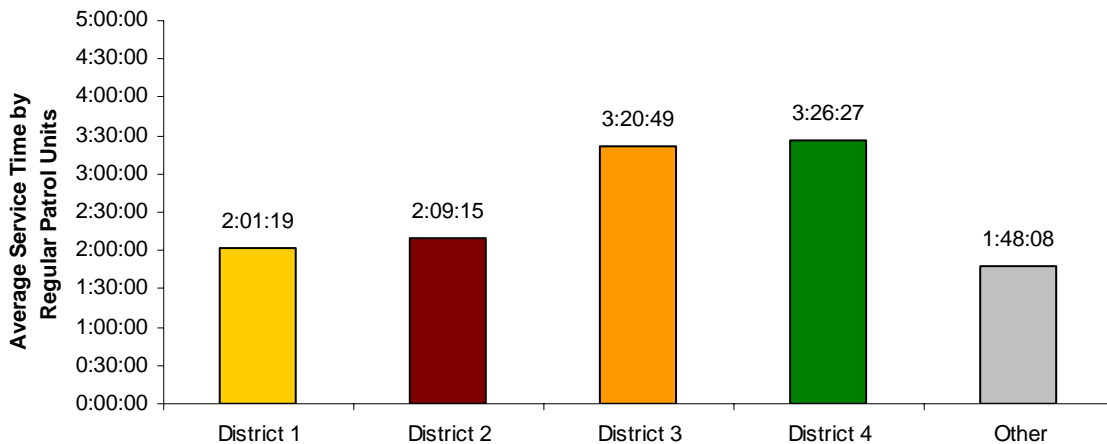
- The average service time by regular patrol units on weapon possession cases was 2 hours and 21 minutes in District 2. By comparison, it was 1 hour and 4 minutes (45.3%) longer in District 1, 1 hour and 46 minutes (75.0%) longer in District 3 and 1 hour and 20 minutes (56.8%) longer in District 4. By comparison, the average service time by regular patrol units on unfounded weapon calls was 1 hour and 15 minutes in District 1, 1 hour and 30 minutes in District 2, 2 hours and 4 minutes in District 3 and 1 hour and 6 minutes in District 4.

**Figure 6-260 Average Service Time by Regular Patrol Units on Weapon Possession Cases by District**



- The average service time by regular patrol units on property arsons was 2 hours and 1 minute in District 1. By comparison, it was 8 minutes (6.5%) longer in District 2, 1 hour and 20 minutes (65.5%) longer in District 3 and 1 hour and 25 minutes (70.2%) longer in District 4.

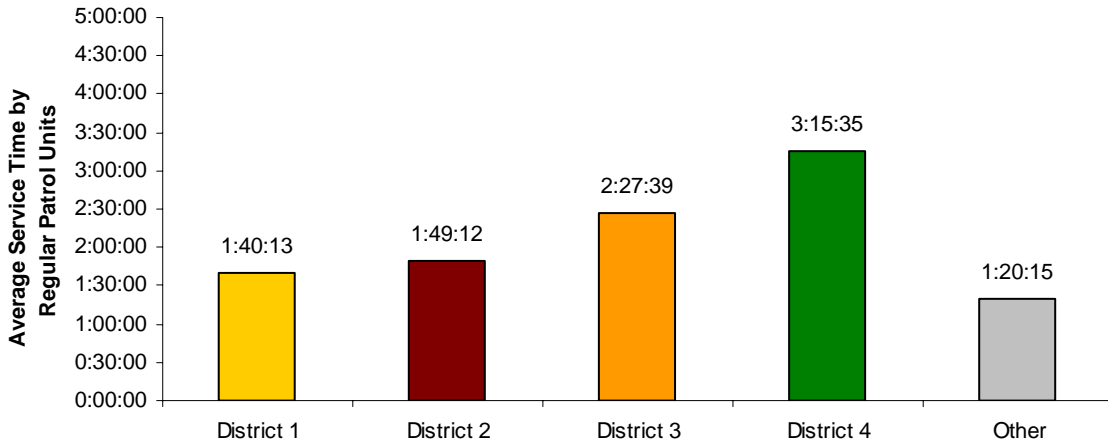
**Figure 6-261 Average Service Time by Regular Patrol Units on Property Arsons by District**



- The average service time by regular patrol units on bail violations was 1 hour and 40 minutes in District 1. By comparison, it was 9 minutes (9.0%) longer in District

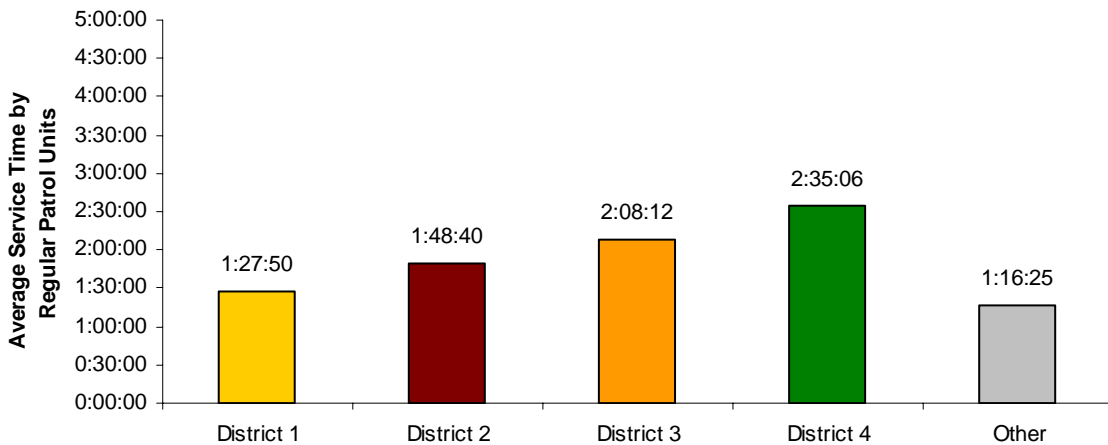
2, 38 minutes (47.3%) longer in District 3 and 48 minutes (95.2%) longer in District 4.

**Figure 6-262 Average Service Time by Regular Patrol Units on Bail Violations by District**



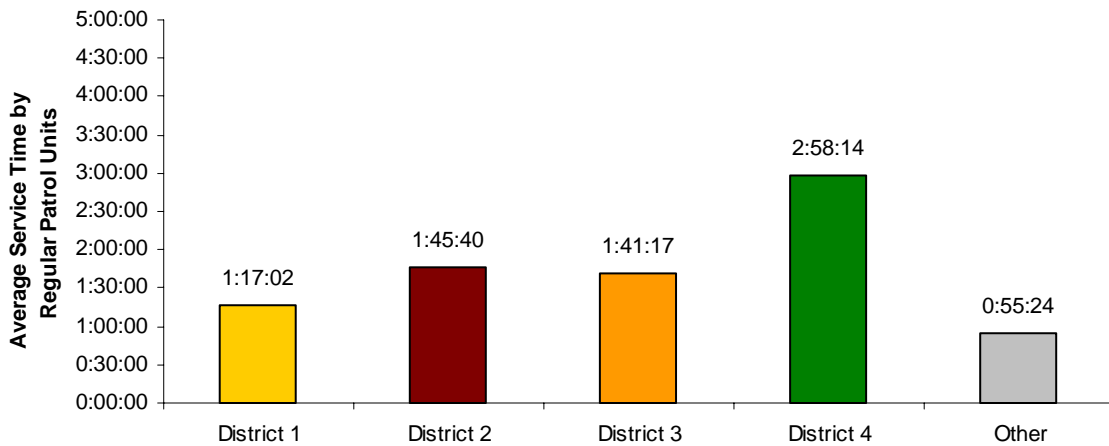
- The average service time by regular patrol units on breaches of peace was 1 hour and 28 minutes in District 1. By comparison, it was 21 minutes (23.7%) longer in District 2, 40 minutes (46.0%) longer in District 3 and 1 hour and 7 minutes (76.6%) longer in District 4.

**Figure 6-263 Average Service Time by Regular Patrol Units on Breaches of Peace by District**



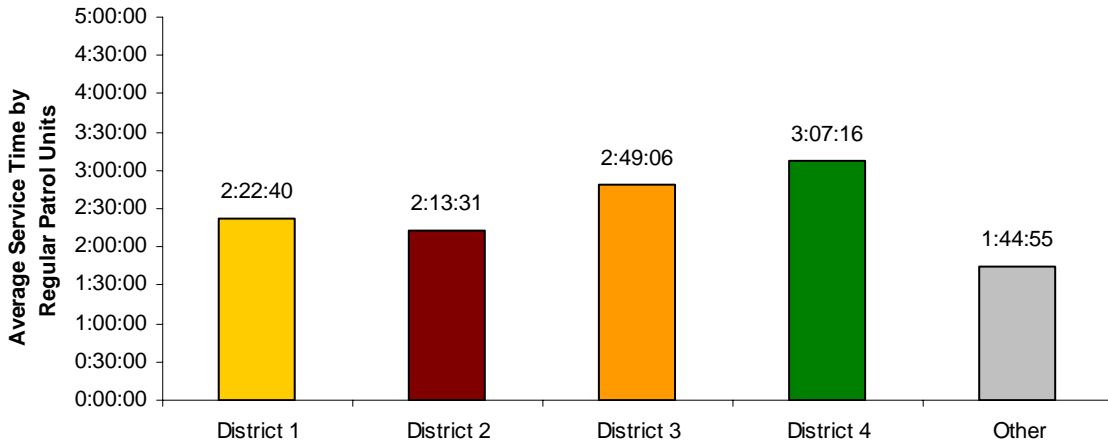
- The average service time by regular patrol units on criminal code warrants was 1 hour and 17 minutes in District 1. By comparison, it was 29 minutes (37.2%) longer in District 2, 24 minutes (31.5%) longer in District 3 and 1 hour and 41 minutes (131.4%) longer in District 4.

**Figure 6-264 Average Service Time by Regular Patrol Units on Criminal Code Warrants by District**



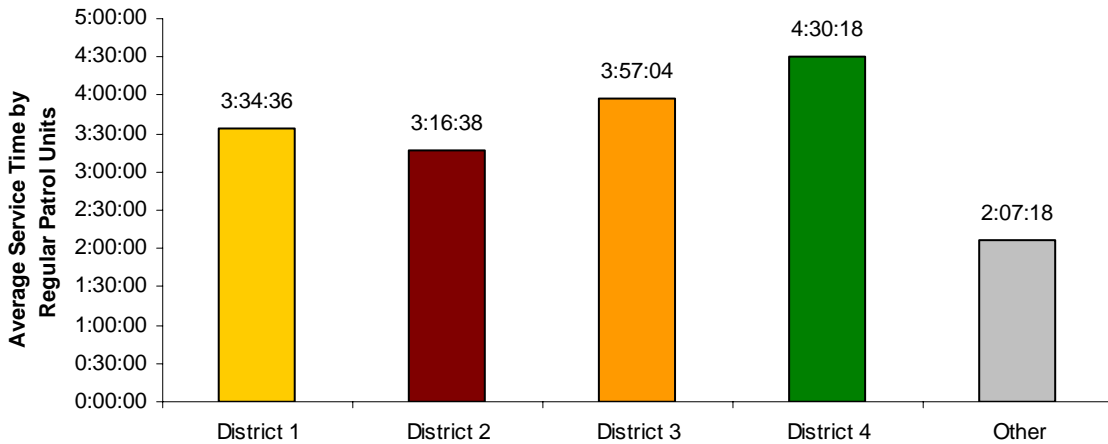
- The average service time by regular patrol units on probation breaches was 2 hours and 14 minutes in District 2. By comparison, it was 9 minutes (6.9%) longer in District 1, 36 minutes (26.7%) longer in District 3 and 54 minutes (40.3%) longer in District 4.

**Figure 6-265 Average Service Time by Regular Patrol Units on Probation Breaches by District**



- The average service time by regular patrol units on robberies with no weapon was 3 hours and 17 minutes in District 2. By comparison, it was 18 minutes (9.1%) longer in District 1, 40 minutes (20.6%) longer in District 3 and 1 hour and 14 minutes (37.5%) longer in District 4.

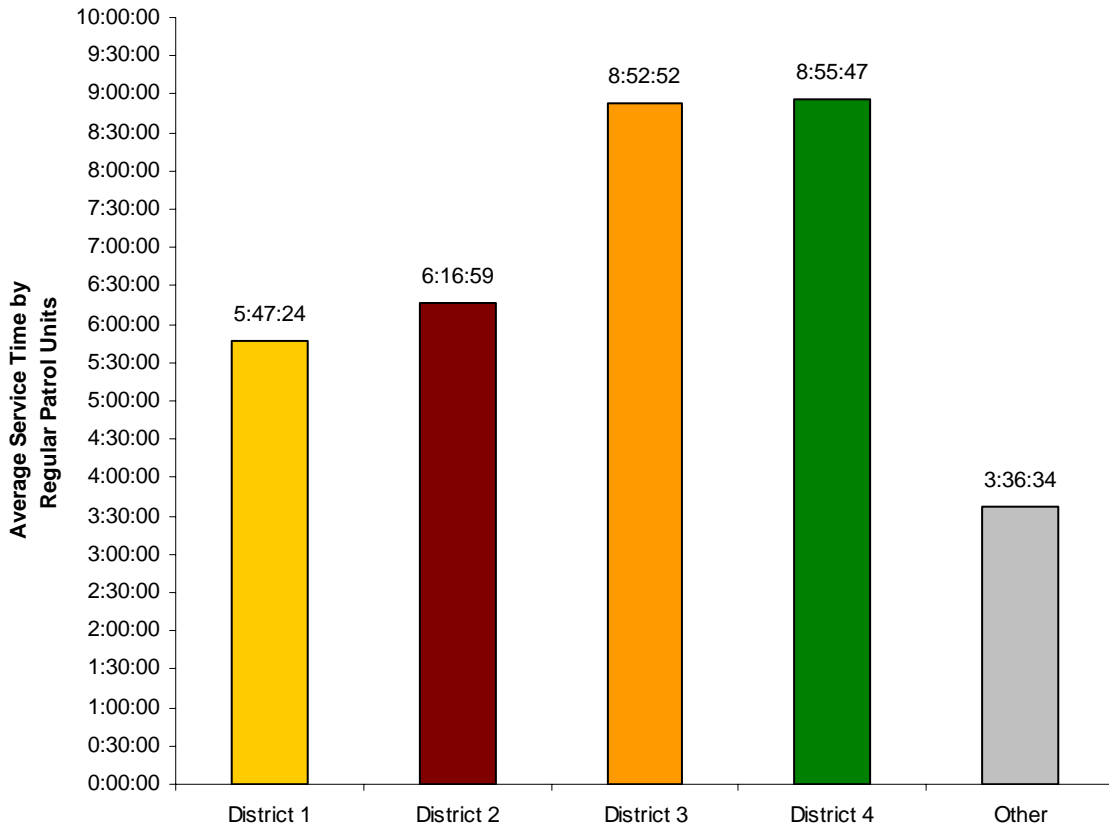
**Figure 6-266 Average Service Time by Regular Patrol Units on Unarmed Robberies by District**



- The average service time by regular patrol units on robberies with a firearm was 5 hours and 47 minutes in District 1. By comparison, it was 30 minutes (8.5%)

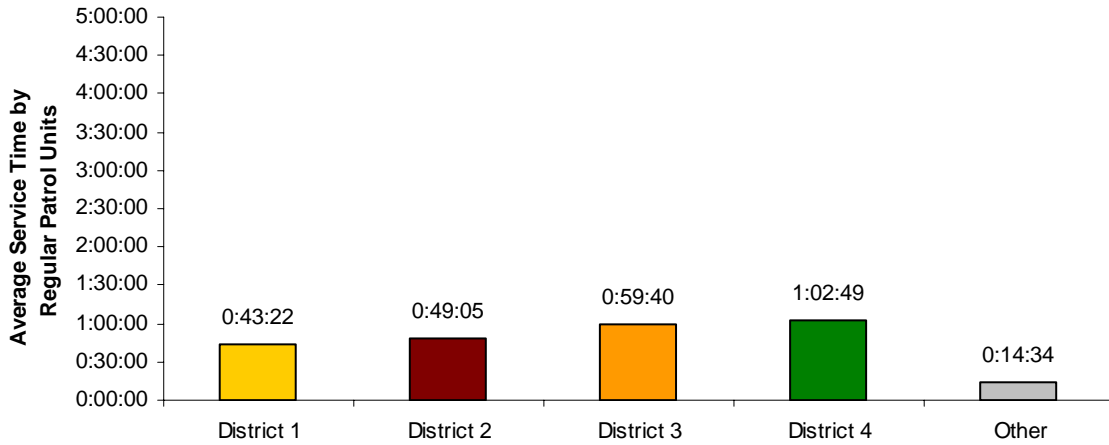
longer in District 2, 3 hours and 5 minutes (53.4%) longer in District 3 and 3 hours and 8 minutes (54.2%) longer in District 4.

**Figure 6-267 Average Service Time by Regular Patrol Units on Robberies with a Firearm by District**



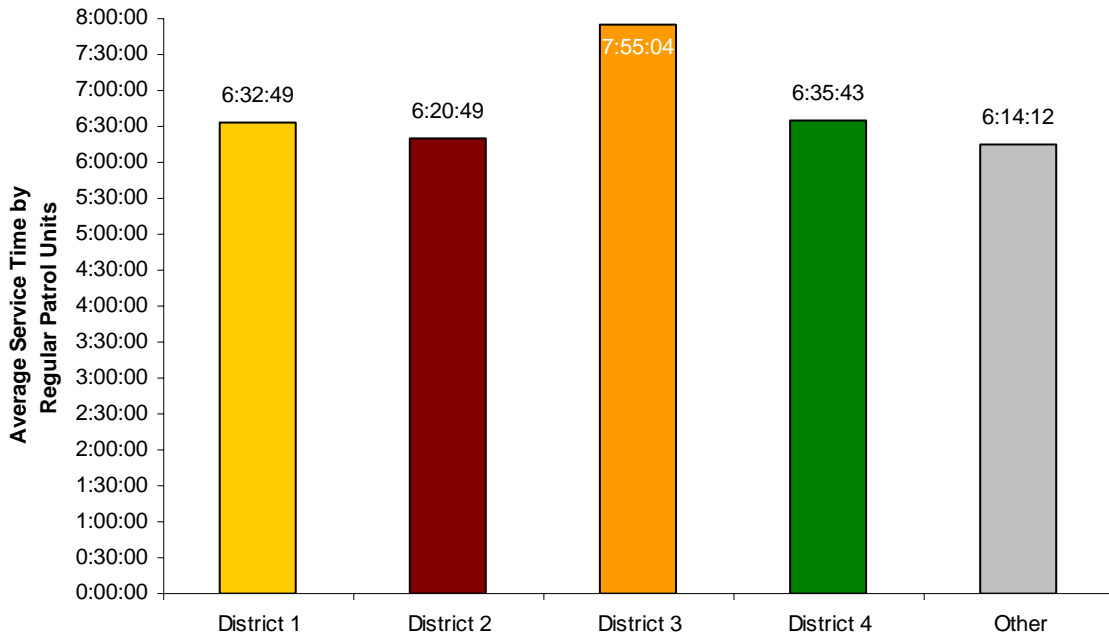
- The average service time by regular patrol units on unfounded robberies was 43 minutes in District 1. By comparison, it was 6 minutes (13.2%) longer in District 2, 16 minutes (37.6%) longer in District 3 and 19 minutes (44.8%) longer in District 4.

**Figure 6-268 Average Service Time by Regular Patrol Units on Unfounded Robberies by District**



- The average service time by regular patrol units on sexual assaults was 6 hours and 21 minutes in District 2. By comparison, it was 12 minutes (3.2%) longer in District 1, 1 hour and 34 minutes (24.8%) longer in District 3 and 15 minutes (3.9%) longer in District 4.

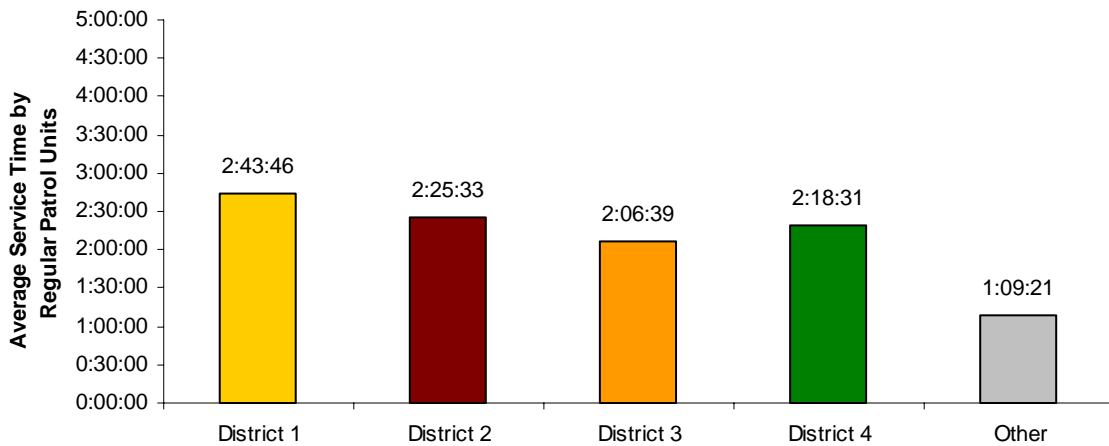
**Figure 6-269 Average Service Time by Regular Patrol Units on Sexual Assaults by District**





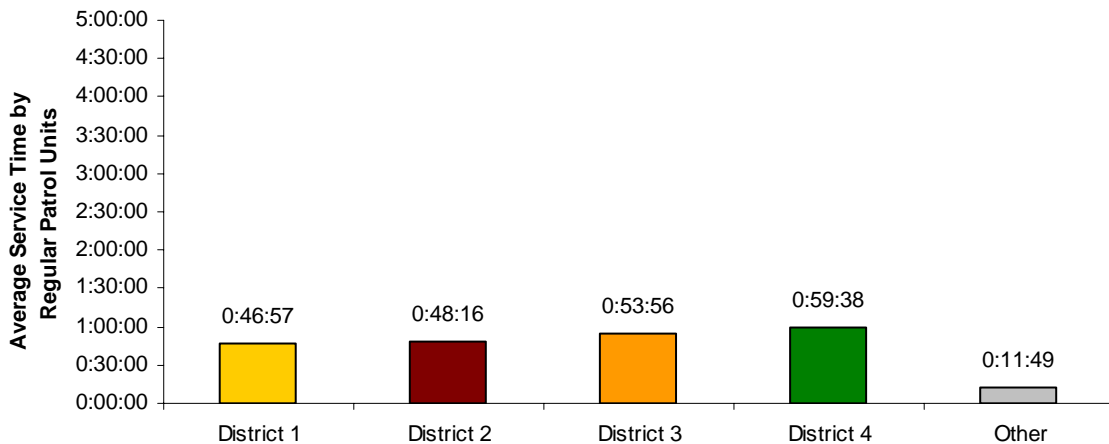
- The average service time by regular patrol units on commercial break and enters was 2 hours and 7 minutes in District 3. By comparison, it was 37 minutes (29.3%) longer in District 1, 19 minutes (14.9%) longer in District 2 and 12 minutes (9.4%) longer in District 4.

**Figure 6-270 Average Service Time by Regular Patrol Units on Commercial Break and Enters by District**



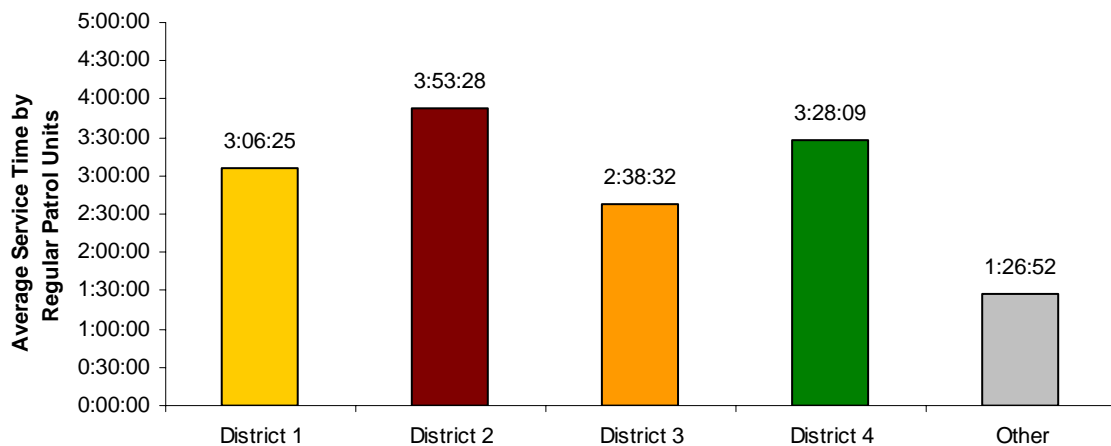
- The average service time by regular patrol units on unfounded break and enters was 47 minutes in District 1. By comparison, it was 48 minutes in District 2, 54 minutes in District 3 and 60 minutes in District 4.

**Figure 6-271 Average Service Time by Regular Patrol Units on Unfounded Break and Enters by District**

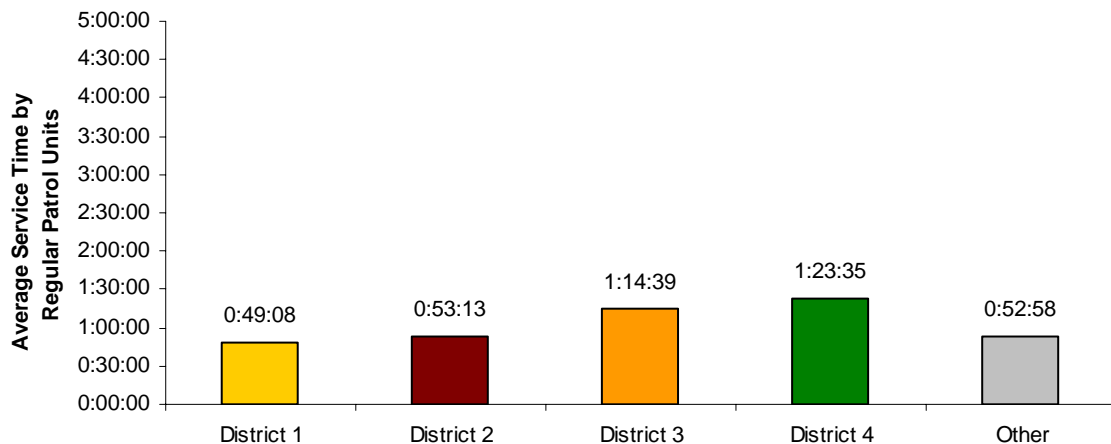


- The average service time by regular patrol units on credit or debit card frauds was 2 hours and 39 minutes in District 3. By comparison, it was 28 minutes (17.6%) longer in District 1, 1 hour and 15 minutes (47.3%) longer in District 2 and 50 minutes (31.3%) longer in District 4. Moreover, the average service time by regular patrol units on unfounded fraud calls was 49 minutes in District 1, 53 minutes in District 2, 1 hour and 15 minutes in District 3 and 1 hour and 24 minutes in District 4.

**Figure 6-272 Average Service Time by Regular Patrol Units on Credit or Debit Card Frauds by District**

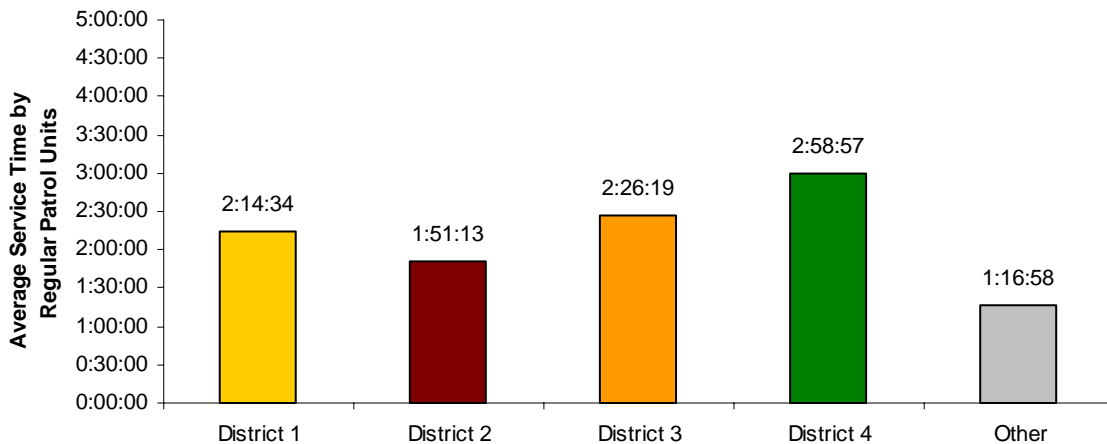


**Figure 6-273 Average Service Time by Regular Patrol Units on Unfounded Frauds by District**



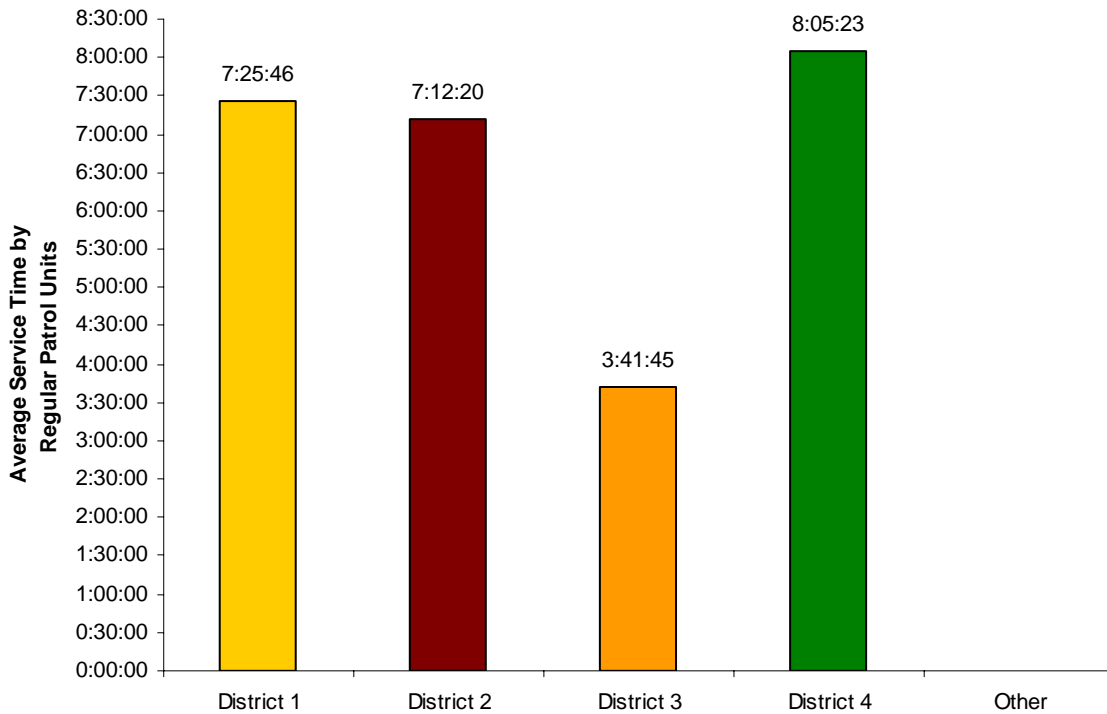
- The average service time by regular patrol units on counterfeit currency cases was 1 hour and 51 minutes in District 2. By comparison, it was 23 minutes (21.0%) longer in District 1, 35 minutes (31.5%) longer in District 3 and 1 hour and 8 minutes (60.9%) longer in District 4.

**Figure 6-274 Average Service Time by Regular Patrol Units on Counterfeit Currency Cases by District**



- The average service time by regular patrol units on shots fired incidents was 3 hours and 42 minutes in District 3. By comparison, it was 3 hours and 44 minutes (101.0%) longer in District 1, 3 hours and 31 minutes (95.0%) longer in District 2 and 4 hours and 24 minutes (118.9%) longer in District 4. Moreover, the average service time by regular patrol units on unfounded shots fired calls or shots heard calls was 34 minutes in District 1, 50 minutes in District 2, 55 minutes in District 3 and 46 minutes in District 4.

**Figure 6-275 Average Service Time by Regular Patrol Units on Shots Fired Incidents by District**



## 6.8 DISCUSSION

The data available supports the idea that VPD's operational policies and tactical guidelines are applied consistently across the four existing patrol districts. Overall, empirical evidence suggests that patrol officers and supervisors are able to reliably assess how many units should be assigned to each incident and how much time they should spend on each case.

Although public benchmark data related to the average service time per call is relatively rare, anecdotal evidence suggests that no patrol time is being wasted on unfounded or minor calls for service by VPD regular patrol units. VPD regular patrol units appear to be following most comparable police agencies. On average, VPD regular patrol units spend approximately 1 hour and 20 minutes on each call for service they are dispatched to. On

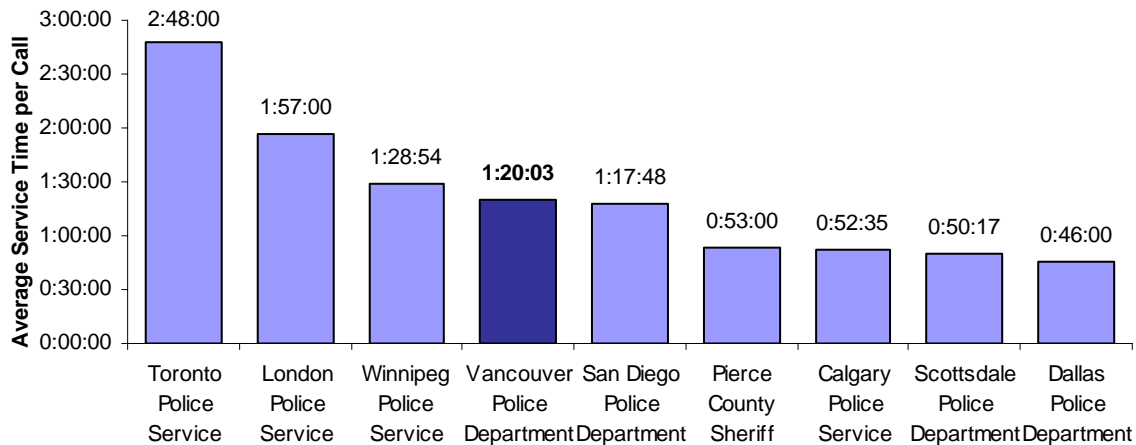
average, the police agencies surveyed under the framework of this Patrol Deployment Study were spending an average of approximately 1 hour and 22 minutes per call.

**Table 6-19 Average Service Time per Call for Service in Other Police Agencies**

<b>Agency</b>	<b>Average Service Time per Call</b>
Toronto Police Service	2:48:00
London Police Service	1:57:00
Winnipeg Police Service	1:28:54
<b>Vancouver Police Department</b>	<b>1:20:03</b>
San Diego Police Department	1:17:48
Pierce County Sheriff	0:53:00
Calgary Police Service	0:52:35
Scottsdale Police Department	0:50:17
Dallas Police Department	0:46:00
<b>Average</b>	<b>1:21:31</b>

\* Although the data provided by the agencies listed above is believed to be comparable to the VPD's data, caution must be exercised when comparing the average service time between police agencies.

**Figure 6-276 Average Service Time per Call for Service in Other Police Agencies**



As illustrated in the table below, VPD regular patrol units typically spend less time than London Police Service (LPS) patrol units on calls of every call type except sexual assault cases (on which VPD regular patrol units spend one hour more on average) and

fraud cases, intoxicated persons (SIPPs), vehicle thefts and harassment cases (on which VPD regular patrol units spend virtually the same time on average).<sup>13</sup>

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<sup>13</sup> Although the data presented in the table is believed to be comparable, caution must be exercised when comparing call types and service time from different police agencies.

**Table 6-20 Average Service Time by Call Type at the VPD and the London Police Service**

Call Type	VPD (2005-2006)		London Police Service (2001)	
	Number of Calls	Average Service Time	Number of Calls	Average Service Time
ALARM	3,631	0:20:25	1,733	0:43:51
ARSON	213	2:40:24	75	2:54:50
ASSAULT	5,399	2:25:59	1,862	4:27:50
<b>ASSAULT SEXUAL</b>	<b>501</b>	<b>6:36:28</b>	<b>258</b>	<b>5:34:57</b>
ASSIST GENERAL PUBLIC	8,472	0:58:10	4,812	1:24:03
ASSIST OTHER AGENCY	1,194	1:11:11	1,198	1:49:59
ASSIST AMBULANCE	3,333	0:58:28	769	2:04:10
BOMB THREAT	34	3:20:10	39	3:50:35
BREAK & ENTER	4,991	1:59:03	3,168	2:18:22
CHECK WELFARE	1,684	0:47:55	2,726	1:38:33
DISTURBANCE NOISE	5,282	0:23:24	4,188	0:51:01
DOMESTIC	5,100	2:04:28	1,867	3:29:30
DRUGS	1,406	0:44:49	779	2:43:41
<b>FRAUD</b>	<b>1,292</b>	<b>2:40:29</b>	<b>746</b>	<b>2:38:10</b>
IMPAIRED DRIVER	613	1:33:41	637	3:31:15
INDECENT ACT	467	1:15:56	178	1:52:09
LIQUOR ACT OR LICENSED PREMISES CHECK	793	0:32:54	337	1:32:56
MENTAL HEALTH ACT	974	2:30:18	507	3:55:02
MISSING PERSON	1,076	2:07:57	2,408	2:12:48
OVERDOSE OR SUICIDAL PERSON	1,026	1:57:12	364	3:53:03
ROBBERY	1,470	3:26:40	292	6:32:27
SHOPLIFTER	1,670	2:21:10	857	2:52:56
<b>SIPP/DIPP (DRUNK)</b>	<b>1,172</b>	<b>1:12:41</b>	<b>2,208</b>	<b>1:11:53</b>
SUDDEN DEATH	611	4:56:29	261	6:31:28
SUSPICIOUS PERSON	8,600	0:44:26	3,354	1:12:48
SUSPICIOUS VEHICLE	2,053	0:48:55	927	1:14:00
THEFT	5,121	1:52:47	2,242	2:23:34
<b>THEFT OF VEHICLE</b>	<b>370</b>	<b>1:49:59</b>	<b>3,033</b>	<b>1:38:38</b>
THREATS	2,122	2:14:34	545	4:00:35
<b>HARASSMENT</b>	<b>1,003</b>	<b>2:14:58</b>	<b>508</b>	<b>2:14:34</b>
TRESPASS OR PROWLER	321	0:45:05	1,284	1:19:40
WEAPON IN PROGRESS	1,558	4:01:07	385	6:15:18
OTHER	73,949	1:07:27	74,754	1:53:20
<b>Total</b>	<b>147,501</b>	<b>1:20:03</b>	<b>119,301</b>	<b>1:57:00</b>

Source: London Police Service, Workload Analysis Report, May 7th, 2002.

In its Policies and Procedures Manual, the Seattle Police Department has identified 2 main factors that usually influence the number of units that will be assigned to a call and the time each unit spends on the call:

1. When the degree of violence, the potential for violence or the level of danger is greater, more officers are required. At least two officers should be dispatched to incidents involving a contact weapon such as a club or a knife (more officers should be dispatched to incidents involving a firearm), a disturbed person with some potential for violence, an intoxicated person (more officers should be dispatched to violent intoxicated persons), many individuals (e.g. noisy house party), potential hazards (e.g. motor vehicle incidents at night on a major street) or anti-police locations (e.g. some nightclubs, problem premises or schools).
2. When more tasks need to be accomplished at the scene of the call, when these tasks need to be completed more urgently or when these tasks are more complex, more officers are required. The police response to an armed robbery will be more imposing than a theft report because the armed robbery entails several involved tasks, all of which must be initiated very quickly in order to be effective. This is why a multi-unit response is justified in this case. At the opposite end of the spectrum, a single officer can typically handle a routine theft report because the relevant tasks can be accomplished sequentially and there is virtually no concern about enforcement or apprehension.

In general, patrol officers at the VPD spend more time on serious incidents. This represents an efficient allocation of patrol resources and it follows the best practices described by the Seattle Police Department. Community-oriented and intelligence-led policing philosophies encourage more contacts with citizens. In that context, it would not be practical or wise to reduce the time patrol officers spend on critical investigations or the time they spend talking to complainants, victims, witnesses, suspects or regular citizens.



## **7 PATROL PERFORMANCE**

### **7.1 RESPONSE TIME**

Between 2005-06-01 and 2006-05-31, excluding officer-initiated calls and calls recorded using another method, regular patrol units were dispatched to a total of 13,545 priority 1 calls for service for which the response time was available. From those 13,545 priority 1 calls, 55 calls were associated with a response time of less than 60 seconds and 8 calls were associated with a response time of more than 10 hours. The unusually short or long response time associated with these 63 priority 1 calls was most likely caused by factors other than staffing or workload issues. Although it is difficult to identify the precise cause of these discrepancies, artefacts of the CAD system or human errors were most likely to blame for the artificially deflated or inflated response times. For this reason, the 55 priority 1 calls with a response time of less than 60 seconds and the 8 priority 1 calls associated with a response time of more than 10 hours were excluded from the analysis presented below. Out of the 13,482 remaining priority 1 calls, 12,093 were emergency 9-1-1 calls and 1,389 were non-emergency telephone calls.

The average queuing delay (also known as dispatch delay) associated with the 12,093 priority 1 emergency 9-1-1 calls was 5 minutes and 57 seconds while the average travel time was 7 minutes and 20 seconds. The queuing delay plus the travel time equals the response time. The average response time to priority 1 emergency 9-1-1 calls was therefore approximately 13 minutes and 17 seconds citywide. Empirical evidence suggests that a lack of patrol resources exacerbates this excessive average queuing delay and average response time because units are often unavailable to respond to these calls.

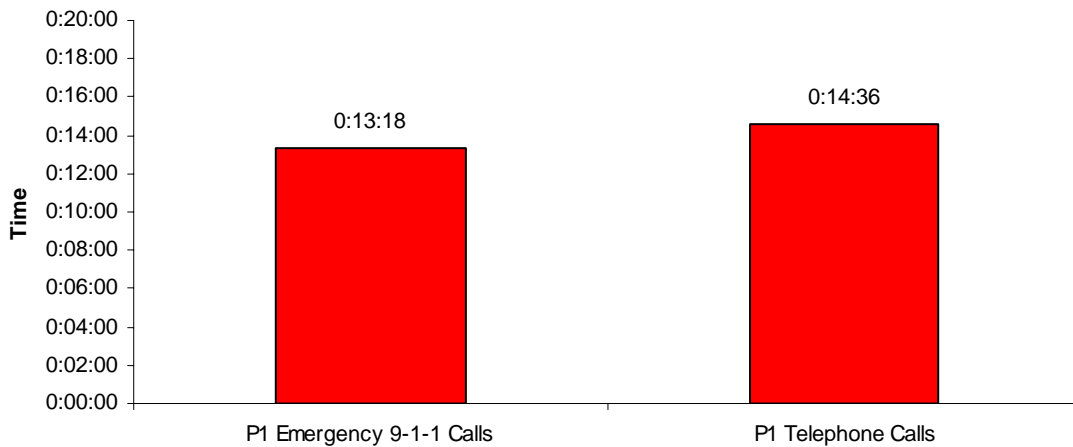
The average queuing delay associated with the 1,389 priority 1 telephone calls was 6 minutes and 13 seconds while the average travel time was 8 minutes and 23 seconds. The average response time to priority 1 telephone calls was therefore approximately 14 minutes and 36 seconds citywide.

**Table 7-1 Average Response Time to Priority 1 Calls Dispatched to Regular Patrol Units by Source**

	<b>Number of Calls</b>	<b>Average Queuing Delay</b>	<b>Average Travel Time</b>	<b>Average Response Time</b>
P1 Emergency 9-1-1 Calls	12,093	0:05:57	0:07:20	0:13:18
P1 Telephone Calls	1,389	0:06:13	0:08:23	0:14:36
<b>Total</b>	<b>13,482</b>	<b>0:05:59</b>	<b>0:07:27</b>	<b>0:13:26</b>

\* On-view calls and calls associated with a response time of less than 60 seconds or more than 10 hours are excluded.

**Figure 7-1 Average Response Time to Priority 1 Calls Dispatched to Regular Patrol Units by Source**



Between 2005-06-01 and 2006-05-31, regular patrol units were dispatched to a total of 23,575 priority 2 calls for service for which the response time was available. From those 23,575 priority 2 calls, 2,770 were associated with a response time of less than 60 seconds. Since it is virtually impossible for an emergency 9-1-1 or a non-emergency telephone call to be dispatched in less than 60 seconds, these 2,770 calls were excluded from the analysis below. Out of the 20,805 remaining priority 2 calls, 18,381 were emergency 9-1-1 calls and 2,424 were non-emergency telephone calls.

The average queuing delay associated with the 18,381 priority 2 emergency 9-1-1 calls was 21 minutes and 11 seconds while the average travel time was 11 minutes and 29

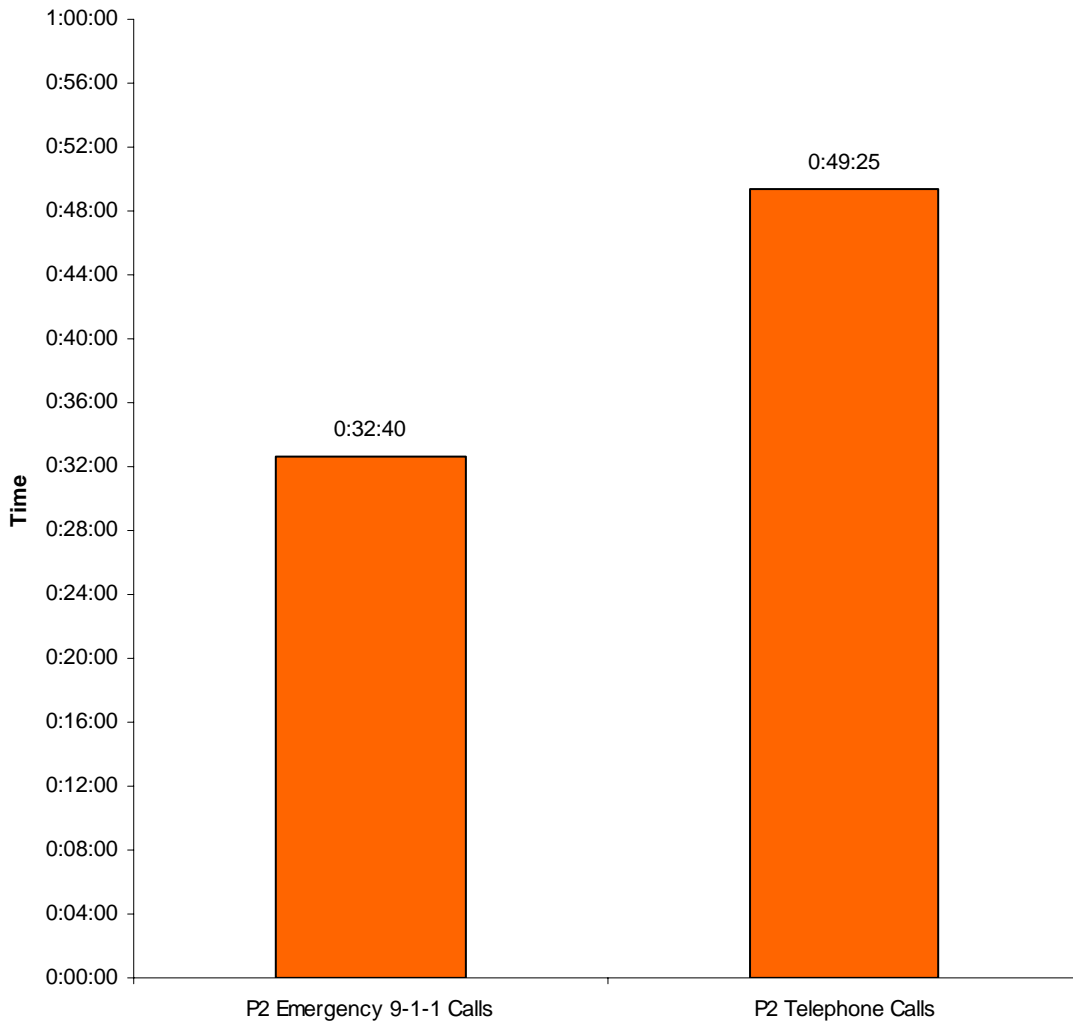
seconds. The average response time to priority 2 emergency 9-1-1 calls was therefore approximately 32 minutes and 40 seconds citywide.

The average queuing delay associated with the 2,424 priority 2 non-emergency telephone calls was 36 minutes and 3 seconds while the average travel time was 13 minutes and 22 seconds. The average response time to priority 2 non-emergency telephone calls was therefore approximately 49 minutes and 25 seconds citywide.

**Table 7-2 Average Response Time to Priority 2 Calls Dispatched to Regular Patrol Units by Source**

	<b>Number of Calls</b>	<b>Average Queuing Delay</b>	<b>Average Travel Time</b>	<b>Average Response Time</b>
P2 Emergency 9-1-1 Calls	18,381	0:21:11	0:11:29	0:32:40
P2 Telephone Calls	2,424	0:36:03	0:13:22	0:49:25
<b>Total</b>	<b>20,805</b>	<b>0:22:55</b>	<b>0:11:42</b>	<b>0:34:37</b>
* On-view calls and calls associated with a response time of less than 60 seconds are excluded.				

**Figure 7-2 Average Response Time to Priority 2 Calls Dispatched to Regular Patrol Units by Source**



Between 2005-06-01 and 2006-05-31, regular patrol units were dispatched to a total of 63,322 priority 3 calls for service for which the response time was available. From those 63,322 priority 3 calls, 11,157 were associated with a response time of less than 60 seconds. Out of the 52,165 remaining priority 3 calls, 40,209 were emergency 9-1-1 calls and 11,956 were non-emergency telephone calls.

The average queuing delay associated with the 40,209 priority 3 emergency 9-1-1 calls was approximately 1 hour and 27 minutes while the average travel time was 30

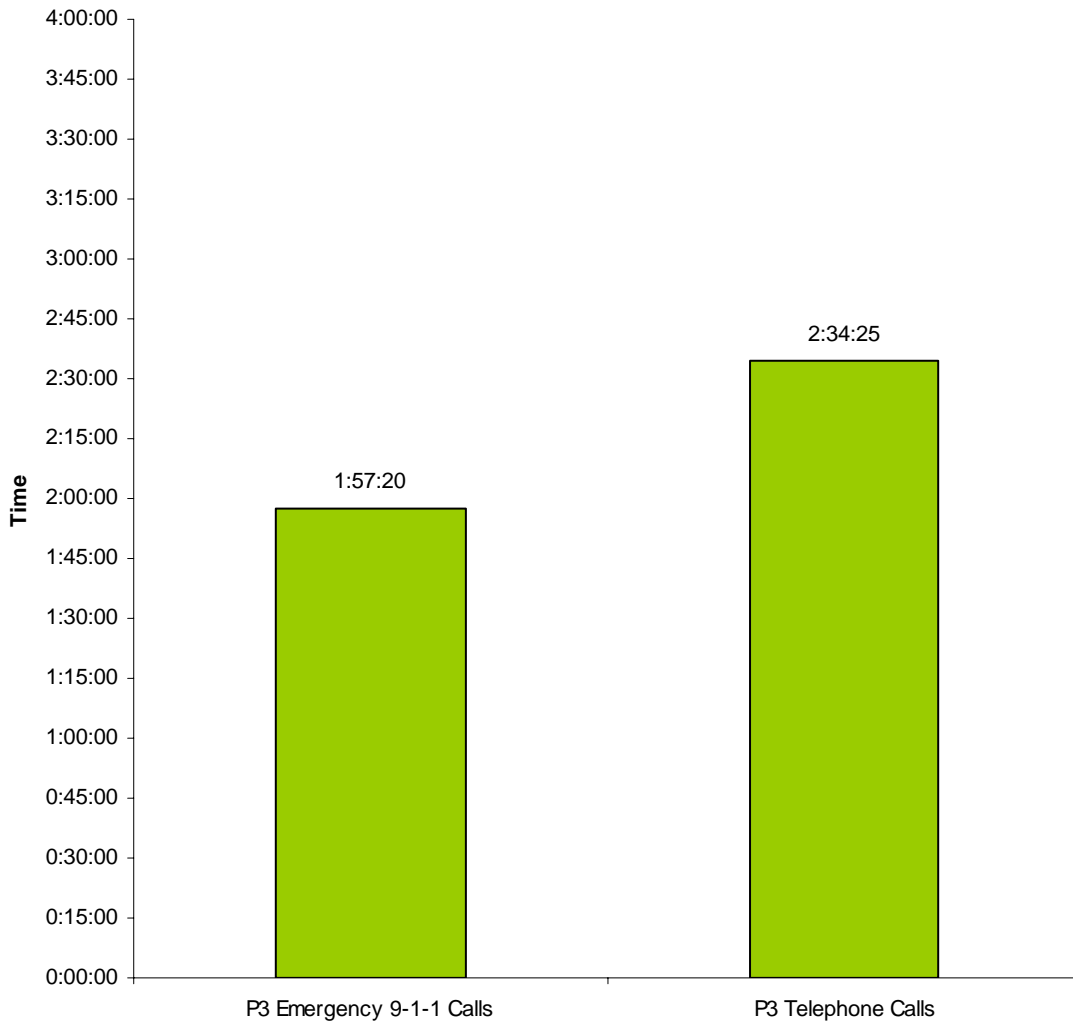
minutes. The average response time to priority 3 emergency 9-1-1 calls was therefore approximately 1 hour and 57 minutes citywide.

The average queuing delay associated with the 11,956 priority 3 non-emergency telephone calls was 2 hours and 5 minutes while the average travel time was 29 minutes. The average response time to priority 3 non-emergency telephone calls was therefore approximately 2 hours and 34 minutes citywide.

**Table 7-3 Average Response Time to Priority 3 Calls Dispatched to Regular Patrol Units by Source**

	<b>Number of Calls</b>	<b>Average Queuing Delay</b>	<b>Average Travel Time</b>	<b>Average Response Time</b>
P3 Emergency 9-1-1 Calls	40,209	1:27:18	0:30:03	1:57:20
P3 Telephone Calls	11,956	2:05:18	0:29:07	2:34:25
<b>Total</b>	<b>52,165</b>	<b>1:36:00</b>	<b>0:29:50</b>	<b>2:05:50</b>
* On-view calls and calls associated with a response time of less than 60 seconds are excluded.				

**Figure 7-3 Average Response Time to Priority 3 Calls Dispatched to Regular Patrol Units by Source**



Between 2005-06-01 and 2006-05-31, regular patrol units were dispatched to a total of 13,772 priority 4 calls for service for which the response time was available. From those 13,772 priority 4 calls, 2,312 were associated with a response time of less than 60 seconds. Out of the 11,460 remaining priority 4 calls, 8,310 were emergency 9-1-1 calls and 3,150 were non-emergency telephone calls.

The average queuing delay associated with the 8,310 priority 4 emergency 9-1-1 calls was approximately 3 hours and 40 minutes while the average travel time was 1 hour

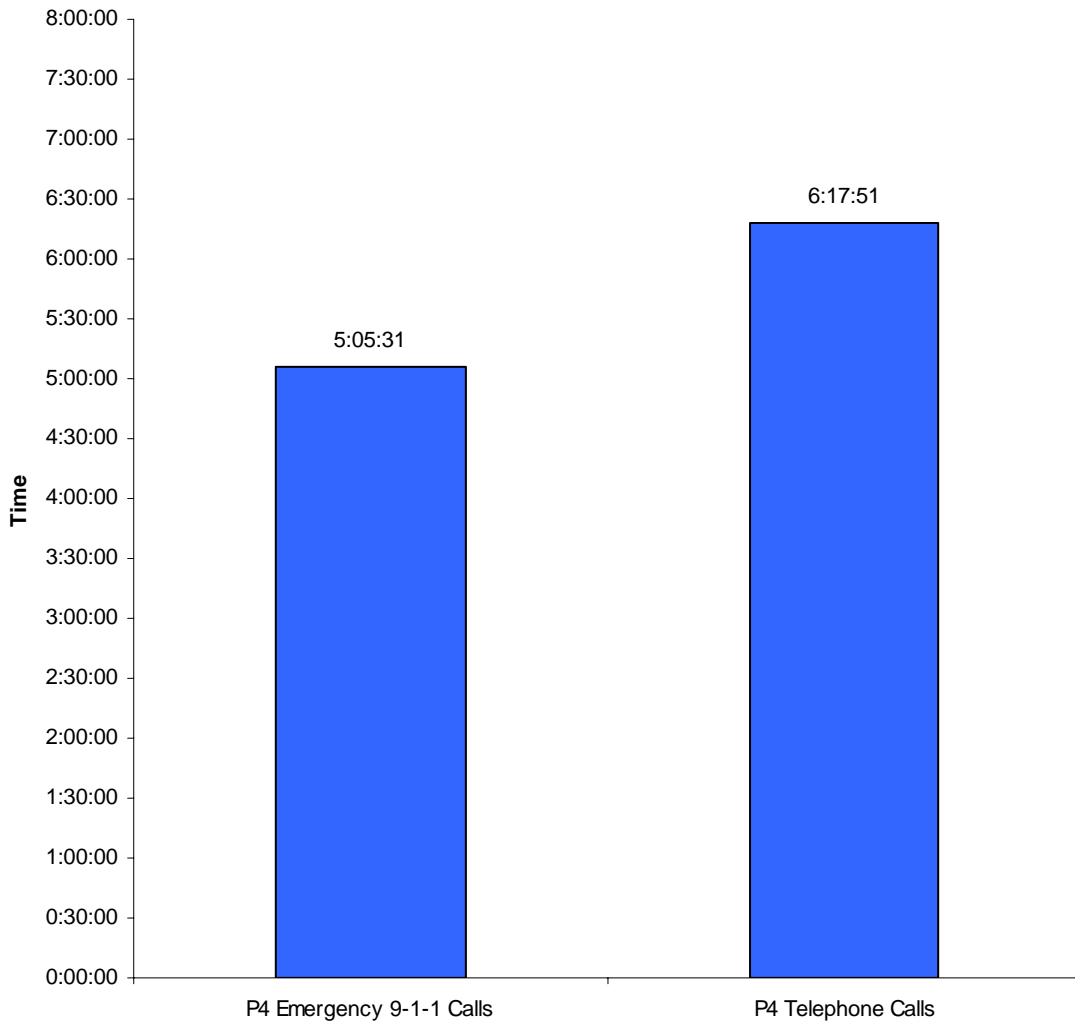
and 9 minutes. The average response time to priority 4 emergency 9-1-1 calls was therefore approximately 4 hours and 49 minutes citywide.

The average queuing delay associated with the 3,150 priority 4 non-emergency telephone calls was 3 hours and 53 minutes while the average travel time was 2 hours and 5 minutes. The average response time to priority 4 non-emergency telephone calls was therefore approximately 5 hours and 58 minutes citywide.

**Table 7-4 Average Response Time to Priority 4 Calls Dispatched to Regular Patrol Units by Source**

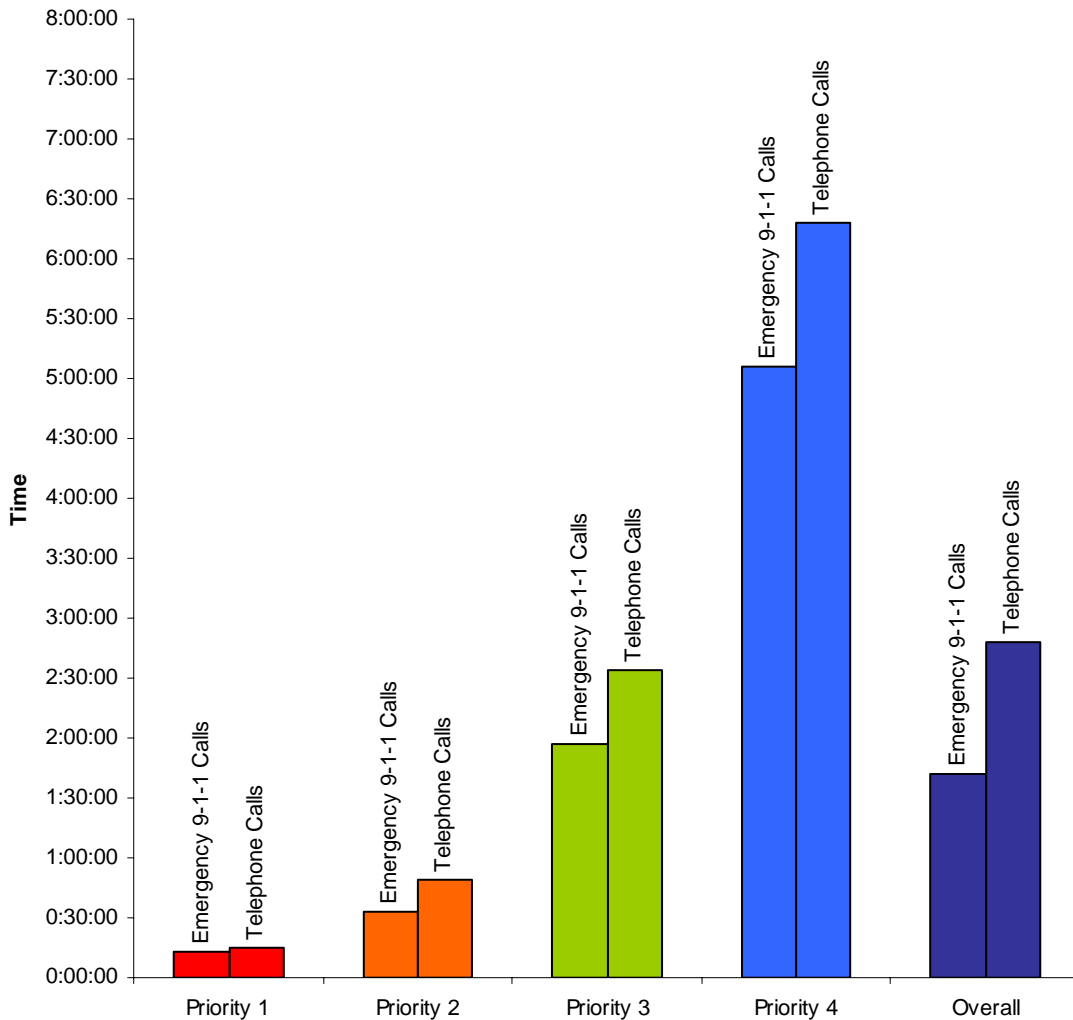
	<b>Number of Calls</b>	<b>Average Queuing Delay</b>	<b>Average Travel Time</b>	<b>Average Response Time</b>
P4 Emergency 9-1-1 Calls	8,320	3:56:48	1:08:44	5:05:31
P4 Telephone Calls	3,196	4:06:28	2:11:09	6:17:51
<b>Total</b>	<b>11,516</b>	<b>3:59:29</b>	<b>1:26:03</b>	<b>5:25:36</b>
* On-view calls and calls associated with a response time of less than 60 seconds are excluded.				

**Figure 7-4 Average Response Time to Priority 4 Calls Dispatched to Regular Patrol Units by Source**





**Figure 7-5 Average Response Time by Priority and by Source**

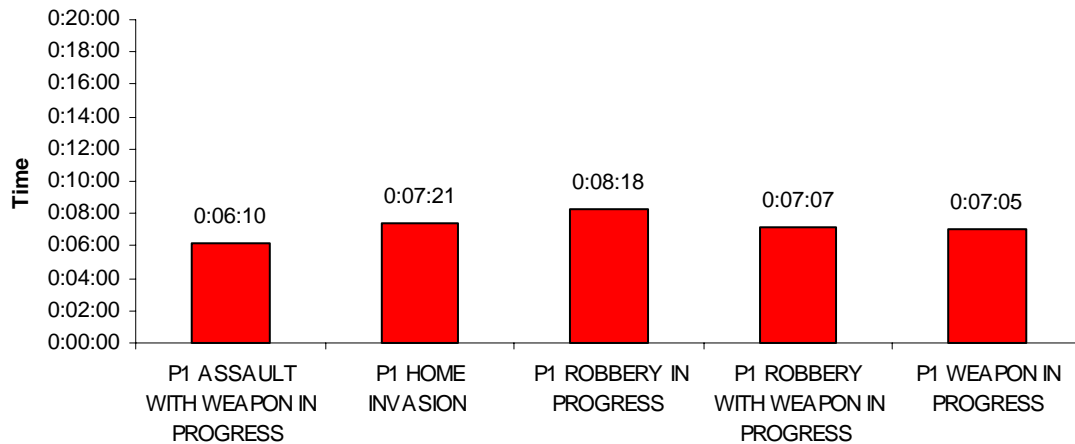


Most serious calls were answered relatively quickly on average. Between 2005-06-01 and 2006-05-31, for instance:

- The average response time to priority 1 assaults with a weapon in progress was 6 minutes and 10 seconds.
- The average response time to priority 1 robberies in progress was 8 minutes and 18 seconds. The average response time to priority 1 robberies with a weapon in progress was 7 minutes and 7 seconds.
- The average response time to priority 1 home invasions was 7 minutes and 21 seconds.

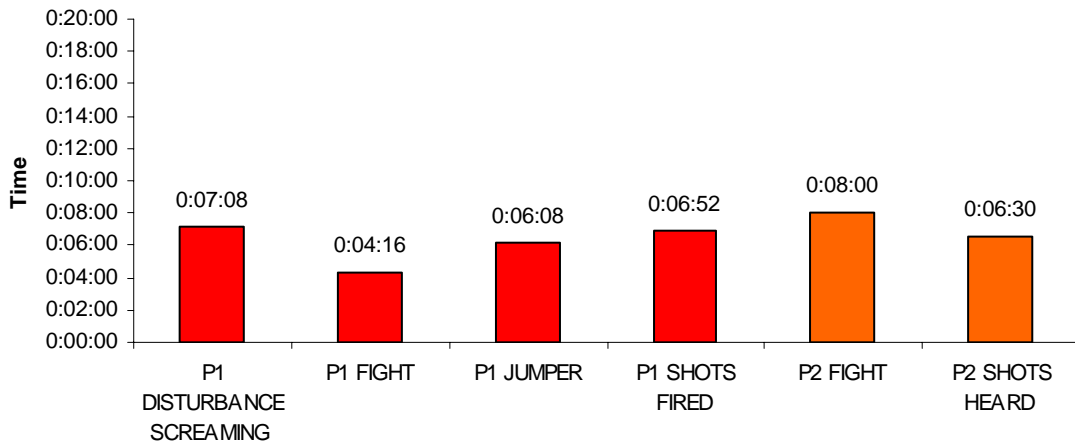
- The average response time to priority 1 weapon-related incidents in progress was 7 minutes and 5 seconds.

**Figure 7-6 Average Response Time to Priority 1 Assaults with a Weapon in Progress, Home Invasions, Robberies in Progress and Weapon-Related Incidents in Progress Dispatched to Regular Patrol Units Citywide**



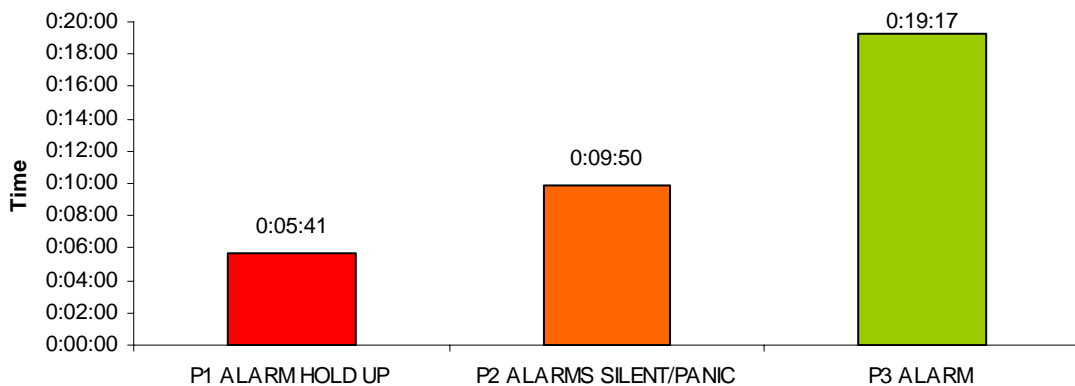
- The average response time to priority 1 persons screaming was 7 minutes and 8 seconds.
- The average response time to priority 1 jumper calls was 6 minutes and 8 seconds.
- The average response time to priority 1 shots fired calls was 6 minutes and 52 seconds.
- The average response time to priority 2 fights was 8 minutes.
- The average response time to priority 2 shots heard was 6 minutes and 30 seconds.

**Figure 7-7 Average Response Time to Persons Screaming, Fights, Jumpers and Shots Fired Incidents Dispatched to Regular Patrol Units Citywide**



- The average response time to priority 1 hold-up alarms was 5 minutes and 41 seconds.
- The average response time to priority 2 silent or panic alarms was 9 minutes and 50 seconds.
- The average response time to priority 3 alarms was 19 minutes and 17 seconds.

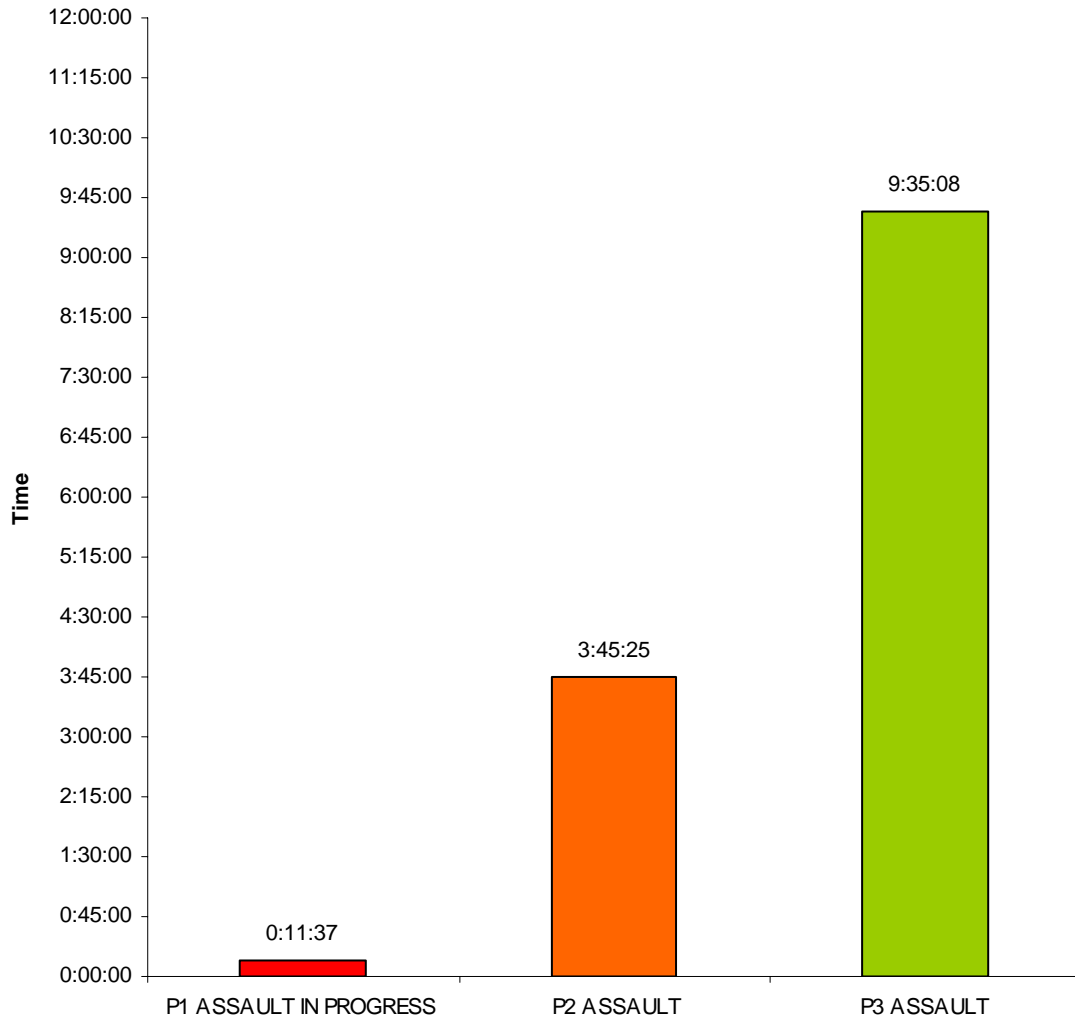
**Figure 7-8 Average Response Time to Alarms Dispatched to Regular Patrol Units Citywide**



Nevertheless, some potentially serious calls were associated with an excessive response time on average. For instance:

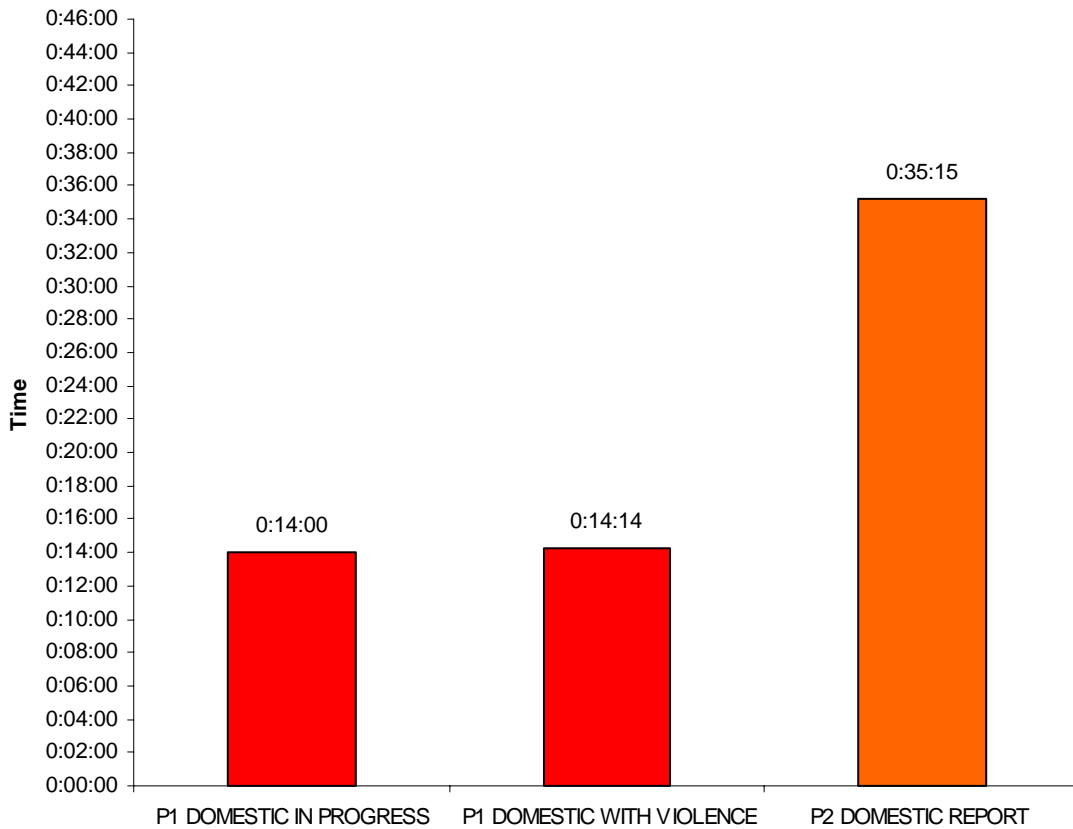
- The average response time to priority 1 assaults in progress was 11 minutes and 37 seconds. The average response time to priority 2 assaults (not in progress) was between 2 and 3.5 hours. The average response time to priority 3 assaults (not in progress) was between 3 and 9 hours.

**Figure 7-9 Average Response Time to Assaults Citywide**



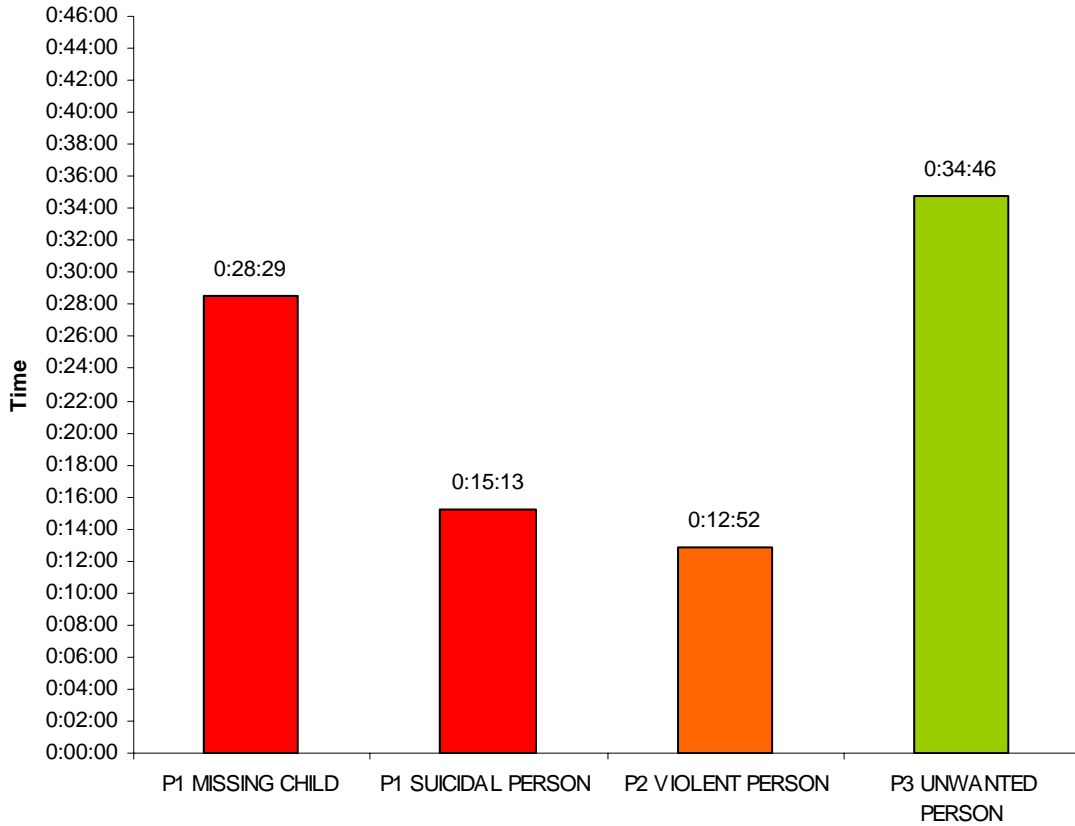
- The average response time to priority 1 domestic violence situations was 14 minutes and 14 seconds. The average response time to priority 1 domestic situations in progress was 14 minutes. The average response time to priority 2 domestic situations was 35 minutes and 15 seconds.

**Figure 7-10 Average Response Time to Domestic Situations Dispatched to Regular Patrol Units Citywide**



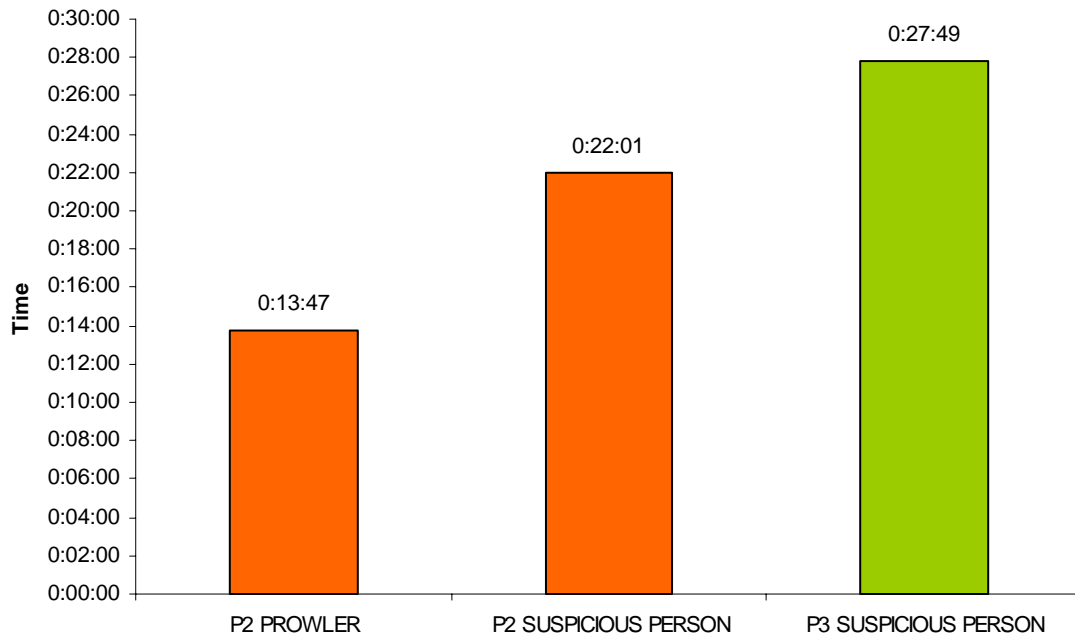
- The average response time to priority 1 missing children was 28 minutes and 29 seconds.
- The average response time to priority 1 suicidal persons was 15 minutes and 13 seconds.
- The average response time to priority 2 violent persons was 12 minutes and 52 seconds.
- The average response time to priority 3 unwanted persons was 34 minutes and 46 seconds.

**Figure 7-11 Average Response Time to Missing Children, Suicidal Persons, Violent Persons and Unwanted Persons Dispatched to Regular Patrol Units Citywide**



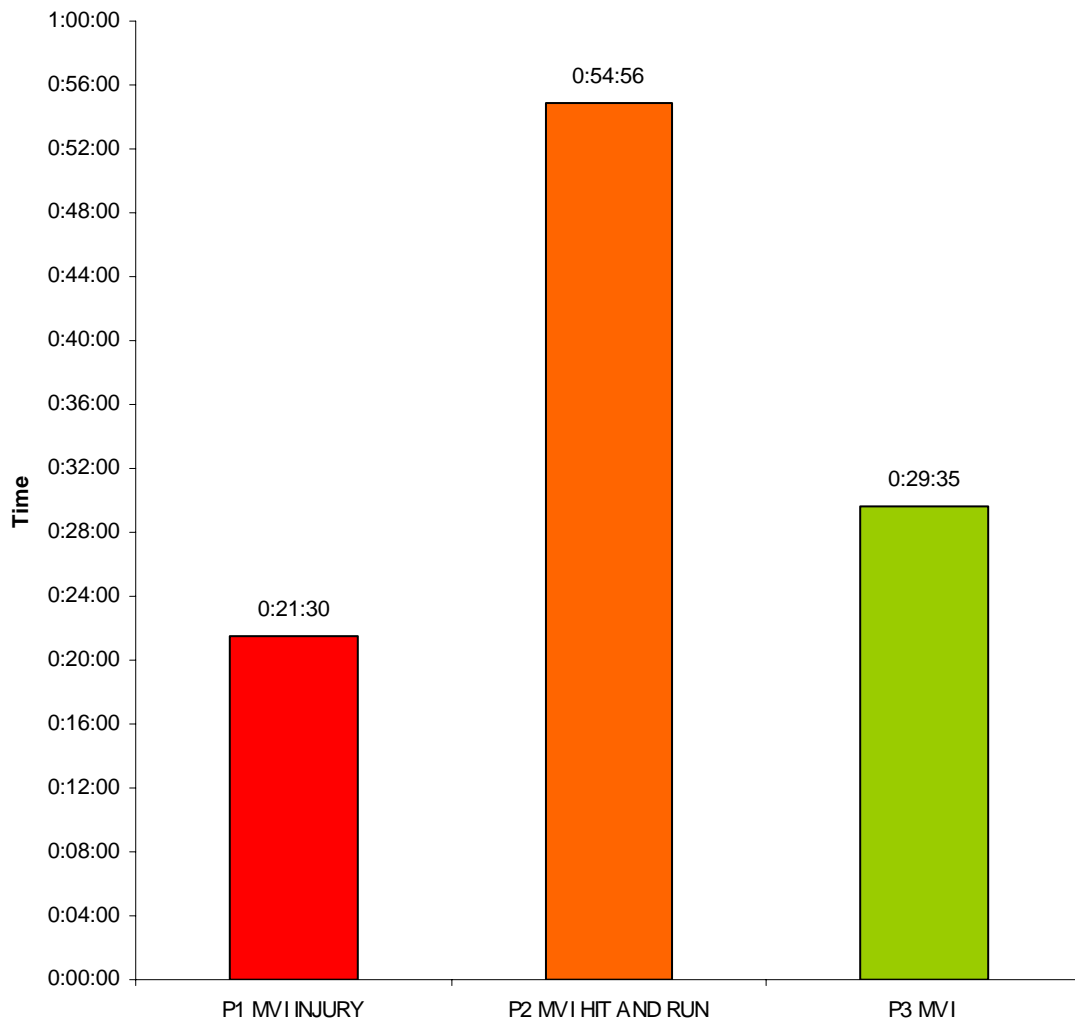
- The average response time to priority 2 suspicious persons was 22 minutes and 1 second. The average response time to priority 3 suspicious persons was 27 minutes and 49 second. By comparison, the average response time to priority 2 prowlers was 13 minutes and 47 seconds.

**Figure 7-12 Average Response Time to Prowlers and Suspicious Persons  
Citywide**



- The average response time to priority 1 motor vehicle incidents with injuries was 21 minutes and 30 seconds. The average response time to priority 3 motor vehicle incidents was 29 minutes and 35 seconds.
- The average response time to priority 2 hit and run was 54 minutes and 56 seconds.

**Figure 7-13 Average Response Time to Motor Vehicle Incidents Citywide**

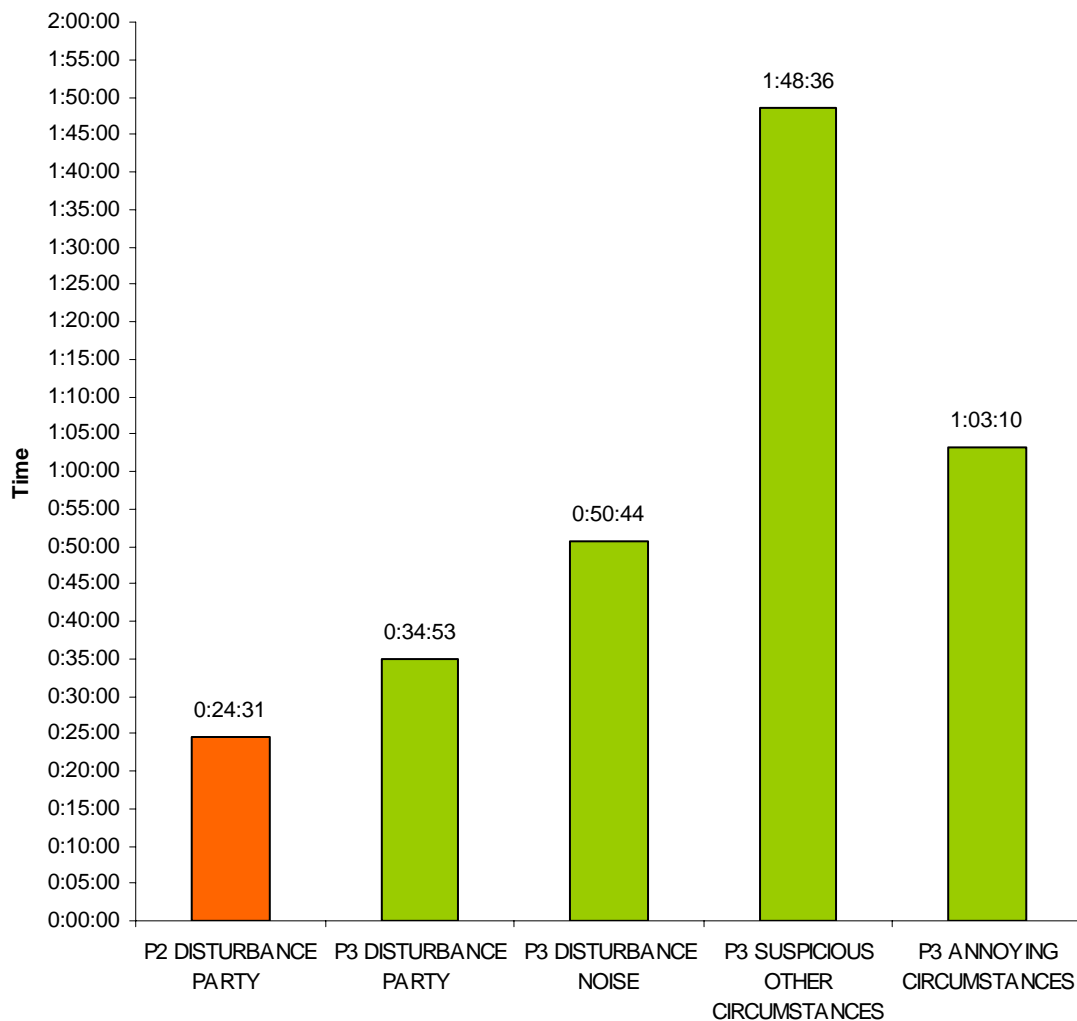


- The average response time to priority 1 abandoned 9-1-1 calls was 13 minutes and 3 seconds. The average response time to priority 2 abandoned 9-1-1 calls was 15 minutes and 1 second.
- The average response time to priority 2 break and enters in progress was 11 minutes and 6 seconds.
- The average response time to priority 3 hazardous situations was 21 minutes and 40 seconds.
- The average response time to priority 3 suspicious vehicles was 52 minutes and 2 seconds.



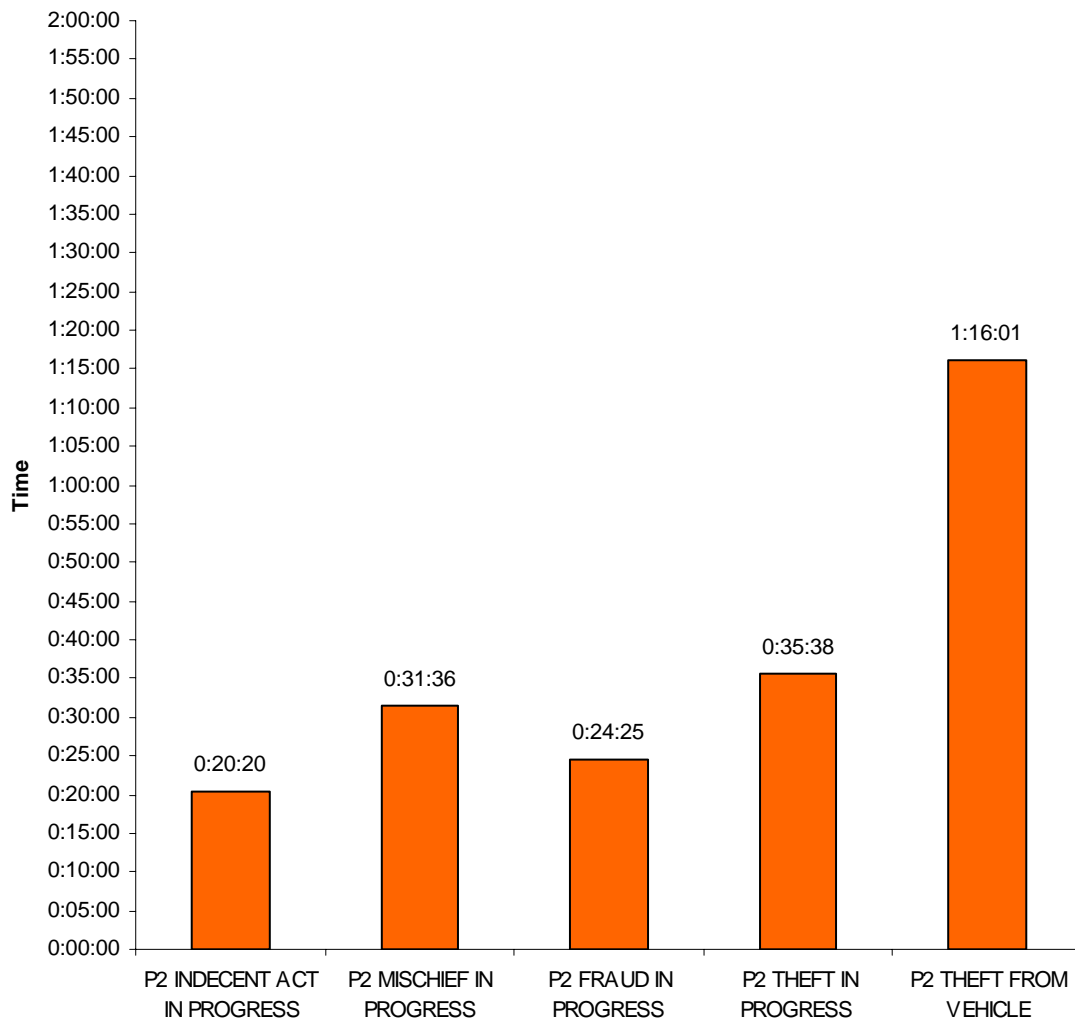
- The average response time to priority 3 disturbing parties was 34 minutes and 53 seconds.
- The average response time to priority 3 noise complaints was 50 minutes and 44 seconds.
- The average response time to priority 2 suspicious circumstances was 21 minutes and 10 seconds. The average response time to priority 3 suspicious circumstances was 1 hour and 49 minutes.
- The average response time to priority 3 annoying circumstances was 1 hour and 3 minutes.

**Figure 7-14 Average Response Time to Disturbing Parties, Noise Complaints, Suspicious Circumstances and Annoying Circumstances Citywide**



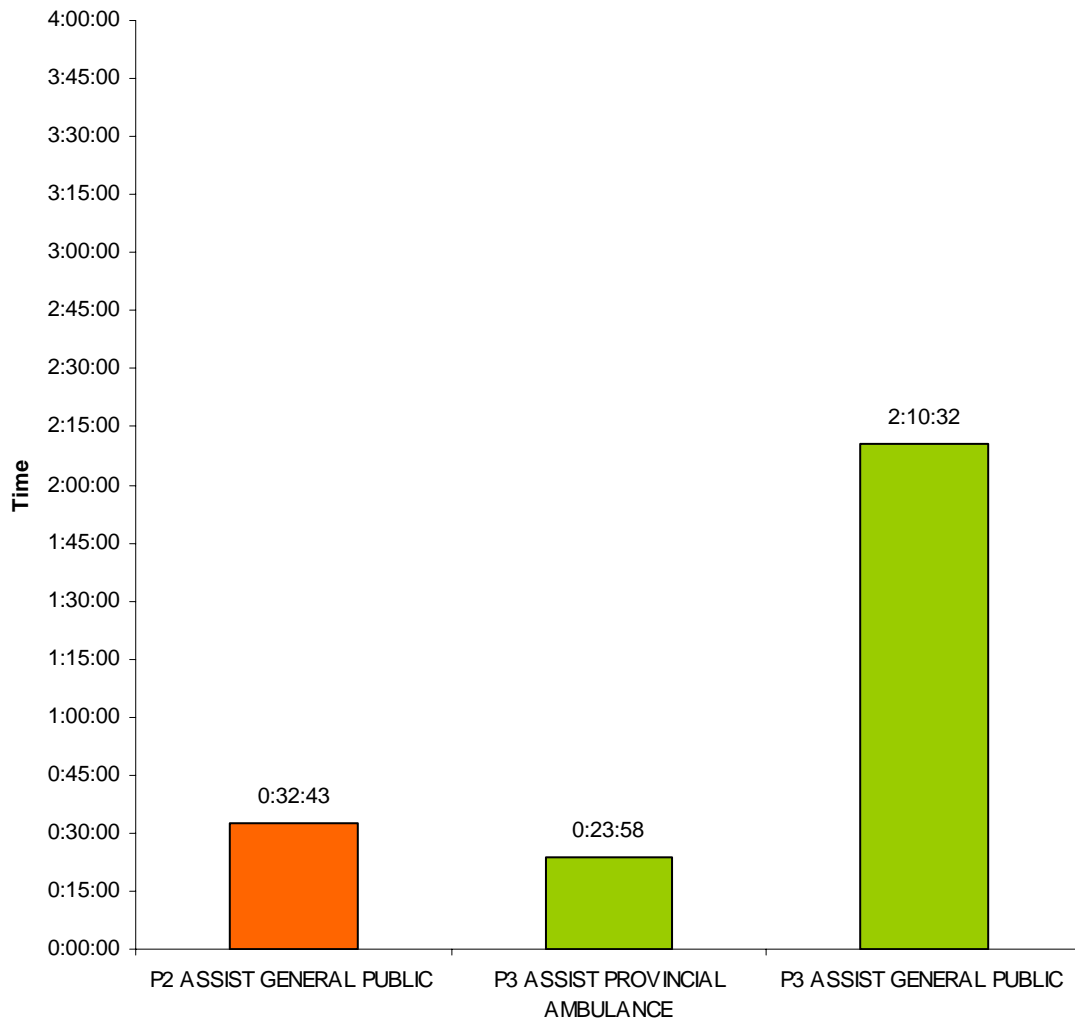
- The average response time to priority 2 frauds in progress was 24 minutes and 25 seconds.
- The average response time to priority 2 mischiefs in progress was 31 minutes and 36 seconds.
- The average response time to priority 2 thefts in progress was 35 minutes and 38 seconds.

**Figure 7-15 Average Response Time to Priority 2 Indecent Acts in Progress, Mischiefs in Progress, Frauds in Progress, Thefts in Progress and Thefts from Vehicle Citywide**



- The average response time to priority 2 requests from the general public was 32 minutes and 43 seconds. By comparison, the average response time to priority 3 requests for assistance from the provincial ambulance service was 23 minutes and 58 seconds.
- The average response time to priority 3 requests for assistance from the general public was 2 hours and 11 minutes.

**Figure 7-16 Average Response Time to Requests for Assistance from the General Public and the Provincial Ambulance Service Citywide**



- The average response time to priority 3 panhandler complaints was 31 minutes and 42 seconds.

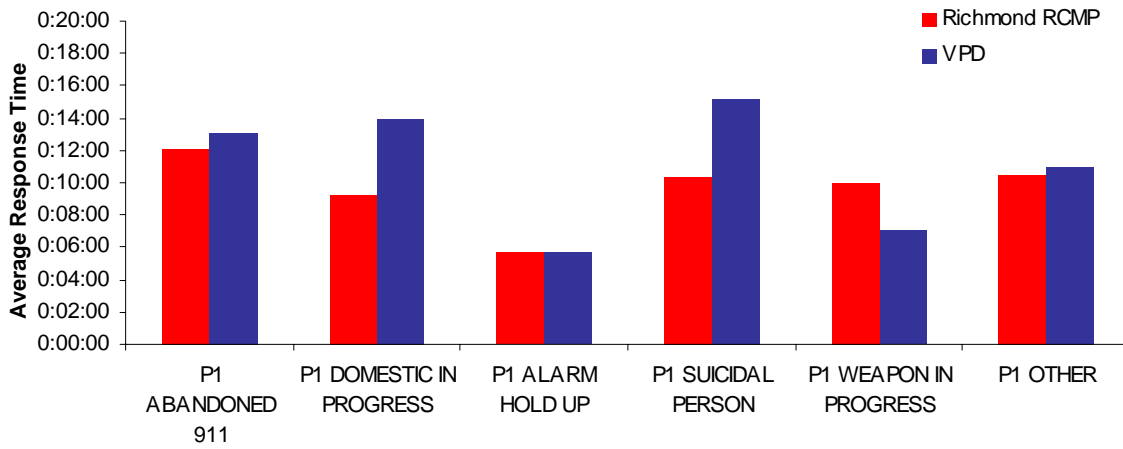
- The average response time to priority 3 shoplifters was 1 hour and 10 minutes.
- The average response time to priority 2 sexual assaults (not in progress) was between 2 and 3 hours. The average response time to priority 3 sexual assaults (not in progress) was between 3 and 4.5 hours.
- The average response time to priority 3 neighbour disputes was between 2.5 and 6 hours.
- The average response time to priority 3 threats was between 5 and 12 hours.
- The average response time to priority 3 harassment calls was between 6 and 12 hours.
- The average response time to priority 4 break and enters was between 2 and 4 hours.
- The average response time to priority 4 thefts was between 5 and 12 hours.
- The average response time to priority 4 mischiefs was between 3 and 10 hours.
- The average response time to priority 4 frauds was between 5 and 19 hours.

A best practice department should be able to respond to most of these calls for service much faster.

Comparisons with the Richmond RCMP show that the average response time at the VPD was consistently longer. In particular:

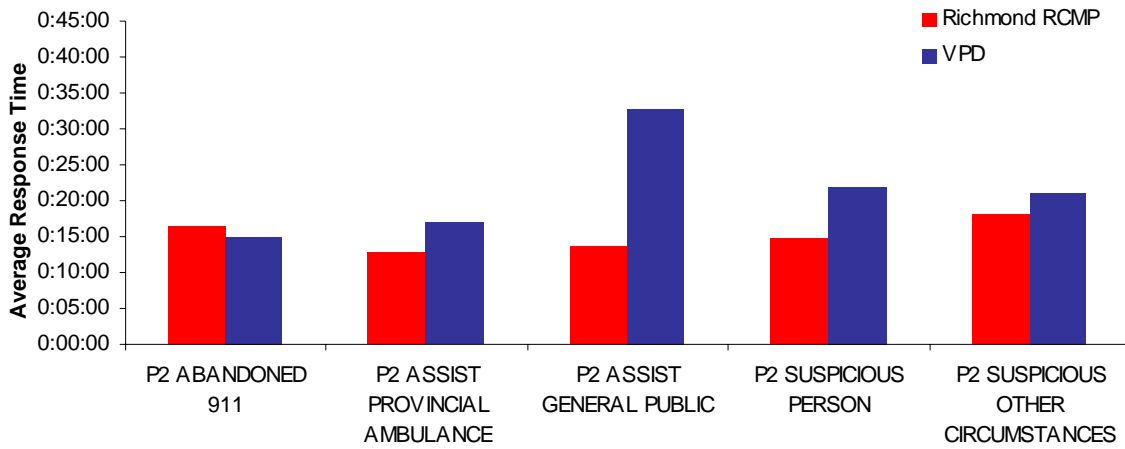
- The average response time to priority 1 domestic situations in progress was 52.1% longer at the VPD.
- The average response time to priority 1 suicidal persons was 46.4% longer at the VPD.

**Figure 7-17 Average Response Time to Priority 1 Calls at the Richmond RCMP Detachment**



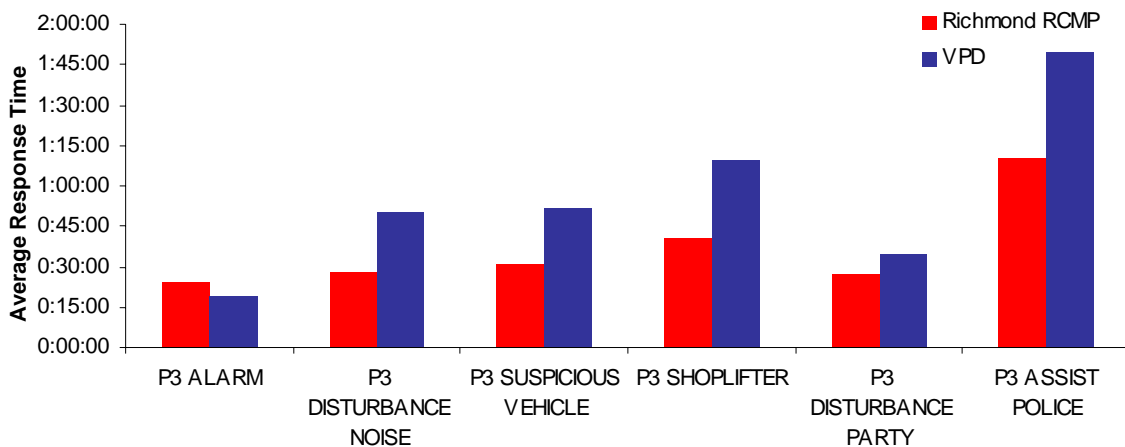
- The average response time to priority 2 requests for assistance from the provincial ambulance service was 34.3% longer at the VPD.
- The average response time to priority 2 requests for assistance from the general public was 140.5% longer at the VPD.
- The average response time to priority 2 suspicious persons was 50.8% longer at the VPD.
- The average response time to priority 2 suspicious circumstances was 17.3% longer at the VPD.

**Figure 7-18 Average Response Time to Priority 2 Calls at the Richmond RCMP Detachment**



- The average response time to priority 3 noise complaints was 78.0% longer at the VPD.
- The average response time to priority 3 suspicious vehicles was 67.1% longer at the VPD.
- The average response time to priority 3 shoplifters was 71.5% longer at the VPD.
- The average response time to priority 3 disturbing parties was 27.1% longer at the VPD.

**Figure 7-19 Average Response Time to Priority 3 Calls at the Richmond RCMP Detachment**



The average response time was shorter at the VPD only in the case of priority 1 weapons in progress, priority 2 abandoned 9-1-1 calls and priority 3 alarms.

In District 1, the average queuing delay to priority 1 calls for service was 4 minutes and 26 seconds while the average travel time was 5 minutes and 3 seconds. The average response time to priority 1 calls was therefore approximately 9 minutes and 29 seconds in District 1.

In District 2, the average queuing delay to priority 1 calls for service was 6 minutes and 13 seconds while the average travel time was 6 minutes and 37 seconds. The average response time to priority 1 calls was therefore approximately 12 minutes and 50 seconds in District 2.

In District 3, the average queuing delay to priority 1 calls for service was 6 minutes and 59 seconds while the average travel time was 8 minutes and 56 seconds. The average response time to priority 1 calls was therefore approximately 15 minutes and 55 seconds in District 3.

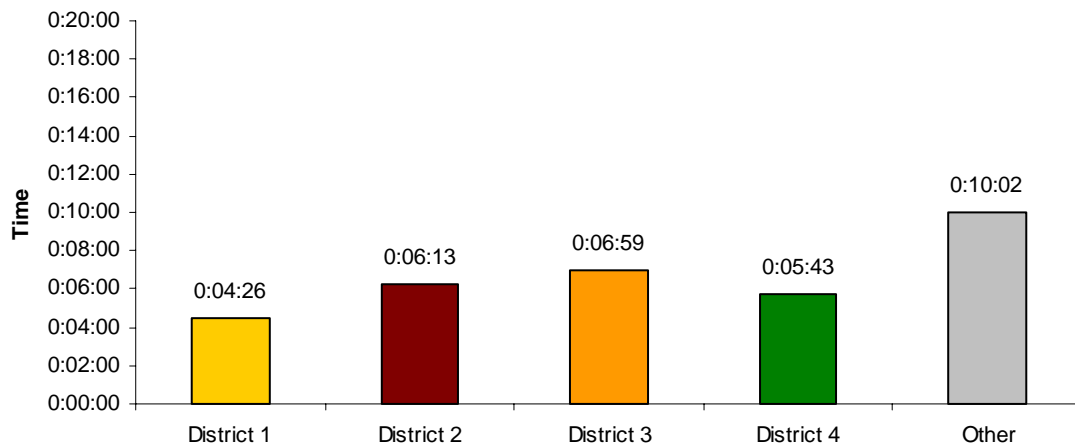
In District 4, the average queuing delay to priority 1 calls for service was 5 minutes and 43 seconds while the average travel time was 8 minutes and 38 seconds. The average response time to priority 1 calls was therefore approximately 14 minutes and 21 seconds in District 4.

**Table 7-5 Average Response Time to Priority 1 Calls Dispatched to Regular Patrol Units by District**

	<b>Number of Calls</b>	<b>Average Queuing Delay</b>	<b>Average Travel Time</b>	<b>Average Response Time</b>
District 1	2,759	0:04:26	0:05:03	0:09:29
District 2	3,638	0:06:13	0:06:37	0:12:49
District 3	4,146	0:06:59	0:08:56	0:15:55
District 4	2,933	0:05:43	0:08:38	0:14:21
Other	6	0:10:02	0:09:48	0:19:51
<b>Total</b>	<b>13,482</b>	<b>0:05:59</b>	<b>0:07:27</b>	<b>0:13:26</b>

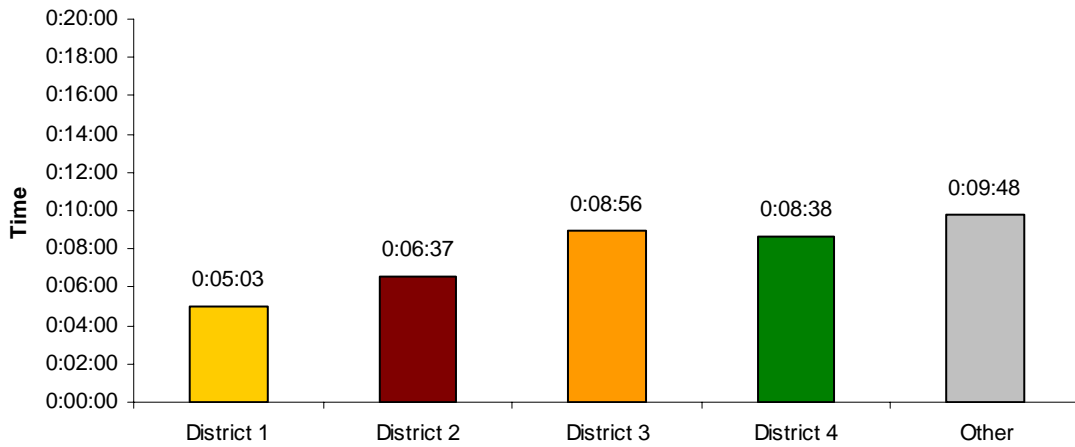
\* On-view calls and calls associated with a response time of less than 60 seconds or more than 10 hours are excluded.

**Figure 7-20 Average Queuing Delay Associated with Priority 1 Calls Dispatched to Regular Patrol Units by District**

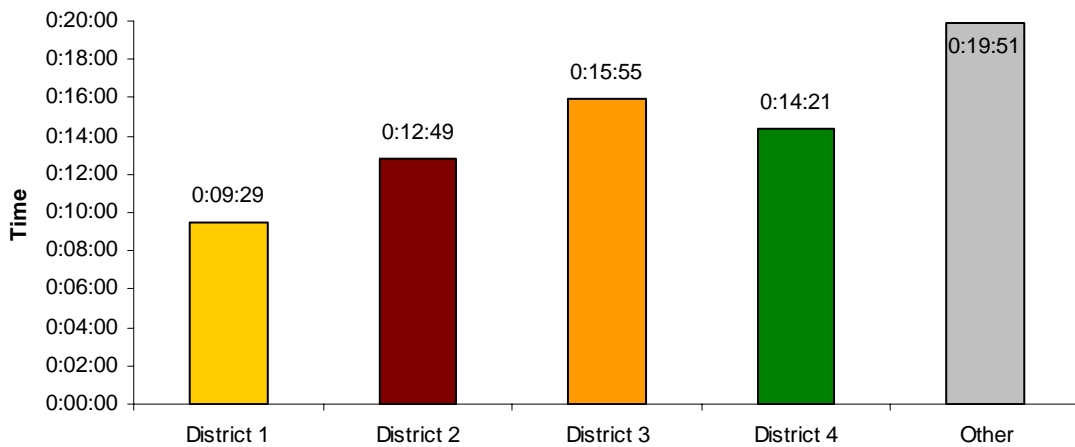




**Figure 7-21 Average Travel Time to Priority 1 Calls Dispatched to Regular Patrol Units by District**



**Figure 7-22 Average Response Time to Priority 1 Calls Dispatched to Regular Patrol Units by District**



In District 1, the average queuing delay to priority 2 calls for service was 12 minutes and 24 seconds while the average travel time was 7 minutes and 46 seconds. The average response time to priority 2 calls was therefore approximately 20 minutes and 10 seconds in District 1.

In District 2, the average queuing delay to priority 2 calls for service was 32 minutes and 41 seconds while the average travel time was 9 minutes and 55 seconds. The average

response time to priority 2 calls was therefore approximately 42 minutes and 36 seconds in District 2.

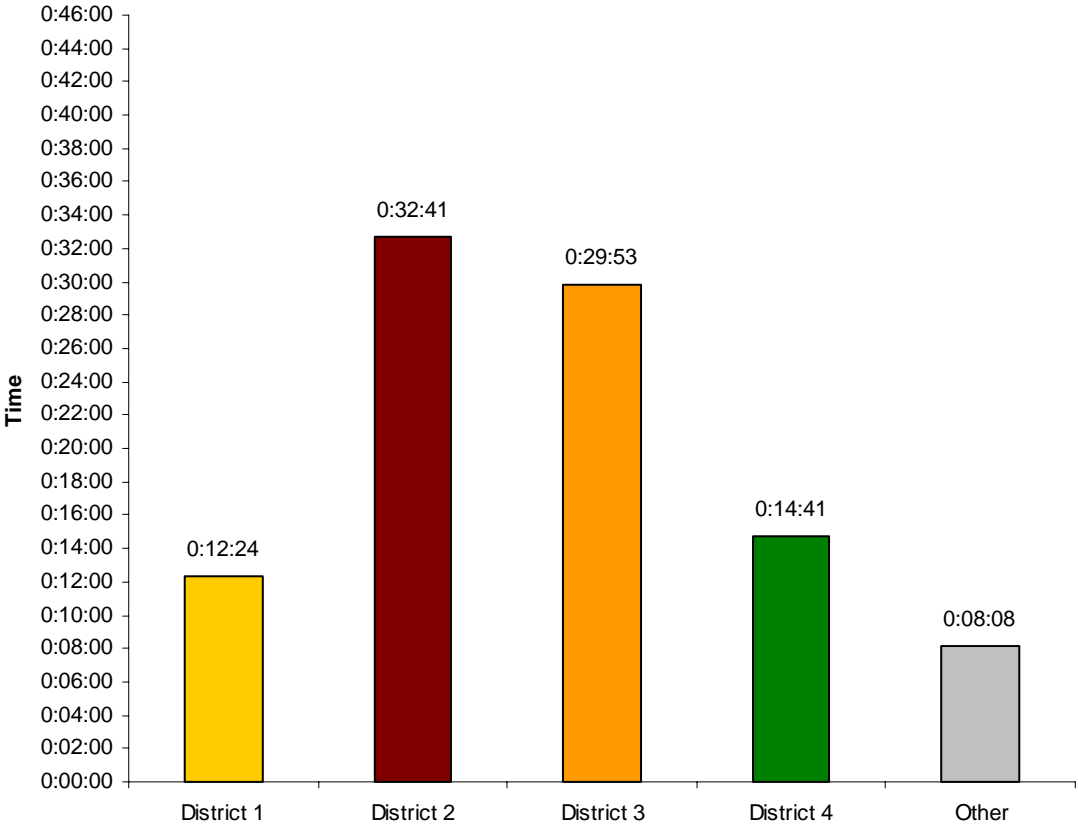
In District 3, the average queuing delay to priority 2 calls for service was 29 minutes and 53 seconds while the average travel time was 17 minutes and 14 seconds. The average response time to priority 2 calls was therefore approximately 47 minutes and 7 seconds in District 3.

In District 4, the average queuing delay to priority 2 calls for service was 14 minutes and 41 seconds while the average travel time was 11 minutes and 12 seconds. The average response time to priority 2 calls was therefore approximately 25 minutes and 53 seconds in District 4.

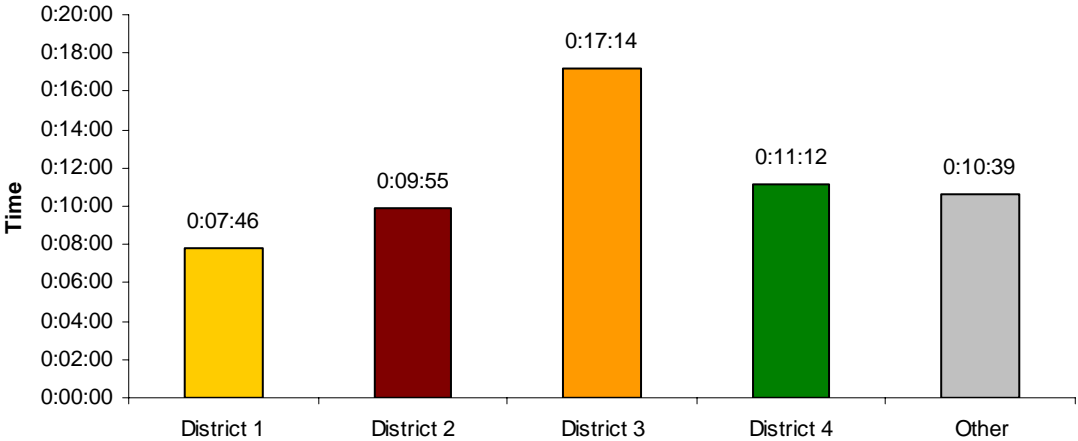
**Table 7-6 Average Response Time to Priority 2 Calls Dispatched to Regular Patrol Units by District**

	<b>Number of Calls</b>	<b>Average Queuing Delay</b>	<b>Average Travel Time</b>	<b>Average Response Time</b>
District 1	4,858	0:12:24	0:07:46	0:20:10
District 2	5,361	0:32:41	0:09:55	0:42:36
District 3	5,649	0:29:53	0:17:14	0:47:08
District 4	4,929	0:14:41	0:11:12	0:25:52
Other	8	0:08:08	0:10:39	0:18:48
<b>Total</b>	<b>20,805</b>	<b>0:22:55</b>	<b>0:11:42</b>	<b>0:34:37</b>
* On-view calls and calls associated with a response time of less than 60 seconds are excluded.				

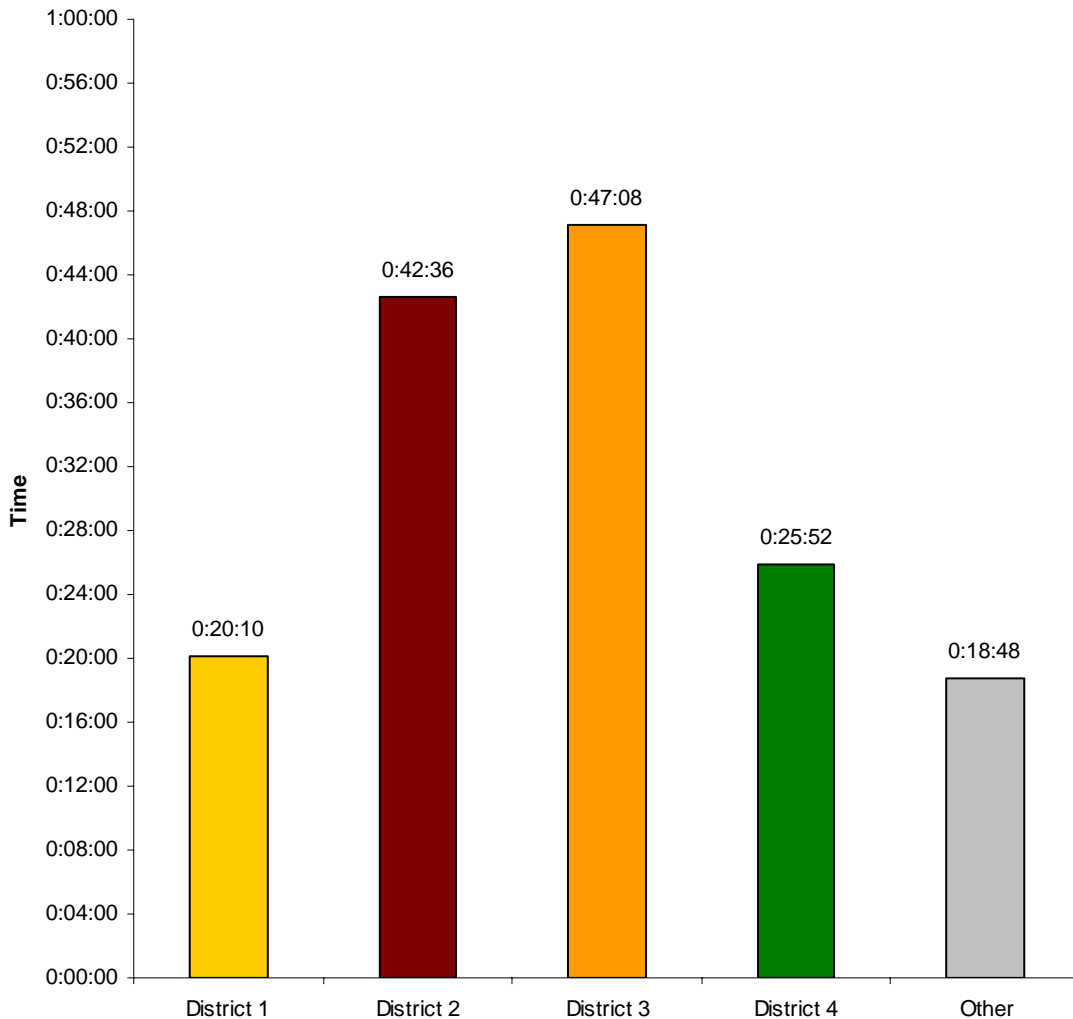
**Figure 7-23 Average Queuing Delay Associated with Priority 2 Calls Dispatched to Regular Patrol Units by District**



**Figure 7-24 Average Travel Time to Priority 2 Calls Dispatched to Regular Patrol Units by District**



**Figure 7-25 Average Response Time to Priority 2 Calls Dispatched to Regular Patrol Units by District**



In District 1, the average queuing delay to priority 3 calls for service was 1 hour and 1 minute while the average travel time was 37 minutes. The average response time to priority 3 calls was therefore approximately 1 hour and 38 minutes in District 1.

In District 2, the average queuing delay to priority 3 calls for service was 1 hour and 40 minutes while the average travel time was 23 minutes. The average response time to priority 3 calls was therefore approximately 2 hours and 3 minutes in District 2.

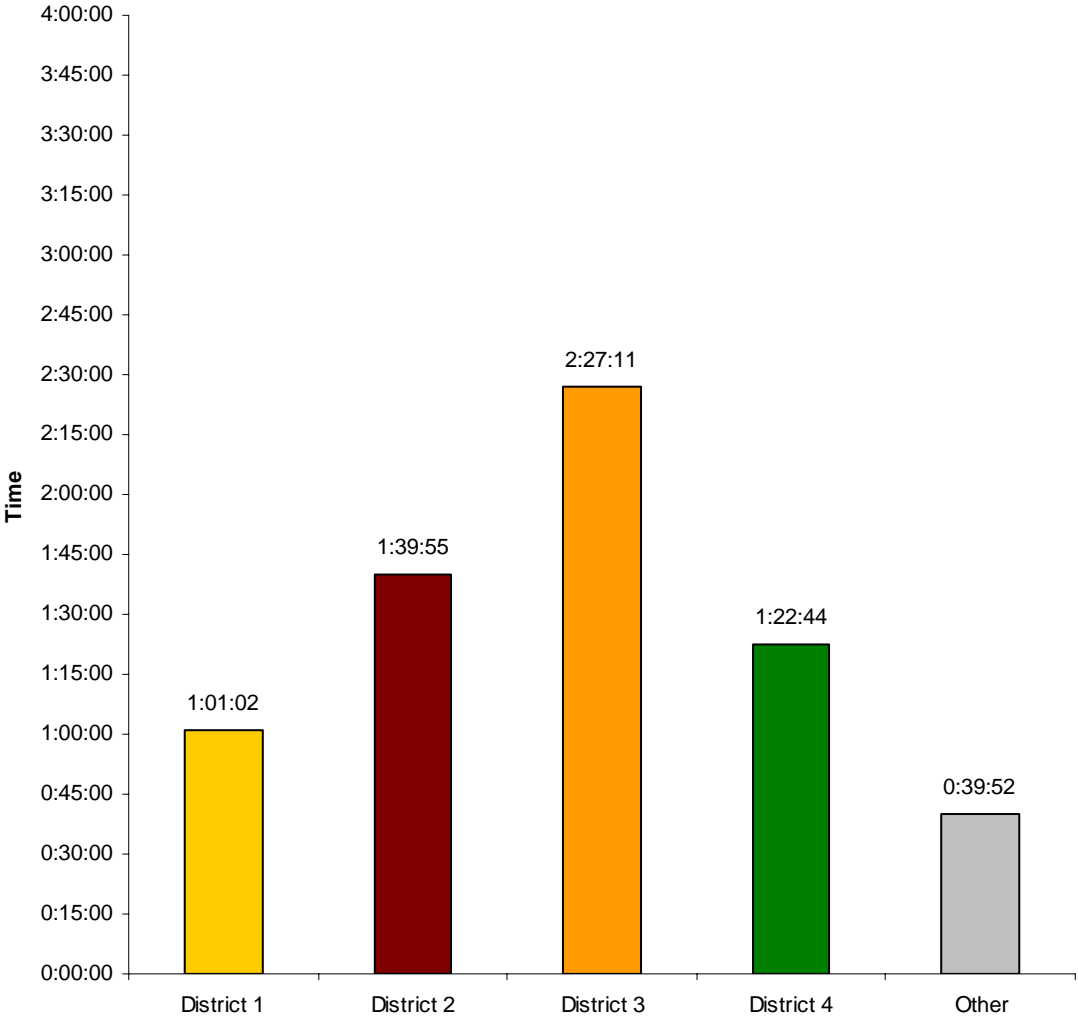
In District 3, the average queuing delay to priority 3 calls for service was 2 hours and 27 minutes while the average travel time was 39 minutes. The average response time to priority 3 calls was therefore approximately 3 hours and 7 minutes in District 3.

In District 4, the average queuing delay to priority 3 calls for service was 1 hour and 23 minutes while the average travel time was 21 minutes. The average response time to priority 3 calls was therefore approximately 1 hour and 44 minutes in District 4.

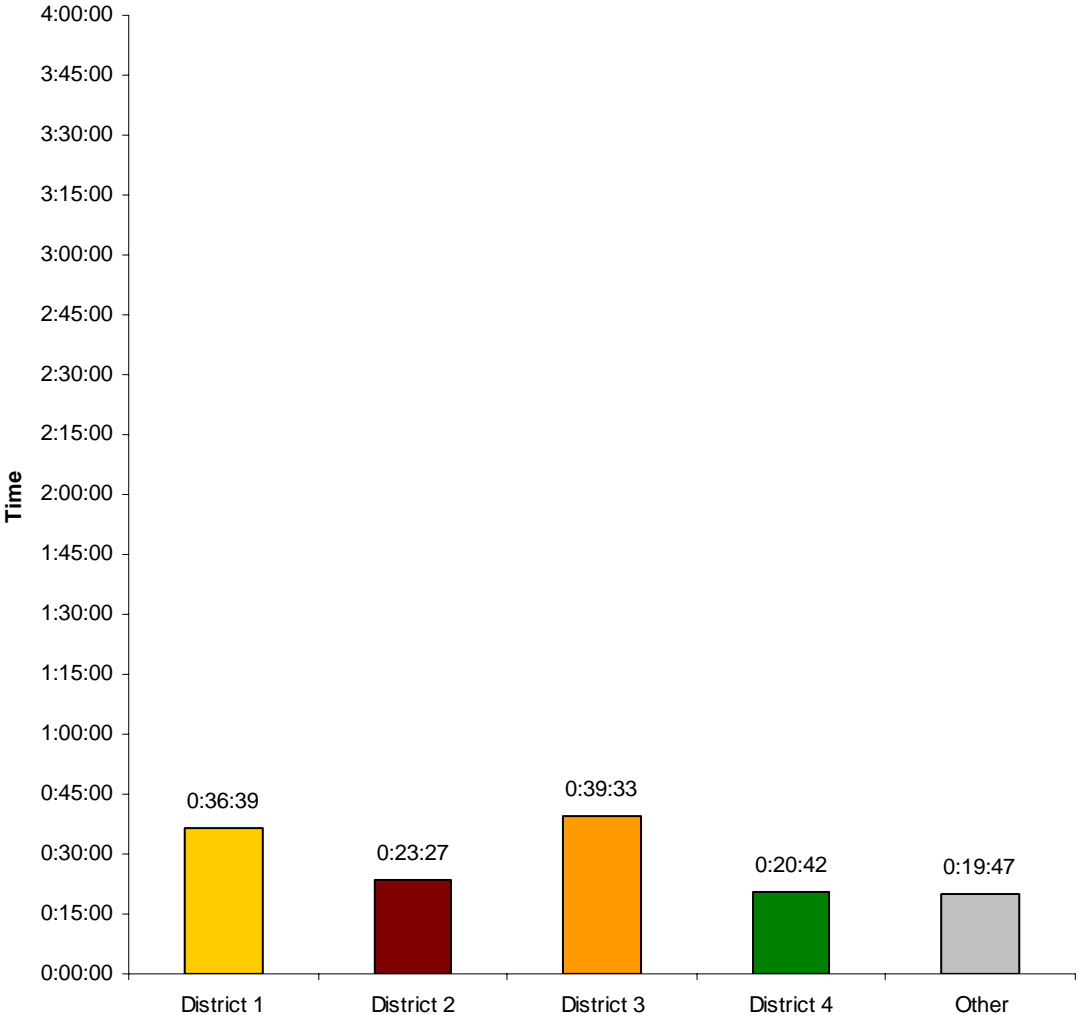
**Table 7-7 Average Response Time to Priority 3 Calls Dispatched to Regular Patrol Units by District**

	<b>Number of Calls</b>	<b>Average Queuing Delay</b>	<b>Average Travel Time</b>	<b>Average Response Time</b>
District 1	13,720	1:01:02	0:36:39	1:37:41
District 2	14,274	1:39:55	0:23:27	2:03:22
District 3	11,581	2:27:11	0:39:33	3:06:44
District 4	12,551	1:22:44	0:20:42	1:43:26
Other	39	0:39:52	0:19:47	0:59:39
<b>Total</b>	<b>52,165</b>	<b>1:36:00</b>	<b>0:29:50</b>	<b>2:05:50</b>
* On-view calls and calls associated with a response time of less than 60 seconds are excluded.				

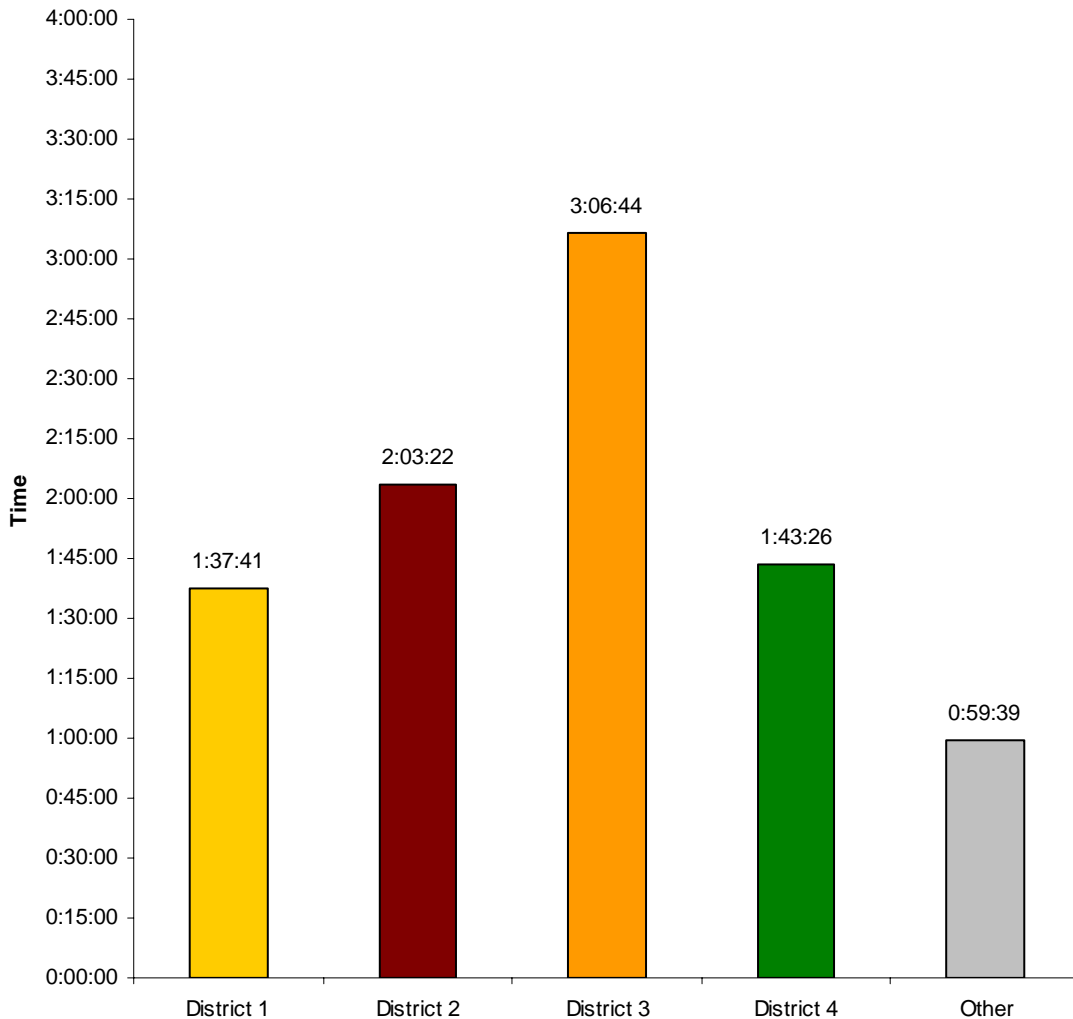
**Figure 7-26 Average Queuing Delay Associated with Priority 3 Calls Dispatched to Regular Patrol Units by District**



**Figure 7-27 Average Travel Time to Priority 3 Calls Dispatched to Regular Patrol Units by District**



**Figure 7-28 Average Response Time to Priority 3 Calls Dispatched to Regular Patrol Units by District**



In District 1, the average queuing delay to priority 4 calls for service was 3 hours and 3 minutes while the average travel time was 1 hour and 37 minutes. The average response time to priority 4 calls was therefore approximately 4 hours and 40 minutes in District 1.

In District 2, the average queuing delay to priority 4 calls for service was 3 hours and 34 minutes while the average travel time was 54 minutes. The average response time to priority 4 calls was therefore approximately 4 hours and 28 minutes in District 2.



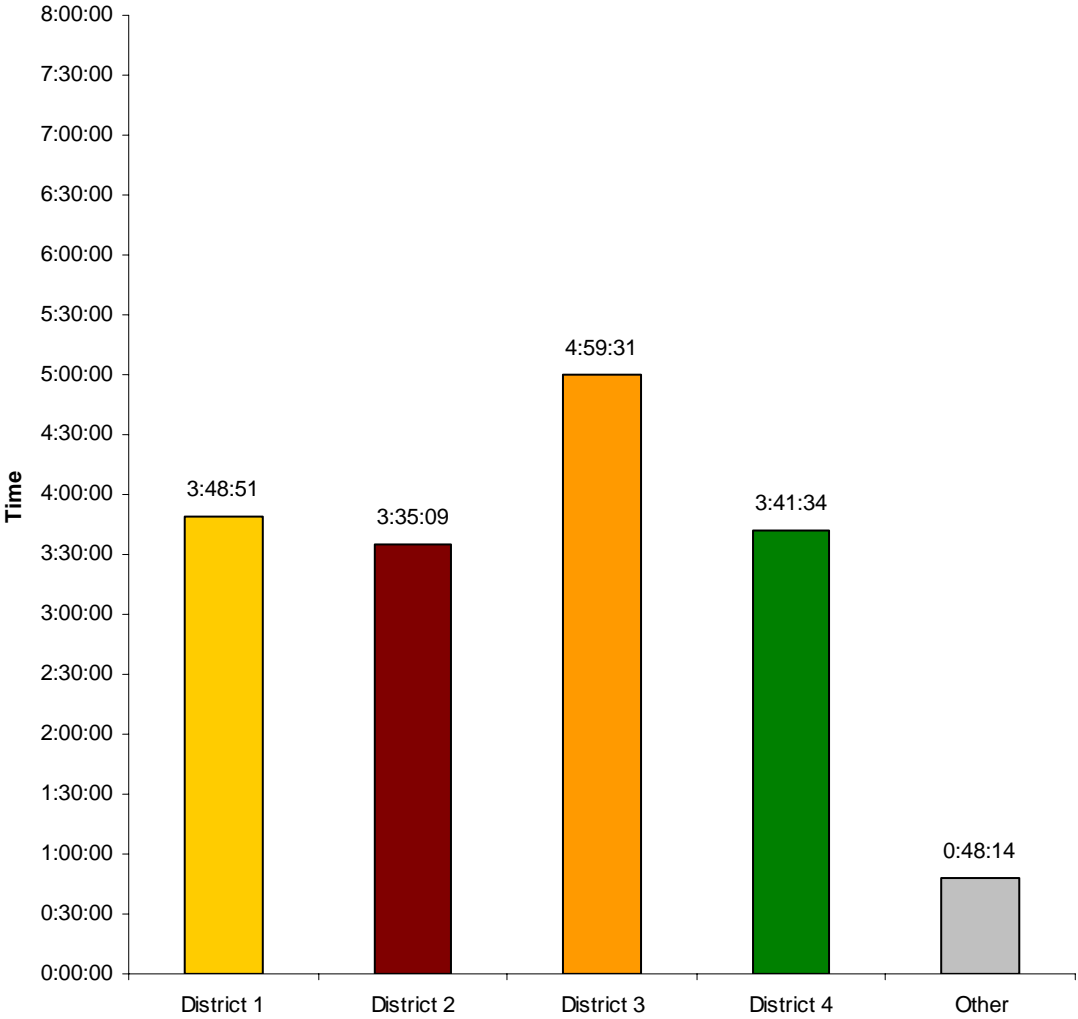
In District 3, the average queuing delay to priority 4 calls for service was 4 hours and 46 minutes while the average travel time was 1 hour and 52 minutes. The average response time to priority 4 calls was therefore approximately 6 hours and 38 minutes in District 3.

In District 4, the average queuing delay to priority 4 calls for service was 3 hours and 40 minutes while the average travel time was 1 hour and 16 minutes. The average response time to priority 4 calls was therefore approximately 4 hours and 56 minutes in District 4.

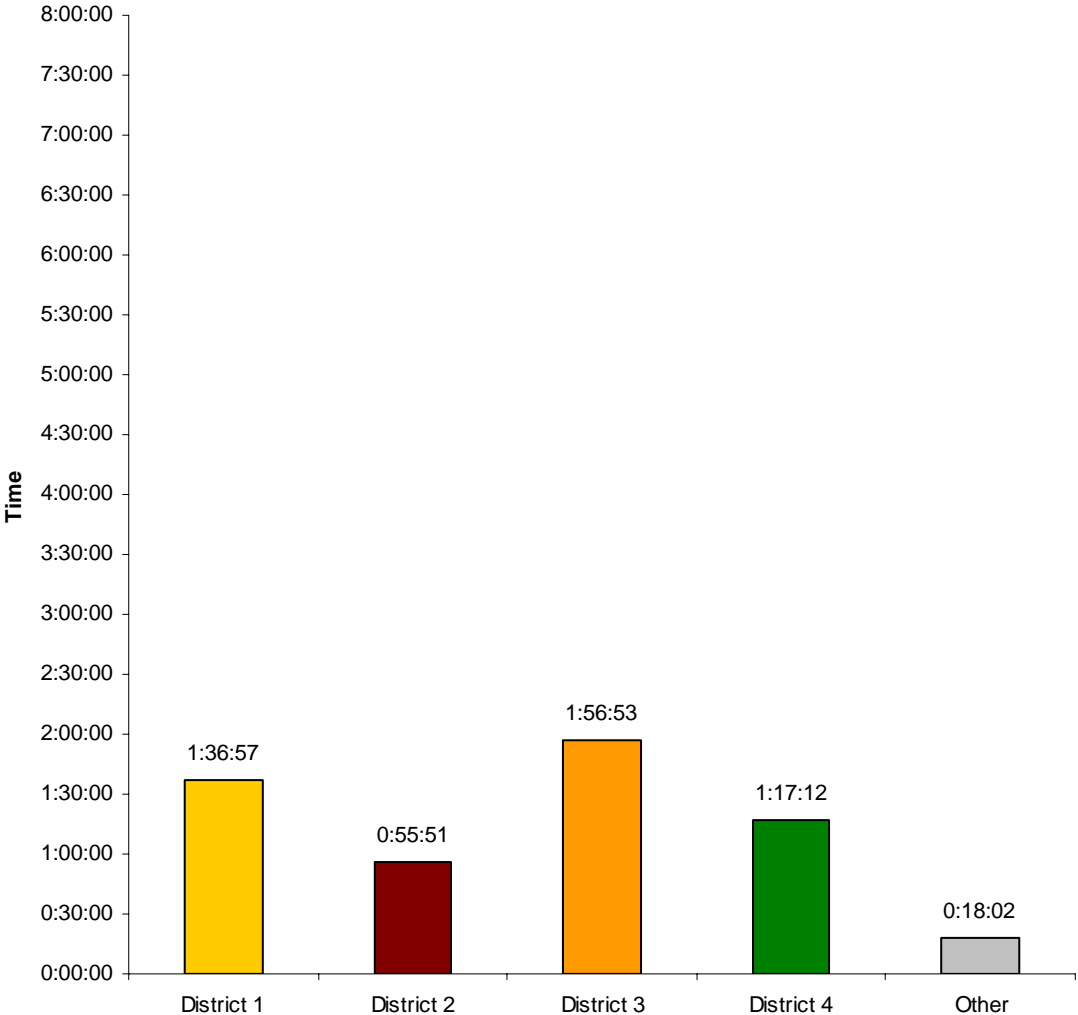
**Table 7-8 Average Response Time to Priority 4 Calls Dispatched to Regular Patrol Units by District**

	<b>Number of Calls</b>	<b>Average Queuing Delay</b>	<b>Average Travel Time</b>	<b>Average Response Time</b>
District 1	3,025	3:48:51	1:36:57	5:26:03
District 2	2,876	3:35:09	0:55:51	4:31:00
District 3	2,627	4:59:31	1:56:53	6:56:24
District 4	2,976	3:41:34	1:17:12	4:58:46
Other	12	0:48:14	0:18:02	1:06:15
<b>Total</b>	<b>11,516</b>	<b>3:59:29</b>	<b>1:26:03</b>	<b>5:25:36</b>
* On-view calls and calls associated with a response time of less than 60 seconds are excluded.				

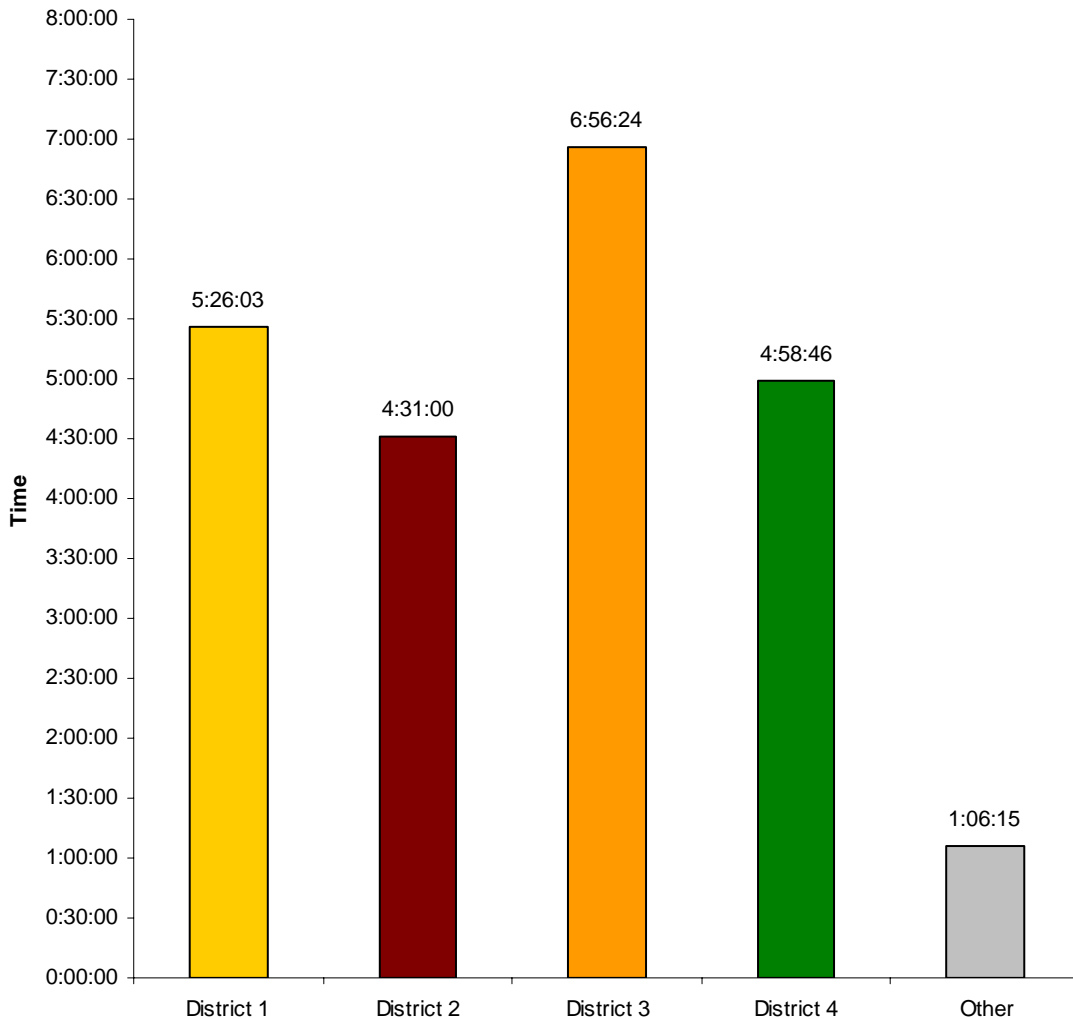
**Figure 7-29 Average Queuing Delay Associated with Priority 4 Calls Dispatched to Regular Patrol Units by District**



**Figure 7-30 Average Travel Time to Priority 4 Calls Dispatched to Regular Patrol Units by District**



**Figure 7-31 Average Response Time to Priority 4 Calls Dispatched to Regular Patrol Units by District**

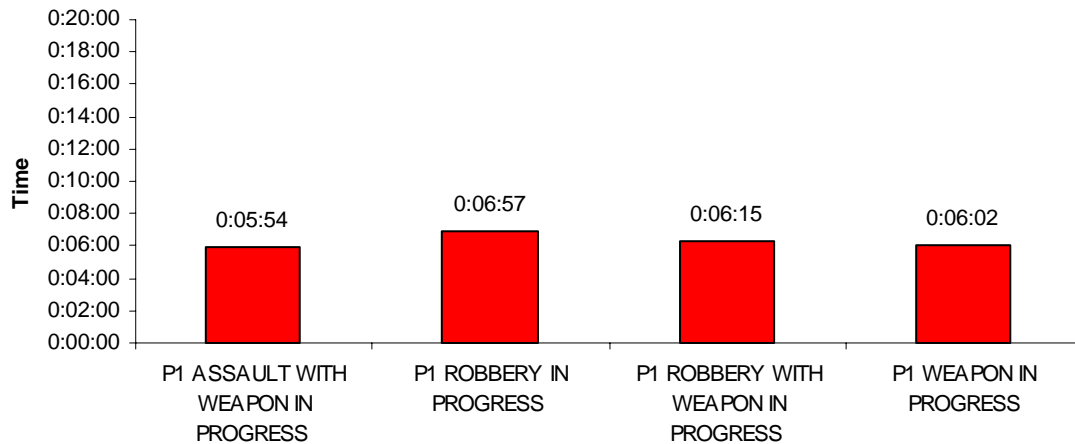


Between 2005-06-01 and 2006-05-31, in District 1:

- The average response time to priority 1 assaults with a weapon in progress was 5 minutes and 54 seconds.
- The average response time to priority 1 robberies in progress was 6 minutes and 57 seconds. The average response time to priority 1 robberies with a weapon in progress was 6 minutes and 15 seconds.

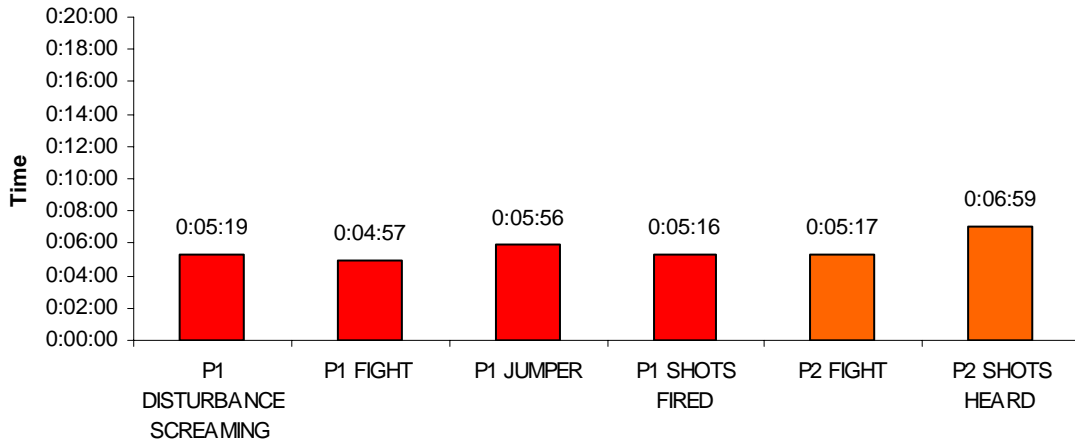
- The average response time to priority 1 weapon-related incidents in progress was 6 minutes and 2 seconds.

**Figure 7-32 Average Response Time to Priority 1 Assaults with a Weapon in Progress, Robberies in Progress and Weapon-Related Incidents in Progress Dispatched to Regular Patrol Units in District 1**



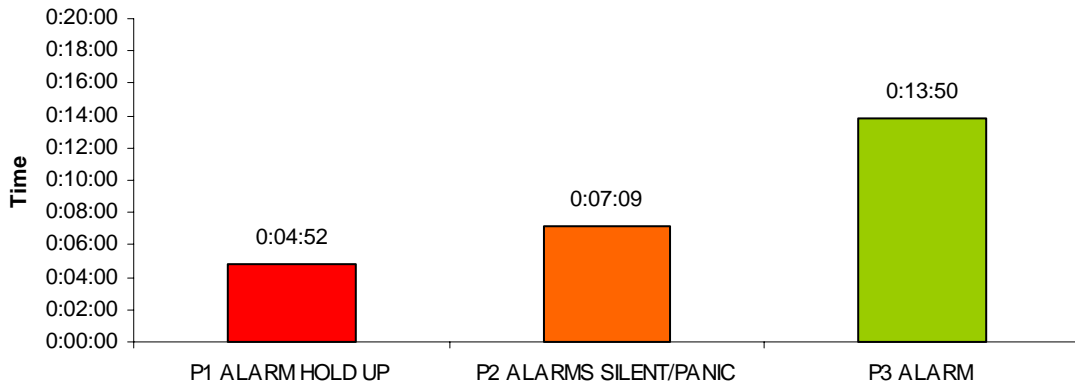
- The average response time to priority 1 jumper calls was 5 minutes and 56 seconds.
- The average response time to priority 1 persons screaming was 5 minutes and 19 seconds.
- The average response time to priority 1 shots fired calls was 5 minutes and 16 seconds. The average response time to priority 2 shots heard calls was 6 minutes and 59 seconds.
- The average response time to priority 1 fights was 4 minutes and 57 seconds. The average response time to priority 2 fights was 5 minutes and 17 seconds.

**Figure 7-33 Average Response Time to Screams, Fights, Jumpers and Shots Fired Incidents Dispatched to Regular Patrol Units in District 1**



- The average response time to priority 1 hold-up alarms was 4 minutes and 52 seconds. The average response time to priority 2 silent or panic alarms was 7 minutes and 9 seconds. The average response time to priority 3 alarms was 13 minutes and 50 seconds.

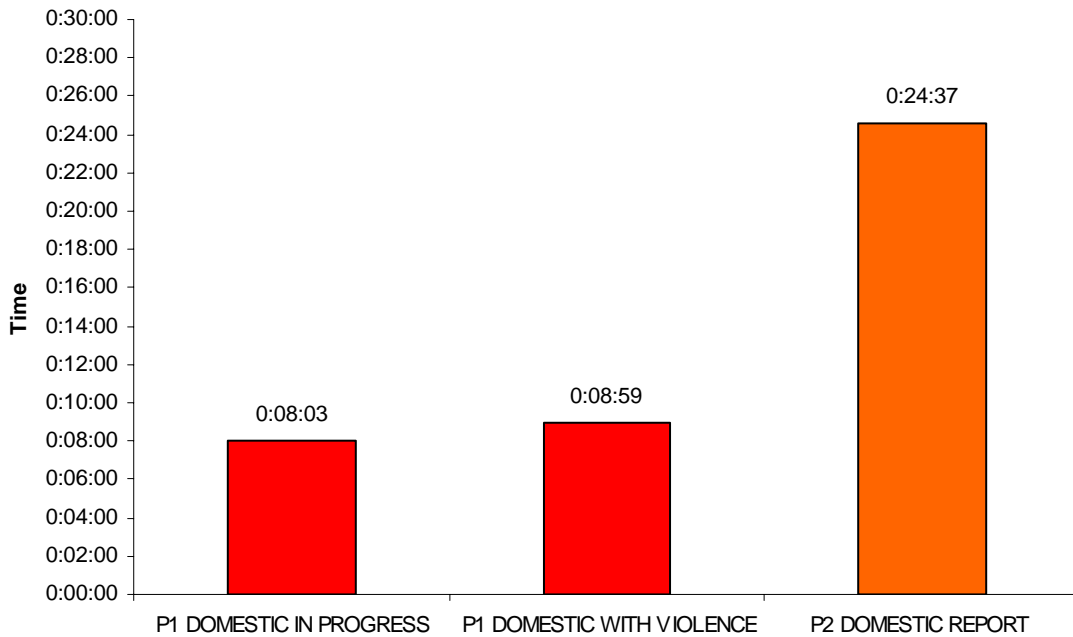
**Figure 7-34 Average Response Time to Alarms Dispatched to Regular Patrol Units in District 1**



- The average response time to priority 1 domestic violence situations was 8 minutes and 59 seconds. The average response time to priority 1 domestic

situations in progress was 8 minutes and 3 seconds. The average response time to priority 2 domestic situations was 24 minutes and 37 seconds.

**Figure 7-35 Average Response Time to Domestic Situations Dispatched to Regular Patrol Units in District 1**

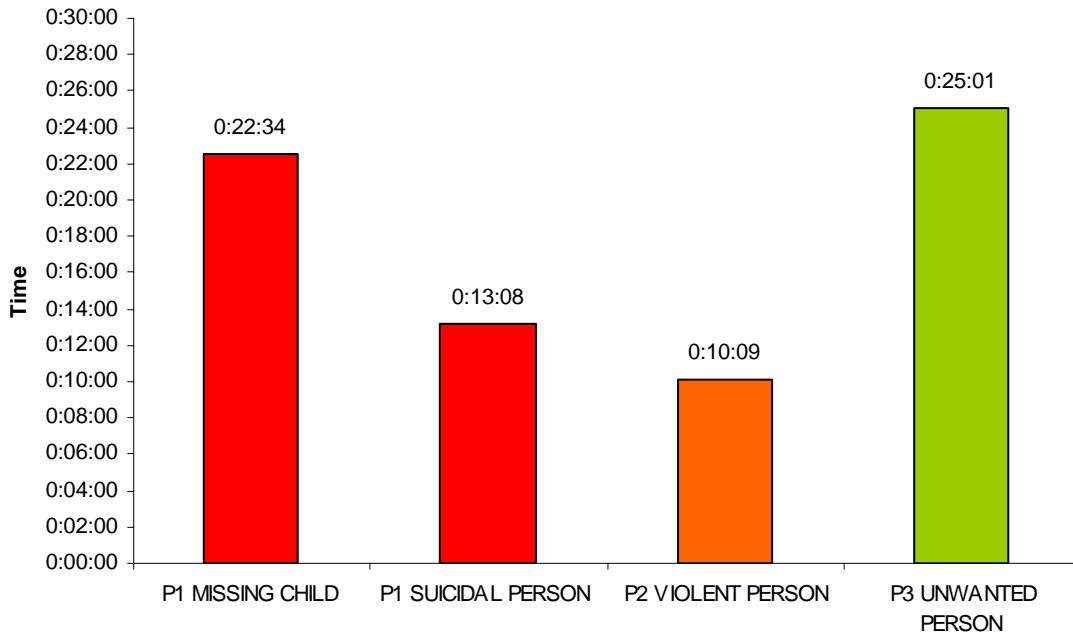


- The average response time to priority 2 abandoned 9-1-1 calls was 12 minutes and 24 seconds.
- The average response time to priority 2 break and enters in progress was 7 minutes and 39 seconds.

Some calls in District 1 were associated with an excessive response time on average. For instance:

- The average response time to priority 1 suicidal persons was 13 minutes and 8 seconds. By comparison, the average response time to priority 2 violent persons was 10 minutes and 9 seconds. The average response time to priority 3 unwanted persons was 25 minutes and 1 second.
- The average response time to priority 1 missing children was 22 minutes and 34 seconds.

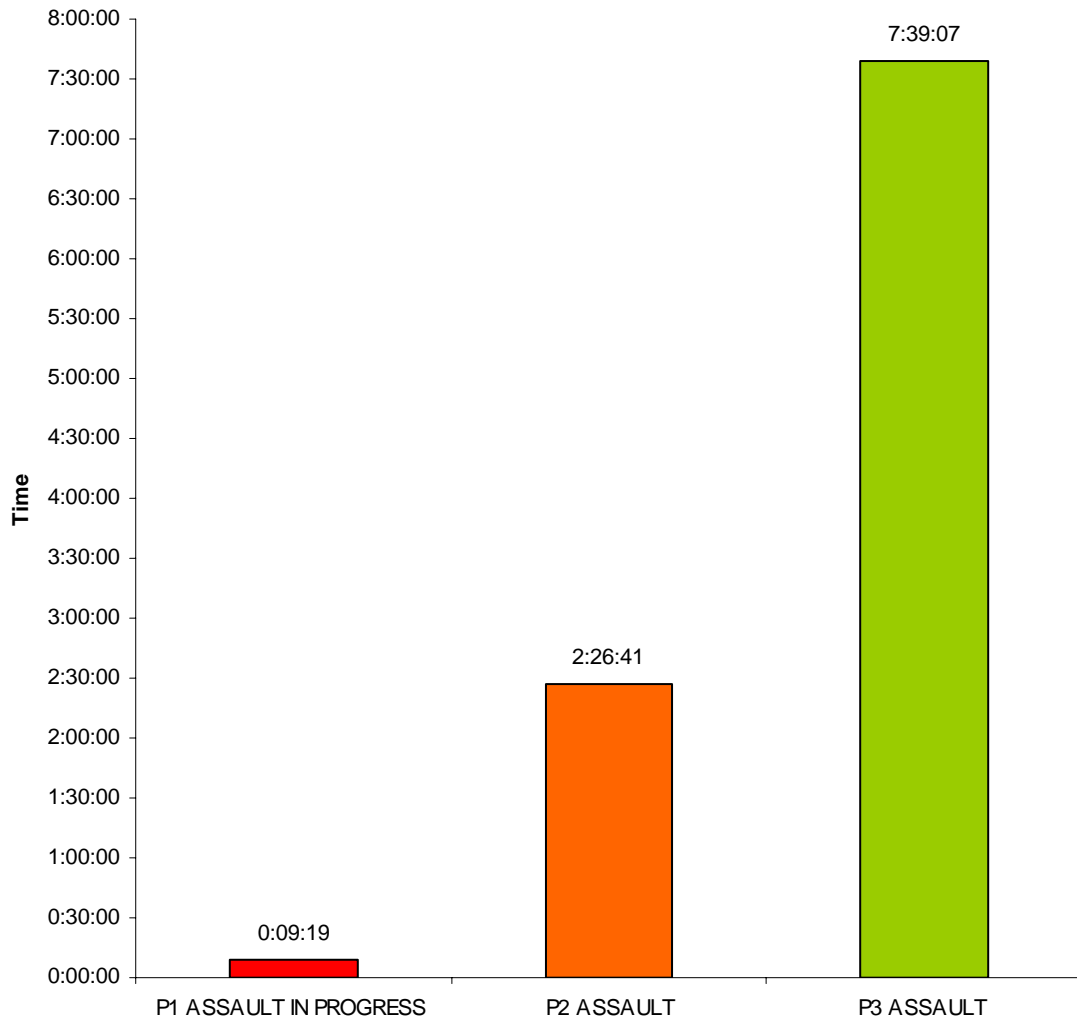
**Figure 7-36 Average Response Time to Missing Children, Suicidal Persons, Violent Persons and Unwanted Persons Dispatched to Regular Patrol Units in District 1**



- The average response time to priority 1 bomb threats was 14 minutes and 20 seconds.
- The average response time to priority 1 assaults in progress was 9 minutes and 19 seconds. The average response time to priority 2 assaults (not in progress) was between 30 minutes and 2.5 hours. The average response time to priority 3 assaults (not in progress) was between 3 and 7.5 hours.

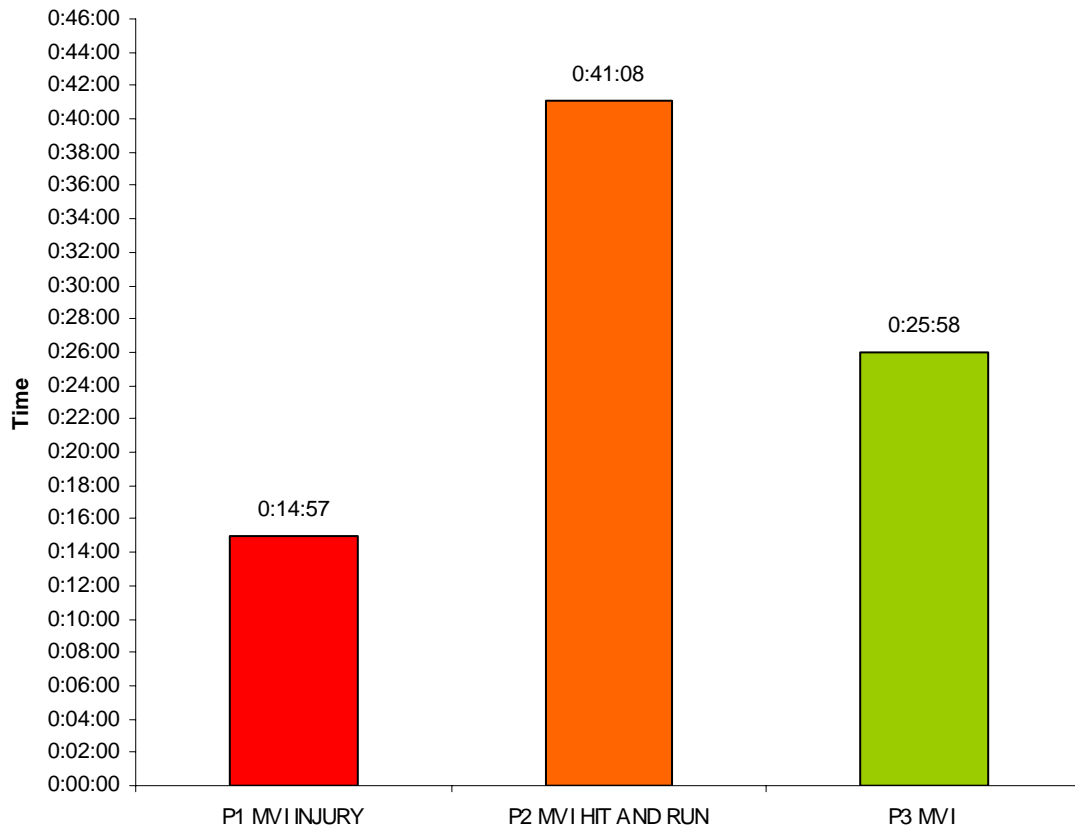


**Figure 7-37 Average Response Time to Assaults in District 1**



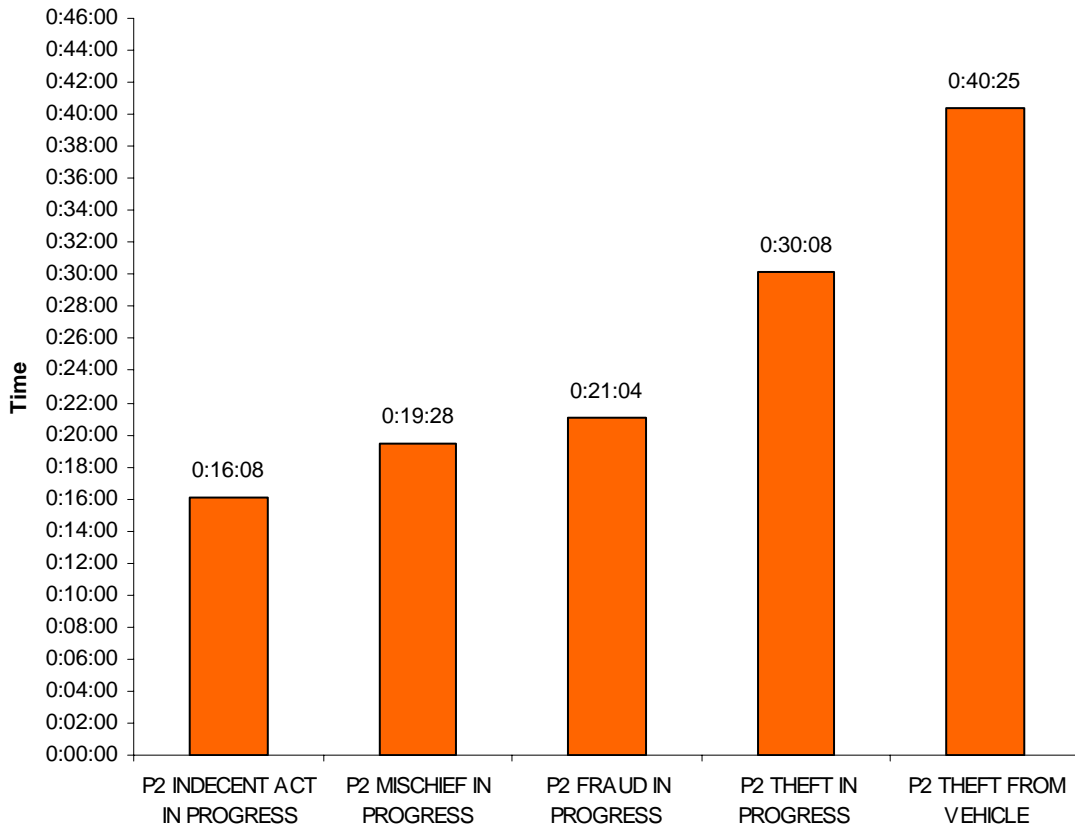
- The average response time to priority 1 motor vehicle incidents with injuries was 14 minutes and 57 seconds. The average response time to priority 3 motor vehicle incidents was 25 minutes and 58 seconds.
- The average response time to priority 2 hit and run was 41 minutes and 8 seconds.

**Figure 7-38 Average Response Time to Motor Vehicle Incidents in District 1**



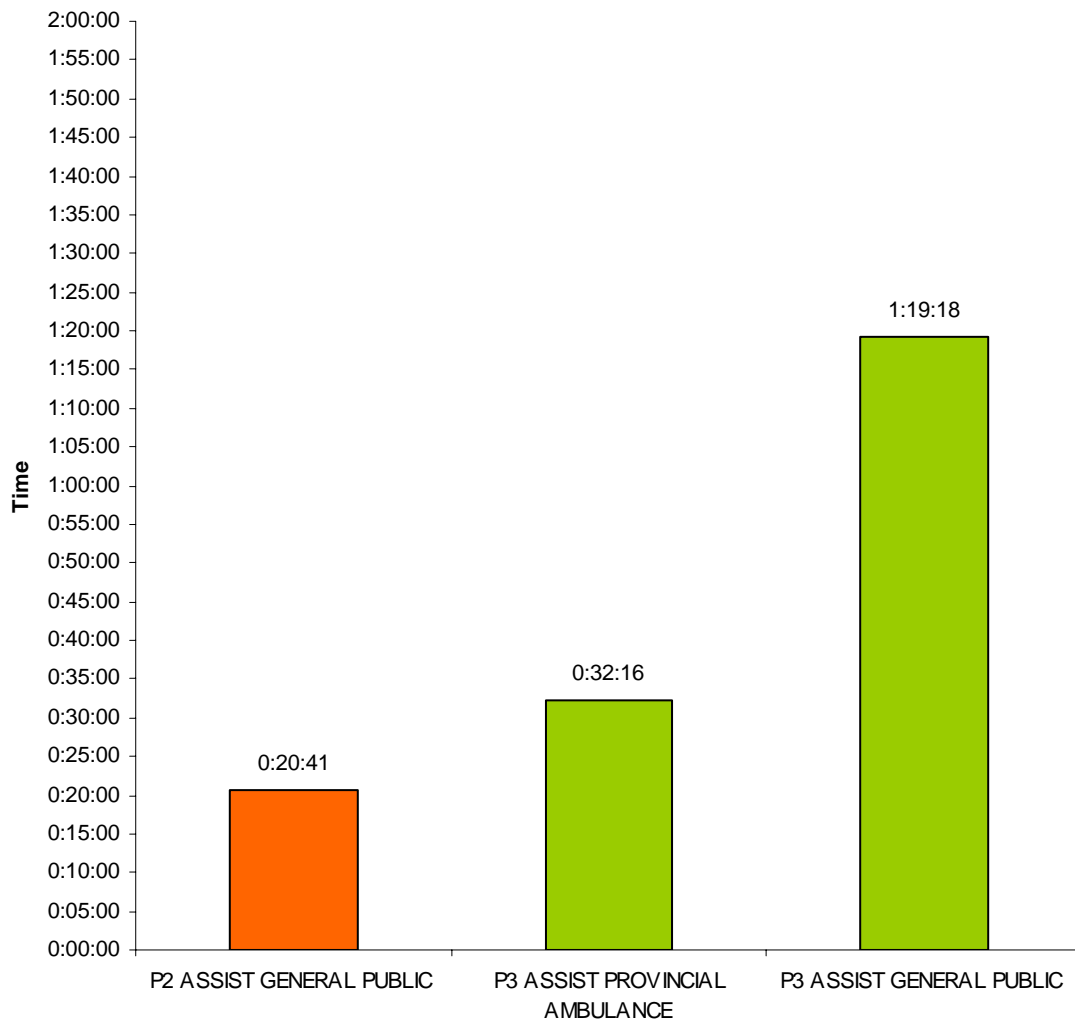
- The average response time to priority 2 thefts in progress was 30 minutes and 8 seconds. The average response time to priority 2 thefts from vehicle was 40 minutes and 25 seconds.
- The average response time to priority 2 mischiefs in progress was 19 minutes and 28 seconds.
- The average response time to priority 2 frauds in progress was 21 minutes and 4 seconds.
- The average response time to priority 2 indecent acts in progress was 16 minutes and 8 seconds.

**Figure 7-39 Average Response Time to Priority 2 Indecent Acts in Progress, Mischiefs in Progress, Frauds in Progress, Thefts in Progress and Thefts from Vehicle in District 1**



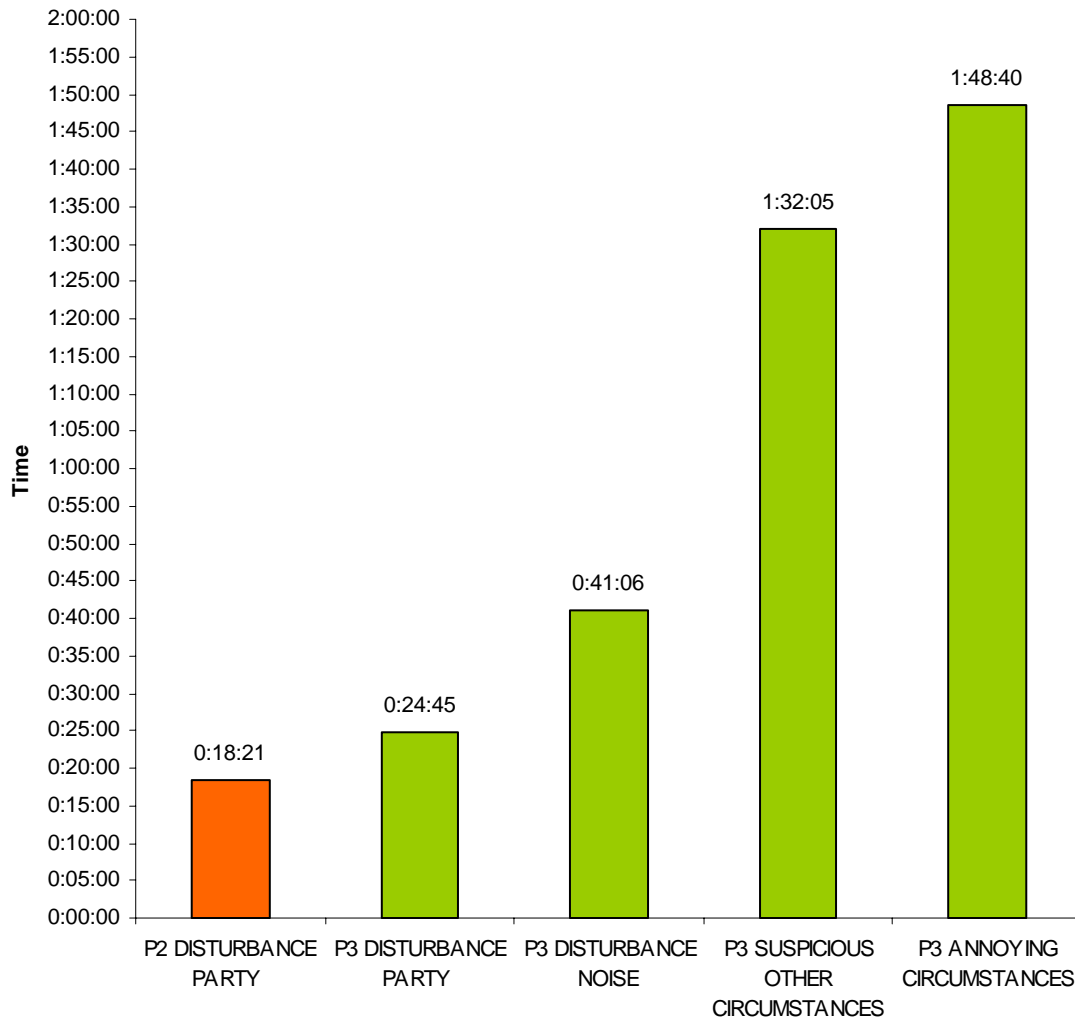
- The average response time to priority 2 requests for assistance from the general public was 20 minutes and 41 seconds. The average response time to priority 3 requests for assistance from the general public was 1 hour and 19 minutes. By comparison, the average response time to priority 3 requests for assistance from the provincial ambulance service was 32 minutes and 16 seconds.

**Figure 7-40 Average Response Time to Requests for Assistance from the General Public and the Provincial Ambulance Service in District 1**



- The average response time to priority 2 disturbing parties was 18 minutes and 21 seconds. The average response time to priority 3 disturbing parties was 24 minutes and 45 seconds.
- The average response time to priority 3 noise complaints was 41 minutes and 6 seconds.
- The average response time to priority 3 suspicious circumstances was 1 hour and 32 minutes.
- The average response time to priority 3 annoying circumstances was 1 hour and 48 minutes.

**Figure 7-41 Average Response Time to Disturbing Parties, Noise Complaints, Suspicious Circumstances and Annoying Circumstances in District 1**



- The average response time to priority 3 shoplifters was 1 hour and 52 minutes.
- The average response time to priority 3 sexual assaults (not in progress) was between 2.5 and 3 hours.
- The average response time to priority 3 threats was between 3.5 and 8 hours.
- The average response time to priority 3 harassment calls was between 4 and 9.5 hours.
- The average response time to priority 4 break and enters was between 2.5 and 8.5 hours.
- The average response time to priority 4 thefts was between 4.5 and 7.5 hours.

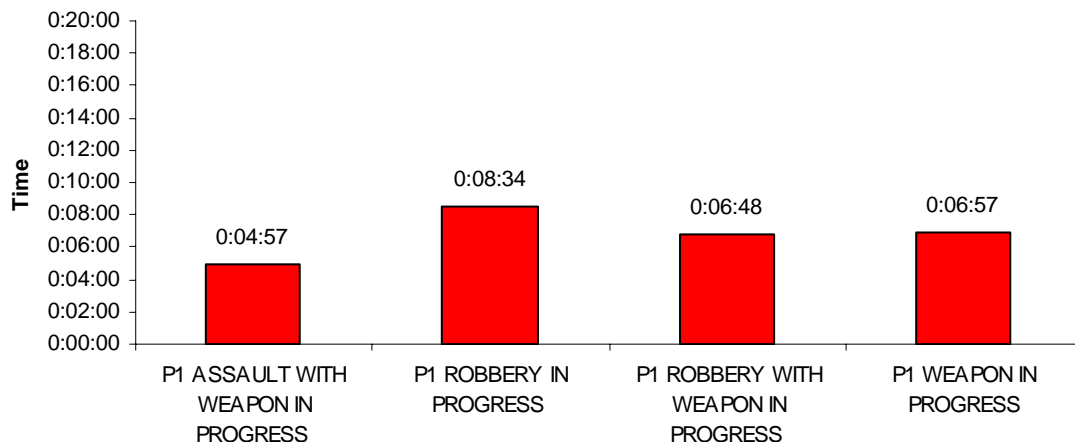
- The average response time to priority 4 mischiefs was between 3 and 8 hours.
- The average response time to priority 4 frauds was between 7.5 and 11.5 hours.

A best practice department should be able to respond to most of these calls for service much faster.

Between 2005-06-01 and 2006-05-31, in District 2:

- The average response time to priority 1 assaults with a weapon in progress was 4 minutes and 57 seconds.
- The average response time to priority 1 robberies in progress was 8 minutes and 34 seconds. The average response time to priority 1 robberies with a weapon in progress was 6 minutes and 48 seconds.
- The average response time to priority 1 weapon-related incidents in progress was 6 minutes and 57 seconds.

**Figure 7-42 Average Response Time to Priority 1 Assaults with a Weapon in Progress, Robberies in Progress and Weapon-Related Incidents in Progress Dispatched to Regular Patrol Units in District 2**



- The average response time to priority 1 shots fired calls was 6 minutes and 9 seconds. The average response time to priority 2 shots heard calls was 5 minutes and 15 seconds.

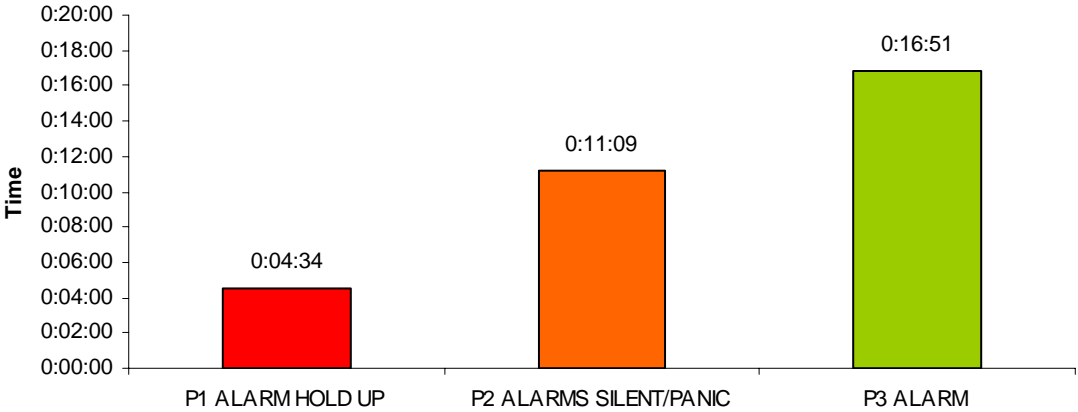
- The average response time to priority 1 jumper calls was 5 minutes and 51 seconds.
- The average response time to priority 1 persons screaming was 7 minutes and 6 seconds.
- The average response time to priority 2 fights was 7 minutes and 53 seconds.

**Figure 7-43 Average Response Time to Screams, Fights, Jumpers and Shots Fired Incidents Dispatched to Regular Patrol Units in District 2**



- The average response time to priority 1 hold-up alarms was 4 minutes and 34 seconds. The average response time to priority 2 silent or panic alarms was 11 minutes and 9 seconds. The average response time to priority 3 alarms was 16 minutes and 51 seconds.

**Figure 7-44 Average Response Time to Alarms Dispatched to Regular Patrol Units in District 2**



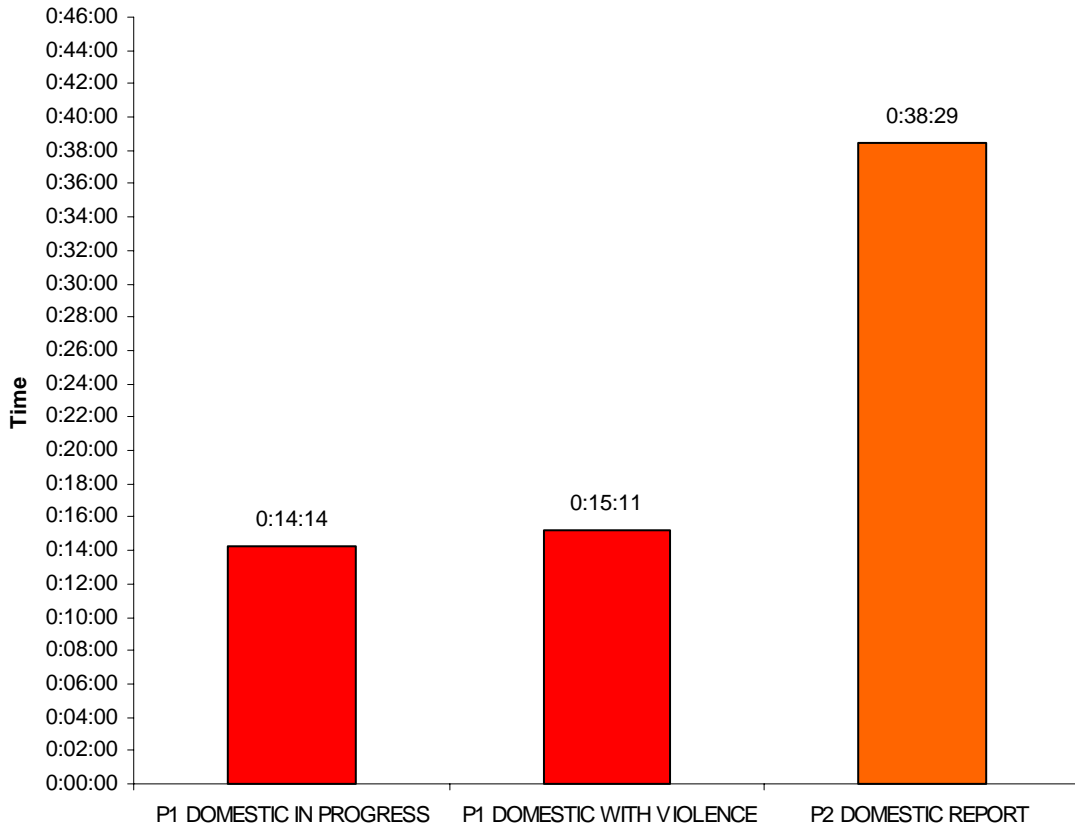
- The average response time to priority 2 abandoned 9-1-1 calls was 13 minutes and 19 seconds.
- The average response time to priority 2 break and enters in progress was 10 minutes and 56 seconds.

Some calls in District 2 were associated with an excessive response time on average. For instance:

- The average response time to priority 1 domestic violence situations was 15 minutes and 11 seconds. The average response time to priority 1 domestic situations in progress was 14 minutes and 14 seconds. The average response time to priority 2 domestic situations was 38 minutes and 29 seconds.

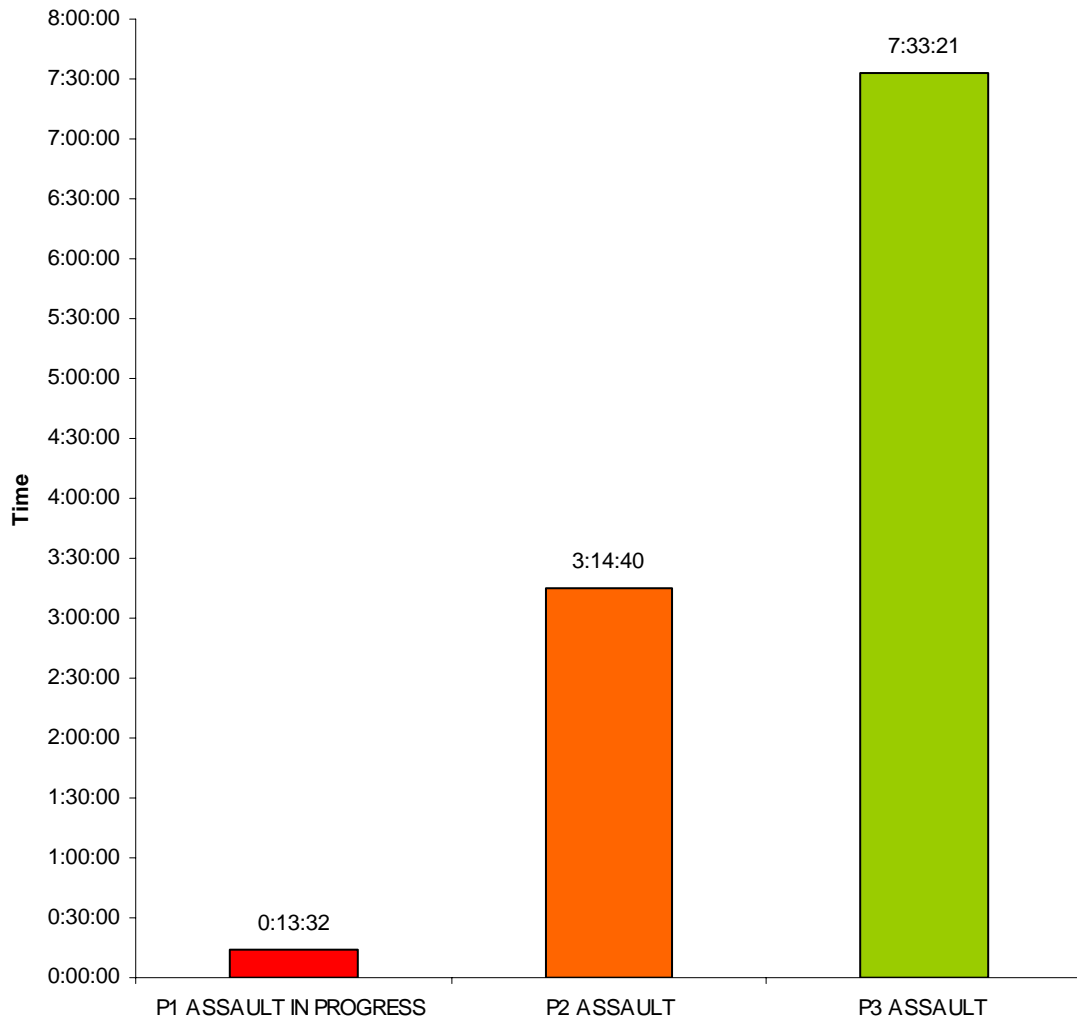


**Figure 7-45 Average Response Time to Domestic Situations Dispatched to Regular Patrol Units in District 2**



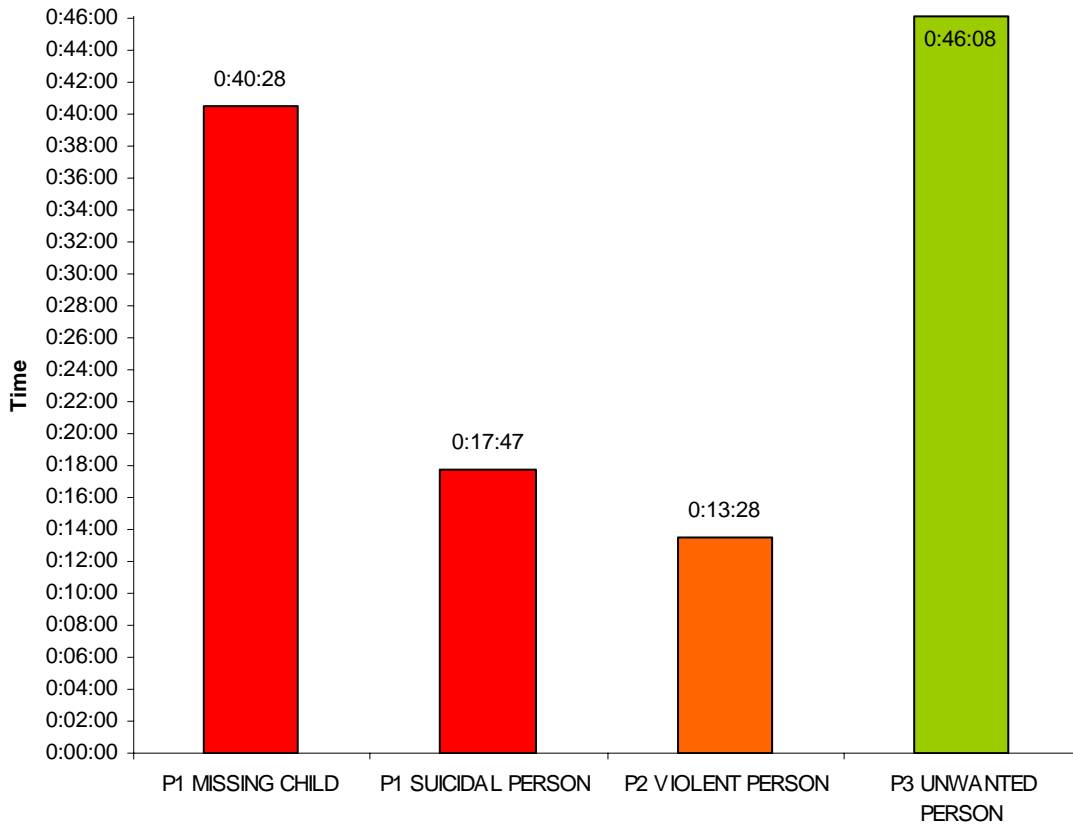
- The average response time to priority 1 assaults in progress was 13 minutes and 32 seconds. The average response time to priority 2 assaults (not in progress) was between 1.5 and 3 hours. The average response time to priority 3 assaults (not in progress) was between 3.5 and 7.5 hours.

**Figure 7-46 Average Response Time to Assaults in District 2**



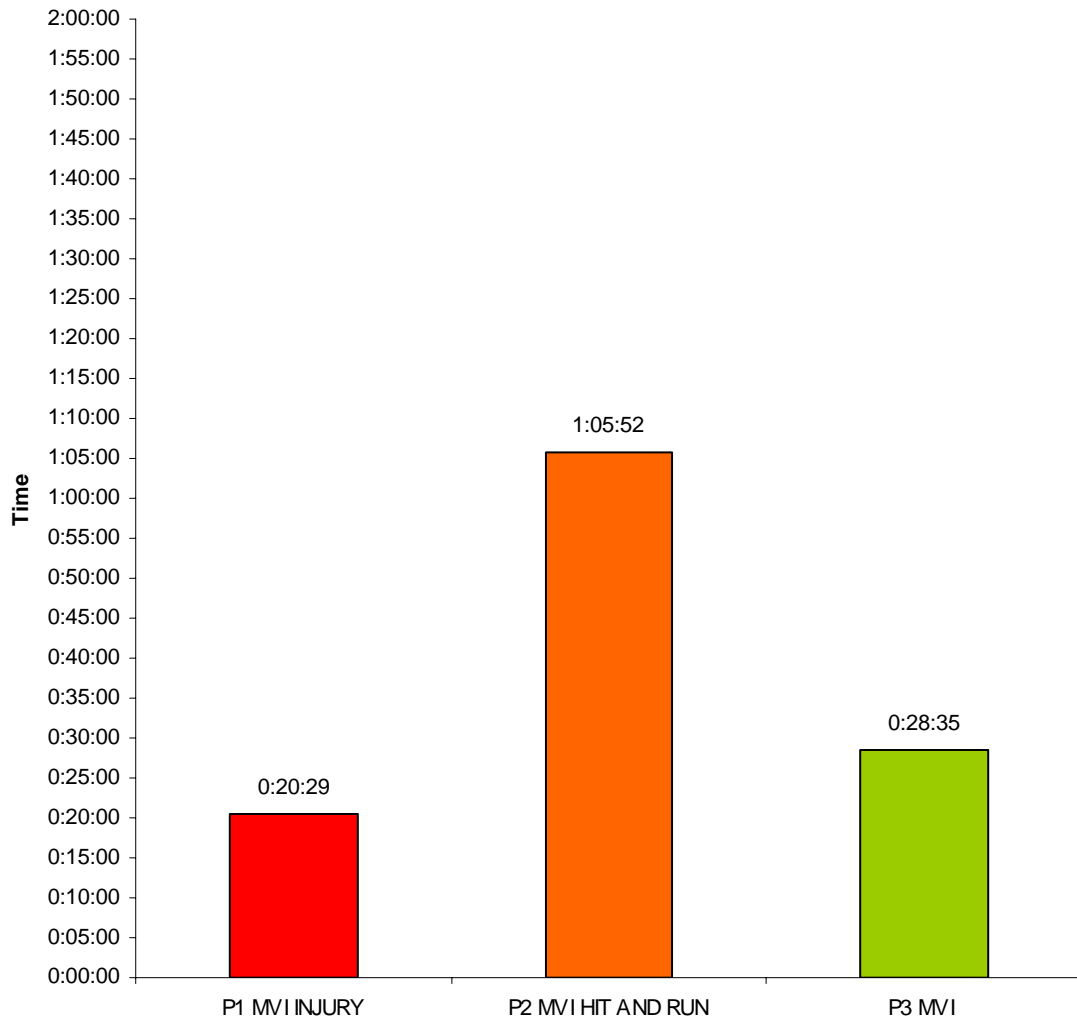
- The average response time to priority 1 missing children was 40 minutes and 28 seconds.
- The average response time to priority 1 suicidal persons was 17 minutes and 47 seconds. By comparison, the average response time to priority 2 violent persons was 13 minutes and 28 seconds.
- The average response time to priority 3 unwanted persons was 46 minutes and 8 seconds.

**Figure 7-47 Average Response Time to Missing Children, Suicidal Persons, Violent Persons and Unwanted Persons Dispatched to Regular Patrol Units in District 2**



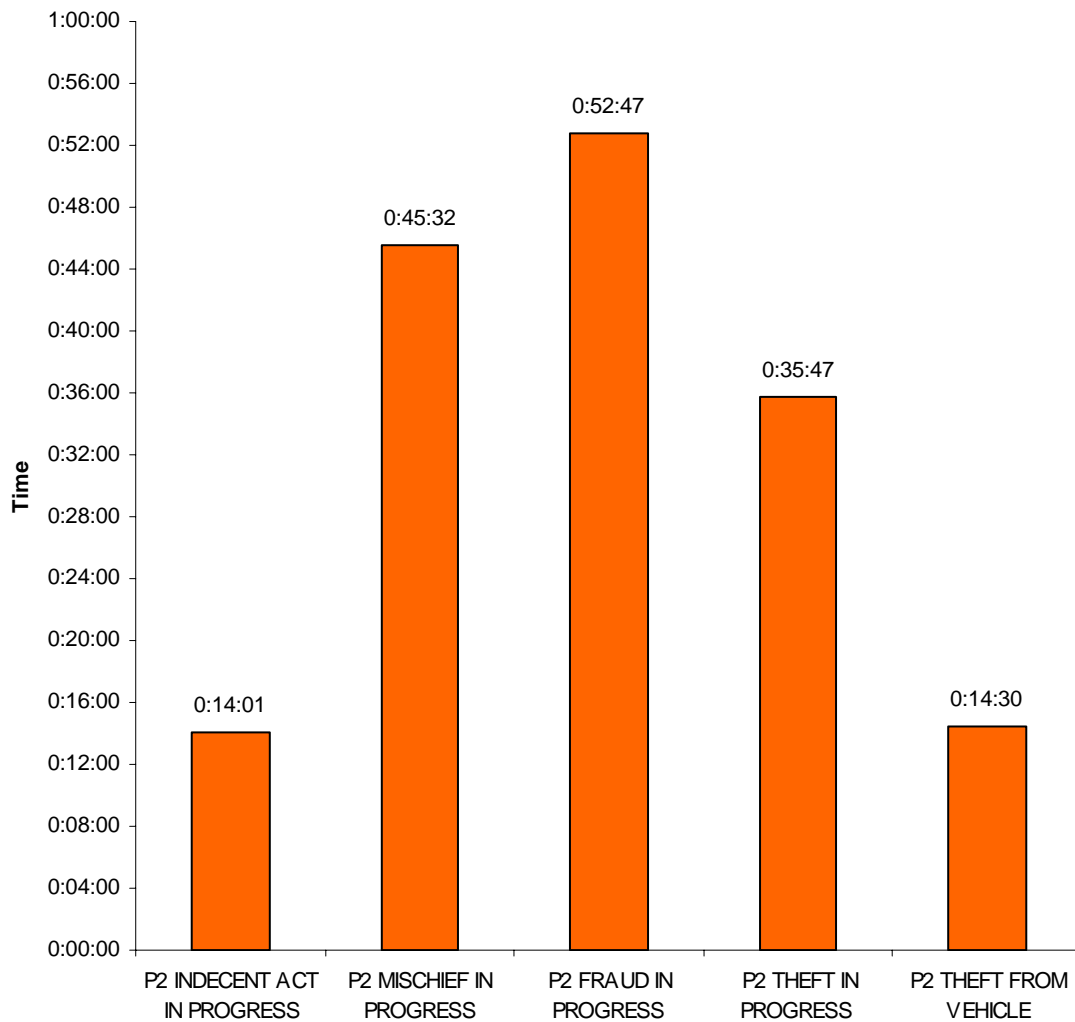
- The average response time to priority 1 abandoned 9-1-1 calls was 12 minutes and 4 seconds.
- The average response time to priority 1 motor vehicle incidents with injuries was 20 minutes and 29 seconds. The average response time to priority 3 motor vehicle incidents was 28 minutes and 35 seconds.
- The average response time to priority 2 hit and run was 1 hour and 6 minutes.

**Figure 7-48 Average Response Time to Motor Vehicle Incidents in District 2**



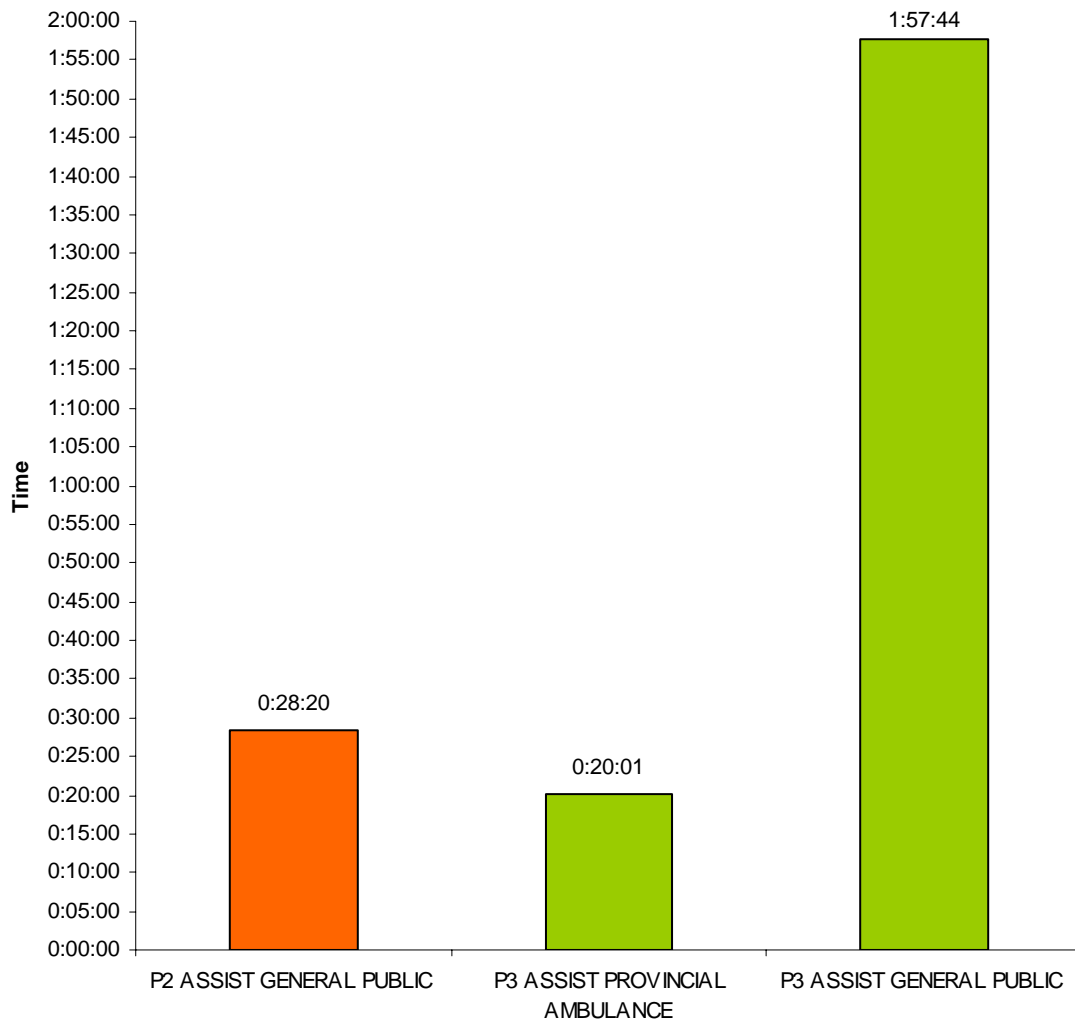
- The average response time to priority 2 thefts in progress was 35 minutes and 47 seconds.
- The average response time to priority 2 mischiefs in progress was 45 minutes and 32 seconds.
- The average response time to priority 2 frauds in progress was 52 minutes and 47 seconds.
- The average response time to priority 2 indecent acts in progress was 14 minutes and 1 second.

**Figure 7-49 Average Response Time to Priority 2 Indecent Acts in Progress, Mischiefs in Progress, Frauds in Progress, Thefts in Progress and Thefts from Vehicle in District 2**



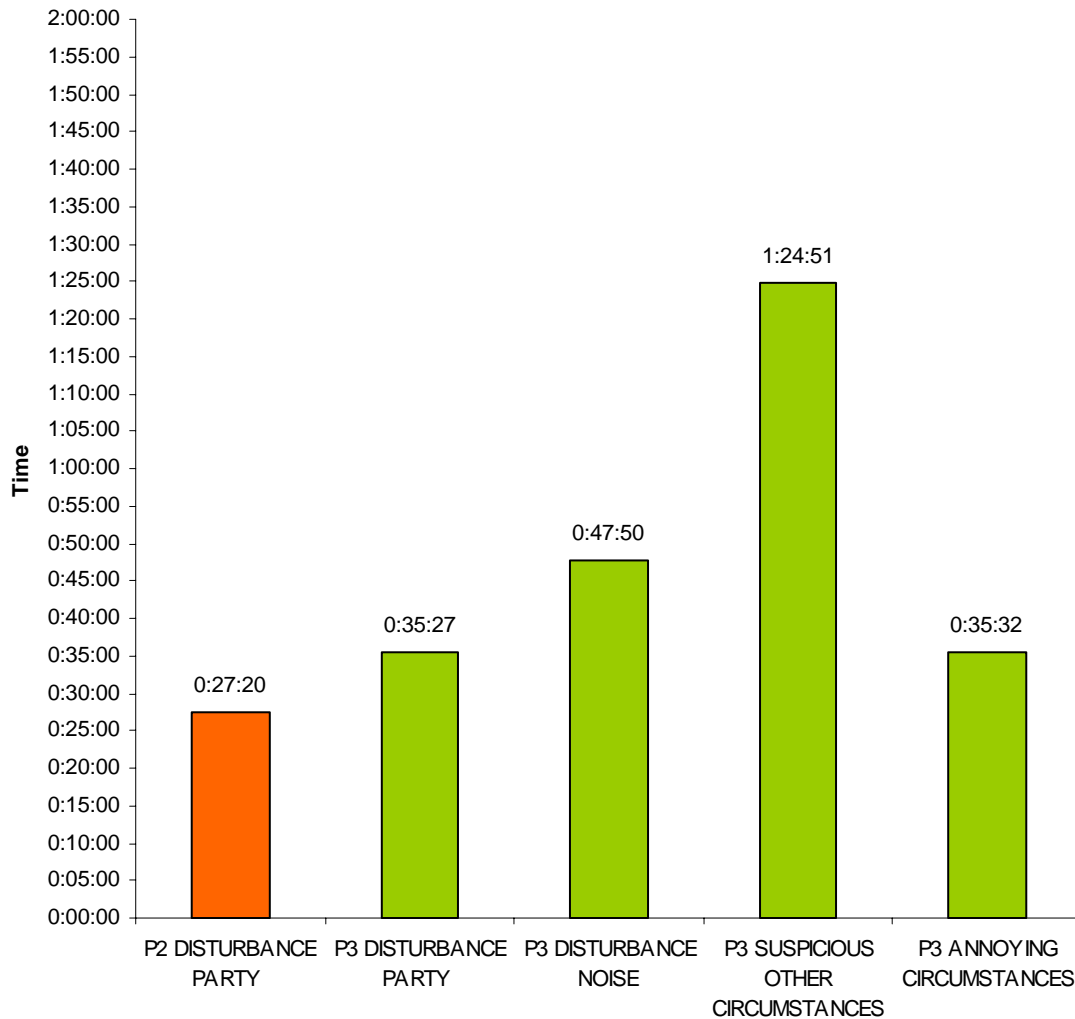
- The average response time to priority 2 requests for assistance from the general public was 28 minutes and 20 seconds. The average response time to priority 3 requests for assistance from the general public was 1 hour and 58 minutes.

**Figure 7-50 Average Response Time to Requests for Assistance from the General Public and the Provincial Ambulance Service in District 2**



- The average response time to priority 2 disturbing parties was 27 minutes and 20 seconds. The average response time to priority 3 disturbing parties was 35 minutes and 27 seconds.
- The average response time to priority 3 suspicious circumstances was 1 hour and 25 minutes.
- The average response time to priority 3 noise complaints was 47 minutes and 50 seconds.

**Figure 7-51 Average Response Time to Disturbing Parties, Noise Complaints, Suspicious Circumstances and Annoying Circumstances in District 2**



- The average response time to priority 3 shoplifters was 1 hour and 5 minutes.
- The average response time to priority 3 sexual assaults (not in progress) was between 2 and 2.5 hours.
- The average response time to priority 3 threats was between 5 and 12.5 hours.
- The average response time to priority 3 harassment calls was between 5.5 and 10 hours.
- The average response time to priority 4 break and enters was between 3 and 3.5 hours.
- The average response time to priority 4 thefts was between 7.5 and 12 hours.

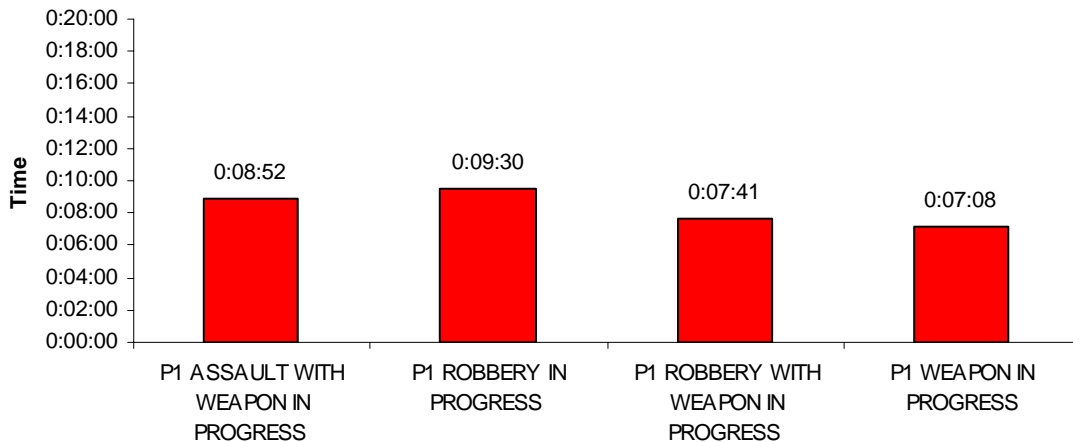
- The average response time to priority 4 mischiefs was between 4.5 and 11 hours.
- The average response time to priority 4 frauds was between 10.5 and 21 hours.

A best practice department should be able to respond to most of these calls for service much faster.

Between 2005-06-01 and 2006-05-31, in District 3:

- The average response time to priority 1 assaults with a weapon in progress was 8 minutes and 52 seconds.
- The average response time to priority 1 robberies in progress was 9 minutes and 30 seconds. The average response time to priority 1 robberies with a weapon in progress was 7 minutes and 41 seconds.
- The average response time to priority 1 weapon-related incidents in progress was 7 minutes and 8 seconds.

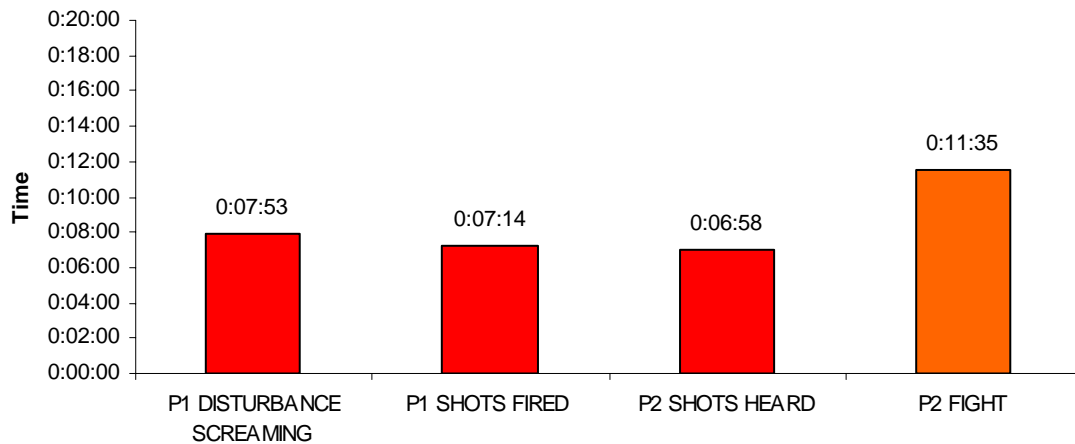
**Figure 7-52 Average Response Time to Priority 1 Assaults with a Weapon in Progress, Robberies in Progress and Weapon-Related Incidents in Progress Dispatched to Regular Patrol Units in District 3**





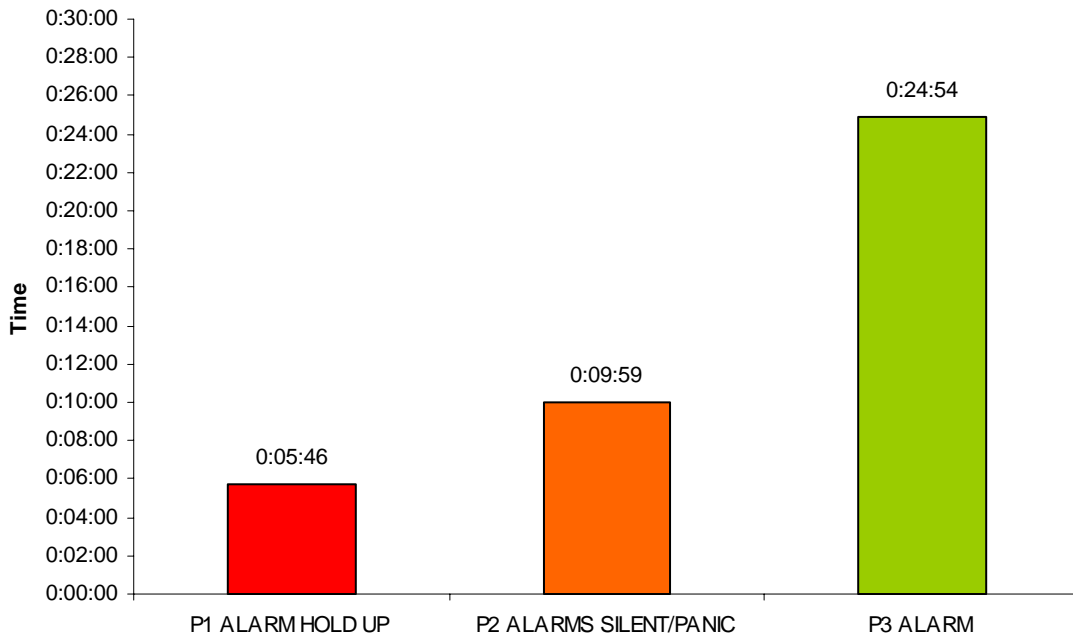
- The average response time to priority 1 shots fired calls was 7 minutes and 14 seconds. The average response time to priority 2 shots heard calls was 6 minutes and 58 seconds.
- The average response time to priority 1 persons screaming was 7 minutes and 53 seconds.
- The average response time to priority 2 fights was 11 minutes and 35 seconds.

**Figure 7-53 Average Response Time to Screams, Fights and Shots Fired Incidents Dispatched to Regular Patrol Units in District 3**



- The average response time to priority 1 hold-up alarms was 5 minutes and 46 seconds. The average response time to priority 2 silent or panic alarms was 9 minutes and 59 seconds. However, the average response time to priority 3 alarms was 24 minutes and 54 seconds.

**Figure 7-54 Average Response Time to Alarms Dispatched to Regular Patrol Units in District 3**

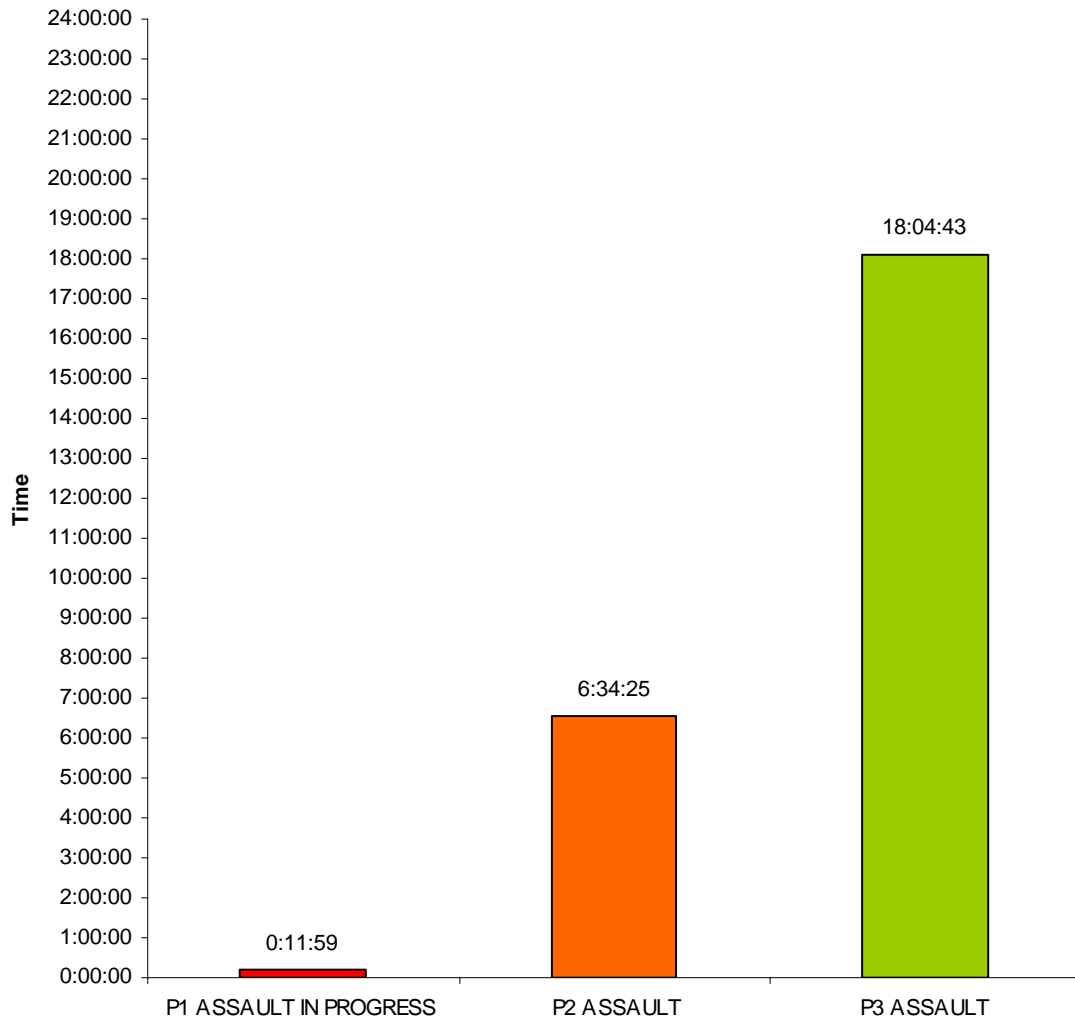


- The average response time to priority 2 break and enters in progress was 14 minutes and 12 seconds.

Some calls in District 3 were associated with an excessive response time on average. For instance:

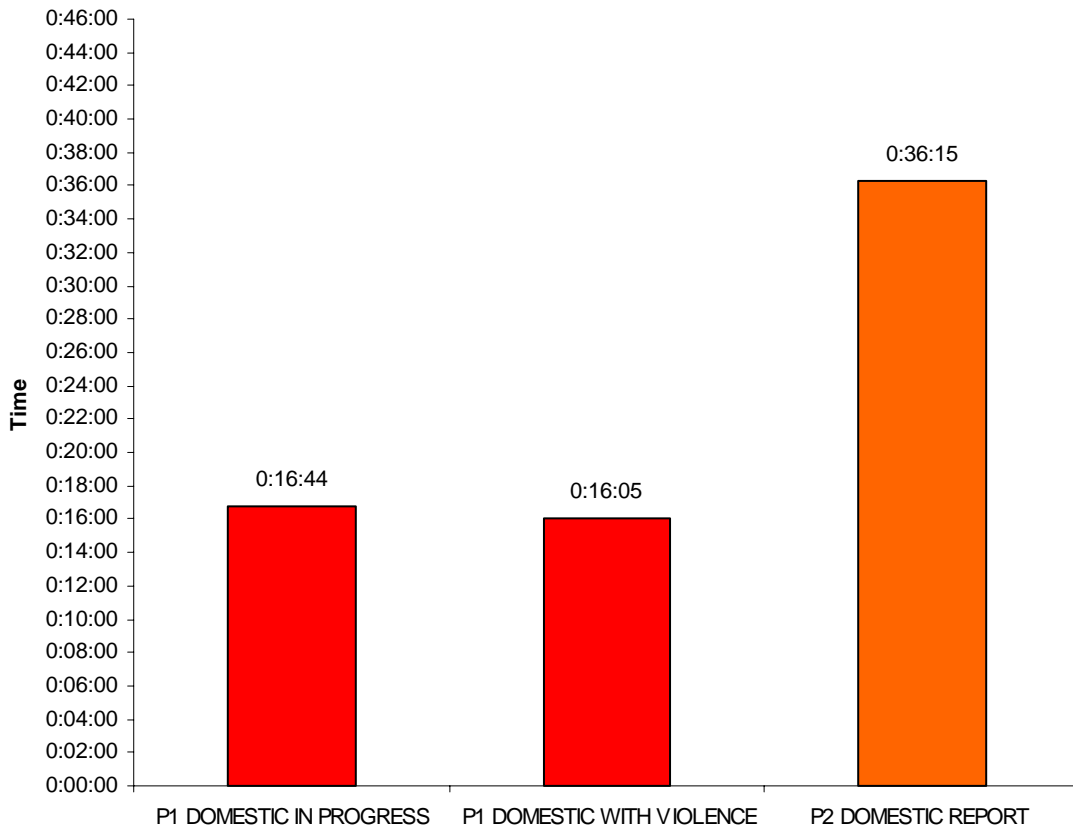
- The average response time to priority 1 assaults in progress was 11 minutes and 59 seconds. The average response time to priority 2 assaults (not in progress) was between 2 and 6.5 hours. The average response time to priority 3 assaults (not in progress) was between 12 and 18 hours.

**Figure 7-55 Average Response Time to Assaults in District 3**



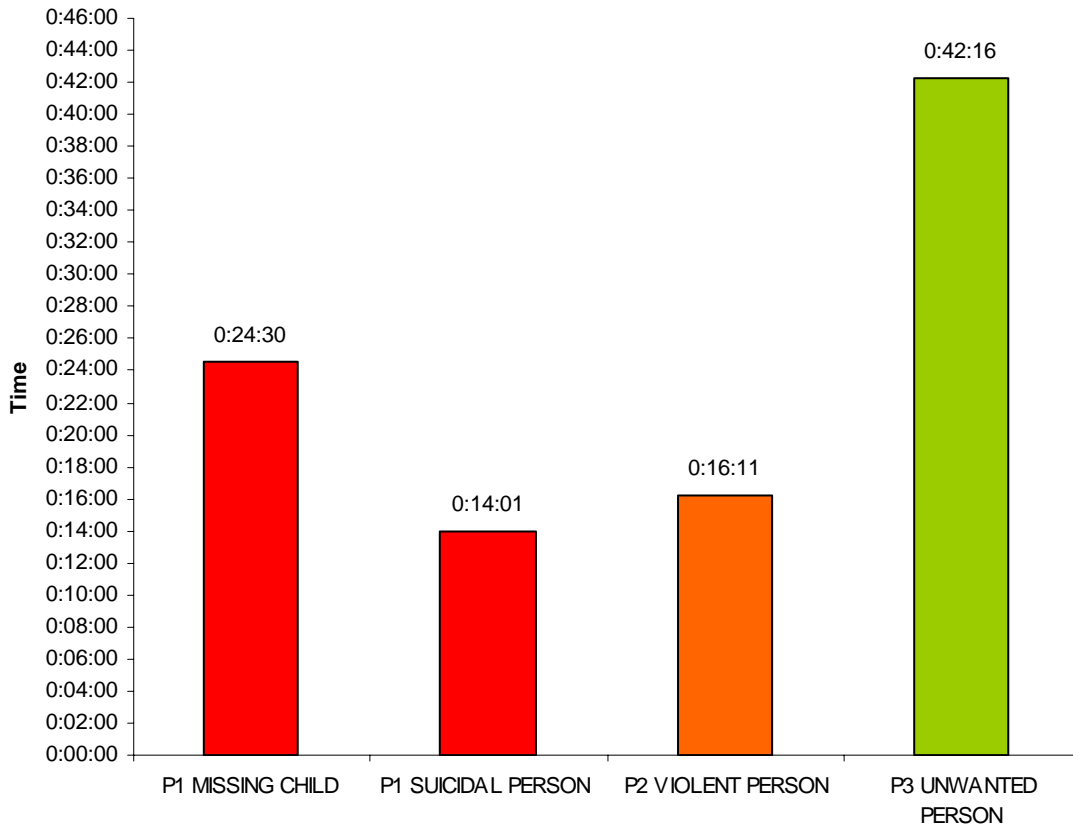
- The average response time to priority 1 domestic violence situations was 16 minutes and 5 seconds. The average response time to priority 1 domestic situations in progress was 16 minutes and 44 seconds. The average response time to priority 2 domestic situations was 36 minutes and 15 seconds.

**Figure 7-56 Average Response Time to Domestic Situations Dispatched to Regular Patrol Units in District 3**



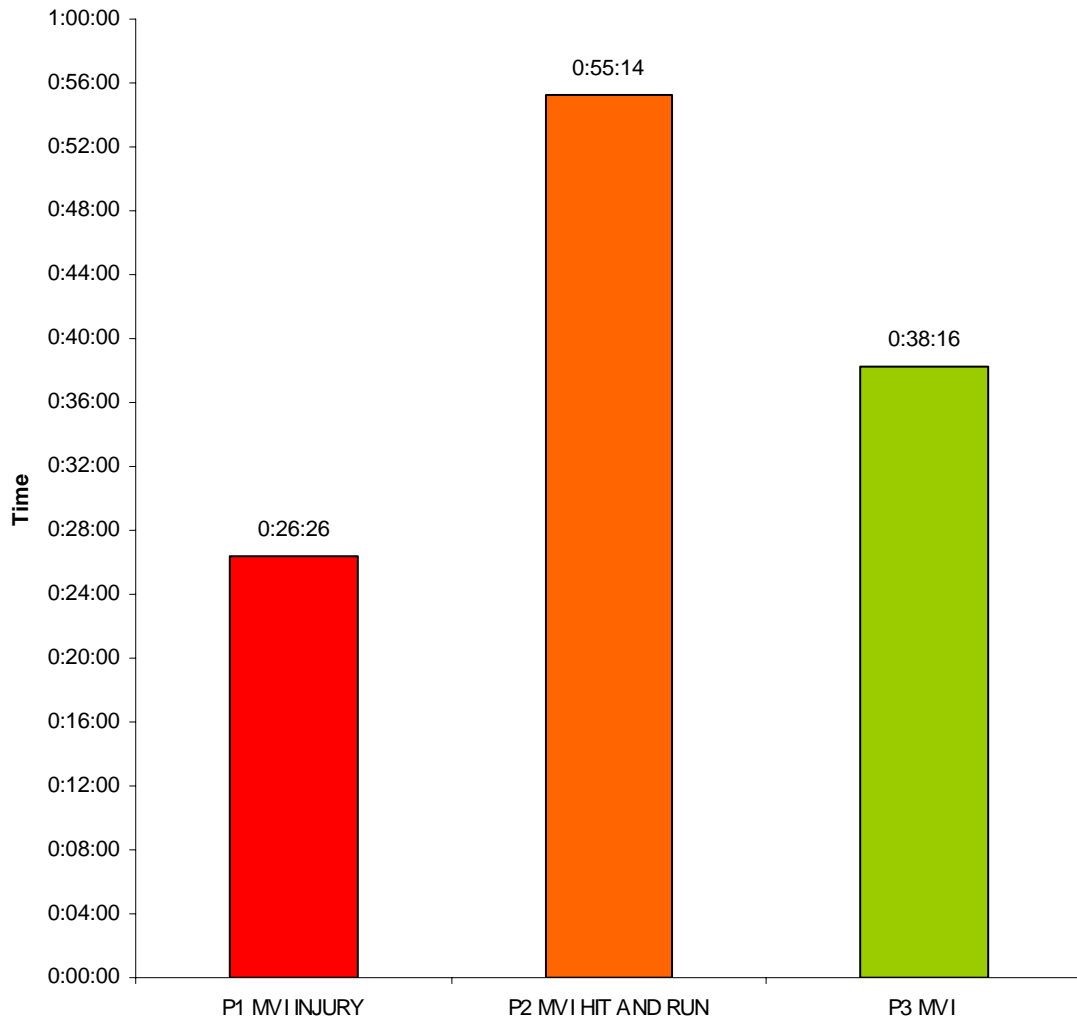
- The average response time to priority 1 missing children was 24 minutes and 30 seconds.
- The average response time to priority 1 suicidal persons was 14 minutes and 1 second. By comparison, the average response time to priority 2 violent persons was 16 minutes and 11 seconds.
- The average response time to priority 3 unwanted persons was 42 minutes and 16 seconds.

**Figure 7-57 Average Response Time to Missing Children, Suicidal Persons, Violent Persons and Unwanted Persons Dispatched to Regular Patrol Units in District 3**



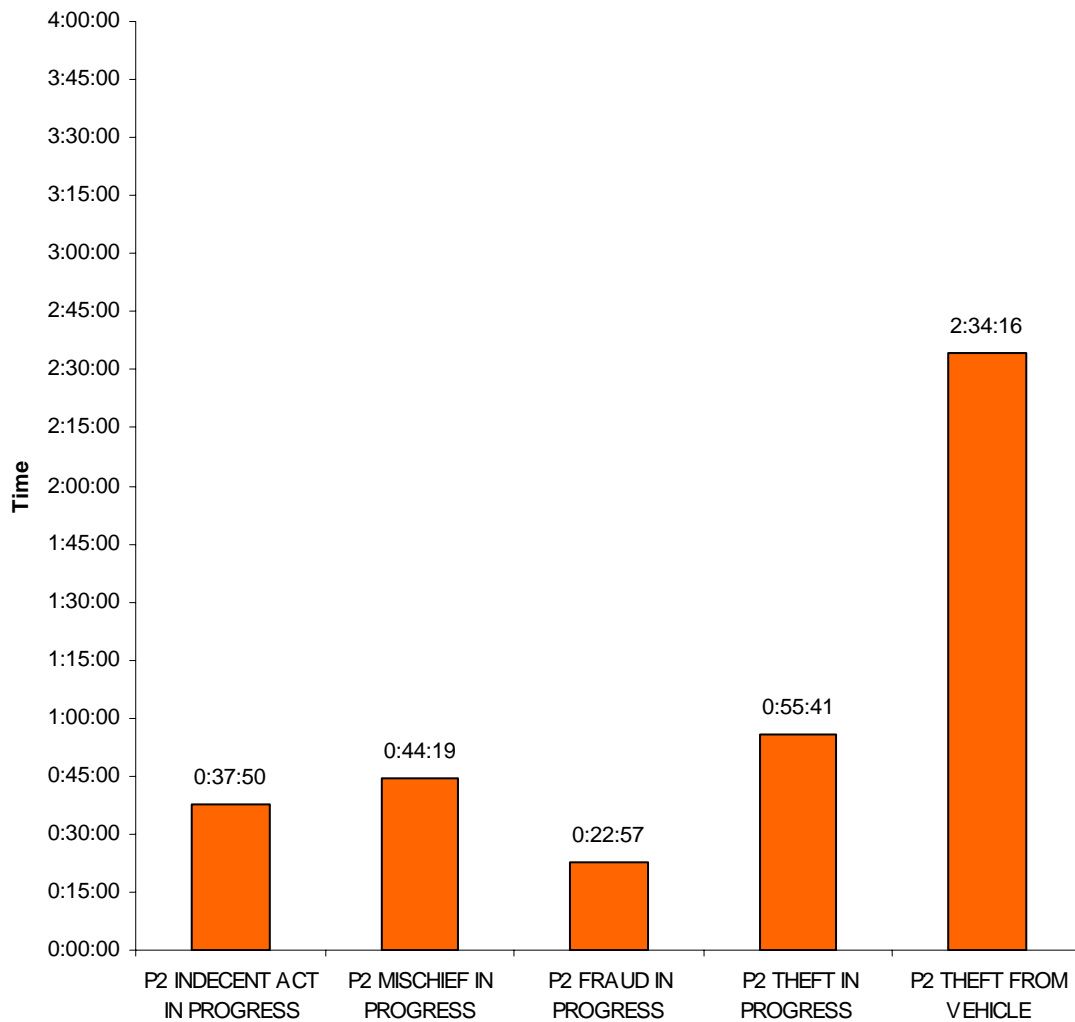
- The average response time to priority 1 abandoned 9-1-1 calls was 14 minutes and 59 seconds. The average response time to priority 2 abandoned 9-1-1 calls was 17 minutes and 24 seconds.
- The average response time to priority 1 motor vehicle incidents with injuries was 26 minutes and 26 seconds. The average response time to priority 3 motor vehicle incidents was 38 minutes and 16 seconds.
- The average response time to priority 2 hit and run was 55 minutes and 14 seconds.

**Figure 7-58 Average Response Time to Motor Vehicle Incidents in District 3**



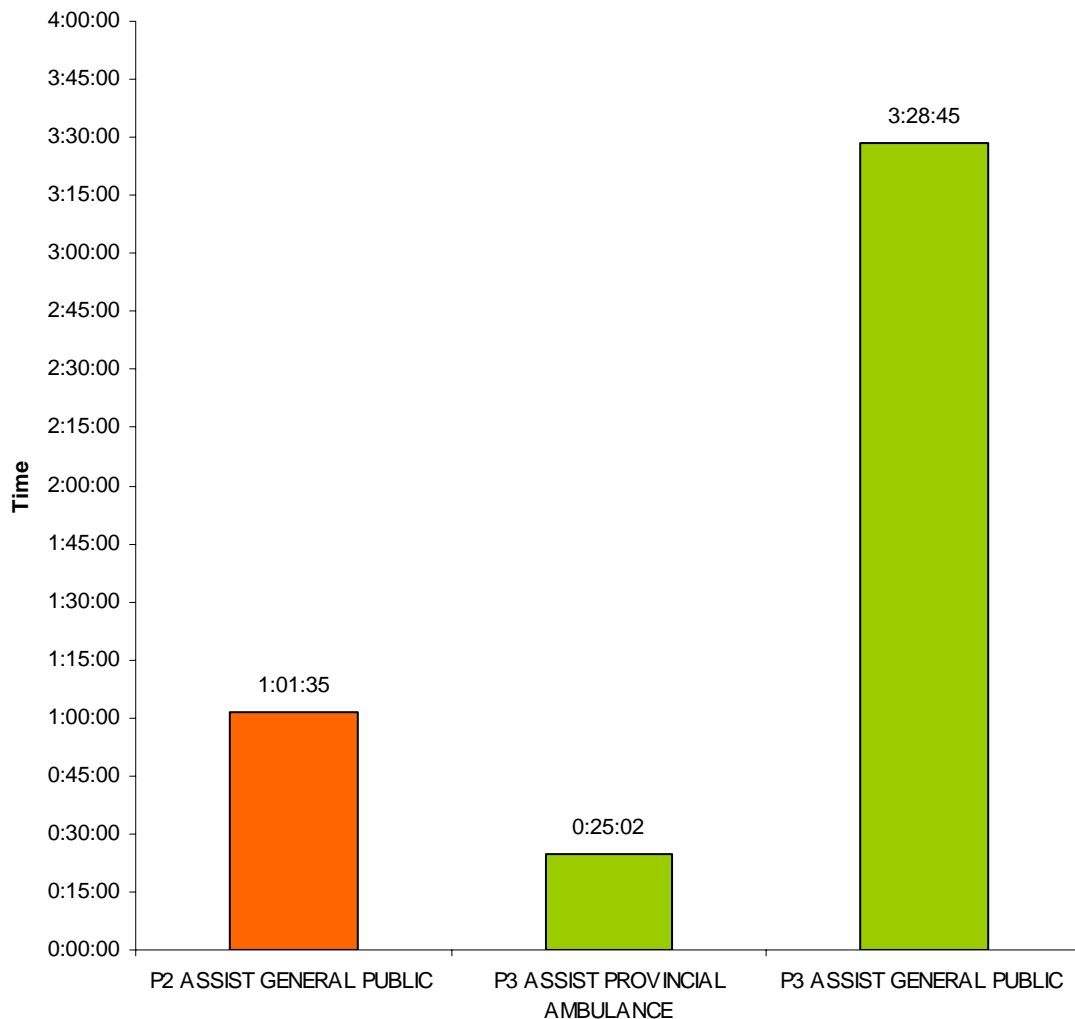
- The average response time to priority 2 thefts in progress was 55 minutes and 41 seconds.
- The average response time to priority 2 mischiefs in progress was 44 minutes and 19 seconds.
- The average response time to priority 2 frauds in progress was 22 minutes and 57 seconds.
- The average response time to priority 2 indecent acts in progress was 37 minutes and 50 seconds.

**Figure 7-59 Average Response Time to Priority 2 Indecent Acts in Progress, Mischiefs in Progress, Frauds in Progress, Thefts in Progress and Thefts from Vehicle in District 3**



- The average response time to priority 2 requests for assistance from the general public was 1 hour and 2 minutes. The average response time to priority 3 requests for assistance from the general public was between 2.5 and 3.5 hours.

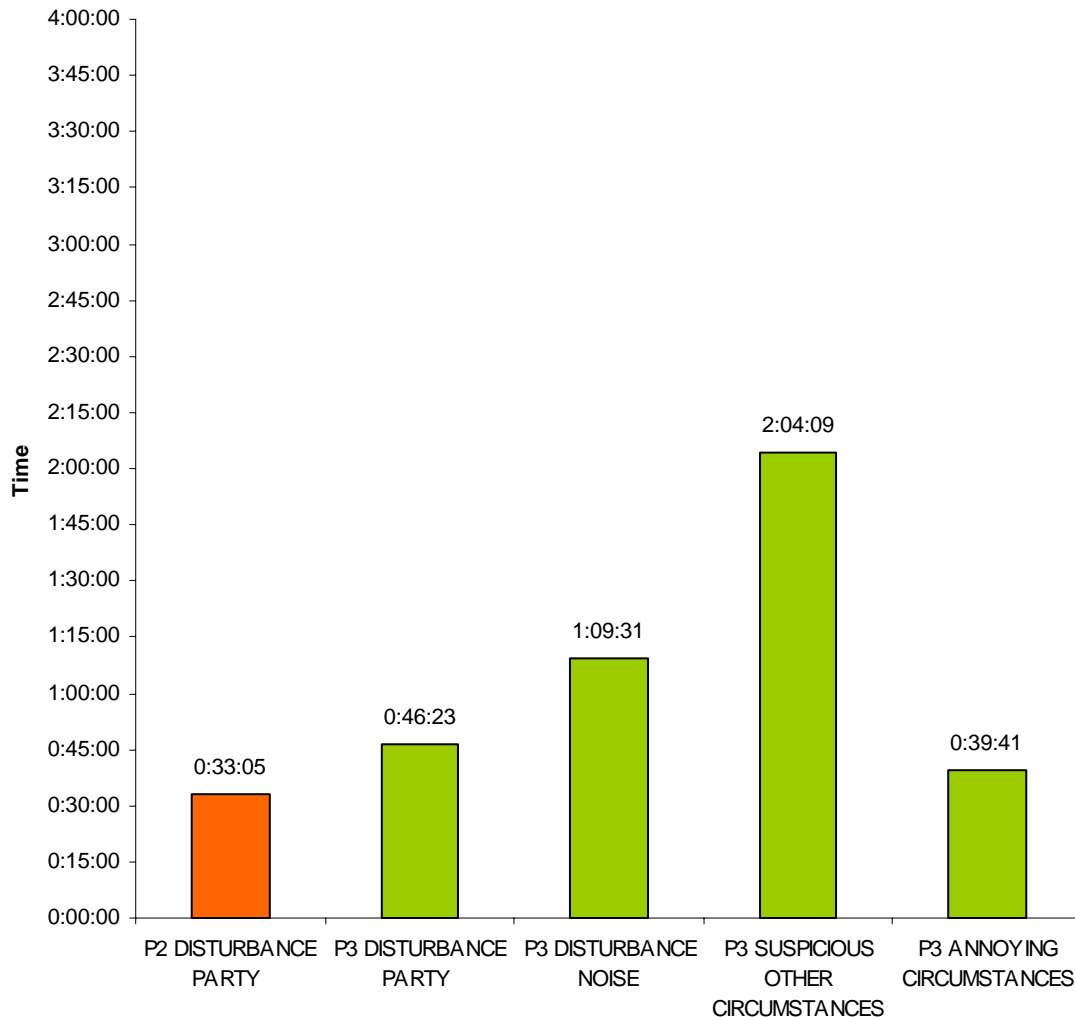
**Figure 7-60 Average Response Time to Requests for Assistance from the General Public and the Provincial Ambulance Service in District 3**



- The average response time to priority 2 disturbing parties was 33 minutes and 5 seconds. The average response time to priority 3 disturbing parties was 46 minutes and 23 seconds.
- The average response time to priority 3 noise complaints was 1 hour and 10 minutes.
- The average response time to priority 3 suspicious circumstances was 2 hours and 4 minutes.



**Figure 7-61 Average Response Time to Disturbing Parties, Noise Complaints, Suspicious Circumstances and Annoying Circumstances in District 3**



- The average response time to priority 3 shoplifters was 1 hour and 24 minutes.
- The average response time to priority 3 sexual assaults (not in progress) was between 5 and 7.5 hours.
- The average response time to priority 3 threats was between 9 and 15 hours.
- The average response time to priority 3 harassment calls was between 11 and 16 hours.
- The average response time to priority 4 break and enters was between 2.5 and 3 hours.
- The average response time to priority 4 thefts was between 12 and 22 hours.

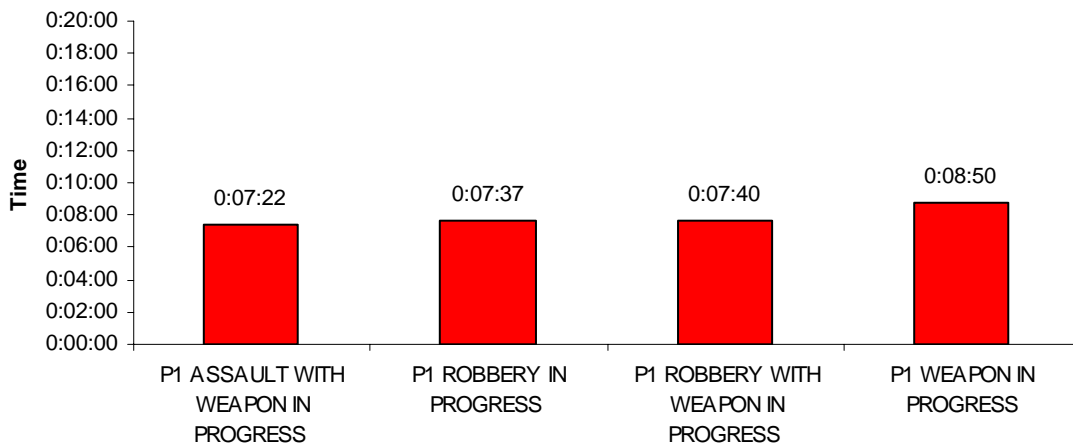
- The average response time to priority 4 mischiefs was between 4.5 and 12 hours.
- The average response time to priority 4 frauds was between 12 and 22 hours.

A best practice department should be able to respond to most of these calls for service much faster.

Between 2005-06-01 and 2006-05-31, in District 4:

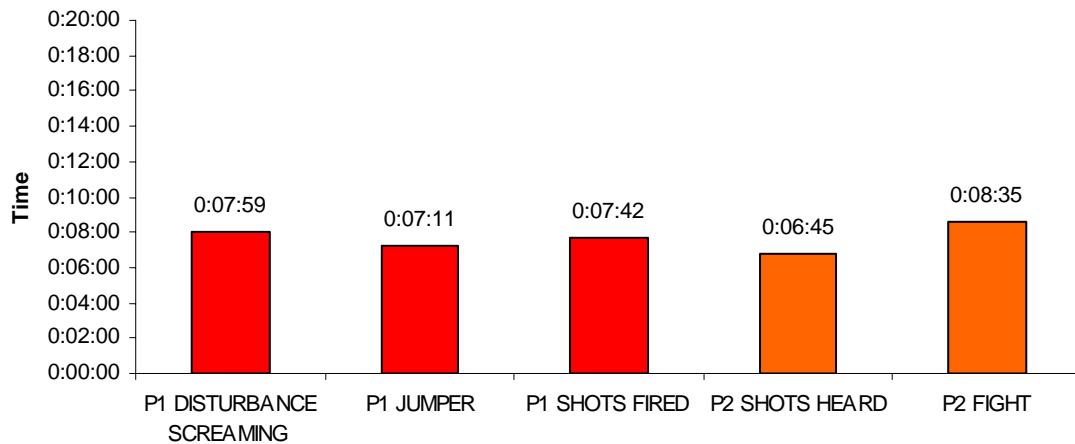
- The average response time to priority 1 assaults with a weapon in progress was 7 minutes and 22 seconds.
- The average response time to priority 1 robberies in progress was 7 minutes and 37 seconds. The average response time to priority 1 robberies with a weapon in progress was 7 minutes and 40 seconds.
- The average response time to priority 1 weapon-related incidents in progress was 8 minutes and 50 seconds.

**Figure 7-62 Average Response Time to Priority 1 Assaults with a Weapon in Progress, Robberies in Progress and Weapon-Related Incidents in Progress Dispatched to Regular Patrol Units in District 4**



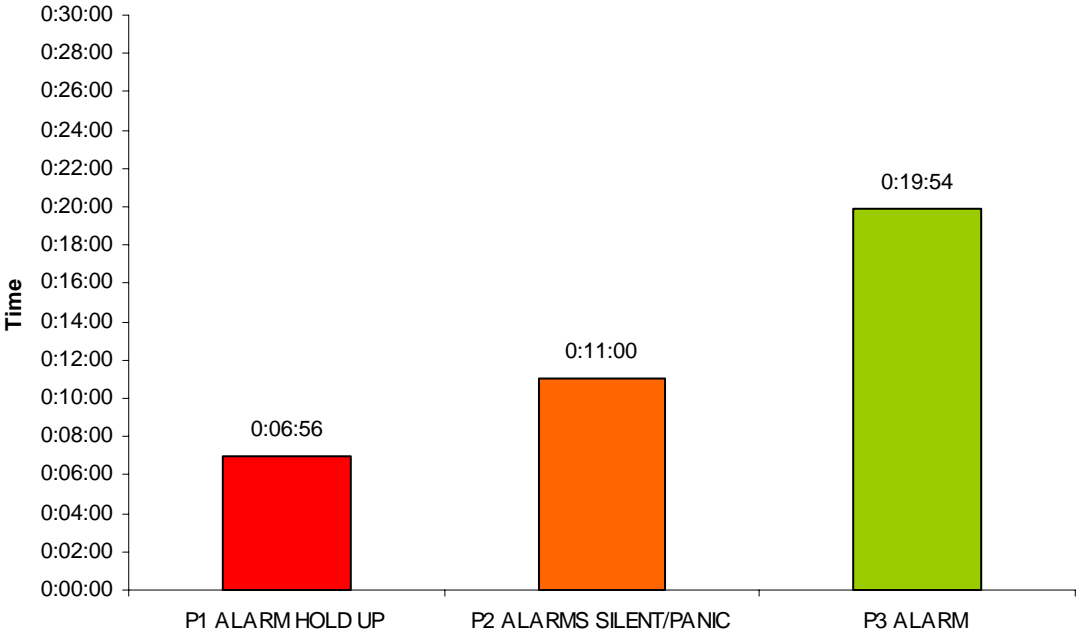
- The average response time to priority 1 shots fired calls was 7 minutes and 42 seconds. The average response time to priority 2 shots heard calls was 6 minutes and 45 seconds.
- The average response time to priority 1 persons screaming was 7 minutes and 59 seconds.
- The average response time to priority 2 fights was 8 minutes and 35 seconds.

**Figure 7-63 Average Response Time to Screams, Jumpers, Fights and Shots Fired Incidents Dispatched to Regular Patrol Units in District 4**



- The average response time to priority 1 hold-up alarms was 6 minutes and 56 seconds. The average response time to priority 2 silent or panic alarms was 11 minutes. However, the average response time to priority 3 alarms was 19 minutes and 54 seconds.

**Figure 7-64 Average Response Time to Alarms Dispatched to Regular Patrol Units in District 4**

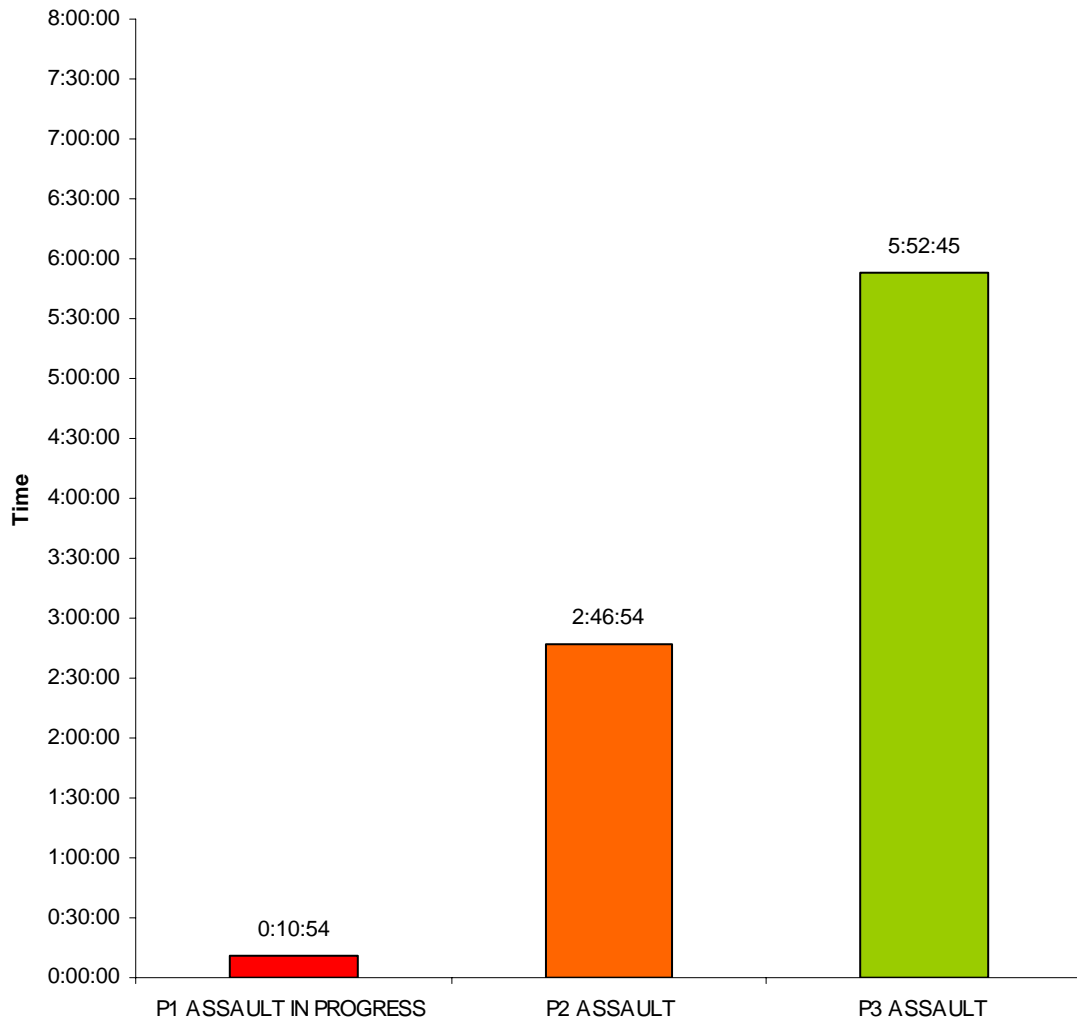


- The average response time to priority 2 break and enters in progress was 9 minutes and 53 seconds.

Some calls in District 4 were associated with an excessive response time on average. For instance:

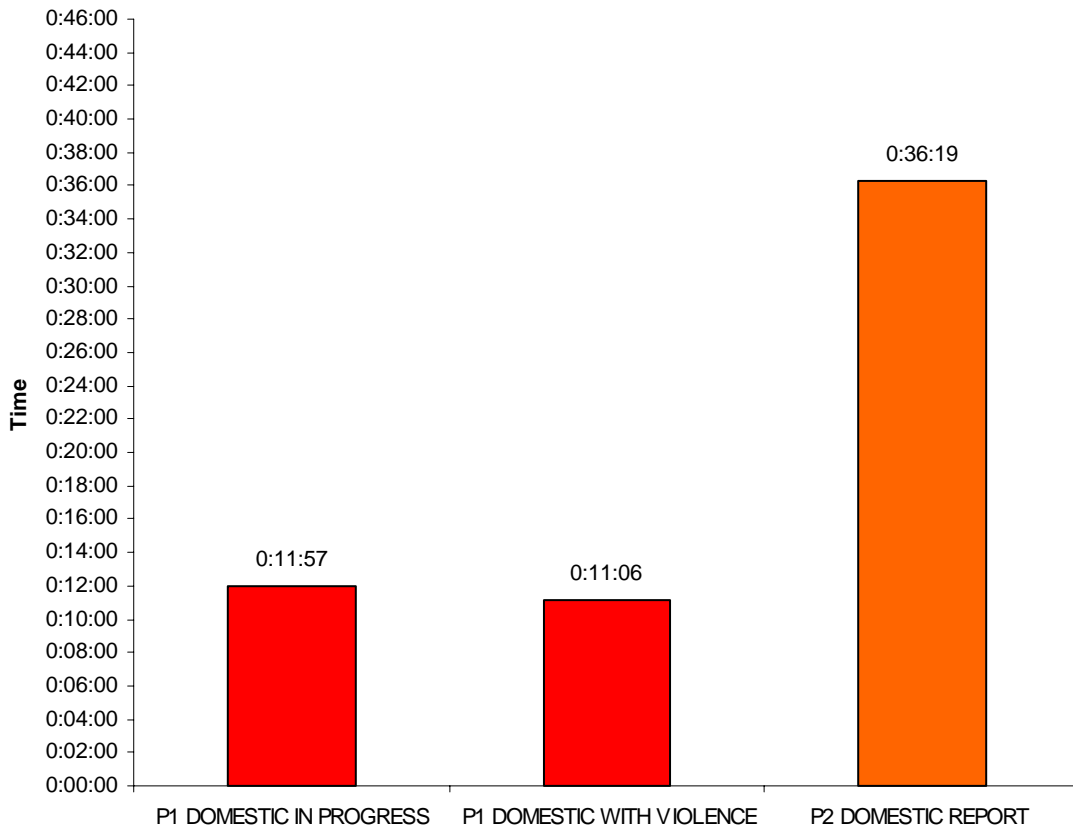
- The average response time to priority 1 assaults in progress was 10 minutes and 54 seconds. The average response time to priority 2 assaults (not in progress) was between 1.5 and 2.5 hours. The average response time to priority 3 assaults (not in progress) was between 4.5 and 6 hours.

**Figure 7-65 Average Response Time to Assaults in District 4**



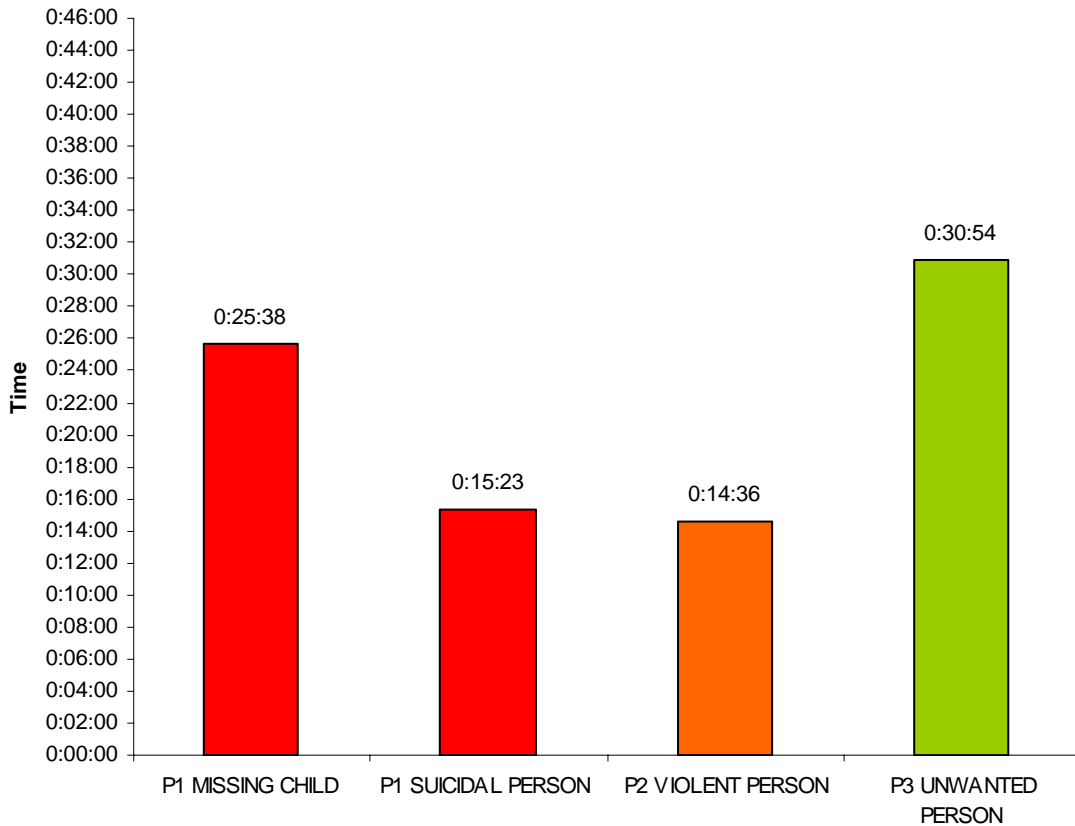
- The average response time to priority 1 domestic violence situations was 11 minutes and 6 seconds. The average response time to priority 1 domestic situations in progress was 11 minutes and 57 seconds. The average response time to priority 2 domestic situations was 36 minutes and 19 seconds.

**Figure 7-66 Average Response Time to Domestic Situations Dispatched to Regular Patrol Units in District 4**



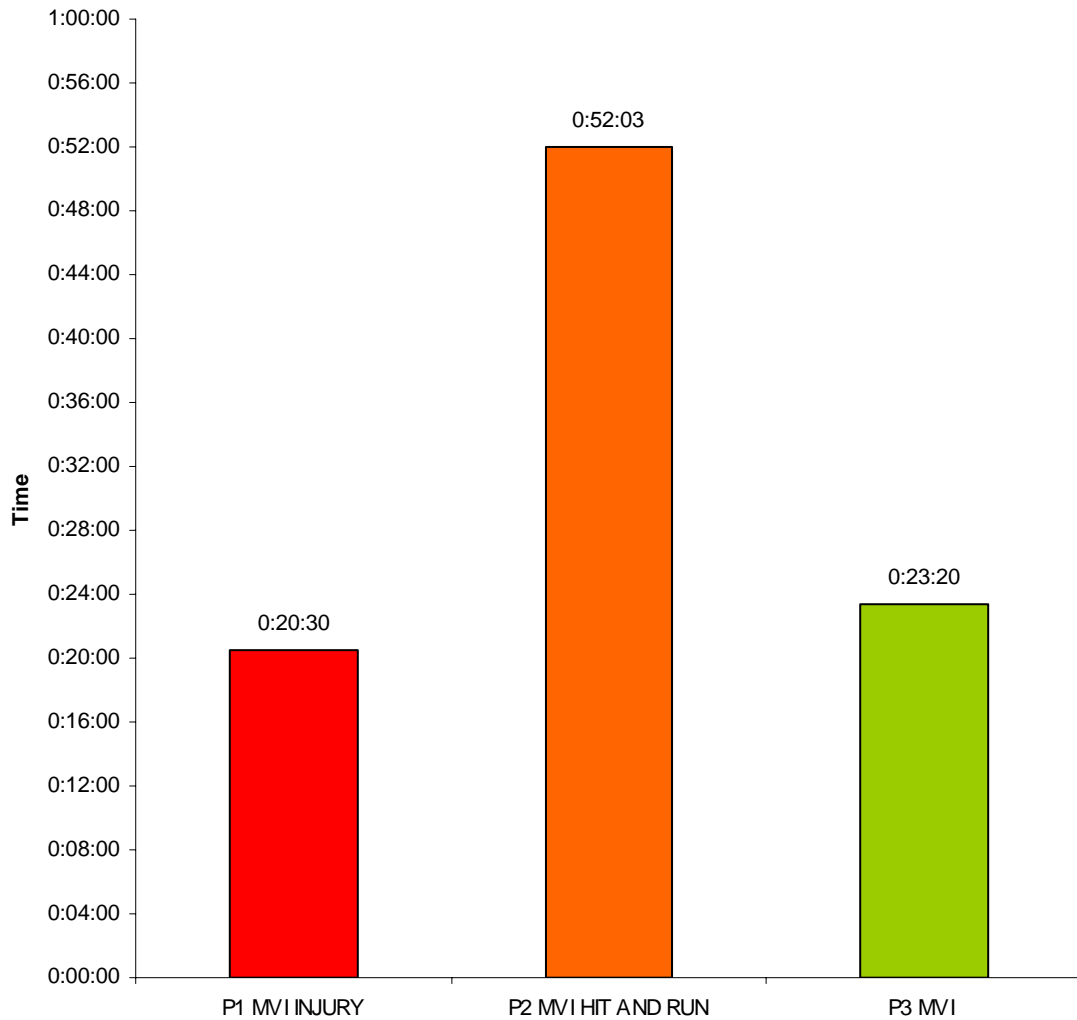
- The average response time to priority 1 missing children was 25 minutes and 38 seconds.
- The average response time to priority 1 suicidal persons was 15 minutes and 23 seconds.
- The average response time to priority 2 violent persons was 14 minutes and 36 seconds.
- The average response time to priority 3 unwanted persons was 30 minutes and 54 seconds.

**Figure 7-67 Average Response Time to Missing Children, Suicidal Persons, Violent Persons and Unwanted Persons Dispatched to Regular Patrol Units in District 4**



- The average response time to priority 1 abandoned 9-1-1 calls was 13 minutes and 25 seconds.
- The average response time to priority 1 motor vehicle incidents with injuries was 20 minutes and 30 seconds. On the other hand, the average response time to priority 3 motor vehicle incidents was 23 minutes and 20 seconds.
- The average response time to priority 2 hit and run was 52 minutes and 3 seconds.

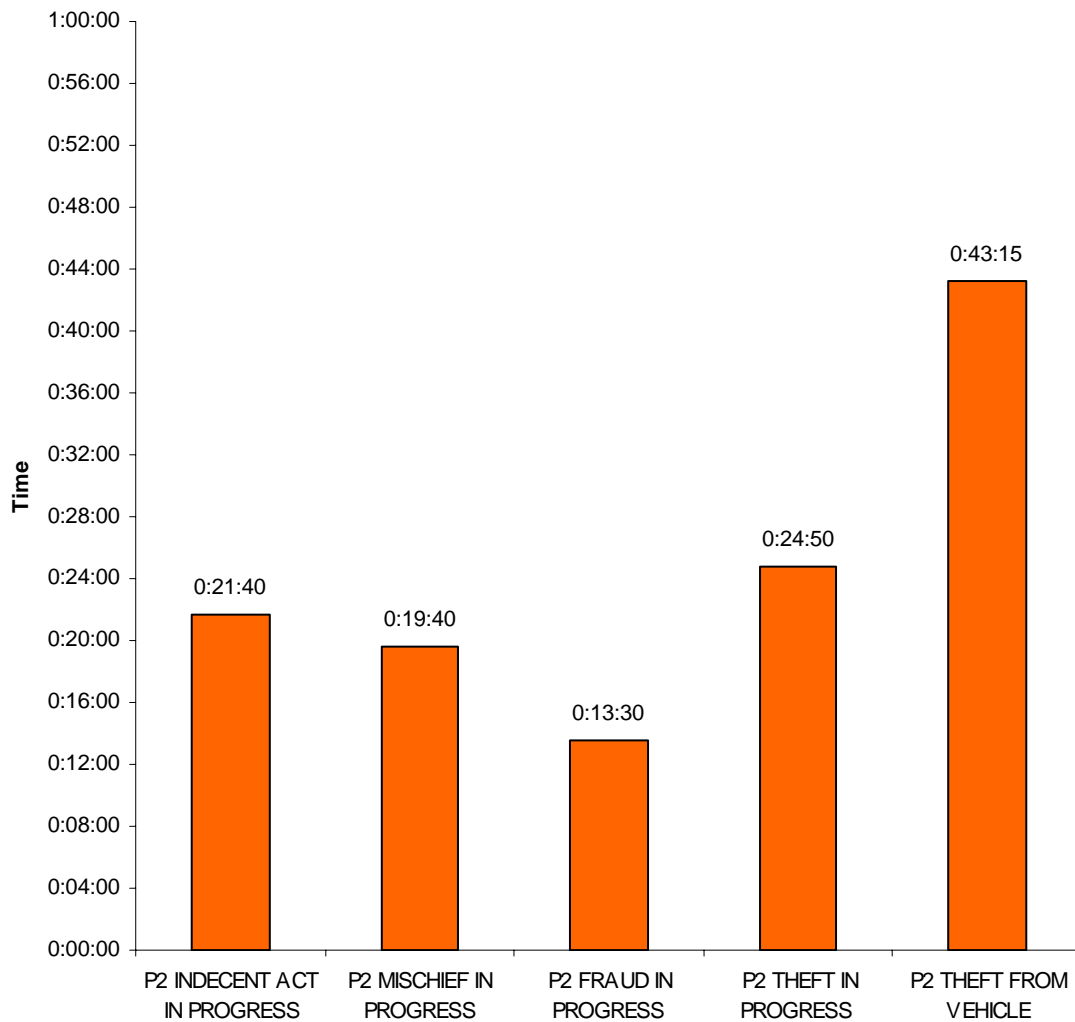
**Figure 7-68 Average Response Time to Motor Vehicle Incidents in District 4**



- The average response time to priority 2 thefts in progress was 24 minutes and 50 seconds.
- The average response time to priority 2 mischiefs in progress was 19 minutes and 40 seconds.
- The average response time to priority 2 frauds in progress was 13 minutes and 30 seconds.
- The average response time to priority 2 indecent acts in progress was 21 minutes and 40 seconds.

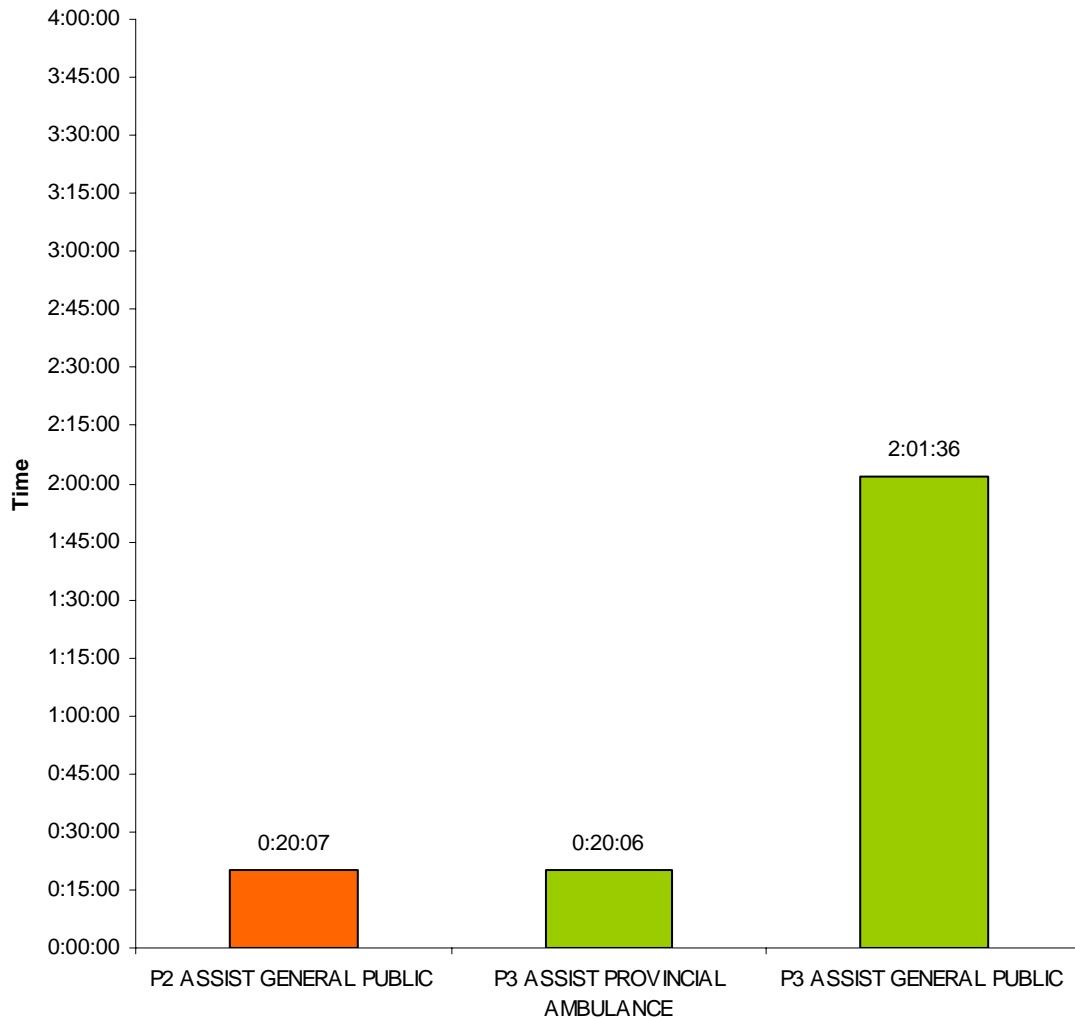


**Figure 7-69 Average Response Time to Priority 2 Indecent Acts in Progress, Mischiefs in Progress, Frauds in Progress, Thefts in Progress and Thefts from Vehicle in District 4**



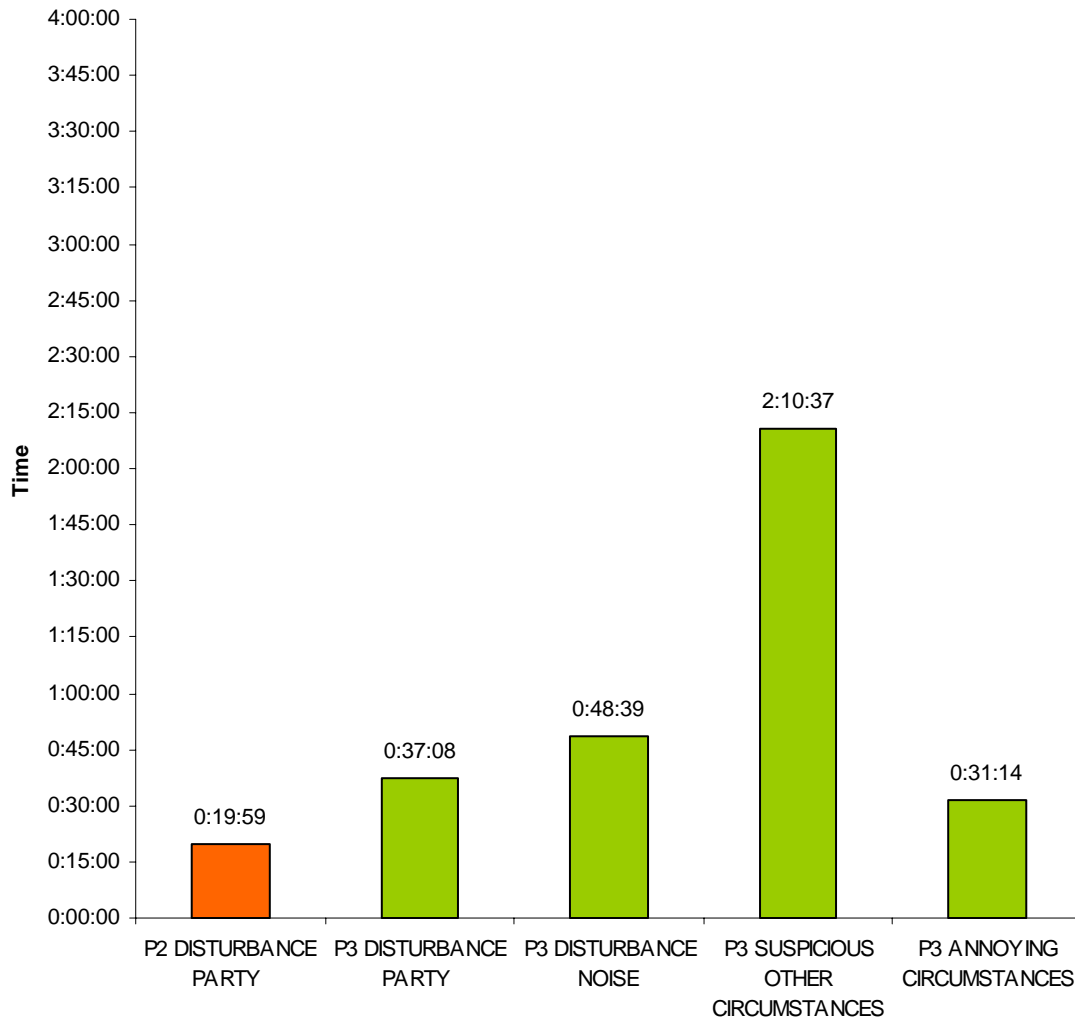
- The average response time to priority 3 requests for assistance from the general public was 2 hours and 2 minutes. By comparison, the average response time to priority 2 requests for assistance from the general public was 20 minutes and 7 seconds and the average response time to priority 3 requests for assistance from the provincial ambulance service was 20 minutes and 6 seconds.

**Figure 7-70 Average Response Time to Requests for Assistance from the General Public and the Provincial Ambulance Service in District 4**



- The average response time to priority 3 disturbing parties was 37 minutes and 8 seconds.
- The average response time to priority 3 suspicious circumstances was 2 hours and 11 minutes.
- The average response time to priority 3 noise complaints was 48 minutes and 39 seconds.

**Figure 7-71 Average Response Time to Disturbing Parties, Noise Complaints, Suspicious Circumstances and Annoying Circumstances in District 4**



- The average response time to priority 3 shoplifters was 1 hour and 25 minutes.
- The average response time to priority 3 sexual assaults (not in progress) was between 3.5 and 5.5 hours.
- The average response time to priority 3 threats was between 5.5 and 8.5 hours.
- The average response time to priority 3 harassment calls was between 7.5 and 11.5 hours.
- The average response time to priority 4 break and enters was between 2 and 3 hours.
- The average response time to priority 4 thefts was between 7 and 12 hours.

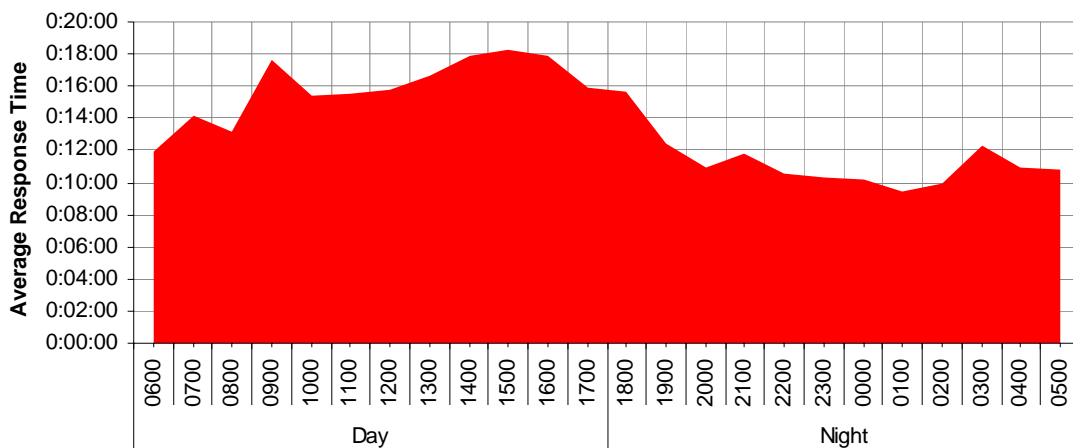
- The average response time to priority 4 mischiefs was between 4.5 and 10 hours.
- The average response time to priority 4 frauds was between 8.5 and 16.5 hours.

A best practice department should be able to respond to most of these calls for service much faster.

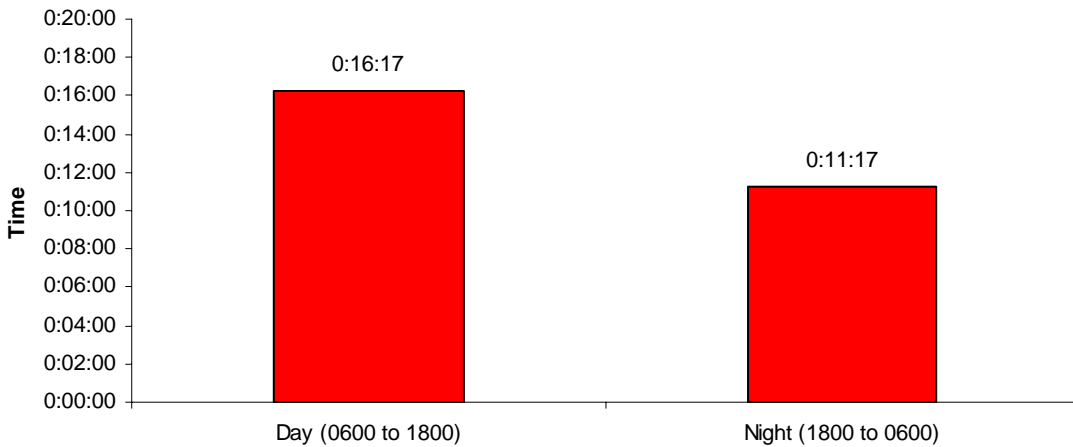
Interestingly, the average response time to priority 1, 2 and 3 calls was significantly shorter at night on average. Intuitively, this might be caused by the lower traffic level during the night and more patrol resources deployed during the evening.

Citywide, the average response time to priority 1 calls was 30.7% shorter at night (between 1800 and 0600 hours) compared to the day (between 0600 and 1800 hours). Between 1800 and 0600 hours, the average response time to priority 1 calls was 11 minutes and 17 seconds. By comparison, the average response time to priority 1 calls was 16 minutes and 17 seconds between 0600 and 1800 hours.

**Figure 7-72 Average Response Time to Priority 1 Calls by Hour of the Day  
Citywide**

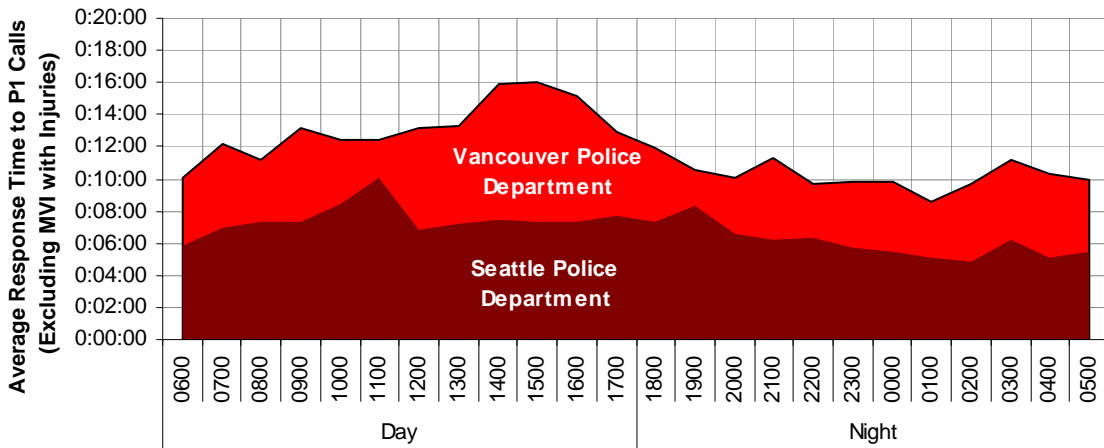


**Figure 7-73 Average Response Time to Priority 1 Calls During the Day and at Night**



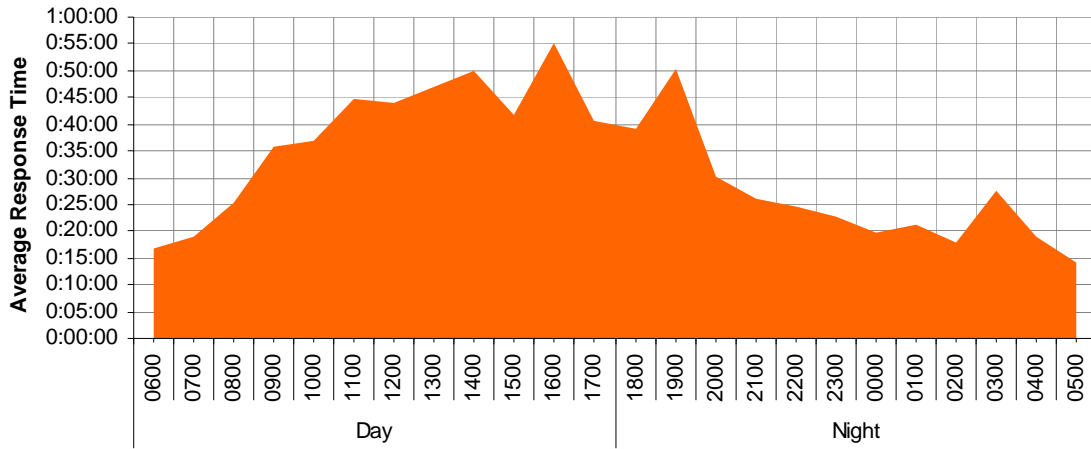
As illustrated by the graph below, a similar trend was also observed at the Seattle Police Department in 2005.

**Figure 7-74 Average Response Time to Priority 1 Calls at the VPD and at the Seattle Police Department**

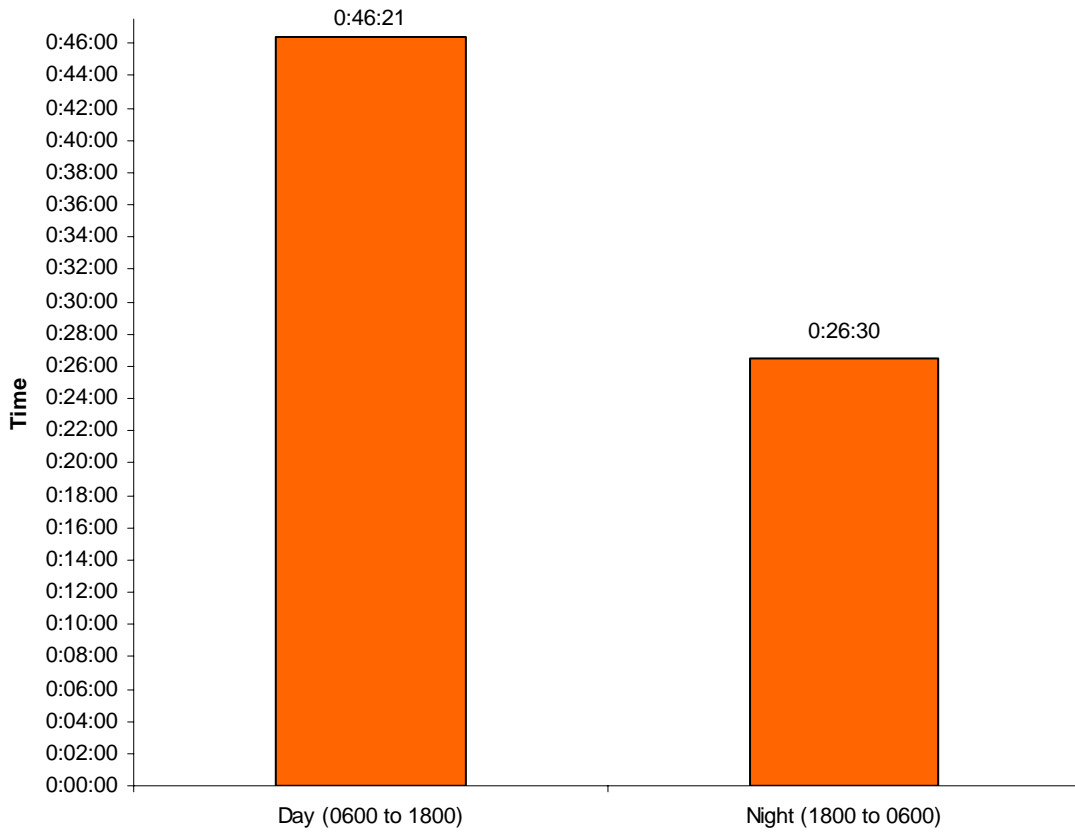


Similarly, the average response time to priority 2 calls was 42.8% shorter at night compared to the day. At night, the average response time to priority 2 calls was 26 minutes and 30 seconds. By comparison, the average response time to priority 2 calls was 46 minutes and 21 seconds between 0600 and 1800 hours.

**Figure 7-75 Average Response Time to Priority 2 Calls by Hour of the Day  
Citywide**

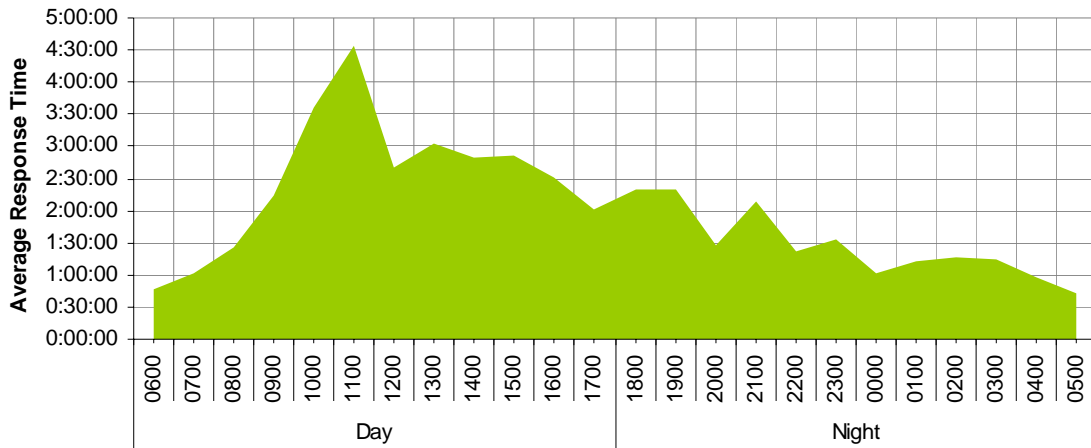


**Figure 7-76 Average Response Time to Priority 2 Calls During the Day and at Night**

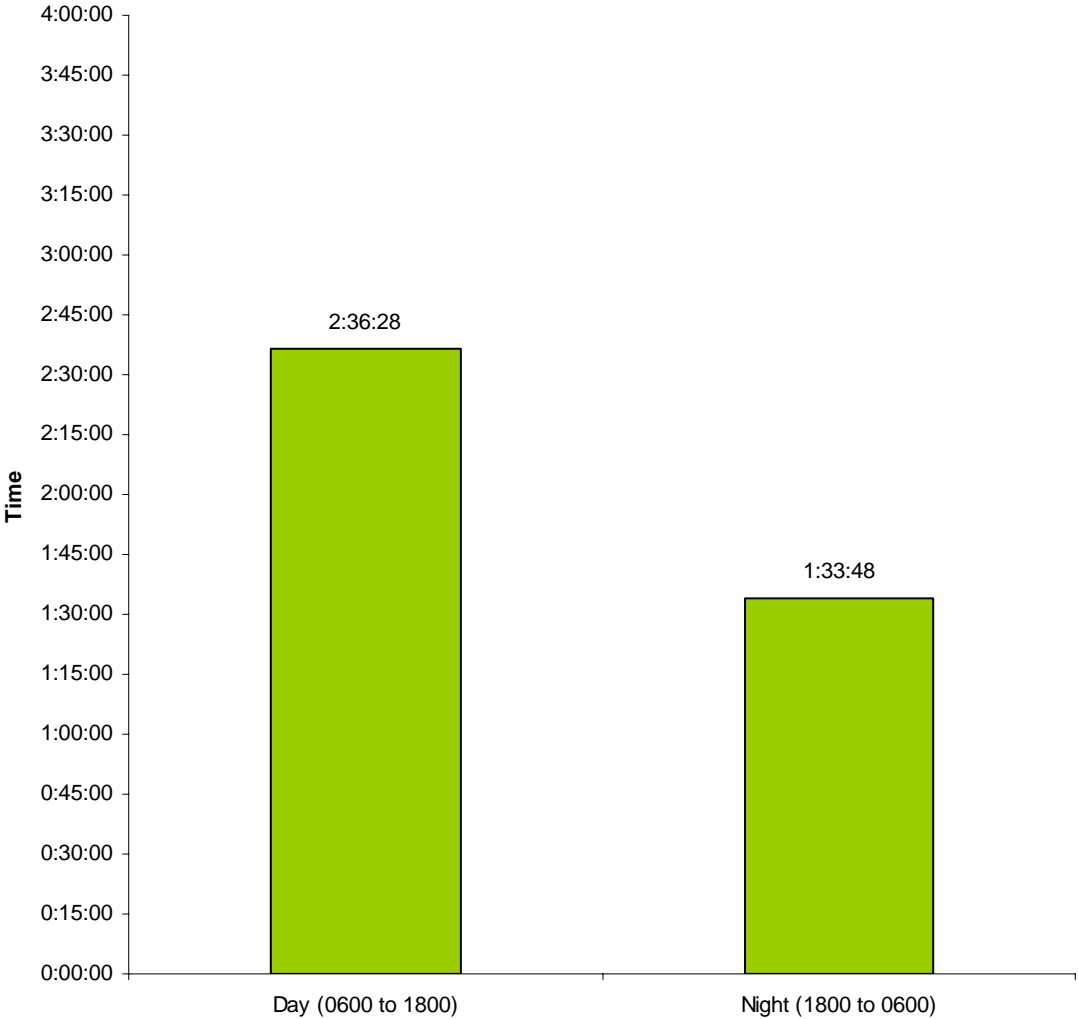


For its part, the average response time to priority 3 calls was 40.1% shorter at night compared to the rest of the day. At night, the average response time to priority 3 calls was 1 hour and 34 minutes. By comparison, the average response time to priority 3 calls was 2 hours and 37 minutes between 0600 and 1800 hours.

**Figure 7-77 Average Response Time to Priority 3 Calls by Hour of the Day  
Citywide**



**Figure 7-78 Average Response Time to Priority 3 Calls During the Day and at Night**

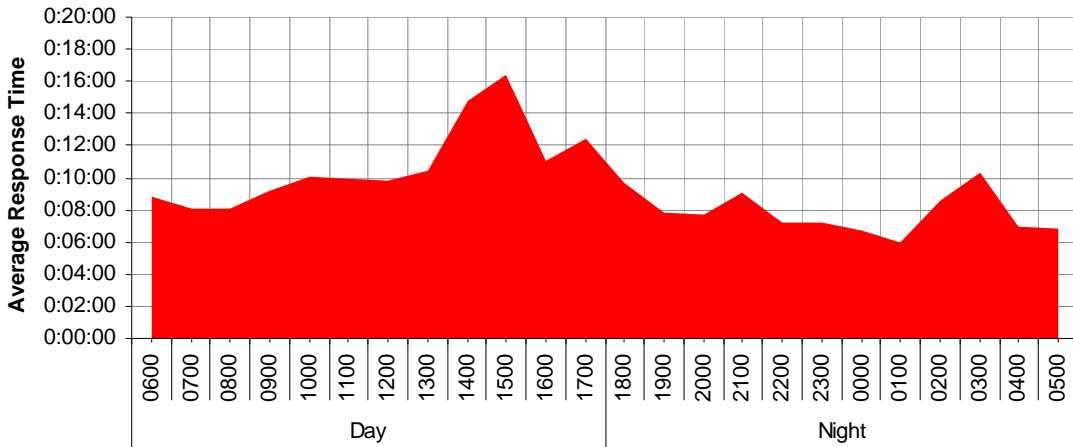


Even within each patrol district, the average response time to priority 1 calls was shorter at night on average:

- The average response time to priority 1 calls for service was 34.5% shorter between 1800 and 0600 hours in District 1. Between 1800 and 0600 hours, the average response time to priority 1 calls in District 1 was 7 minutes and 51 seconds. By comparison, the average response time to priority 1 calls in District 1 was 11 minutes and 58 seconds between 0600 and 1800 hours.

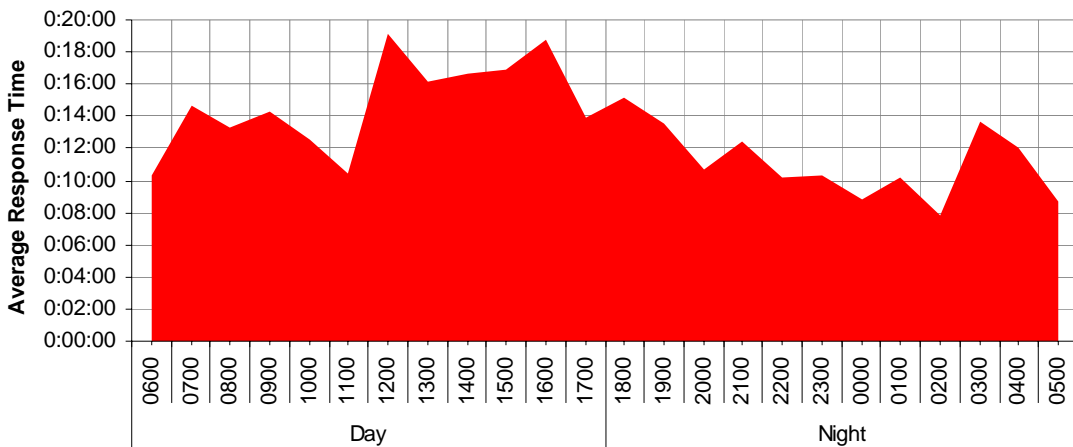


**Figure 7-79 Average Response Time to Priority 1 Calls by Hour of the Day in District 1**



- The average response time to priority 1 calls for service was 26.9% shorter between 1800 and 0600 hours in District 2. Between 1800 and 0600 hours, the average response time to priority 1 calls in District 2 was 11 minutes and 5 seconds. By comparison, the average response time to priority 1 calls in District 2 was 15 minutes and 9 seconds between 0600 and 1800 hours.

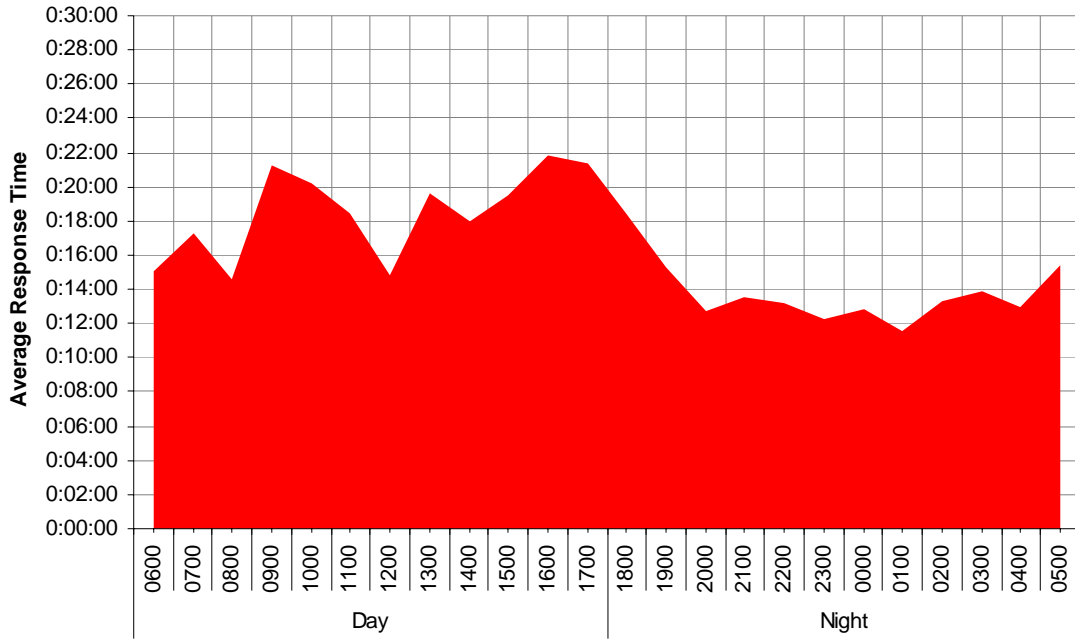
**Figure 7-80 Average Response Time to Priority 1 Calls by Hour of the Day in District 2**



- The average response time to priority 1 calls for service was 27.3% shorter between 1800 and 0600 hours in District 3. Between 1800 and 0600 hours, the

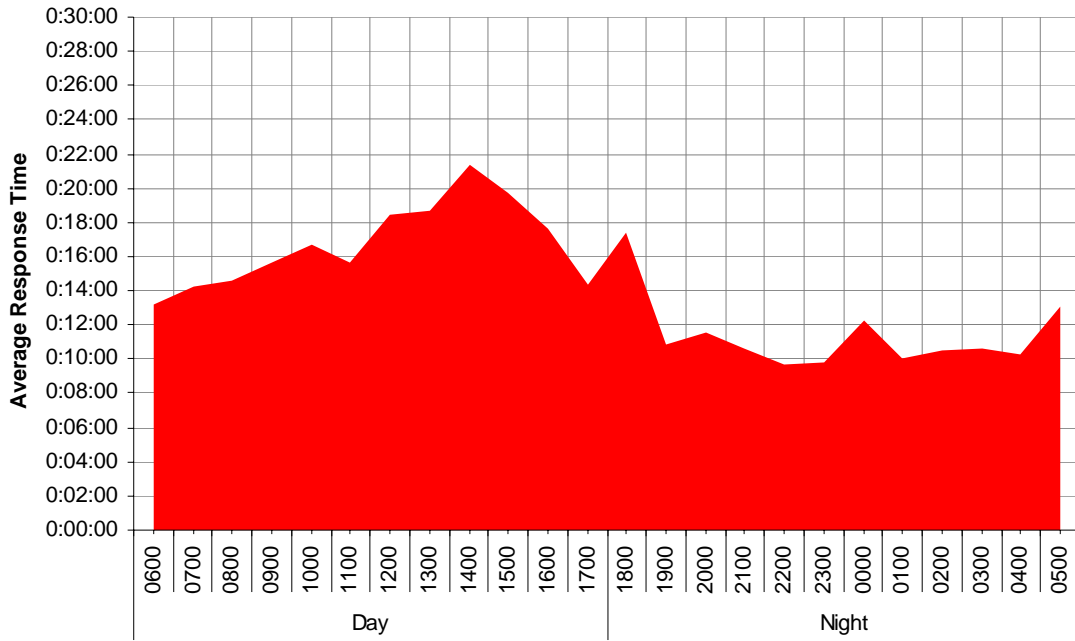
average response time to priority 1 calls in District 3 was 13 minutes and 44 seconds. By comparison, the average response time to priority 1 calls in District 3 was 18 minutes and 53 seconds between 0600 and 1800 hours.

**Figure 7-81 Average Response Time to Priority 1 Calls by Hour of the Day in District 3**

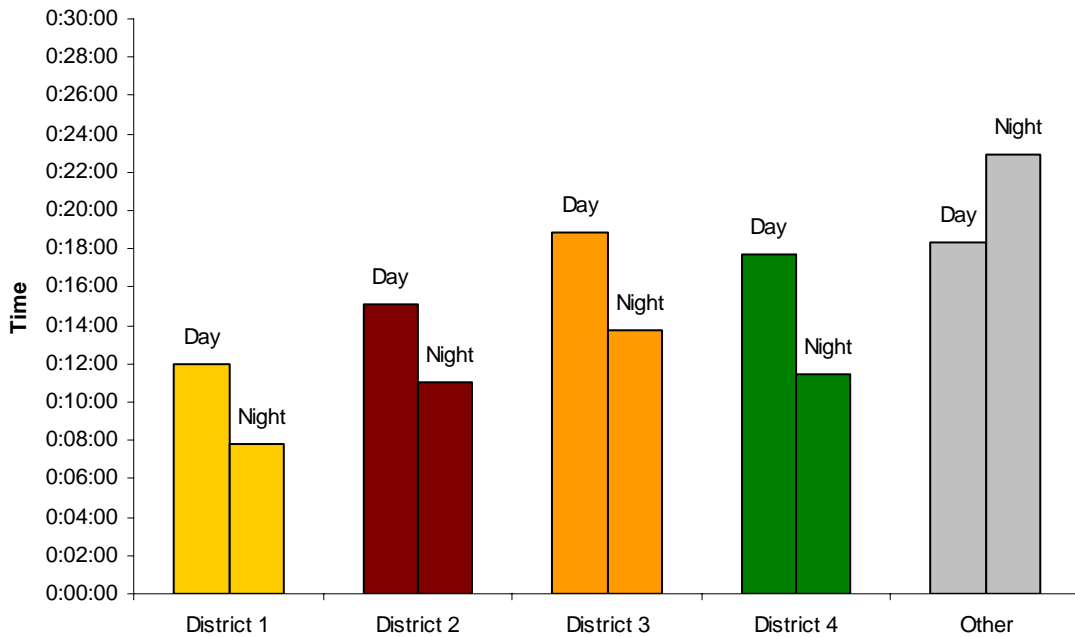


- The average response time to priority 1 calls for service was 35.1% shorter between 1800 and 0600 hours in District 4. Between 1800 and 0600 hours, the average response time to priority 1 calls in District 4 was 11 minutes and 28 seconds. By comparison, the average response time to priority 1 calls in District 4 was 17 minutes and 39 seconds between 0600 and 1800 hours.

**Figure 7-82 Average Response Time to Priority 1 Calls by Hour of the Day in District 4**



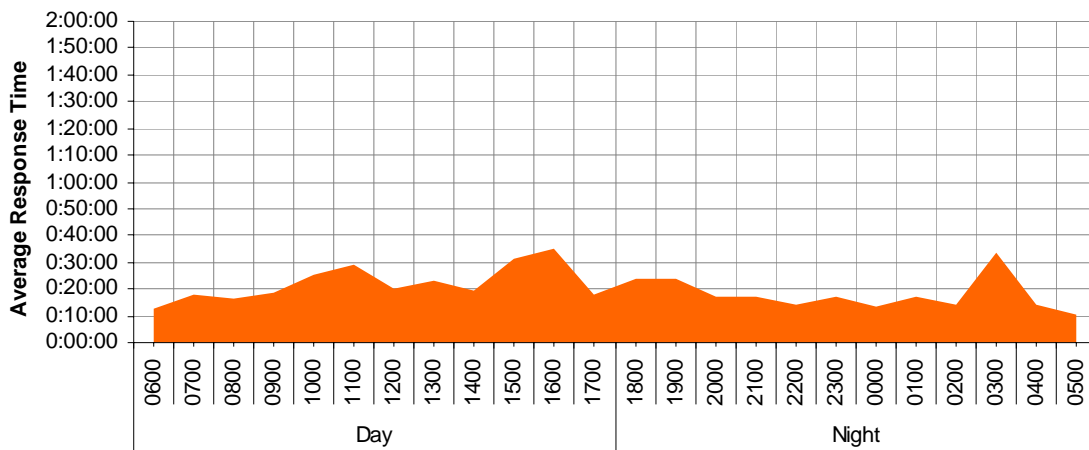
**Figure 7-83 Average Response Time to Priority 1 Calls by Time of Day and by District**



Similarly, for priority 2 calls:

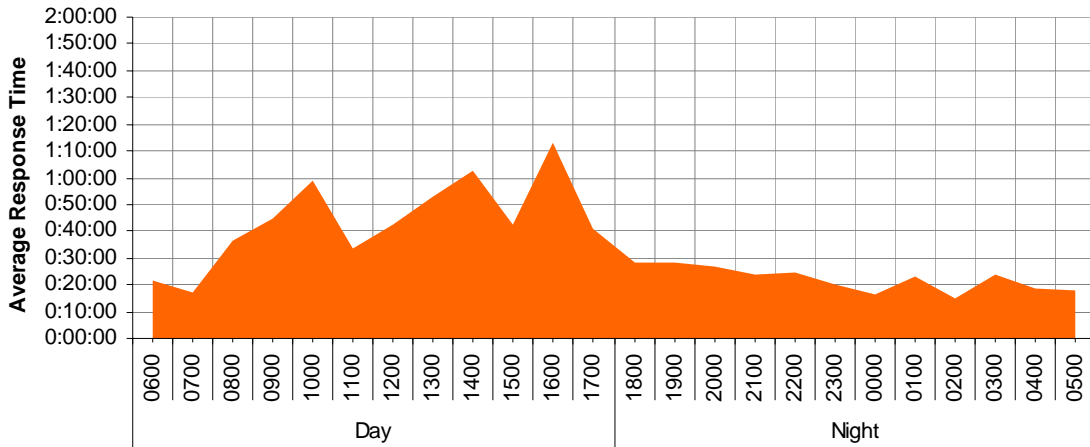
- The average response time to priority 2 calls for service was 21.8% shorter between 1800 and 0600 hours in District 1. Between 1800 and 0600 hours, the average response time to priority 2 calls in District 1 was 18 minutes and 11 seconds. By comparison, the average response time to priority 2 calls in District 1 was 23 minutes and 15 seconds between 0600 and 1800 hours.

**Figure 7-84 Average Response Time to Priority 2 Calls by Hour of the Day in District 1**



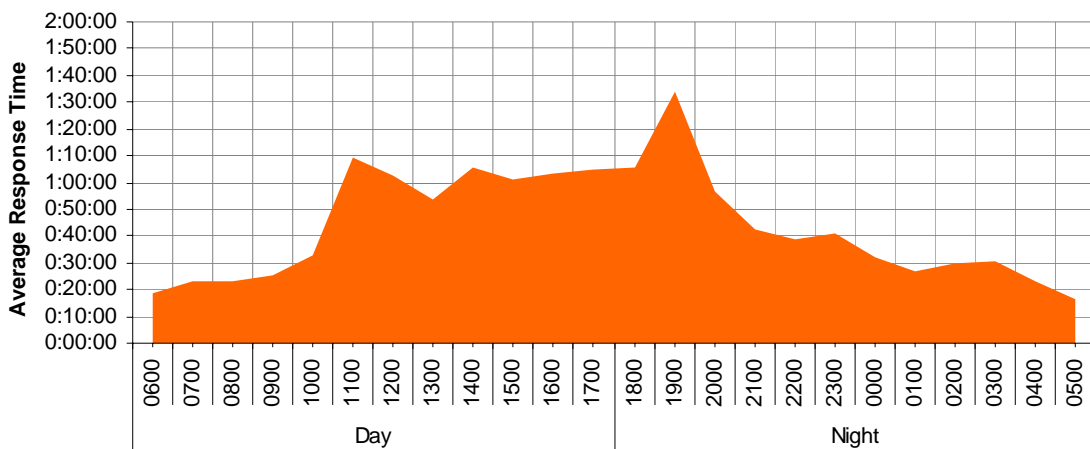
- The average response time to priority 2 calls for service was 66.9% shorter between 1800 and 0600 hours in District 2. Between 1800 and 0600 hours, the average response time to priority 2 calls in District 2 was 22 minutes and 39 seconds. By comparison, the average response time to priority 2 calls in District 2 was 1 hour and 8 minutes between 0600 and 1800 hours.

**Figure 7-85 Average Response Time to Priority 2 Calls by Hour of the Day in District 2**



- The average response time to priority 2 calls for service was 15.8% shorter between 1800 and 0600 hours in District 3. Between 1800 and 0600 hours, the average response time to priority 2 calls in District 3 was 43 minutes and 44 seconds. By comparison, the average response time to priority 2 calls in District 3 was 51 minutes and 57 seconds between 0600 and 1800 hours.

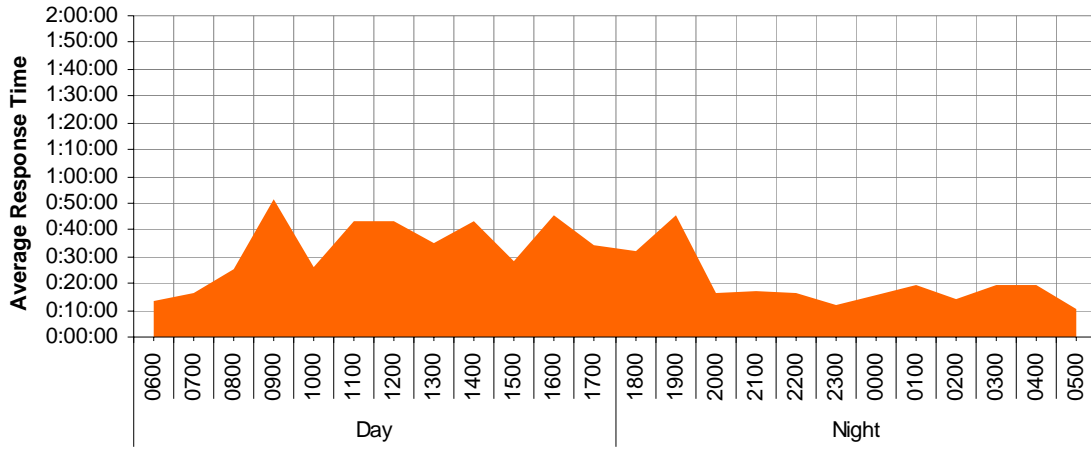
**Figure 7-86 Average Response Time to Priority 2 Calls by Hour of the Day in District 3**



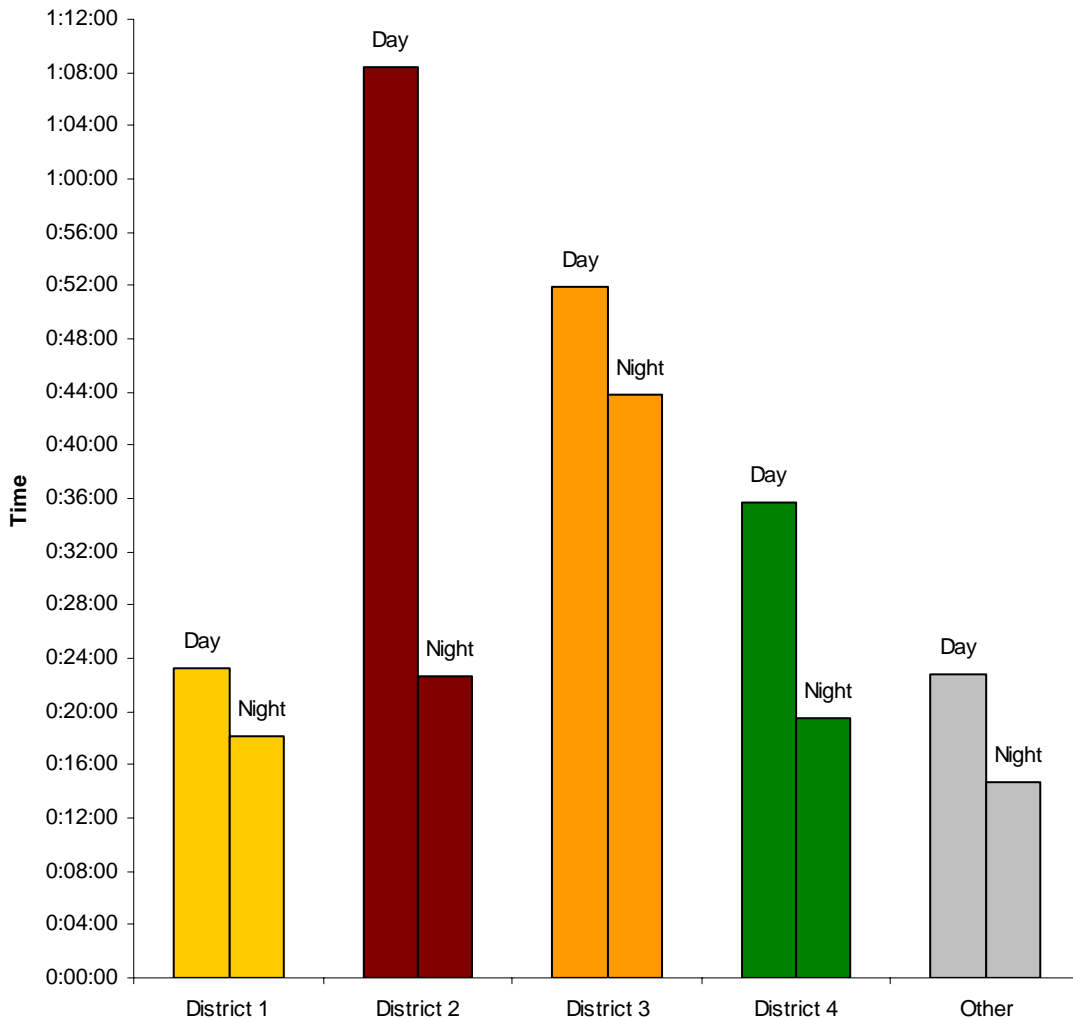
- The average response time to priority 2 calls for service was 45.2% shorter between 1800 and 0600 hours in District 4. Between 1800 and 0600 hours, the

average response time to priority 2 calls in District 4 was 19 minutes and 33 seconds. By comparison, the average response time to priority 2 calls in District 4 was 35 minutes and 41 seconds between 0600 and 1800 hours.

**Figure 7-87 Average Response Time to Priority 2 Calls by Hour of the Day in District 4**



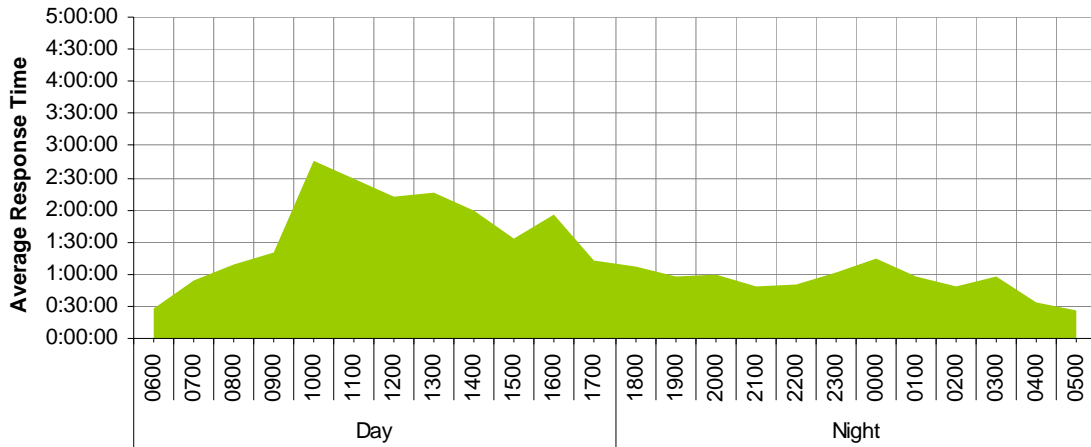
**Figure 7-88 Average Response Time to Priority 2 Calls by Time of Day and by District**



Finally, for priority 3 calls:

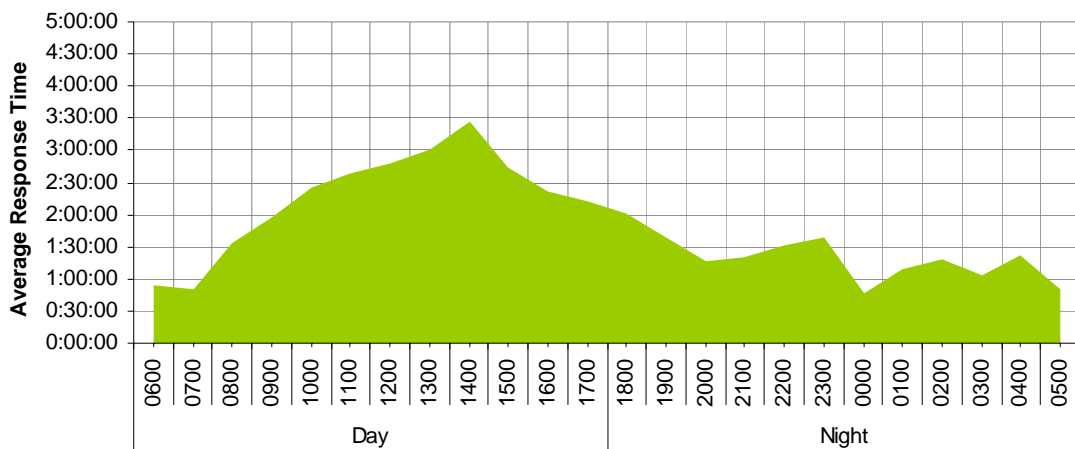
- The average response time to priority 3 calls for service was 59.9% shorter between 1800 and 0600 hours in District 1. Between 1800 and 0600 hours, the average response time to priority 3 calls in District 1 was 55 minutes and 23 seconds. By comparison, the average response time to priority 3 calls in District 1 was 2 hours and 18 minutes between 0600 and 1800 hours.

**Figure 7-89 Average Response Time to Priority 3 Calls by Hour of the Day in District 1**



- The average response time to priority 3 calls for service was 28.0% shorter between 1800 and 0600 hours in District 2. Between 1800 and 0600 hours, the average response time to priority 3 calls in District 2 was 1 hour and 43 minutes. By comparison, the average response time to priority 3 calls in District 2 was 2 hours and 22 minutes between 0600 and 1800 hours.

**Figure 7-90 Average Response Time to Priority 3 Calls by Hour of the Day in District 2**

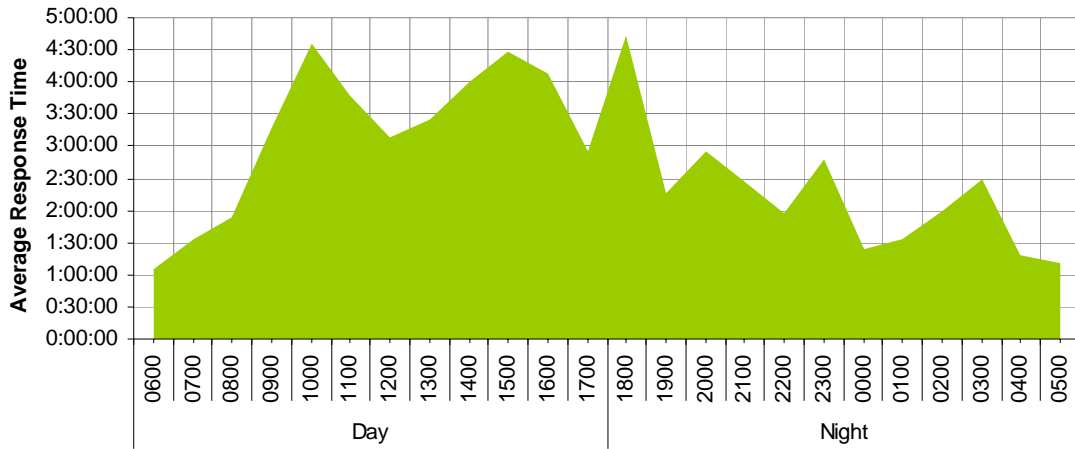


- The average response time to priority 3 calls for service was 18.3% shorter between 1800 and 0600 hours in District 3. Between 1800 and 0600 hours, the



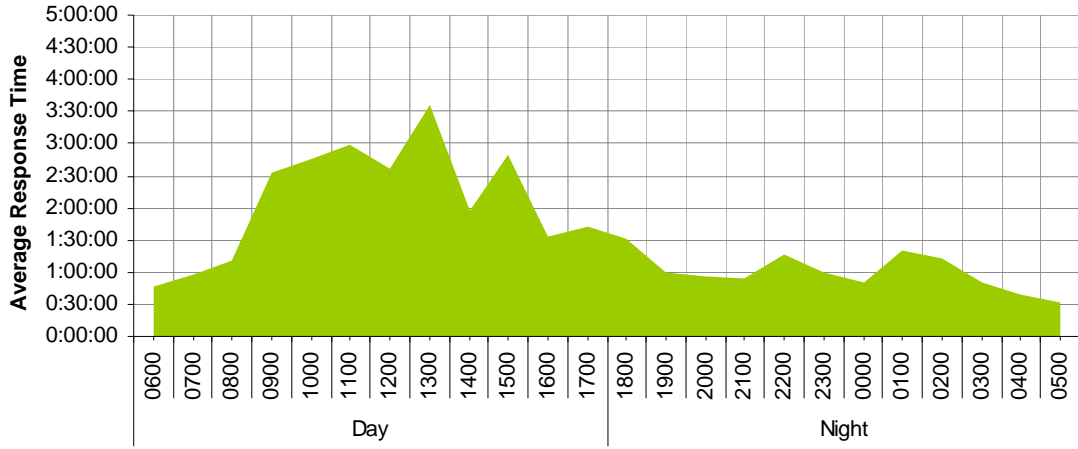
average response time to priority 3 calls in District 3 was 2 hours and 47 minutes. By comparison, the average response time to priority 3 calls in District 3 was 3 hours and 24 minutes between 0600 and 1800 hours.

**Figure 7-91 Average Response Time to Priority 3 Calls by Hour of the Day in District 3**

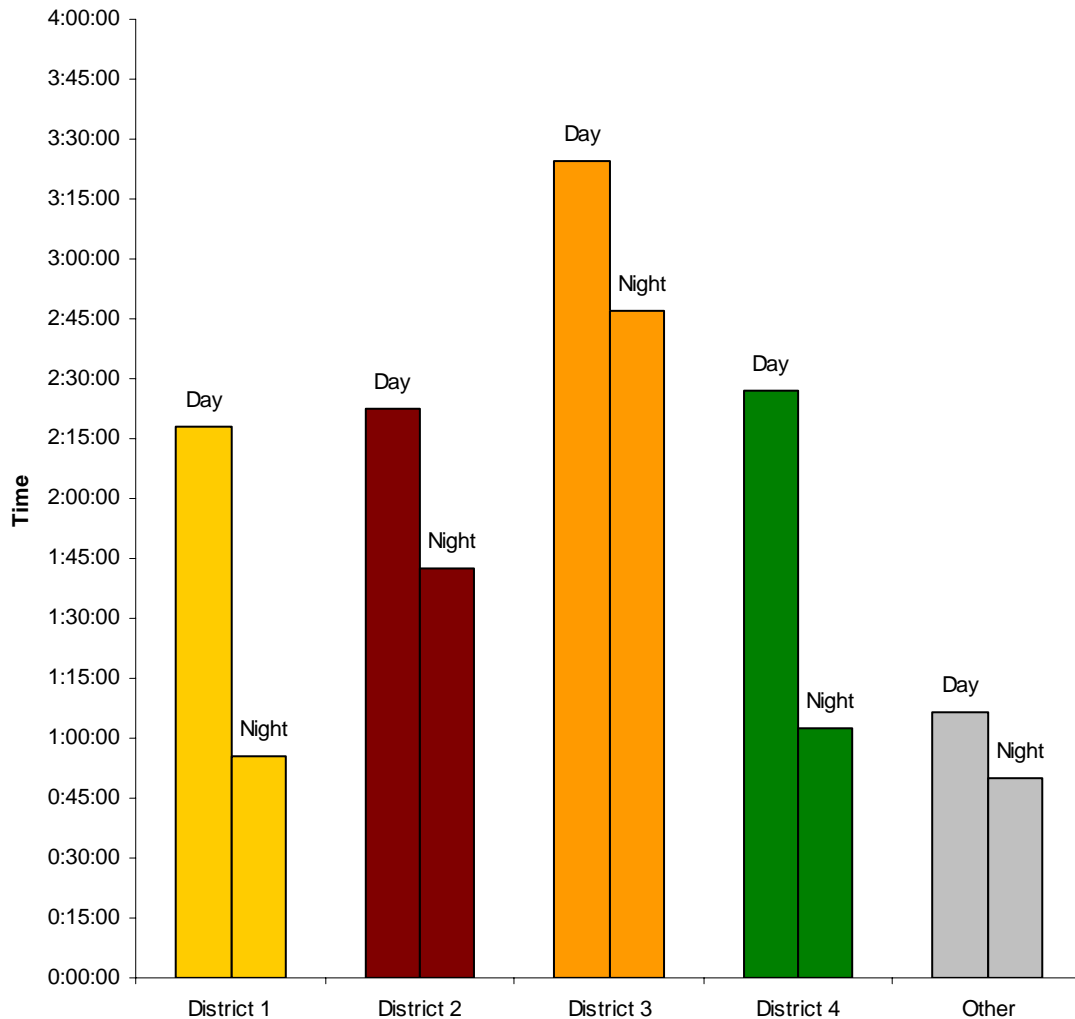


- The average response time to priority 3 calls for service was 57.5% shorter between 1800 and 0600 hours in District 4. Between 1800 and 0600 hours, the average response time to priority 3 calls in District 4 was 1 hour and 3 minutes. By comparison, the average response time to priority 3 calls in District 4 was 2 hours and 27 minutes between 0600 and 1800 hours.

**Figure 7-92 Average Response Time to Priority 3 Calls by Hour of the Day in District 4**



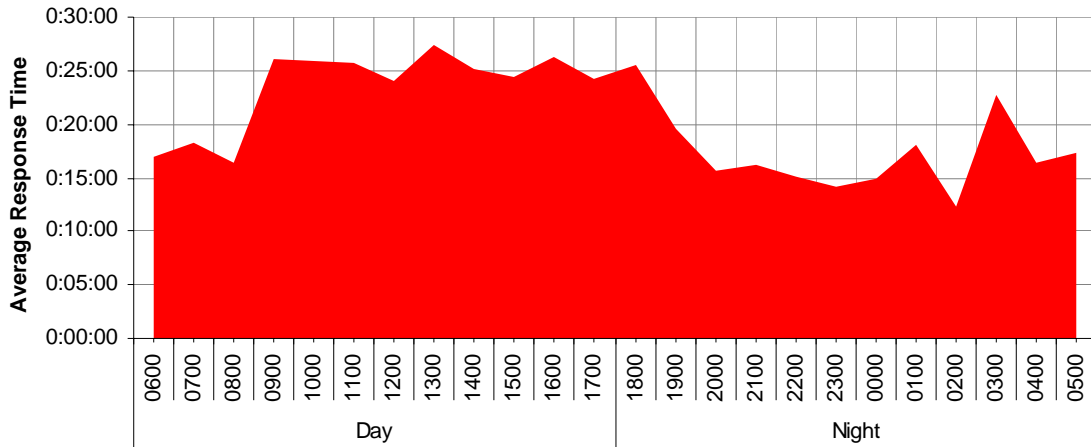
**Figure 7-93 Average Response Time to Priority 3 Calls by Time of Day and by District**



Moreover, the average response time was shorter at night for most individual call types too. For instance:

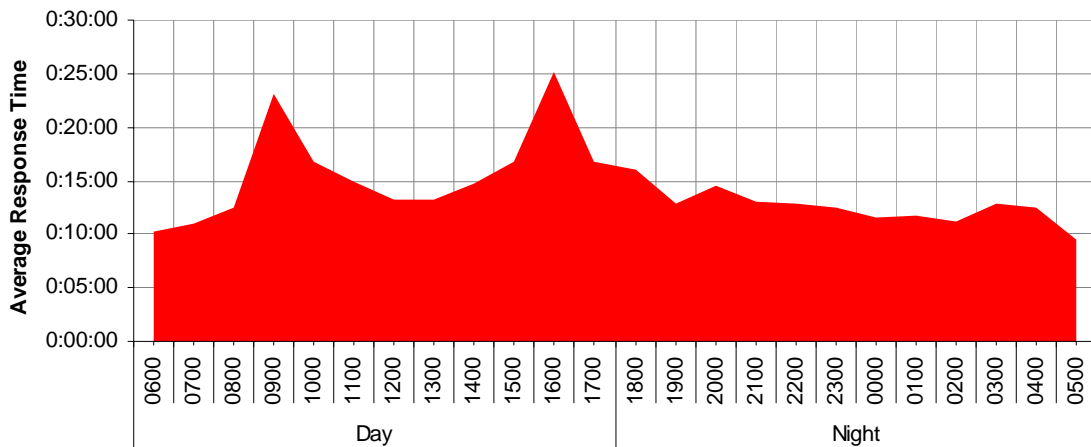
- The average response time to priority 1 motor vehicle incidents with injuries was 23.5% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 1 motor vehicle incidents with injuries was 18 minutes and 10 seconds. By comparison, the average response time to priority 1 motor vehicle incidents with injuries was 23 minutes and 46 seconds between 0600 and 1800 hours.

**Figure 7-94 Average Response Time to Priority 1 Motor Vehicle Incidents with Injuries by Hour of the Day Citywide**



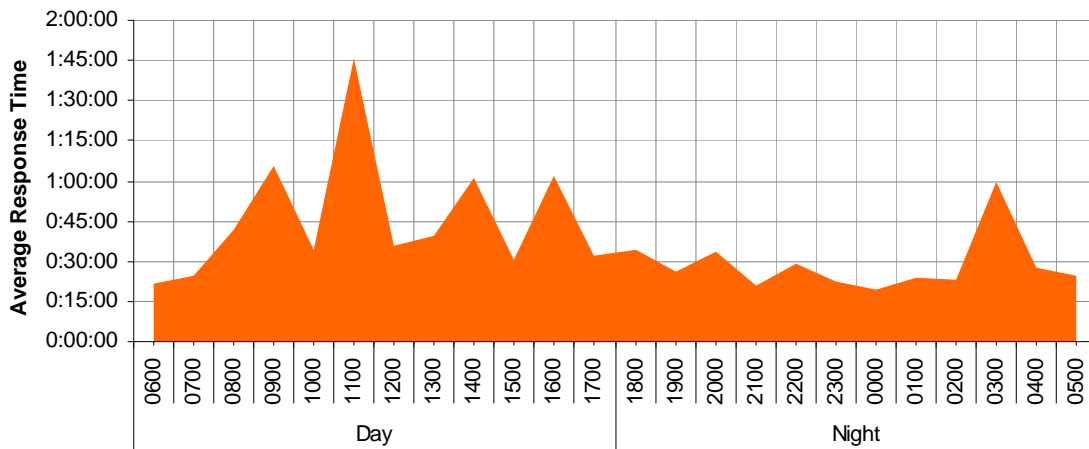
- The average response time to priority 1 domestic situations in progress was 22.6% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 1 domestic situations in progress was 12 minutes and 44 seconds. By comparison, the average response time to priority 1 domestic situations in progress was 16 minutes and 27 seconds between 0600 and 1800 hours.

**Figure 7-95 Average Response Time to Priority 1 Domestic Situations in Progress by Hour of the Day Citywide**

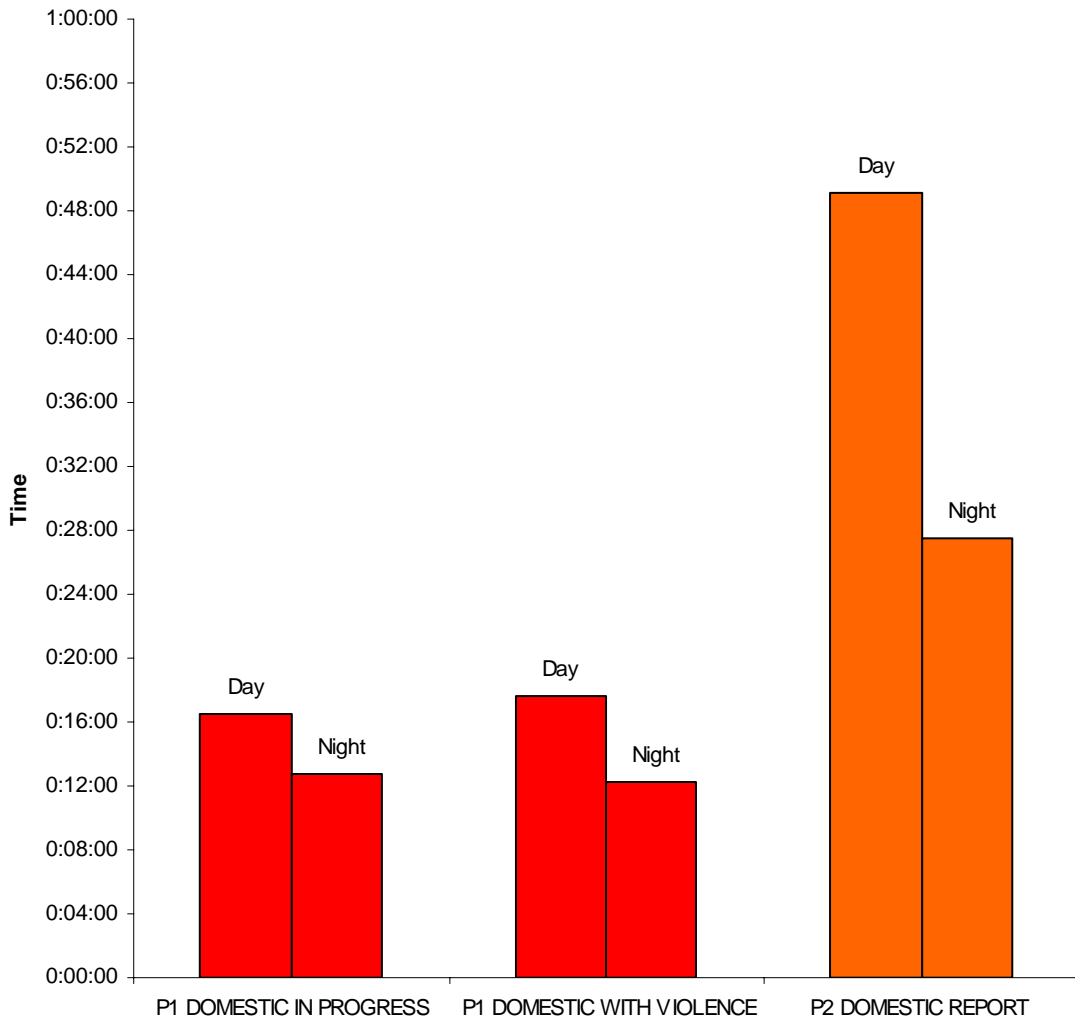


- The average response time to priority 1 domestic violence situations was 30.4% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 1 domestic violence situations was 12 minutes and 15 seconds. By comparison, the average response time to priority 1 domestic violence situations was 17 minutes and 36 seconds between 0600 and 1800 hours.
- The average response time to priority 2 domestic situations (not in progress) was 44.1% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 2 domestic situations was 27 minutes and 31 seconds. By comparison, the average response time to priority 2 domestic situations was 49 minutes and 11 seconds between 0600 and 1800 hours.

**Figure 7-96 Average Response Time to Priority 2 Domestic Situations by Hour of the Day Citywide**

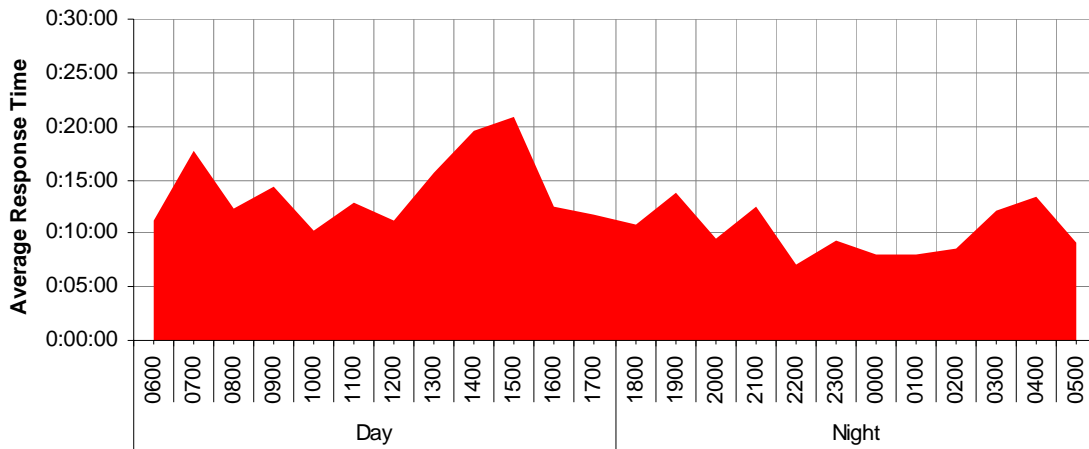


**Figure 7-97 Average Response Time to Domestic Situations by Time of Day**



- The average response time to priority 1 assaults in progress was 32.8% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 1 assaults in progress was 9 minutes and 46 seconds. By comparison, the average response time to priority 1 assaults in progress was 14 minutes and 33 seconds between 0600 and 1800 hours.

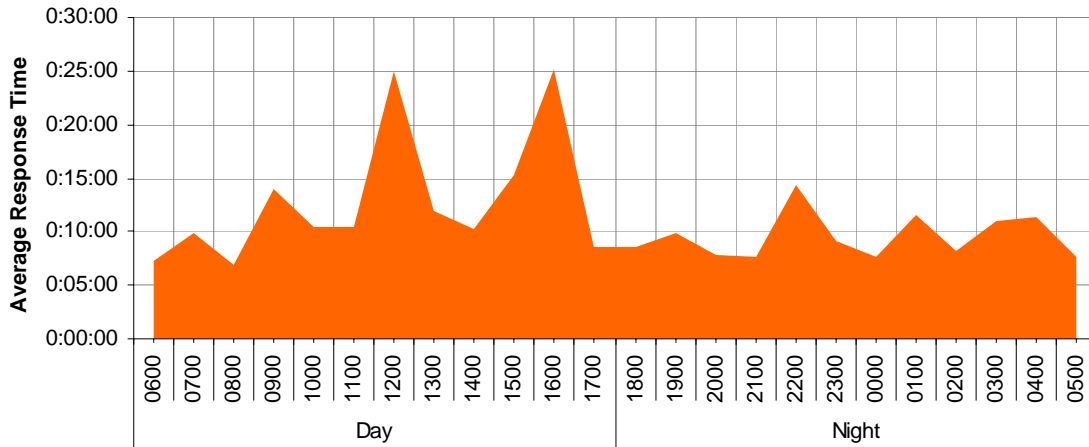
**Figure 7-98 Average Response Time to Priority 1 Assaults in Progress by Hour of the Day Citywide**



- The average response time to priority 1 robberies in progress was 8.2% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 1 robberies in progress was 7 minutes and 58 seconds. By comparison, the average response time to priority 1 robberies in progress was 8 minutes and 41 seconds between 0600 and 1800 hours.
- The average response time to priority 1 weapons in progress was 31.2% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 1 weapons in progress was 6 minutes and 1 second. By comparison, the average response time to priority 1 weapons in progress was 8 minutes and 45 seconds between 0600 and 1800 hours.
- The average response time to priority 2 shots heard calls was 23.6% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 2 shots heard calls was 6 minutes and 16 seconds. By comparison, the average response time to priority 2 shots heard calls was 8 minutes and 12 seconds between 0600 and 1800 hours.
- The average response time to priority 2 break and enters in progress was 29.6% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 2 break and enters in progress was 9 minutes and 42 seconds. By comparison, the average response time to priority 2 break

and enters in progress was 13 minutes and 46 seconds between 0600 and 1800 hours.

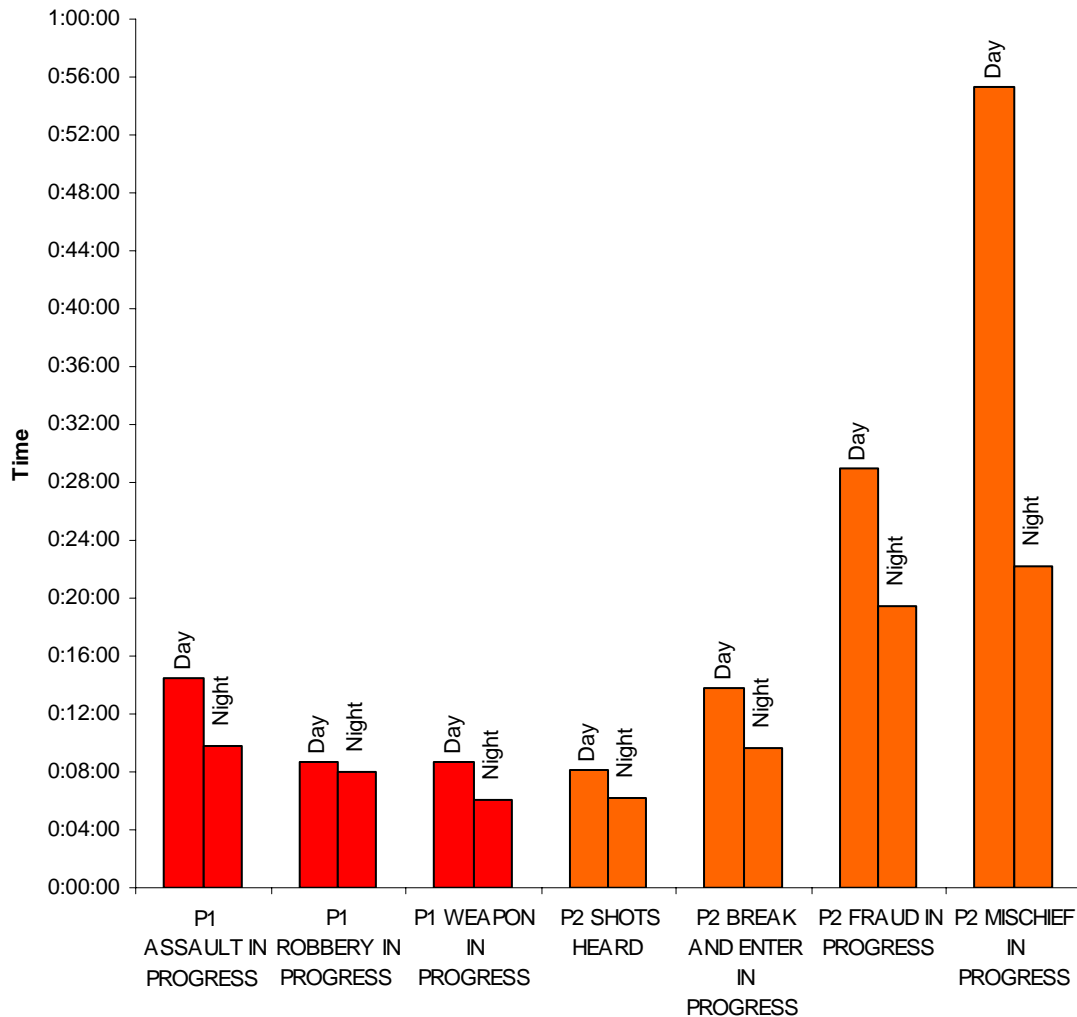
**Figure 7-99 Average Response Time to Priority 2 Break and Enters in Progress by Hour of the Day Citywide**



- The average response time to priority 2 mischiefs in progress was 59.9% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 2 mischiefs in progress was 22 minutes and 13 seconds. By comparison, the average response time to priority 2 mischiefs in progress was 55 minutes and 22 seconds between 0600 and 1800 hours.
- The average response time to priority 2 frauds in progress was 32.8% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 2 frauds in progress was 19 minutes and 26 seconds. By comparison, the average response time to priority 2 frauds in progress was 28 minutes and 56 seconds between 0600 and 1800 hours.



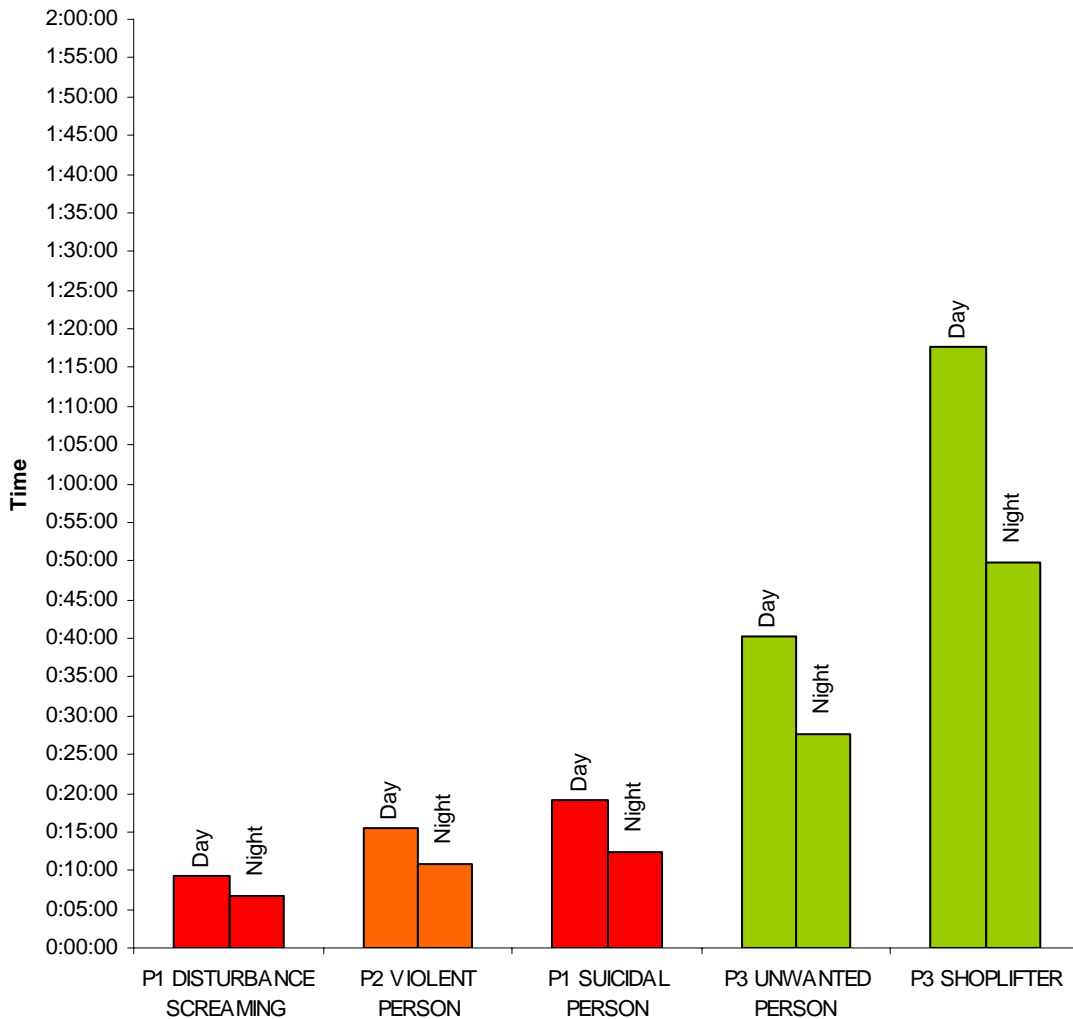
**Figure 7-100 Average Response Time to Incidents in Progress by Time of Day**



- The average response time to priority 1 persons screaming was 27.4% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 1 persons screaming was 6 minutes and 40 seconds. By comparison, the average response time to priority 1 persons screaming was 9 minutes and 11 seconds between 0600 and 1800 hours.
- The average response time to priority 1 suicidal persons was 34.2% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 1 suicidal persons was 12 minutes and 30 seconds. By comparison, the average response time to priority 1 suicidal persons was 19 minutes between 0600 and 1800 hours.

- The average response time to priority 2 violent persons was 30.3% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 2 violent persons was 10 minutes and 49 seconds. By comparison, the average response time to priority 2 violent persons was 15 minutes and 32 seconds between 0600 and 1800 hours.
- The average response time to priority 3 unwanted persons was 31.5% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 3 unwanted persons was 27 minutes and 33 seconds. By comparison, the average response time to priority 3 unwanted persons was 40 minutes and 12 seconds between 0600 and 1800 hours.
- The average response time to priority 3 shoplifters was 35.8% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 3 shoplifters was 49 minutes and 49 seconds. By comparison, the average response time to priority 3 shoplifters was 1 hour and 18 minutes between 0600 and 1800 hours.

**Figure 7-101 Average Response Time to Persons Screaming, Violent Persons, Suicidal Persons, Unwanted Persons and Shoplifters by Time of Day**

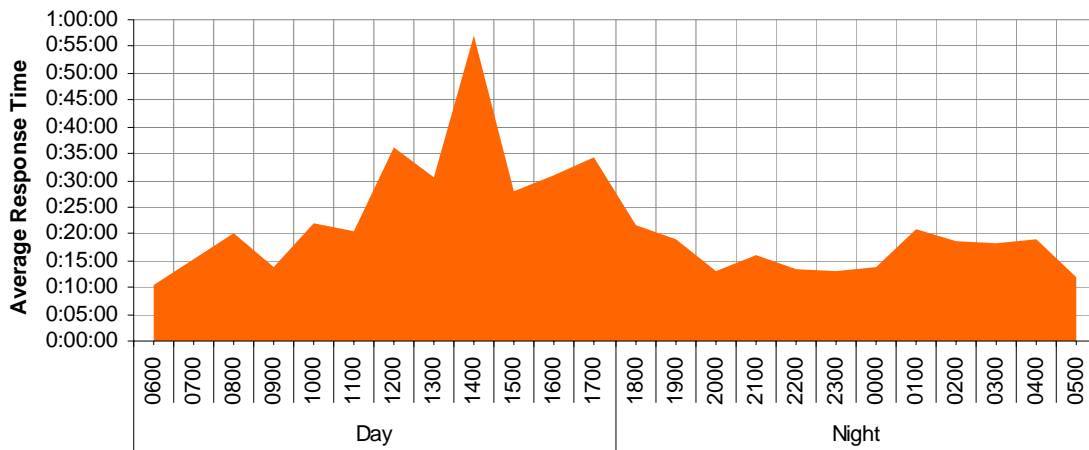


- The average response time to priority 1 suspicious circumstances was 24.1% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 1 suspicious circumstances was 9 minutes and 7 seconds. By comparison, the average response time to priority 1 suspicious circumstances was 12 minutes between 0600 and 1800 hours.
- The average response time to priority 1 suspicious persons was 19.1% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 1 suspicious persons was 8 minutes and 46 seconds.

By comparison, the average response time to priority 1 suspicious persons was 10 minutes and 50 seconds between 0600 and 1800 hours.

- The average response time to priority 2 suspicious circumstances was 41.6% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 2 suspicious circumstances was 16 minutes and 42 seconds. By comparison, the average response time to priority 2 suspicious circumstances was 28 minutes and 34 seconds between 0600 and 1800 hours.

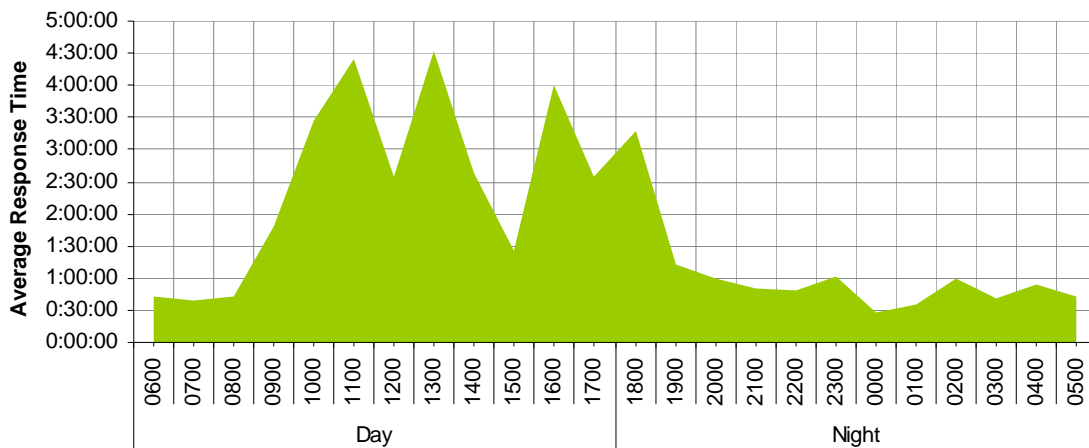
**Figure 7-102 Average Response Time to Priority 2 Suspicious Circumstances by Hour of the Day Citywide**



- The average response time to priority 2 suspicious persons was 42.0% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 2 suspicious persons was 16 minutes and 37 seconds. By comparison, the average response time to priority 2 suspicious persons was 28 minutes and 39 seconds between 0600 and 1800 hours.
- The average response time to priority 3 suspicious persons was 37.8% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 3 suspicious persons was 21 minutes and 47 seconds. By comparison, the average response time to priority 3 suspicious persons was 34 minutes and 59 seconds between 0600 and 1800 hours.

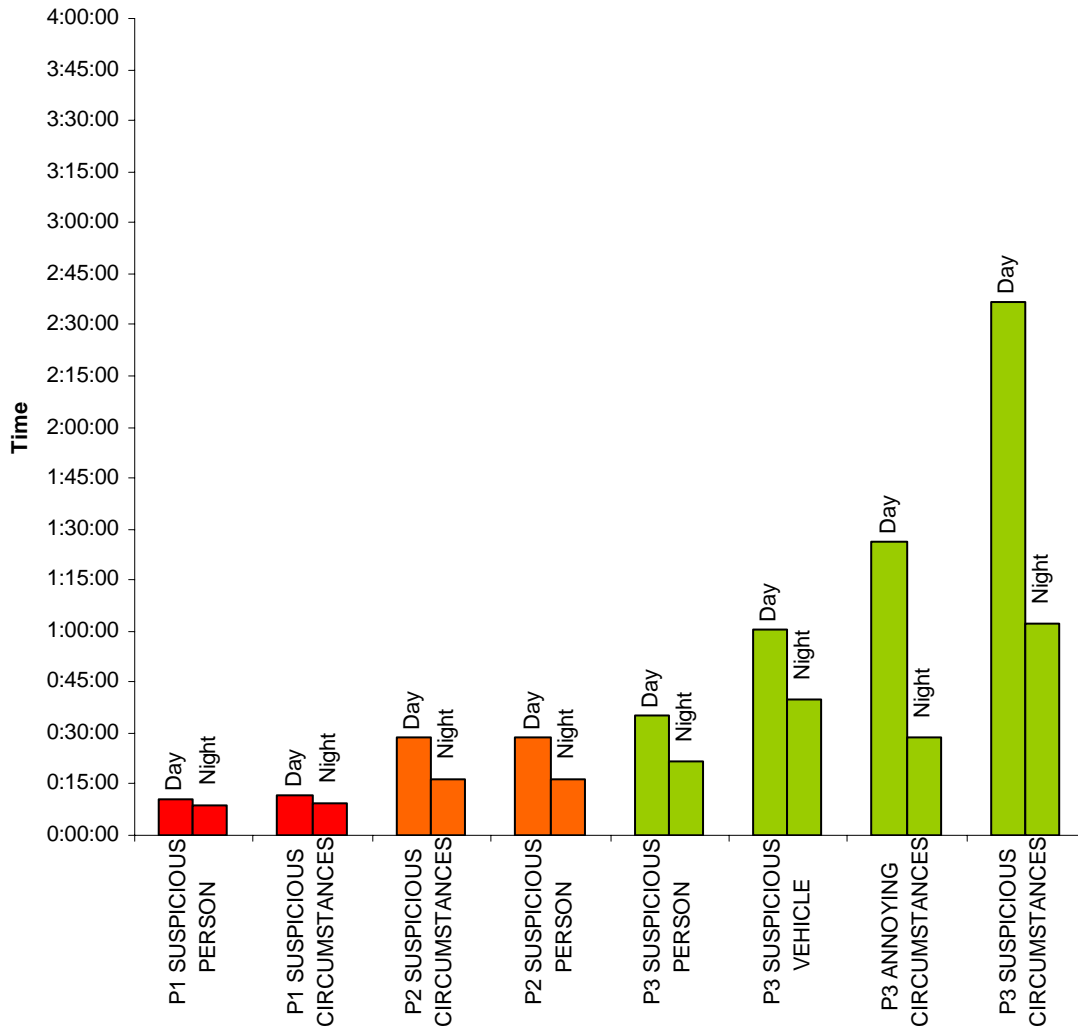
- The average response time to priority 3 suspicious circumstances was 60.3% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 3 suspicious circumstances was 1 hour and 2 minutes. By comparison, the average response time to priority 3 suspicious circumstances was 2 hours and 37 minutes between 0600 and 1800 hours.

**Figure 7-103 Average Response Time to Priority 3 Suspicious Circumstances by Hour of the Day Citywide**



- The average response time to priority 3 suspicious vehicles was 34.2% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 3 suspicious vehicles was 39 minutes and 50 seconds. By comparison, the average response time to priority 3 suspicious vehicles was 1 hour between 0600 and 1800 hours.
- The average response time to priority 3 annoying circumstances was 66.7% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 3 annoying circumstances was 28 minutes and 43 seconds. By comparison, the average response time to priority 3 annoying circumstances was 1 hour and 26 minutes between 0600 and 1800 hours.

**Figure 7-104 Average Response Time to Suspicious Persons, Suspicious Vehicles, Suspicious Circumstances and Annoying Circumstances by Time of Day**

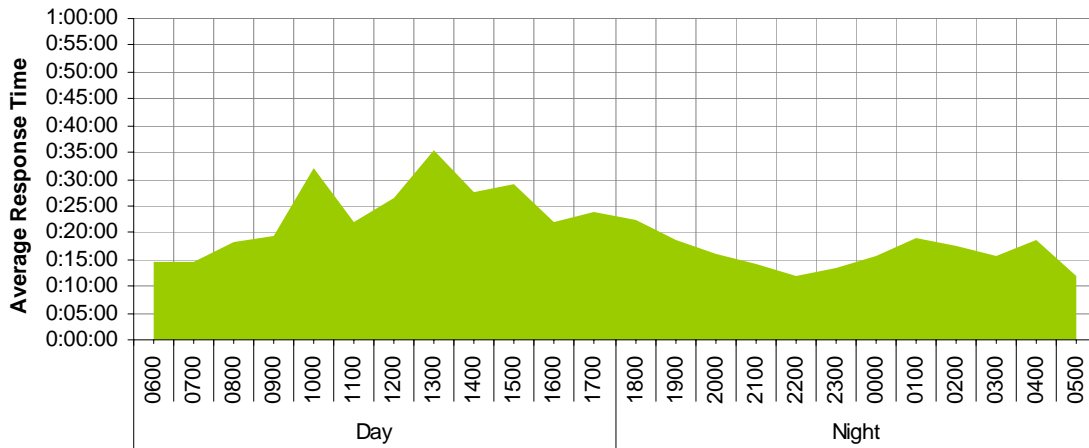


- The average response time to priority 1 hold-up alarms was 18.9% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 1 hold-up alarms was 4 minutes and 57 seconds. By comparison, the average response time to priority 1 hold-up alarms was 6 minutes and 6 seconds between 0600 and 1800 hours.
- The average response time to priority 2 silent or panic alarms was 33.7% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 2 silent or panic alarms was 7 minutes and 54 seconds.

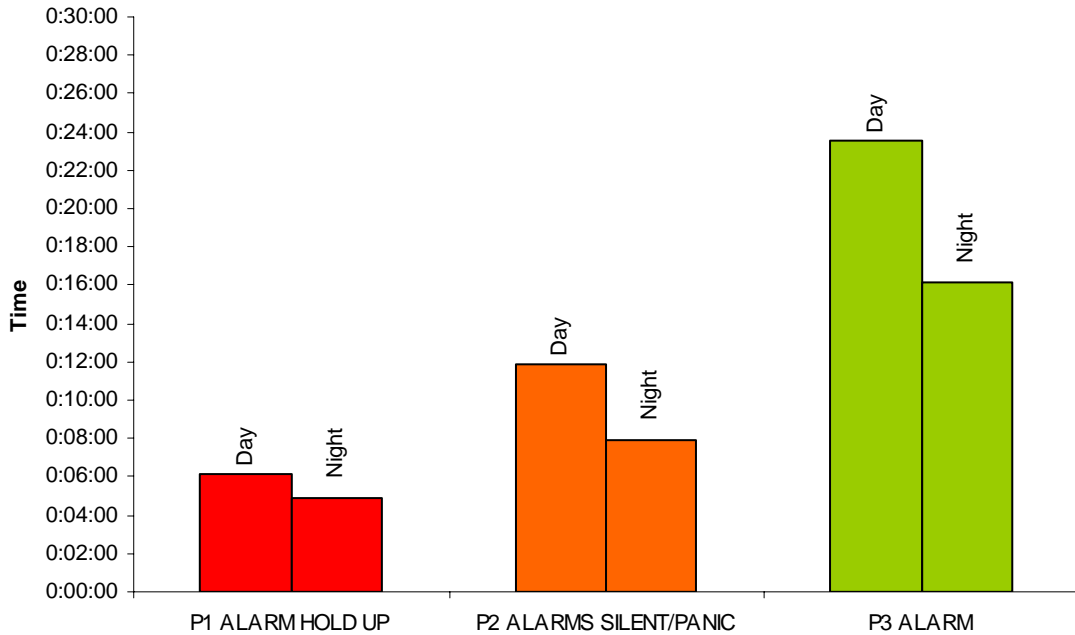
By comparison, the average response time to priority 2 silent or panic alarms was 11 minutes and 54 seconds between 0600 and 1800 hours.

- The average response time to priority 3 alarms was 31.5% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 3 alarms was 16 minutes and 7 seconds. By comparison, the average response time to priority 3 alarms was 23 minutes and 31 seconds between 0600 and 1800 hours.

**Figure 7-105 Average Response Time to Priority 3 Alarms by Hour of the Day  
Citywide**

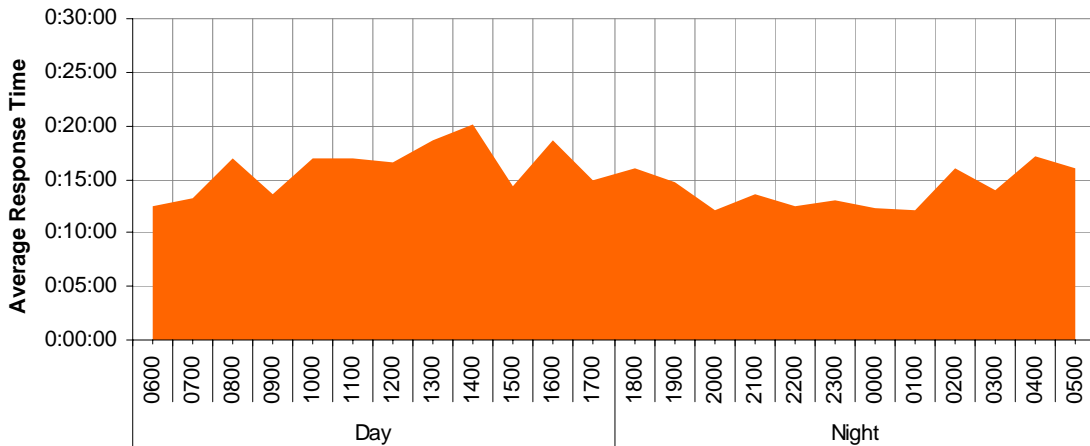


**Figure 7-106 Average Response Time to Alarms by Time of Day**



- The average response time to priority 2 abandoned 9-1-1 calls was 14.8% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 2 abandoned 9-1-1 calls was 13 minutes and 55 seconds. By comparison, the average response time to priority 2 abandoned 9-1-1 calls was 16 minutes and 20 seconds between 0600 and 1800 hours.

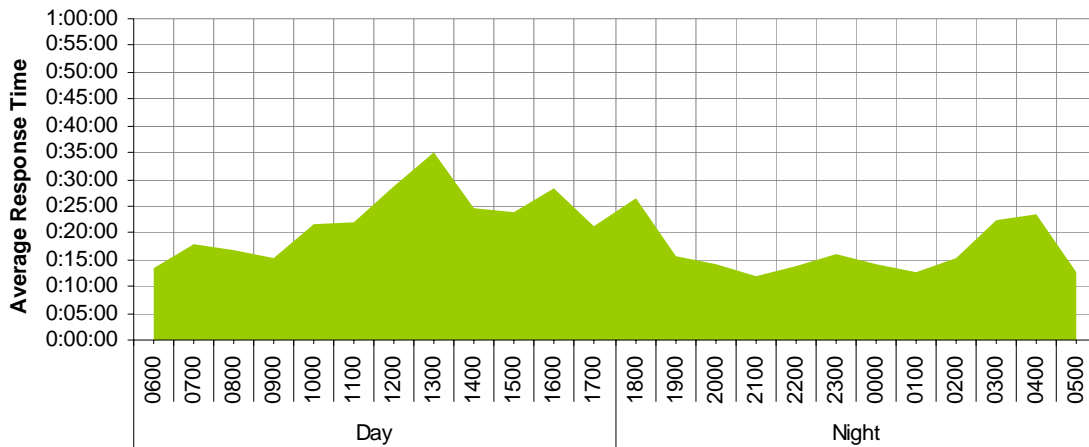
**Figure 7-107 Average Response Time to Priority 2 Abandoned 9-1-1 Calls by Hour of the Day Citywide**



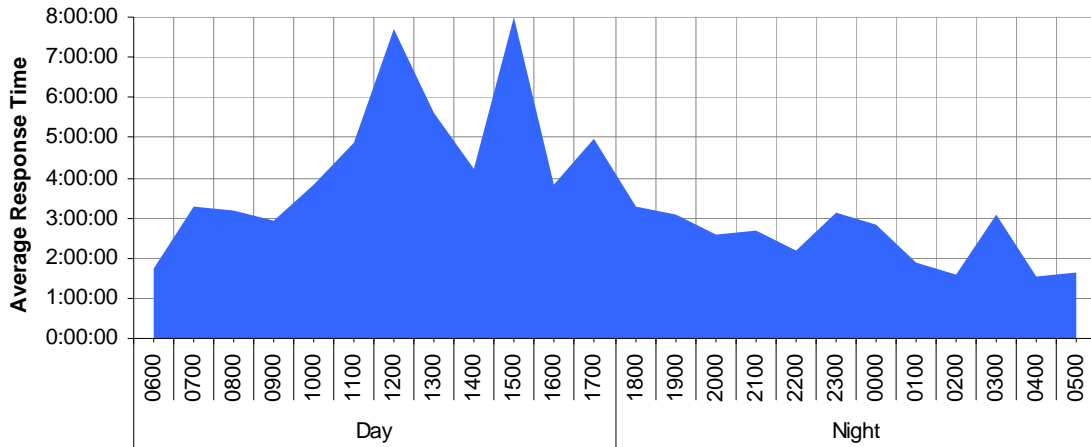


- The average response time to priority 3 requests for assistance from the general public was 35.9% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 3 requests for assistance from the general public was 1 hour and 42 minutes. By comparison, the average response time to priority 3 requests for assistance from the general public was 2 hours and 39 minutes between 0600 and 1800 hours.
- The average response time to priority 3 requests for assistance from the provincial ambulance service was 51.5% shorter between 1800 and 0600 hours. Between 1800 and 0600 hours, the average response time to priority 3 requests for assistance from the provincial ambulance service was 15 minutes and 58 seconds. By comparison, the average response time to priority 3 requests for assistance from the provincial ambulance service was 32 minutes and 55 seconds between 0600 and 1800 hours.

**Figure 7-108 Average Response Time to Priority 3 Requests for Assistance from the Provincial Ambulance Service by Hour of the Day Citywide**

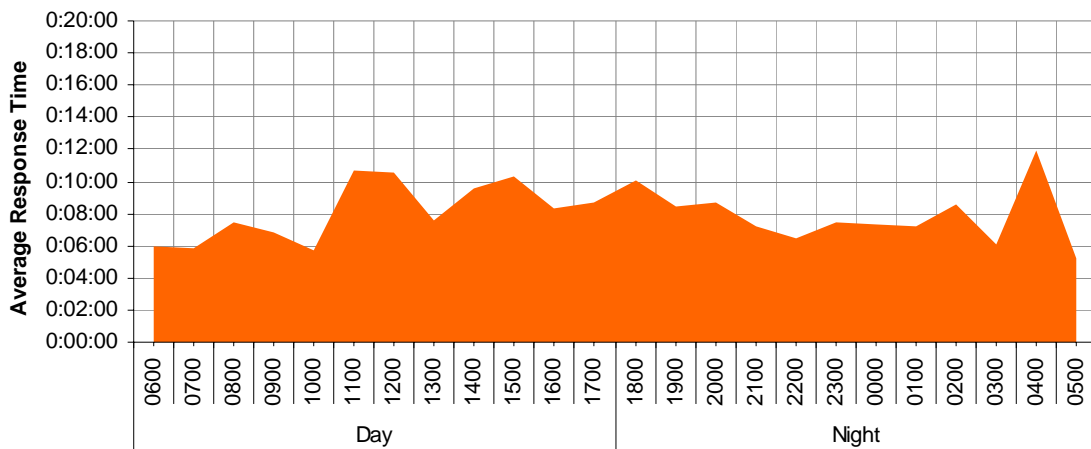


**Figure 7-109 Average Response Time to Priority 4 Break and Enters by Hour of the Day Citywide**

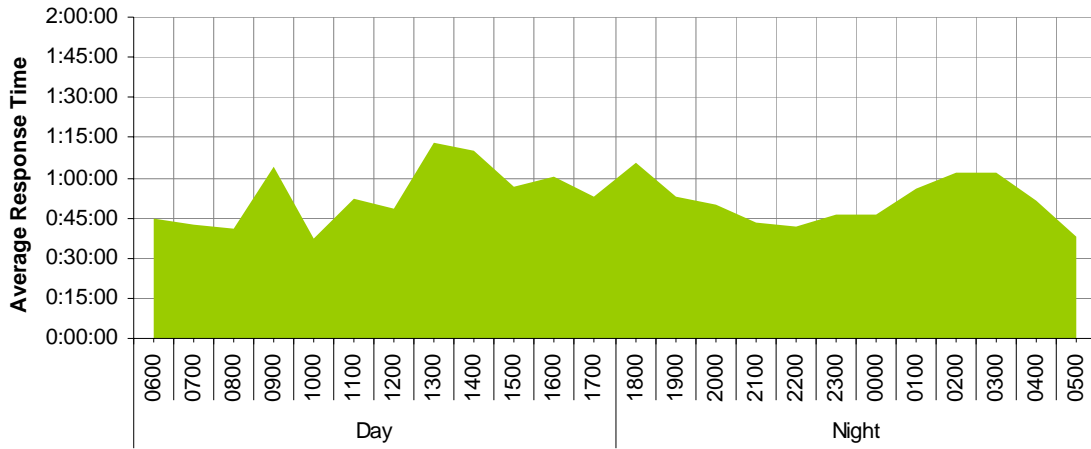


The most notable exceptions included priority 2 fights, priority 3 noise complaints and priority 3 disturbing parties. The average response time to priority 2 fights and priority 3 noise complaints was not significantly different at night and during the day. Moreover, the response time to priority 3 disturbing parties was actually shorter during the day on average.

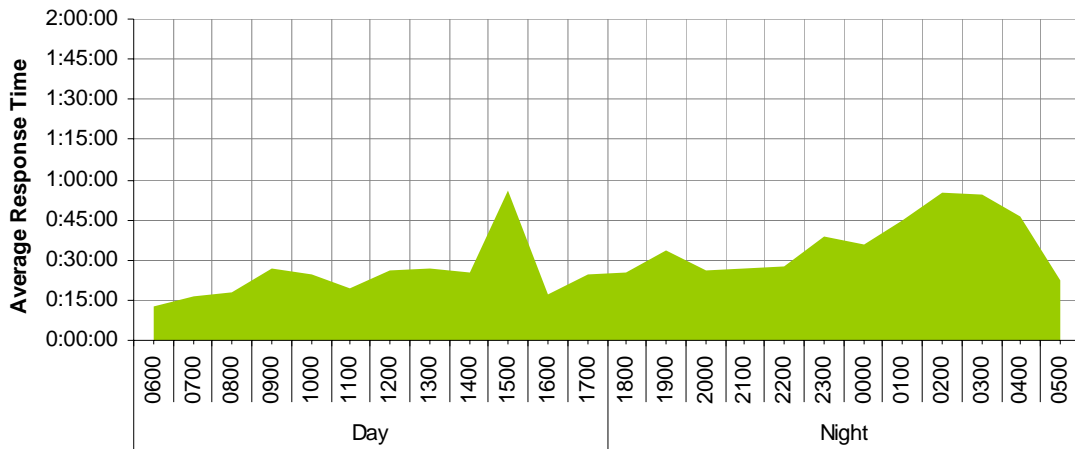
**Figure 7-110 Average Response Time to Priority 2 Fights by Hour of the Day Citywide**



**Figure 7-111 Average Response Time to Priority 3 Noise Complaints by Hour of the Day Citywide**



**Figure 7-112 Average Response Time to Priority 3 Disturbing Parties by Hour of the Day Citywide**



In general, the citywide average response time to priority 1 calls fluctuated only moderately by day of the week.

During the day (between 0600 and 1800 hours), the average response time to priority 1 calls ranged from 14 minutes and 56 seconds on Sunday to 18 minutes and 29 seconds on Friday. Between 0600 and 1800 hours, the average response time to priority 1 calls

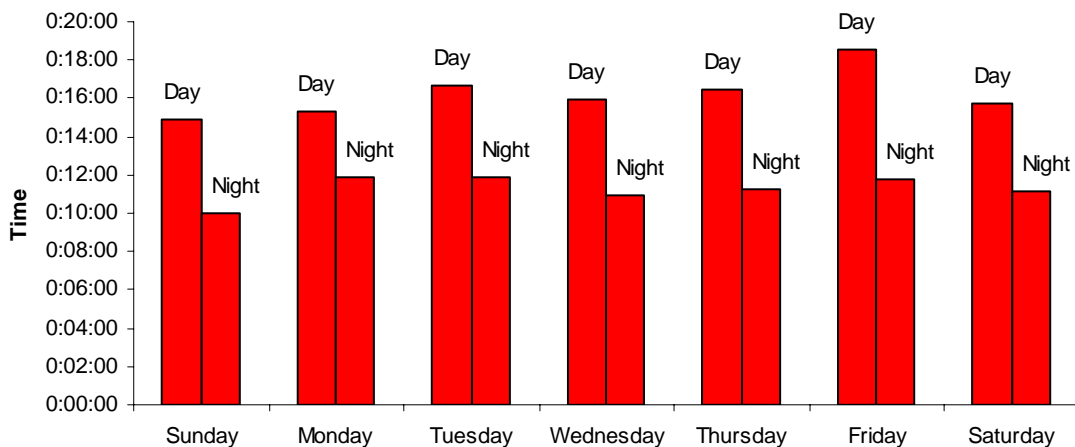
was 15 minutes and 20 seconds on Monday, 16 minutes and 37 seconds on Tuesday, 15 minutes and 59 seconds on Wednesday, 16 minutes and 29 seconds on Thursday and 15 minutes and 46 seconds on Saturday.

At night, the average response time to priority 1 calls ranged from 9 minutes and 58 seconds on Sunday night to 11 minutes and 52 seconds on Monday and Tuesday night. Between 1800 and 0600 hours, the average response time to priority 1 calls was 10 minutes and 56 seconds on Wednesday, 11 minutes and 15 seconds on Thursday, 11 minutes and 48 seconds on Friday and 11 minutes and 8 seconds on Saturday.

**Table 7-9 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day Citywide**

	<b>Day</b>	<b>Night</b>	<b>Total</b>
Sunday	0:14:56	0:09:58	0:12:04
Monday	0:15:20	0:11:52	0:13:29
Tuesday	0:16:37	0:11:52	0:14:03
Wednesday	0:15:59	0:10:56	0:13:23
Thursday	0:16:29	0:11:15	0:13:29
Friday	0:18:29	0:11:48	0:14:19
Saturday	0:15:46	0:11:08	0:12:58
<b>Total</b>	<b>0:16:17</b>	<b>0:11:17</b>	<b>0:13:26</b>

**Figure 7-113 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day Citywide**



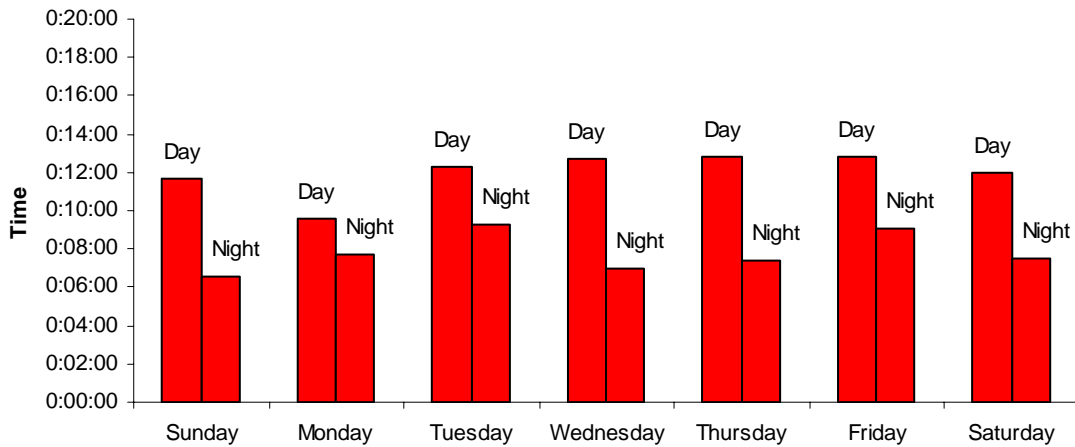
Overall, priority 1 calls received during the day on Friday were associated with a relatively longer average response time. The average priority 1 response time associated with calls received on Friday between 0600 and 1800 hours was 18 minutes and 29 seconds. By comparison, the overall average priority 1 response time associated with calls received between 0600 and 1800 hours was 16 minutes and 17 seconds. This implies that the average priority 1 response time associated with calls received on Friday between 0600 and 1800 hours was 13.6% longer than the average priority 1 response time to calls received between 0600 and 1800 hours.

On the other hand, priority 1 calls received on Sunday night were associated with a relatively shorter average response time. The average priority 1 response time associated with calls received between 1800 hours on Sunday and 0600 hours on Monday was 9 minutes and 58 seconds. By comparison, the overall average priority 1 response time associated with calls received between 1800 and 0600 hours was 11 minutes and 17 seconds. This implies that the average priority 1 response time associated with calls received on Sunday night was 11.7% shorter than the average priority 1 response time to calls received between 1800 and 0600 hours.

As expected, the average priority 1 response time peaked at different times of the day, depending on the patrol district.

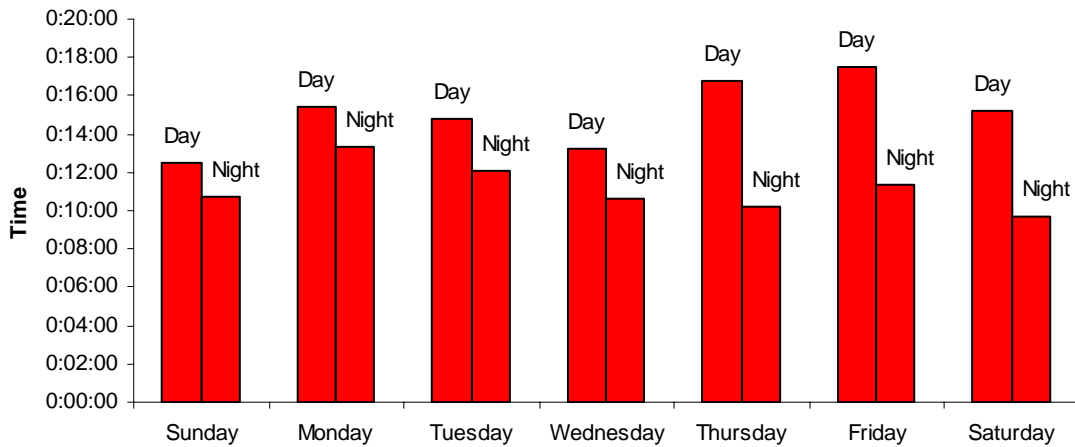
In District 1, the average response time to priority 1 calls peaked on Tuesday at 10 minutes and 36 seconds. In particular, priority 1 calls received on Tuesday night in District 1 were associated with an average response time of 9 minutes and 16 seconds. This is 18.2% longer than the average priority 1 response time of 7 minutes and 51 seconds at night in District 1. At the opposite end, the average response time to priority 1 calls in District 1 was shortest on Monday at 8 minutes and 33 seconds. In particular, priority 1 calls received between 0600 and 1800 hours on Monday in District 1 were associated with an average response time of 9 minutes and 32 seconds. This is 20.4% shorter than the average priority 1 response time of 11 minutes and 58 seconds during the day in District 1.

**Figure 7-114 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day in District 1**



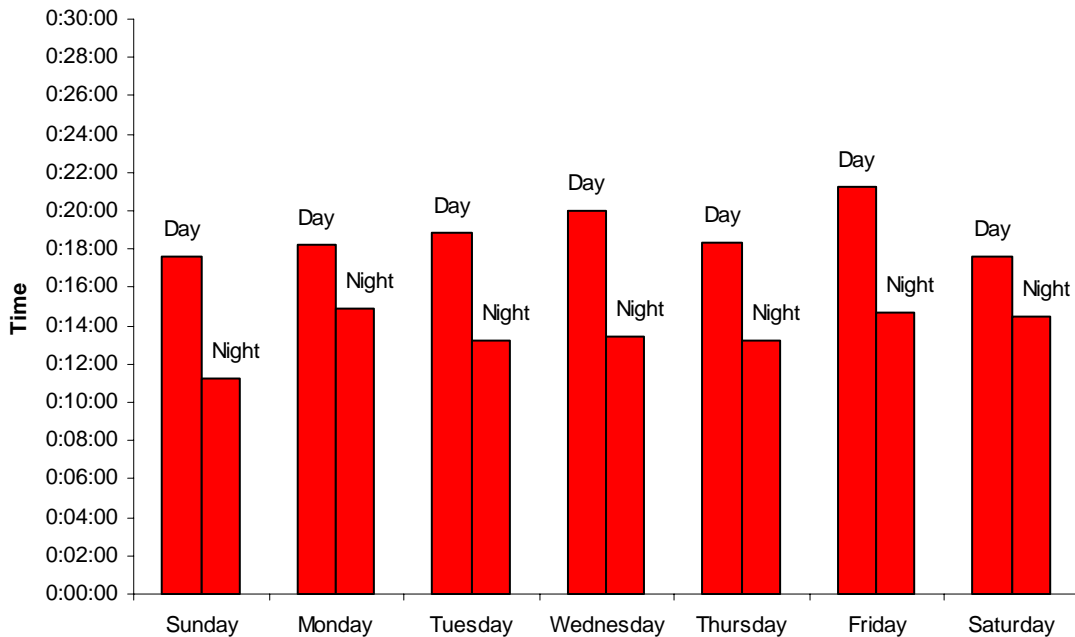
In District 2, the average response time to priority 1 calls peaked on Monday at 14 minutes and 13 seconds. In particular, priority 1 calls received on Monday night in District 2 were associated with an average response time of 13 minutes and 17 seconds. This is 19.9% longer than the average priority 1 response time of 11 minutes and 5 seconds at night in District 2. At the opposite end, the average response time to priority 1 calls in District 2 was shortest on Sunday at 11 minutes and 27 seconds. In particular, priority 1 calls received between 0600 and 1800 hours on Sunday in District 2 were associated with an average response time of 12 minutes and 27 seconds. This is 17.8% shorter than the average priority 1 response time of 15 minutes and 9 seconds during the day in District 2.

**Figure 7-115 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day in District 2**



In District 3, the average response time to priority 1 calls peaked on Friday at 17 minutes and 2 seconds. In particular, priority 1 calls received during the day on Friday in District 3 were associated with an average response time of 21 minutes and 17 seconds. This is 12.7% longer than the average priority 1 response time of 18 minutes and 53 seconds during the day in District 3. At the opposite end, the average response time to priority 1 calls in District 3 was shortest on Sunday at 13 minutes and 58 seconds. In particular, priority 1 calls received on Sunday night in District 3 were associated with an average response time of 11 minutes and 13 seconds. This is 18.4% shorter than the average priority 1 response time of 13 minutes and 44 seconds at night in District 3.

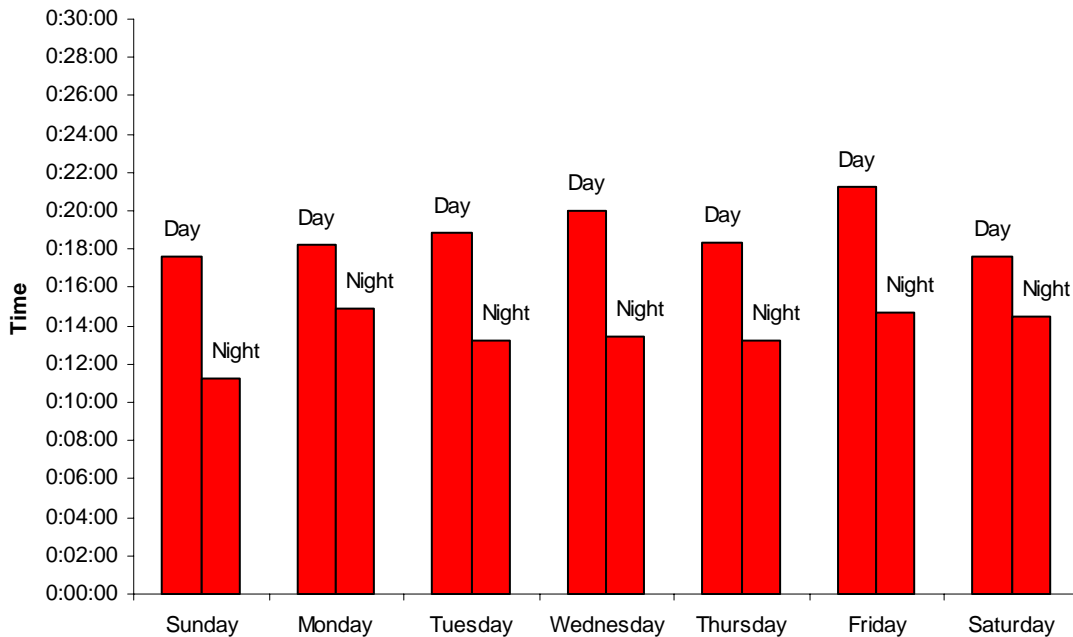
**Figure 7-116 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day in District 3**



In District 4, the average response time to priority 1 calls peaked on Tuesday at 15 minutes and 34 seconds. This is 8.4% longer than the overall average priority 1 response time of 14 minutes and 21 seconds in District 4. At the opposite end, the average response time to priority 1 calls in District 4 was shortest on Sunday at 13 minutes and 9 seconds. In particular, priority 1 calls received on Sunday night in District 4 were associated with an average response time of 10 minutes and 25 seconds. This is 9.0% shorter than the average priority 1 response time of 11 minutes and 28 seconds at night in District 4.



**Figure 7-117 Average Response Time to Priority 1 Calls by Day of the Week and Time of Day in District 4**



The average response time to priority 2 and 3 calls was also fairly constant across all days of the week. On Friday however, the average response time to both priority 2 and 3 calls was significantly longer.

During the day, the average response time to priority 2 calls ranged from 26 minutes and 54 seconds on Sunday to 1 hour and 44 minutes on Friday. Between 0600 and 1800 hours, the average response time to priority 2 calls was 33 minutes and 42 seconds on Monday, 37 minutes and 39 seconds on Tuesday, 40 minutes and 9 seconds on Wednesday, 39 minutes and 25 seconds on Thursday and 38 minutes and 48 seconds on Saturday.

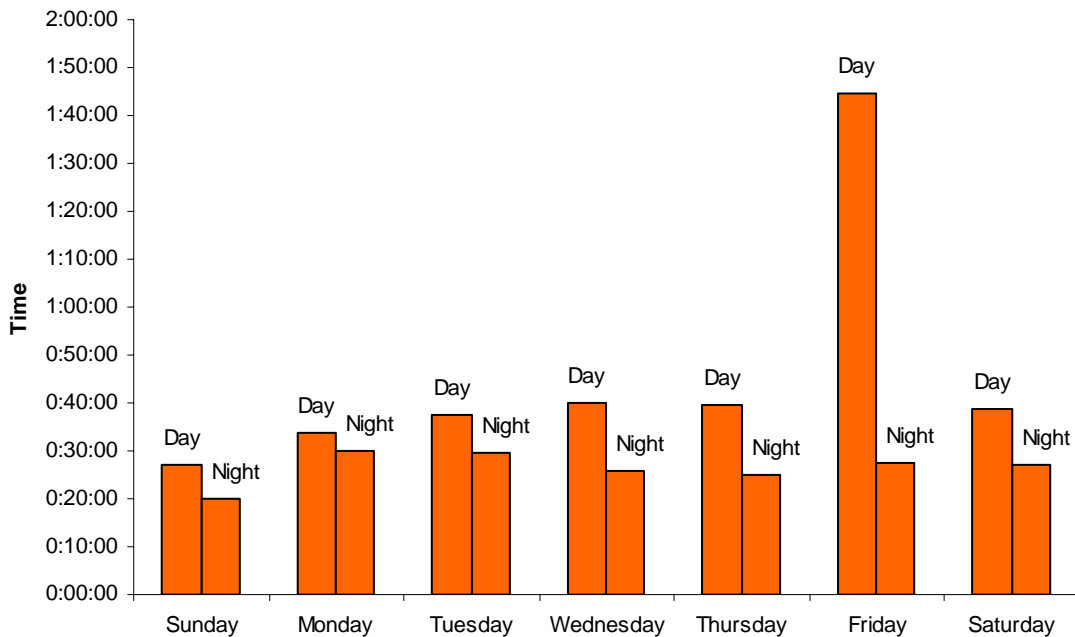
At night, the average response time to priority 2 calls ranged from 19 minutes and 48 seconds on Sunday night to 29 minutes and 52 seconds on Monday night. Between 1800 and 0600 hours, the average response time to priority 2 calls was 29 minutes and 37 seconds on Tuesday, 25 minutes and 47 seconds on Wednesday, 24 minutes and

54 seconds on Thursday, 27 minutes and 36 seconds on Friday and 26 minutes and 57 seconds on Saturday.

**Table 7-10 Average Response Time to Priority 2 Calls by Day of the Week and Time of Day Citywide**

	Day	Night	Total
Sunday	0:26:54	0:19:48	0:22:57
Monday	0:33:42	0:29:52	0:31:29
Tuesday	0:37:39	0:29:37	0:33:07
Wednesday	0:40:09	0:25:47	0:31:50
Thursday	0:39:25	0:24:54	0:31:12
Friday	1:44:24	0:27:36	0:55:26
Saturday	0:38:48	0:26:57	0:31:15
<b>Total</b>	<b>0:46:21</b>	<b>0:26:30</b>	<b>0:34:37</b>

**Figure 7-118 Average Response Time to Priority 2 Calls by Day of the Week and Time of Day Citywide**



During the day, the average response time to priority 3 calls ranged from 1 hour and 33 minutes on Sunday to 4 hours and 7 minutes on Friday. Between 0600 and 1800 hours, the average response time to priority 3 calls was 2 hours and 4 minutes on Monday, 2

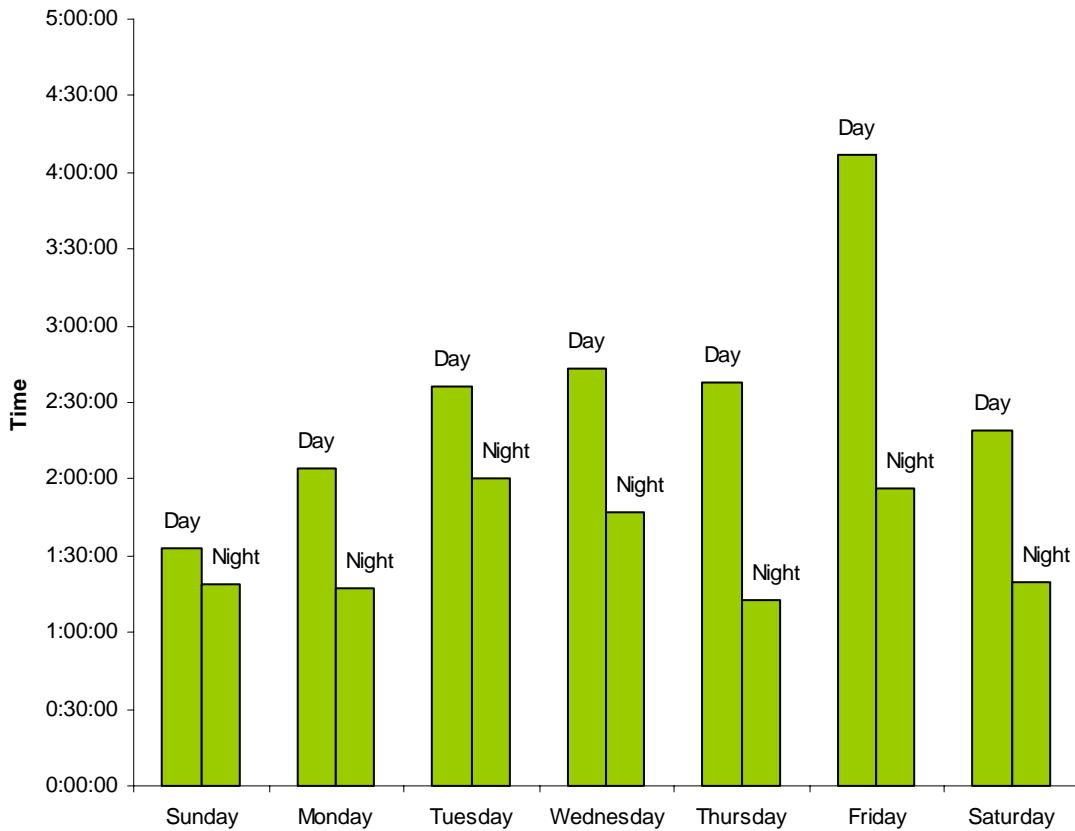
hours and 36 minutes on Tuesday, 2 hours and 43 minutes on Wednesday, 2 hours and 38 minutes on Thursday and 2 hours and 19 minutes on Saturday.

At night, the average response time to priority 3 calls ranged from 1 hour and 13 minutes on Thursday night to 2 hours on Tuesday night. Between 1800 and 0600 hours, the average response time to priority 3 calls was 1 hour and 19 minutes on Sunday, 1 hour and 18 minutes on Monday, 1 hour and 47 minutes on Wednesday, 1 hour and 56 minutes on Friday and 1 hour and 20 minutes on Saturday.

**Table 7-11 Average Response Time to Priority 3 Calls by Day of the Week and Time of Day Citywide**

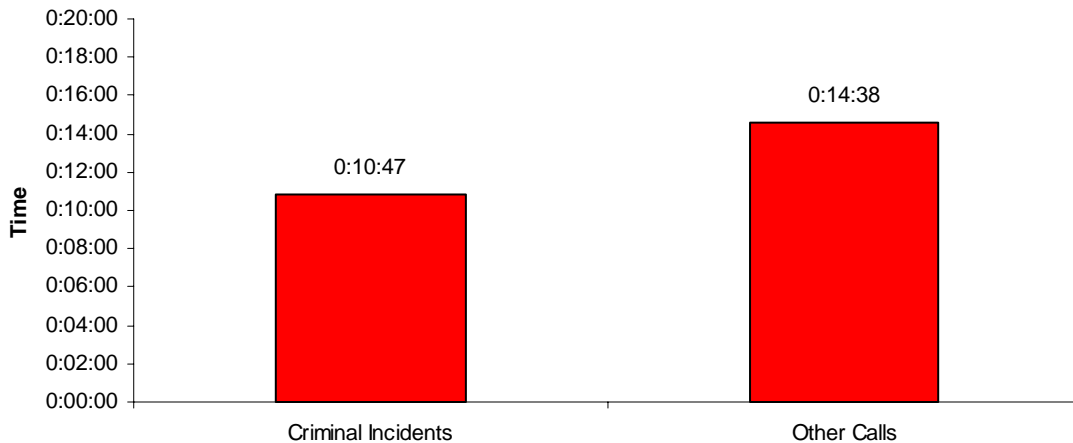
	<b>Day</b>	<b>Night</b>	<b>Total</b>
Sunday	1:32:45	1:19:10	1:26:13
Monday	2:04:19	1:17:43	1:42:36
Tuesday	2:36:12	2:00:04	2:19:31
Wednesday	2:43:26	1:46:59	2:17:03
Thursday	2:37:57	1:12:58	1:57:27
Friday	4:06:39	1:56:33	2:59:31
Saturday	2:19:12	1:20:04	1:47:12
<b>Total</b>	<b>2:36:28</b>	<b>1:33:48</b>	<b>2:05:50</b>

**Figure 7-119 Average Response Time to Priority 3 Calls by Day of the Week and Time of Day Citywide**



Between 2005-06-01 and 2006-05-31, among the 13,482 priority 1 calls for which the response time was available, at least 4,209 incidents involved a criminal offence. The average response time to these 4,209 priority 1 incidents was 10 minutes and 47 seconds. By comparison, the average response time to the 9,273 remaining priority 1 calls was 14 minutes and 38 seconds. This implies that the average response time associated with priority 1 criminal incidents was 26.3% shorter than the average response time associated with the other priority 1 calls.

**Figure 7-120 Average Response Time to Priority 1 Criminal Incidents Citywide**

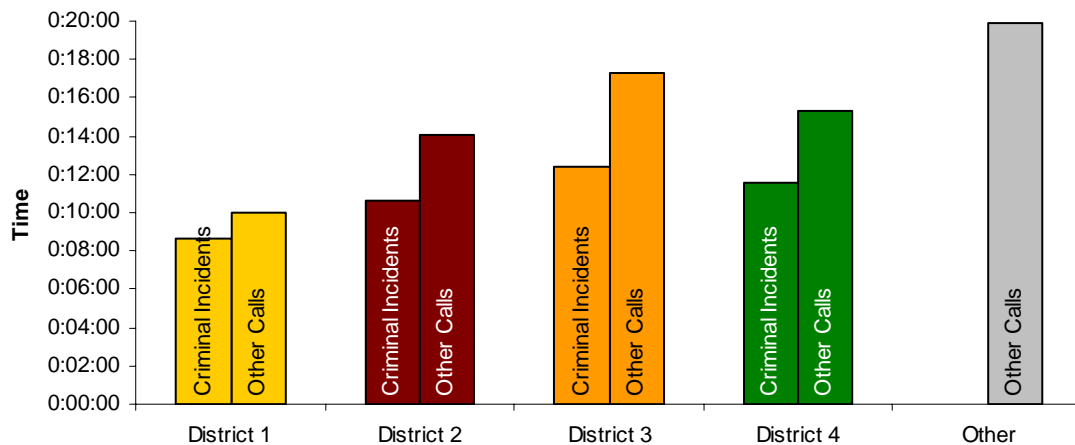


This relationship held in every patrol district without exception:

- In District 1, the average response time to the 1,022 priority 1 criminal incidents was 8 minutes and 39 seconds. By comparison, the average response time to the 1,737 remaining priority 1 calls was 9 minutes and 58 seconds. This implies that the average response time associated with priority 1 criminal incidents in District 1 was 13.2% shorter than the average response time associated with the other priority 1 calls.
- In District 2, the average response time to the 1,285 priority 1 criminal incidents was 10 minutes and 35 seconds. By comparison, the average response time to the 2,353 remaining priority 1 calls was 14 minutes and 3 seconds. This implies that the average response time associated with priority 1 criminal incidents in District 2 was 24.7% shorter than the average response time associated with the other priority 1 calls.
- In District 3, the average response time to the 1,179 priority 1 criminal incidents was 12 minutes and 23 seconds. By comparison, the average response time to the 2,967 remaining priority 1 calls was 17 minutes and 19 seconds. This implies that the average response time associated with priority 1 criminal incidents in District 3 was 28.5% shorter than the average response time associated with the other priority 1 calls.

- In District 4, the average response time to the 723 priority 1 criminal incidents was 11 minutes and 33 seconds. By comparison, the average response time to the 2,210 remaining priority 1 calls was 15 minutes and 16 seconds. This implies that the average response time associated with priority 1 criminal incidents in District 4 was 24.3% shorter than the average response time associated with the other priority 1 calls.

**Figure 7-121 Average Response Time to Priority 1 Criminal Incidents by District**



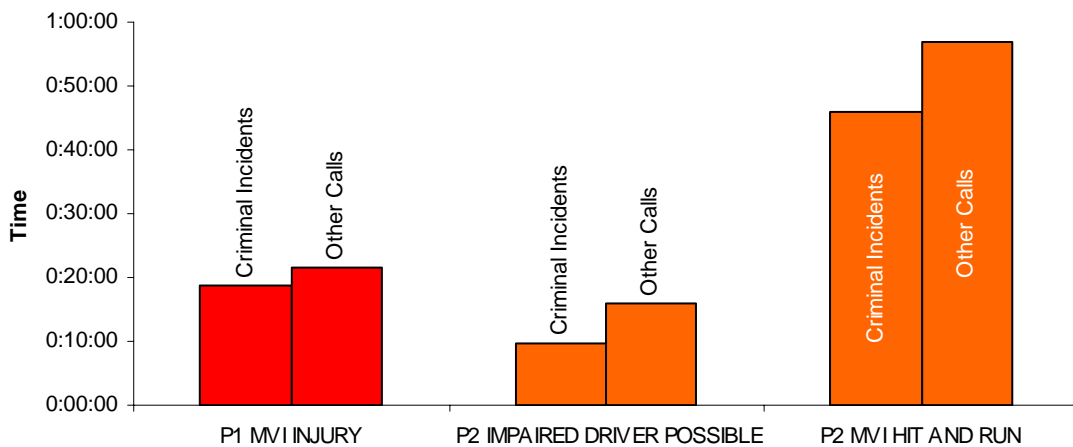
Interestingly, the same phenomenon could also be observed for several individual priority 1 and 2 call types. Between 2005-06-01 and 2006-05-31, for instance:

- The average response time associated with the 110 priority 1 motor vehicle incidents with injuries that involved a criminal offence was 18 minutes and 38 seconds. By comparison, the average response time associated with the remaining 2,578 motor vehicle incidents with injuries was 21 minutes and 38 seconds. This implies that the average response time associated with the priority 1 motor vehicle incidents with injuries involving a criminal offence was 13.8% shorter than the average response time associated with the other priority 1 motor vehicle incidents with injuries.
- The average response time associated with the 41 priority 2 hit and run that involved a criminal offence was 45 minutes and 53 seconds. By comparison, the average response time associated with the remaining 184 hit and run was 56

minutes and 57 seconds. This implies that the average response time associated with the priority 2 hit and run involving a criminal offence was 19.4% shorter than the average response time associated with the other priority 2 hit and run.

- The average response time associated with the 36 priority 2 possible impaired drivers that involved a criminal offence was 9 minutes and 43 seconds. By comparison, the average response time associated with the remaining 175 possible impaired drivers was 16 minutes and 2 seconds. This implies that the average response time associated with the priority 2 possible impaired drivers involving a criminal offence was 65.0% shorter than the average response time associated with the other priority 2 possible impaired drivers.

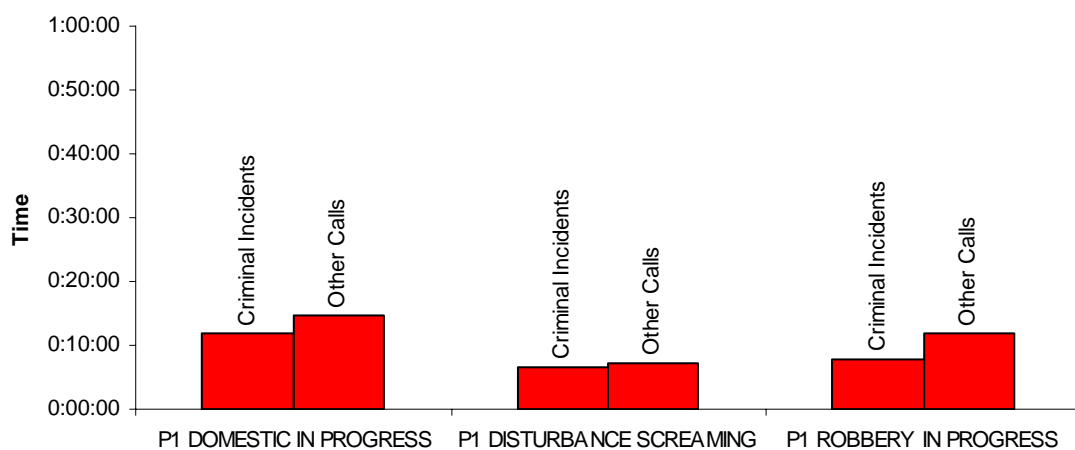
**Figure 7-122 Average Response Time to MVI with Injuries, Possible Impaired Drivers and Hit and Run That Involved a Criminal Offence**



- The average response time associated with the 567 priority 1 domestic situations in progress that involved a criminal offence was 11 minutes and 52 seconds. By comparison, the average response time associated with the remaining 2,012 domestic situations in progress was 14 minutes and 36 seconds. This implies that the average response time associated with the priority 1 domestic situations in progress involving a criminal offence was 18.7% shorter than the average response time associated with the other priority 1 domestic situations in progress.

- The average response time associated with the 49 priority 1 disturbance screaming calls that involved a criminal offence was 6 minutes and 25 seconds. By comparison, the average response time associated with the remaining 543 disturbance screaming calls was 7 minutes and 12 seconds. This implies that the average response time associated with the priority 1 disturbance screaming calls involving a criminal offence was 10.8% shorter than the average response time associated with the other priority 1 disturbance screaming calls.
- The average response time associated with the 503 priority 1 robberies in progress that involved a criminal offence was 7 minutes and 50 seconds. By comparison, the average response time associated with the remaining 68 robberies in progress was 11 minutes and 46 seconds. This implies that the average response time associated with the priority 1 robberies in progress involving a criminal offence was 33.3% shorter than the average response time associated with the other priority 1 robberies in progress.

**Figure 7-123 Average Response Time to Domestic Situations in Progress, Disturbance Screaming Calls and Robberies in Progress That Involved a Criminal Offence**



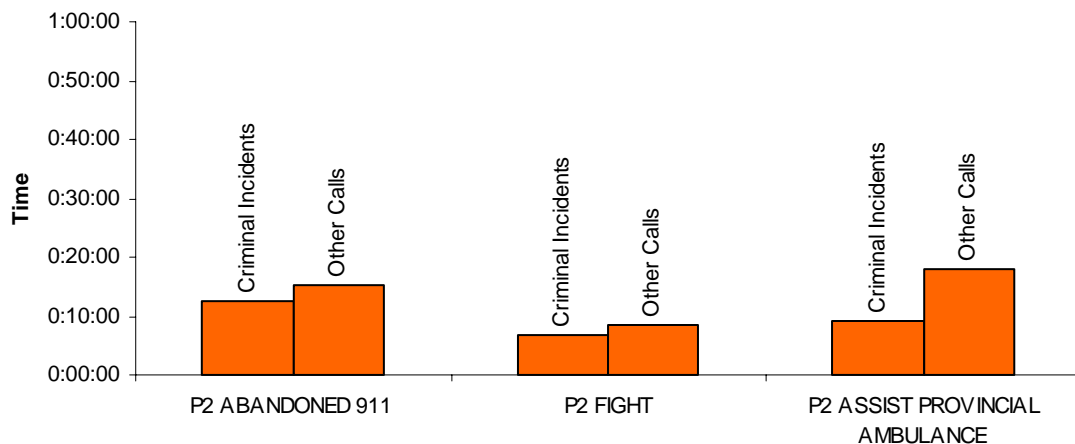
- The average response time associated with the 99 priority 2 abandoned 9-1-1 calls that involved a criminal offence was 12 minutes and 29 seconds. By comparison, the average response time associated with the remaining 2,845 abandoned 9-1-1 calls was 15 minutes and 7 seconds. This implies that the



average response time associated with the priority 2 abandoned 9-1-1 calls involving a criminal offence was 17.4% shorter than the average response time associated with the other priority 2 abandoned 9-1-1 calls.

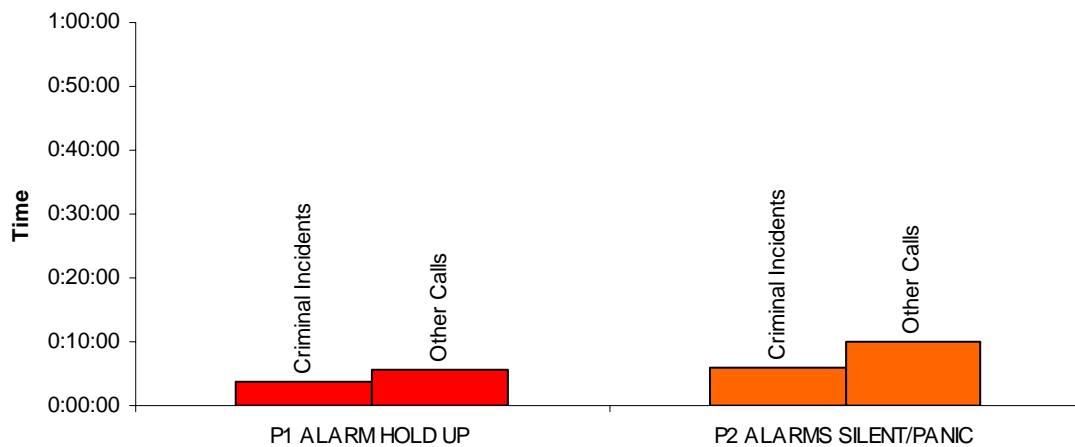
- The average response time associated with the 366 priority 2 fights that involved a criminal offence was 6 minutes and 38 seconds. By comparison, the average response time associated with the remaining 1,445 fights was 8 minutes and 20 seconds. This implies that the average response time associated with the priority 2 fights involving a criminal offence was 20.5% shorter than the average response time associated with the other priority 2 fights.
- The average response time associated with the 25 priority 2 requests for assistance from the provincial ambulance service that involved a criminal offence was 9 minutes and 12 seconds. By comparison, the average response time associated with the remaining 244 requests for assistance from the provincial ambulance service was 17 minutes and 50 seconds. This implies that the average response time associated with the priority 2 requests for assistance from the provincial ambulance service involving a criminal offence was 48.4% shorter than the average response time associated with the other priority 2 requests for assistance from the provincial ambulance service.

**Figure 7-124 Average Response Time to Abandoned 9-1-1 Calls, Fights and Requests for Assistance from the Provincial Ambulance Service That Involved a Criminal Offence**



- The average response time associated with the 8 founded priority 1 hold-up alarms was 3 minutes and 37 seconds. By comparison, the average response time associated with the remaining 221 hold-up alarms was 5 minutes and 45 seconds. This implies that the average response time associated with the founded priority 1 hold-up alarms was 37.3% shorter than the average response time associated with the other priority 1 hold-up alarms.
- The average response time associated with the 3 founded priority 2 silent or panic alarms was 5 minutes and 48 seconds. By comparison, the average response time associated with the remaining 341 silent or panic alarms was 9 minutes and 52 seconds. This implies that the average response time associated with the founded priority 2 silent or panic alarms was 41.2% shorter than the average response time associated with the other priority 2 silent or panic alarms.

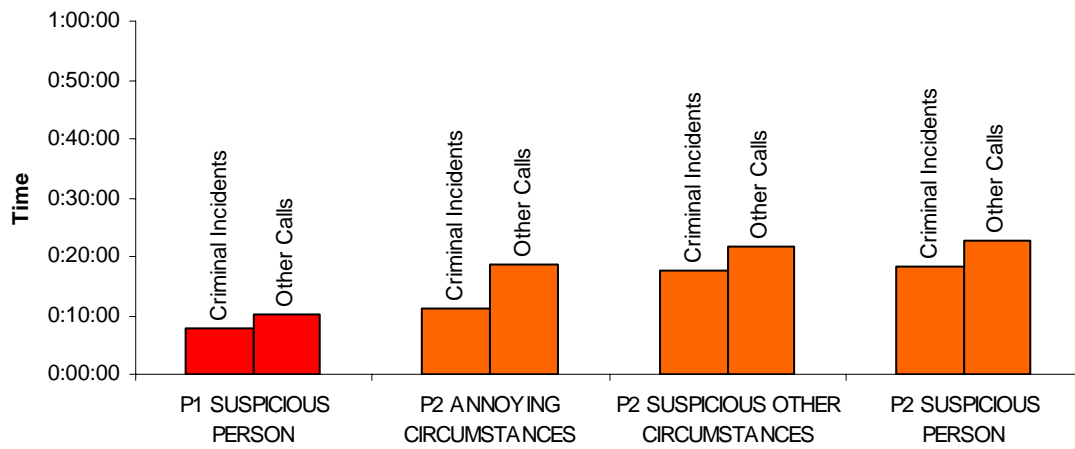
**Figure 7-125 Average Response Time to Hold-Up Alarms and Silent or Panic Alarms That Involved a Criminal Offence**



- The average response time associated with the 44 priority 1 suspicious persons that involved a criminal offence was 7 minutes and 40 seconds. By comparison, the average response time associated with the remaining 124 suspicious persons was 10 minutes and 15 seconds. This implies that the average response time associated with the priority 1 suspicious persons that involved a criminal offence was 25.2% shorter than the average response time associated with the other priority 1 suspicious persons.

- The average response time associated with the 140 priority 2 suspicious persons that involved a criminal offence was 18 minutes and 11 seconds. By comparison, the average response time associated with the remaining 903 suspicious persons was 22 minutes and 36 seconds. This implies that the average response time associated with the priority 2 suspicious persons that involved a criminal offence was 19.6% shorter than the average response time associated with the other priority 2 suspicious persons.
- The average response time associated with the 113 priority 2 suspicious circumstances that involved a criminal offence was 17 minutes and 35 seconds. By comparison, the average response time associated with the remaining 901 suspicious circumstances was 22 minutes and 36 seconds. This implies that the average response time associated with the priority 2 suspicious circumstances that involved a criminal offence was 18.7% shorter than the average response time associated with the other priority 2 suspicious circumstances.
- The average response time associated with the 13 priority 2 annoying circumstances that involved a criminal offence was 11 minutes and 4 seconds. By comparison, the average response time associated with the remaining 154 annoying circumstances was 18 minutes and 35 seconds. This implies that the average response time associated with the priority 2 annoying circumstances that involved a criminal offence was 40.4% shorter than the average response time associated with the other priority 2 annoying circumstances.

**Figure 7-126 Average Response Time to Suspicious Persons, Suspicious Circumstances and Annoying Circumstances That Involved a Criminal Offence**



Intuitively, there could be at least two reasons why incidents associated with a shorter response time tend to involve a criminal offence more often.

- First, even within each individual category of calls, patrol officers may be able to discriminate between founded and unfounded calls or between serious and less serious incidents. Through the CAD system, the call takers and the dispatchers provide patrol officers with a wealth of information relevant to each call. Combined with experience and judgement, this information can allow officers to calibrate their response to each call. Ultimately, officers can often distinguish between serious in progress calls that require an immediate police response and the unfounded calls.
- Secondly, the nature of some calls for service implies that the window of opportunity for the responding police units is relatively narrow. A lot of criminal incidents without apparent victims (like impaired driving and drug-related or weapon-related offences) and crimes for which victims or witnesses are unwilling to come forward (e.g. some assaults, sexual assaults and minor property crimes) require a swift police response before they can be reported and investigated. Put simply, patrol officers must sometimes catch the suspects in the act before some criminal offences are even reported. A founded incident can easily become an unfounded call if it is associated with an excessive response time and the

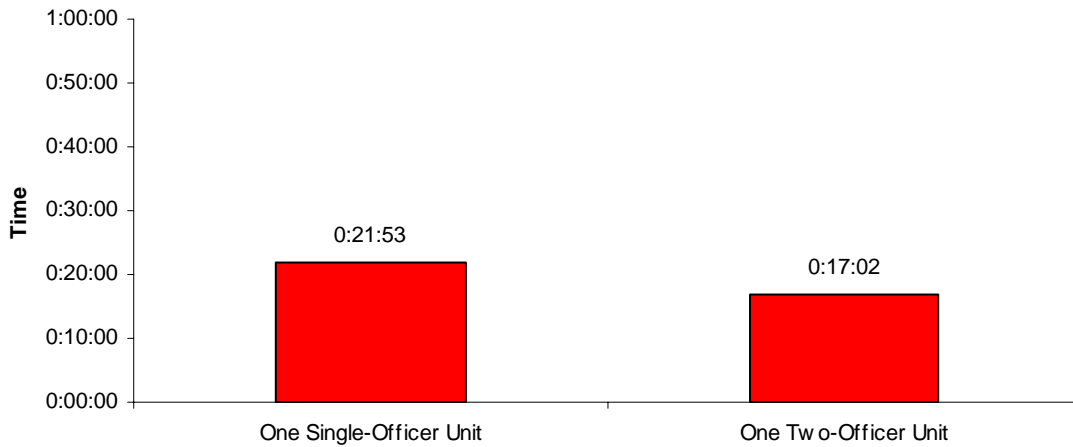
victims, suspects and witnesses have left the scene. Typically, this is likely to explain why reports of suspicious activity associated with a longer response time led to the detection of a criminal offence less often on average.

At this point, it is still not clear whether a faster response time can lead to more criminal charges, a higher solvability rate or even the prevention of some crimes. However, the theoretical and empirical evidence does support the fact that a shorter response time will lead to more investigative opportunities. Intuitively, the shorter the response time, the more likely the suspects, victims, witnesses and complainants will still be on scene.

Between 2005-06-01 and 2006-05-31, 5,060 out of the 13,482 priority 1 calls for which the response time was available were dispatched to only one regular patrol unit. The average response time to these 5,060 priority 1 calls was 18 minutes and 16 seconds.

Approximately 1,284 (25.4%) of the priority 1 calls handled by only one regular patrol unit were dispatched to one single officer and 3,776 (74.6%) were dispatched to only one two-officer unit. On average, the response time to the priority 1 calls handled by a single officer was 28.5% longer than the response time to the priority 1 calls handled by a two-officer unit. The average response time to the 1,284 priority 1 calls handled by only one regular patrol officer was 21 minutes and 53 seconds. By comparison, the average response time to the 3,776 priority 1 calls dispatched to only one two-officer unit was 17 minutes and 2 seconds.

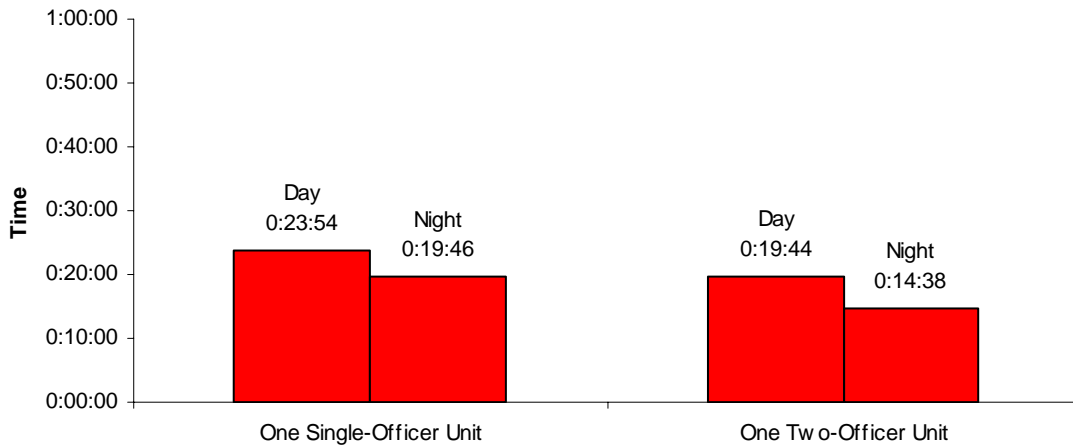
**Figure 7-127 Average Response Time to Priority 1 Calls Dispatched to One Regular Patrol Unit**



The relationship held both during the day and at night.

- During the night, the response time to the priority 1 calls handled by a single officer was 35.0% longer than the response time to the priority 1 calls handled by a two-officer unit. The average response time to the 627 priority 1 calls handled by only one regular patrol officer at night was 19 minutes and 46 seconds. By comparison, the average response time to the 2,002 priority 1 calls dispatched to only one two-officer unit at night was 14 minutes and 38 seconds.
- During the day, the response time to the priority 1 calls handled by a single officer was 21.1% longer than the response time to the priority 1 calls handled by a two-officer unit. The average response time to the 657 priority 1 calls handled by only one regular patrol officer during the day was 23 minutes and 54 seconds. By comparison, the average response time to the 1,774 priority 1 calls dispatched to only one two-officer unit at night was 19 minutes and 44 seconds.

**Figure 7-128 Average Response Time to Priority 1 Calls Dispatched to One Regular Patrol Unit by Time of Day**



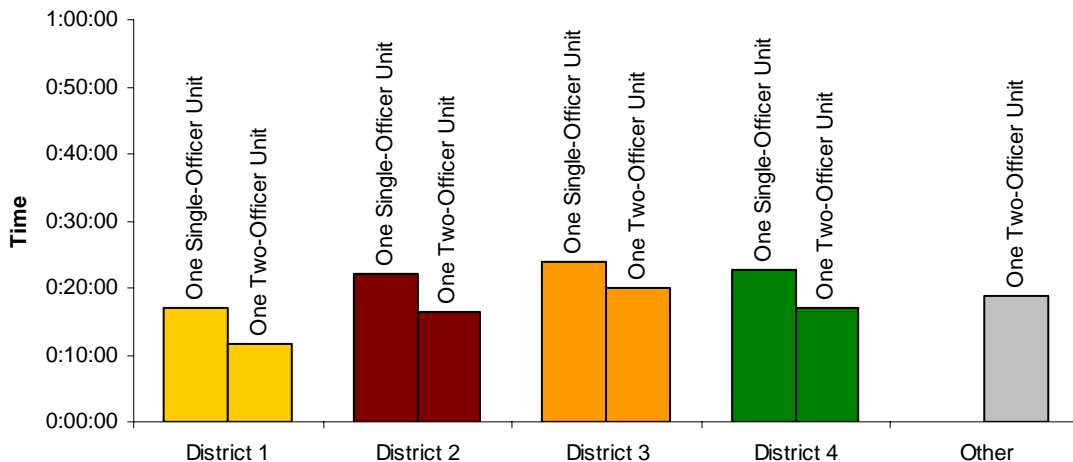
This phenomenon was also observed across all existing patrol districts without exception.

- In District 1, the response time to the priority 1 calls handled by a single officer was 43.5% longer than the response time to the priority 1 calls handled by a two-officer unit. The average response time to the 229 priority 1 calls handled by only one regular patrol officer in District 1 was 16 minutes and 53 seconds. By comparison, the average response time to the 572 priority 1 calls dispatched to only one two-officer unit was 11 minutes and 46 seconds.
- In District 2, the response time to the priority 1 calls handled by a single officer was 34.4% longer than the response time to the priority 1 calls handled by a two-officer unit. The average response time to the 277 priority 1 calls handled by only one regular patrol officer in District 2 was 22 minutes and 6 seconds. By comparison, the average response time to the 1,117 priority 1 calls dispatched to only one two-officer unit was 16 minutes and 27 seconds.
- In District 3, the response time to the priority 1 calls handled by a single officer was 19.1% longer than the response time to the priority 1 calls handled by a two-officer unit. The average response time to the 419 priority 1 calls handled by only one regular patrol officer in District 3 was 23 minutes and 44 seconds. By

comparison, the average response time to the 1,293 priority 1 calls dispatched to only one two-officer unit was 19 minutes and 56 seconds.

- In District 4, the response time to the priority 1 calls handled by a single officer was 34.5% longer than the response time to the priority 1 calls handled by a two-officer unit. The average response time to the 359 priority 1 calls handled by only one regular patrol officer in District 4 was 22 minutes and 43 seconds. By comparison, the average response time to the 790 priority 1 calls dispatched to only one two-officer unit was 16 minutes and 54 seconds.

**Figure 7-129 Average Response Time to Priority 1 Calls Dispatched to One Regular Patrol Unit by District**



Even for most incidents of the same type, calls handled by one single-officer unit were associated with a significantly longer average response time compared to calls handled by one two-officer unit. Between 2005-06-01 and 2006-05-31, for instance:

- 575 priority 1 motor vehicle incidents with injuries were assigned to one single-officer unit. The average response time to these priority 1 calls was approximately 25 minutes and 31 seconds. During the same period, 1,126 priority 1 motor vehicle incidents with injuries were assigned to one two-officer unit. The average response time to these priority 1 calls was approximately 20 minutes and 45 seconds. This implies that priority 1 motor vehicle incidents with injuries handled by a single officer were associated with an average response

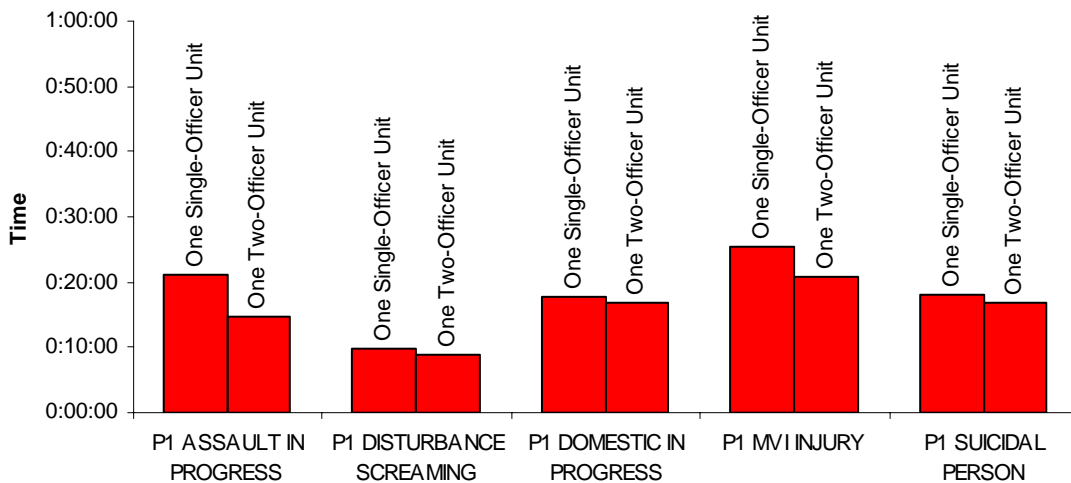


time 23.0% longer than the response time to the priority 1 motor vehicle incidents with injuries handled by a two-officer unit.

- 198 priority 1 domestic situations in progress were assigned to one single-officer unit. The average response time to these priority 1 calls was approximately 17 minutes and 52 seconds. During the same period, 912 priority 1 domestic situations in progress were assigned to one two-officer unit. The average response time to these priority 1 calls was approximately 16 minutes and 42 seconds. This implies that priority 1 domestic situations in progress handled by a single officer were associated with an average response time 6.9% longer than the response time to the priority 1 domestic situations in progress handled by a two-officer unit.
- 176 priority 1 assaults in progress were assigned to one single-officer unit. The average response time to these priority 1 calls was approximately 21 minutes and 4 seconds. During the same period, 539 priority 1 assaults in progress were assigned to one two-officer unit. The average response time to these priority 1 calls was approximately 14 minutes and 46 seconds. This implies that priority 1 assaults in progress handled by a single officer were associated with an average response time 42.7% longer than the response time to the priority 1 assaults in progress handled by a two-officer unit.
- 70 priority 1 suicidal persons were assigned to one single-officer unit. The average response time to these priority 1 calls was approximately 17 minutes and 59 seconds. During the same period, 273 priority 1 suicidal persons were assigned to one two-officer unit. The average response time to these priority 1 calls was approximately 16 minutes and 46 seconds. This implies that priority 1 suicidal persons handled by a single officer were associated with an average response time 7.2% longer than the response time to the priority 1 suicidal persons handled by a two-officer unit.
- 47 priority 1 persons screaming were assigned to one single-officer unit. The average response time to these priority 1 calls was approximately 9 minutes and 48 seconds. During the same period, 169 priority 1 persons screaming were assigned to one two-officer unit. The average response time to these priority 1

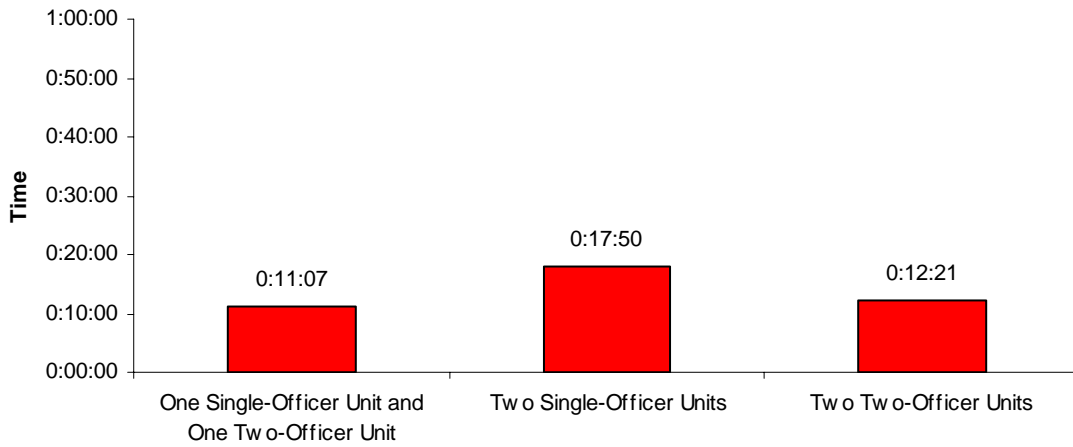
calls was approximately 8 minutes and 47 seconds. This implies that priority 1 persons screaming handled by a single officer were associated with an average response time 11.5% longer than the response time to the priority 1 persons screaming handled by a two-officer unit.

**Figure 7-130 Average Response Time to Priority 1 Assaults in Progress, Persons Screaming, Domestic Situations in Progress, MVI with Injuries and Suicidal Persons Dispatched to One Regular Patrol Unit**



Similarly, priority 1 calls dispatched to only 2 single officers were associated with an average response time 44.4% longer than the response time to the priority 1 calls handled by 2 two-officer units and 60.4% longer than the response time to the priority 1 calls handled by one single-officer unit and one two-officer unit. The average response time to the 513 priority 1 calls handled by 2 single-officer units was 17 minutes and 50 seconds. By comparison, the average response time to the 2,127 priority 1 calls dispatched to 2 two-officer units was 12 minutes and 21 seconds and the average response time to the 1,260 priority 1 calls dispatched to one single-officer unit and one two-officer unit was 11 minutes and 7 seconds.

**Figure 7-131 Average Response Time to Priority 1 Calls Dispatched to Two Regular Patrol Units**



As before, this finding was consistent across most individual priority 1 call types and all patrol districts. Between 2005-06-01 and 2006-05-31, for instance:

- 165 priority 1 motor vehicle incidents with injuries were assigned to 2 single-officer units. The average response time to these priority 1 calls was approximately 25 minutes and 31 seconds. During the same period, 312 priority 1 motor vehicle incidents with injuries were assigned to 2 two-officer units. The average response time to these priority 1 calls was approximately 20 minutes and 14 seconds. This implies that priority 1 motor vehicle incidents with injuries handled by 2 single-officer units were associated with an average response time 26.1% longer than the response time to the priority 1 motor vehicle incidents with injuries handled by 2 two-officer units.
- 103 priority 1 domestic situations in progress were assigned to 2 single-officer units. The average response time to these priority 1 calls was approximately 14 minutes and 52 seconds. During the same period, 486 priority 1 domestic situations in progress were assigned to 2 two-officer units. The average response time to these priority 1 calls was approximately 12 minutes and 33 seconds. This implies that priority 1 domestic situations in progress handled by 2 single-officer units were associated with an average response time 18.5% longer than the

response time to the priority 1 domestic situations in progress handled by 2 two-officer units.

- 73 priority 1 assaults in progress were assigned to 2 single-officer units. The average response time to these priority 1 calls was approximately 16 minutes and 56 seconds. During the same period, 429 priority 1 assaults in progress were assigned to 2 two-officer units. The average response time to these priority 1 calls was approximately 10 minutes and 46 seconds. This implies that priority 1 assaults in progress handled by 2 single-officer units were associated with an average response time 57.3% longer than the response time to the priority 1 assaults in progress handled by 2 two-officer units.
- 27 priority 1 suicidal persons were assigned to 2 single-officer units. The average response time to these priority 1 calls was approximately 16 minutes and 11 seconds. During the same period, 149 priority 1 suicidal persons were assigned to 2 two-officer units. The average response time to these priority 1 calls was approximately 15 minutes and 6 seconds. This implies that priority 1 suicidal persons handled by 2 single-officer units were associated with an average response time 7.1% longer than the response time to the priority 1 suicidal persons handled by 2 two-officer units.
- 24 priority 1 persons screaming were assigned to 2 single-officer units. The average response time to these priority 1 calls was approximately 7 minutes and 41 seconds. During the same period, 118 priority 1 persons screaming were assigned to 2 two-officer units. The average response time to these priority 1 calls was approximately 6 minutes and 4 seconds. This implies that priority 1 persons screaming handled by a single officer were associated with an average response time 26.7% longer than the response time to the priority 1 persons screaming handled by a two-officer unit.

Overall, this empirical evidence is consistent with the idea that, compared to two-officer units, solo officers driving to the scene of a high priority call:

- Are not able to observe their surroundings as well.
- Cannot communicate over the radio as easily.

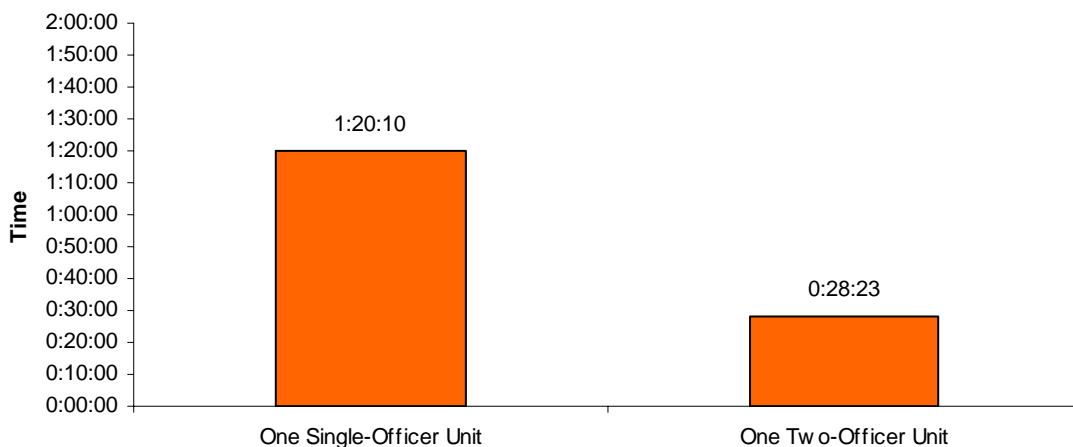
- Cannot operate the laptop computer mounted in each patrol car as efficiently.

Moreover, solo officers may hesitate to assume an elevated level of risk and, as a consequence, may be reluctant to handle some emergency situations as assertively as they would if they had the assurance that backup is readily available.

Between 2005-06-01 and 2006-05-31, 10,319 out of the 20,805 priority 2 calls for which the response time was available were dispatched to only one regular patrol unit. The average response time to these 10,319 priority 2 calls was 41 minutes and 45 seconds.

Approximately 2,664 (25.8%) of the priority 2 calls handled by only one regular patrol unit were dispatched to one single officer and 7,655 (74.2%) were dispatched to only one two-officer unit. On average, the response time to the priority 2 calls handled by a single officer was 182.4% longer than the response time to the priority 2 calls handled by a two-officer unit. The average response time to the 2,664 priority 2 calls handled by only one regular patrol officer was 1 hour and 20 minutes. By comparison, the average response time to the 7,655 priority 2 calls dispatched to only one two-officer unit was 28 minutes and 23 seconds.

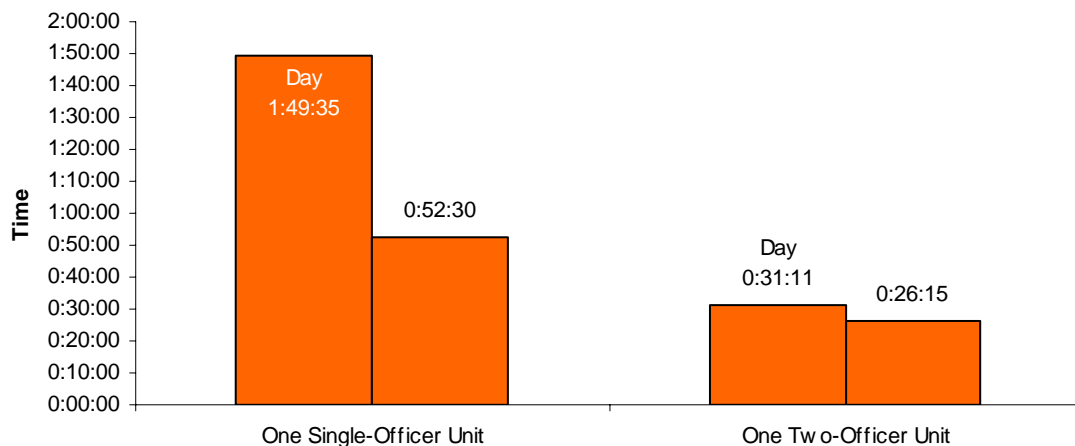
**Figure 7-132 Average Response Time to Priority 2 Calls Dispatched to One Regular Patrol Unit**



The relationship held both during the day and at night.

- During the night, the response time to the priority 2 calls handled by a single officer was twice longer than the response time to the priority 2 calls handled by a two-officer unit. The average response time to the 1,373 priority 2 calls handled by only one regular patrol officer at night was 52 minutes and 30 seconds. By comparison, the average response time to the 4,343 priority 2 calls dispatched to only one two-officer unit at night was 26 minutes and 15 seconds.
- During the day, the response time to the priority 2 calls handled by a single officer was 251.4% longer than the response time to the priority 2 calls handled by a two-officer unit. The average response time to the 1,291 priority 2 calls handled by only one regular patrol officer during the day was 1 hour and 50 minutes. By comparison, the average response time to the 3,312 priority 2 calls dispatched to only one two-officer unit at night was 31 minutes and 11 seconds.

**Figure 7-133 Average Response Time to Priority 2 Calls Dispatched to One Regular Patrol Unit by Time of Day**



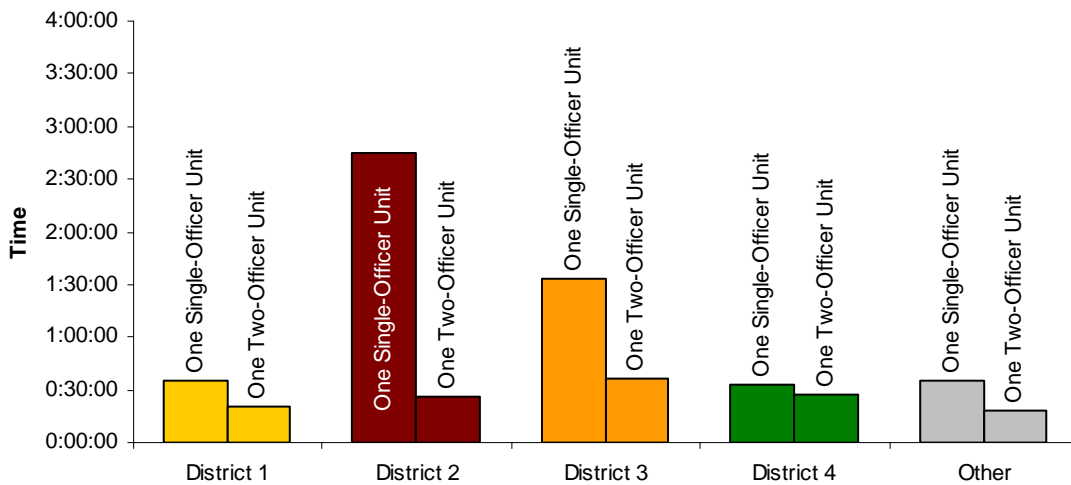
This phenomenon was also observed across all existing patrol districts without exception.

- In District 1, the response time to the priority 2 calls handled by a single officer was 73.3% longer than the response time to the priority 2 calls handled by a two-officer unit. The average response time to the 657 priority 2 calls handled by only

one regular patrol officer in District 1 was 35 minutes and 36 seconds. By comparison, the average response time to the 1,482 priority 2 calls dispatched to only one two-officer unit was 20 minutes and 32 seconds.

- In District 2, the response time to the priority 2 calls handled by a single officer was more than 5 times longer than the response time to the priority 2 calls handled by a two-officer unit. The average response time to the 599 priority 2 calls handled by only one regular patrol officer in District 2 was 2 hours and 45 minutes. By comparison, the average response time to the 2,289 priority 2 calls dispatched to only one two-officer unit was 26 minutes and 35 seconds.
- In District 3, the response time to the priority 2 calls handled by a single officer was 155.5% longer than the response time to the priority 2 calls handled by a two-officer unit. The average response time to the 744 priority 2 calls handled by only one regular patrol officer in District 3 was 1 hour and 33 minutes. By comparison, the average response time to the 2,261 priority 2 calls dispatched to only one two-officer unit was 36 minutes and 29 seconds.
- In District 4, the response time to the priority 2 calls handled by a single officer was 24.2% longer than the response time to the priority 2 calls handled by a two-officer unit. The average response time to the 662 priority 2 calls handled by only one regular patrol officer in District 4 was 33 minutes and 18 seconds. By comparison, the average response time to the 1,620 priority 2 calls dispatched to only one two-officer unit was 26 minutes and 49 seconds.

**Figure 7-134 Average Response Time to Priority 2 Calls Dispatched to One Regular Patrol Unit by District**



Even for most incidents of the same type, calls handled by one single-officer unit were associated with a significantly longer average response time compared to calls handled by one two-officer unit. Between 2005-06-01 and 2006-05-31, for instance:

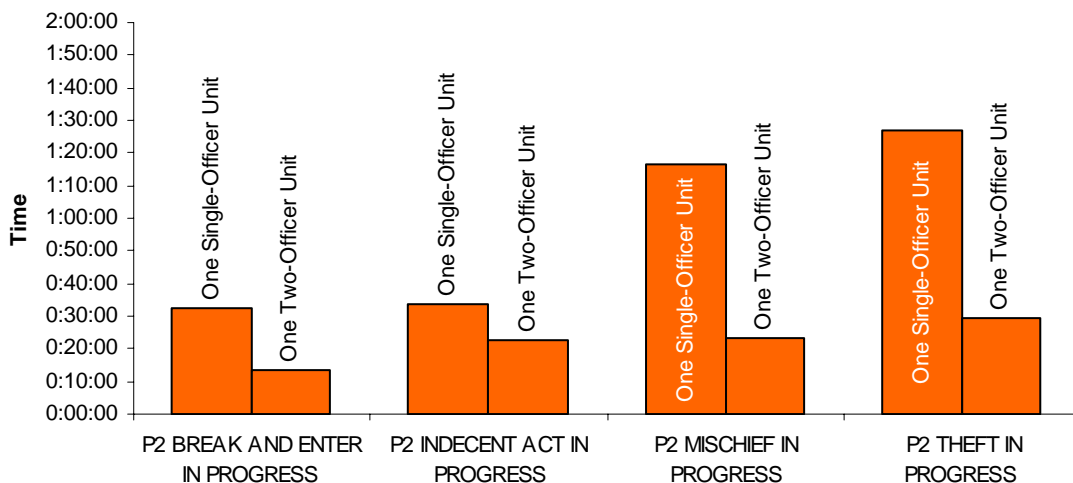
- 93 priority 2 break and enters in progress were assigned to one single-officer unit. The average response time to these priority 2 calls was approximately 32 minutes and 37 seconds. During the same period, 272 priority 2 break and enters in progress were assigned to one two-officer unit. The average response time to these priority 2 calls was approximately 32 minutes and 37 seconds. This implies that priority 2 break and enters in progress handled by a single officer were associated with an average response time 147.4% longer than the response time to the priority 2 break and enters in progress handled by a two-officer unit.
- 28 priority 2 indecent acts in progress were assigned to one single-officer unit. The average response time to these priority 2 calls was approximately 33 minutes and 56 seconds. During the same period, 89 priority 2 indecent acts in progress were assigned to one two-officer unit. The average response time to these priority 2 calls was approximately 22 minutes and 24 seconds. This implies that priority 2 indecent acts in progress handled by a single officer were



associated with an average response time 51.4% longer than the response time to the priority 2 indecent acts in progress handled by a two-officer unit.

- 158 priority 2 mischiefs in progress were assigned to one single-officer unit. The average response time to these priority 2 calls was approximately 1 hour and 16 minutes. During the same period, 395 priority 2 mischiefs in progress were assigned to one two-officer unit. The average response time to these priority 2 calls was approximately 23 minutes and 34 seconds. This implies that priority 2 mischiefs in progress handled by a single officer were associated with an average response time 223.6% longer than the response time to the priority 2 mischiefs in progress handled by a two-officer unit.
- 271 priority 2 thefts in progress were assigned to one single-officer unit. The average response time to these priority 2 calls was approximately 1 hour and 27 minutes. During the same period, 632 priority 2 thefts in progress were assigned to one two-officer unit. The average response time to these priority 2 calls was approximately 29 minutes and 30 seconds. This implies that priority 2 thefts in progress handled by a single officer were associated with an average response time 194.3% longer than the response time to the priority 2 thefts in progress handled by a two-officer unit.

**Figure 7-135 Average Response Time to Priority 2 Incidents in Progress  
Dispatched to One Regular Patrol Unit**

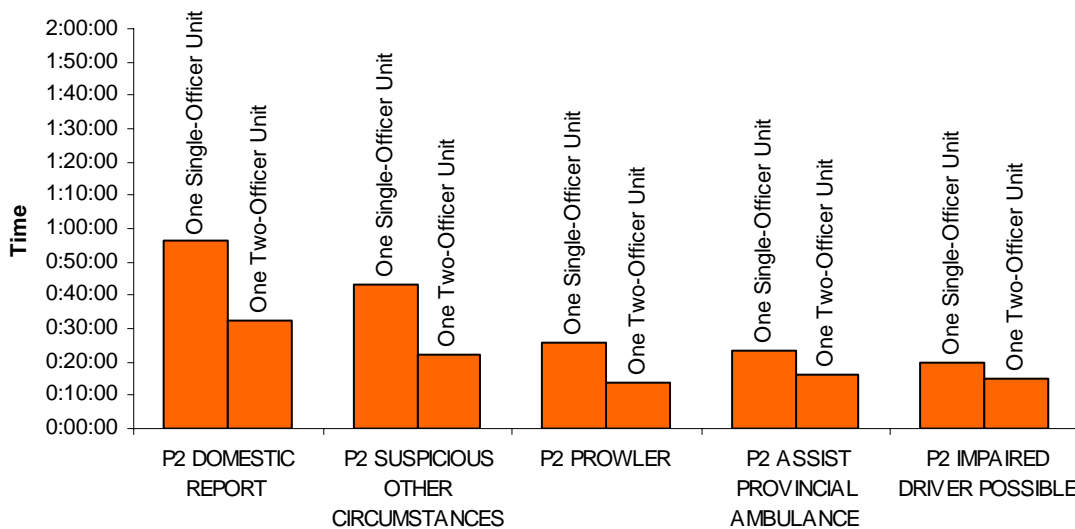


- 190 priority 2 domestic situations were assigned to one single-officer unit. The average response time to these priority 2 calls was approximately 56 minutes and 26 seconds. During the same period, 698 priority 2 domestic situations were assigned to one two-officer unit. The average response time to these priority 2 calls was approximately 32 minutes and 12 seconds. This implies that priority 2 domestic situations handled by a single officer were associated with an average response time 75.2% longer than the response time to the priority 2 domestic situations handled by a two-officer unit.
- 111 priority 2 suspicious circumstances were assigned to one single-officer unit. The average response time to these priority 2 calls was approximately 43 minutes and 17 seconds. During the same period, 405 priority 2 suspicious circumstances were assigned to one two-officer unit. The average response time to these priority 2 calls was approximately 22 minutes and 22 seconds. This implies that priority 2 suspicious circumstances handled by a single officer were associated with an average response time 93.5% longer than the response time to the priority 2 suspicious circumstances handled by a two-officer unit.
- 34 priority 2 prowlers were assigned to one single-officer unit. The average response time to these priority 2 calls was approximately 25 minutes and 54 seconds. During the same period, 92 priority 2 prowlers were assigned to one two-officer unit. The average response time to these priority 2 calls was approximately 14 minutes and 2 seconds. This implies that priority 2 prowlers handled by a single officer were associated with an average response time 84.5% longer than the response time to the priority 2 prowlers handled by a two-officer unit.
- 41 priority 2 requests for assistance from the provincial ambulance service were assigned to one single-officer unit. The average response time to these priority 2 calls was approximately 23 minutes and 23 seconds. During the same period, 119 priority 2 requests for assistance from the provincial ambulance service were assigned to one two-officer unit. The average response time to these priority 2 calls was approximately 15 minutes and 58 seconds. This implies that priority 2 requests for assistance from the provincial ambulance service handled by a

single officer were associated with an average response time 46.5% longer than the response time to the priority 2 requests for assistance from the provincial ambulance service handled by a two-officer unit.

- 36 priority 2 possible impaired drivers were assigned to one single-officer unit. The average response time to these priority 2 calls was approximately 20 minutes and 2 seconds. During the same period, 82 priority 2 possible impaired drivers were assigned to one two-officer unit. The average response time to these priority 2 calls was approximately 14 minutes and 42 seconds. This implies that priority 2 possible impaired drivers handled by a single officer were associated with an average response time 36.2% longer than the response time to the priority 2 possible impaired drivers handled by a two-officer unit.

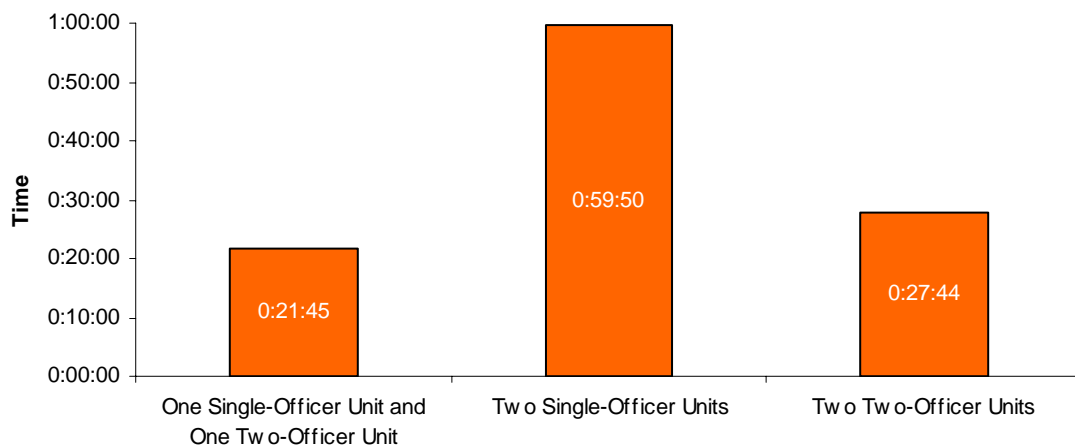
**Figure 7-136 Average Response Time to Priority 2 Domestic Situations, Suspicious Circumstances, Prowlers, Requests for Assistance from the Provincial Ambulance Service and Possible Impaired Drivers Dispatched to One Regular Patrol Unit**



Similarly, priority 2 calls dispatched to only 2 single officers were associated with an average response time 115.7% longer than the response time to the priority 2 calls handled by 2 two-officer units and 175.0% longer than the response time to the priority 2 calls handled by one single-officer unit and one two-officer unit. The average

response time to the 801 priority 2 calls handled by 2 single-officer units was 59 minutes and 50 seconds. By comparison, the average response time to the 3,119 priority 2 calls dispatched to 2 two-officer units was 27 minutes and 44 seconds and the average response time to the 1,887 priority 2 calls dispatched to one single-officer unit and one two-officer unit was 21 minutes and 45 seconds.

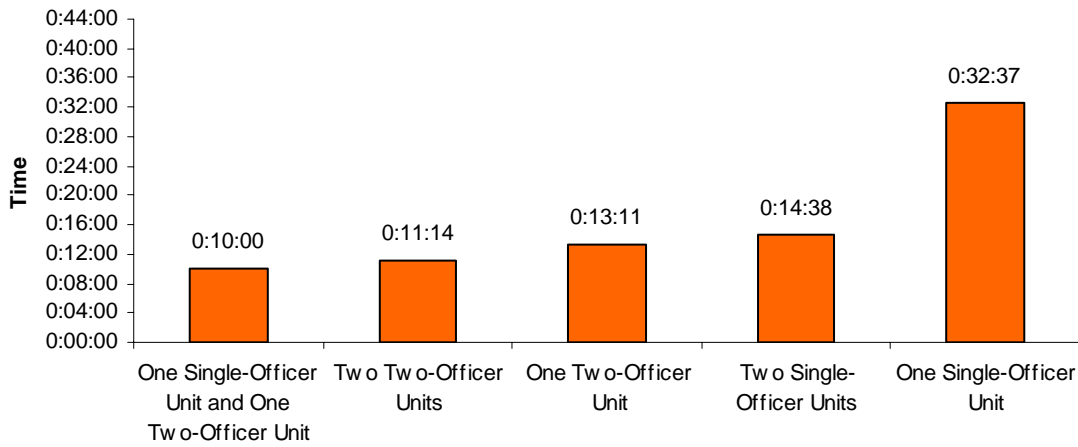
**Figure 7-137 Average Response Time to Priority 2 Calls Dispatched to Two Regular Patrol Units**



As before, this finding was consistent across most individual priority 2 call types and all patrol districts. Between 2005-06-01 and 2006-05-31, for instance:

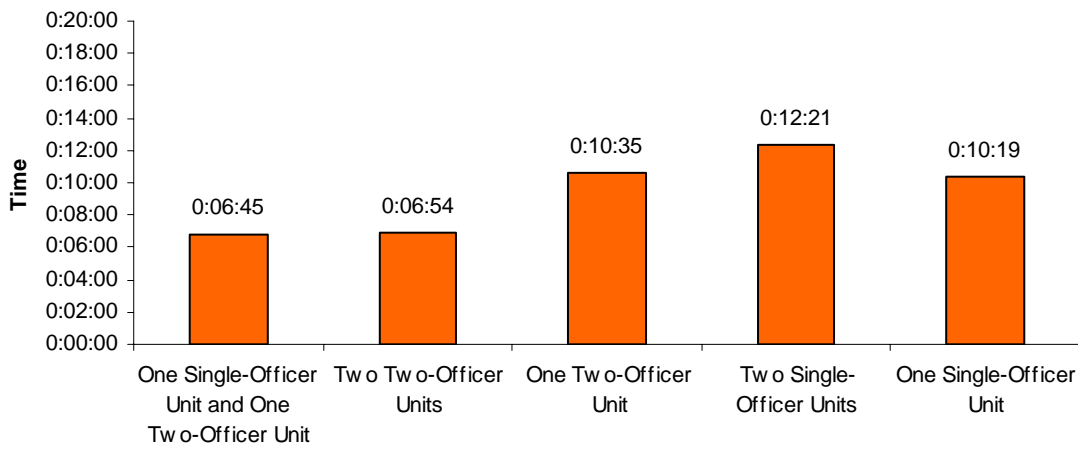
- 48 priority 2 break and enters in progress were assigned to 2 single-officer units. The average response time to these priority 2 calls was approximately 14 minutes and 38 seconds. During the same period, 282 priority 2 break and enters in progress were assigned to 2 two-officer units. The average response time to these priority 2 calls was approximately 11 minutes and 14 seconds. This implies that priority 2 break and enters in progress handled by 2 single-officer units were associated with an average response time 30.2% longer than the response time to the priority 2 break and enters in progress handled by 2 two-officer units.

**Figure 7-138 Average Response Time to Priority 2 Break and Enters in Progress Dispatched to One or Two Regular Patrol Units**



- 108 priority 2 thefts in progress were assigned to 2 single-officer units. The average response time to these priority 2 calls was approximately 1 hour and 22 minutes. During the same period, 366 priority 2 thefts in progress were assigned to 2 two-officer units. The average response time to these priority 2 calls was approximately 32 minutes and 23 seconds. This implies that priority 2 thefts in progress handled by 2 single-officer units were associated with an average response time 153.1% longer than the response time to the priority 2 thefts in progress handled by 2 two-officer units.
- 54 priority 2 fights were assigned to 2 single-officer units. The average response time to these priority 2 calls was approximately 12 minutes and 21 seconds. During the same period, 322 priority 2 fights were assigned to 2 two-officer units. The average response time to these priority 2 calls was approximately 6 minutes and 54 seconds. This implies that priority 2 fights handled by 2 single-officer units were associated with an average response time 79.3% longer than the response time to the priority 2 fights handled by 2 two-officer units.

**Figure 7-139 Average Response Time to Priority 2 Fights Dispatched to One or Two Regular Patrol Units**



- 77 priority 2 domestic situations (not in progress) were assigned to 2 single-officer units. The average response time to these priority 2 calls was approximately 55 minutes and 2 seconds. During the same period, 280 priority 2 domestic situations were assigned to 2 two-officer units. The average response time to these priority 2 calls was approximately 27 minutes and 5 seconds. This implies that priority 2 domestic situations handled by 2 single-officer units were associated with an average response time 103.1% longer than the response time to the priority 2 domestic situations handled by 2 two-officer units.
- 41 priority 2 suspicious circumstances were assigned to 2 single-officer units. The average response time to these priority 2 calls was approximately 21 minutes and 43 seconds. During the same period, 165 priority 2 suspicious circumstances were assigned to 2 two-officer units. The average response time to these priority 2 calls was approximately 18 minutes and 43 seconds. This implies that priority 2 suspicious circumstances handled by 2 single-officer units were associated with an average response time 16.1% longer than the response time to the priority 2 suspicious circumstances handled by 2 two-officer units.
- 30 priority 2 suspicious persons were assigned to 2 single-officer units. The average response time to these priority 2 calls was approximately 22 minutes and 1 second. During the same period, 142 priority 2 suspicious persons were

assigned to 2 two-officer units. The average response time to these priority 2 calls was approximately 15 minutes and 20 seconds. This implies that priority 2 suspicious persons handled by 2 single-officer units were associated with an average response time 43.6% longer than the response time to the priority 2 suspicious persons handled by 2 two-officer units.

Everything else being equal, this empirical evidence suggests that two-officer units are responding to high-priority emergency 9-1-1 and telephone calls faster than single-officer units. This is consistent with the fact that a police car contains several complex pieces of equipment that must be handled simultaneously. This includes radios, computer, lights and sirens. When a two-officer unit is responding to a call, the driver can concentrate on driving while the passenger uses the radio and computer. The passenger can also assist the driver when he is clearing intersections using the emergency equipment. In addition, when a two-officer unit arrives on scene, they can immediately begin dealing with the call and generally do not have to wait for the arrival of additional backup units.

Before 2005-05-08, the standard practice at the dispatch center was to prioritize motor vehicle incident with injuries as priority 2 calls. Since the implementation of the new Versadex Police CAD system on 2005-05-08, the standard procedure at E-Comm is to dispatch motor vehicle incidents with injuries as priority 1 calls. This change in procedure affected the average response time to priority 1 calls for service because motor vehicle incidents with injuries are generally associated with consistently longer response times than most other priority 1 emergency calls.

Between 2005-06-01 and 2006-05-31, there were a total of 3,390 motor vehicle incidents with injuries dispatched to regular patrol units citywide. Approximately 2,688 (79.3%) of these 3,390 motor vehicle incidents with injuries were priority 1 emergency 9-1-1 or telephone calls for which the response time was available. The average response time associated with those 2,688 priority 1 calls was 21 minutes and 30 seconds. Overall, this implies that the average response time associated with priority 1

motor vehicle incidents with injuries was 88.3% longer than the average response time associated with the other priority 1 calls. When priority 1 motor vehicle incidents with injuries are excluded, the average priority 1 response time falls by 15.0% from 13 minutes and 26 seconds to 11 minutes and 25 seconds.

This reflects the fact that patrol officers do not generally recognize that motor vehicle incidents with injuries are legitimate priority 1 calls requiring an immediate police response. The Vancouver Fire and Rescue Service (VFRS) and the British Columbia Ambulance Services (BCAS) normally respond with lights and sirens (i.e. code 3) to motor vehicle incidents with injuries and frequently arrive on scene prior to the police. The BCAS and VFRS personnel are highly trained professionals specialized in emergency first aid and the extraction of persons from vehicles. In contrast, police officers in Vancouver are not generally trained to provide emergency medical treatment or deal with people involved in a serious car accident.

Since motor vehicle incidents with injuries tend to be associated with longer response times, patrol districts in which more motor vehicle incidents with injuries occur (i.e. District 3 and 4) tend to have artificially inflated average priority 1 response times.

In District 1, there were 417 priority 1 motor vehicle incidents with injuries dispatched to regular patrol units. The average response time associated with those 417 priority 1 calls was 14 minutes and 57 seconds. Overall, this implies that the average response time associated with priority 1 motor vehicle incidents with injuries in District 1 was 75.5% longer than the average response time associated with the other priority 1 calls. When priority 1 motor vehicle incidents with injuries are excluded, the average priority 1 response time in District 1 falls by 10.3% from 9 minutes and 29 seconds to 8 minutes and 31 seconds.

In District 2, there were 462 priority 1 motor vehicle incidents with injuries dispatched to regular patrol units. The average response time associated with those 462 priority 1 calls was 20 minutes and 29 seconds. Overall, this implies that the average response time associated with priority 1 motor vehicle incidents with injuries in District 2 was 74.8% longer than the average response time associated with the other priority 1 calls.



When priority 1 motor vehicle incidents with injuries are excluded, the average priority 1 response time in District 2 falls by 8.7% from 12 minutes and 49 seconds to 11 minutes and 43 seconds.

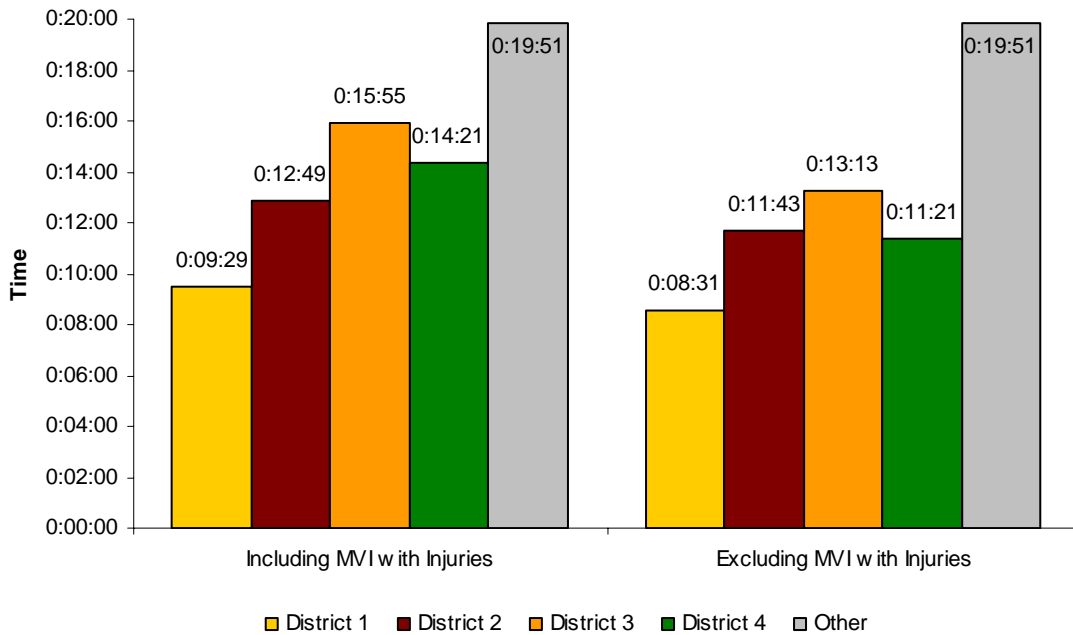
In District 3, there were 847 priority 1 motor vehicle incidents with injuries dispatched to regular patrol units. The average response time associated with those 847 priority 1 calls was 26 minutes and 26 seconds. Overall, this implies that the average response time associated with priority 1 motor vehicle incidents with injuries in District 3 was twice longer than the average response time associated with the other priority 1 calls. When priority 1 motor vehicle incidents with injuries are excluded, the average priority 1 response time in District 3 falls by 17.0% from 15 minutes and 55 seconds to 13 minutes and 13 seconds.

In District 4, there were 962 priority 1 motor vehicle incidents with injuries dispatched to regular patrol units. The average response time associated with those 962 priority 1 calls was 20 minutes and 30 seconds. Overall, this implies that the average response time associated with priority 1 motor vehicle incidents with injuries in District 4 was 80.6% longer than the average response time associated with the other priority 1 calls. When priority 1 motor vehicle incidents with injuries are excluded, the average priority 1 response time in District 4 falls by 20.9% from 14 minutes and 21 seconds to 11 minutes and 21 seconds.

**Table 7-12 Average Response Time to Priority 1 Calls Including and Excluding Motor Vehicle Incidents with Injuries**

	Including MVI with Injuries		Excluding MVI with Injuries	
	Number of Calls	Average Response Time	Number of Calls	Average Response Time
District 1	2,759	0:09:29	2,342	0:08:31
District 2	3,638	0:12:49	3,176	0:11:43
District 3	4,146	0:15:55	3,299	0:13:13
District 4	2,933	0:14:21	1,971	0:11:21
Other	6	0:19:51	6	0:19:51
<b>Total</b>	<b>13,482</b>	<b>0:13:26</b>	<b>10,794</b>	<b>0:11:25</b>

**Figure 7-140 Average Response Time to Priority 1 Calls Including and Excluding Motor Vehicle Incidents with Injuries**



Overall, when motor vehicle incidents with injuries are excluded, the variation in the average priority 1 response time between patrol districts (i.e. the variance) is reduced by 48.8%. Nevertheless, it can be shown that the other findings summarized above are not affected significantly by priority 1 motor vehicle incidents with injuries.

## 7.2 STAFFING, WORKLOAD AND PRIORITY 1 RESPONSE TIME

In their groundbreaking book *Urban Operations Research*, Dr. Richard Larson and Dr. Amedeo Odoni show that the average expected travel distance of a given patrol unit will be proportional to the inverse of the square root of the density of patrol units in a district, as long as:

1. Calls for service are independently and spatially uniformly distributed over the relevant geographic region.

2. The length of a patrol district is not much greater than its width (i.e. the patrol district is “fairly compact”).
3. Major barriers or boundary indentations do not exist in the district (i.e. the district is “fairly convex”).

The relationship between the average expected travel distance ( $D$ ), the size of the patrol district’s area ( $R$ ) and the number of available regular patrol units ( $A$ ) described by Larson and Amedeo (1981) can be expressed mathematically as follows:

**Equation 7-1**

$$E[D] = c \cdot \sqrt{\frac{R}{A}}$$

In Equation 7-1,  $c$  is a constant that depends on the metric in use and the geographic configuration of the district. Equation 7-1 is a reproduction of equation 3.87 in Larson and Amedeo (1981) with a different notation.

Furthermore, Larson and Amedeo (1981) use the fact that travel time is approximately proportional to travel distance and show that the following equation offers a reasonable estimate of the average expected travel time  $T$ :

**Equation 7-2**

$$E[T] = a + b \cdot E[D] = a + b \cdot c \cdot \sqrt{\frac{R}{A}}$$

In Equation 7-2,  $a$  is a constant directly proportional to the average cruising speed of patrol units responding to a call but inversely proportional to the initial acceleration rate. Moreover,  $b$  is a constant inversely proportional to the average cruising speed. Equation 7-2 is a simplification of equation 3.93 in Larson and Amedeo (1981).

Using patrol data and regression analysis, it is possible to estimate empirical values for the parameters  $a$ ,  $b$  and  $c$  (technically, we only need to derive values for  $a$  and the

product  $\beta = b \cdot c$ ). In accordance with Equation 7-2, the following econometric model can be estimated:

### Equation 7-3

$$T_i = a + \beta \cdot \sqrt{\frac{R}{A_i}} + \varepsilon$$

The model in Equation 7-3 is linear in the parameters and can be estimated using a simple Ordinary Least Squares (OLS) regression. Initially, the model needs to be estimated for each priority level and possibly for nights and days separately because, among others:

- The average cruising speed of patrol units may vary with the urgency or the perceived seriousness (e.g. priority level or call type) of the call.
- The average cruising speed of patrol units may vary depending on the time of day (e.g. because of traffic).

To account for the fact that motor vehicle incidents with injuries tend to be associated with consistently longer response times, the model in Equation 7-3 was estimated using all priority 1 emergency 9-1-1 and telephone calls recorded by the VPD between 2005-06-01 and 2006-05-31, excluding motor vehicle incidents with injuries. Calls associated with a response time longer than 60 seconds or shorter than 10 hours were also excluded. By segregating priority 1 motor vehicle incidents with injuries from the other priority 1 calls, we obtain a more accurate estimate of the average travel time to priority 1 calls that require an immediate police response.

The number of regular patrol units available to be dispatched at the time each call was received was obtained by subtracting the number of busy regular patrol units (i.e. units already assigned to a call) from the estimated number of regular patrol units deployed. Typically, when a priority 1 call is received while no unit is readily available to be dispatched, a unit is pre-empted. That is, at least one unit is forced to clear the lower priority call it is assigned to and it is then dispatched to the higher priority incident. To

capture this effect, we assign a minimum of one regular patrol unit to priority 1 calls received while no regular patrol unit is available to be dispatched.

The geographic area of each patrol district in square kilometres was obtained from public documents published by the VPD COMPSTAT Unit. The COMPSTAT Unit estimated that District 1 was covering an area of 8.47 square kilometres, District 2 was covering an area of 17.00 square kilometres, District 3 was covering an area of 36.41 square kilometres and District 4 was covering an area of 54.94 square kilometres.

As illustrated in section 7.1, the average priority 1 response time is consistently longer during the day. Intuitively, traffic is denser during the day and patrol units may not be able to drive as fast. This may lead to a longer travel time. To adjust for the fact that the average travel time to priority 1 calls could be consistently longer during the day (between 0600 and 1800), two separate regression models were estimated.

During the day, the empirical model described by Equation 7-3 suggests that the travel time (in minutes) to any given priority 1 call (excluding motor vehicle incidents with injuries) can be best predicted by the following equation:

**Equation 7-4**

$$T_i = 6.00 + 0.55 \cdot \sqrt{\frac{R}{A_i}}$$

At night, it was determined that the travel time (in minutes) to any given priority 1 call (excluding motor vehicle incidents with injuries) could be best predicted by:

**Equation 7-5**

$$T_i = 4.20 + 0.48 \cdot \sqrt{\frac{R}{A_i}}$$

For its part, the travel time (in minutes) to any given priority 1 motor vehicle incident with injuries can be best predicted by the following equation:

### Equation 7-6

$$T_t = 8.88 + 0.78 \cdot \sqrt{\frac{R}{A_t}}$$

Equation 7-6 implies that:

- In District 1 ( $R=8.47$ ), when only one regular patrol unit is available ( $A=1$ ), the travel time to a priority 1 motor vehicle incident with injuries should be approximately 11 minutes and 9 seconds. When two regular patrol units are available ( $A=2$ ), the travel time is expected to decrease by 40 seconds to 10 minutes and 29 seconds. When three regular patrol units are available ( $A=3$ ), the travel time is expected to decrease by another 18 seconds to 10 minutes and 12 seconds. With 4 regular patrol units available, the travel time is expected to stand at around 10 minutes and 1 second. With 5 regular patrol units available, the travel time is expected to stand at around 9 minutes and 54 seconds.
- In District 2 ( $R=17.00$ ), when only one regular patrol unit is available ( $A=1$ ), the travel time to a priority 1 motor vehicle incident with injuries should be approximately 12 minutes and 5 seconds. When two regular patrol units are available ( $A=2$ ), the travel time is expected to decrease by 56 seconds to 11 minutes and 9 seconds. When three regular patrol units are available ( $A=3$ ), the travel time is expected to decrease by another 25 seconds to 10 minutes and 44 seconds. With 4 regular patrol units available, the travel time is expected to stand at around 10 minutes and 29 seconds. With 5 regular patrol units available, the travel time is expected to stand at around 10 minutes and 19 seconds.
- In District 3 ( $R=36.41$ ), when only one regular patrol unit is available ( $A=1$ ), the travel time should be approximately 13 minutes and 34 seconds. When two regular patrol units are available ( $A=2$ ), the travel time is expected to decrease by 82 seconds to 12 minutes and 12 seconds. When three regular patrol units are available ( $A=3$ ), the travel time is expected to decrease by another 36 seconds to 11 minutes and 35 seconds. With 4 regular patrol units available, the travel time is expected to stand at around 11 minutes and 14 seconds. With 5 regular patrol

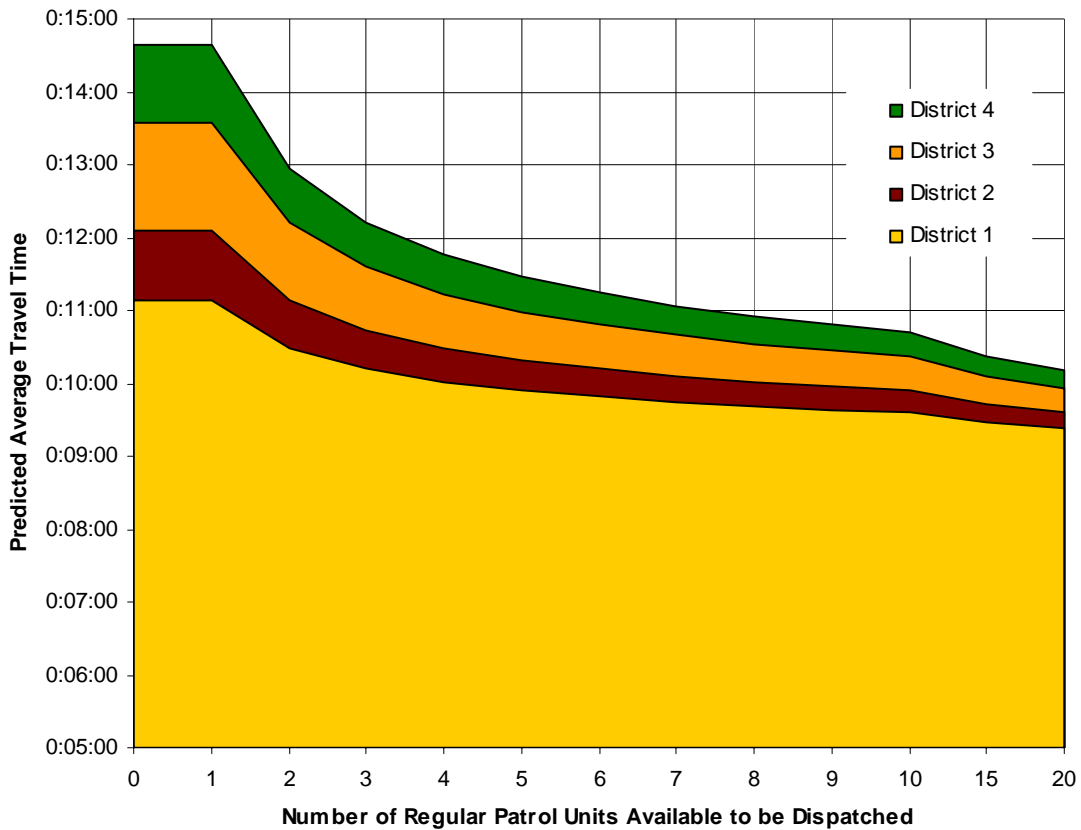
units available, the travel time is expected to stand at around 10 minutes and 59 seconds.

- In District 4 ( $R=54.94$ ), when only one regular patrol unit is available ( $A=1$ ), the travel time should be approximately 14 minutes and 38 seconds. When two regular patrol units are available ( $A=2$ ), the travel time is expected to decrease by 101 seconds to 12 minutes and 57 seconds. When three regular patrol units are available ( $A=3$ ), the travel time is expected to decrease by another 45 seconds to 12 minutes and 12 seconds. With 4 regular patrol units available, the travel time is expected to stand at around 11 minutes and 46 seconds. With 5 regular patrol units available, the travel time is expected to stand at around 11 minutes and 28 seconds.

**Table 7-13 Predicted Travel Time to Priority 1 MVI with Injuries by District**

<b>Number of Regular Patrol Units Available</b>	<b>District 1 8.47</b>	<b>District 2 17.00</b>	<b>District 3 36.41</b>	<b>District 4 54.94</b>
0	0:11:09	0:12:05	0:13:34	0:14:38
1	0:11:09	0:12:05	0:13:34	0:14:38
2	0:10:29	0:11:09	0:12:12	0:12:57
3	0:10:12	0:10:44	0:11:35	0:12:12
4	0:10:01	0:10:29	0:11:14	0:11:46
5	0:09:54	0:10:19	0:10:59	0:11:28
6	0:09:49	0:10:12	0:10:48	0:11:14
7	0:09:45	0:10:06	0:10:39	0:11:04
8	0:09:41	0:10:01	0:10:33	0:10:55
9	0:09:38	0:09:57	0:10:27	0:10:48
10	0:09:36	0:09:54	0:10:22	0:10:42
15	0:09:28	0:09:43	0:10:06	0:10:22
20	0:09:24	0:09:36	0:09:56	0:10:10

**Figure 7-141 Predicted Travel Time to Priority 1 MVI with Injuries by District**



Given the simplicity of the model, the predictions obtained through Equation 7-4 and Equation 7-5 compare relatively well with the actual average travel time to priority 1 calls in each patrol district (excluding motor vehicle incidents with injuries). For instance:

- In District 1, approximately 4.2 regular patrol units were available to be dispatched to priority 1 calls on average. The predicted average travel time is therefore 5 minutes and 34 seconds. By comparison, the actual average travel time in District 1 was 4 minutes and 42 seconds.
- In District 2, approximately 3.5 regular patrol units were available to be dispatched on average. The predicted average travel time is therefore 5 minutes and 59 seconds. By comparison, the actual average travel time in District 2 was 6 minutes and 7 seconds.
- In District 3, approximately 3.4 regular patrol units were available to be dispatched on average. The predicted average travel time is therefore 6 minutes



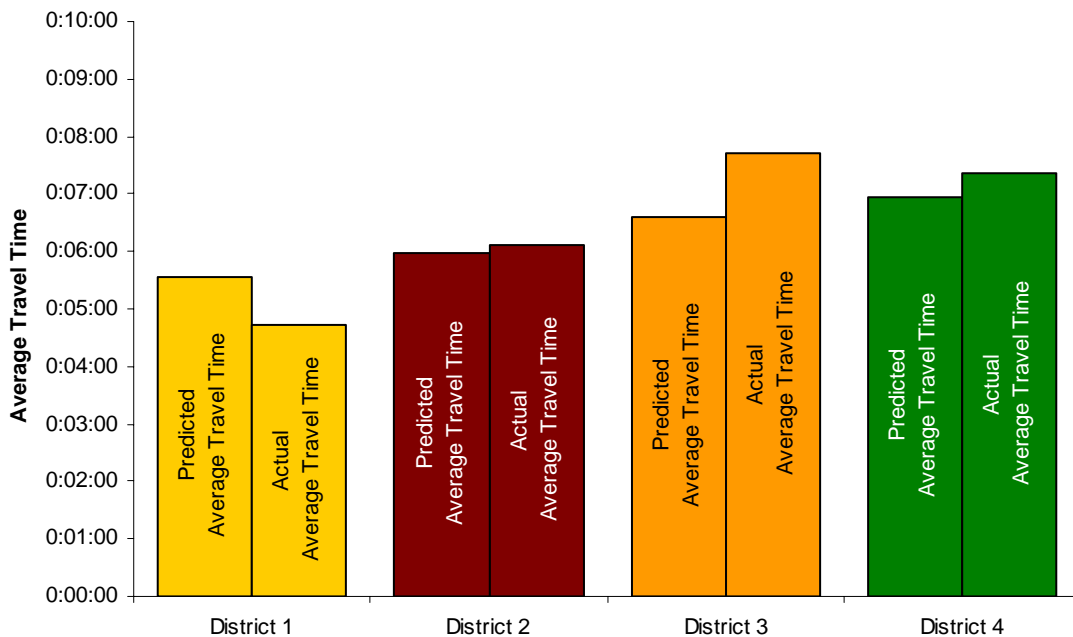
and 35 seconds. By comparison, the actual average travel time in District 3 was 7 minutes and 42 seconds.

- In District 4, approximately 3.6 regular patrol units were available to be dispatched on average. The predicted average travel time is therefore 6 minutes and 57 seconds. By comparison, the actual average travel time in District 4 was 7 minutes and 21 seconds.

**Table 7-14 Predicted and Actual Average Travel Time to Priority 1 Calls by District (Excluding MVI with Injuries)**

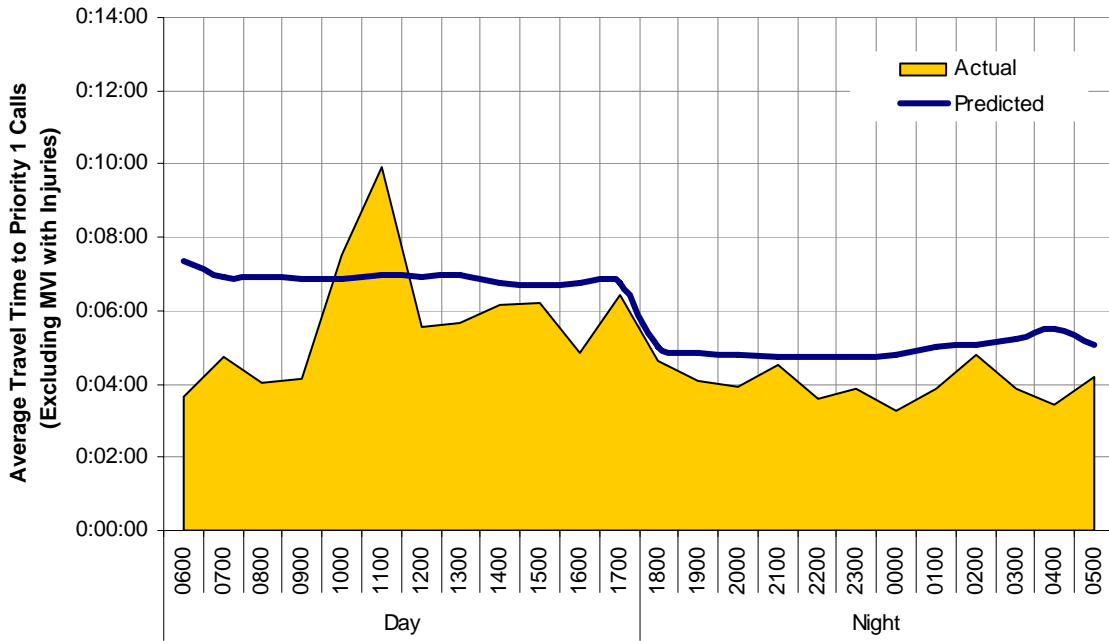
District	Geographic Area	Total Number of Priority 1 Calls	Average Number of Regular Patrol Units Available	Predicted Average Travel Time	Actual Average Travel Time
District 1	8.47	2,396	4.2	0:05:34	0:04:42
District 2	17.00	3,256	3.5	0:05:59	0:06:07
District 3	36.41	3,388	3.4	0:06:35	0:07:42
District 4	54.94	2,027	3.6	0:06:57	0:07:21
<b>Total</b>	<b>116.82</b>	<b>11,067</b>	<b>3.6</b>	<b>0:06:15</b>	<b>0:06:31</b>

**Figure 7-142 Predicted and Actual Average Travel Time to Priority 1 Calls by District (Excluding MVI with Injuries)**

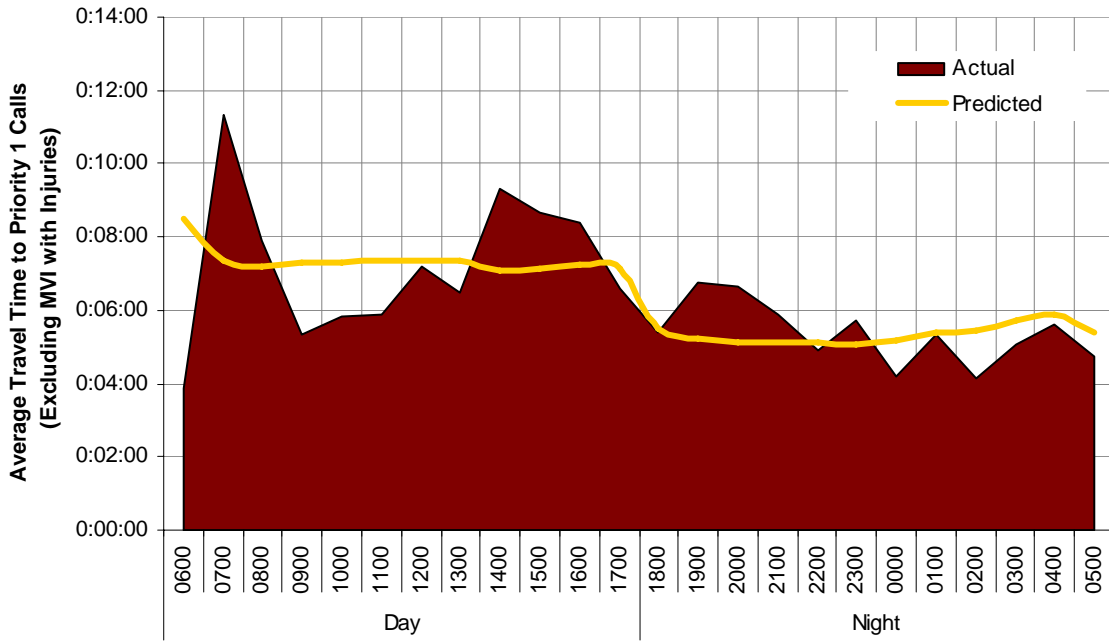


As illustrated by the graphs below, these refinements to the model increase the predictive power of the model and are likely to lead to more accurate predictions.

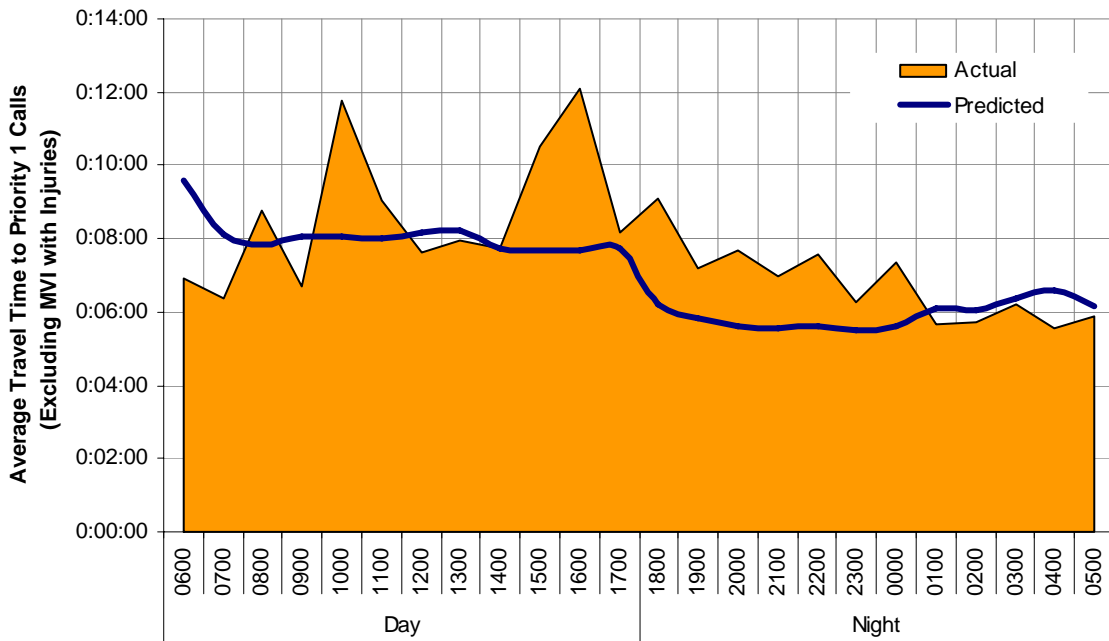
**Figure 7-143 Actual and Predicted Average Travel Time by Hour of the Day in District 1**



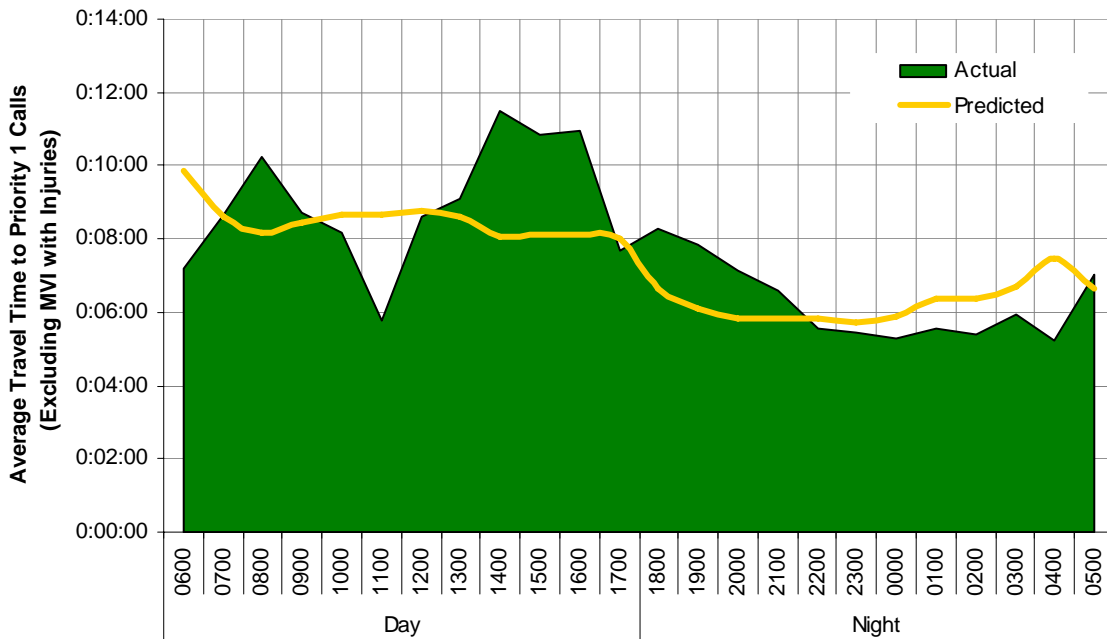
**Figure 7-144 Actual and Predicted Average Travel Time by Hour of the Day in District 2**



**Figure 7-145 Actual and Predicted Average Travel Time by Hour of the Day in District 3**



**Figure 7-146 Actual and Predicted Average Travel Time by Hour of the Day in District 4**



By definition, most priority 1 calls cannot be stacked in the call queue until a patrol unit becomes available. In essence, as soon as a call taker or a dispatcher believes that a priority 1 incident is taking place, a patrol unit will be dispatched. In theory, this implies that there should be virtually no queuing delay associated with priority 1 calls. In practice, however, call takers and dispatchers usually need some time to accurately assimilate the information that is being provided by the complainant or the witness. Tactically, enough information needs to be available before a priority 1 call can be dispatched to ensure that the patrol response is appropriate and effective.

The average dispatching delay associated with most priority 1 calls is approximately 2 to 4 minutes. However, when no unit is initially available to be dispatched, a unit must clear the call it is working on before it can be dispatched. This leads to an increase in the time it takes before a unit can be assigned to the priority 1 call.

During the structured interviews that were conducted at E-Comm (the emergency communications centre that receives and dispatches the 9-1-1 calls to the patrol

officers), the communications personnel confirmed that the response time was often lengthened by the fact that no patrol units were readily available to be dispatched.

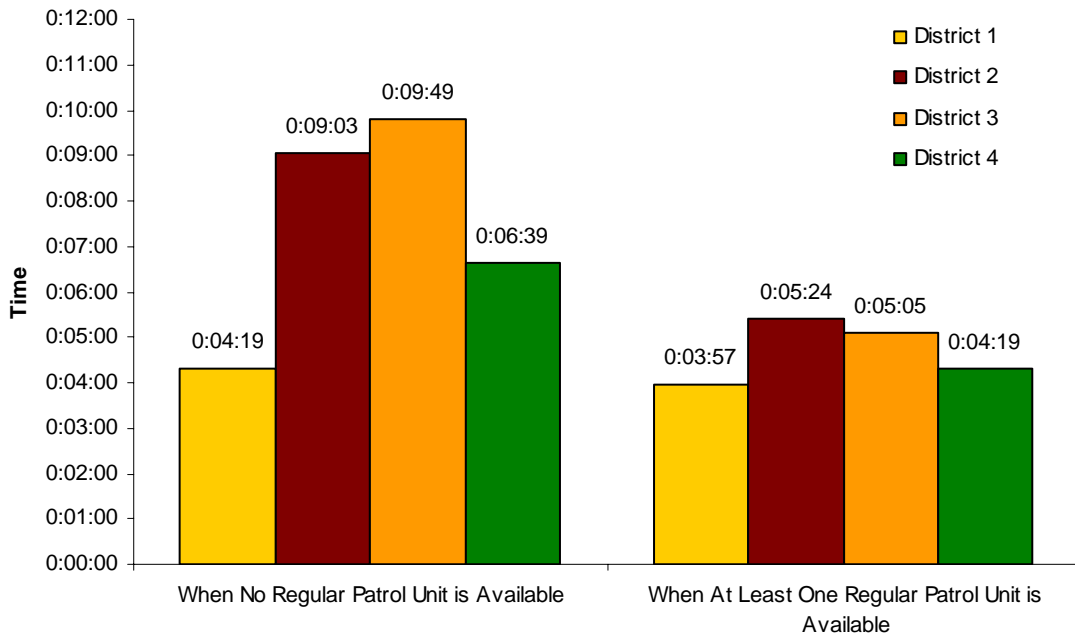
The data reflects this issue very clearly. For instance:

- In District 1, excluding motor vehicle incidents with injuries, the average queuing delay when no regular patrol unit was available to be dispatched was 4 minutes and 19 seconds. When at least one regular patrol unit was available to be dispatched, the average queuing delay was 3 minutes and 57 seconds in District 1.
- In District 2, excluding motor vehicle incidents with injuries, the average queuing delay when no regular patrol unit was available to be dispatched was 9 minutes and 3 seconds. When at least one regular patrol unit was available to be dispatched, the average queuing delay was 5 minutes and 24 seconds in District 2.
- In District 3, excluding motor vehicle incidents with injuries, the average queuing delay when no regular patrol unit was available to be dispatched was 9 minutes and 49 seconds. When at least one regular patrol unit was available to be dispatched, the average queuing delay was 5 minutes and 5 seconds in District 3.
- In District 4, excluding motor vehicle incidents with injuries, the average queuing delay when no regular patrol unit was available to be dispatched was 6 minutes and 39 seconds. When at least one regular patrol unit was available to be dispatched, the average queuing delay was 4 minutes and 19 seconds in District 4.

**Table 7-15 Average Queuing Delay Associated with Priority 1 Calls (Excluding MVI Injuries) by District**

District	Total Number of Priority 1 Calls	When No Regular Patrol Unit is Available	When At Least One Regular Patrol Unit is Available
District 1	2,396	0:04:19	0:03:57
District 2	3,256	0:09:03	0:05:24
District 3	3,388	0:09:49	0:05:05
District 4	2,027	0:06:39	0:04:19
<b>Total</b>	<b>11,067</b>	<b>0:07:54</b>	<b>0:04:48</b>

**Figure 7-147 Average Queuing Delay Associated with Priority 1 Calls (Excluding MVI with Injuries) by District**



Moreover, the queuing delay increases even more when no regular patrol unit is available to respond to a priority 1 motor vehicle incident with injuries.

- In District 1, the average queuing delay to priority 1 motor vehicle incidents with injuries was 12 minutes and 17 seconds when no regular patrol unit was available to be dispatched. When at least one regular patrol unit was available to

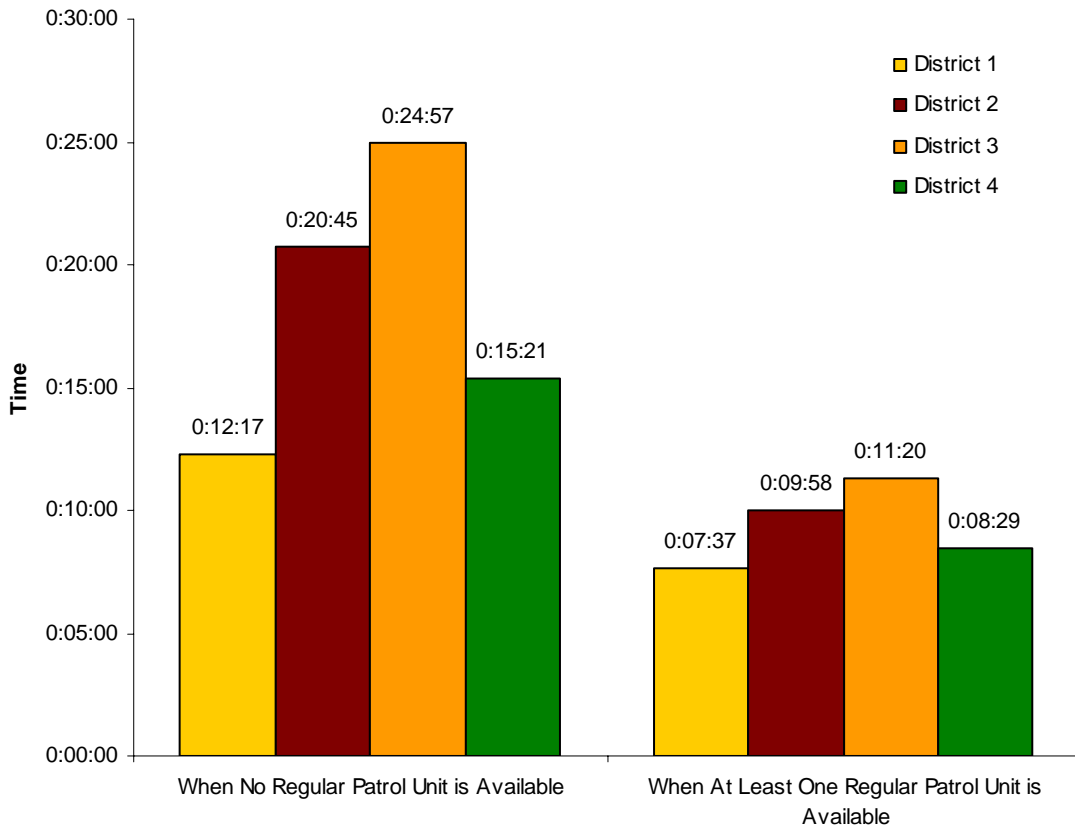
be dispatched, the average queuing delay was 7 minutes and 37 seconds in District 1.

- In District 2, the average queuing delay to priority 1 motor vehicle incidents with injuries was 20 minutes and 45 seconds when no regular patrol unit was available to be dispatched. When at least one regular patrol unit was available to be dispatched, the average queuing delay was 9 minutes and 58 seconds in District 2.
- In District 3, the average queuing delay to priority 1 motor vehicle incidents with injuries was 24 minutes and 57 seconds when no regular patrol unit was available to be dispatched. When at least one regular patrol unit was available to be dispatched, the average queuing delay was 11 minutes and 20 seconds in District 3.
- In District 4, the average queuing delay to priority 1 motor vehicle incidents with injuries was 15 minutes and 21 seconds when no regular patrol unit was available to be dispatched. When at least one regular patrol unit was available to be dispatched, the average queuing delay was 8 minutes and 29 seconds in District 4.

**Table 7-16 Average Queuing Delay Associated to Priority 1 MVI with Injuries by District**

<b>District</b>	<b>Total Number of Priority 1 Calls</b>	<b>When No Regular Patrol Unit is Available</b>	<b>When At Least One Regular Patrol Unit is Available</b>
District 1	462	0:12:17	0:07:37
District 2	505	0:20:45	0:09:58
District 3	971	0:24:57	0:11:20
District 4	1,066	0:15:21	0:08:29
<b>Total</b>	<b>3,004</b>	<b>0:19:26</b>	<b>0:09:30</b>

**Figure 7-148 Average Queuing Delay Associated to Priority 1 MVI with Injuries by District**



### **7.3 STAFFING, WORKLOAD AND THE AVERAGE RESPONSE TIME TO PRIORITY 2, 3 AND 4 CALLS**

By definition, priority 2, 3 and 4 calls can be stacked while patrol units handle priority 1 calls that come in. For this reason, priority 2, 3 and 4 calls are much more likely to be queued or stacked in the dispatch queue than priority 1 calls. As expected, priority 2, 3 and 4 calls also usually spend more time in the dispatch queue than priority 1 calls. This is illustrated by the fact that they are consistently associated with a longer average queuing delay.

In practice, the average response time to priority 2, 3 and 4 calls mostly depends on the average queuing delay. In Vancouver, because distances are not too substantial, the



travel time is unlikely to play a major role in the average response time to priority 2, 3 and 4 calls. Because the average queuing delay associated with priority 2, 3 and 4 calls is very long compared to the average travel time, reliable estimates for the average response time can usually be obtained simply by studying the average queuing delay and taking the average travel time as given.

This section relies on this assumption and presents a unified model that is able to predict fairly accurately the average queuing delay associated with priority 2, 3 and 4 calls based on the staffing level and the call load. Response time estimates can then be easily obtained from this model.

In its *Queuing Theory Cookbook*, Baker (2006) summarizes a queuing model with multiple pre-emptive priorities where  $\lambda_G$  is the hourly call rate for priority  $G$ ,  $1/\mu$  is the average service time in hours (assumed equal for each priority) and  $M$  is the total number of units deployed. Under that model, the average queuing delay associated with priority  $G$  calls can be estimated by:

**Equation 7-7**

$$W_G^q = \frac{1}{\mu \left( 1 - \frac{1}{M\mu} \cdot \sum_{i=1}^{G-1} \lambda_i \right) \cdot \left( 1 - \frac{1}{M\mu} \cdot \sum_{i=1}^G \lambda_i \right)} - \frac{1}{\mu}$$

For the purpose of this Patrol Deployment Study, it is assumed that the average service time is 1 hour and 15 minutes ( $1/\mu = 1.25$ ). This figure is consistent with the empirical patrol data and leads to realistic estimates for the current priority 2, 3 and 4 queuing delay.

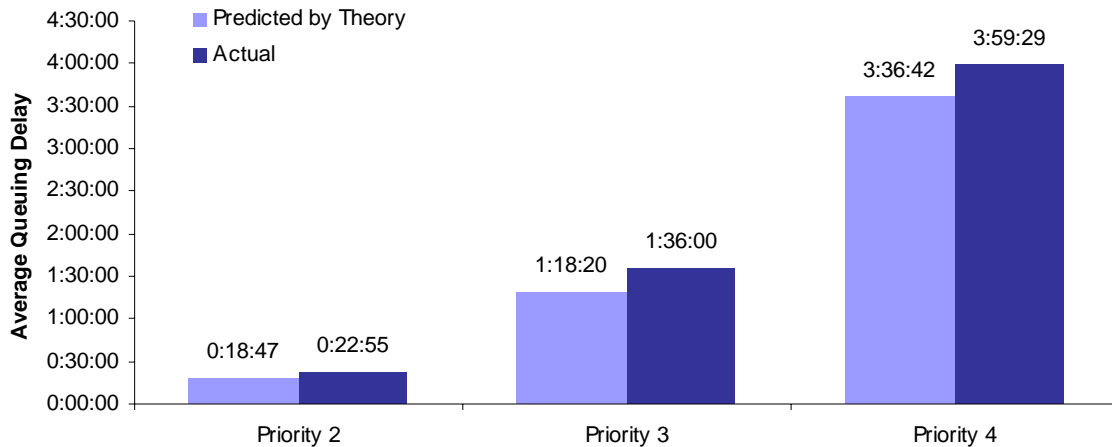
The queuing model presented by Baker (2006) is more sophisticated than the queuing models that assume either only a single server (i.e. only one patrol unit) or a single priority class (i.e. a unique priority level). Unfortunately, the queuing model can not easily be tailored to take into account the fact that the average service time varies by priority level or that more than one patrol unit can be dispatched to a call for service.

Although, more complex queuing models offer more flexibility (see Chelst and Barlach, 1981, Buzen and Bondi, 1983, Green and Kolesar, 1984, Green, 1984, Bondi and Buzen, 1984, Green and Kolesar, 1989 or Harchol-Balter et al., 2005), they are also much more complex, require a lot more computer programming and do not necessarily lead to much more accurate estimates.

Using the model described by Equation 7-7 and hourly call rate and deployment data by patrol district, the average citywide queuing delay for priority 2, 3 and 4 calls was computed. Ultimately, the selected queuing model turned out to be reasonably accurate and was able to predict fairly well the current average citywide queuing delay for priority 2, 3 and 4 calls.

- The model predicted that the average citywide queuing delay for priority 2 calls would be 18 minutes and 47 seconds. The actual average queuing delay for priority 2 calls was 22 minutes and 55 seconds between 2005-06-01 and 2006-05-31. This represents a prediction error of approximately 18.0%.
- The model predicted that the average citywide queuing delay for priority 3 calls would be 1 hour and 18 minutes. The actual average queuing delay for priority 3 calls was 1 hour and 36 minutes between 2005-06-01 and 2006-05-31. This represents a prediction error of approximately 18.4%.
- The model predicted that the average citywide queuing delay for priority 4 calls would be 3 hours and 37 minutes. The actual average queuing delay for priority 4 calls was 3 hours and 59 minutes between 2005-06-01 and 2006-05-31. This represents a prediction error of approximately 9.5%.

**Figure 7-149 Predicted and Actual Citywide Average Queuing Delay by Priority**



Overall, this empirical evidence validates the queuing model. For illustration purposes, if the number of regular patrol units deployed in each patrol district increased by 5%:

- The average queuing delay to priority 2 calls would be expected to fall by 1 minute and 14 seconds (5.4%).
- The average queuing delay to priority 3 calls would be expected to fall by 7 minutes and 36 seconds (7.9%).
- The average queuing delay to priority 4 calls would be expected to fall by 33 minutes and 32 seconds (14.0%).

## **7.4 PROACTIVE POLICING**

Patrol activities can generally fit in one of the following two categories:

1. *Reactive policing* occurs when officers respond to criminal offences and other calls for service that are reported by the public. These types of incidents can either be in progress or reported after the fact. A citizen calling 9-1-1 to report a stranger crawling through their neighbour's window would be an example of reactive policing. In the literature, the time spent investigating and reporting such incidents is commonly referred to as allocated time.

2. *Proactive policing* occurs when officers self-generate police activities. An officer checking a suspicious prowler in a laneway looking in vehicles would be an example of proactive policing. In the literature, the time spent on such activities is commonly referred to as unallocated time.

Proactive policing enables officers to focus their attention on problem areas and is a proven method to increase the effectiveness of patrol units and reduce crime. Proactive policing is a best practice in the law enforcement field and is effective at targeting repeat offenders and problem premises. Proactive policing enables officers to address community problems in a more concerted and focused manner. The alternative is to constantly treat the same symptoms, as opposed to directing solutions at the underlying problem.

Reducing violence caused by gangs and guns, reducing property crime and reducing street disorder are three goals of the VPD Strategic Plan. Proactive time allows officers to target and check gang members, property crime offenders and other people committing crimes in Vancouver. Proactive time also allows officers to address street disorder issues such as open-air drug dealing, open-air drug use, aggressive panhandling, noise, fighting and drunken hooliganism in the Entertainment District.

Unallocated time for proactive policing allows officers time to engage in self-initiated activities that can prevent or suppress crime. Such proactive activities typically include:

- Street disorder issues – these include the quality of life issues that affect people on a daily basis. These are the issues that people complain the most about. Examples of street disorder issues include aggressive panhandling, open-air drug dealing, fights, noise, intoxicated people and hooliganism in the Entertainment District. Reducing street disorder is one of the goals of the VPD Strategic Plan.
- On-view arrests – more proactive time will lead to more self-initiated arrests by officers, increased solving (or clearance) rates and reduced risks of injuries.
- Street checks – these are routine checks where officers speak with known criminals or suspicious people. They help an officer get to know the people on

their beat and can lead to an arrest, the gathering of intelligence information or general crime deterrence. Street check data is crucial to establish associations between people, vehicles and locations, and is used extensively by follow-up investigators to solve crimes. For example, on 2002-03-15, a grade 12 student from Winston Churchill School in Vancouver was at a hospital fund-raising event at a banquet hall in Surrey. Later in the evening he went outside with his sister and got into a verbal altercation with several males in the parking lot. The argument escalated and the males beat the student to death in the lot. Surrey RCMP investigated the incident and requested the help of the VPD Gang Crime Unit. The RCMP provided VPD Detectives with the name of a possible suspect and needed to know any of his associates. VPD Detectives conducted a PRIME query and discovered the suspect had been checked by VPD patrol officers on 2001-05-17, drinking beer with several other males in Queen Elizabeth Park. This information was shared with the Surrey RCMP and it turned out that three of the males checked drinking beer in Vancouver had committed the murder in Surrey. Surrey RCMP used this information to accelerate their investigation and subsequently laid murder charges against four males, all from Vancouver. This information would never have been readily available if the VPD patrol officers would not have conducted the street check. It was due to the ease of access to valuable police intelligence from front line patrol officers, that this murder investigation came to a quick conclusion.

- Traffic enforcement – this can be targeted enforcement in a problem area or on-view traffic violations. Similar to street checks, traffic enforcement can also lead officers to check suspicious vehicles and their occupants and provide important information to solve crimes (e.g. David Berkowitz, infamously known as the Son of Sam, was identified using traffic enforcement data). Improving traffic safety is one of the goals of the VPD Strategic Plan.
- Problem Oriented Policing (POP) – this can take many forms but it usually involves the officer working in partnership with the community to address concerns affecting the neighbourhood. Examples would include a suspected drug house or a corner store selling contraband to minors.

- Community policing – this is an over-arching philosophy. The police are part of the community and should get to know the businesses and residents whenever possible. This can include walking a beat, riding a bicycle, public speaking or assisting residents with programs such as Block Watch.
- Intelligence-led policing – this consists in directed patrols in problem areas or crime hot spots. Intelligence-led policing can be based on the officer’s knowledge of the area, citizen-generated complaints, information received from the district crime analysts or other sources. It can lead to on-view incidents and arrests. Intelligence-led policing can also be used to target specific problem premises, such as hotels or bars contributing to the problem in a neighbourhood. This can also include “special attentions” assigned to an officer by its supervisor or the radio dispatcher.
- Informant handling and source development – this is where a person (usually someone involved in the criminal lifestyle) provides an officer with information on criminal activity or suspects involved in crime. This valuable information can assist in solving and preventing crimes.
- Licensed premises checks – this is when officers conduct routine inspections of licensed establishments to look for violations under the Liquor Control and Licensing Act such as minors consuming liquor or over-service. These types of checks allow the officers to become familiar with the staff and clientele, and develop sources and intelligence that can be useful during future investigations. Licensed premises checks contribute to reducing the problems inside licensed establishments and preventing street disorder issues.
- Crime prevention – the police providing advice to businesses and residents about safeguarding their property and providing personal safety tips.
- Follow-up investigations – more proactive time would allow officers to conduct more thorough investigations, clear more cases and further assist victims, witnesses, complainants and other citizens seeking justice. More unallocated time allows officers to spend more time conducting follow-up investigations they may not otherwise have time to complete. When officers are too busy on calls for service they sometimes take shortcuts and are not as thorough as they would

like to be. They can feel pressured to clear a call and get back into service to assist their colleagues with the call load.

- Crime deterrence – increased police presence and visibility would create a deterrent that could reduce street disorder and improve the citizens' perception of safety.

### 7.4.1 Person Stops

Between 2005-06-01 and 2006-05-31, VPD patrol units citywide performed a total of approximately 45,848 person stops. In particular, patrol units in District 1 performed approximately 17,187 person stops, patrol units in District 2 (excluding BET) performed 9,991 person stops, BET units performed 2,193 person stops, patrol units in District 3 performed 11,262 person stops and patrol units in District 4 performed 5,215 person stops.

**Table 7-17 Number of Person Stops by District**

<b>District</b>	<b>Total Number of Person Stops</b>	<b>Average Number of Person Stops per Day</b>
District 1	17,187	47.1
District 2 (Excluding BET)	9,991	27.4
Beat Enforcement Team	2,193	6.0
District 3	11,262	30.9
District 4	5,215	14.3
<b>Total</b>	<b>45,848</b>	<b>125.6</b>

Overall, more person stops were performed during the Charlie, Delta and Echo shifts.

In District 1, 1,494 person stops were performed during the Alpha shift, 2,971 person stops were performed during the Bravo shift, 3,898 person stops were performed during the Charlie shift, 4,048 person stops were performed during the Delta shift and 4,457 person stops were performed during the Echo shift. A total of 254 person stops were also performed by Lima call-out units in District 1.

In District 2 (excluding BET), 1,977 person stops were performed during the Alpha shift, 1,809 person stops were performed during the Bravo shift, 2,162 person stops were performed during the Charlie shift, 2,040 person stops were performed during the Delta shift and 2,003 person stops were performed during the Echo shift.

In District 3, 578 person stops were performed during the Alpha shift, 1,943 person stops were performed during the Bravo shift, 2,582 person stops were performed during the Charlie shift, 2,857 person stops were performed during the Delta shift and 3,302 person stops were performed during the Echo shift.

In District 4, 351 person stops were performed during the Alpha shift, 668 person stops were performed during the Bravo shift, 1,135 person stops were performed during the Charlie shift, 1,546 person stops were performed during the Delta shift and 1,515 person stops were performed during the Echo shift.

**Table 7-18 Number of Person Stops by District and by Shift**

<b>District</b>	<b>Alpha</b>	<b>Bravo</b>	<b>Charlie</b>	<b>Delta</b>	<b>Echo</b>	<b>Total</b>
District 1	1,494	2,971	3,898	4,048	4,457	<b>16,868</b>
District 2 (Excluding BET)	1,977	1,809	2,162	2,040	2,003	<b>9,991</b>
District 3	578	1,943	2,582	2,857	3,302	<b>11,262</b>
District 4	351	668	1,135	1,546	1,515	<b>5,215</b>
<b>Total</b>	<b>4,400</b>	<b>7,391</b>	<b>9,777</b>	<b>10,491</b>	<b>11,277</b>	<b>43,336</b>

### **7.4.2 Traffic Stops**

Between 2005-06-01 and 2006-05-31, VPD patrol units citywide performed a total of approximately 67,415 traffic stops. In particular, patrol units in District 1 performed approximately 15,389 traffic stops, patrol units in District 2 (excluding BET) performed 17,750 traffic stops, BET units performed 1,567 traffic stops, patrol units in District 3 performed 16,640 traffic stops and patrol units in District 4 approximately 16,069 traffic stops.



**Table 7-19 Number of Traffic Stops by District**

<b>District</b>	<b>Total Number of Traffic Stops</b>	<b>Average Number of Traffic Stops per Day</b>
District 1	15,389	42.2
District 2 (Excluding BET)	17,750	48.6
Beat Enforcement Team	1,567	4.3
District 3	16,640	45.6
District 4	16,069	44.0
<b>Total</b>	<b>67,415</b>	<b>184.7</b>

Like person stops, more traffic stops were performed during the Charlie, Delta and Echo shifts.

In District 1, 1,259 traffic stops were performed during the Alpha shift, 1,339 traffic stops were performed during the Bravo shift, 3,107 traffic stops were performed during the Charlie shift, 4,132 traffic stops were performed during the Delta shift and 4,165 traffic stops were performed during the Echo shift. A total of 405 traffic stops were also performed by Lima call-out units in District 1.

In District 2 (excluding BET), 3,710 traffic stops were performed during the Alpha shift, 1,815 traffic stops were performed during the Bravo shift, 3,700 traffic stops were performed during the Charlie shift, 3,748 traffic stops were performed during the Delta shift and 4,777 traffic stops were performed during the Echo shift.

In District 3, 1,812 traffic stops were performed during the Alpha shift, 1,975 traffic stops were performed during the Bravo shift, 3,035 traffic stops were performed during the Charlie shift, 4,701 traffic stops were performed during the Delta shift and 5,117 traffic stops were performed during the Echo shift.

In District 4, 1,060 traffic stops were performed during the Alpha shift, 1,620 traffic stops were performed during the Bravo shift, 3,705 traffic stops were performed during the Charlie shift, 4,446 traffic stops were performed during the Delta shift and 5,238 traffic stops were performed during the Echo shift.

**Table 7-20 Number of Traffic Stops by District and by Shift**

<b>District</b>	<b>Alpha</b>	<b>Bravo</b>	<b>Charlie</b>	<b>Delta</b>	<b>Echo</b>	<b>Total</b>
District 1	1,259	1,339	3,107	4,132	4,165	<b>14,002</b>
District 2 (Excluding BET)	3,710	1,815	3,700	3,748	4,777	<b>17,750</b>
District 3	1,812	1,975	3,035	4,701	5,117	<b>16,640</b>
District 4	1,060	1,620	3,705	4,446	5,238	<b>16,069</b>
<b>Total</b>	<b>7,841</b>	<b>6,749</b>	<b>13,547</b>	<b>17,027</b>	<b>19,297</b>	<b>64,461</b>

### 7.4.3 Street Checks

Between 2005-06-01 and 2006-05-31, VPD patrol units performed a total of approximately 6,853 street checks. More precisely, 1,637 street checks were performed by patrol units in District 1, 1,098 street checks were performed by patrol units in District 2 (excluding BET), 1,083 street checks were performed by BET units, 1,421 street checks were performed by patrol units in District 3 and 1,614 street checks were performed by patrol units in District 4.

**Table 7-21 Number of Street Checks by District**

<b>District</b>	<b>Total Number of Street Checks</b>	<b>Average Number of Street Checks per Day</b>
District 1	1,637	4.5
District 2 (Excluding BET)	1,098	3.0
Beat Enforcement Team	1,083	3.0
District 3	1,421	3.9
District 4	1,614	4.4
<b>Total</b>	<b>6,853</b>	<b>18.8</b>

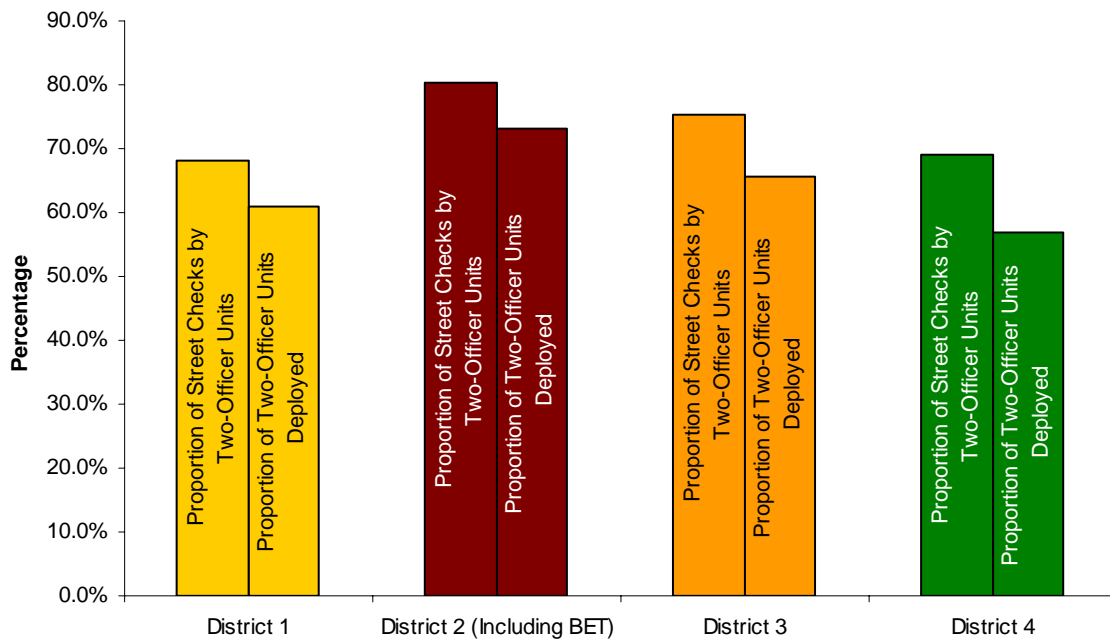
Between 2005-06-01 and 2006-05-31, 73.7% of all street checks performed by patrol units were performed by two-officer units. In particular, 68.1% of all street checks in District 1 were performed by two-officer patrol units, 70.0% of all street checks in District 2 (excluding BET) were performed by two-officer patrol units, 75.4% of all street checks in District 3 were performed by two-officer patrol units and 69.0% of all street checks in District 4 were performed by two-officer patrol units. By comparison, only 61.0% of all

regular patrol units deployed in District 1 were two-officer units, 73.2% of all regular patrol units deployed in District 2 (including BET) were two-officer units, 65.6% of all regular patrol units deployed in District 3 were two-officer units and 57.0% of all regular patrol units deployed in District 4 were two-officer units.

**Table 7-22 Number of Street Checks by Single-Officer and Two-Officer Units by District**

District	Street Checks by Single-Officer Units	Street Checks by Two-Officer Units	Proportion of Street Checks by Two-Officer Units
District 1	523	1,114	68.1%
District 2 (Including BET)	430	1,751	80.3%
District 3	349	1,072	75.4%
District 4	500	1,114	69.0%
<b>Total</b>	<b>1,802</b>	<b>5,051</b>	<b>73.7%</b>

**Figure 7-150 Proportion of Street Checks by Two-Officer Units by District**



Overall, this data supports the idea that two-officer units engage in proportionately more proactive policing activities than single-officer units. There is a strong link between

street checks and solving crime. Therefore, two-officer units are more likely to contribute to a crime being solved.

#### 7.4.4 Tickets

Between 2005-06-01 and 2006-05-31, VPD patrol units handed out a total of approximately 10,875 tickets. More precisely, 3,052 tickets were handed out by patrol units in District 1, 2,412 tickets were handed out by patrol units in District 2 (excluding BET), 529 tickets were handed out by BET units, 1,786 tickets were handed out by patrol units in District 3 and 3,096 tickets were handed out by patrol units in District 4.

**Table 7-23 Number of Tickets by District**

<b>District</b>	<b>Total Number of Tickets</b>	<b>Average Number of Tickets per Day</b>
District 1	3,052	8.4
District 2 (Excluding BET)	2,412	6.6
Beat Enforcement Team	529	1.4
District 3	1,786	4.9
District 4	3,096	8.5
<b>Total</b>	<b>10,875</b>	<b>29.8</b>

Patrol units handed tickets for violations of the Liquor Control Act, the Motor Vehicle Act, the Safe Streets Act, the Trespass Act and Transit Conduct & Safety Regulations.

Patrol units in District 1 handed 677 (53.5%) of the 1,266 tickets for violations of the Liquor Control Act. They also handed out 2,369 tickets for violations of the Motor Vehicle Act (including the Motor Vehicle Act Regulations) and 6 other tickets.

Patrol units in District 2 handed 266 tickets for violations of the Liquor Control Act, 2,091 tickets for violations of the Motor Vehicle Act (including the Motor Vehicle Act Regulations) and 55 other tickets (including 43 tickets for violations of the Safe Streets Act).

Patrol units in the Beat Enforcement Team handed 91 tickets for violations of the Liquor Control Act, 436 tickets for violations of the Motor Vehicle Act (including the Motor Vehicle Act Regulations) and 2 other tickets.

Patrol units in District 3 handed 77 tickets for violations of the Liquor Control Act, 1,705 tickets for violations of the Motor Vehicle Act (including the Motor Vehicle Act Regulations) and 4 other tickets.

Patrol units in District 4 handed 155 tickets for violations of the Liquor Control Act, 2,936 tickets for violations of the Motor Vehicle Act (including the Motor Vehicle Act Regulations) and 5 other tickets.

**Table 7-24 Number of Tickets by District and Statute**

<b>District</b>	<b>Liquor Control Act</b>	<b>Motor Vehicle Act</b> (Including MVA Regulations)	<b>Other</b>	<b>Total</b>
District 1	677	2,369	6	3,052
District 2 (Excluding BET)	266	2,091	55	2,412
Beat Enforcement Team	91	436	2	529
District 3	77	1,705	4	1,786
District 4	155	2,936	5	3,096
<b>Total</b>	<b>1,266</b>	<b>9,537</b>	<b>72</b>	<b>10,875</b>

The total value of the tickets handed out by patrol units between 2005-06-01 and 2006-05-31 was \$1,722,386 (approximately \$4,719 per day or \$158 per ticket).

**Table 7-25 Total Ticket Penalty Amount by District**

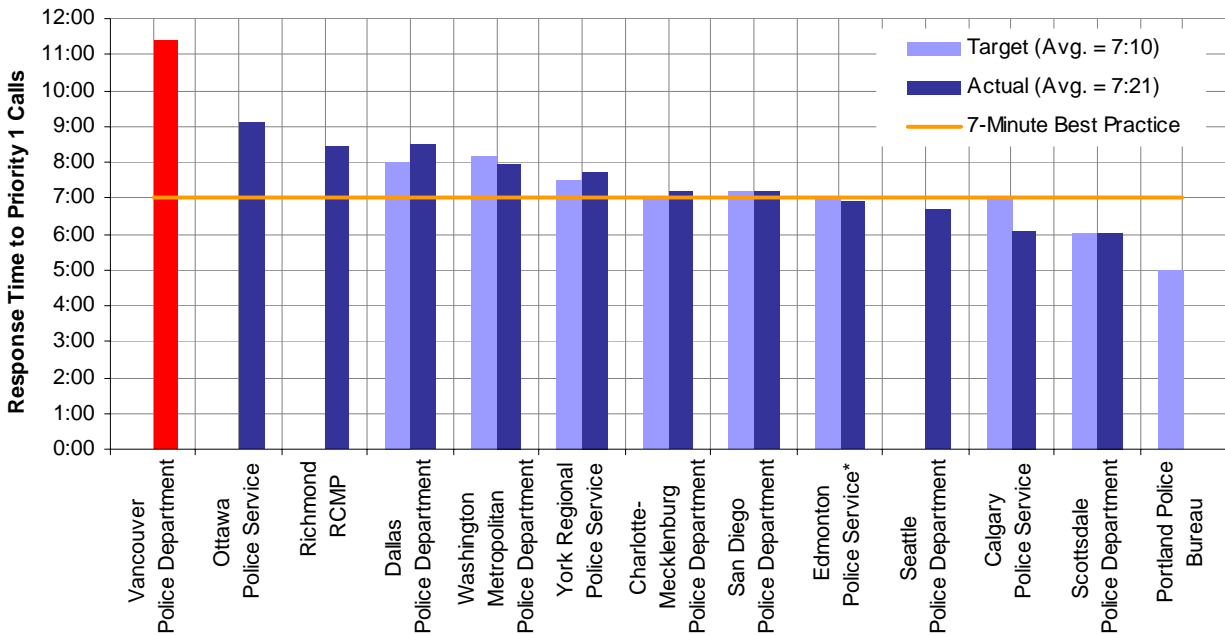
<b>District</b>	<b>Total Ticket Penalty Amount</b>	<b>Average Ticket Penalty Amount per Day</b>	<b>Average Penalty Amount per Ticket</b>
District 1	431,161	1,181	141
District 2 (Excluding BET)	389,432	1,067	161
Beat Enforcement Team	75,144	206	142
District 3	295,991	811	166
District 4	530,658	1,454	171
<b>Total</b>	<b>\$ 1,722,386</b>	<b>\$ 4,719</b>	<b>\$ 158</b>

## 7.5 DISCUSSION

Previous studies have shown that a swift police response to some calls for service can significantly influence arrest rates and witness availability (Kansas City Police Department, 1977). In particular, there is compelling evidence that response-related arrests in the case of in progress crimes dwindle as response time increases. According to some estimates, the probability of an on-scene arrest is expected to increase from approximately 5% to 11% as the travel time falls from 10 minutes to 5 minutes. A travel time of 3 minutes would then increase the probability of a response-related arrest to 14% (Pierce County Performance Audit, 2001). Moreover, witness availability would increase from approximately 50% to 54% as the travel time falls from 10 minutes to 5 minutes and would increase from 54% to 56% as the travel time falls from 5 minutes to 3 minutes.

Leading municipal police departments in North America typically aim for a 7-minute priority 1 average response time. Realistically, this usually implies a 2-minute average dispatch time and a 5-minute average travel time. A 7-minute average response time represents a reasonable police response to incidents in progress and has the potential to significantly improve solvability, reduce the risk of injury or death for violent crime victims and act as a crime deterrent. As illustrated in the graph below, the average priority 1 response time at the Vancouver Police Department is higher than the average response time in most comparable police agencies.

**Figure 7-151 Average Response Time in Other North American Police Agencies**



Past surveys have also established that citizen expectations in terms of police response time are ambitious, even for lower priority calls. A survey conducted for the Dallas Police Department indicated that 84.5% of the citizens expect a delay of less than 30 minutes when they report a break & enter (and the suspect has left), 95.5% of the citizens expect a delay of less than 30 minutes when they report a street robbery (and the suspect has left) and 98.5% of the citizens expect a delay of less than 30 minutes when they report a suspicious person.

Compared to these best practice benchmarks, the VPD dispatch time and the overall response time to priority 1 calls are both very long. Empirical evidence suggests that a lack of patrol resources is the most significant contributing factor to this excessive average queuing delay and average response time.

The authors of the Review of the Vancouver Police Department’s Staffing Requirements noted that a key indicator of the ability of a police service to meet the demands for service is the average response time to priority 1 calls, emergency or high priority calls for service that require immediate police attention. At that time, an analysis of the CAD data revealed that the average response time to priority 1 calls was 13 minutes. This is

a very disturbing finding and places the VPD far beyond the best practice response time of 7 minutes for priority 1 calls. These slow response times place the community at risk and require immediate attention.

The best practice in the field of law enforcement is to allow officers to spend between 40% and 50% of their shift (or an average of 24 to 30 minutes per hour) on proactive policing and problem-solving activities. This standard is endorsed by the International Association of Chiefs of Police (IACP), the Northwestern University Center for Public Safety and the International City/County Management Association (ICMA). It is also used by many leading police agencies as a baseline indicator to determine if their patrol officers are too busy on average. For instance, the Dallas Police Department Management and Efficiency Study prepared in September 2004 by independent management consultants from Berkshire Advisors suggested that the time spent responding to calls and the time spent on proactive activities should be roughly equal.

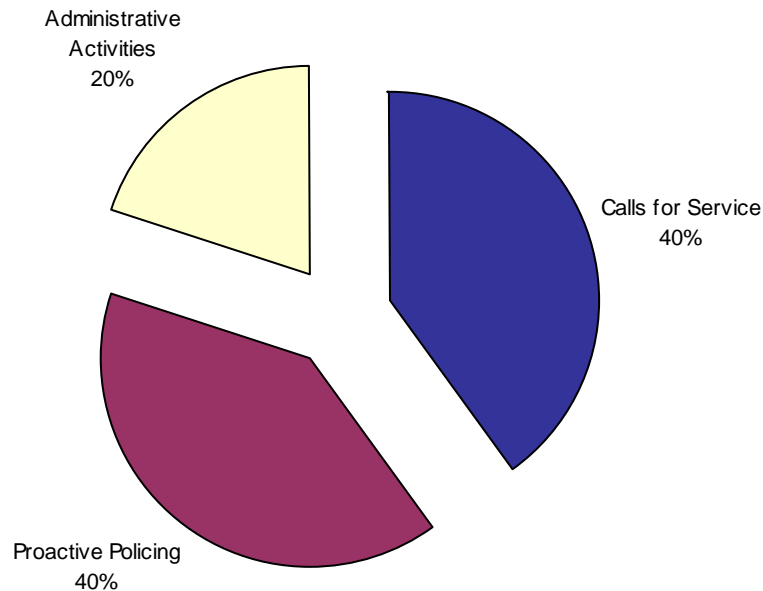
Typically, police agencies who track the time allocation of their officers divide each patrol shift into 3 components. They then allocate between 15% and 20% of the total shift length to administrative tasks (including patrol briefings, coffee breaks and meal breaks), approximately 40% of the total shift length to calls for service and the remaining 40% of the shift to proactive policing activities. The graph below illustrates this time allocation model.<sup>14</sup>

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<sup>14</sup> For his part, Special Constable Prox uses an alternative method to measure the utilization rate. In essence, Special Constable Prox excludes administrative activities and then divides the remaining time between calls for service (50%) and proactive policing (50%). It is straightforward to show that Special Constable Prox's approach is equivalent to the IACP's model and the Northwestern University Center for Public Safety's approach.



**Figure 7-152 The 40-40-20 Allocation Model**



On average, VPD patrol officers currently spend approximately 65% of their non-administrative time on calls for service. During busy shifts, officers may be forced to spend over 90% of their time on calls for service. To be effective, a police department requires enough officers to appropriately respond to calls for service, while also providing officers with enough time to conduct proactive activities. The VPD currently lacks the patrol resources it requires to prevent crime, maintain public order and deliver a customer service of quality. This is demonstrated by the unusually long average response times and the relatively small amount of time available for proactive policing.

It is tempting to deploy a larger proportion of single-officer units in order to increase the total number of units deployed. However, the empirical evidence suggests that caution must be exercised before more single-officer units are deployed. Single-officer units, on average, appear to be less likely to engage in proactive policing activities. This is at least partially expected because:

- Most proactive policing activities, by nature, lead to an increased risk for the single patrolling officer.

- Because of police training in the concept of “contact and cover”, it is easier and safer for two officers to check multiple people at the same time. One officer can engage the parties in conversation and obtain their particulars while the second officer watches the movements of the suspects and provides cover for the contacting officer. Contact and cover is a best practice in policing that was developed by the San Diego Police Department and is taught in police academies throughout North America.
- Two officers are more likely to check suspicious persons, pull over suspicious vehicles and enter potentially dangerous situations because they have a cover officer with them. Single-officer units tend to call for cover and have to wait for backup to arrive before engaging in those types of activities. Because of that, they are less likely to initiate such important activities.
- Partners who work together on a regular basis can become very efficient because they are familiar with one another and develop streamlined processes for dealing with all types of calls. Each partner knows exactly what to do and they can process a call for service more quickly and efficiently than two single-officer units.

## 8 THE EXTENDED DELTA SHIFT

In February 2006, VPD senior management implemented the main recommendation from Constable Harty's 2005 Shifting Review and extended the Delta coverage by one hour. Before 2006-02-08, the Delta shift during the week started at 1600 hours and ended at 0300 hours. During the weekend (on Friday and Saturday) in District 1, District 2 and District 4, the Delta shift started at 1700 hours and ended at 0400 hours. Since 2006-02-08, the Delta shift has started at 1600 hours and ended at 0400 hours every day of the week in all patrol districts.

**Table 8-1 The Delta Shift**

<b>Before 2006-02-08</b>	Sunday to Thursday in all patrol districts	1600 to 0300 hours
	Friday and Saturday in District 1, 2 and 4	1700 to 0400 hours
	Friday and Saturday in District 3	1600 to 0300 hours
<b>After 2006-02-08</b>	Every day in all patrol districts	1600 to 0400 hours

During the week, patrol officers now work one additional hour between 0300 and 0400 hours.<sup>15</sup> During the weekend (Friday and Saturday) in District 1, District 2 and District 4, patrol officers work one additional hour between 1600 and 1700 hours. In District 3, patrol officers work one additional hour at the end of the Delta shift also during the weekend.

Ultimately, the extension of the Delta shift is a significant improvement to patrol operations because it allows patrol officers to work one additional hour just as workload is peaking.

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<sup>15</sup> For the purpose of the extended Delta shift, Friday and Saturday are referred to as weekends because they are associated with the highest call load.

## 8.1 UNIT AVAILABILITY

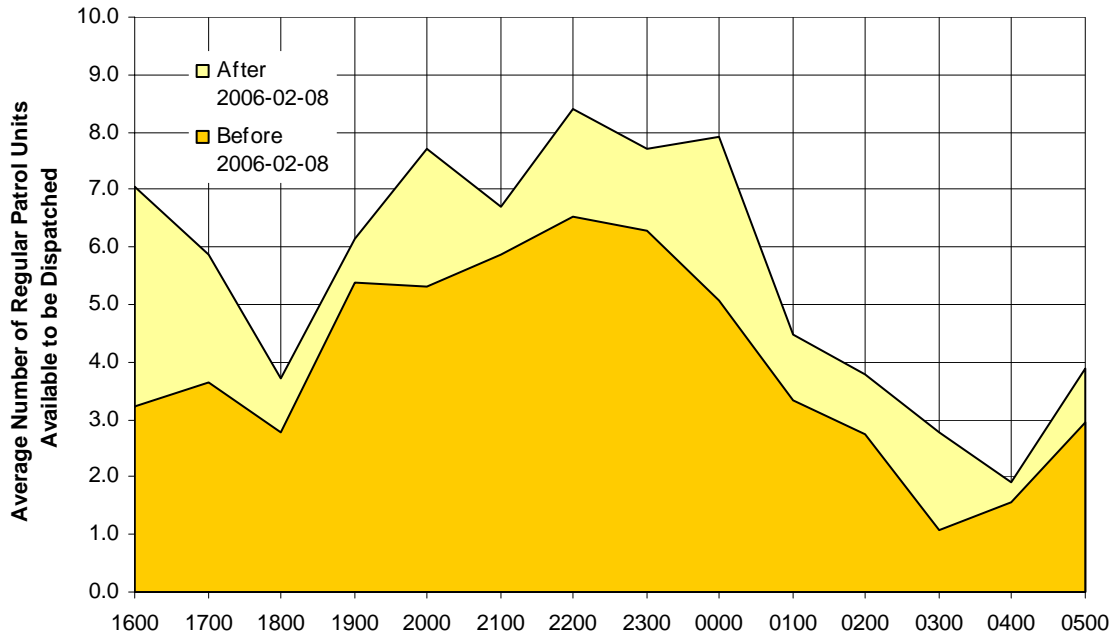
First, the average number of available regular patrol units increased after the extension of the Delta shift. This was achieved even though the average number of busy regular patrol units also increased.

During the week in District 1, 4.5 regular patrol units were available to be dispatched on average between 1600 and 0400 hours before the Delta shift was extended. After the Delta shift was extended, 6.0 regular patrol units were available to be dispatched on average between 1600 and 0400 hours. This represents an increase of 32.4% in the average number of available regular patrol units. In particular, between 0200 and 0300 hours in District 1, the average number of available regular patrol units increased from 2.7 to 3.8. This represents an increase of 40.7% in the average number of available regular patrol units. Between 0300 and 0400 hours in District 1, the average number of available regular patrol units increased from 1.1 to 2.8. This represents an increase of 157.4% in the average number of available regular patrol units.<sup>16</sup>

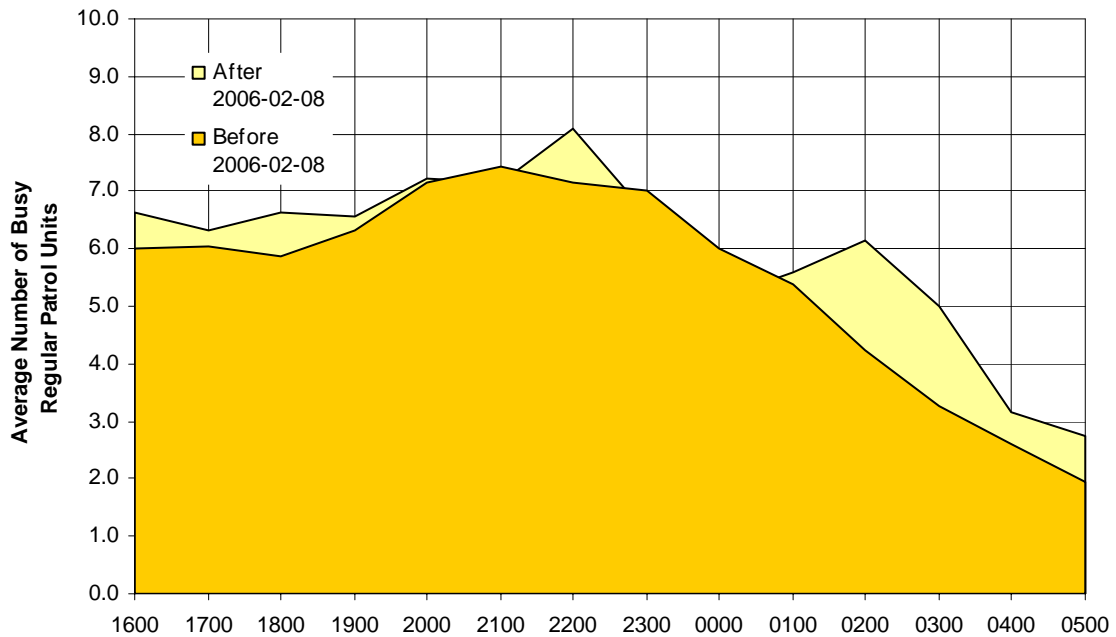
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<sup>16</sup> A total of 33 patrol officers were assigned to District 1 between the end of 2005 and mid-2006. This increase in the authorized strength of District 1 could have contributed to the increase in the average number of available patrol units.

**Figure 8-1 Average Number of Available Regular Patrol Units in District 1 During the Week Days Before and After the Extension of the Delta Shift**

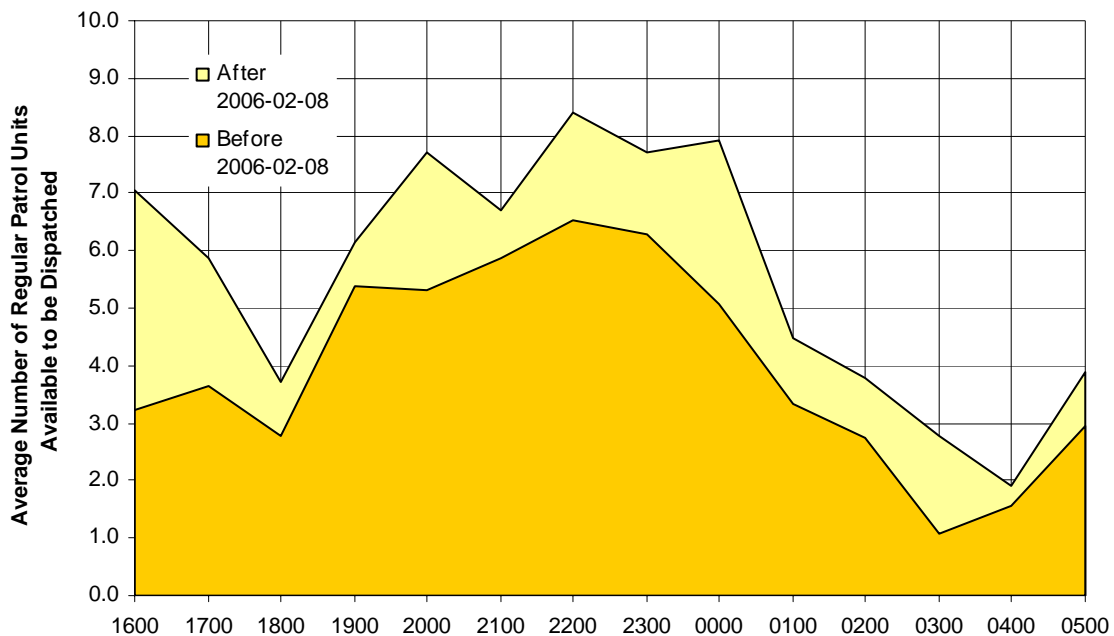


**Figure 8-2 Average Number of Busy Regular Patrol Units in District 1 During the Week Days Before and After the Extension of the Delta Shift**

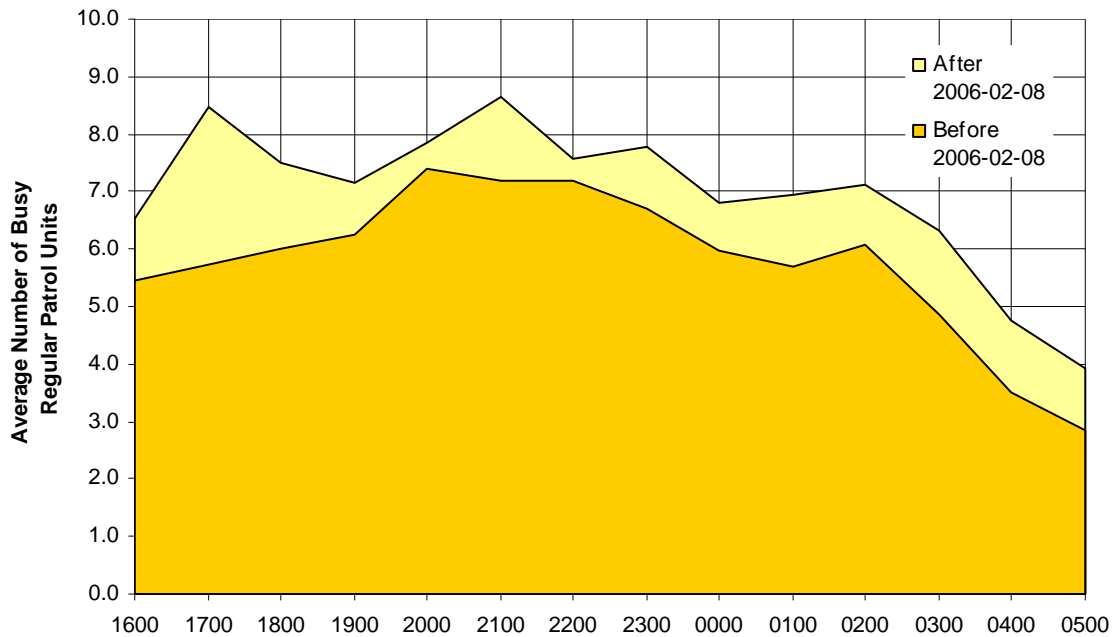


During the weekend in District 1, 4.1 regular patrol units were available to be dispatched on average between 1600 and 0400 hours before the Delta shift was extended. After the Delta shift was extended, 5.8 regular patrol units were available to be dispatched on average between 1600 and 0400 hours. This represents an increase of 41.3% in the average number of available regular patrol units. Between 1600 and 1700 hours on Friday and Saturday, the average number of available regular patrol units in District 1 increased from 3.2 to 7.1. This represents an increase of 118.5% in the average number of available regular patrol units. This improvement was obtained despite the fact that 44.7% more regular patrol units were busy between 0200 to 0300 hours and 53.4% more regular patrol units were busy between 0300 to 0400 hours during the week after the extension of the Delta shift in District 1. Moreover, 17.3% more regular patrol units were busy between 0200 to 0300 hours and 30.4% more regular patrol units were busy between 0300 to 0400 hours during the weekend in District 1.

**Figure 8-3 Average Number of Available Regular Patrol Units in District 1 During the Weekend Before and After the Extension of the Delta Shift**

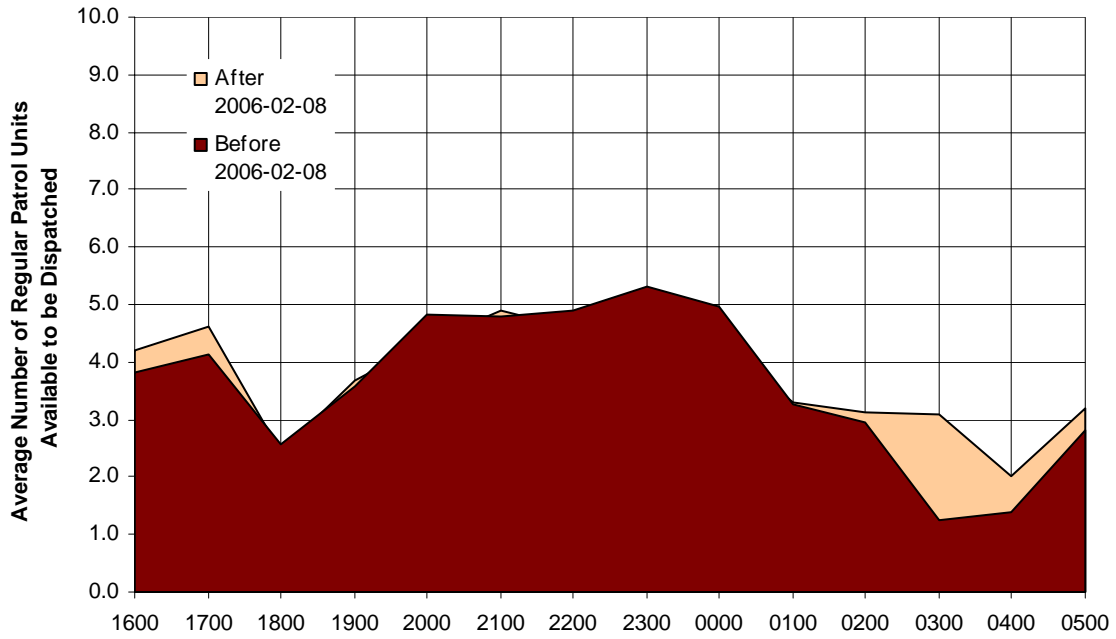


**Figure 8-4 Average Number of Busy Regular Patrol Units in District 1 During the Weekend Before and After the Extension of the Delta Shift**

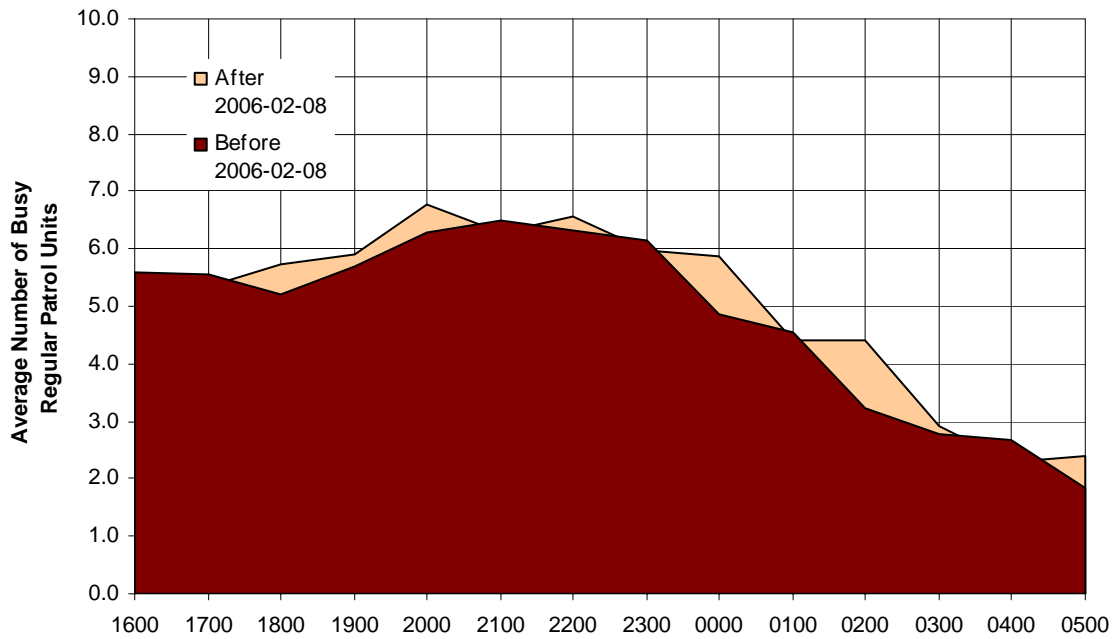


During the week in District 2, 4.0 regular patrol units were available to be dispatched on average between 1600 and 0400 hours before the Delta shift was extended. After the Delta shift was extended, 4.1 regular patrol units were available to be dispatched on average between 1600 and 0400 hours. This represents a marginal increase of 0.6% in the average number of available regular patrol units. In particular, between 0300 and 0400 hours in District 2, the average number of available regular patrol units increased from 1.3 to 3.1. This represents an increase of 145.3% in the average number of available regular patrol units.

**Figure 8-5 Average Number of Available Regular Patrol Units in District 2 During the Week Days Before and After the Extension of the Delta Shift**



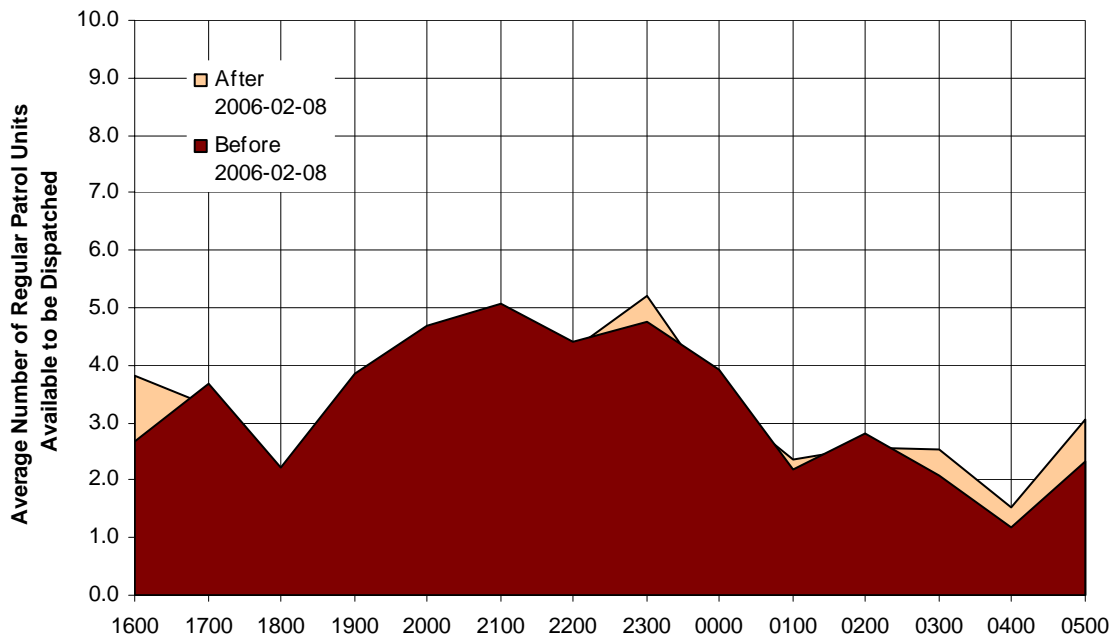
**Figure 8-6 Average Number of Busy Regular Patrol Units in District 2 During the Week Days Before and After the Extension of the Delta Shift**



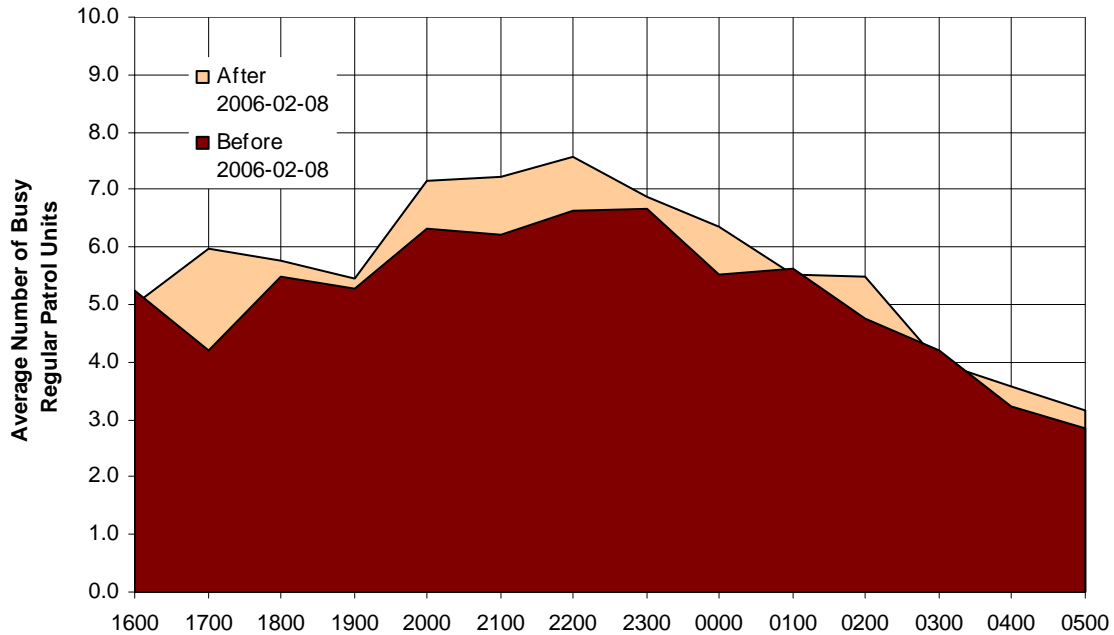


During the weekend in District 2, 3.6 regular patrol units were available to be dispatched on average between 1600 and 0400 hours before the Delta shift was extended. After the Delta shift was extended, 3.5 regular patrol units were available to be dispatched on average between 1600 and 0400 hours. Between 1600 and 1700 hours on Friday and Saturday, however, the average number of available regular patrol units in District 2 increased from 2.7 to 3.8. This represents an increase of 42.1% in the average number of available regular patrol units. This improvement was obtained despite the fact that 36.9% more regular patrol units were busy between 0200 to 0300 hours and 5.3% more regular patrol units were busy between 0300 to 0400 hours during the week after the extension of the Delta shift in District 2. Moreover, 15.5% more regular patrol units were busy between 0200 to 0300 hours during the weekend in District 2.

**Figure 8-7 Average Number of Available Regular Patrol Units in District 2 During the Weekend Before and After the Extension of the Delta Shift**

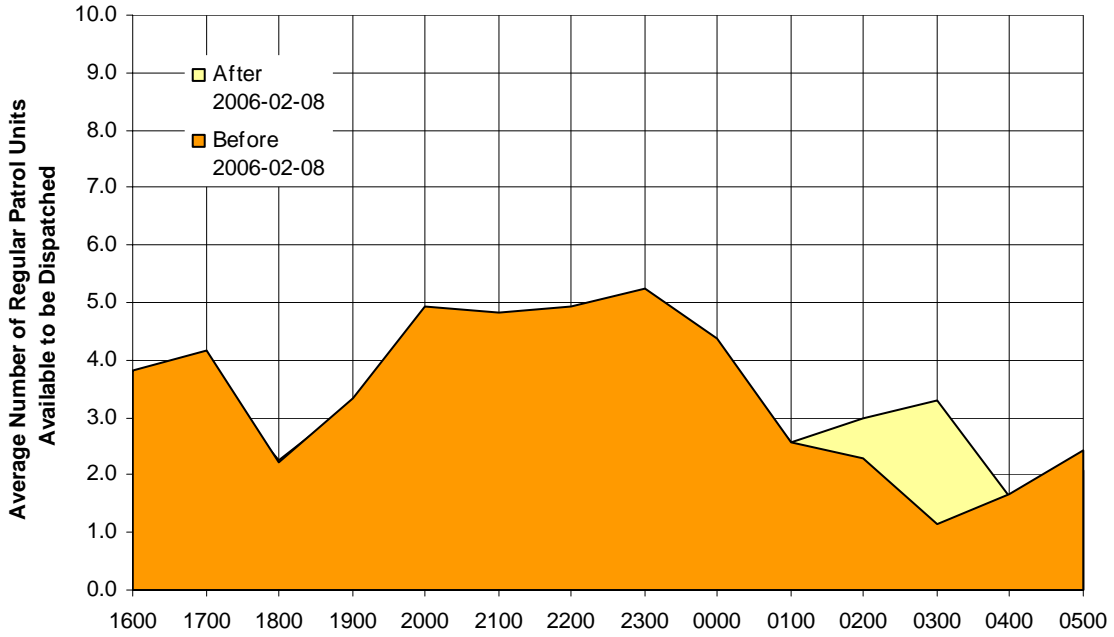


**Figure 8-8 Average Number of Busy Regular Patrol Units in District 2 During the Weekend Before and After the Extension of the Delta Shift**

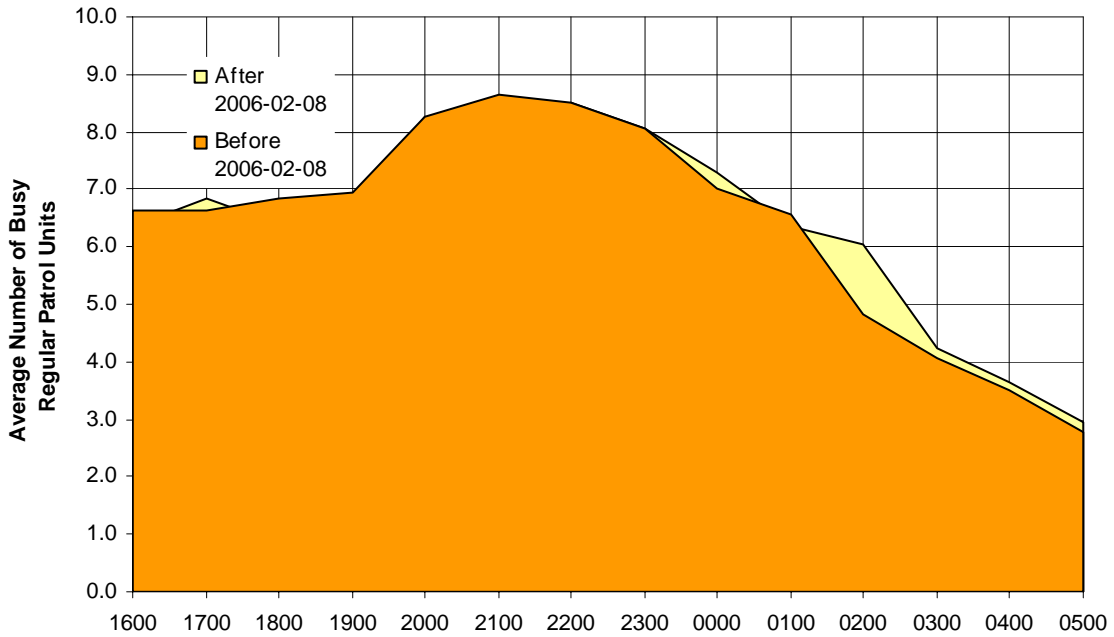


In District 3, 3.8 regular patrol units were available to be dispatched on average between 1600 and 0400 hours before the Delta shift was extended. After the Delta shift was extended, 3.8 regular patrol units were still available to be dispatched on average. Nevertheless, between 0300 and 0400 hours in District 3, the average number of available regular patrol units increased from 1.2 to 3.3. This represents an increase of 185.6% in the average number of available regular patrol units. This improvement was obtained despite the fact that 25.2% more regular patrol units were busy between 0200 to 0300 hours and 4.1% more regular patrol units were busy between 0300 to 0400 hours during the week after the extension of the Delta shift in District 3.

**Figure 8-9 Average Number of Available Regular Patrol Units in District 3 Before and After the Extension of the Delta Shift**

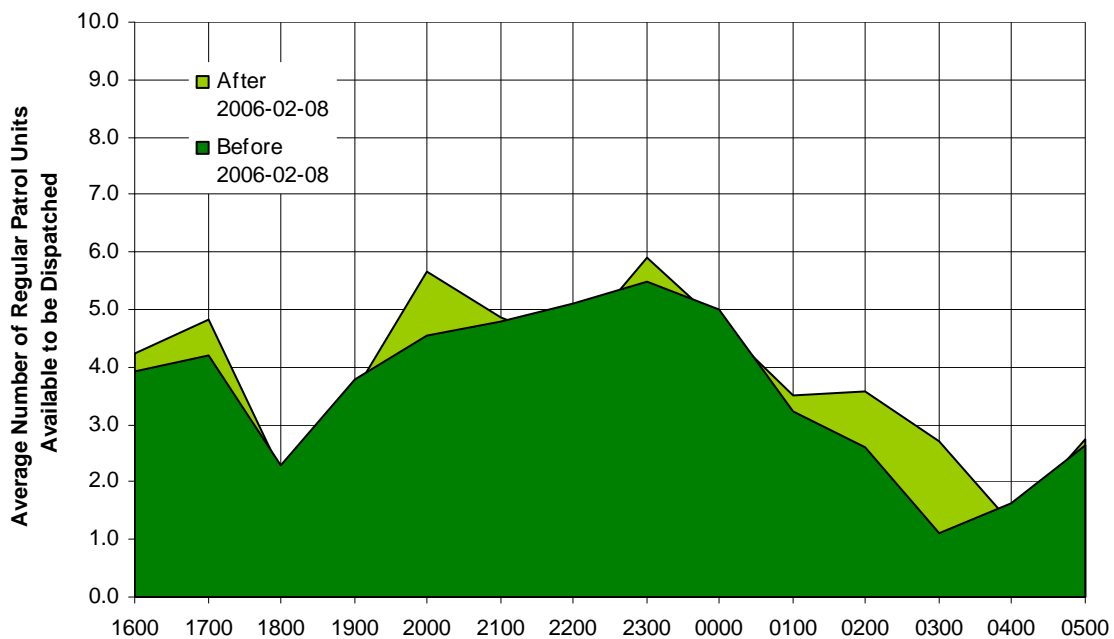


**Figure 8-10 Average Number of Busy Regular Patrol Units in District 3 Before and After the Extension of the Delta Shift**

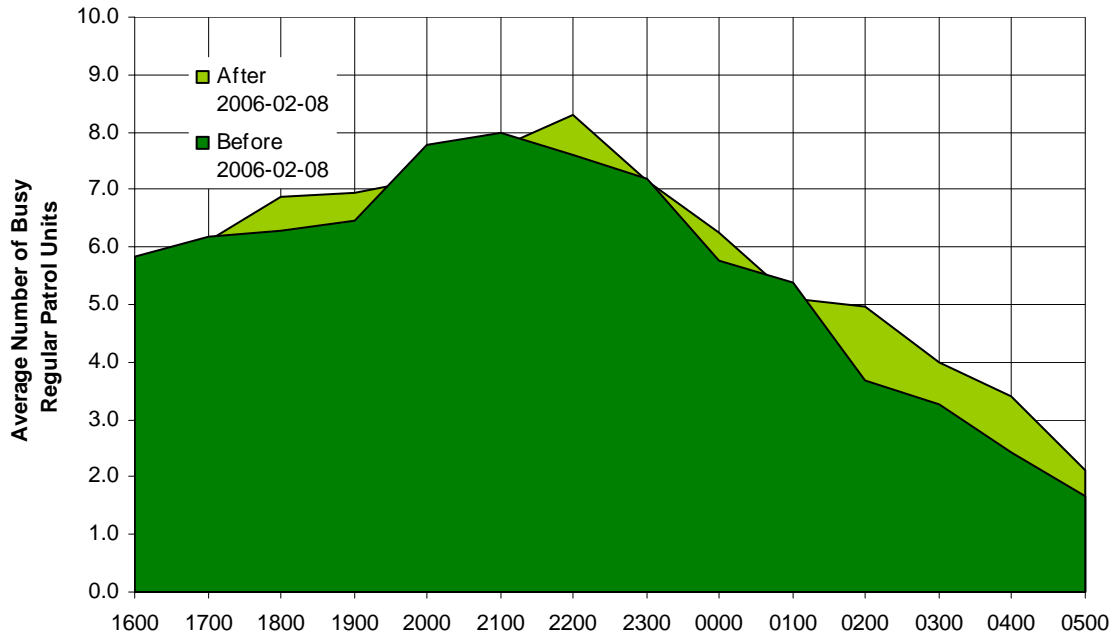


During the week in District 4, 4.0 regular patrol units were available to be dispatched on average between 1600 and 0400 hours before the Delta shift was extended. After the Delta shift was extended, 4.2 regular patrol units were available to be dispatched on average. This represents an increase of 5.8% in the average number of available regular patrol units. In particular, between 0200 and 0300 hours in District 4, the average number of available regular patrol units increased from 2.6 to 3.6. This represents an increase of 36.2% in the average number of available regular patrol units. Moreover, between 0300 and 0400 hours in District 4, the average number of available regular patrol units increased from 1.1 to 2.7. This represents an increase of 145.4% in the average number of available regular patrol units.

**Figure 8-11 Average Number of Available Regular Patrol Units in District 4 During the Week Days Before and After the Extension of the Delta Shift**

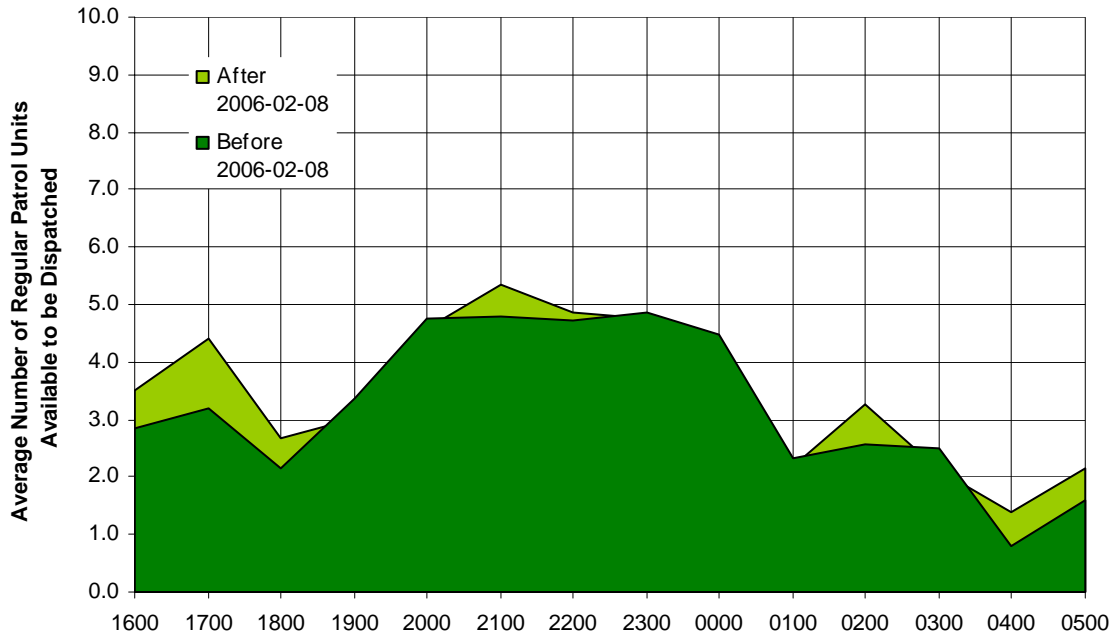


**Figure 8-12 Average Number of Busy Regular Patrol Units in District 4 During the Week Days Before and After the Extension of the Delta Shift**

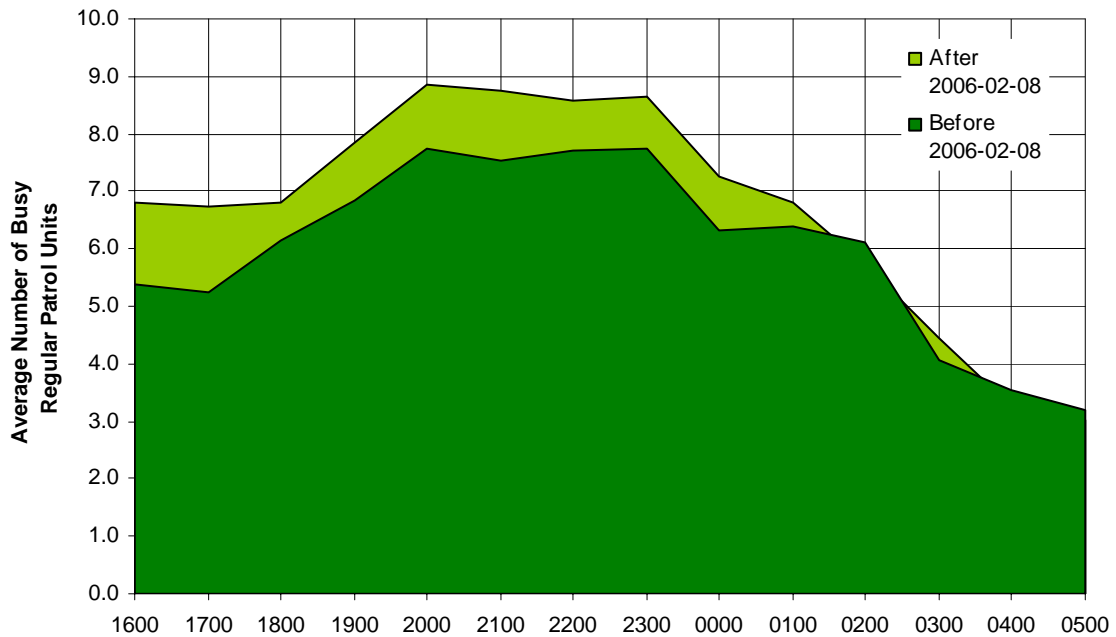


During the weekend in District 4, 3.6 regular patrol units were available to be dispatched on average between 1600 and 0400 hours before the Delta shift was extended. After the Delta shift was extended, 3.8 regular patrol units were available to be dispatched on average between 1600 and 0400 hours. This represents an increase of 4.6% in the average number of available regular patrol units. In particular, between 1600 and 1700 hours on Friday and Saturday, the average number of available regular patrol units in District 4 increased from 2.8 to 3.5. This represents an increase of 23.4% in the average number of available regular patrol units.

**Figure 8-13 Average Number of Available Regular Patrol Units in District 4 During the Weekend Before and After the Extension of the Delta Shift**



**Figure 8-14 Average Number of Busy Regular Patrol Units in District 4 During the Weekend Before and After the Extension of the Delta Shift**



## **8.2 TOTAL TIME SPENT ON CALLS FOR SERVICE**

With the extension of the Delta shift, regular patrol units were also able to spend more time on calls for service between midnight and 0400 hours during the week and between 1600 and 1700 hours during the weekend.

Between 2005-06-01 and 2006-02-07:

- A total of 1,742 Delta officers were deployed in District 1. This implies that 6.9 regular patrol officers were deployed during the Delta shift on average in District 1.
- Delta regular patrol officers in District 1 spent a total of approximately 10,507 officer-hours on calls for service. This implies that Delta regular patrol officers in District 1 spent a total of 41.9 officer-hours per shift on calls for service. In turn, each regular patrol officer deployed during the Delta shift spent an average of 6.0 hours on calls for service.

Between 2006-02-08 and 2006-05-31, by comparison:

- A total of 940 Delta officers were deployed in District 1. This implies that 8.4 regular patrol officers were deployed during the Delta shift on average in District 1.
- Delta regular patrol officers in District 1 spent a total of approximately 5,930 officer-hours on calls for service. This implies that Delta regular patrol officers in District 1 spent a total of 52.9 officer-hours per shift on calls for service. In turn, each regular patrol officer deployed during the Delta shift spent an average of 6.3 hours on calls for service.

Overall, this implies that the extension of the Delta shift in District 1 generated a total net gain equivalent to 940 officer-hours in patrol (one hour per officer-shift) and 261 officer-hours on calls for service (0.3 officer-hours per officer-shift times 940 officer-shifts).

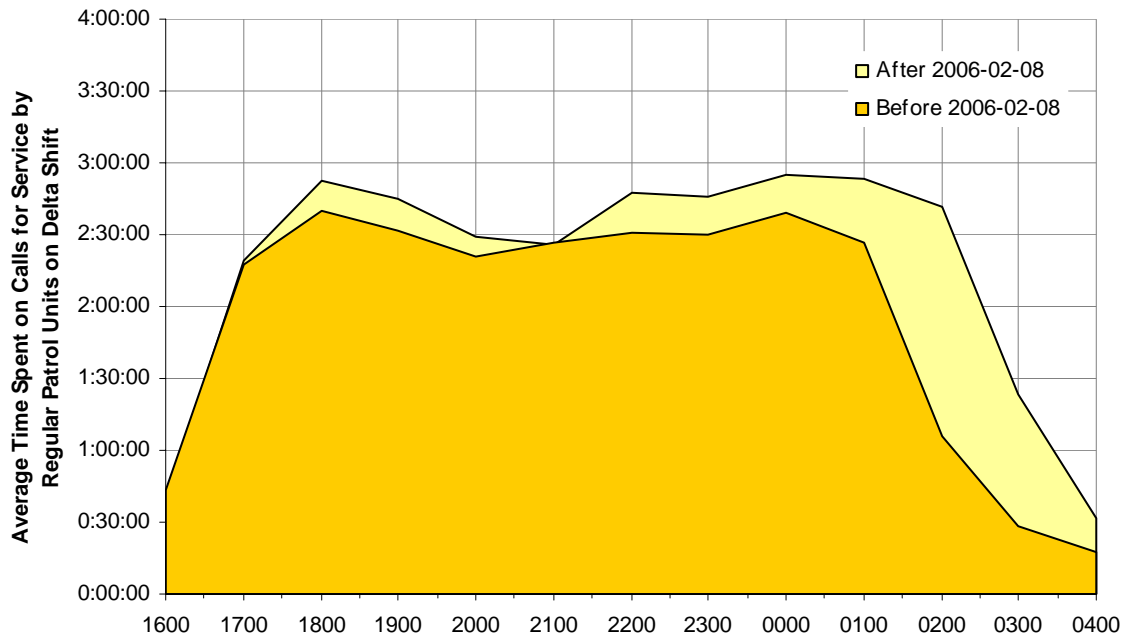
**Table 8-2 Net Gain from the Extension of the Delta Shift in District 1**

	<b>2005-06-01 to 2006-02-07</b>	<b>2006-02-08 to 2006-05-31</b>
<b>Total Number of Officers Deployed During the Delta Shift</b>	1,742	940
<b>Total Officer-Hours Spent on Calls</b>	10,507	5,930
<b>Average Number of Officers Deployed per Shift</b>	6.9	8.4
<b>Average Officer-Hours Spent on Calls per Shift</b>	41.9	52.9
<b>Average Officer-Hours Spent on Calls per Officer-Shift</b>	6.0	6.3
<b>Total Net Gain in Officer-Hours</b>		<b>261</b>

During the week, before the extension of the Delta shift, regular patrol units on Delta shift in District 1 spent a daily average of 1 hour and 6 minutes on calls for service between 0200 and 0300 hours and 28 minutes on calls for service between 0300 and 0400 hours (after the end of the shift). After the extension of the Delta shift, Delta regular patrol units in District 1 spent a daily average of 2 hours and 42 minutes on calls for service between 0200 and 0300 hours and 1 hour and 23 minutes on calls for service between 0300 and 0400 hours (whereas Delta units had already signed off before). This represents a daily net gain of 96 unit-minutes between 0200 and 0300 hours and a gain of 55 unit-minutes between 0300 and 0400 hours.

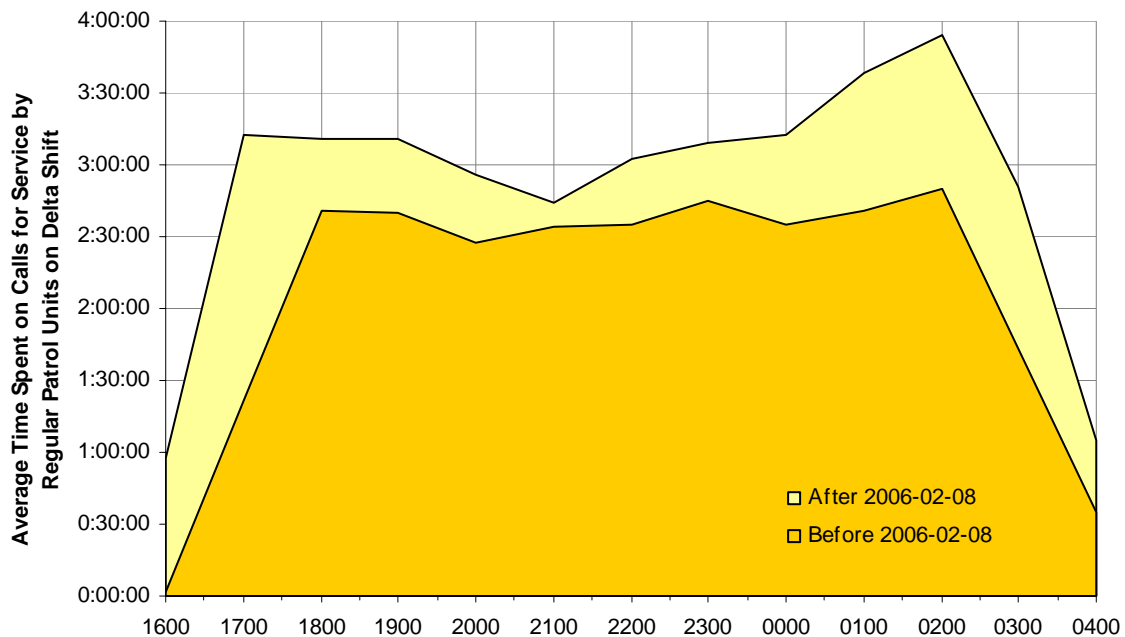


**Figure 8-15 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 1 During the Week**



During the weekend, before the extension of the Delta shift, regular patrol units on Delta shift in District 1 spent a daily average of 1 hour and 22 minutes on calls for service between 1700 and 1800 hours and 2 hours and 41 minutes on calls for service between 1800 and 1900 hours. After the extension of the Delta shift, Delta regular patrol units in District 1 spent a daily average of 3 hours and 12 minutes on calls for service between 1700 and 1800 hours and 3 hours and 11 minutes on calls for service between 1800 and 1900 hours. This represents a daily net gain of 110 unit-minutes between 1700 and 1800 hours and a gain of 30 unit-minutes between 1800 and 1900 hours. After the extension of the Delta shift, Delta regular patrol units in District 1 also spent a daily average of 58 minutes on calls for service between 1600 and 1700 hours during the weekend (whereas Delta units had not yet signed on before).

**Figure 8-16 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 1 During the Weekend**



Between 2005-06-01 and 2006-02-07:

- A total of 1,721 Delta officers were deployed in District 2. This implies that 6.9 regular patrol officers were deployed during the Delta shift on average in District 2.
- Delta regular patrol officers in District 2 (excluding BET officers) spent a total of approximately 9,596 officer-hours on calls for service. This implies that Delta regular patrol officers in District 2 spent a total of 38.2 officer-hours per shift on calls for service. In turn, each regular patrol officer deployed during the Delta shift spent an average of 5.6 hours on calls for service.

Between 2006-02-08 and 2006-05-31, by comparison:

- A total of 786 Delta officers were deployed in District 2. This implies that 7.0 regular patrol officers were deployed during the Delta shift on average in District 2.

- Delta regular patrol officers in District 2 spent a total of approximately 5,151 officer-hours on calls for service. This implies that Delta regular patrol officers in District 2 spent a total of 46.0 officer-hours per shift on calls for service. In turn, each regular patrol officer deployed during the Delta shift spent an average of 6.6 hours on calls for service.

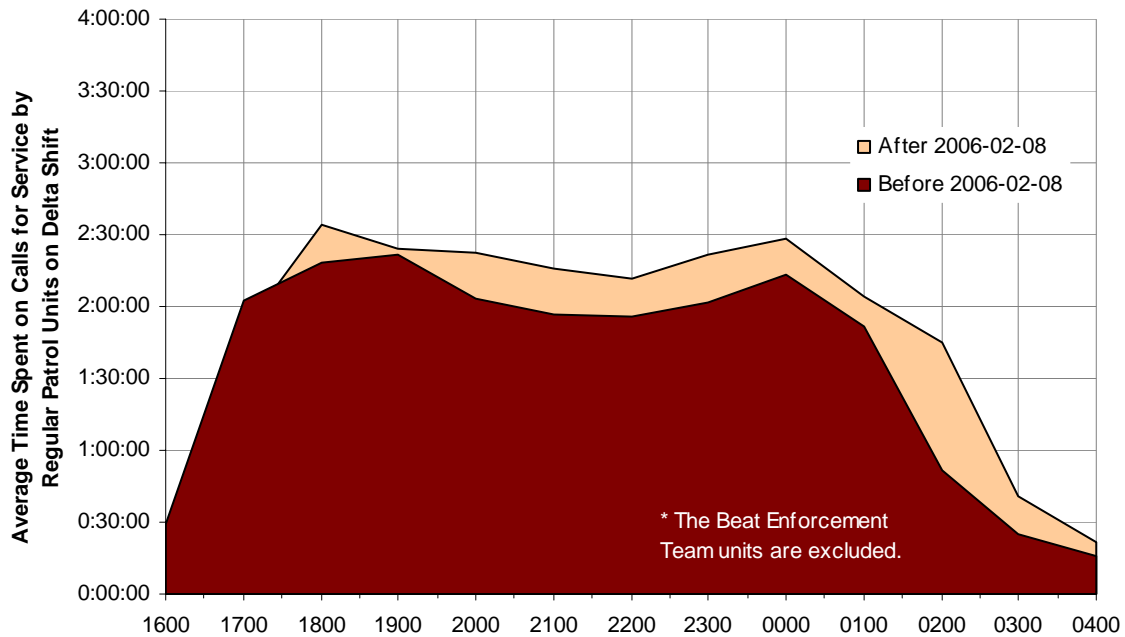
Overall, this implies that the extension of the Delta shift in District 2 generated a total net gain equivalent to 786 officer-hours in patrol (one hour per officer-shift) and 769 officer-hours on calls for service.

**Table 8-3 Net Gain from the Extension of the Delta Shift in District 2 (Excluding BET Officers)**

	<b>2005-06-01 to 2006-02-07</b>	<b>2006-02-08 to 2006-05-31</b>
<b>Total Number of Officers Deployed During the Delta Shift</b>	1,721	786
<b>Total Officer-Hours Spent on Calls</b>	9,596	5,151
<b>Average Number of Officers Deployed per Shift</b>	6.9	7.0
<b>Average Officer-Hours Spent on Calls per Shift</b>	38.2	46.0
<b>Average Officer-Hours Spent on Calls per Officer-Shift</b>	5.6	6.6
<b>Total Net Gain in Officer-Hours</b>		<b>769</b>

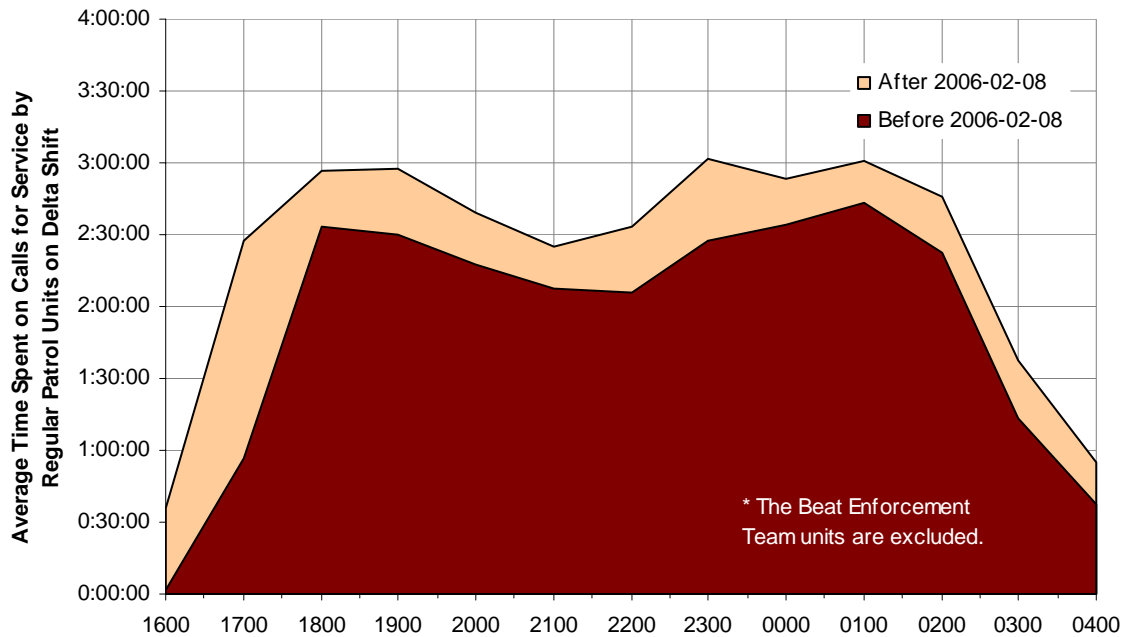
During the week, before the extension of the Delta shift, regular patrol units on Delta shift in District 2 spent a daily average of 51 minutes on calls for service between 0200 and 0300 hours and 25 minutes on calls for service between 0300 and 0400 hours (after the end of the shift). After the extension of the Delta shift, Delta regular patrol units in District 2 spent a daily average of 1 hour and 45 minutes on calls for service between 0200 and 0300 hours and 41 minutes on calls for service between 0300 and 0400 hours (whereas Delta units had already signed off before). This represents a daily net gain of 54 unit-minutes between 0200 and 0300 hours and a modest gain of 16 unit-minutes between 0300 and 0400 hours.

**Figure 8-17 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 2 During the Week**



During the weekend, before the extension of the Delta shift, regular patrol units on Delta shift in District 2 spent a daily average of 56 minutes on calls for service between 1700 and 1800 hours and 2 hours and 34 minutes on calls for service between 1800 and 1900 hours. After the extension of the Delta shift, Delta regular patrol units in District 2 spent a daily average of 2 hours and 27 minutes on calls for service between 1700 and 1800 hours and 2 hours and 57 minutes on calls for service between 1800 and 1900 hours. This represents a daily net gain of 91 unit-minutes between 1700 and 1800 hours and a gain of 23 unit-minutes between 1800 and 1900 hours. After the extension of the Delta shift, Delta regular patrol units in District 2 also spent a daily average of 36 minutes on calls for service between 1600 and 1700 hours during the weekend (whereas Delta units had not yet signed on before).

**Figure 8-18 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 2 During the Weekend**



Between 2005-06-01 and 2006-02-07:

- A total of 1,855 Delta officers were deployed in District 3. This implies that 7.4 regular patrol officers were deployed during the Delta shift on average in District 3.
- Delta regular patrol officers in District 3 spent a total of approximately 12,893 officer-hours on calls for service. This implies that Delta regular patrol officers in District 3 spent a total of 51.4 officer-hours per shift on calls for service. In turn, each regular patrol officer deployed during the Delta shift spent an average of 7.0 hours on calls for service.

Between 2006-02-08 and 2006-05-31, by comparison:

- A total of 834 Delta officers were deployed in District 3. This implies that 7.4 regular patrol officers were deployed during the Delta shift on average in District 3.

- Delta regular patrol officers in District 3 spent a total of approximately 6,540 officer-hours on calls for service. This implies that Delta regular patrol officers in District 3 spent a total of 58.4 officer-hours per shift on calls for service. In turn, each regular patrol officer deployed during the Delta shift spent an average of 7.8 hours on calls for service.

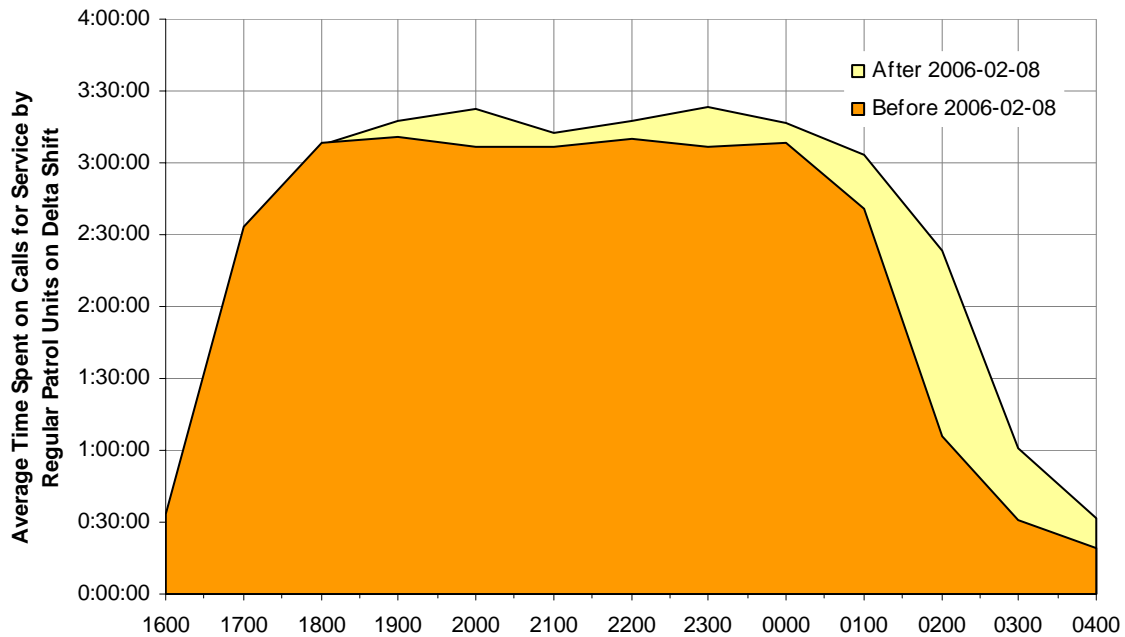
Overall, this implies that the extension of the Delta shift in District 3 generated a total net gain equivalent to 834 officer-hours in patrol (one hour per officer-shift) and 744 officer-hours on calls for service (0.8 times 834 officer-shifts).

**Table 8-4 Net Gain from the Extension of the Delta Shift in District 3**

	<b>2005-06-01 to 2006-02-07</b>	<b>2006-02-08 to 2006-05-31</b>
<b>Total Number of Officers Deployed During the Delta Shift</b>	1,855	834
<b>Total Officer-Hours Spent on Calls</b>	12,893	6,540
<b>Average Number of Officers Deployed per Shift</b>	7.4	7.4
<b>Average Officer-Hours Spent on Calls per Shift</b>	51.4	58.4
<b>Average Officer-Hours Spent on Calls per Officer-Shift</b>	7.0	7.8
<b>Total Net Gain in Officer-Hours</b>		<b>744</b>

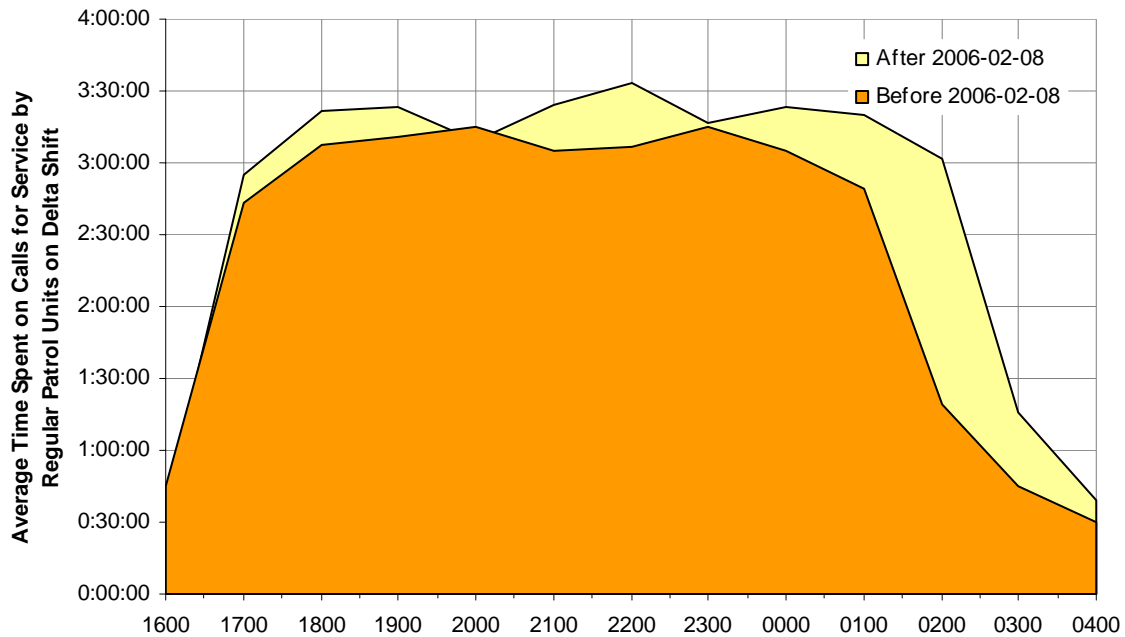
During the week, before the extension of the Delta shift, regular patrol units on Delta shift in District 3 spent a daily average of 1 hour and 6 minutes on calls for service between 0200 and 0300 hours and 31 minutes on calls for service between 0300 and 0400 hours (after the end of the shift). After the extension of the Delta shift, Delta regular patrol units in District 3 spent a daily average of 2 hours and 24 minutes on calls for service between 0200 and 0300 hours and 61 minutes on calls for service between 0300 and 0400 hours (whereas Delta units had already signed off before). This represents a daily net gain of 77 unit-minutes between 0200 and 0300 hours and a gain of 30 unit-minutes between 0300 and 0400 hours.

**Figure 8-19 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 3 During the Week**



During the weekend, before the extension of the Delta shift, regular patrol units on Delta shift in District 3 spent a daily average of 1 hour and 19 minutes on calls for service between 0200 and 0300 hours and 45 minutes on calls for service between 0300 and 0400 hours (after the end of the Delta shift). After the extension of the Delta shift, Delta regular patrol units in District 3 spent a daily average of 3 hours and 1 minute on calls for service between 0200 and 0300 hours and 1 hour and 16 minutes on calls for service between 0300 and 0400 hours (whereas Delta units had already signed off before). This represents a daily net gain of 102 unit-minutes between 0200 and 0300 hours and a gain of 31 unit-minutes between 0300 and 0400 hours.

**Figure 8-20 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 3 During the Weekend**



Between 2005-06-01 and 2006-02-07:

- A total of 1,865 Delta officers were deployed in District 4. This implies that 7.4 regular patrol officers were deployed during the Delta shift on average in District 4.
- Delta regular patrol officers in District 4 spent a total of approximately 11,240 officer-hours on calls for service. This implies that Delta regular patrol officers in District 4 spent a total of 44.8 officer-hours per shift on calls for service. In turn, each regular patrol officer deployed during the Delta shift spent an average of 6.0 hours on calls for service.

Between 2006-02-08 and 2006-05-31, by comparison:

- A total of 833 Delta officers were deployed in District 4. This implies that 7.4 regular patrol officers were deployed during the Delta shift on average in District 4.



- Delta regular patrol officers in District 4 spent a total of approximately 5,616 officer-hours on calls for service. This implies that Delta regular patrol officers in District 4 spent a total of 50.1 officer-hours per shift on calls for service. In turn, each regular patrol officer deployed during the Delta shift spent an average of 6.7 hours on calls for service.

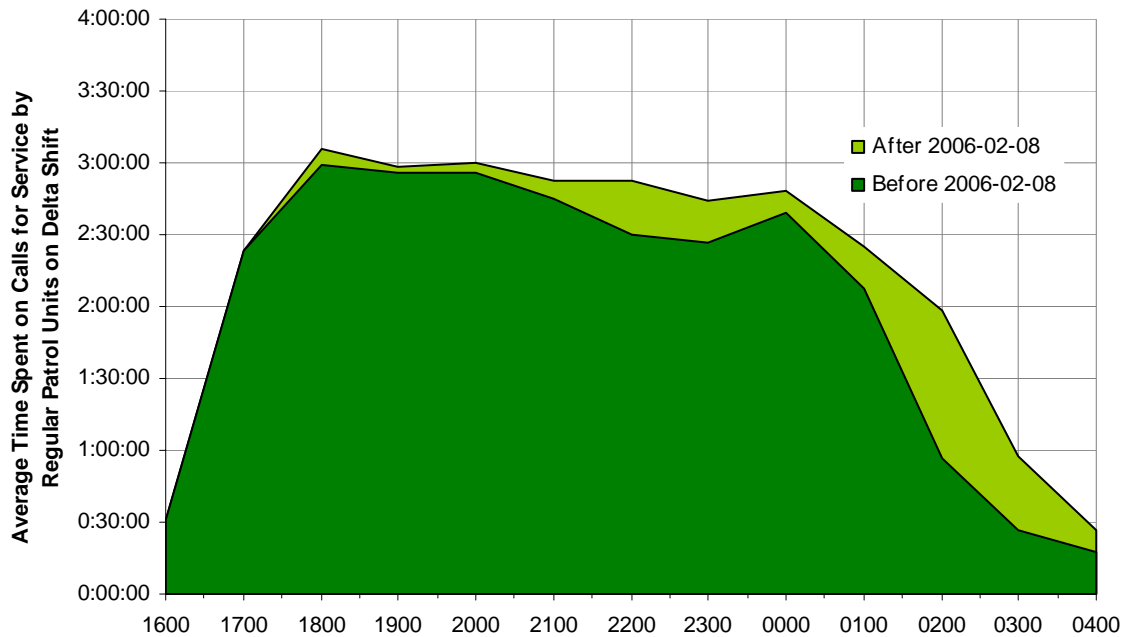
Overall, this implies that the extension of the Delta shift in District 4 generated a total net gain equivalent to 833 officer-hours in patrol (one hour per officer-shift) and 596 officer-hours on calls for service (0.7 times 833 officer-shifts).

**Table 8-5 Net Gain from the Extension of the Delta Shift in District 4**

	<b>2005-06-01 to 2006-02-07</b>	<b>2006-02-08 to 2006-05-31</b>
<b>Total Number of Officers Deployed During the Delta Shift</b>	1,865	833
<b>Total Officer-Hours Spent on Calls</b>	11,240	5,616
<b>Average Number of Officers Deployed per Shift</b>	7.4	7.4
<b>Average Officer-Hours Spent on Calls per Shift</b>	44.8	50.1
<b>Average Officer-Hours Spent on Calls per Officer-Shift</b>	6.0	6.7
<b>Total Net Gain in Officer-Hours</b>		<b>596</b>

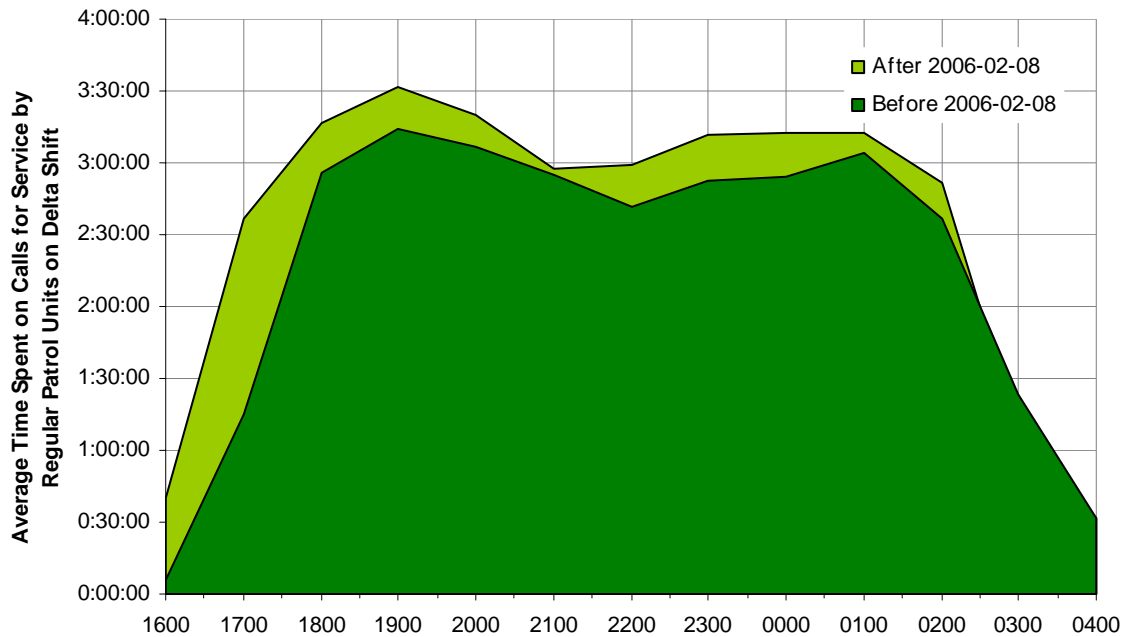
During the week, before the extension of the Delta shift, regular patrol units on Delta shift in District 4 spent a daily average of 1 hour and 6 minutes on calls for service between 0200 and 0300 hours and 31 minutes on calls for service between 0300 and 0400 hours (after the end of the shift). After the extension of the Delta shift, Delta regular patrol units in District 4 spent a daily average of 2 hours and 24 minutes on calls for service between 0200 and 0300 hours and 61 minutes on calls for service between 0300 and 0400 hours (whereas Delta units had already signed off before). This represents a daily net gain of 77 unit-minutes between 0200 and 0300 hours and a gain of 30 unit-minutes between 0300 and 0400 hours.

**Figure 8-21 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 4 During the Week**



During the weekend, before the extension of the Delta shift, regular patrol units on Delta shift in District 4 spent a daily average of 1 hour and 15 minutes on calls for service between 1700 and 1800 hours and 2 hours and 56 minutes on calls for service between 1800 and 1900 hours. After the extension of the Delta shift, Delta regular patrol units in District 4 spent a daily average of 2 hours and 36 minutes on calls for service between 1700 and 1800 hours and 3 hours and 17 minutes on calls for service between 1800 and 1900 hours. This represents a daily net gain of 81 unit-minutes between 1700 and 1800 hours and a gain of 21 unit-minutes between 1800 and 1900 hours. After the extension of the Delta shift, Delta regular patrol units in District 4 also spent a daily average of 40 minutes on calls for service between 1600 and 1700 hours during the weekend (whereas Delta units had not yet signed on before).

**Figure 8-22 Average Time Spent on Calls for Service by Regular Patrol Units on Delta Shift in District 4 During the Weekend**

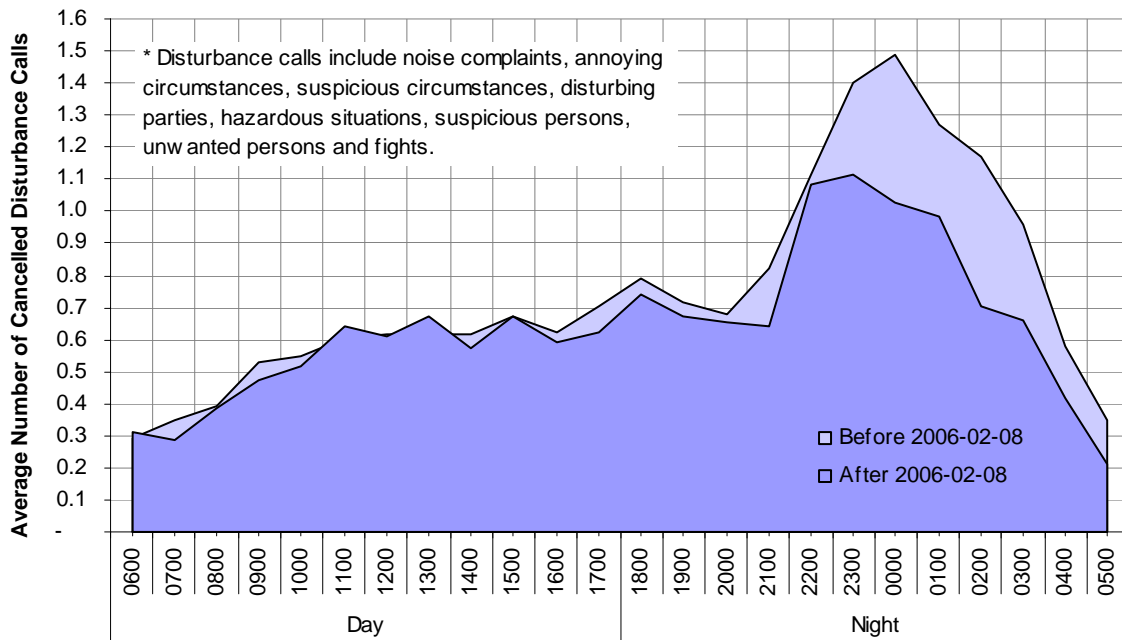


### 8.3 CANCELLED CALLS

Citywide, relatively fewer calls for service had to be cancelled after the extension of the Delta shift. More specifically, a significantly smaller proportion of disturbance calls (e.g. noise complaints, annoying circumstances, suspicious circumstances, disturbing parties, hazardous situations, suspicious persons, unwanted persons, fights) were cancelled after the Delta shift was extended on 2006-02-08.

Overall, 14.7% less disturbance calls were cancelled daily after the Delta shift was extended. In particular, 31.1% less disturbance calls received between midnight and 0600 hours were cancelled. This is consistent with the idea that more regular patrol units were available to take calls between 0200 to 0400 hours.

**Figure 8-23 Average Number of Disturbance Calls Cancelled Daily Citywide**



The extension of the Delta shift on 2006-02-08 had two separate effects on the number of cancelled disturbance calls.

1. As a direct consequence of the Delta shift's extension, more disturbance calls were attended by a regular patrol unit between 0200 and 0400 because Delta units were available to answer calls for one additional hour. Overall, this explains why a smaller proportion of the disturbance calls received between midnight and 0400 hours were cancelled.
2. As an indirect consequence of the Delta shift's extension, Echo units were also able to clear more disturbance calls even after Delta units had signed off because they were not tied on as many calls between 0200 and 0400 hours. Hence, they were more likely to be available to respond to the disturbance calls received after Delta units had signed off. Overall, this explains why slightly less disturbance calls were cancelled between 0400 and 0600 hours.

Although additional factors were likely in play simultaneously, the empirical evidence suggests that the extension of the Delta shift on 2006-02-08 was most likely responsible

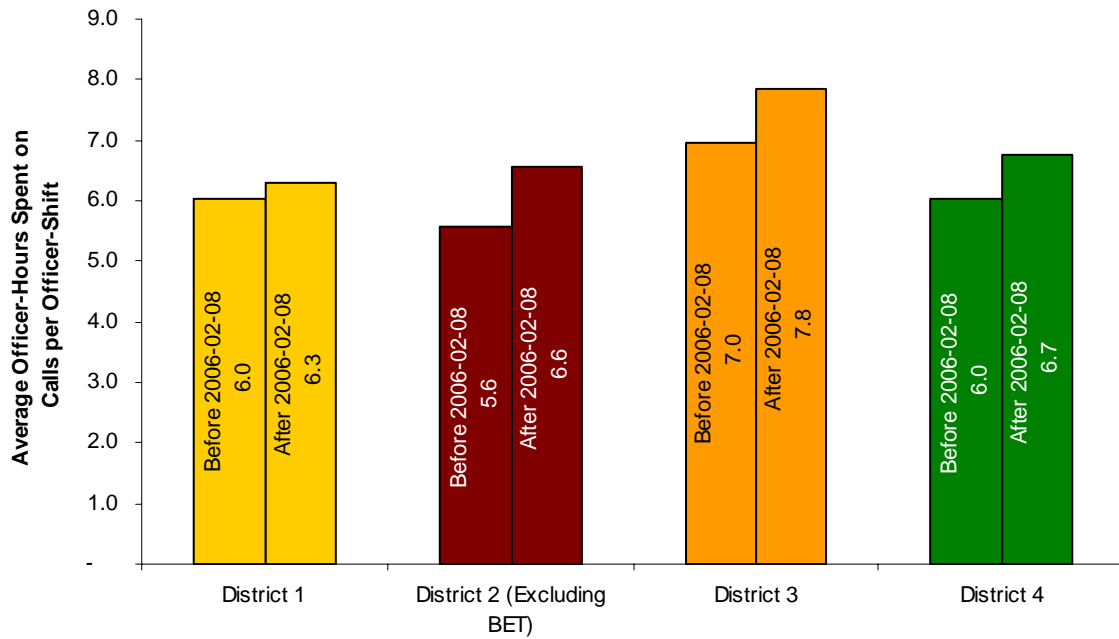
for a significant reduction in the number of cancelled disturbance calls between midnight and 0600 hours.

## **8.4 CONCLUSION**

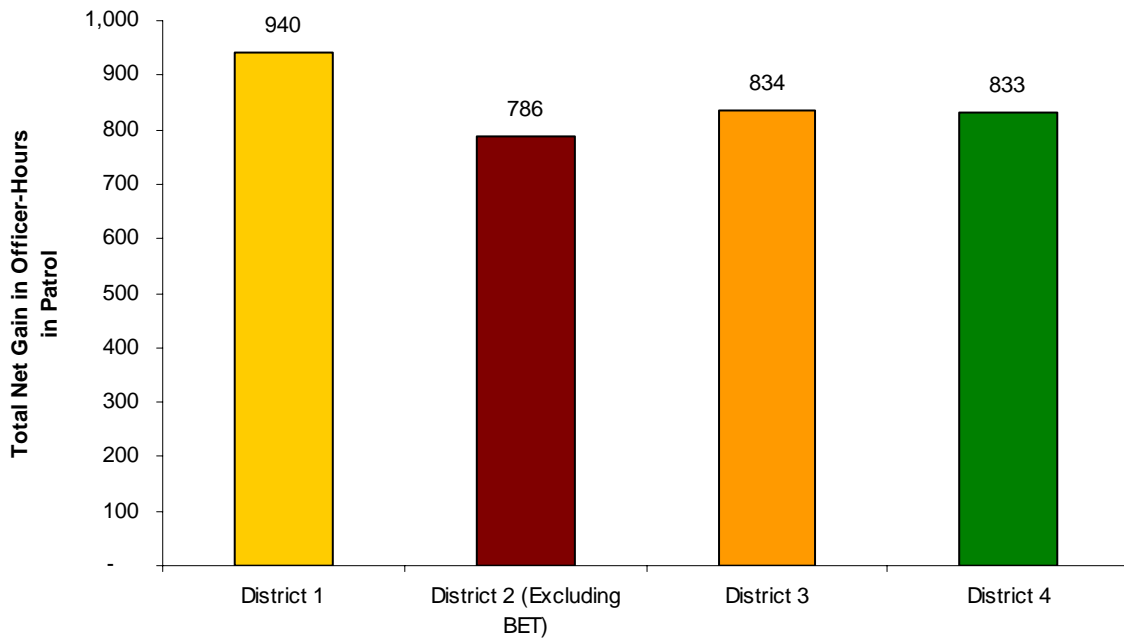
Overall, the available empirical evidence indicates that the extension of the Delta shift on 2006-02-08 was beneficial because it increased the number of deployed patrol officers at a time when call load is heaviest. In turn, this led to:

- An increase in the average number of available regular patrol units between 0200 and 0300 hours (achieved even as the average number of busy regular patrol units also increased).
- A significant increase in the average time Delta patrol units were able to spend on calls for service between midnight and 0400 hours. Citywide, the extension of the Delta shift generated a total net gain equivalent to 3,393 officer-hours in patrol (one hour per officer-shift) and 2,343 officer-hours on calls for service (0.6 times 3,393 officer-shifts) between 2006-02-08 and 2006-05-31. Annually, this would translate into a total net gain of 11,058 officer-hours in patrol and 7,635 officer-hours on calls for service. This is the equivalent of more than 5 full-time patrol officers consistently spending 69.0% of their shift on calls for service.

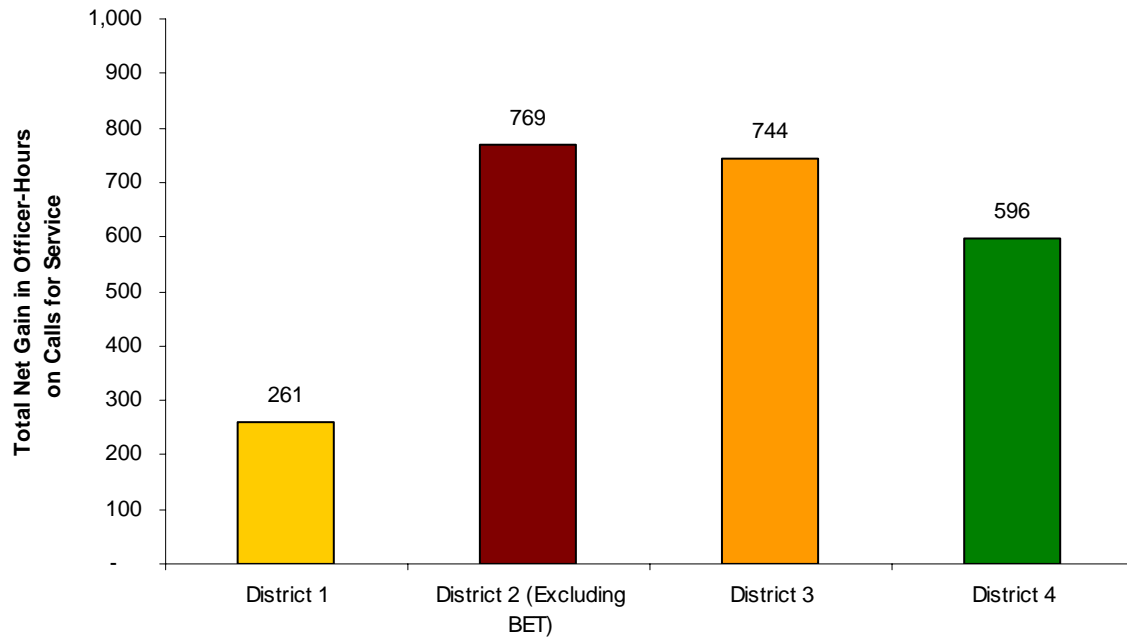
**Figure 8-24 Average Officer-Hours Spent on Calls per Officer-Shift Before and After the Extension of the Delta Shift**



**Figure 8-25 Total Net Gain in Officer-Hours in Patrol by District**



**Figure 8-26 Total Net Gain in Officer-Hours on Calls for Service by District**



**Table 8-6 Net Annual Gain in Officer-Hours by District**

	Before	After			
District	Average Officer-Hours Spent on Calls per Officer-Shift		Total Net Gain in Officer-Hours on Calls for Service	Net Annual Gain in Officer-Hours on Calls for Service	Net Annual Gain in Officer-Hours in Patrol
District 1	6.0	6.3	261	850	3,063
District 2 (Excluding BET)	5.6	6.6	769	2,505	2,562
District 3	7.0	7.8	744	2,424	2,718
District 4	6.0	6.7	596	1,942	2,715
<b>Total</b>	<b>6.2</b>	<b>6.8</b>	<b>2,343</b>	<b>7,635</b>	<b>11,058</b>

- A significant reduction in the number of cancelled disturbance calls between midnight and 0600 hours. After the Delta shift was extended, 31.1% less disturbance calls received between midnight and 0600 hours were cancelled on a daily basis.

In light of this empirical evidence, it is recommended that the Delta shift continues to extend from 1600 to 0400 hours.





## 9 THE DEPLOYMENT OF TWO-OFFICER UNITS

The use of patrol cars manned by only one officer is a debated issue in policing. Facing tight budget constraints or political pressures and seeking a more cost-effective policing strategy, several municipal police agencies have been tempted to deploy more single-officer patrol units (as opposed to two-officer units). Although the increased use of single-officer units is commendable from a financial point of view (as a short-term cost-cutting measure), there is evidence that an arbitrary shift to more solo patrol units may lead to false economies if patrol effectiveness, officer safety and staff issues are not properly considered.

### 9.1 LITERATURE REVIEW

Past research in the field of law enforcement has shown that:

- Most police jurisdictions employ some single-officer units and some two-officer units. A survey conducted by the U.S. National Institute of Justice in 1985 indicated that approximately 97.5% of the respondents were deploying single-officer units on at least one shift (Wilson, 1991).
- The propensity of police agencies to deploy more single-officer units typically reflected economic and political considerations. This is illustrated by the fact that wherever a police department had suffered a recent budget decrease, the proportion of officers deployed in single-officer units increased (Wilson, 1991). This is also confirmed by anecdotal evidence collected as part of the VPD Deployment Survey of 2006.
- The manner in which single-officer units were deployed was generally informed by risk factors, operational knowledge and other tactical issues. In general, single-officer units were more likely to be deployed during the day (i.e. during daylight hours) and in less densely populated areas (Wilson and Brewer, 1991). Police agencies that routinely deployed single-officer units typically restricted

their use to “low-risk” taskings such as report taking, traffic enforcement and patrol supervision (Wilson, 1991).

- Empirical evidence suggests that the deployment of single-officer or two-officer units does not significantly impact overall patrol effectiveness (e.g. total number of calls handled, arrest rate). However, two-officer units tend to generate more traffic citations and handle each call for service relatively more quickly on average (Wilson, 1990). Mathematical models derived by the U.S. National Institute of Justice predict that the deployment of twice as many single-officer units (compared to two-officer units) has the potential to lead to marginal performance gains in patrol. These potential gains are reflected by a shorter queuing delay and increased patrol frequency but are expected to be minimal in absolute terms.
- Two-officer units were relatively more likely to make an arrest or complete a formal police report after responding to a domestic argument (Wilson and Brewer, 1991). In similar circumstances, single-officer units were more likely to give a warning. This evidence is consistent with the idea that officers in a partnership tend to adopt a “hard line” approach in some situations, whereas solo officers will be restricted to a more cautious or conciliatory approach.
- Single-officer units were relatively more likely to make an arrest or give a warning after detaining an intoxicated person (Wilson and Brewer, 1991). This evidence is consistent with the idea that two-officer units can, in some cases, more effectively deter antagonistic behaviour and prevent violence.<sup>17</sup>
- For a given response time, a two-officer unit arriving first at the scene of an incident was 18% to 25% more likely to make an arrest than a single-officer unit (Tarr, 1978).
- Theoretical evidence supports the idea that the first single-officer unit in a 100% single-officer deployment model will usually arrive faster than a two-officer unit in a 100% two-officer deployment model (Chelst, 1981) but the second single-

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<sup>17</sup> Intoxicated persons are typically arrested when they are aggressive. The fact that solo officers arrested proportionately more intoxicated persons suggests that they faced relatively more resistance than two-officer units dealing with similar circumstances.

officer unit will often arrive substantially later (Green and Kolesar, 1984). These findings are illustrated in the table below.

**Table 9-1 Average Travel Times Predicted by Green and Kolesar (1984) and Chelst (1981)**

<b>Unit</b>	<b>Average Expected Travel Time* (Green and Kolesar, 1984)</b>	<b>Average Expected Travel Time** (Model I in Chelst, 1981)</b>	<b>Average Expected Travel Time** (Model II in Chelst, 1981)</b>
First Single-Officer Unit with 100% Single-Officer Deployment	5.5 minutes	4.0 minutes	4.0 minutes
Second Single-Officer Unit with 100% Single-Officer Deployment	10.7 minutes	7.5 minutes	6.0 minutes
Two-Officer Unit with 100% Two-Officer Deployment	7.0 minutes	7.5 minutes	6.5 minutes
<b>Total</b>			
* Assuming an average utilization rate of approximately 55% to 60% and an average travel time of 7.0 minutes for two-officer units.			
** Assuming an average utilization rate of approximately 50%.			
Sources: Linda Green and Peter Kolesar, "The Feasibility of One-Officer Patrol in New York City", Management Science, Vol. 30, No. 8 (August 1984), pp. 964-981. Kenneth Chelst, "Deployment of One- vs. Two-Officer Patrol Units: A Comparison of Travel Times", Management Science, Vol. 27, No. 2 (February 1981), pp. 213-230.			

- A theoretical model published by Chelst (1981) predicts that the average travel distance to each call for service can fall by between 30% and 40% when two-officer units are redeployed such that there are twice as many single-officer patrol units. However, the model introduced by Chelst (1981) also implies that the average delay before a backup unit will arrive increases as the first single-officer unit's travel time falls. In other words, "when the first-arriving unit can have the greatest potential for an arrest (shorter response time), the unit will experience a longer than average delay until backup arrives" (Chelst, 1981).

Depending on the version of the model that is used and the parameter values (e.g. average utilization rate), the first-arriving single-officer unit is expected to wait an average of 2 to 4 minutes before backup arrives according to Chelst (1981).

- The deployment of more single-officer units typically results in a moderate increase in police visibility and crime detection as a consequence of the increase in the number of cars on the road (Wilson, 1990).
- In general, a two-officer unit is more cost-efficient than a single-officer unit requiring backup support (Wilson, 1990). In other words, two-officer units are more cost-effective than two single-officer units on calls that can be successfully resolved only with a minimum of 2 officers.
- Patrol officers generally prefer to work with a partner in a two-officer unit, although a large proportion of officers appear to be indifferent between single-officer units and two-officer units (Wilson and Brewer, 1991). Moreover, surveys have shown that patrol officers generally believe that most aspects of policing can be most effectively carried out by two-officer units (Wilson, 1990), although they recognize that single-officer units can be advantageous in some situations.
- An optimal deployment model must incorporate a judicious ratio of single to two-officer units and an efficient dispatching procedure (National Institute of Justice, 1986). In particular, the dispatching personnel play a central role in minimizing risk for the single-officer unit (Wilson, 1991).
- Data on officer safety is often conflicting. Several studies have failed to show a significant difference between injury rates between single and two-officer units (Wilson, 1990). Moreover, the studies that did present conclusive safety data often failed to control for the proportion of single-officer units, differences in the call load handled by the officers and differences in the long-term effects of injuries sustained by officers in single or two-officer units (Wilson, 1990).
- Single-officer patrol units are significantly most likely to be injured when assaulted (Wilson, Brunk and Meyer, 1990). This is illustrated acutely by the fact that a total of 110,509 officers in a single-officer car and 30,679 officers in a two-officer car were assaulted between 2002 and 2004 in the United States, while 97

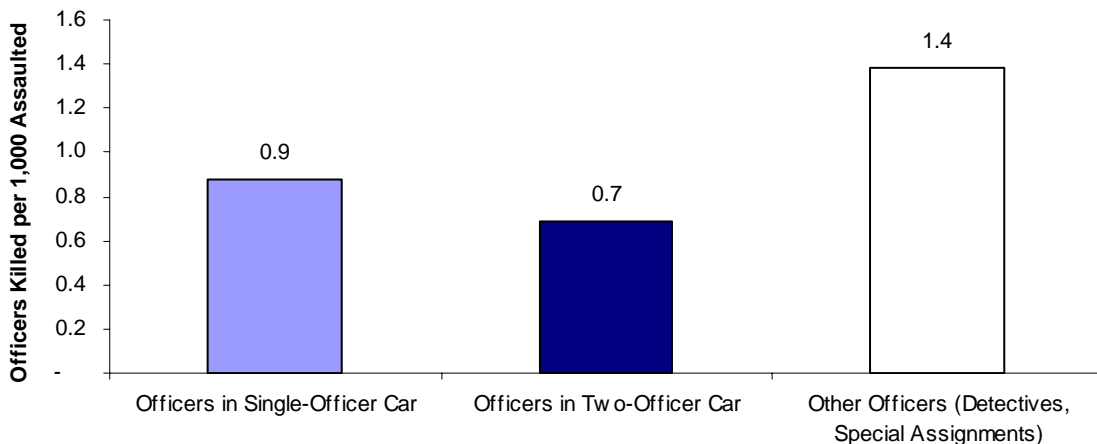
officers in a single-officer car and 21 officers in a two-officer car were feloniously killed during the same period (Federal Bureau of Investigation, Law Enforcement Officers Killed and Assaulted, 2002-2004). This implies that officers in single-officer cars were proportionately 28.2% more likely to be killed when they were assaulted. Overall, this is consistent with the idea that, if an officer is attacked while working with a partner, the second officer can assist and summon additional help if required.

**Table 9-2 Officers in Single and Two-Officer Units Assaulted or Feloniously Killed Between 2002-2004 in the United States**

Type of Unit	Assaulted	Feloniously Killed	Killed per 1,000 Assaulted
Officers in Single-Officer Car	110,509	97	0.9
Officers in Two-Officer Car	30,679	21	0.7
Other Officers (Detectives, Special Assignments)	34,092	47	1.4
<b>Total</b>	<b>175,280</b>	<b>165</b>	<b>0.9</b>

Source: FBI, Law Enforcement Officers Killed and Assaulted, 2002-2004.

**Figure 9-1 Ratio of Officers Feloniously Killed to Officers Assaulted Between 2002-2004 in the United States**



## 9.2 THE EXPERIENCE OF OTHER POLICE AGENCIES

In general, the experience of other municipal police agencies offers valuable insights in relation to the number of two-officer units that should be deployed, the circumstances under which two-officer units should be deployed and the spectrum of calls that can be handled efficiently by two-officer units. In an effort to identify best practices in the field of law enforcement, the policies and practices in place in several other leading North American police agencies are summarized below.

In a groundbreaking paper written for the Australasian Centre for Policing Research, Wilson (1991) reviewed the policies on two-officer units that were used by 11 of the largest American police departments in 1990. Wilson (1991) determined that, at the time the review was conducted:

- The Chicago Police Department was deploying single-officer units only during daylight hours (between 0800 and 1600 hours).
- According to the written policy manual of the Washington Metropolitan Police Department, single-officer units could be dispatched to any type of call, except family disputes. In practice, police dispatchers were usually sending a minimum of two officers to high priority calls such as crimes in progress.
- At the Detroit Police Department, single-officer units were usually deployed strictly between 0600 and 2000 hours during the summer and between 0600 and 1800 hours during the winter. Single-officer units at the Detroit Police Department were typically expected to handle minor complaints, hospital injury reports and missing persons as well as break & enter, mischief and theft reports. As a matter of policy, solo patrol officers in Detroit were not to be dispatched to large apartment buildings or warehouses where the solo officer would be required to use long flights of stairs or the elevator.
- The policy manual at the Miami-Dade Police Department suggested that audible alarms, break & enters in progress, disturbance calls, intoxicated persons, suspicious persons, warrants and attempted suicides should be attended by a two-officer unit or a single-officer unit accompanied by a backup unit. Patrol officers at the Miami-Dade Police Department were also encouraged to work

accompanied when they were conducting field interviews (including street checks and person stops) or when they were responding to hazardous calls such as disturbance calls, alarm calls, in-progress calls, suspicious persons and suspicious vehicles.

- The Houston Police Department was primarily deploying single-officer units.
- The Baltimore Police Department was deploying a majority of single-officer units.
- The Honolulu Police Department was only deploying single-officer units.
- The Phoenix Police Department was deploying mostly single-officer units.
- The Los Angeles Police Department (LAPD) was primarily deploying two-officer units, although some single-officer units were also deployed in specific geographic areas to handle particular tasks.

Information on Canadian police agencies provided by the Frontier Centre for Public Policy<sup>18</sup> shows that, in 2001:

- The Saskatoon Police Service was deploying both single and two-officer units, with mostly single-officer patrol units deployed before 2300 hours and only two-officer patrol units deployed after 2300 hours. Typically, priority 1 calls (e.g. incidents in progress) at the Saskatoon Police Service were dispatched to at least two officers as a matter of policy.
- The Ottawa Police Service was deploying exclusively single-officer units.
- The Halifax Police Service was deploying both single and two-officer units.
- The Edmonton Police Service was deploying both single and two-officer units, with only two-officer patrol units deployed between 2200 and 0800 hours.
- The Winnipeg Police Service was deploying both single and two-officer units, with only two-officer patrol units deployed between 1900 and 0700 hours.
- The Calgary Police Service was deploying both single and two-officer units, with only two-officer patrol units deployed between 2100 and 0700 hours.

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<sup>18</sup> Frontier Centre for Public Policy, "One-Officer Versus Two-Officer Police Cars in Winnipeg", February 2001.

- The Toronto Police Service was deploying both single and two-officer units, with only two-officer patrol units deployed between 1900 and 0300 hours and up to 80% of single-officer units the rest of the day.
- The Royal Canadian Mounted Police (RCMP) was deploying almost exclusively single-officer units.

Finally, data obtained by the Planning & Research Section between September and November 2006 shows that:

- Approximately 40% of the patrol units deployed by the Dallas Police Department are two-officer units while 60% of the calls handled by the Dallas Police Department are two-officer calls. Patrol units targeting specific crime issues or crime hot spots are usually two-officer units.
- The Peel Regional Police Service does not routinely deploy two-officer units. However, the Staff Sergeant has the discretion to deploy two-officer units when the platoon strength on any given day is sufficient.
- By policy, the Winnipeg Police Service is required to maintain a minimum of 27 two-officer units on the road at all times.
- The San Diego Police Department occasionally deploys two-officer units. Two-officer units are usually deployed when the staffing levels are sufficient.
- The Scottsdale Police Department does not usually deploy two-officer units. However, the patrol commanders will typically authorize the deployment of two-officer units if the radio system goes down, for instance.
- At the Toronto Police Service, 20% of all patrol units deployed between 0300 and 1900 hours and 100% of all patrol units deployed between 1900 and 0300 hours are expected to be two-officer units. These thresholds are mandated by the Collective Agreement.
- At the Portland Police Bureau, approximately 10% of all deployed patrol units are two-officer units.
- At the Cincinnati Police Department, the deployment of two-officer units is left to the discretion of the Sergeants and Lieutenants responsible for each individual shift or patrol team. In general, more two-officer units are expected to be



deployed in high-crime areas. Depending on the district and shift, between 25% and 50% of all patrol units deployed at the Cincinnati Police Department are two-officer units.

- The Ottawa Police Service only deploys single-officer patrol units.
- Approximately 98% of all patrol units deployed at the Charlotte-Mecklenburg Police Department are single-officer units. Two-officers are typically deployed only during crisis situations or natural disasters.
- Approximately 90% of all patrol units deployed at the Seattle Police Department are single-officer units and 10% are two-officer units. At the Seattle Police Department, the deployment of two-officer units is usually left to the discretion of the relief Sergeants and Lieutenants responsible for each individual shift or patrol team. When the staffing levels are adequate, more two-officer units will be deployed during the weekend.
- At the Edmonton Police Service, approximately 38% to 54% of all deployed patrol units are two-officer units. During the day shift, most patrol units will be single-officer units. On the afternoon or night shifts, approximately 50% of all patrol units will be two-officer units. The deployment of two-officer units at the Edmonton Police Service is mandated by a contractual agreement with the Edmonton Civic Service Union 52.

Public records confirm that various jurisdictions have had diverse experiences with the deployment of single and/or two-officer patrol units:

- In New York City in the early 1980s, major efforts were underway to study the feasibility of deploying a larger proportion of single-officer units. Single-officer patrol units at the New York Police Department (NYPD) were being considered as part of a citywide program designed to improve productivity in New York's municipal services (Green and Kolesar, 1984). The NYPD had concerns over the availability of back-up officers and never implemented one-officer deployment. It currently deploys two-officer units almost exclusively.
- In Buffalo (NY), the introduction of single-officer patrol units in 2006 and changes in the shifting pattern have been largely credited with a significant improvement

in patrol coverage, a reduction in response times and substantial financial savings.

- In Phoenix (AZ), the 1999 murder of Officer Marc Atkinson while he was working alone led to extensive changes in the way patrol officers in Phoenix are deployed. At the time of Atkinson's death, both police union officials and city politicians in Phoenix decreed that patrol units would become two-officer units.

In February 2005, the Deputy David March Officer Safety Act of 2005 (Assembly Bill 373) was introduced to the California Legislature by Assembly Member Bermudez. The purpose of the Assembly Bill 373 was to create a Two-Officer Patrol Car Pilot Program that would require the U.S. Department of Justice to develop criteria and methods to compare the safety and efficiency of two-officer units with single-officer units. The U.S. Department of Justice will report to the California Legislature by January 2008. This ground-breaking program is likely to lead to innovative results that will further inform the deployment and the dispatching of single and two-officer units.

### **9.3 SINGLE-OFFICER AND TWO-OFFICER CALLS**

In light of the existing empirical evidence, Wilson and Brewer (1991) suggest that it would generally be unwise to dispatch only one single-officer unit to deal with:

- Fights (including pub and hotel brawls).
- Annoying circumstances (including hostile crowds and loitering).
- Trespassers.
- Intoxicated persons.
- Mentally unstable persons.
- Domestic situations.
- Assaults in progress.
- Mischiefs.
- Thefts of motor vehicle in progress.
- Shots fired incidents.
- Break & enters in progress.

- Noise complaints.
- Motor vehicle incidents with injuries.

Moreover, research on risks and injury rates in patrol has demonstrated that:

- Arrests (Chapman, 1976), break & enters in progress (Little, 1984), disturbance calls (Swanton, 1985), intoxicated persons (Horstman, 1973) and violent crimes (Meyer, 1982) are the most probable antecedents of assaults against police officers.
- Police officers are consistently more likely to be assaulted at night time (especially between 2300 and 0300 on Friday or Saturday night). Time of day was most relevant for domestic arguments, unwanted persons, annoying circumstances, mischiefs and assaults.

Single-officer units at the LAPD are usually dedicated to report taking, crime scene investigation, accident investigation and other “non-select” calls (calls that can be handled by single-officer units). The list of “select” calls identified by the LAPD is summarized in the table below. The list implies, for instance, that missing children should be handled by two-officer units while missing adults can be handled by single-officer units. Similarly, overdoses, suicide attempts and injuries that required an ambulance should be handled by two-officer units. On the other hand, other types of injuries can be handled by single-officer units.

**Table 9-3 Select and Non-Select Calls in the 1990’s Los Angeles Police Department**

<b>Call Category</b>	<b>Code</b>	<b>Major Descriptors for Select Calls</b>	<b>Major Descriptors for Non-Select Calls</b>
Missing	920	1: Child	2: Adult
Found	928	1: Child	2: Adult 3: Property 4: Evidence 5: Narcotics
Open	605	1: Door 2: Window	None.
Bomb	996	1: Threat	2: Scare

Animal Related	905	3: Vicious Animal	O: Other 1: Dead 2: Injured
Injury	907	A: Ambulance in Route 2: Overdose 3: Attempt Suicide 4: Suicide	All Others.
Death	927	A: Ambulance in Route D: Dead Body	I: Investigation
Theft	484	A: Ambulance in Route H: Citizen Holding Suspect O: Officer Holding Suspect J: Just Occurred L: Just Left N: Now S: Suspect X: In Progress	I: Investigation R: Report T: Attempt 1: Petty 2: Grand 3: Bunco 4: Purse Snatch 5: Shoplift 6: Theft from Vehicle
Minor Disturbance	507	B: BB Gun F: Firecrackers P: Party	A: Auto Repair C: Construction G: Ball Game O: Other R: Radio
Vehicle	503	F: Shots Fired H: Citizen Holding Suspect O: Officer Holding Suspect N: Now S: Suspect X: In Progress 1: Stolen 3: Grand Theft Auto 4: Car Strip	I: Investigation R: Report 2: Recovered 5: Abandoned
Runaway Juvenile	600	L: Located	I: Investigation

Alarm	906	All.	None.
Back Up	990		
Direct Traffic	903		
Dispute	620		
Disturbance	415		
Explosion	955		
Help	999		
Mental	918		
Murder	187		
Narcotics	110		
Needs Assistance	911		
Person Down	929		
Screaming	930		
Shots Fired	246		
Shots Fired	246		
Unknown Trouble	900		
Arson	447	All Except...	I: Investigation R: Report
Assault with a Deadly Weapon	245		
Attack	261		
Battery	242		
Impersonating an Officer	146		
Indecent Exposure	314		
Kidnapping	207		
Prowler	921		
Robbery	211		
Burglary	459	All Except...	I: Investigation R: Report 1: Burglary From Vehicle
Intoxicated	390	All Except...	B: Wagon
Vandalism	594	All Except...	I: Investigation R: Report 2: Misdemeanour

Child	288	All Except...	I: Investigation R: Report 3: Alone
Forgery	470	All Except...	I: Investigation R: Report T: Attempt
Meet	720	None.	All.
Parking Violation	586		
Racing	510		
Traffic	904		
* Select calls at the Los Angeles Police Department were calls for service requiring the response of a two-officer patrol unit.			
Source: Carlene Wilson, "How Police Forces Protect the Single-Officer Patrol", Australasian Centre for Policing Research, 1991, p. 17-24.			

At the Seattle Police Department, a written directive determines formally when and how two-officer units should be dispatched. The guidelines provided by the Seattle Police Department suggest that:

- Single-officer units are best used for investigative or service-type calls, while two-officer units are most useful for enforcement or apprehension-type calls where physical contact is likely or possible.
- Calls involving an arrest, enforcement or protective action require the response of at least two officers.
- At least two officers should be dispatched to incidents involving a weapon, a disturbed person with some potential for violence, an intoxicated person, many individuals (e.g. noisy house party) or potential hazards (e.g. motor vehicle incidents at night on a major street).
- More than one officer should also be dispatched to incidents reported in some areas of the city that are very dense (e.g. downtown area), fairly remote (e.g. around railway tracks or along the beach at night) or notoriously anti-police (e.g. some nightclubs, problem premises or schools). Solo officers dispatched to these locations and the police equipment left unattended there are both possible targets for reprisal.

- More than one officer should be dispatched to calls associated with minimal information or unidentified complainants because these calls can constitute ambush situations.
- More than one officer should be dispatched when the police action involves a larger area (e.g. missing children calls, prowler).

Ultimately, best practices in law enforcement, tactical considerations and officer safety issues dictate that the following types of calls for service should normally be handled by a minimum of two patrol officers initially:

- Virtually all incidents in progress (including abductions in progress, arsons in progress, assaults in progress, sexual assaults in progress, break and enters in progress, domestic situations in progress, frauds in progress, indecent acts in progress, mischiefs in progress, robberies in progress, stalking in progress, thefts in progress).
- All weapon-related calls (including possible shootings, reports of shots fired and shots heard).
- All home invasions.
- All bait car activations.
- All requests for assistance from the emergency mental health service.
- All domestic situations (including, of course, domestic violence situations).
- Most abandoned 9-1-1 calls.
- Most alarms (including hold-up alarms and silent or panic alarms).
- Most assaults (including assaults with a weapon and sexual assaults, even if they are not in progress).
- Most drug-related calls.
- Most man down calls.
- Most requests for assistance from the provincial ambulance service.
- Most robberies.
- Annoying circumstances.
- Bomb threats.
- Disturbing parties.

- Fights.
- Hazardous situations.
- Insecure premises.
- Neighbour disputes.
- Noise complaints.
- Overdoses.
- Panhandlers.
- Prowlers.
- Arrests.
- Warrants.
- Licensed premises checks.
- Welfare checks.
- Disturbed persons (including mental health calls).
- Impaired drivers.
- Intoxicated persons.
- Missing persons (including, of course, missing children).
- Unwanted persons.
- Screaming persons.
- Sudden deaths.
- Suicidal persons (including jumpers).
- Violent persons.
- Violent shoplifters.
- Industrial accidents.
- Motor vehicle incidents with injuries.
- Stalking cases.
- Trespassing calls.



**Table 9-4 Emergency 9-1-1 and Telephone Calls Dispatched to Regular Patrol Units That Usually Require At Least Two Officers**

<b>Call Type</b>	<b>Number of Calls</b>	<b>Total Service Time by Regular Patrol Units (Hours)</b>	<b>Average Service Time</b>
ANNOYING CIRCUMSTANCES	10,059	3,944	0:23:32
DISTURBANCE NOISE	5,069	1,922	0:22:45
ABANDONED 911	3,779	1,772	0:28:08
ALARM	3,466	1,199	0:20:46
MVI INJURY	3,209	6,840	2:07:54
ASSIST PROVINCIAL AMBULANCE	3,099	3,083	0:59:41
DOMESTIC IN PROGRESS	2,866	5,891	2:03:20
UNWANTED PERSON	2,743	1,360	0:29:45
ASSAULT IN PROGRESS	2,459	5,306	2:09:28
THEFT IN PROGRESS	2,401	4,636	1:55:51
DISTURBANCE PARTY	2,297	1,478	0:38:36
FIGHT	2,076	2,139	1:01:49
BREAK AND ENTER IN PROGRESS	1,928	4,583	2:22:38
DOMESTIC REPORT	1,766	3,392	1:55:15
WEAPON IN PROGRESS	1,507	6,004	3:59:03
MISCHIEF IN PROGRESS	1,479	2,282	1:32:35
HAZARDOUS SITUATION	1,071	477	0:26:45
SUICIDAL PERSON	922	1,920	2:04:57
MISSING PERSON	787	1,700	2:09:38
DISTURBANCE SCREAMING	702	702	1:00:00
CHECK WELFARE	691	618	0:53:39
VIOLENT PERSON	623	732	1:10:31
ROBBERY IN PROGRESS	611	2,439	3:59:29
SUDDEN DEATH	604	2,938	4:51:49
DRUGS	558	309	0:33:11
DRUGS IN PROGRESS	540	215	0:23:55
ROBBERY	463	1,067	2:18:14
ALARMS SILENT/PANIC	432	148	0:20:32
ASSAULT SEXUAL	425	2,749	6:28:03
SHOTS HEARD	415	852	2:03:15
DOMESTIC WITH VIOLENCE	386	1,162	3:00:33
OTHER	10,017	20,748	2:04:17
<b>Total</b>	<b>69,450</b>	<b>94,606</b>	<b>1:21:44</b>

To be effective and tactically sound, the initial patrol response to the incidents listed above should consist of at least two officers.

On the other hand, the following calls can normally be handled initially by a single officer:

- Requests for assistance from the fire department.
- Arsons.
- Break and enters (not in progress).
- Frauds (not in progress).
- Indecent acts (not in progress).
- Mischiefs (not in progress).
- Shoplifters.
- Thefts (not in progress).
- Hit and run.
- Motor vehicle incidents with no injuries.
- Intelligence calls.
- Seized, lost or recovered property.
- Located stolen vehicles.
- Abandoned vehicles.
- Insecure vehicles.
- Parking violations.
- Traffic violations.
- Traffic suspensions.

**Table 9-5 Emergency 9-1-1 and Telephone Calls Dispatched to Regular Patrol Units That Usually Require Only One Officer Initially**

<b>Call Type</b>	<b>Number of Calls</b>	<b>Total Service Time by Regular Patrol Units (Hours)</b>	<b>Average Service Time</b>
BREAK AND ENTER	2,920	5,081	1:44:25
THEFT VEHICLE LOCATED	1,924	10,037	5:13:00
INTELLIGENCE INFORMATION	1,791	875	0:29:19
THEFT	1,568	3,033	1:56:03
SHOPLIFTER	1,505	3,512	2:20:00
PROPERTY RECOVERED	1,075	1,328	1:14:07
MVI	998	1,290	1:17:32
FRAUD	864	2,287	2:38:47
MISCHIEF	671	1,284	1:54:49
THEFT FROM VEHICLE	584	1,151	1:58:14
MVI HIT AND RUN	271	703	2:35:36
INDECENT ACT	198	279	1:24:42
ARSON	178	497	2:47:23
THEFT OF VEHICLE	162	308	1:53:59
THEFT OF BICYCLE	70	83	1:11:31
OTHER	2,192	2,858	1:18:14
<b>Total</b>	<b>16,971</b>	<b>34,605</b>	<b>2:02:21</b>

When it is necessary, a unit assigned to one of those calls can request support or backup from additional units. However, the nature of the calls listed above implies that the risk for the first responding unit is limited compared to the other calls patrol officers usually deal with. Moreover, there will rarely be a suspect at the scene of those incidents. Therefore, a two-officer unit is usually not required initially.

Finally, the following calls can sometimes require the presence of two officers but can often be handled by a single officer:

- Assault cases.
- Court order breaches.
- Harassment cases.
- Threatening cases.
- Other criminal code offences.
- Prostitution-related calls.

- Requests for assistance from the general public.
- Suspicious circumstances.
- Suspicious persons.
- Suspicious vehicles.

**Table 9-6 Emergency 9-1-1 and Telephone Calls Dispatched to Regular Patrol Units That May Require One or Two Officers**

<b>Call Type</b>	<b>Number of Calls</b>	<b>Total Service Time by Regular Patrol Units (Hours)</b>	<b>Average Service Time</b>
SUSPICIOUS PERSON	7,882	5,747	0:43:45
ASSIST GENERAL PUBLIC	7,238	20,173	2:47:14
SUSPICIOUS OTHER CIRCUMSTANCES	4,946	6,253	1:15:51
ASSAULT	2,345	5,715	2:26:14
THREATS	2,068	4,631	2:14:21
SUSPICIOUS VEHICLE	1,637	1,239	0:45:26
BREACH COURT ORDER	1,001	2,335	2:19:59
HARASSMENT	983	2,221	2:15:34
PROSTITUTION	721	193	0:16:06
OTHER CRIMINAL CODE	47	63	1:20:09
OTHER	1	0	0:16:00
<b>Total</b>	<b>28,869</b>	<b>48,572</b>	<b>1:40:57</b>

Intuitively, it would be possible for a single officer to respond to most of these calls. However, depending on the details associated with each case, dispatchers might choose to initially assign more than one officer. Typically, more than one officer will be dispatched when the case has the potential to become complex or dangerous, a suspect may still be at the scene, multiple victims or witnesses may be at the scene, containment may be required, there is too much uncertainty or the situation is simply too hazardous to dispatch a single officer. In some cases, several officers will be dispatched until the nature of the call can be determined, after which time some of the cover units can be put back into service.

Between 2005-06-01 and 2006-05-31, regular patrol units were dispatched to a total of 69,450 emergency 9-1-1 and telephone calls that would normally require at least two

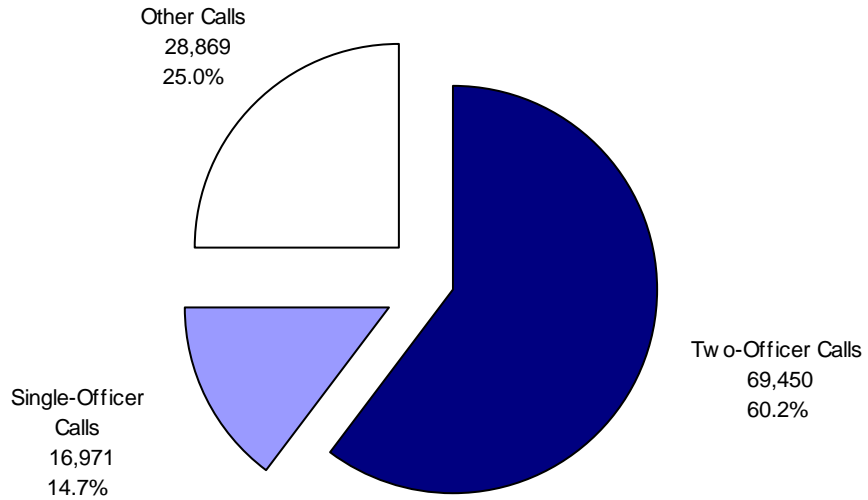
officers, 16,971 calls that could usually be handled by a single officer initially and 28,869 calls that may or may not require two officers depending on the circumstances.

Overall, regular patrol units spent approximately 94,606 unit-hours on the 69,450 two-officer calls, 34,605 unit-hours on the 16,971 single-officer calls and 58,572 on the other calls that could be handled by either a single officer or two officers. This implies that the average service time on two-officer calls was 1 hour and 22 minutes, the average service time on one-officer calls was 2 hours and 2 minutes and the average service time on the other calls was 1 hour and 41 minutes.

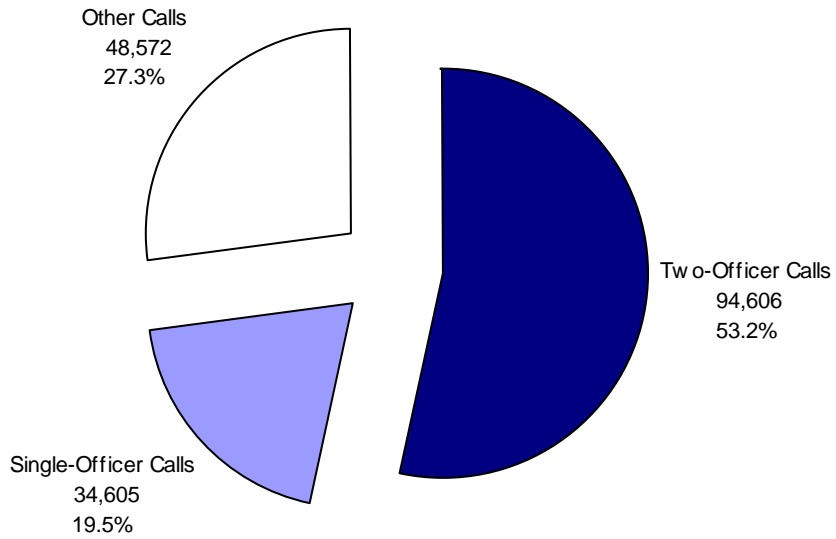
**Table 9-7 Number of Single-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls**

<b>Category</b>	<b>Number of Calls</b>	<b>Total Service Time (Hours)</b>	<b>Average Service Time (Hours)</b>
Two-Officer Calls	69,450	94,606	1:21:44
Single-Officer Calls	16,971	34,605	2:02:21
Other Calls	28,869	48,572	1:40:57
<b>Total</b>	<b>115,290</b>	<b>177,783</b>	<b>1:32:31</b>

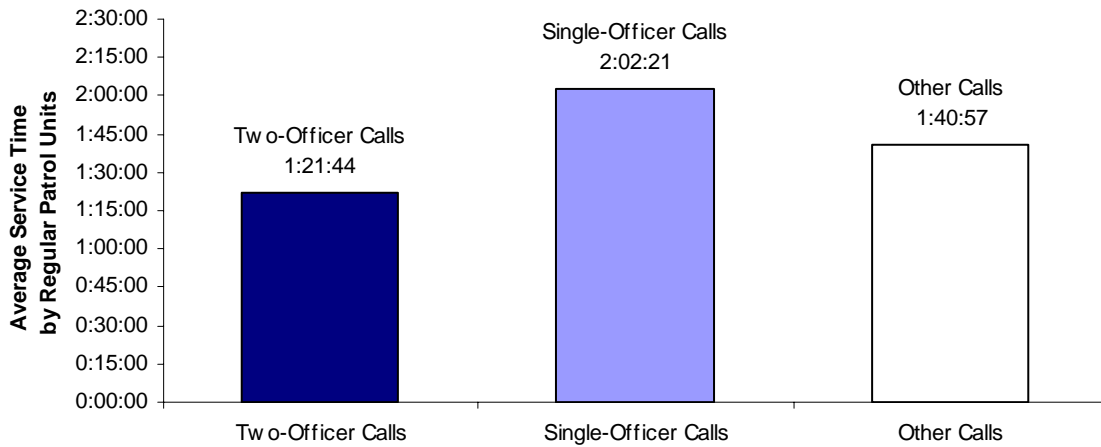
**Figure 9-2 Number of Single-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls**



**Figure 9-3 Total Service Time on Single-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls**



**Figure 9-4 Average Service Time on Single-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls**



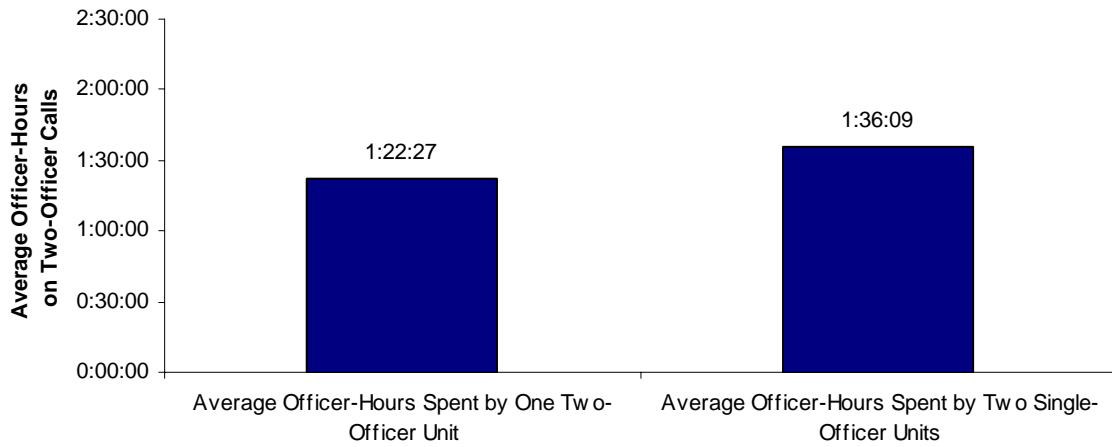
Everything else being equal, it will be unambiguously more efficient for a two-officer unit (as opposed to two single-officer units) to be dispatched to a two-officer call if the service time by a two-officer unit is less than half the combined service time of the single-officer units. In other words, a two-officer unit can be considered more efficient if it can clear a call for service in less than 45 minutes whereas two single officers would have had to spend at least 45 minutes each on the same call. On average, this will be the case for most two-officer calls. For example, a two-officer unit will be unambiguously preferable to two single officers for abandoned 9-1-1 calls, requests for assistance from the provincial ambulance service, drug-related calls, welfare checks, violent persons, screaming persons and weapon-related incidents in progress. Moreover, in terms of the time it takes to clear each call, a two-officer unit will be virtually as efficient as two single officers for annoying circumstances, hazardous situations, noise complaints, disturbing parties, motor vehicle incidents with injuries, domestic situations, thefts in progress and assaults in progress. In general, this empirical evidence tends to confirm that two-officer calls can be handled most efficiently by two-officer units.

**Table 9-8 Average Service Time on Two-Officer Emergency 9-1-1 and Telephone Calls Dispatched to One Two-Officer Unit and Two Single Officers**

Call Type	One Two-Officer Unit			Two Single Officers		
	Number of Calls	Total Service Time (Hours)	Average Service Time	Number of Calls	Total Service Time (Hours)	Average Service Time
ANNOYING CIRCUMSTANCES	5,972	2,008	0:20:11	287	172	0:35:53
DISTURBANCE NOISE	2,685	733	0:16:22	178	88	0:29:48
ABANDONED 911	2,143	710	0:19:52	95	73	0:46:18
ALARM	1,935	576	0:17:52	117	56	0:28:53
ASSIST PROVINCIAL AMBULANCE	1,688	1,136	0:40:22	104	158	1:30:57
UNWANTED PERSON	1,674	672	0:24:06	86	59	0:40:55
MVI INJURY	1,397	1,914	1:22:11	188	510	2:42:43
DISTURBANCE PARTY	1,071	443	0:24:50	86	70	0:48:32
DOMESTIC IN PROGRESS	1,063	1,364	1:17:01	114	286	2:30:18
DOMESTIC REPORT	778	975	1:15:11	79	195	2:27:48
THEFT IN PROGRESS	744	817	1:05:55	121	263	2:10:16
ASSAULT IN PROGRESS	684	715	1:02:44	81	163	2:00:57
FIGHT	659	321	0:29:15	59	45	0:45:43
HAZARDOUS SITUATION	560	192	0:20:31	20	12	0:36:01
MISCHIEF IN PROGRESS	493	398	0:48:29	69	97	1:24:27
DRUGS	368	147	0:24:01	10	10	0:57:33
CHECK WELFARE	361	248	0:41:14	34	49	1:26:39
DRUGS IN PROGRESS	355	111	0:18:50	15	7	0:28:37
SUICIDAL PERSON	316	404	1:16:40	27	62	2:18:41
BREAK AND ENTER IN PROGRESS	308	300	0:58:24	52	92	1:46:20
SUDDEN DEATH	293	1,068	3:38:41	23	139	6:03:09
VIOLENT PERSON	255	159	0:37:20	22	35	1:35:03
MISSING PERSON	249	357	1:25:58	64	148	2:18:48
ALARMS SILENT/PANIC	227	54	0:14:19	16	6	0:21:26
DISTURBANCE SCREAMING	224	91	0:24:28	28	34	1:11:50
WEAPON IN PROGRESS	184	174	0:56:43	28	62	2:12:04
ASSAULT SEXUAL	160	707	4:25:16	29	183	6:19:23
ROBBERY	146	231	1:34:56	50	120	2:24:17
FRAUD IN PROGRESS	117	245	2:05:37	16	63	3:56:23
OTHER	4,214	4,251	1:00:32	340	651	1:54:54
<b>Total</b>	<b>31,323</b>	<b>21,522</b>	<b>0:41:14</b>	<b>2,438</b>	<b>3,907</b>	<b>1:36:09</b>



**Figure 9-5 Average Officer-Hours on Two-Officer Emergency 9-1-1 and Telephone Calls Dispatched to One Two-Officer Unit and Two Single Officers**

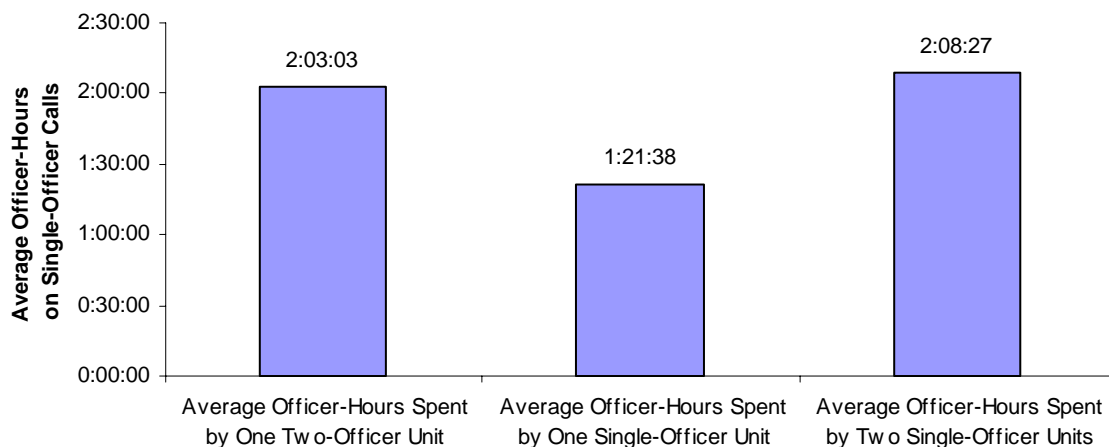


On average, in terms of officer-hours required to clear each call, single officers appeared to be more efficient on intelligence calls, located stolen vehicles, motor vehicle incidents, hit and run, shoplifters, thefts, break and enters, recovered property, frauds, mischiefs, thefts from vehicle, indecent acts, arsons (not in progress) and vehicle thefts. Moreover, it can be shown that two single officers dispatched to a single-officer call will spend approximately the same amount of officer-hours to clear the call than one two-officer unit. In general, this empirical evidence tends to confirm that single-officer calls should be handled by single-officer units.

**Table 9-9 Average Service Time on Single-Officer Emergency 9-1-1 and Telephone Calls Dispatched to One Two-Officer Unit and Two Single Officers**

Call Type	One Two-Officer Unit			One Single Officer		
	Number of Calls	Total Service Time (Hours)	Average Service Time	Number of Calls	Total Service Time (Hours)	Average Service Time
INTELLIGENCE INFORMATION	1,055	373	0:21:12	368	114	0:18:36
BREAK AND ENTER	872	1,074	1:13:55	1,026	1,520	1:28:53
THEFT VEHICLE LOCATED	799	727	0:54:37	661	714	1:04:47
SHOPLIFTER	537	1,020	1:53:57	509	1,188	2:20:04
THEFT	455	625	1:22:22	545	964	1:46:06
MVI	424	341	0:48:15	289	225	0:46:43
PROPERTY RECOVERED	351	344	0:58:46	442	543	1:13:40
FRAUD	230	469	2:02:20	280	605	2:09:42
MISCHIEF	209	282	1:20:53	173	232	1:20:32
THEFT FROM VEHICLE	139	141	1:00:59	111	158	1:25:25
MVI HIT AND RUN	83	100	1:12:07	62	88	1:25:01
INDECENT ACT	84	84	1:00:07	41	34	0:50:27
ARSON	55	90	1:38:01	56	112	1:59:56
THEFT OF VEHICLE	40	52	1:18:41	46	74	1:36:34
OTHER	995	768	0:46:17	579	488	0:50:33
<b>Total</b>	<b>6,328</b>	<b>6,489</b>	<b>1:01:32</b>	<b>5,188</b>	<b>7,059</b>	<b>1:21:38</b>

**Figure 9-6 Average Officer-Hours on Single-Officer Emergency 9-1-1 and Telephone Calls Dispatched to One Two-Officer Unit and One Single Officer**



Finally, in terms of officer-hours required to clear each call, single officers also appeared to be slightly more efficient on suspicious vehicles, assaults (not in progress), court order breaches, threatening cases and harassment cases. On the other hand, two-officer units were slightly more efficient on suspicious persons and suspicious circumstances. Moreover, single-officer units and two single-officer units were equally efficient on requests for assistance from the general public. In general, this empirical evidence tends to confirm that most of the remaining calls can be handled either by single-officer units or two-officer units.

**Table 9-10 Average Service Time on Other Emergency 9-1-1 and Telephone Calls Dispatched to One Two-Officer Unit and Two Single Officers**

Call Type	One Two-Officer Unit			Two Single Officers		
	Number of Calls	Total Service Time (Hours)	Average Service Time	Number of Calls	Total Service Time (Hours)	Average Service Time
SUSPICIOUS PERSON	4,219	1,930	0:27:27	222	232	1:02:38
ASSIST GENERAL PUBLIC	3,776	2,803	0:44:32	281	418	1:29:09
SUSPICIOUS OTHER CIRCUMSTANCES	2,213	1,433	0:38:50	178	248	1:23:29
SUSPICIOUS VEHICLE	920	486	0:31:43	63	59	0:55:56
ASSAULT	869	1,367	1:34:24	157	437	2:47:05
THREATS	713	1,179	1:39:13	195	468	2:23:58
BREACH COURT ORDER	344	571	1:39:40	61	187	3:04:21
HARASSMENT	260	469	1:48:15	112	289	2:34:53
OTHER	496	137	0:16:32	10	6	0:38:33
<b>Total</b>	<b>13,810</b>	<b>10,375</b>	<b>0:45:04</b>	<b>1,279</b>	<b>2,344</b>	<b>1:49:57</b>

Between 2005-06-01 and 2006-05-31, 60.2% to 72.7% of all calls dispatched to regular patrol units were calls that should normally be handled by at least two officers (e.g. fights, domestic situations, break and enters in progress). Moreover, approximately 53.2% to 66.9% of all the time spent on calls for service by regular patrol units was spent on two-officer calls. These preliminary results suggest that approximately 60% of all regular patrol units (including Beat Enforcement Team units, bicycle units, patrol beat

units, plainclothes patrol units and uniform patrol units) should be two-officer units. This is consistent with earlier findings obtained by the Dallas Police Department.<sup>19</sup>

More precisely, between 2005-06-01 and 2006-05-31:

- In District 1, 61.7% to 72.9% of all calls dispatched to regular patrol units were two-officer calls. Moreover, approximately 57.7% to 68.8% of all the time spent on calls for service by regular patrol units was spent on two-officer calls.
- In District 2, 62.2% to 75.3% of all calls dispatched to regular patrol units were two-officer calls. Moreover, approximately 62.7% to 74.4% of all the time spent on calls for service by regular patrol units was spent on two-officer calls.
- In District 3, 58.3% to 71.9% of all calls dispatched to regular patrol units were two-officer calls. Moreover, approximately 62.3% to 73.5% of all the time spent on calls for service by regular patrol units was spent on two-officer calls.
- In District 4, 58.4% to 70.4% of all calls dispatched to regular patrol units were two-officer calls. Moreover, approximately 57.2% to 68.6% of all the time spent on calls for service by regular patrol units was spent on two-officer calls.

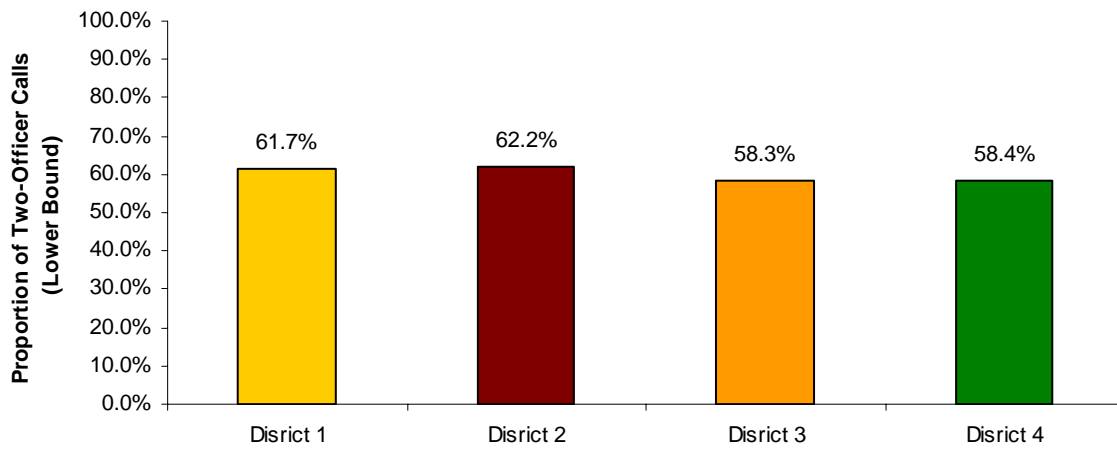
**Table 9-11 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by District**

<b>District</b>	<b>Number of Two-Officer Calls</b>	<b>Number of Single-Officer Calls</b>	<b>Number of Other Calls</b>	<b>Proportion of Two-Officer Calls (Lower Bound)</b>	<b>Proportion of Two-Officer Calls (Upper Bound)</b>
Disrict 1	17,443	4,493	6,347	61.7%	72.9%
Disrict 2	20,238	3,753	8,558	62.2%	75.3%
Disrict 3	16,330	4,054	7,606	58.3%	71.9%
Disrict 4	15,399	4,648	6,340	58.4%	70.4%
Other	40	23	18	49.4%	60.5%
<b>Total</b>	<b>69,450</b>	<b>16,971</b>	<b>28,869</b>	<b>60.2%</b>	<b>72.8%</b>

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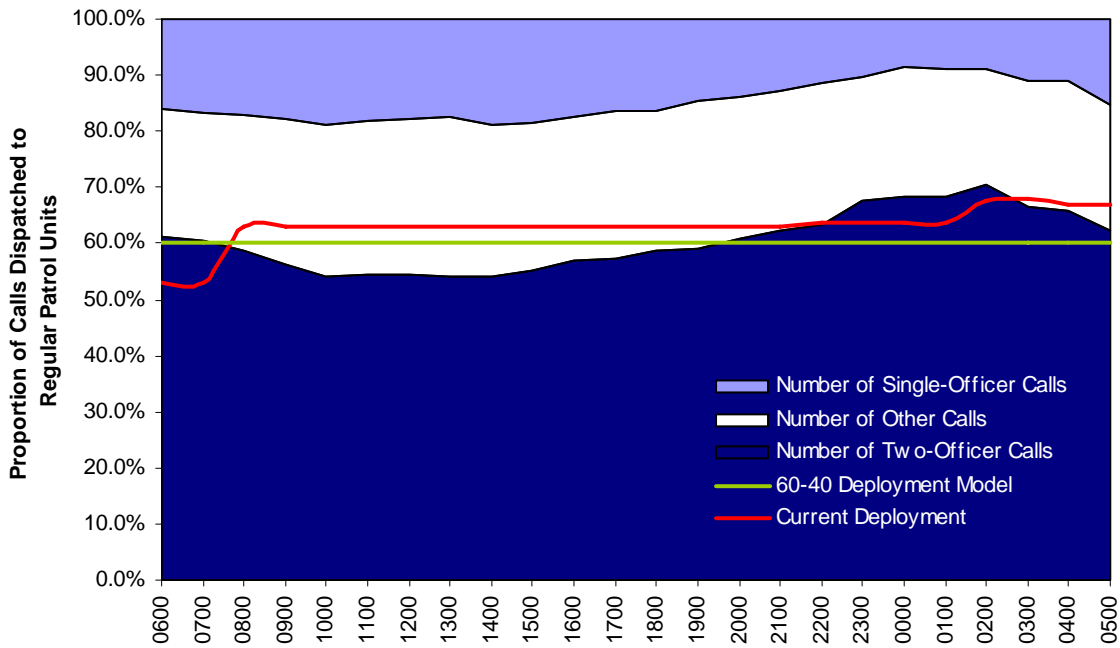
<sup>19</sup> Vancouver Police Department, Planning & Research Section, VPD Deployment Survey, November 2006.

**Figure 9-7 Proportion of Two-Officer Emergency 9-1-1 and Telephone Calls by District**



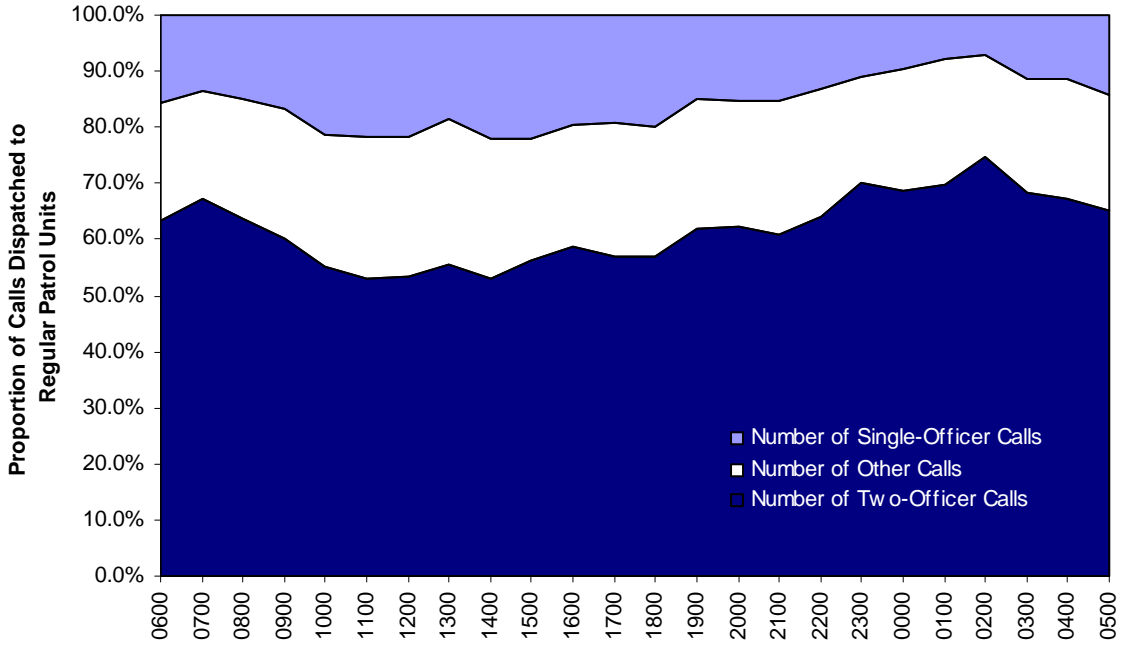
On average, between 2005-06-01 and 2006-05-31, the proportion of two-officer calls did not vary wildly during each hour of the day. Overall, slightly more two-officer calls were received between 2000 and 0600 hours. This supports the idea that relatively more two-officer units are required at night.

**Figure 9-8 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by Hour of the Day**

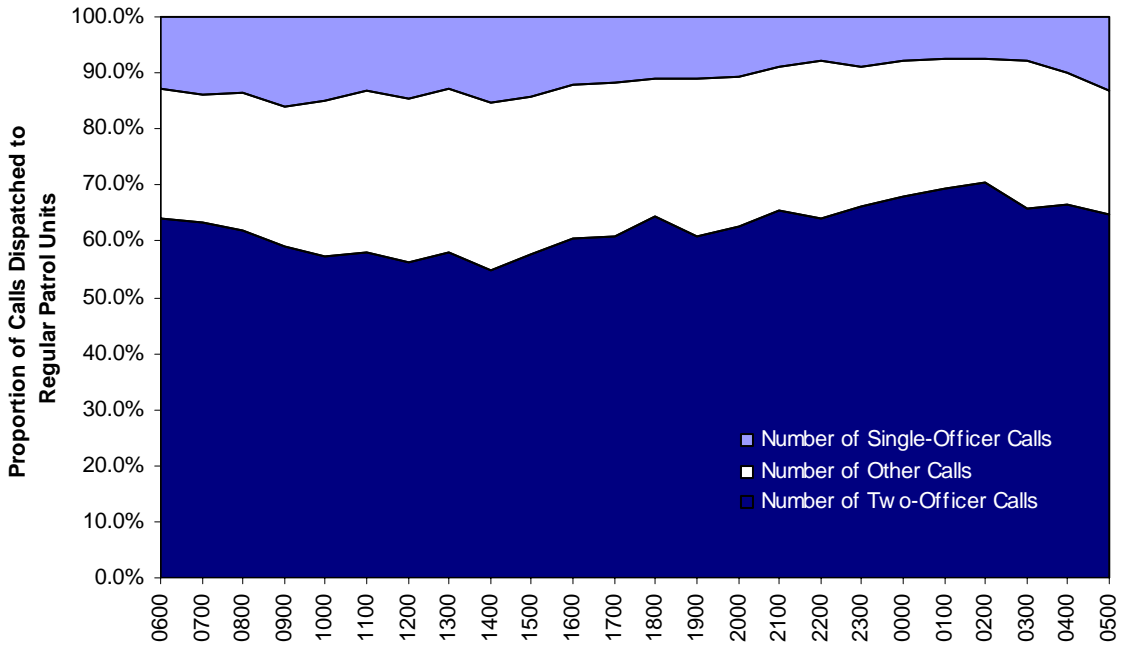


As illustrated by the following graphs, approximately the same pattern was observed in all four districts. In all districts, slightly less two-officer calls were received during the day and more two-officer calls were received at night.

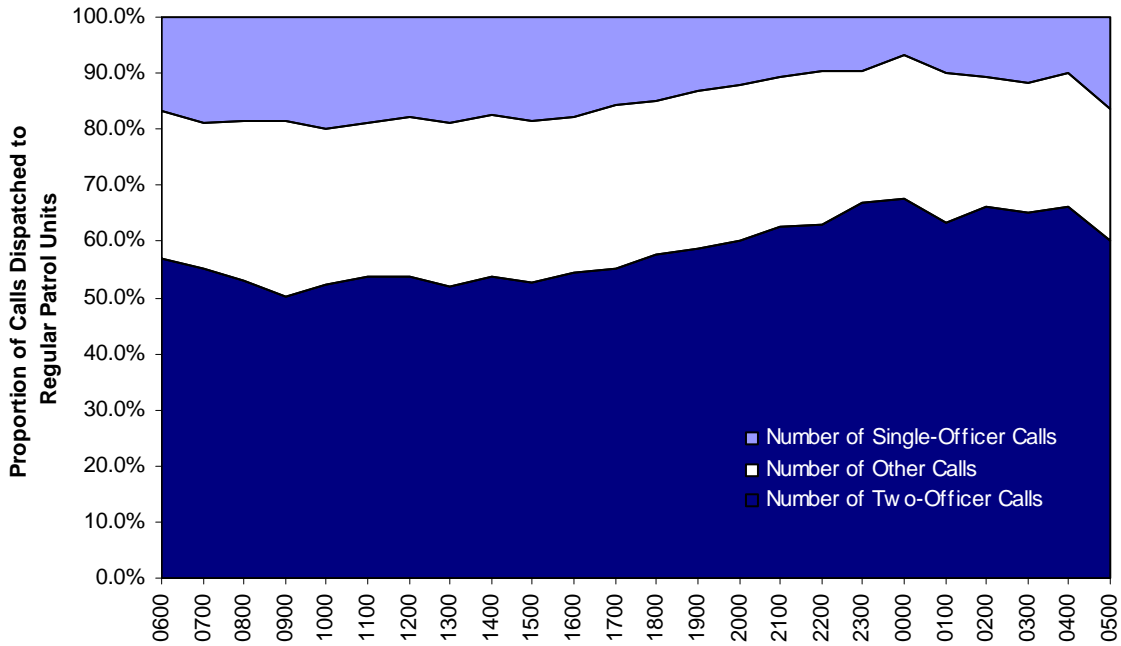
**Figure 9-9 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by Hour of the Day in District 1**



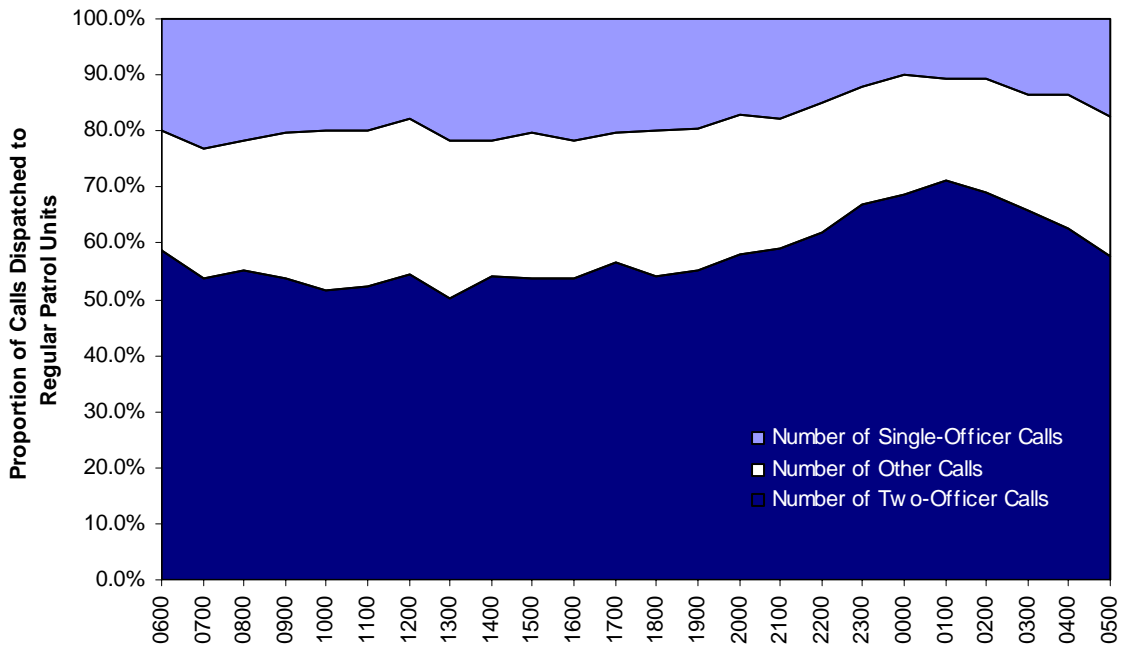
**Figure 9-10 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by Hour of the Day in District 2**



**Figure 9-11 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by Hour of the Day in District 3**



**Figure 9-12 Number of One-Officer and Two-Officer Emergency 9-1-1 and Telephone Calls by Hour of the Day in District 4**





## **9.4 DEPLOYMENT OPTIONS**

Section 22 of the 2003-2006 Collective Agreement between the Vancouver Police Board and the Vancouver Police Union (VPU) states that:

*Normal deployment of the Operations Division shall be undertaken so as to ensure that a minimum of sixty percent (60%) of the cars deployed are deployed as two-person cars.*

Currently, approximately 65.0% of all regular patrol units deployed at the VPD are two-officer units. A total of four alternatives are studied in the context of the VPD Patrol Deployment Study:

- First, the possibility of deploying 70% of all regular patrol units as two-officer units and 30% as single-officer units is examined.
- Secondly, the possibility of deploying 60% of all regular patrol units as two-officer units and 40% as single-officer units is examined.
- Thirdly, the possibility of deploying 50% of all regular patrol units as two-officer units and 50% as single-officer units is examined.
- Finally, the possibility of deploying 40% of all regular patrol units as two-officer units and 60% as single-officer units is examined.

Each of these deployment models was assessed using queuing theory. The detailed results of the analysis are presented in the Appendix I –Two-Officer Deployment Models. The information obtained using the simulation is also summarized in the next section.

## **9.5 DISCUSSION**

### **9.5.1 Deployment Inefficiencies**

Empirical evidence and intuition suggests that it is generally inefficient to send a two-officer unit to a single-officer call or two single officers to a two-officer call. On average,

the patrol data compiled between 2005-06-01 and 2006-05-31 suggests that there is a net loss of officer-time when:

- A two-officer unit is dispatched to a single-officer call. On average, the net loss in officer-time when a two-officer unit is dispatched to a single-officer call is approximately 40 minutes. At the current First Class Constable's pay rate, this corresponds to at least \$22.36 per call.

OR

- Two single-officer units are dispatched to a two-officer call. On average, the net loss in officer-time when two single-officer units are dispatched to a two-officer call is approximately 15 minutes. At the current First Class Constable's pay rate, this corresponds to at least \$8.39 per call.

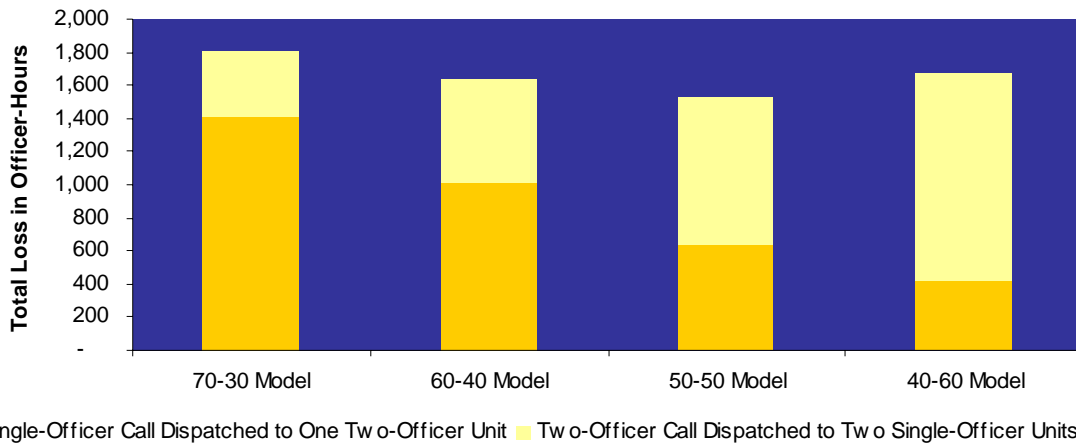
Although some slippage is inevitable because single-officer units and two-officer units will not always be available to be dispatched, the deployment split influences the size of the total net efficiency loss.

In District 1, the 70-30 deployment model would lead to a total net loss of approximately 1,803 officer-hours, the 60-40 deployment model would lead to a total net loss of approximately 1,643 officer-hours, the 50-50 deployment model would lead to a total net loss of approximately 1,525 officer-hours and the 40-60 deployment model would lead to a total net loss of approximately 1,673 officer-hours.

**Table 9-12 Estimated Net Loss in Officer-Time in District 1 Under Each Deployment Model**

Type of Call	Estimated Total Net Loss in Officer-Hours			
	70-30 Model	60-40 Model	50-50 Model	40-60 Model
Two-Officer Call Dispatched to Two Single-Officer Units	395	636	883	1,249
Single-Officer Call Dispatched to One Two-Officer Unit	1,408	1,007	642	424
<b>Total Net Loss in Officer-Hours</b>	<b>1,803</b>	<b>1,643</b>	<b>1,525</b>	<b>1,673</b>
<b>Equivalent Monetary Loss</b>	<b>\$ 60,471</b>	<b>\$ 55,110</b>	<b>\$ 51,154</b>	<b>\$ 56,106</b>

**Figure 9-13 Estimated Total Net Loss in Officer-Time in District 1 Under Each Deployment Model**

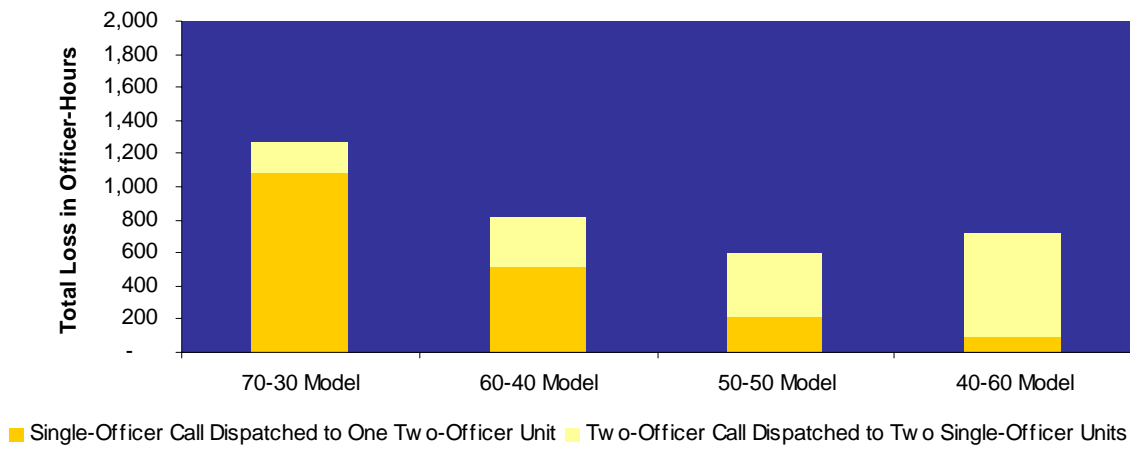


In District 2, the 70-30 deployment model would lead to a total net loss of approximately 1,265 officer-hours, the 60-40 deployment model would lead to a total net loss of approximately 818 officer-hours, the 50-50 deployment model would lead to a total net loss of approximately 601 officer-hours and the 40-60 deployment model would lead to a total net loss of approximately 727 officer-hours.

**Table 9-13 Estimated Net Loss in Officer-Time in District 2 Under Each Deployment Model**

Type of Call	Estimated Total Net Loss in Officer-Hours			
	70-30 Model	60-40 Model	50-50 Model	40-60 Model
Two-Officer Call Dispatched to Two Single-Officer Units	183	306	388	630
Single-Officer Call Dispatched to One Two-Officer Unit	1,082	513	213	97
<b>Total Net Loss in Officer-Hours</b>	<b>1,265</b>	<b>818</b>	<b>601</b>	<b>727</b>
<b>Equivalent Monetary Loss</b>	<b>\$ 42,414</b>	<b>\$ 27,450</b>	<b>\$ 20,158</b>	<b>\$ 24,397</b>

**Figure 9-14 Estimated Total Net Loss in Officer-Time in District 2 Under Each Deployment Model**

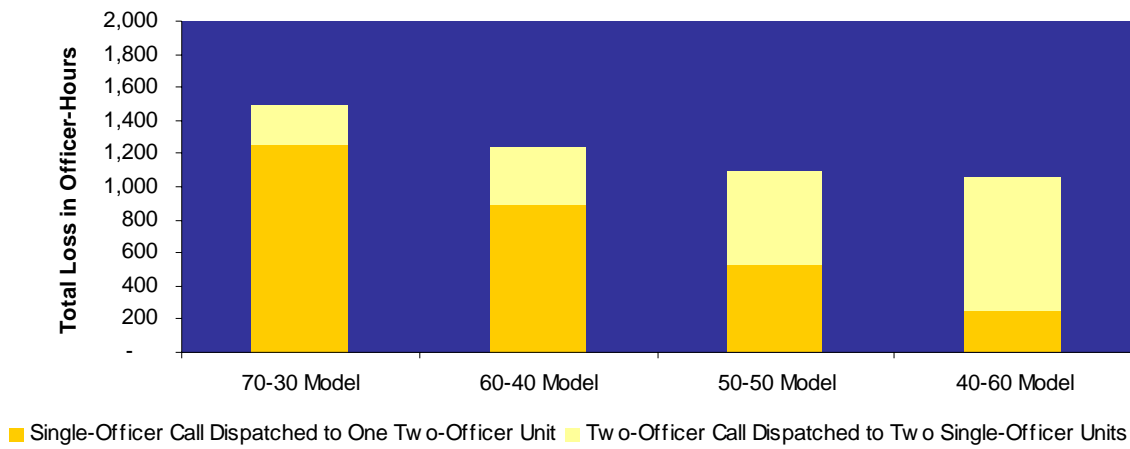


In District 3, the 70-30 deployment model would lead to a total net loss of approximately 1,492 officer-hours, the 60-40 deployment model would lead to a total net loss of approximately 1,236 officer-hours, the 50-50 deployment model would lead to a total net loss of approximately 1,101 officer-hours and the 40-60 deployment model would lead to a total net loss of approximately 1,054 officer-hours.

**Table 9-14 Estimated Net Loss in Officer-Time in District 3 Under Each Deployment Model**

Type of Call	Estimated Total Net Loss in Officer-Hours			
	70-30 Model	60-40 Model	50-50 Model	40-60 Model
Two-Officer Call Dispatched to Two Single-Officer Units	233	339	568	804
Single-Officer Call Dispatched to One Two-Officer Unit	1,258	897	533	250
<b>Total Net Loss in Officer-Hours</b>	<b>1,492</b>	<b>1,236</b>	<b>1,101</b>	<b>1,054</b>
<b>Equivalent Monetary Loss</b>	<b>\$ 50,032</b>	<b>\$ 41,451</b>	<b>\$ 36,934</b>	<b>\$ 35,364</b>

**Figure 9-15 Estimated Total Net Loss in Officer-Time in District 3 Under Each Deployment Model**

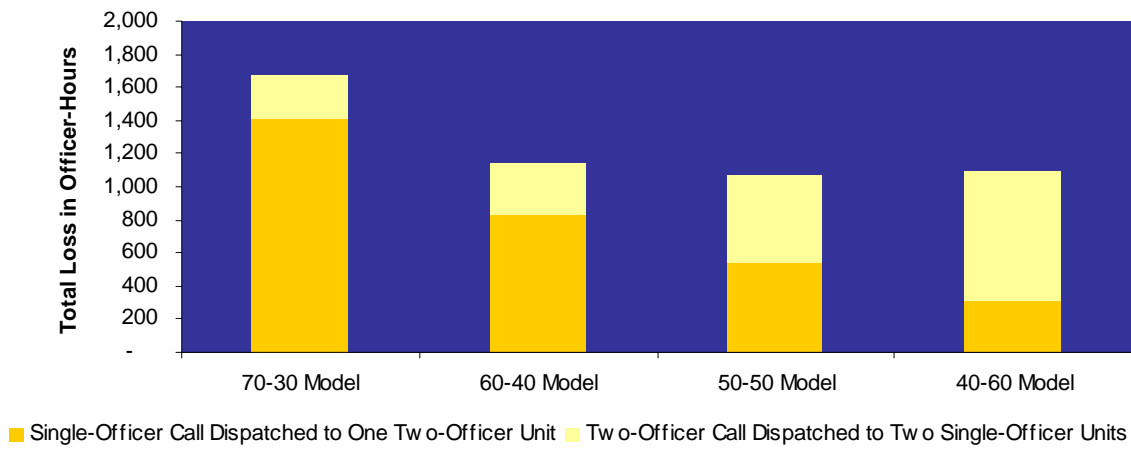


In District 4, the 70-30 deployment model would lead to a total net loss of approximately 1,675 officer-hours, the 60-40 deployment model would lead to a total net loss of approximately 1,149 officer-hours, the 50-50 deployment model would lead to a total net loss of approximately 1,078 officer-hours and the 40-60 deployment model would lead to a total net loss of approximately 1,094 officer-hours.

**Table 9-15 Estimated Net Loss in Officer-Time in District 4 Under Each Deployment Model**

Type of Call	Estimated Total Net Loss in Officer-Hours			
	70-30 Model	60-40 Model	50-50 Model	40-60 Model
Two-Officer Call Dispatched to Two Single-Officer Units	266	322	539	781
Single-Officer Call Dispatched to One Two-Officer Unit	1,409	827	539	314
<b>Total Net Loss in Officer-Hours</b>	<b>1,675</b>	<b>1,149</b>	<b>1,078</b>	<b>1,094</b>
<b>Equivalent Monetary Loss</b>	<b>\$ 56,174</b>	<b>\$ 38,545</b>	<b>\$ 36,151</b>	<b>\$ 36,699</b>

**Figure 9-16 Estimated Total Net Loss in Officer-Time in District 4 Under Each Deployment Model**



Intuitively, relatively fewer single-officer calls are expected to be dispatched to two-officer units as the average proportion of two-officer units deployed decreases. In turn, more two-officer calls are expected to be dispatched to single-officer units as the average proportion of two-officer units deployed decreases.

In general, the 70-30 deployment model implies that relatively too many single-officer calls will be dispatched to two-officer units on average and consequently appears to be a suboptimal deployment model. At current staffing and workload levels, the 70-30 deployment model would be expected to lead to the largest total net loss in officer-time in each of the four patrol districts. For this reason, the 70-30 deployment model cannot be recommended at this time.

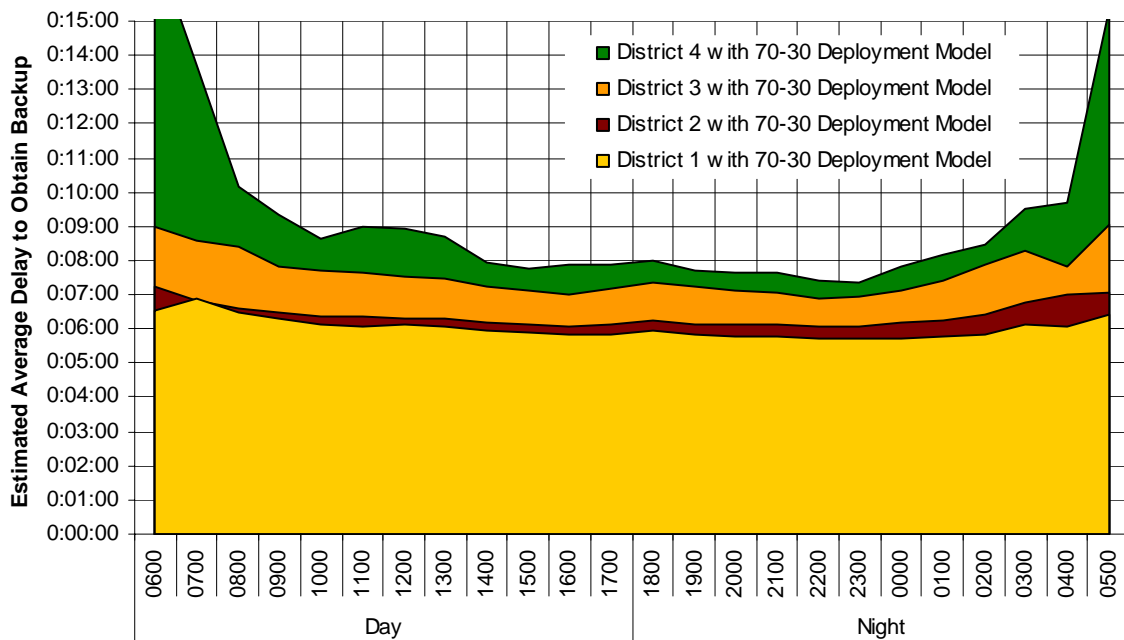
### **9.5.2 Availability of Backup Units**

The 40-60 model requires single-officer units to handle two-officer calls relatively more often than the 60-40 or the 50-50 models. However, the success and the tactical effectiveness of this approach depend critically on the availability of backup units. Single-officer units are not designed and are usually not trained to efficiently handle situations involving hostile individuals, multiple victims or witnesses and potentially

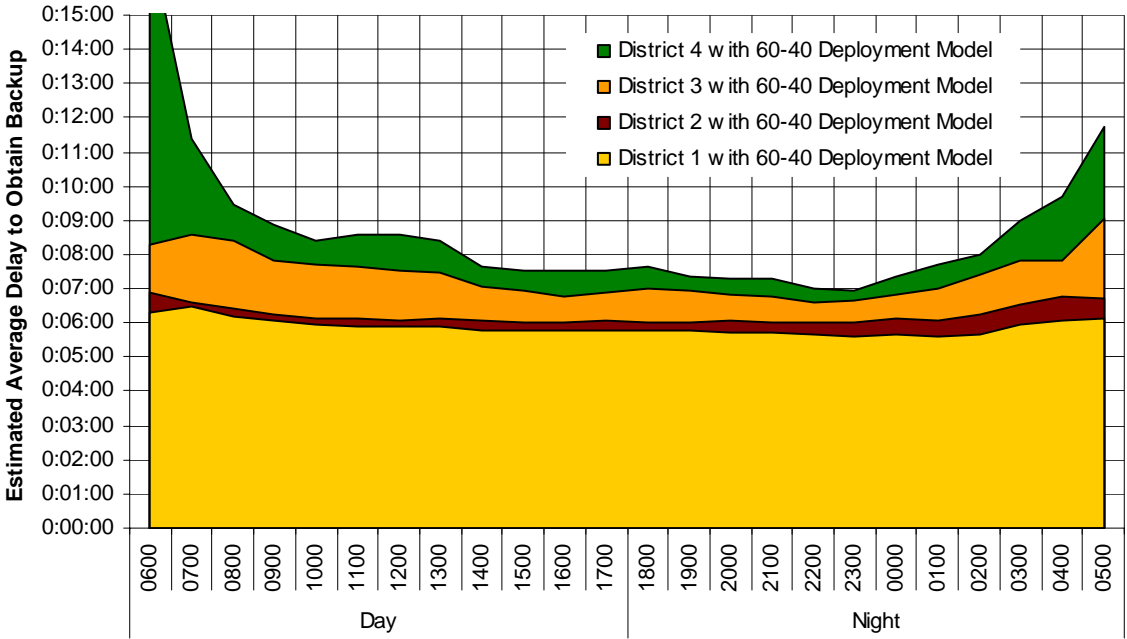
violent suspects. Single-officer units are also ill-equipped to effectively contain streets or buildings. They face amplified risks when they conduct routine vehicle stops and person checks. For all these reasons, the best practice in the field of law enforcement is to deploy single-officer units only when backup or cover units are expected to be available if required.

At current staffing levels, even with the 40-60 deployment model, the delay to obtain a second single-officer unit is expected to vary from approximately 6 minutes in District 1 to more than 9 minutes in District 4 early in the morning. In general, this delay will be intolerable from a tactical point of view. In 6 to 7 minutes, most crimes in progress will have been become cold and the most valuable investigative leads (including the suspects or the witnesses that were at the scene) may have vanished. Furthermore, the average delay to obtain backup from a second single-officer unit will tend to be larger just as the proportion of calls that are expected to require backup or cover increases (e.g. late at night). Under those conditions, it would usually be suboptimal to deploy a majority of single-officer units.

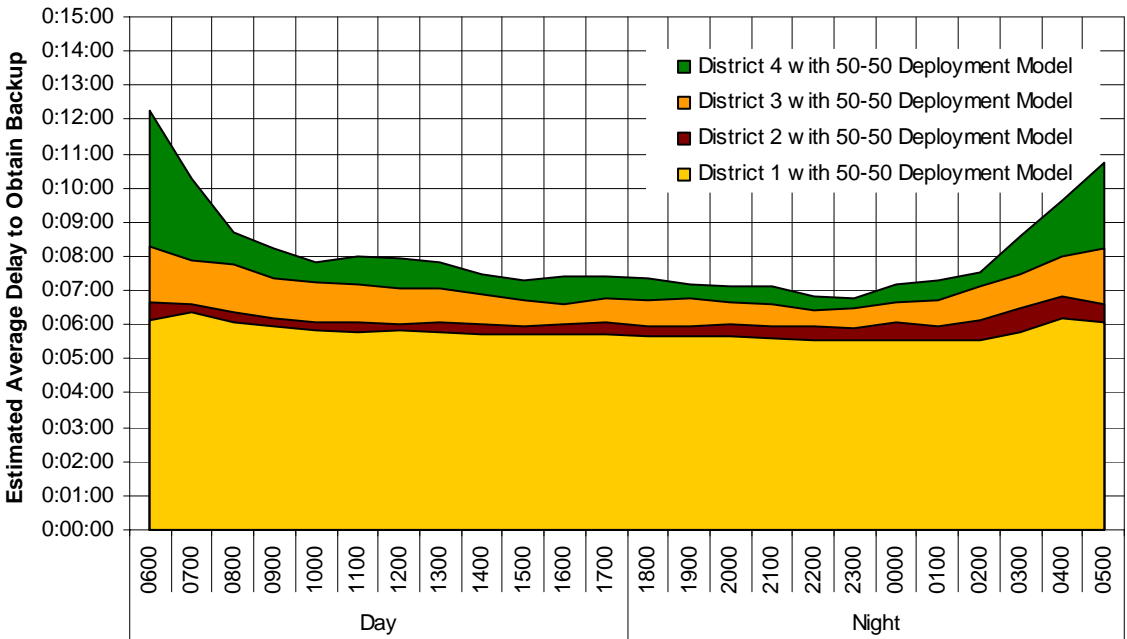
**Figure 9-17 Estimated Average Delay to Obtain Backup on a Two-Officer Call Under the 70-30 Deployment Model**



**Figure 9-18 Estimated Average Delay to Obtain Backup on a Two-Officer Call Under the 60-40 Deployment Model**

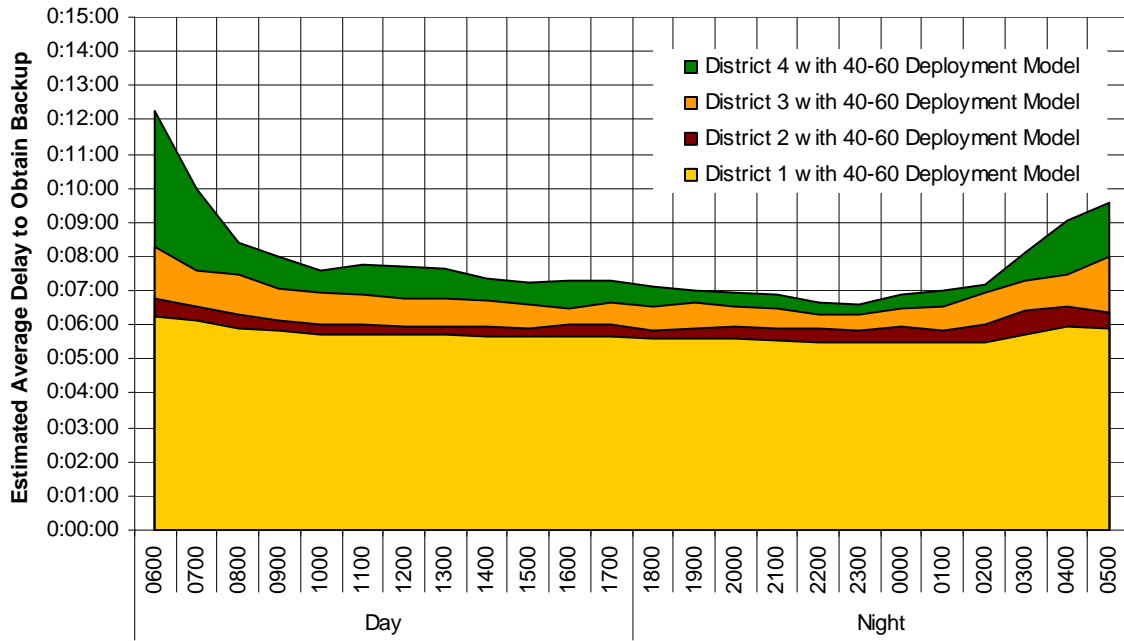


**Figure 9-19 Estimated Average Delay to Obtain Backup on a Two-Officer Call Under the 50-50 Deployment Model**

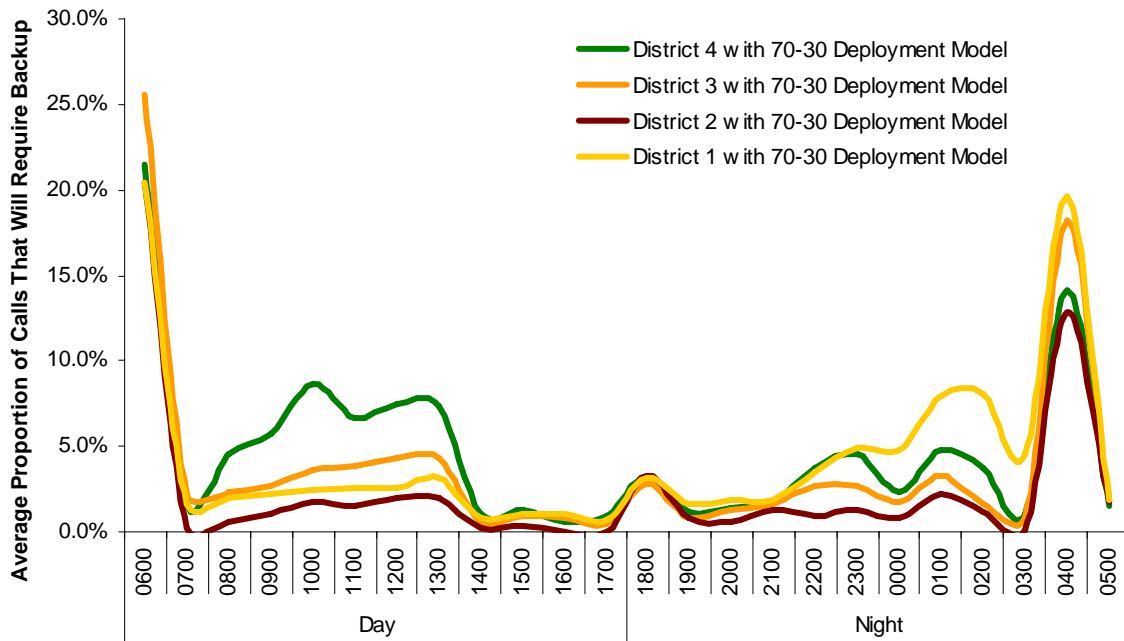




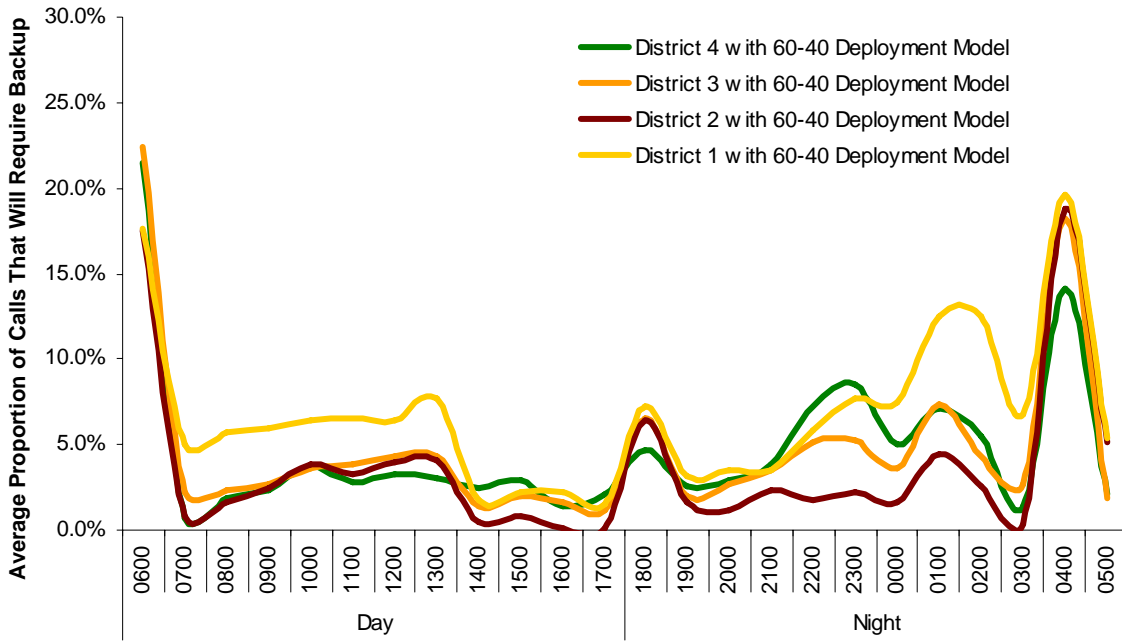
**Figure 9-20 Estimated Average Delay to Obtain Backup on a Two-Officer Call Under the 40-60 Deployment Model**



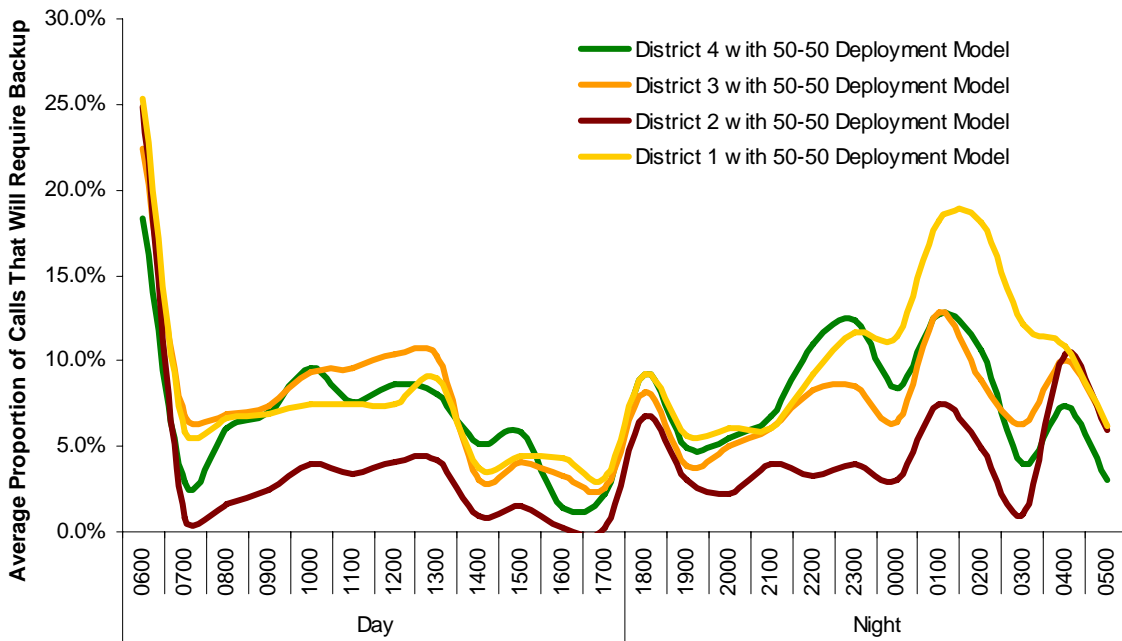
**Figure 9-21 Estimated Average Proportion of Calls That Will Require Backup Under the 70-30 Deployment Model**



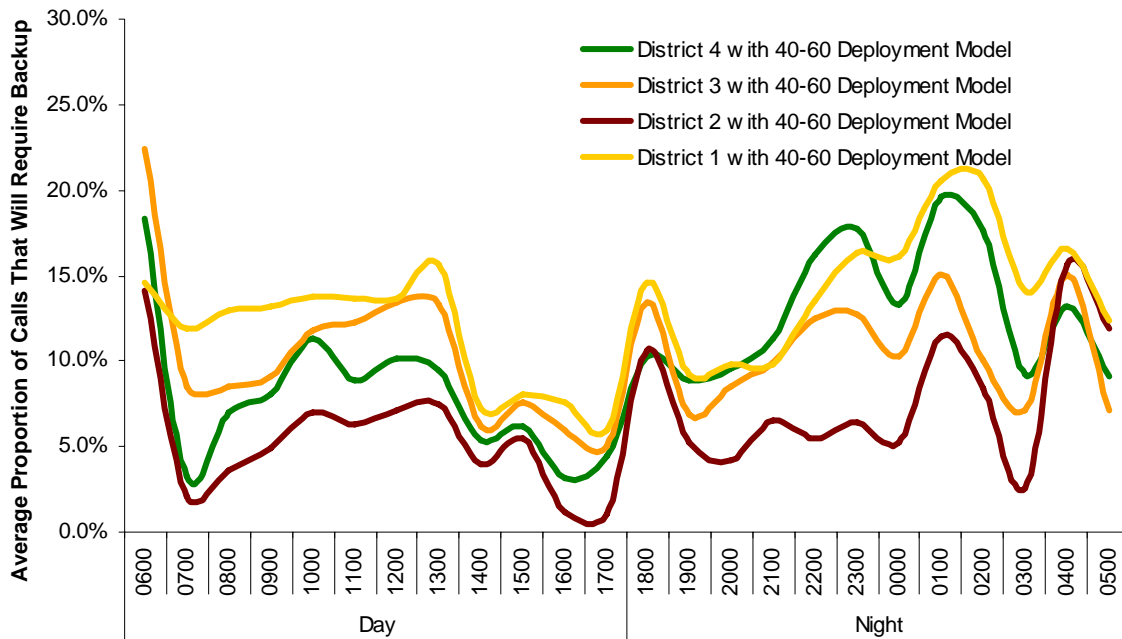
**Figure 9-22 Estimated Average Proportion of Calls That Will Require Backup Under the 60-40 Deployment Model**



**Figure 9-23 Estimated Average Proportion of Calls That Will Require Backup Under the 50-50 Deployment Model**



**Figure 9-24 Estimated Average Proportion of Calls That Will Require Backup Under the 40-60 Deployment Model**



## 9.6 CONCLUSION

Overall, there is no empirical or theoretical evidence that the 40-60 deployment model would offer significant efficiency gains or performance improvements in patrol. On the contrary, the 40-60 deployment model does not match call load well and raises important officer safety issues. The 40-60 deployment model implies that many two-officer calls will initially have to be dispatched to two single-officer units. As shown above, this is inherently inefficient. Finally, the 40-60 deployment model would imply that many more patrol cars would need to be purchased and maintained. The bottom line is that the 40-60 model implies relatively modest potential savings but prohibitive costs in terms of officer motivation, officer safety, operational effectiveness and initial capital investment. As a consequence, given current the staffing level and workload, the 40-60 deployment cannot be recommended at this time.

The 50-50 model offers a nice compromise between the 60-40 and the 40-60 deployment models. In terms of total net loss in officer-time, the difference between the 60-40 and the 50-50 models is marginal but usually favours the 50-50 model. Surprisingly, however, the proportion of two-officer units implied by the 50-50 model does not match the proportion of two-officer calls in each patrol district. Like the 40-60 model, the 50-50 model requires that many single-officer units handle two-officer calls. Given that backup is generally not readily available, this constitutes a significant officer safety issue. Accordingly, the 50-50 model cannot be recommended at this time.

In the current environment, the 60-40 deployment model emerges as the single most attractive option for patrol. The 60-40 model has the desirable property of harmonizing the proportion of two-officer units with the proportion of two-officer calls. Moreover, the 60-40 model does not require any significant change in the number of patrol cars that need to be fielded and maintained. Also, two-officer partnerships tend to be more proactive, respond faster to high priority calls, generally do not have to wait for backup, can undertake more complex investigations, can handle more complicated cases and, when necessary, can offer an even more convincing testimony in court. The 60-40 deployment model takes advantage of this. Finally, the 60-40 deployment model is already formalized in Section 22 of the *2003-2006 Collective Agreement* between the Vancouver Police Board and the Vancouver Police Union. As such, no major change in policy or in principle would be needed to enforce it.<sup>20</sup>

In light of this, it is recommended:

- THAT the VPD enforce the 60-40 deployment split prescribed by the current Collective Agreement between the VPU and the Vancouver Police Board.
- THAT approximately 55.0% of all regular patrol units deployed during the Alpha shift and Bravo shift be comprised of two officers.

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<sup>20</sup> It should be noted that this section of the Collective Agreement is very loosely worded and does not clearly define what units and what time period is included in this calculation. During the next round of union negotiations, the wording in this section should be clarified.

- THAT approximately 60.0% of all regular patrol units deployed during the Charlie shift be comprised of two officers.
- THAT approximately 65.0% of all regular patrol units deployed during the Delta and Echo shifts be comprised of two officers.
- THAT plainclothes patrol units, beat patrol units and BET units continue to be comprised of two officers.
- THAT patrol supervisors become responsible for maintaining the prescribed proportion of two-officer units that is recommended above.
- THAT a continuous monitoring and evaluation process be put in place to ensure that deployment practices respond to changes in the policing environment and the demand for police services.

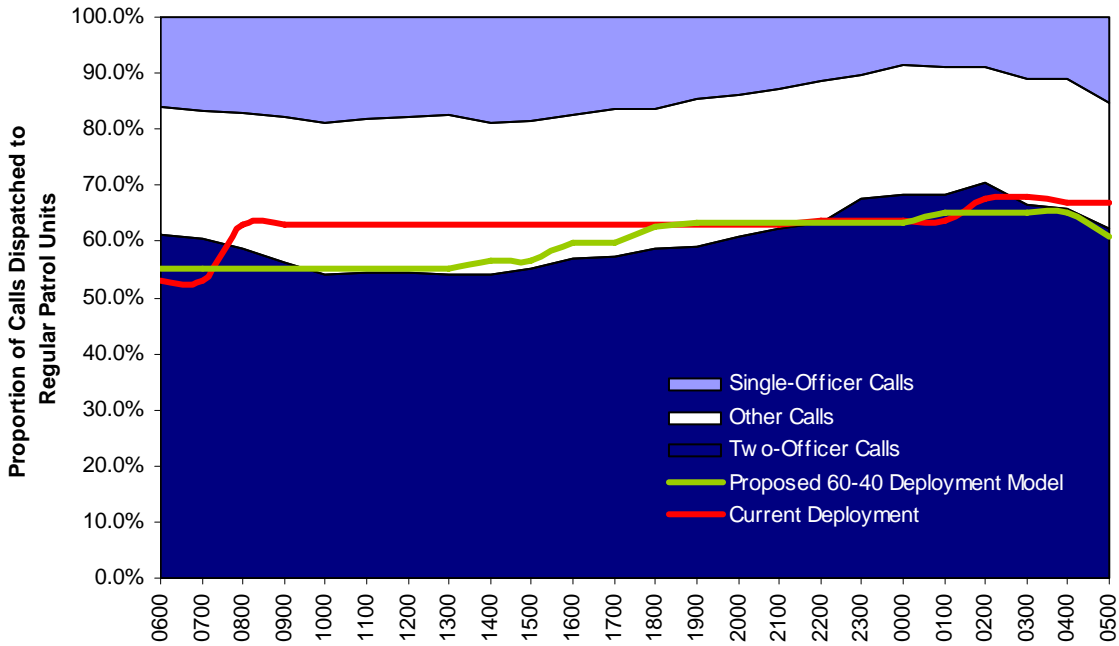
The following schedule summarizes the deployment model recommended by the Patrol Deployment Study Project Team.

**Table 9-16 Number of Single and Two-Officer Regular Patrol Units Deployed Citywide by Shift Under the Refined 60-40 Deployment Model**

<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	1,655	362	2,465	4,483	55.0%
Bravo or BET Foxtrot	3,125	800	4,798	8,723	55.0%
Charlie	1,943	747	4,035	6,724	60.0%
Delta or BET Golf	2,040	822	5,316	8,178	65.0%
Echo or BET Late Car	1,499	688	4,062	6,249	65.0%
<b>Total</b>	<b>10,263</b>	<b>3,419</b>	<b>20,676</b>	<b>34,357</b>	<b>60.2%</b>

On average, this schedule would match the actual call load more closely than either the current deployment model or the simplistic 60-40 deployment model. Since there is no evidence that the call load in terms of two-officer calls differs significantly between patrol districts, the same deployment model is recommended for all patrol districts.

**Figure 9-25 Proportion of Single-Officer and Two-Officer Regular Patrol Units by Hour of the Day Under the Refined 60-40 Deployment Model**



In practice, it will rarely be possible for patrol supervisors to divide officers so that the intended proportion of two-officer units is met exactly. In other words, because it is not possible to deploy fractions of patrol units or cars, it will often be necessary for the patrol supervisor to achieve a compromise and deploy more or less two-officer units than suggested by the 60-40 deployment model. For reference, the following table shows how many two-officer units should be deployed for each staffing level (excluding the wagon and the patrol supervisor).

**Table 9-17 Number of Two-Officer Units that Should be Deployed with Each Staffing Level**

Staffing Level	Alpha and Bravo	Charlie	Delta and Echo
	55%	60%	65%
<b>4</b>	1	2	2
<b>5</b>	1	2	2
<b>6</b>	2	2	2
<b>7</b>	2	3	3
<b>8</b>	2	3	3
<b>9</b>	3	3	4
<b>10</b>	3	3	4
<b>11</b>	3	4	4
<b>12</b>	4	4	5
<b>13</b>	4	4	5
<b>14</b>	4	5	6
<b>15</b>	5	5	6
<b>16</b>	5	6	6

## 10 THE MINIMUM STAFFING LEVELS

At a minimum, to respond effectively to the needs of the community and maintain an appropriate level of safety for patrol members, patrol staffing levels should be such that:

- Patrol officers are able to respond to all priority 1 and 2 calls (including calls in progress) without any significant delay.
- Patrol officers are able to respond to all serious assaults (including assaults with a weapon), hazardous situations, Mental Health Act (Section 28) incidents, missing persons, robberies, sexual assaults and sudden deaths without any significant delay.
- Patrol officers are able to investigate most reports of suspicious persons, suspicious circumstances and suspicious vehicles without any significant delay.

By nature, some calls cannot be pre-empted or delayed without endangering the general public. Patrol staffing levels should always allow officers to respond to these critical calls within a reasonable time frame. Moreover, the availability of backup or cover units is a central factor contributing to officer safety. As such, minimum staffing levels should be such that a swift police response is available in case of emergency.

Using queuing theory, it is possible to estimate the minimum number of regular patrol units required to maintain this critical service level. It was assumed conservatively that regular patrol units spend a total of 1 hour and 30 minutes on each call for service they are dispatched to. Moreover, 90.0% of all the critical calls described above are required to be dispatched within 10 minutes. In practice, of course, priority 1 calls are expected to be dispatched in much less than 10 minutes while lower priority calls will typically take more time to be dispatched.

When analyzing patrol call load, it is useful to keep in mind that:

- In practice, regular patrol units often use the last 45 minutes of their shift to finish their reports, read bulletins, get debriefed by their sergeant, enter serious calls into the overnight log book and drive back to the police station. Therefore, their propensity to take calls is reduced during this time. For the purpose of the



analysis, it is also assumed that regular patrol units are unavailable to respond to calls during the end of their shift.

- Beyond the critical calls listed above, regular patrol units are also often expected to respond to lower priority calls such as assaults (not in progress), break and enters, mischiefs and requests for assistance from the public, the provincial ambulance service, the fire department and other police agencies. In accordance with the VPD Strategic Plan 2004-2008, it was determined that regular patrol units should have at least some opportunities to handle these lower priority cases. Hence, minimum staffing levels include one patrol officer that would be available to handle these calls during the day (e.g. during the Bravo shift) and one patrol officer that would be available to handle these calls during the night (e.g. during the Delta shift).
- Because they play a specialized role and their main function is not responding to calls for service, patrol wagons and patrol supervisors are excluded from the analysis.
- The estimates for District 2 include the Downtown Eastside. As a consequence, no distinct minimum staffing levels were derived for the Beat Enforcement Team. In general, the minimum staffing level of the Beat Enforcement Team could depend on the actual staffing level of the other patrol squads in District 2 or the policing strategy that is being used. In any case, the minimum staffing levels of the Beat Enforcement Team should be sufficient to ensure officer and community safety.

In District 1, regular patrol units were dispatched to a total of 11,738 critical calls between 2005-06-01 and 2006-05-31. Out of these 11,738 critical calls, 8,429 (71.8%) were priority 1 or 2 calls. According to queuing theory, regular patrol units in District 1 will be able to respond to these 11,738 critical calls in 10 minutes or less a probability of at least 90.0% if a minimum of:

- 3 regular patrol units are deployed between 0600 and 0800 hours.
- 4 regular patrol units are deployed between 0800 and 1300 hours and between 0400 and 0600 hours.

- 5 regular patrol units are deployed between 1300 hours and midnight and between 0300 to 0400 hours.
- 6 regular patrol units are deployed between midnight and 0300 hours.

Assuming that the 60-40 deployment model presented above is enforced, this implies that at least:

- 5 regular patrol officers are deployed between 0600 and 0800 hours.
- 7 regular patrol officers are deployed between 0800 and 1300 hours and between 0400 and 0600 hours.
- 8 regular patrol officers are deployed between 1300 and 1800 hours.
- 9 regular patrol officers are deployed between 1800 hours and midnight and between 0300 and 0400 hours.
- 10 regular patrol officers are deployed between midnight and 0300 hours.

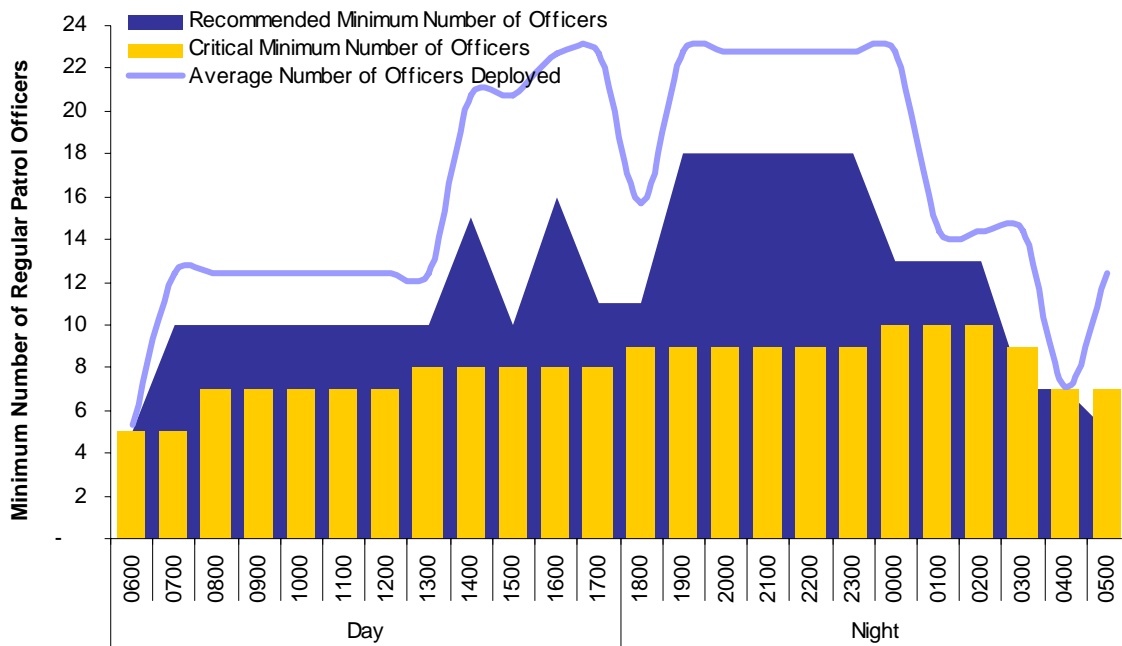
Obviously, given the current scheduling and shifting constraints, it would be impossible to match exactly these critical staffing levels. However, it would be possible to meet or exceed the critical minimum staffing levels described above most of the time by deploying at least:

- 5 regular patrol officers on the Alpha shift.
- 5 regular patrol officers on the Bravo shift (+1 patrol wagon).
- 5 regular patrol officers on the Charlie shift.
- 6 regular patrol officers on the Delta shift (+1 patrol wagon).
- 7 regular patrol officers on the Echo shift (+1 patrol wagon).

**Table 10-1 Recommended Minimum Staffing Levels by Shift in District 1**

Shift	Recommended Minimum Number of Regular Patrol Officers	Current Minimum Number of Regular Patrol Officers (Weekend)	Current Minimum Number of Regular Patrol Officers (Week)
Alpha	5	4	4
Bravo	5	5	4
Charlie	5	5	4
Delta	6	4	3
Echo	7	5	6
<b>Total</b>	<b>28</b>	<b>23</b>	<b>21</b>

**Figure 10-1 Recommended and Critical Minimum Staffing Levels by Hour of the Day in District 1**



To compensate for the heavier call load on Friday and Saturday in District 1, 2 additional regular patrol officers should be deployed on the Bravo shift and Charlie shift and one additional officer should be deployed on the Delta shift and Echo shift.

In District 2, regular patrol units were dispatched to a total of 14,565 critical calls between 2005-06-01 and 2006-05-31. Out of these 15,565 critical calls, 10,327 (70.9%) were priority 1 or 2 calls. According to queuing theory, regular patrol units in District 2

will be able to respond to these 15,565 critical calls in 10 minutes or less with a probability of at least 90.0% if a minimum of:

- 4 regular patrol units are deployed between 0400 and 0900 hours.
- 5 regular patrol units are deployed between 0900 and 1300 hours and between 0300 and 0400 hours.
- 6 regular patrol units are deployed between 1300 and 2200 hours and between 2300 and 0300 hours.
- 7 regular patrol units are deployed between 2200 and 2300 hours.

Assuming that the 60-40 deployment model presented above is enforced, this implies that at least:

- 7 regular patrol officers are deployed between 0400 and 0900 hours.
- 8 regular patrol units are deployed between 0900 and 1300 hours.
- 9 regular patrol units are deployed between 0300 and 0400 hours.
- 10 regular patrol units are deployed between 1300 and 2200 hours and between 2300 to 0300 hours.
- 12 regular patrol units are deployed between 2200 and 2300 hours.

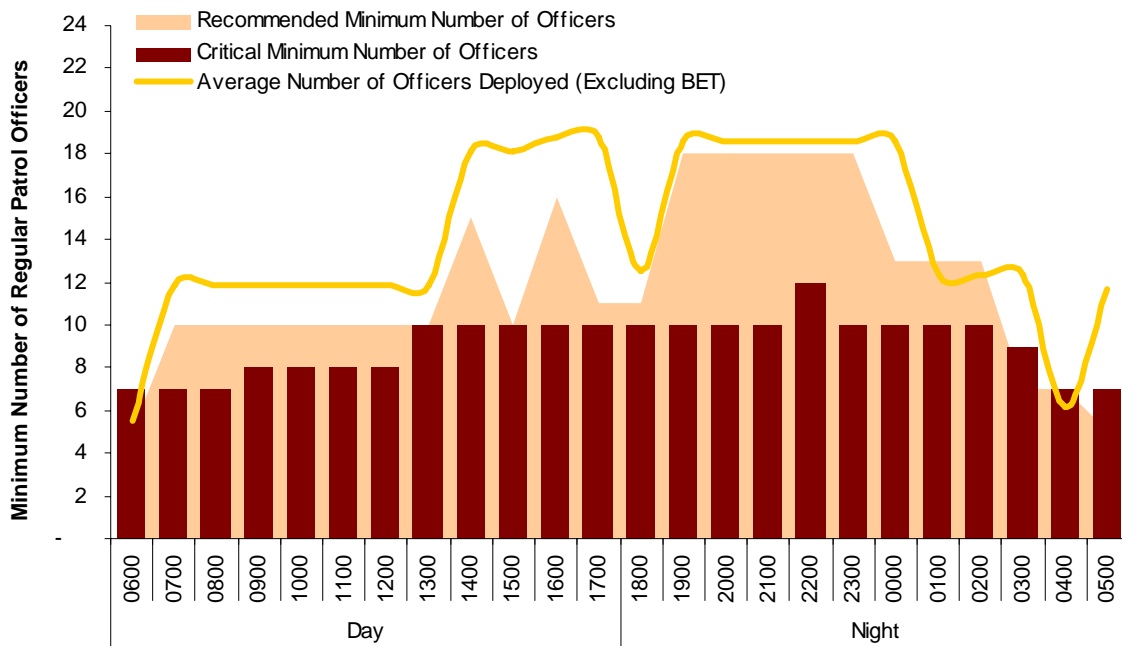
It would be possible to meet or exceed the critical minimum staffing levels described above most of the time by deploying at least:

- 5 regular patrol officers on the Alpha shift (+1 patrol wagon).
- 5 regular patrol officers on the Bravo shift.
- 5 regular patrol officers on the Charlie shift (+1 patrol wagon).
- 6 regular patrol officers on the Delta shift.
- 7 regular patrol officers on the Echo shift (+1 patrol wagon).

**Table 10-2 Recommended Minimum Staffing Levels by Shift in District 2**

Shift	Recommended Minimum Number of Regular Patrol Officers	Current Minimum Number of Regular Patrol Officers
Alpha	5	5
Bravo	5	6
Charlie	5	5
Delta	6	6
Echo	7	6
<b>Total</b>	<b>28</b>	<b>28</b>

**Figure 10-2 Recommended and Critical Minimum Staffing Levels by Hour of the Day in District 2**



To compensate for the heavier call load on Friday and Saturday in District 2, one additional regular patrol officer should be deployed on the Delta shift and Echo shift.

In District 3, regular patrol units were dispatched to a total of 14,743 critical calls between 2005-06-01 and 2006-05-31. Out of these 14,743 critical calls, 10,772 (73.1%) were priority 1 or 2 calls. According to queuing theory, regular patrol units in District 3

will be able to respond to these 14,743 critical calls in 10 minutes or less with a probability of at least 90.0% if a minimum of:

- 4 regular patrol units are deployed between 0400 and 0900 hours.
- 5 regular patrol units are deployed between 0900 and 1400 hours and between 0200 and 0400 hours.
- 6 regular patrol units are deployed between 1400 and 1900 hours and between 0100 and 0200 hours.
- 7 regular patrol units are deployed between 1900 and 0100 hours.

Assuming that the 60-40 deployment model presented above is enforced, this implies that at least:

- 7 regular patrol officers are deployed between 0400 and 0900 hours.
- 8 regular patrol officers are deployed between 0900 and 1400 hours.
- 9 regular patrol officers are deployed between 0200 and 0400 hours.
- 10 regular patrol officers are deployed between 1400 and 1900 hours and between 0100 and 0200 hours.
- 12 regular patrol officers are deployed between 1900 and 0100 hours.

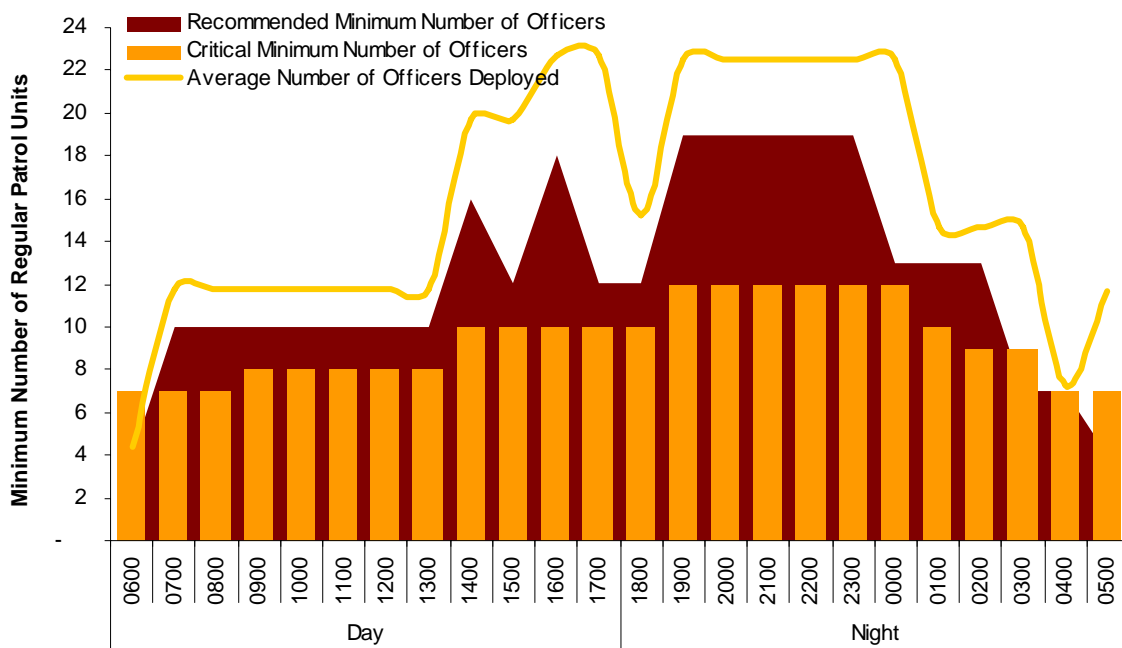
It would be possible to meet or exceed the critical minimum staffing levels described above most of the time by deploying at least:

- 4 regular patrol officers on the Alpha shift.
- 6 regular patrol officers on the Bravo shift (+1 patrol wagon).
- 6 regular patrol officers on the Charlie shift.
- 6 regular patrol officers on the Delta shift (+1 patrol wagon).
- 7 regular patrol officers on the Echo shift (+1 patrol wagon).

**Table 10-3 Recommended Minimum Staffing Levels by Shift in District 3**

Shift	Recommended Minimum Number of Regular Patrol Officers	Current Minimum Number of Regular Patrol Officers
Alpha	4	4
Bravo	6	6
Charlie	6	6
Delta	6	6
Echo	7	7
<b>Total</b>	<b>29</b>	<b>29</b>

**Figure 10-3 Recommended and Critical Minimum Staffing Levels by Hour of the Day in District 3**



To compensate for the heavier call load on Friday and Saturday in District 3, one additional regular patrol officer should be deployed on the Echo shift.

In District 4, regular patrol units were dispatched to a total of 12,537 critical calls between 2005-06-01 and 2006-05-31. Out of these 12,537 critical calls, 8,588 (68.5%) were priority 1 or 2 calls. According to queuing theory, regular patrol units in District 4

will be able to respond to these 12,537 critical calls in 10 minutes or less with a probability of at least 90.0% if a minimum of:

- 3 regular patrol units are deployed between 0600 and 0800 hours.
- 4 regular patrol units are deployed between 0800 and 0900 hours and between 0300 and 0600 hours.
- 5 regular patrol units are deployed between 1000 and 1500 hours, between 1600 to 1700 hours and between 0100 and 0300 hours.
- 6 regular patrol units are deployed between 1500 and 1600 hours and between 1700 and 0100 hours.

Assuming that the 60-40 deployment model presented above is enforced, this implies that at least:

- 5 regular patrol officers are deployed between 0600 and 0800 hours.
- 7 regular patrol officers are deployed between 0800 and 1000 hours and between 0300 and 0600 hours.
- 8 regular patrol officers are deployed between 1000 and 1500 hours and between 1600 to 1700 hours.
- 9 regular patrol officers are deployed between 0100 and 0300 hours.
- 10 regular patrol officers are deployed between 1500 and 1600 hours and between 1700 and 0100 hours.

It would be possible to meet or exceed the critical minimum staffing levels described above most of the time by deploying at least:

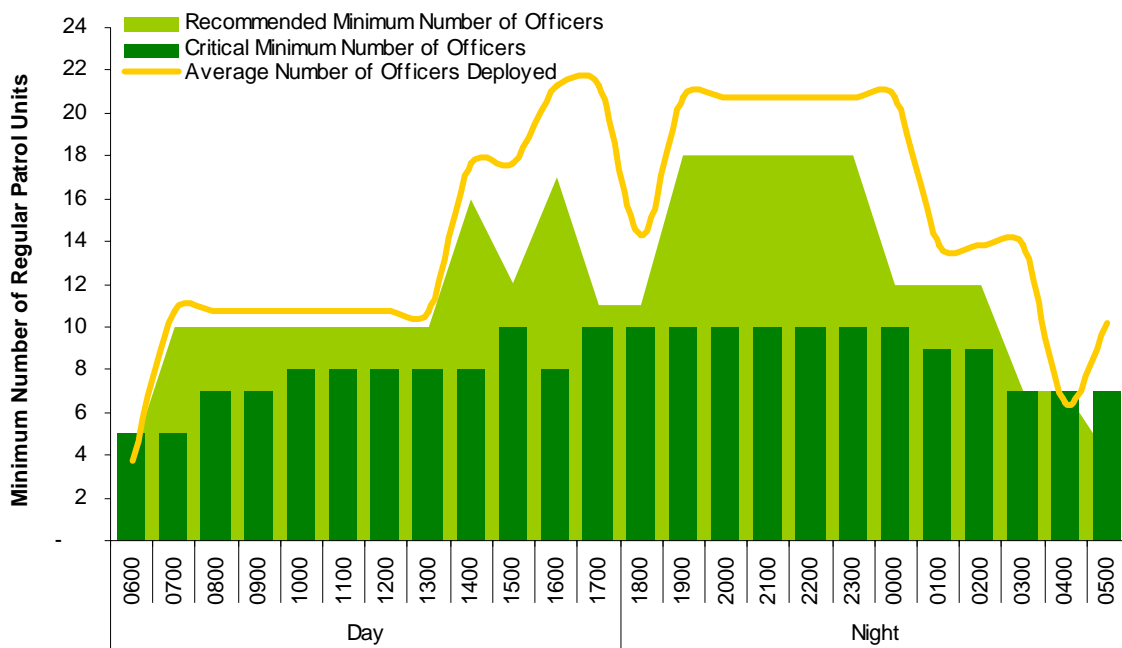
- 4 regular patrol officers on the Alpha shift (+1 patrol wagon).
- 6 regular patrol officers on the Bravo shift.
- 6 regular patrol officers on the Charlie shift (+1 patrol wagon).
- 5 regular patrol officers on the Delta shift.
- 7 regular patrol officers on the Echo shift (+1 patrol wagon).



**Table 10-4 Recommended Minimum Staffing Levels by Shift in District 4**

Shift	Recommended Minimum Number of Regular Patrol Officers	Current Minimum Number of Regular Patrol Officers (Weekend)	Current Minimum Number of Regular Patrol Officers (Week)
Alpha	4	3	3
Bravo	6	6	6
Charlie	6	5	5
Delta	5	7	6
Echo	7	6	6
<b>Total</b>	<b>28</b>	<b>27</b>	<b>26</b>

**Figure 10-4 Recommended and Critical Minimum Staffing Levels by Hour of the Day in District 4**

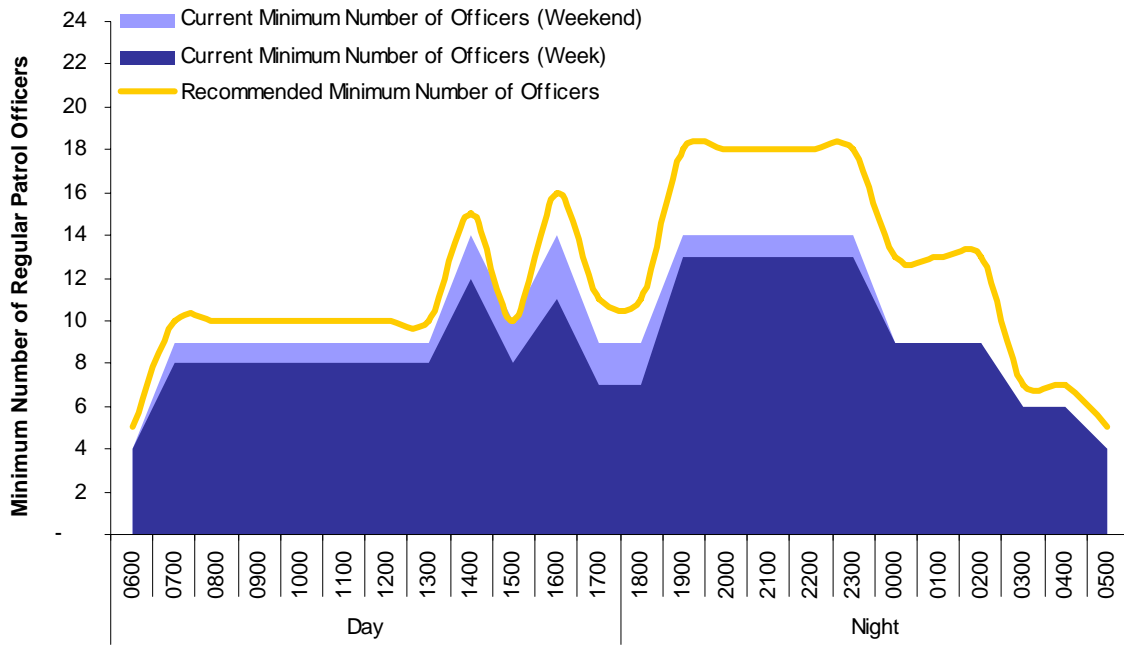


To compensate for the heavier call load on Friday and Saturday in District 4, one additional regular patrol officer should be deployed on the Echo shift.

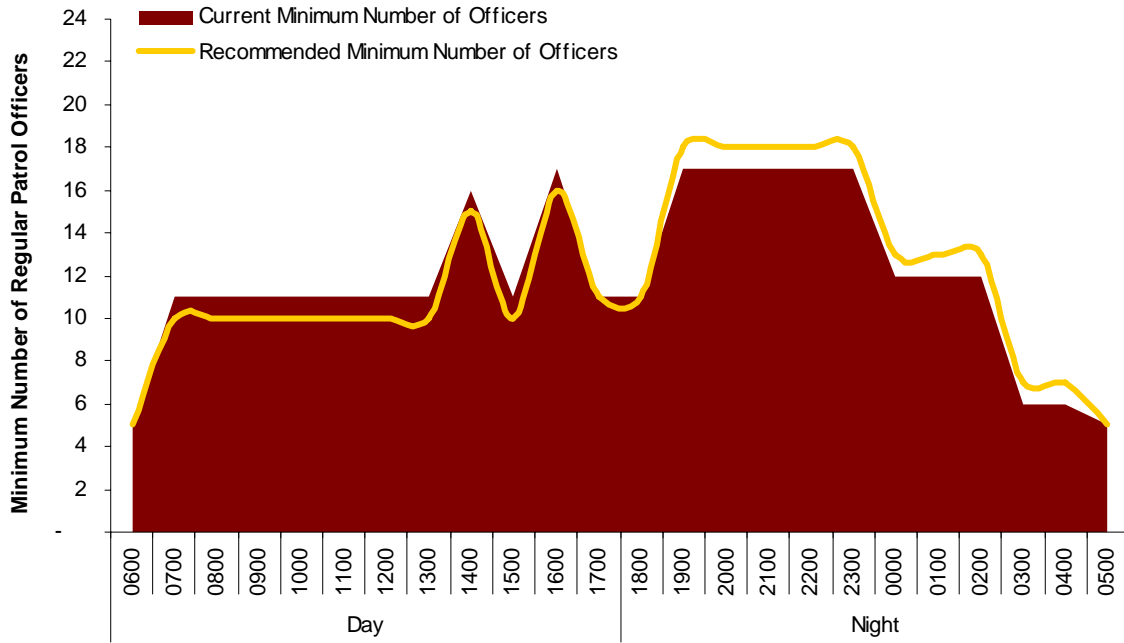
In all districts, the minimum staffing levels fail to satisfy the expected call load between 0500 and 0600 hours (when Echo units are signing off and Alpha units have just signed in). However, the proposed minimum staffing levels imply that at least as many regular

patrol officers will be deployed as under the current minimum staffing levels during most hours of the day.

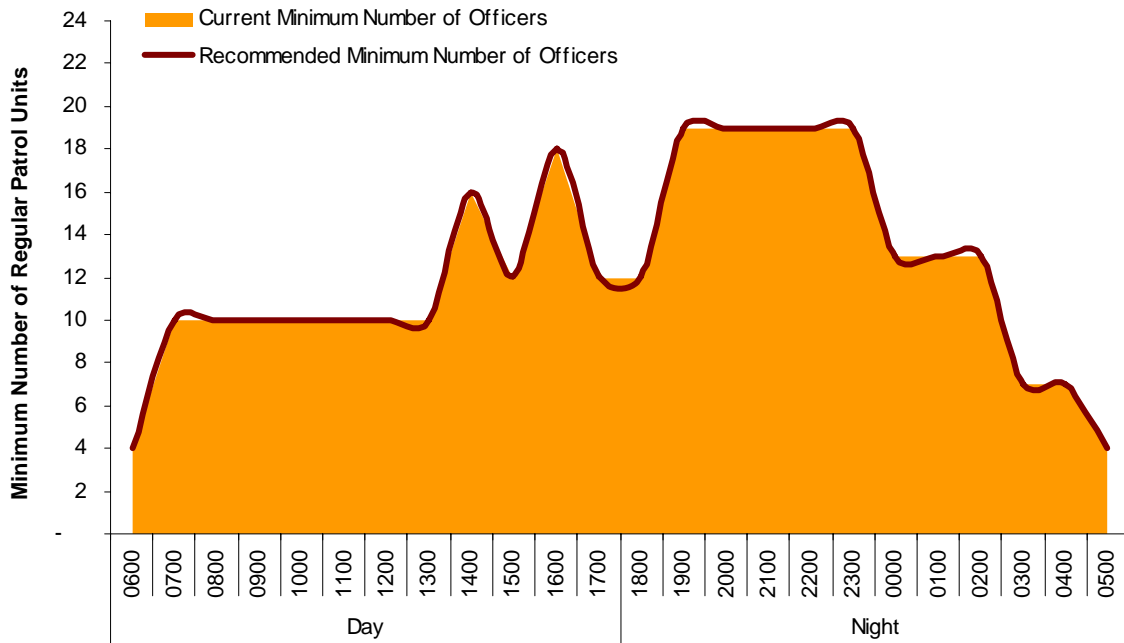
**Figure 10-5 Critical and Current Minimum Staffing Levels by Hour of the Day in District 1**



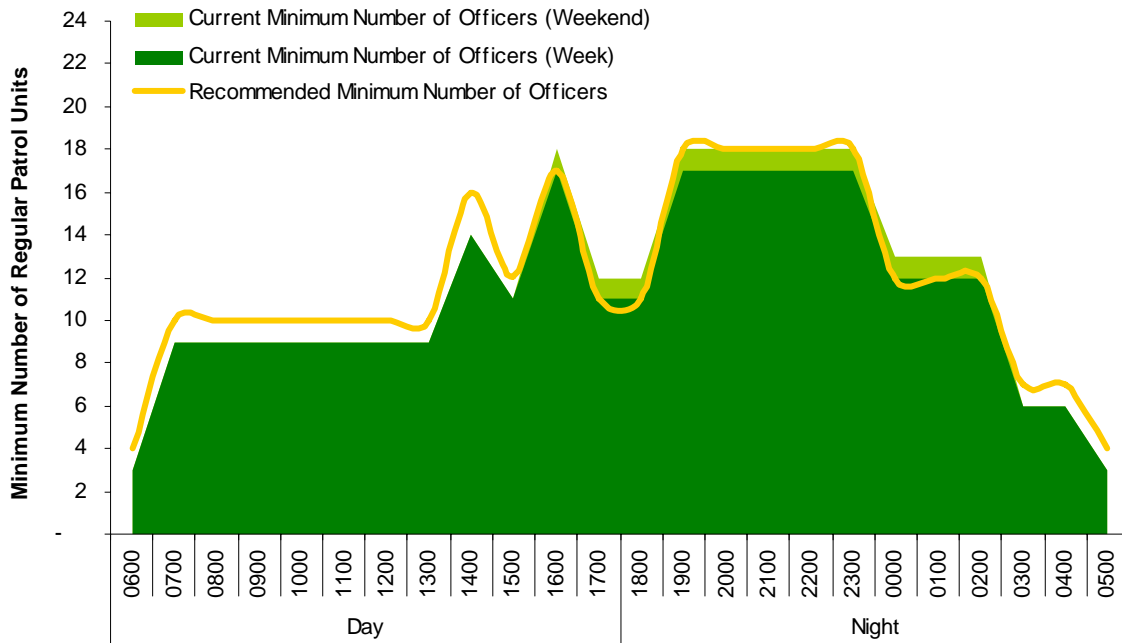
**Figure 10-6 Critical and Current Minimum Staffing Levels by Hour of the Day in District 2**



**Figure 10-7 Critical and Current Minimum Staffing Levels by Hour of the Day in District 3**



**Figure 10-8 Critical and Current Minimum Staffing Levels by Hour of the Day in District 4**



## 10.1 SUMMARY

Currently, the minimum staffing levels in patrol are as follows:

- In District 1, from Sunday to Thursday, a minimum of 4 regular patrol officers are deployed on the Alpha shift, 4 regular patrol officers are deployed on the Bravo shift, 4 regular patrol officers are deployed on the Charlie shift, 3 regular patrol officers are deployed on the Delta shift and 6 regular patrol officers are deployed on the Echo shift. On Friday and Saturday, a minimum of one additional regular patrol officer is deployed on the Bravo shift, the Charlie shift and the Delta shift while one less regular patrol unit is deployed on the Echo shift.
- In District 2, a minimum of 5 regular patrol officers are deployed on the Alpha shift, 6 regular patrol officers are deployed on the Bravo shift, 5 regular patrol officers are deployed on the Charlie shift, 6 regular patrol officers are deployed on the Delta shift and 6 regular patrol officers are deployed on the Echo shift.

- In District 3, a minimum of 4 regular patrol officers are deployed on the Alpha shift, 6 regular patrol officers are deployed on the Bravo shift, 6 regular patrol officers are deployed on the Charlie shift, 6 regular patrol officers are deployed on the Delta shift and 7 regular patrol officers are deployed on the Echo shift.
- In District 4, from Sunday to Thursday, a minimum of 3 regular patrol officers are deployed on the Alpha shift, 6 regular patrol officers are deployed on the Bravo shift, 5 regular patrol officers are deployed on the Charlie shift, 6 regular patrol officers are deployed on the Delta shift and 6 regular patrol officers are deployed on the Echo shift. On Friday and Saturday, a minimum of one additional regular patrol officer is deployed on the Delta shift.

These minimum staffing levels provide minimum patrol coverage during the evening and at night but empirical evidence suggests that they are often insufficient late at night and during the morning in District 1 and District 4.

In general, the minimum staffing levels recommended below are not significantly different from the current minimum staffing levels. Most notably, the proposed minimum staffing levels lead to a sizeable increase in the minimum number of officers deployed in District 1 during the evening and on Friday and Saturday. Anecdotal evidence suggests that this is both justified and desirable.

**Table 10-5 Recommended Minimum Staffing Levels in Patrol**

District	Alpha	Bravo	Charlie	Delta	Echo	Total
D1 Week	5	5+1	5	6+1	7+1	<b>28+3</b>
D1 Weekend	5	7+1	7	7+1	8+1	<b>34+3</b>
D2 Week	5+1	5	5+1	6	7+1	<b>28+3</b>
D2 Weekend	5+1	5	5+1	7	8+1	<b>30+3</b>
BET		9		9		<b>18</b>
D3 Week	4	6+1	6	6+1	7+1	<b>29+3</b>
D3 Weekend	4	6+1	6	6+1	8+1	<b>30+3</b>
D4 Week	4+1	6	6+1	5	7+1	<b>28+3</b>
D4 Weekend	4+1	6	6+1	5	8+1	<b>29+3</b>
<b>Total</b>	<b>18+2</b>	<b>31 (Week) or 33 (Weekend) +2</b>	<b>22 (Week) or 24 (Weekend) +2</b>	<b>32 (Week) or 34 (Weekend) +2</b>	<b>28 (Week) or 32 (Weekend) +4</b>	<b>131 (Week) or 141 (Weekend) +12</b>

\* Patrol wagons are +1.  
\*\* Weekends are defined as Friday and Saturday.

**Table 10-6 Current Minimum Staffing Levels in Patrol**

District	Alpha	Bravo	Charlie	Delta	Echo	Total
D1 Week	4	4+1	4	3+1	6+1	<b>21+3</b>
D1 Weekend	4	5+1	5	4+1	5+1	<b>23+3</b>
D2	5+1	6	5+1	6	6+1	<b>28+3</b>
BET		9		9		<b>18</b>
D3	4	6+1	6	6+1	7+1	<b>29+3</b>
D4 Week	3+1	6	5+1	6	6+1	<b>26+3</b>
D4 Weekend	3+1	6	5+1	7	6+1	<b>27+3</b>
<b>Total</b>	<b>16+2</b>	<b>31 (Week) or 32 (Weekend) +2</b>	<b>20 (Week) or 21 (Weekend) +2</b>	<b>30 (Week) or 32 (Weekend) +2</b>	<b>25 (Week) or 24 (Weekend) + 4</b>	<b>122 (Week) or 125 (Weekend) +12</b>

\* Patrol wagons are +1.  
\*\* Weekends are defined as Friday and Saturday.

# 11 THE DISTRICT BOUNDARIES

Under the framework of the initial project scope, the existing district boundaries were examined with the purpose of determining if:

- A more efficient geographic allocation of patrol resources is possible.
- Modifying the district boundaries could improve patrol performance or service levels.
- Creating a new district or merging two existing districts would improve patrol performance or service levels.

In that context, the call load, the average workload and the average response times in each patrol district were reviewed, compared and analyzed. The experience of other police agencies was also reviewed.

From the call data, it was determined that:

1. Although each patrol district faces unique challenges, call load is distributed relatively equally between District 1, District 2, District 3 and District 4. Even more importantly, workload is distributed fairly equitably across each of the existing patrol districts.
2. The average response time to priority 1 calls varies slightly between the 4 patrol districts. The average response time to priority 1 calls is consistently shorter in District 1 and remains longer in District 3 and District 4. This is expected because District 1 covers a much smaller geographic area than the other patrol districts while District 3 and District 4 are larger.
3. There are important daily fluctuations in the call load and the unit utilization in each of the existing patrol districts.

From the review of best practices, it was determined that:

1. The literature on district and beat design suggests that several competing objectives need to be balanced when district boundaries are configured.

Typically, police agencies are often unable to simultaneously even out total call load, average workload, response times and cross-district dispatching. In Vancouver, for instance, District 1 covers a relatively small geographic area but generates a large part of the patrol workload. By contrast, District 4 represents a relatively large area but is less dense than District 1 and consequently handles slightly less calls for service on average. To balance the average response time between District 1 and District 4, more units should be assigned to District 4 in order to improve the patrol coverage in the area and reduce the average travel distance to calls. The cost of doing this is that patrol units in District 1 would be much busier than District 4 units. On the other hand, more units could be assigned to District 1 in order to balance the unit workload. In that case, however, the average response time in District 4 would increase because the patrol coverage would be reduced.

2. The literature on operations research suggests that patrol districts should be as compact and convex as possible. In other words, the length of the patrol district should be as close as possible to its width and major barriers or boundary indentations should not exist in the district.
3. There is no standard method or theoretical model that can be used to easily identify an “optimal” district configuration. Even more importantly, few of the more sophisticated methods to design patrol districts have been shown to be superior, in practice, to the more rudimentary methods that rely on operational knowledge, experience and qualitative inputs related to travel patterns, the roadway system and workload.
4. Statistical theory predicts that reducing the size of the patrol districts would amplify the short term fluctuations in the call load observed in individual patrol districts. In turn, staffing estimates based on the average call load would become less reliable, the officers working in the smaller districts would observe wild swings in the hourly call rate and the amount of cross-district dispatching would need to be increased.



Overall, several options to modify the existing district boundaries were considered. However, the call load is currently distributed relatively equally between the districts and it was determined that the call load in some districts would become unbalanced if a new district was created between District 3 and District 4 or if the boundary separating District 3 and District 4 was changed. Finally, none of the options considered would have allowed the creation of an optimal geographic area based on the criteria identified in the literature (any new patrol district in South Vancouver would have a kink or its height would be much larger than its width).

## **11.1 THE DOWNTOWN EASTSIDE AS THE FIFTH DISTRICT**

On 2003-01-20, (then) Inspector Ken Frail sent a memo recommending the creation of a fifth patrol district that would have included Gastown, Chinatown, the Downtown Eastside and the neighbourhood of Strathcona.

At the time, the goal of Inspector Frail was to:

- Harmonize the district boundaries with the geographic boundaries used by the Municipal Integrated Services Team.
- Encourage the involvement of federal and provincial enforcement agencies or service providers by clarifying accountability, resources and overall strategies.
- Attract the attention of researchers in other agencies and educational institutions such as Simon Fraser University and the University of British Columbia.
- Improve the coordination between the various beats and patrol squads.
- Establish some geographic responsibility.
- Reduce the draw of District 2 resources from the eastern area of the district into the Downtown Eastside.
- Reduce the radio traffic on the District 2 channel.

At this stage, the Patrol Deployment Study Project Team does not believe that the creation of a new patrol district in or around the Downtown Eastside is necessary or desirable. To be efficient, patrol operations need to remain flexible enough to

accommodate daily or hourly fluctuations in the staffing level and the call load. In that context, creating a new silo of police activity in the Downtown Eastside appears to be suboptimal. Moreover, anecdotal evidence and comments from the E-Comm personnel suggest that the radio channels for District 3 and District 4 are the most overloaded, not the District 2 radio channel. Finally, the BET shifting model currently leads to a 23-hour coverage of the Downtown Eastside. To transform BET into a full-scale patrol district, new BET officers would be required. The Patrol Deployment Study Project Team believes that this should not take precedence over the arguably more urgent needs of the existing patrol districts.

## **11.2 GLOBAL POSITIONING SYSTEMS**

A review of Global Positioning Systems (GPS) was conducted and the Project Team feels that the spatial challenges engendered by the large districts can be effectively addressed by this technology.

Global Positioning Systems (GPS) technology has been introduced in several police agencies; however, due to its relatively new existence, minimal research has been conducted exploring the relationship between GPS and policing.

Nevertheless, the majority of the research conducted on GPS and policing has predominately illustrated the successes of its use. GPS has been found to increase the “analytical power of law enforcement by providing better data that is useful in modelling crime events by time, location, and proximity to other geographic characteristics” (Sorenson, 1998). In this way, GPS enables officers to map out locations of crime, gang, and drug activities. An important example of the success of GPS has been the bait car program, which allows officers to locate the car that has been broken into and stolen.

Most importantly, however, is the ability that GPS has to enhance officer safety due to better coordination among officers, an improvement in information sharing, and organized response efforts (Cardinale, 2006). GPS has this ability to improve officer

safety by enabling dispatchers to know where each car is located in case they need to send back up (Reece & Lausch, 2005).

However some critics have stated that GPS helps to create an electronic “watchdog” meaning greater accountability for officers on shift. Moreover, there are concerns from police union members that law enforcement officers risk losing their privacy through surveillance (Sorenson, 1998). Additionally, cost is a factor because of the equipment costs, and the personnel costs associated with installing and maintaining the equipment, and training the officers on the system (Jaishankar, 2001).

Throughout the police agencies in North America that were surveyed, there is a noticeable use of GPS in patrol cars. Of the fifteen responses that were received (see table below), ten agencies have implemented GPS for patrol related purposes (66%). Another agency, Charlotte-Mecklenburg, is in the process of equipping their police vehicles with this feature as well.

**Table 11-1 Does Your Agency Use GPS Technology in Your Patrol Units?**

<b>Yes</b>	<b>No</b>
Calgary Police Service	Charlotte-Mecklenburg Police Department
Dallas Police Department	Cincinnati Police Department
Durham Regional Police Service	Miami Beach Police Department
Edmonton Police Service	San Diego Police Department
Peel Regional Police Service	Seattle Police Department
Regina Police Service	St Louis Metropolitan Police Department
Scottsdale Police Department	
Surrey RCMP	
Toronto Police Service	
Victoria Police Department	
York Regional Police Service	

For the most part, GPS technology has been introduced only recently for police use. The average length of time that GPS has been used among the agencies surveyed is under three years. However, both the Surrey RCMP and the Dallas Police Department have utilized it for over seven years now. For all agencies the most common vendor for

GPS technology is Intergraph with 40% of the responders acknowledging that they are supplied by this company.

Each of the agencies that have implemented GPS technology has noted that there are benefits that have come with this technology. All responders noted the advantage of enhanced officer safety that came with GPS. As the officer's position is laid out on a map, dispatch is better able to send units to aid the officer if there is no way for the officer to request help themselves. Surrey RCMP related the following incident highlighting the use of GPS in locating units:

*A junior Constable was new to the Detachment and was involved in pursuing a vehicle. During the pursuit the Constable became disoriented in their actual location. When the Constable was requesting backup, the Dispatcher noticed a discrepancy in the location being stated by the Constable. As a precaution the Dispatcher sent backup to both the GPS/AVL location and the location indicated by the Constable. The GPS/AVL location turned out to be the correct location.*

Another common benefit was in the ability of GPS to locate the closest unit to a call. This in turn was found to lower response times to calls, and provide greater control over police resources. The importance for unit coordination, containment, control and response times when dealing with serious incidents is huge and GPS has been found to aid this cause.

The other common benefit gained from GPS technology is in helping to substantiate or refute complaints. Halton, Regina, and Surrey have all noted that the data supplied from GPS has cleared police officers from being at fault for accidents and accusations of excessive speeds.

For disadvantages, many agencies indicated that their police union was concerned that the data would be used for discipline against staff. For the most part it was found that the GPS data was never used in this context. Only the Surrey RCMP stated they actually used it for the purpose of seeing what their officers were doing. Some of the agencies also noted that the high amount of data received from the GPS output slows down the Computer Aided Dispatch system (CAD). The other listed problem was that

the vehicle must maintain a line of sight with the satellites in order to get a positioning. Hence, both natural and manmade structures can block the receiving signal.

The use of GPS at the VPD would increase officer safety and improve patrol deployment and the dispatching of patrol resources.

#### 1. Officer Safety

GPS would be a valuable tool to assist in locating officers who are in trouble and are unable to give complete broadcast information, or don't know their exact location. It would also be of assistance when officers hit their emergency buttons by mistake and the radio dispatcher is unable to raise the unit on the air. Even though the technology is associated with the vehicle it still gives a logical starting point to locate an officer.

#### 2. Patrol Deployment

GPS technology allows dispatchers and officers to know the location of police units. This can assist in effective call management by assigning the nearest appropriate unit to a call for service. This assists with response times and would be beneficial from a Patrol efficiency perspective. There are also tactical advantages during containment and pursuit situations whereby the location of units can be determined and coordinated in the most effective manner.

It is acknowledged that there are legitimate issues to address from a labour/management perspective over the use of this technology for performance monitoring or disciplinary proceedings. There are also significant costs associated with implementing and maintaining this technology and the costs of archiving the data.

The project team is aware that the VPD Communications Section is currently exploring this technology for use in VPD vehicles. After exploring the best practices utilized by other police agencies, the Patrol Deployment Study Project Team supports the ongoing efforts by the Communications Section and recommends the implementation of GPS in VPD patrol vehicles.



## 12 THE PATROL SHIFTING MODEL

Independently of staffing considerations, scheduling must account for workload variations and take steps to smooth out these predictable fluctuations as much as possible by adjusting deployment. In the context of patrol operations, best practice patrol scheduling implies stabilizing average workload by hour of the day and day of the week. In turn, this requires assigning more officers to work when the expected call load is greater and fewer officers when the expected call load is smaller. This approach is called “staffing to workload” in the field of patrol deployment and is recognized as a best practice by most leading-edge police agencies. Ensuring that patrol officers are scheduled to work when they are needed is desirable not only because of efficiency considerations but also because it is more equitable for the officers.

Under the framework of the Patrol Deployment Study, Special Constable Prox of the Criminal Intelligence Section was tasked with reviewing the VPD’s shifting model. On 2006-11-19, Special Constable Prox submitted the final draft of the Patrol Resource Allocation Review Phase 3 to the Planning and Research Section. The Phase 3 of the Patrol Resource Allocation Review was a detailed study that included a review of the shifting model and patrol workload.

Globally, Special Constable Prox found that the current VPD patrol deployment model is a progressive model that compensates for most periods associated with a higher call volume with a corresponding increase in staffing.

The current VPD shifting model is similar to the work schedule in many other leading North American police agencies:

- The deployment schedule designed in 2005 by Kenneth Chelst (Professor of Industrial Engineering at Wayne State University) for the Buffalo Police Department (NY) is a 5-shift model. Using linear programming, Chelst derived a shift schedule that consists in 5 overlapping 10-hour shifts. Some preliminary

analysis showed that the Buffalo's shifting model was matching very closely the actual call load patterns and was highly efficient.<sup>21</sup>

- The Cincinnati Police Department's shifting model relies on 4 distinct 8-hour shifts. The morning shift extends from 0700 to 1500 hours, the afternoon shift extends from 1500 to 2300 hours, the evening shift extends from 2000 to 0400 hours and the night shift extends from 2300 to 0700 hours.
- The Charlotte-Mecklenburg Police Department's shifting model relies on 5 shifts, including 2 overlapping shifts. The morning shift typically extends from 0600 to 1400 hours, the afternoon shift extends from 1400 to 2200 hours and the night shift extends from 2200 hours to 0600 hours. One additional shift staffed with less than 6 officers overlaps the morning shift and the afternoon shift and another shift overlaps the afternoon shift and the night shift.
- The Dallas Police Department's shifting model relies on 3 regular 8-hour shifts that typically extend from 2300 to 0700 hours (First Watch), 0700 to 1500 hours (Second Watch) and 1500 to 2300 hours (Third Watch). However, to supplement these patrol teams, 2 additional "power shifts" extend from 1000 to 1800 hours and 2000 to 0400 hours.
- The Edmonton Police Service relies on an alternating morning shift that extends from 0700 to 1700 hours or 0800 to 1800 hours, an afternoon shift that extends from 1200 to 2200 hours, a late afternoon shift that extends from 1600 to 0200 hours and an alternating night shift that extends from 1800 to 0400 hours or 2200 to 0800 hours.
- The Calgary Police Service relies on 3 "core" shifts of 10 hours that respectively start at 0600 hours, 1200 hours and 2100 hours. One additional shift starts at 1800 hours and provides more overlap. Finally, another shift used only during the week starts at 0800 hours.

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<sup>21</sup> Wayne State University, "Safer City Through Science", Vol. 3, No. 26 (November 13<sup>th</sup>, 2003).



Evidence suggests that the VPD shifting model is more refined and clever than most of the shifting schedules used in the other police agencies surveyed as part of the Patrol Deployment Study. This is illustrated by the fact that:

- The Miami Beach Police Department uses only 3 10-hour shifts that respectively extend from 0700 to 1700 hours, 1500 to 0100 hours and 2300 to 0900 hours. This shifting model implies that patrol shifts overlap at most 6 hours per day and only one shift is deployed between 0100 and 0700 hours.
- The San Diego Police Department uses only 3 10-hour shifts that respectively extend from 0600 to 1600 hours (First Watch), 1400 to 2400 hours (Second Watch) and 2100 to 0700 hours (Third Watch). This shifting model implies that patrol shifts overlap at most 6 hours per day and only one shift is deployed between midnight and 0600 hours.
- The Portland Police Bureau uses only 3 10-hour shifts that respectively extend from 0700 to 1700 hours (Morning Shift), 1600 to 0200 hours (Afternoon Shift) and 2200 to 0800 hours (Night Shift). This shifting model implies that patrol shifts overlap at most 6 hours per day and only one shift is deployed between 0200 and 0700 hours.
- The Seattle Police Department uses only 3 9-hour shifts that typically extend from 0300 to 1200 hours (First Watch), 1100 to 2000 hours (Second Watch) and 1900 to 0400 hours (Third Watch). This shifting model implies that patrol shifts overlap at most 3 hours per day and only one shift is deployed between 2000 and 0300 hours.
- The Toronto Police Service uses only 3 10-hour shifts that extend from 0700 to 1700 hours (Day Shift), 1700 to 0300 hours (Evening Shift) and 2100 to 0700 hours (Night Shift). This shifting model implies that patrol shifts overlap at most 6 hours per day and only one shift is deployed between 0300 and 2100 hours.
- The Peel Regional Police Service relies on only 3 “core” shifts of 10 hours that respectively start at 0600 hours (Day Shift), 1400 hours (Afternoon Shift) and approximately 2200 hours (Night Shift). In one of the regional division, the day shift is split to include a 0700 hours start time. Moreover, the afternoon shift in two of the divisions is also split to include a 1600 hours start time.

- The York Regional Police Service uses 3 12-hour shifts that typically extend from 0600 to 1800 hours or 0700 to 1900 hours (Morning Shift), 1500 to 0300 hours (Afternoon Shift) and 1800 to 0600 hours or 1900 to 0700 hours (Night Shift). This shifting model implies that patrol shifts overlap at most 12 hours per day and only one shift is deployed between 0300 and 0600 hours.
- The Winnipeg Police Service uses only 3 10-hour shifts that extend from 0700 to 1700 hours (First Shift), 1500 to 0100 hours (Second Shift) and 2200 to 0800 hours (Third Shift). This shifting model implies that patrol shifts overlap at most 6 hours per day and only one shift is deployed between 0100 and 0700 hours.

The current VPD shifting model (4 days of work followed by 4 consecutive days of leave with one fixed shift and four rotating 11-hour shifts) is consistent with the most important criteria established by the Scottsdale Police Department to evaluate the quality of its scheduling pattern:

- The schedule must provide fixed days off.
- The days off should be consecutive.
- Weekend time off should be equitably distributed among the squads.
- Assignments to higher workload days should be equitably distributed among the patrol squads.
- Shift rotation should proceed forward and the start times should be less than 8 hours apart.<sup>22</sup> This is supported by the current research in chronobiology.

Unfortunately, however, Special Constable Prox concluded that the current VPD patrol deployment model fails to:

1. Address the gradual increase in the number of calls that takes place between Monday and Saturday. The existing shifting model cycles through four different shifts, with 4 consecutive days of work and 4 consecutive days of leave. Under this 4-on-4-off model, the scheduling cycle does not mirror the 7-day week. Ultimately, this results in a different start day at the end of each 8-day rotation.

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<sup>22</sup> At the VPD, only the night shift (Echo) and the day shift (Bravo) are separated by more than 12 hours.

Hence, the current scheduling cycle is unable to compensate for the greater resources requirement near the end of the week. The call load tends to peak on Friday and Saturday night; however, the same number of officers are generally deployed seven days a week.

2. Fully compensate for hourly fluctuations in the utilization rate and match resources with the call load effectively. Notably, the existing shifting model does not properly account for the increase in the number of calls for service and the average utilization rate observed before and slightly after midnight. Under the current shifting model, not enough patrol units are fielded at the times that are busiest. For example, the period between 1800 and 1900 hours is consistently one of the more demanding hour of the day regardless of the district or the day of the week. However, the current shift deployment model fails to address this obvious resource requirement.

In essence, the existing patrol shifts do not adequately overlap at times of high demand for service. This has a ripple effect in the sense that a one-hour period of excess demand usually leads to call stacking. It can then take hours for the subsequent shifts to recover from the backlog, while still responding to incoming emergency 9-1-1 calls.

Evidence from other North American police agencies suggests that not all police organizations have a deployment model that allows them to systematically deploy more patrol officers during the weekend:

- The Seattle Police Department relies on a 4-on-2-off scheduling pattern.
- The York Regional Police Service relies on a 4-on-4-off scheduling pattern during which patrol officers work 2 days and 2 nights and are then on leave for 4 consecutive days.
- The Toronto Police Service relies on a 35-day scheduling cycle characterized by a 7-on-6-off, 7-on-5-off, 7-on-3-off pattern. Ultimately, it can be shown that this scheduling pattern can not be used to systematically deploy more patrol officers during the weekend on average.

- The Peel Regional Police Service relies on a 35-day scheduling cycle characterized by a 7-on-6-off, 4-on-2-off, 3-on-2-off, 3-on-2-off, 4-on-2-off pattern. Ultimately, it can be shown that this scheduling pattern can not be used to systematically deploy more patrol officers during the weekend on average.

However, some police agencies did adopt a deployment model that takes into account the spikes in activity expected during the weekend:

- The Portland Police Bureau, the San Diego Police Department and the Miami Beach Police Department all rely on a 4-on-3-off scheduling pattern. This implies that a patrol squad or a patrol officer scheduled to work initially between Wednesday and Saturday, for instance, will always end up working between Wednesday and Saturday.
- The Charlotte-Mecklenburg Police Department relies on a 5-on-2-off or 4-on-3-off scheduling pattern (depending on the district).
- The Dallas Police Department relies on a 5-on-2-off or 4-on-3-off scheduling pattern (depending on the squad and the shift).
- The Cincinnati Police Department relies on a 56-day cycle scheduling characterized by a 6-on-2-off pattern during 5 consecutive weeks and a 5-on-3-off pattern during 2 consecutive weeks. Ultimately, it can be shown that this scheduling pattern will imply that slightly more officers are working on Friday and Saturday on average if the 56-day cycle for most teams starts between Thursday and Sunday.
- The Winnipeg Police Service relies on a 28-day scheduling cycle characterized by a 6-on-4-off, 5-on-4-off, 5-on-4-off pattern. Ultimately, it can be shown that this scheduling pattern will imply that:
  - Officers are working more often on Sunday and Friday on average if the 28-day cycle starts on Sunday.
  - Officers are working more often on Monday and Saturday on average if the 28-day cycle starts on Monday.
  - Officers are working more often on Tuesday and Sunday on average if the 28-day cycle starts on Tuesday.

- Officers are working more often on Wednesday and Monday on average if the 28-day cycle starts on Wednesday.
- Officers are working more often on Thursday and Tuesday on average if the 28-day cycle starts on Thursday.
- Officers are working more often on Friday and Wednesday on average if the 28-day cycle starts on Friday.
- Officers are working more often on Saturday and Thursday on average if the 28-day cycle starts on Saturday.

The Phase 3 report prepared by Special Constable Prox proposes solutions that will address the systemic inefficiencies in the VPD shifting model with varying degrees of success. Most notably, Special Constable Prox recommends the creation of two new shifts that would optimize deployment and account for hourly fluctuations in the call load over each 24-hour period and daily variations during the week.

## **12.1 THE 4-ON-3-OFF MODEL**

First, Special Constable Prox recommends the creation of an additional fixed shift that closely mirrors the existing Delta shift (1600 to 0400 hours) but with later start and end times and a fixed 4-on-3-off scheduling cycle (as opposed to the 4-on-4-off rotating scheduling cycle currently used in patrol). Special Constable Prox suggests that the fixed 10-hour Delta shift should start at 1800 hours and end at 0400. Under the 4-on-3-off model, the fixed Delta shift would maintain a Wednesday to Saturday schedule. This fixed Delta shift would address the gradual increase in the number of calls that takes place between Monday and Saturday in each district. Since staffing would match workload more closely on average, the number of officers required in each district would be minimized with the fixed 4-on-3-off Delta shift. Four teams of approximately 10 to 11 Constables (depending on the district) and one Sergeant would be required for the Department-wide implementation of the fixed 4-on-3-off Delta shift.

## **12.2 THE 4-ON-4-OFF MODEL**

Recognizing that the 4-on-3-off scheduling pattern required to implement a fixed 10-hour weekend Delta shift is a fairly radical change compared to the business practice currently in place in patrol, Special Constable Prox also presented a secondary option that follows a 4-on-4-off scheduling pattern and implies an 11-hour shift.

Overall, the second option detailed in the Phase 3 report is similar to the primary option. However, instead of the fixed 4-on-3-off Delta shift, the alternative model relies on the fact that the new fixed Delta shift would operate in accordance to the existing 4-on-4-off scheduling pattern. This 4-day rotation would emulate more closely the current scheduling cycles in patrol. Each fixed Delta team would work an 11-hour shift starting at 1800 and ending at 0500 hours. Because this shift does not mirror a 7-day cycle and it advances one day forward every cycle, there is a need to staff the shift throughout the entire rotation (i.e. both on even and on odd days). Under this second-best option, each fixed Delta team would require between 9 and 11 members, depending on the district. However, two fixed Delta teams would be required in each district (one working during the even days and one for the odd days).

While it does not adjust specifically to the recurring spikes on Friday and Saturday, the secondary option proposed by Special Constable Prox in the Phase 3 report does provide additional patrol resources throughout the week that could be used for proactive policing activities. Compared to the 4-on-3-off model, the 4-on-4-off fixed Delta shift also has the advantage of allowing changes in the current shifting model, including start and end times. This may lead to a greater degree of efficiency. As opposed to the 4-on-3-off Delta shift working only from Wednesday to Saturday, the 4-on-4-off scheduling pattern maintains the same level of coverage throughout the week. Therefore, altering the existing shifts will not create further issues under the 4-on-4-off model.

Special Constable Prox takes advantage of this fact by proposing to move the Charlie and Delta shifts one hour earlier. Under Special Constable Prox's second option, the 11-hour Charlie shift therefore starts at 1300 hours (instead of 1400 hours) and ends at midnight (instead of 0100 hours). For its part, the 12-hour Delta shift starts at 1500

hours (instead of 1600 hours) and ends at 0300 (instead of 0400 hours). According to the Phase 3 report, the shift modifications would lead to a greater concentration of resources during times of highest demand, while still maintaining an adequate coverage and matching of resources throughout the remaining hours of the day.

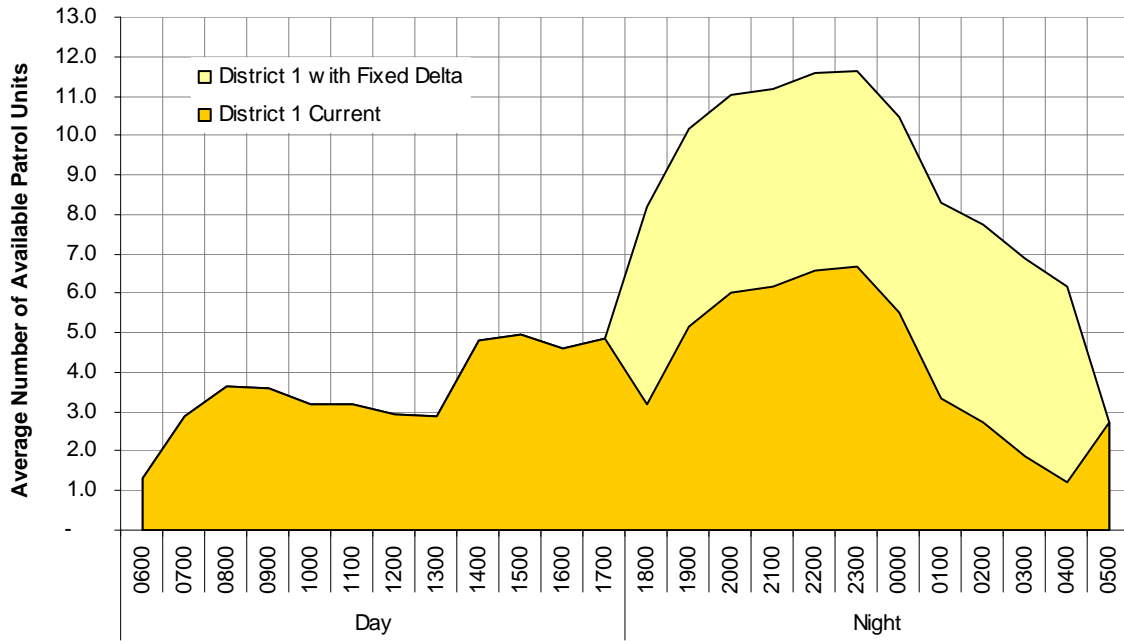
### **12.3 THE IMPACT OF THE FIXED DELTA SHIFT**

To assess and estimate the potential impact of the fixed Delta shift, a computer simulation was conducted using the call load data collected between 2005-06-01 and 2006-05-31. First, the impact of the 4-on-4-off fixed Delta shift was estimated. The impact of the 4-on-3-off fixed Delta shift was approximated extrapolating the results from the 4-on-4-off model.

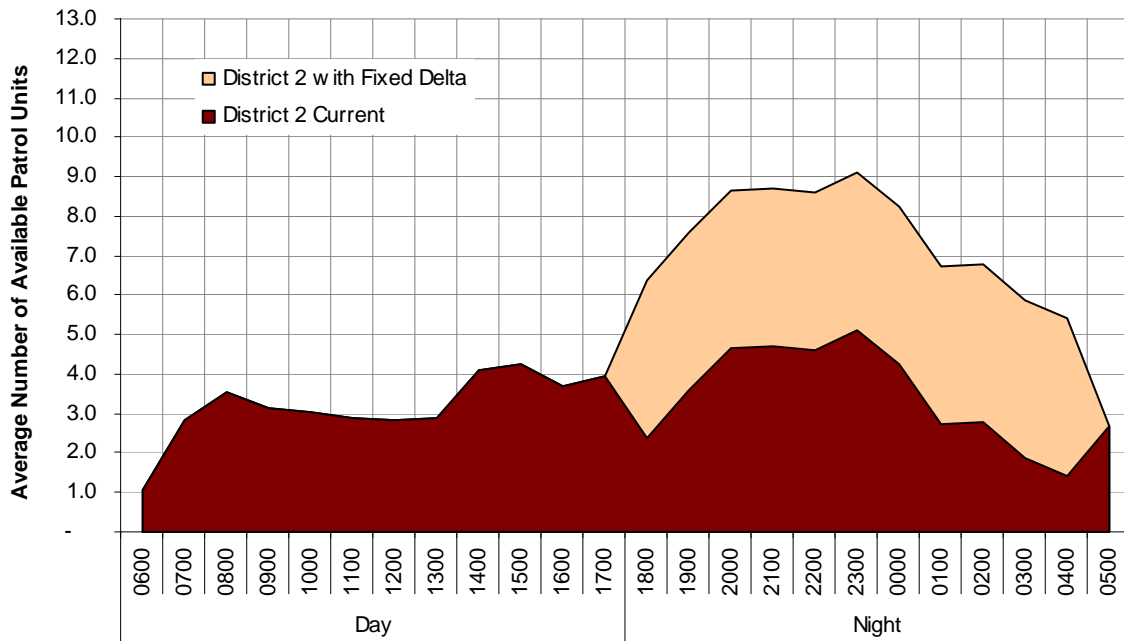
To assess the impact of the 4-on-4-off fixed Delta shift, a total of 5 fixed Delta units are deployed in each patrol district (e.g. 3 two-officer units and 2 single-officer units) between 1800 and 0500 hours. For simplicity, it is assumed (conservatively) that 2 to 3 members of each fixed Delta team are on leave on average and that the Sergeant supervising the fixed Delta team is not handling any calls for service.

First, the simulation confirms that the creation of a fixed Delta team would lead to an increase in the average number of patrol units available to take calls in each patrol district. Overall, the average number of available patrol units would increase by approximately 58.5% in District 1, 69.7% in District 2, 75.7% in District 3 and 71.7% in District 4. Between 1800 and 0400 hours, however, the average number of available patrol units would increase by approximately 86.7% in District 1, 117.2% in District 2, 120.8% in District 3 and 115.0% in District 4.

**Figure 12-1 Average Number of Available Patrol Units in District 1 with the 4-On-4-Off Fixed Delta Team**

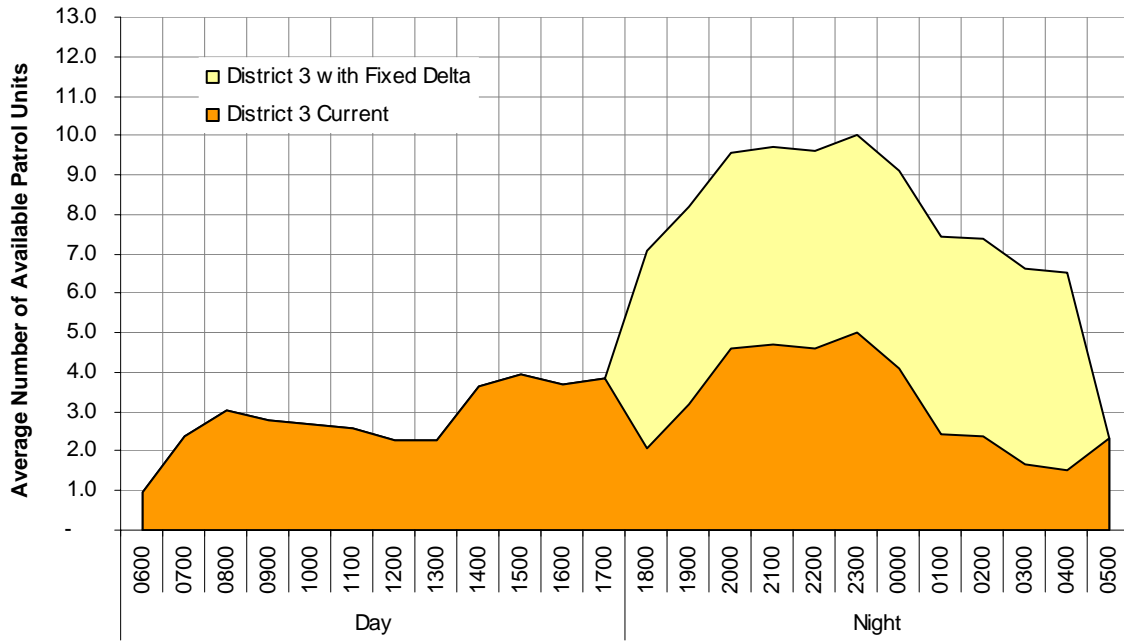


**Figure 12-2 Average Number of Available Patrol Units in District 2 with the 4-On-4-Off Fixed Delta Team**

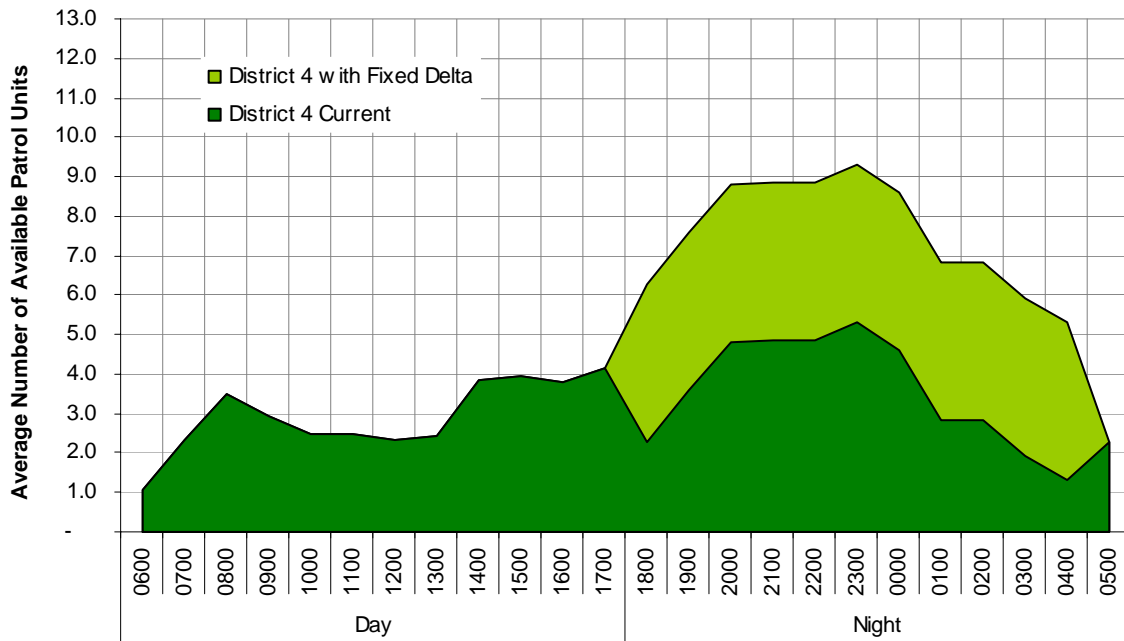




**Figure 12-3 Average Number of Available Patrol Units in District 3 with the 4-On-4-Off Fixed Delta Team**



**Figure 12-4 Average Number of Available Patrol Units in District 4 with the 4-On-4-Off Fixed Delta Team**



In turn, a decrease in the average response time to priority 1 calls is expected. Everything else being equal, the average response time to priority 1 calls (excluding motor vehicle incidents with injuries) is expected to decrease by approximately 16 seconds in District 1, 30 seconds in District 2, 49 seconds in District 3 and 1 minute and 4 seconds in District 4 with the creation of the fixed Delta Team alone. Between 1800 and 0500 hours, moreover, the average response time to priority 1 calls would decrease by approximately 22 seconds in District 1, 39 seconds in District 2, 1 minute and 2 seconds in District 3 and 1 minute and 18 seconds in District 4.

**Table 12-1 Expected Decrease in the Average Priority 1 Response Time with the 4-On-4-Off Fixed Delta Shift Alone (Excluding MVI with Injuries)**

<b>District</b>	<b>Between 1800 and 0500 Hours</b>	<b>Overall</b>
District 1	00:22.1	00:16.5
District 2	00:39.1	00:30.2
District 3	01:02.3	00:49.0
District 4	01:18.5	01:04.4
<b>Total</b>	<b>00:49.8</b>	<b>00:39.2</b>

It is possible to approximate the impact of the 4-on-3-off fixed Delta shift by recognizing the fact that:

- The 4-on-4-off fixed Delta shift extends from 1800 to 0500 hours while the 4-on-3-off fixed Delta shift extends from 1800 to 0400 hours. This is only a marginal difference.
- The staffing of each fixed Delta team increases slightly in District 2 and District 4 under the 4-on-3-off model. Under the 4-on-4-off model, each fixed Delta team in District 2 and District 4 is staffed by 9 Constables. Under the 4-on-3-off, each fixed Delta team in District 2 and District 4 is staffed by 10 Constables. This is also a marginal difference.
- In essence, the marginal increase in staffing under the 4-on-3-off model is likely to be neutralized by the marginal reduction in the shift length. Overall, the fall in the average priority 1 response time between Wednesday and Saturday should not change significantly.

- The 4-on-4-off model offers a 7-day coverage because two teams in each district alternate between the odd and even days. By comparison, the 4-on-3-off model offers a 4-day coverage out of 7 because only one team works from Wednesday to Saturday.

The following table shows the change in the average priority 1 response time that could be expected from the 4-on-3-off fixed delta shift, extrapolating from the results derived for the 4-on-4-off model. Of course, these figures remain approximate.

**Table 12-2 Expected Decrease in the Average Priority 1 Response Time with the 4-On-3-Off Fixed Delta Shift Alone (Excluding MVI with Injuries)**

<b>District</b>	<b>Between 1800 and 0400 Hours Wednesday to Saturday</b>	<b>Overall</b>
District 1	00:22.1	00:12.3
District 2	00:39.1	00:22.6
District 3	01:02.3	00:36.7
District 4	01:18.5	00:48.3
<b>Total</b>	<b>00:49.8</b>	<b>00:29.4</b>

Overall, the average priority 1 response time would be expected to decline by 29 to 30 seconds with to the 4-on-3-off fixed Delta shift. Among others, the average priority 1 response time would be expected to decline by 12 seconds in District 1, 22 seconds in District 2, 36 seconds in District 3 and 48 seconds in District 4.

## **12.4 THE METRO TEAM**

Beyond the creation of the fixed Delta shift in each district, Special Constable Prox found that there was also a need to account for spikes in activity primarily observed in the evening as well as fluctuations in the activity level between the patrol districts. To compensate for these peaks in resource utilization, a second fixed shift is required. As a result of the net gains obtained from the fixed Delta shift, a reduced number of officers are required for the second fixed shift. In fact, it has been determined that a new patrol

team deployed as a citywide resource (in the same way as the Metropolitan Division in the LAPD) would likely be sufficient to fill the remaining service gaps in patrol and compensate for inopportune shift overlaps.

The Patrol Deployment Study Project Team proposes the creation of a mobile uniform patrol team. This new Metro Team would be deployed between 1500 and 0200 hours (one hour after the existing Charlie shift), would work a fixed 11-hour shift and would follow a 4-on-4-off schedule. Because the Metro Team would be a citywide resource deployed daily, only two patrol squads with approximately 14 Constables each would be required to staff it. This Metro Team will allow VPD managers (e.g. the Duty Officer) to deploy members throughout the city wherever their presence would have the greatest impact and will help compensate for daily fluctuations in the call load by district. When unanticipated developments or major incidents occur, the Metro Team would be able to saturate areas in the City. When appropriate, the Metro Team could also be split. It would then help reduce the number of calls waiting in the call queue in each district.

The Metropolitan Division (Metro) is one of the most innovative policing initiatives of the Los Angeles Police Department (LAPD). The LAPD Metro was created in 1933 as a compact, mobile crime-fighting unit that worked throughout the City to suppress criminal activity. Today, the primary responsibility of Metro is to provide support to the Department's community-based policing efforts by deploying additional crime suppression resources throughout the City. This is accomplished by deploying a force of highly trained and disciplined patrol personnel. The effectiveness of the Department's field commanders in realizing the long-term goals of the Department is enhanced by Metro. The LAPD model also incorporates Special Weapons And Tactics (SWAT), K-9 and Mounted Units within the Metropolitan Division. The equivalent specialty units already exist within the VPD Operations Division (Mounted Squad) and Operations Support Division (Emergency Response Team and Dog Squad) and would not become part of the VPD Metro Team. In 1968, the LAPD Metropolitan Division was expanded from 70 officers to approximately 200 officers. In 1997, following the North Hollywood

bank robbery, the maximum authorized strength of the Division increased to approximately 350 sworn personnel and 16 civilian support personnel.<sup>23</sup>

The Metro Team would constitute an efficient way to smooth out variations in the call load and eliminate silos of activity between patrol districts. For instance, a series of bank robberies could occur in District 3. These bank robberies would have the potential to tie up several patrol units for several hours, rendering them unavailable to handle additional emergency calls for service. In this situation, the Metro Team could be dispatched to District 3 on a temporary basis to assist with calls. The advantage, compared to the current situation, is that neighbouring districts would be left unaffected and a patrol resource crisis could be more easily averted.

The Patrol Deployment Study Project Team recommends the creation of a Metro Team at the VPD in accordance to the following parameters:

- A total of 2 Metro Teams would be created (one working on the odd side and one on the even side). This would ensure 7-day continuous coverage.
- There would be one Sergeant and 13 to 14 Constables in each team (for a total authorized strength of 28 to 30 sworn officers).
- The Metro Team Sergeant would report to the Duty Officer (Car 10) at the start of shift and periodically throughout the shift. Whenever possible, the Duty Officer would attend the Metro Team parade briefings.
- The Metro Team would work a fixed 11-hour afternoon shift starting at 1500 hours and ending at 0200 hours. By 1500 hours, the officers on the Charlie shift will already have responded to a few calls for service. At this point, it will be easier for the Duty Officer and the Metro Team Sergeant to determine the optimal deployment strategy for the day.
- The Metro Team would work as a citywide resource available to be deployed in areas of the city that are experiencing the greatest demand for service. The Metro Team would not be formally assigned to any particular patrol district. Instead, it would have the ability to respond to calls citywide. The Metro Team

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<sup>23</sup> LAPD's authorized sworn strength is approximately 10,000 officers.

would be a streamlined patrol resource adjusting fluidly to variations in the call load.

- The Duty Officer would assign the Metro Team to wherever it is needed on that particular day or during a specific time period. For example, if the call load is relatively high in District 3 on a particular day, the Duty Officer has the ability to flood the area with a large team of uniformed officers. If the call load is divided evenly throughout the city, the Metro Team may be dispersed equally throughout the city. This accounts for daily call load fluctuations that cannot be anticipated through data analysis. It also gives the Duty Officer the ability to respond effectively to emerging situations that require an increased police presence and redeploy resources throughout the shift without disrupting the units assigned to a permanent district.
- On average, approximately 60% of all deployed Metro units would be two-officer units and 40% would be single-officer units.
- The officers in the Metro Team would all be in uniform and operate marked patrol cars. The Metro Team would remain a uniform patrol response unit available to augment regular patrol units in the districts. It would never be deployed in plainclothes or used for special projects.
- The Metro Team would be handling all types of police calls and produce the relevant reports as necessary. This would include all priorities of calls and special assignments determined by the Duty Officer. For example, they could assist with unplanned demonstrations, crowd control situations or special attentions that develop.
- The Metro Teams would be staffed with Constables with a minimum of two years of patrol service after graduating from the Academy.
- The Metro Teams would never be used to field train Block II recruits. The Constables in the Metro Teams would have to be able to respond to any type of call quickly, efficiently and independently.
- Various skills and training would be desirable for Constables seeking a position within one of the Metro Teams. This would include, but is not limited to, at least one of the following:

- Experience in the Crowd Control Unit.
- Training in less lethal force options (bean bag, Taser).
- Qualified in BTA, SFST or DRE.
- Qualified members (to provide relief for the NCO).
- ERT reserve members.
- Field Trainers (although the Metro Team would never be used as a field training ground, the designation of Field Trainer generally indicates a higher level of proficiency in patrol).

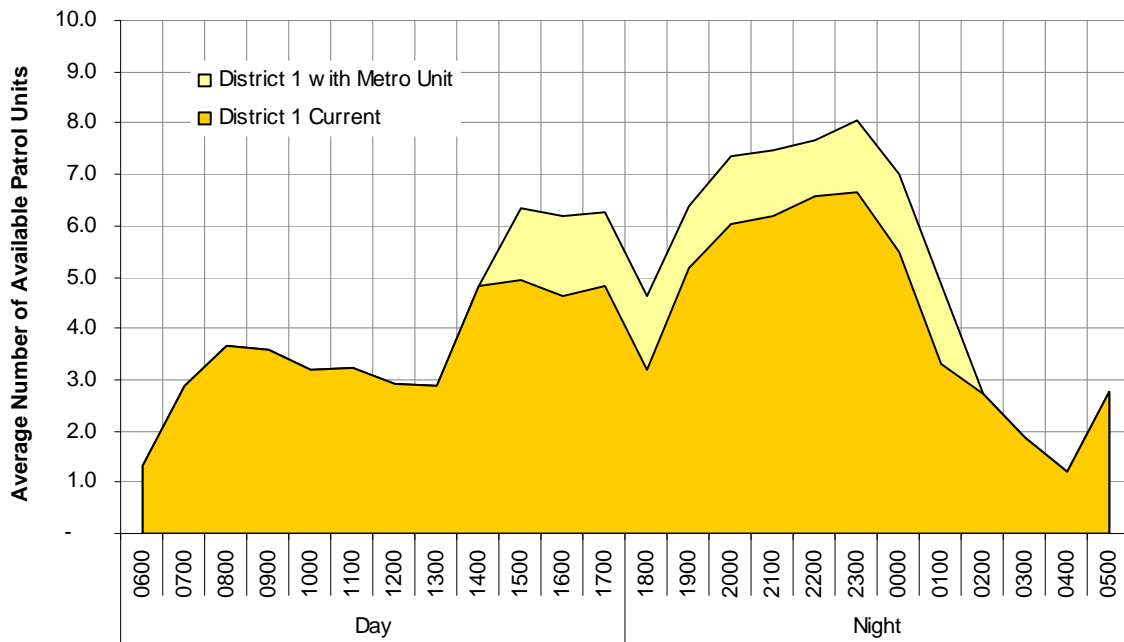
## **12.5 THE IMPACT OF THE METRO TEAM**

To assess and estimate the potential impact of the Metro Team, a computer simulation was conducted using the call load data collected between 2005-06-01 and 2006-05-31.

1. For each hour of each day, the average number of regular patrol units available in each patrol district is estimated.
2. During the hours when the Metro Team would have been working, a total of 7 Metro units were dispersed citywide (e.g. 4 two-officer units and 3 single-officer units). For simplicity, it is assumed (conservatively) that 3 members of the Metro Team are on leave on average and that the Sergeant supervising the Metro Team is not handling any calls for service.
3. Metro units are assigned to each patrol district so that the number of available patrol units in each district is equalized (when possible). In practice, this means that relatively more Metro units are assigned to patrol districts with less available regular patrol units at any given time. The same way ballasts stabilize ships, the Metro Team is used to balance the workload across patrol districts. By assigning Metro units where there are fewer regular patrol units available to take calls, the impact on the average response time is maximized.

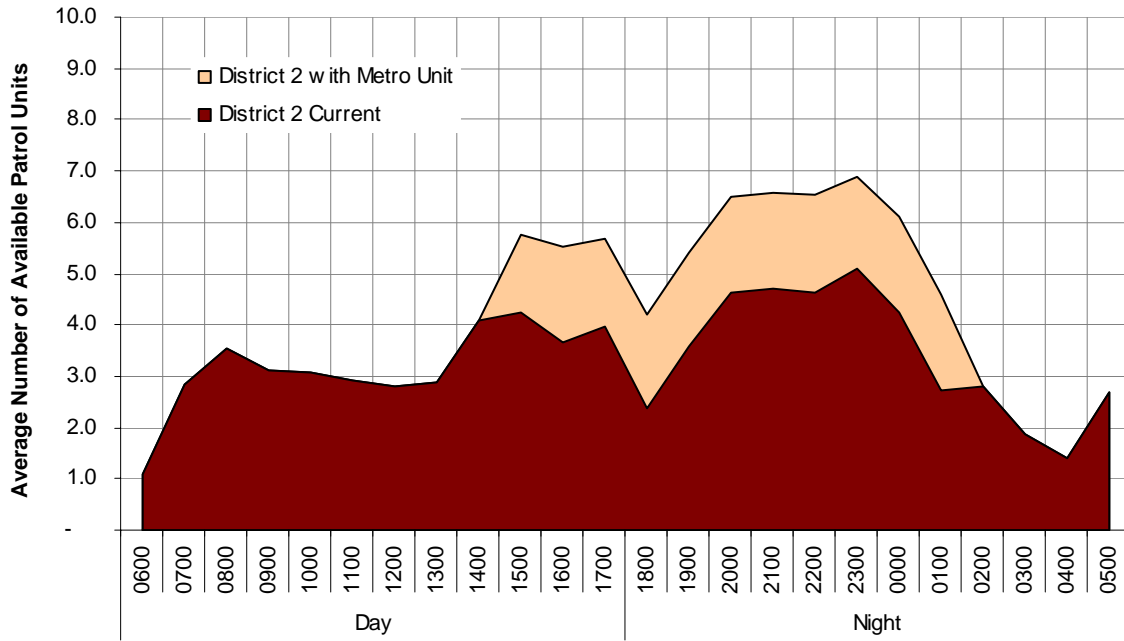
First, the simulation confirms that the creation of a Metro Team would lead to an increase in the average number of patrol units available to take calls in each patrol district. Overall, the average number of available patrol units would increase by approximately 16.2% in District 1, 25.3% in District 2, 29.0% in District 3 and 26.5% in District 4. Between 1500 and 0200 hours, however, the average number of available patrol units would increase by approximately 26.8% in District 1, 45.5% in District 2, 50.0% in District 3 and 45.2% in District 4.

**Figure 12-5 Average Number of Available Patrol Units in District 1 with the Metro Team**

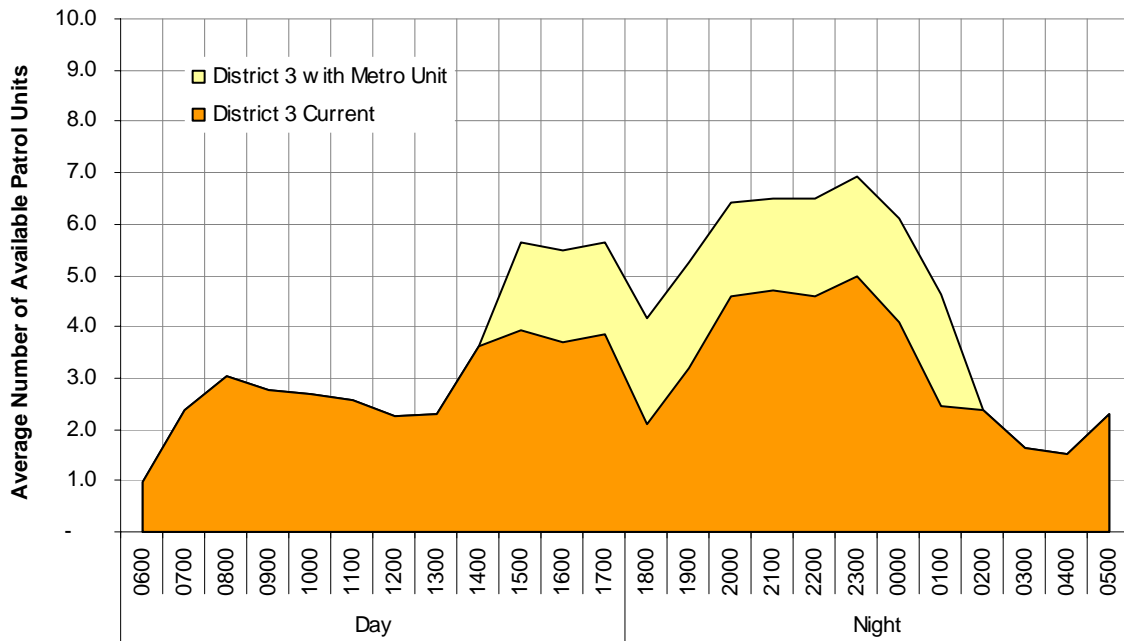




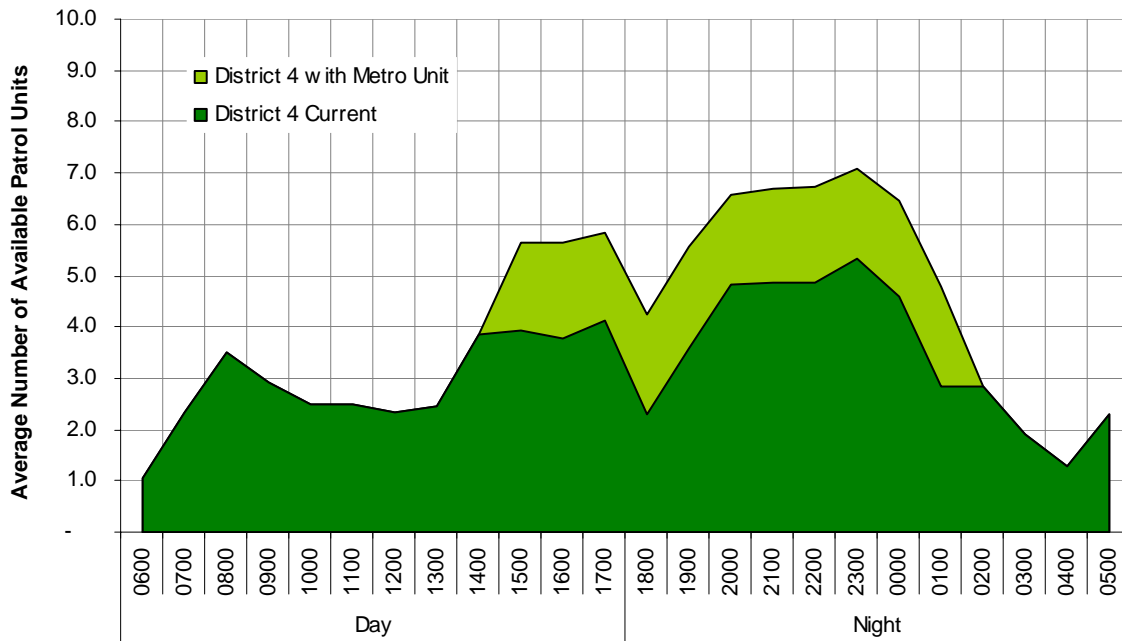
**Figure 12-6 Average Number of Available Patrol Units in District 2 with the Metro Team**



**Figure 12-7 Average Number of Available Patrol Units in District 3 with the Metro Team**



**Figure 12-8 Average Number of Available Patrol Units in District 4 with the Metro Team**



In turn, a decrease in the average response time to priority 1 calls is expected. Intuitively, the Metro Team has two beneficial effects on the average response time to priority 1 calls. First, the Metro units can be deployed in patrol districts where no regular patrol units are available to take calls. Because emergency calls can then be dispatched as soon as they are received, the average queuing delay is reduced. Secondly, Metro units increase the patrol coverage within each district. Hence, the average travel distance to priority 1 calls is likely to be reduced. In turn, the average travel time will also be shorter. Everything else being equal, the average response time to priority 1 calls (excluding motor vehicle incidents with injuries) is expected to decrease by approximately 5 seconds in District 1, 12 seconds in District 2, 20 seconds in District 3 and 19 seconds in District 4 with the creation of the Metro Team alone. Between 1500 and 0200 hours, however, the average response time to priority 1 calls would decrease by approximately 8 seconds in District 1, 21 seconds in District 2, 31 seconds in District 3 and 31 seconds in District 4.

**Table 12-3 Expected Decrease in the Average Priority 1 Response Time with the Metro Team Alone (Excluding MVI with Injuries)**

<b>District</b>	<b>Between 1500 and 0200 Hours</b>	<b>Overall</b>
District 1	00:08.3	00:04.8
District 2	00:20.6	00:12.3
District 3	00:31.4	00:19.7
District 4	00:30.6	00:19.0
<b>Total</b>	<b>00:23.1</b>	<b>00:14.2</b>

These estimates are obviously very conservative. However, when making predictions, it is important to consider the fact that:

1. The Metro Team will not operate at full strength every day. Metro officers will likely have to show up in court, will take some leave or will be sick. Moreover, an Acting Sergeant will have to replace the Metro Team Sergeant when he is away. Even if the Metro Team consists of 13 or 14 officers, between 10 and 12 will most likely be on the road answering calls on any given day.
2. At any given time, at most 2 to 3 Metro units are expected to end up in each patrol district on average. Although these additional units will have some impact on the average priority 1 response time, individual patrol districts will rarely be saturated with patrol units.
3. Like other patrol units, Metro units will respond to calls for service. Therefore, Metro units will sometimes be busy when a priority 1 call is received.
4. The Metro Team will only operate from 1500 to 0200 hours. Outside these times, the Metro Team will only have a limited (indirect) effect on the average priority 1 response time.
5. Priority 1 motor vehicle incidents with injuries are excluded from the analysis. In essence, the predicted change in the average priority 1 response time reported above applies to very serious calls including robberies in progress, assaults in progress, domestic situations in progress and shootings. In the context of these

time-sensitive incidents, every second counts to save lives, apprehend suspects and collect evidence.

Overall, the Metro Team represents a cost-effective way to ensure that a sufficient number of patrol units are available in each patrol district at any given time. The Metro Team would require the creation of only two patrol teams (one that would work during the odd days and one that would work during the even days) as opposed to four (one per district) and would be most beneficial when it is most costly to obtain additional patrol units (e.g. when a major incident occurs or during special events). By itself, the Metro Team would be expected to lead to a reduction of approximately 23 seconds in the average response time to priority 1 calls between 1500 and 0200 hours (when the Metro Team is working). This would lead to a reduction of 14 seconds in the overall average response time to priority 1 calls (excluding motor vehicle with injuries).

## **12.6 DISCUSSION**

Overall, Special Constable Prox predicts that the combination of the new fixed 4-on-3-off Delta shift and the Metro Team will address most of the inefficiencies identified in the current deployment model, while requiring the fewest members to accomplish the largest improvements. A total of 6 new patrol squads would be required to staff this model (4 teams would work during the new fixed Delta shift and 2 squads would make up the Metro Team). This patrol deployment plan is the preferred model because it incorporates the best use of existing resources while still addressing shifting inefficiencies with the smallest possible number of additional officers. It also requires the smallest number of new shifts and teams, thereby reducing the total number of additional supervisors required.

Like under the 4-on-3-off option, Special Constable Prox predicts that the combination of the fixed 4-on-4-off Delta shift and the new Metro Team will address the inefficiencies of the current deployment model. However, this is only a second-best deployment model because it leads to the performance gains expected under the 4-on-3-off option

only with more officers and more squads. Overall, a total of 10 new patrol squads or approximately 104 Constables and 10 Sergeants would be required to implement the 4-on-4-off model (8 fixed Delta teams with 9 to 11 Constables each and 2 Metro teams with 13 Constables each). For this reason, the 4-on-4-off model remains a second-best option.

Because it is divided into independent components, the deployment model proposed by Special Constable Prox could be phased in gradually. For example, the Metro Team could be implemented with only 28 Constables and 2 Sergeants. By itself, the Metro Team would still improve efficiency in patrol and would not require any modification to the existing shifting or scheduling model. The Metro Team could be implemented until the fixed Delta resources are available for a district-wide rollout.

## 13 THE DISTRICT SURVEILLANCE TEAMS

Currently in the VPD, each of the four patrol districts has its own surveillance team. District 1 has the Crime Suppression Team (CST), District 2 has the Rapid Action Team (RAT), District 3 has the Street Crime Enforcement Unit (SCEU, also known as KRASH) and District 4 has the Property Crime Reduction Unit (PCRU). While the names of these teams differ across the four districts, their mandate and the deployment model is consistent across all teams. Typically, the officers working in these specialty units are deployed to proactively target either high-crime areas or individuals. They usually work in plainclothes and drive covert vehicles.

Out of the 4 District Surveillance Teams (DST), only the District 1 DST formally exists in the organizational chart. The District 1 DST was created in 2003 when the bicycle unit that used to operate in Downtown was disbanded. The remaining 3 DSTs exist only informally. The positions in each of these 3 DSTs do not appear on the official list of authorized positions. For example, an officer that works in the District 2 DST would be deployed in a surveillance capacity but, on paper, would be officially assigned to a regular patrol squad.

Like the names that they use, the staffing level in each DST varies by district. District 1, which is the only unit that formally exists, has the largest authorized strength of one sergeant and nine constables. The other three districts have surveillance teams that are each comprised of one sergeant and seven constables. The following table summarizes these staffing levels.

**Table 13-1 Actual Staffing Levels in District Surveillance Teams**

<b>District</b>	<b>District Surveillance Team</b>	<b>Sergeants</b>	<b>Constables</b>
District 1	Crime Suppression Team (CST)	1	9
District 2	Rapid Action Team (RAT)	1	7
District 3	Street Crime Enforcement Unit (SCEU)	1	7
District 4	Property Crime Reduction Unit (PCRU)	1	7
<b>Total</b>		<b>4</b>	<b>30</b>

Initially, the DSTs were formed to address emerging crime problems and trends in each patrol district. Creating these units informally was desirable because it was unclear how long patrol resources would be used in a surveillance capacity. As depicted in the following table, however, all DSTs have been in existence for over one year.

**Table 13-2 Creation Date of Each District Surveillance Team**

<b>District</b>	<b>District Surveillance Team</b>	<b>Date Created</b>
District 1	Crime Suppression Team (CST)	March 2003
District 2	Rapid Action Team (RAT)	February 2005
District 3	Street Crime Enforcement Unit (SCEU)	April 2004
District 4	Property Crime Reduction Unit (PCRU)	August 2005

Anecdotal evidence suggests that the formalization of these squads might be fitting as they are now being used as a permanent resource and they require specialized equipment and training. The fact that 3 of the DSTs exist informally leads to significant problems in terms of staffing, performance monitoring, training and equipment. Because the DSTs in District 2, District 3 and District 4 are not formalized, there is a limited ability to plan and budget for their operational needs. For instance:

- Best practices in the field of surveillance suggest that a surveillance unit should, at a minimum, consist of 7 officers. Empirical data and tactical experience has shown that the surveillance system becomes ineffective and unreliable when the surveillance team has less than 7 officers. However, 3 of the existing DSTs are assigned only a total of 8 officers (including only 7 Constables). Taking into account holiday leave, overtime leave, training and commitments to testify in court, the DSTs often have to deploy with less than 7 officers.<sup>24</sup> As a result, they are frequently unable to conduct proper surveillance. This severely compromises the effectiveness of these units.
- The DSTs recognize that at least 7 officers are required to conduct proper surveillance. However, because some of them are not formalized officially, they

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<sup>24</sup> Only one DST stated that it had a minimum staffing level of 7 officers while another DST stated that it had a minimum staffing level of 5 officers. The remaining 2 DSTs stated that they had no minimum staffing level.

are often prevented from calling out additional staff to ensure that they maintain a minimum staffing level of 7 officers. As a consequence, the officers in these DSTs often have to make the best out of the resources that they have on a given day. Of course, their ability to perform in those situations is limited because they use surveillance tactics and training that rely on at least 7 officers.

- Typically, foot surveillance is done by covert police officers in plainclothes and mobile surveillance is done by officers using covert vehicles (e.g. civilian vehicles that do not look like police vehicles). Currently, it is unclear whether the DSTs are authorized and certified to conduct both types of surveillance. The majority of people working in the DSTs have been trained and are certified only to conduct foot surveillance. However, anecdotal evidence suggests that some DSTs also often conduct mobile surveillance. This asymmetry between training and duties is likely to reduce the effectiveness of these units and may even expose the VPD to potential legal liabilities.
- Because 3 DSTs do not formally exist, they cannot readily obtain the specialized equipment that they require. When they were contacted by the Project Team, all the DSTs indicated that they currently do not have adequate or appropriate surveillance vehicles. Due to the nature of their work, these units require covert vehicles that do not appear to be police vehicles. Unfortunately, most teams reported that they often spend a considerable amount of time at the beginning of their shift trying to locate covert vehicles that they can use. This lack of covert vehicles engenders significant inefficiencies.

To assess the effectiveness of the existing DSTs, two case studies were conducted using data collected over a 6-month period. The number of charges laid by a DST was tentatively compared to the number of charges laid by a random sample of patrol officers from the same district. As shown in the following table, the regular patrol officers outperformed the DST in every category of violent crime and recorded a larger number of criminal charges overall, during the collection period. Interestingly, however, the DST obtained better results with thefts of vehicles and drug offences.



**Table 13-3 Charges Laid by the First District Surveillance Team and the Sample of Patrol Officers**

Type of Offence	Sample of Patrol Officers	District Surveillance Team A
<b>Violent Crime</b>		
Robbery	6	0
Assault with a Weapon	1	1
Assault	4	0
Threatening	2	0
<b>Property Crime</b>		
Break and Enter	5	4
Theft of Auto	0	5
Theft from Auto	1	1
Theft Under \$5000	15	8
Mischief under \$5000	4	0
Fraud Under \$5000	0	1
Possession of Stolen Property	0	3
Possession of Break-in Instruments	1	0
<b>Drug Offences</b>		
Possession for the Purpose of Trafficking	0	1
Possession of a Controlled Substance	1	3
<b>Other Offences</b>		
Breach Probation and Undertaking	8	9
Possession of a Weapon	1	0
Other Criminal Code Offences	5	0
<b>Total Number of Criminal Charges</b>	<b>54</b>	<b>36</b>

These preliminary findings were confirmed by a second case study based on a different patrol district. The performance of the patrol officers in these case studies is even more impressive when one considers that in addition to these criminal charges, patrol resources had to respond to 911 calls, complete various investigations that did not involve criminal charges, and constituted a visible deterrent to criminality. Despite the additional duties, regular patrol resources were able to outperform (at least in terms of raw numbers) the DST. No value was assigned to the targets that were arrested during this analysis. Even though they arrest fewer people, the DSTs are more likely to arrest chronic offenders they have targeted.

**Table 13-4 Charges Laid by the Second District Surveillance Team and the Sample of Patrol Officers**

<b>Type of Offence</b>	<b>Sample of Patrol Officers</b>	<b>District Surveillance Team B</b>
<b>Violent Crime</b>		
Forcible Confinement	1	0
Robbery	3	1
Aggravated Assault	1	0
Sexual Assault	1	0
Assault with a Weapon	3	0
Assault on a Police Officer	3	0
Assault	7	1
Threatening	1	0
<b>Property Crime</b>		
Break and Enter	1	0
Theft of Auto	0	3
Theft from Auto	4	3
Theft Under \$5000	30	20
Mischief Under \$5000	4	0
Fraud Under \$5000	4	2
Possession of Stolen Property	2	2
Possession of Break-in Instruments	0	3
<b>Drug Offences</b>		
Trafficking	0	6
Possession for the Purpose of Trafficking	0	1
Possession of a Controlled Substance	2	0
<b>Other Offences</b>		
Breach Probation and Undertaking	7	2
Possession of a Weapon	2	2
Other Criminal Code Offences	4	0
<b>Total Number of Criminal Charges</b>	<b>80</b>	<b>46</b>

The mandate of each DST is to target property crime offenders, prevent crime in their district and accomplish the strategic goals of the district. Some DSTs are used to battle drug traffickers while others are used to clean problem premises or to track repeat offenders. The successful use of the District 2 DST during Project Lucille, which targeted problem housing facilities and businesses, exemplifies this type of deployment.

Ultimately, there appears to be a discrepancy as to what each DST is used for. It is not surprising given that the majority of these DSTs do not formally exist and therefore

never received an official, clearly defined mandate and have not been assigned explicit performance goals. In general, DSTs are assigned work from a variety of sources including district analysts, patrol members, the chronic offender unit, confidential sources, and district managers. This is both expected and desirable. However, there is evidence that the DSTs are also being used by various VPD specialty squads such as the Sexual Offence Squad, the Major Crime Section, the Property Crime Unit and other VPD specialty squads. While it is understandable that DSTs may need to be used occasionally to help specialty squads meet organizational priorities, a consistent use of DSTs by specialty squads is highly concerning because, in effect, it would correspond implicitly to an drain of police resources away from patrol to investigative squads. In practice, DSTs would effectively be converted into additional Strike Force squads.<sup>25</sup> It should be noted that generally the DSTs assist with surveillance on serious cases (e.g. a recent murder case) when Strike Force doesn't have the capacity to conduct all the surveillance required.

In order for the DSTs to be effective, it is important that they have a clear understanding of their purpose both within the Department in general and their respective patrol district in particular. Overall, it is expected that formalizing the patrol surveillance function will normalize the staffing level in each DST, will standardize the training offered to each surveillance officer, will resolve the shortage of surveillance vehicles and will allow for capital budgeting and tactically sound equipment purchases.

Finally, preliminary benchmark data suggests that assigning a total of 30 Constables and 4 Sergeants to a patrol surveillance function is not a best practice in municipal law enforcement. Surveillance can be an effective investigative tool. However, it is a labour and resource-intensive activity that should be used sparingly and only when other, more cost-effective policing methods cannot be employed.

In light of this, it is recommended:

- THAT the patrol surveillance function at the VPD be formalized.

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<sup>25</sup> Strike Force is the VPD's premier surveillance squad and is part of the Operations Support Division.

- THAT the District Surveillance Team in District 1 (Team 11) and District 2 combine to create a Patrol North Surveillance Team (responsible for District 1 and District 2) comprised of 9 Constables and 1 Sergeant.
- THAT the District Surveillance Team in District 3 and District 4 combine to create a Patrol South Surveillance Team (responsible for District 3 and District 4) comprised of 9 Constables and 1 Sergeant.
- THAT the minimum staffing levels for the Patrol North Surveillance Team and the Patrol South Surveillance Team be set at 7 officers (including the supervisor). This is the minimum number of officers that are required to put in practice the surveillance strategies generally recognized as best practices in the field of law enforcement.
- THAT the proper equipment and resources be provided to the Patrol North Surveillance Team and the Patrol South Surveillance Team.
- THAT clear mandates for the patrol surveillance function be established. These mandates will clearly communicate to the people that work in these units and to others in the organization what the functions and priorities of these units are.
- THAT every officer working as part of the patrol surveillance function be trained in the use of mobile surveillance techniques via the Surveillance Techniques and Resources (STAR) course.
- THAT the Patrol North Surveillance Team be under the authority of the Patrol North Superintendent.
- THAT the Patrol South Surveillance Team be under the authority of the Patrol South Superintendent.

## **14 SPECIAL PATROL PROJECTS**

Currently, each district makes use of Charlie or Delta shift projects. However, the frequency and extent to which these projects are used varies by district. Typically, these projects involve using a patrol team that is scheduled on either a Charlie (14:00-01:00) or a Delta (16:00-04:00) shift to conduct undercover projects. It is important to note that a given district only uses one of the teams on these shifts, not both teams that are on Charlie and Delta shift. Because the VPD currently has three evening shifts, the redeployment of either a Charlie or a Delta shift squad into a surveillance capacity results in only two squads being left to respond to 911 calls and maintain a uniform presence in the given district.

The use of a Charlie or a Delta shift squad for proactive projects is a deployment strategy that has occurred for many years in the VPD. Historically, the use of Charlie and Delta shift projects was not as frequent or common as it is presently. Ten years ago, the redeployment of a patrol team that was on a Charlie or a Delta shift did not have a significant impact on the other patrol teams, as the utilization rate of patrol units was not as high in this era. In comparison, this same practice currently has a significant impact on the other patrol teams that are left to answer 911 calls as unit utilization rates are presently at record levels. The redeployment of a patrol team into a surveillance capacity only magnifies the over utilization of the remaining patrol resources, which in turn further degrades the service level that patrol units are able to provide.

Despite these disadvantages, many people are proponents of these projects. Some of the benefits of these projects are that they help to build team morale, enable junior patrol officers to learn new investigative methods, and enable each team to proactively resolve specific problems that they observe in the community. As a result of these benefits, some districts have supported the regular use of these projects.

There is a clear message in the Operations Division that officers should focus on “crime fighting” and try to proactively reduce the amount of criminal activity in their district. The commanding officers have been very creative in their efforts to drive crime down and

don't want their officers to be merely reactive. By resolving neighbourhood problems and targeting chronic offenders, officers hope to ultimately reduce the amount of crime in the future. This approach to crime fighting is well-grounded and supported by the literature; however, has to be weighed against other considerations when dealing with limited uniform patrol resources.

To examine the effectiveness of this deployment method, consider a hypothetical district that redeploys a Delta shift squad 50 percent of the time. This practice is typical as many districts will not engage in these projects on weekends or during times when call loads are high. Over an eight day period, four days are devoted to these projects. Devoting a patrol team for four out of every eight days, in effect results in the creation of another District Surveillance Team. This team undertakes proactive projects, but does not respond to 911 calls or maintain a uniform presence in the district. While this practice results in the creation of a quasi District Surveillance Team, it should be noted that patrol teams that undertake these activities will likely be less effective than an existing District Surveillance Team, as the latter are consistently deployed in this capacity and therefore enjoy learning curve effects based on the fact that they do this type of work each day. In addition, the District Surveillance Teams have more experienced officers, have more surveillance training, and are better equipped for these activities. In comparison, the patrol teams only periodically undertake this type of work are not as well trained in surveillance techniques and are not sufficiently equipped to undertake this action.

Given the previous discussion of how patrol members systematically outperformed their corresponding District Surveillance Team, the creation of additional or quasi-District Surveillance Teams should be called into question. If there is a need for this type of work, which currently cannot be accurately determined, then an additional District Surveillance Team should be formally created, as this team will be trained, equipped, and experienced in surveillance work. These characteristics enable the District Surveillance Teams to be more efficient and effective than patrol teams that only periodically do this type of work.

Many patrol members express that they want to have more time to undertake proactive projects and wish that they were not as busy as they currently are. However, it should be recognized that these two goals are incongruent. Patrol resources are currently scarce. As such, enabling a patrol team to consistently engage in plainclothes projects, which allows these patrol members to have essentially 100 percent unallocated time, only increases the workload placed on the remaining patrol units. This increase in utilization rate is further exacerbated by the District Surveillance Teams, whose officers also have virtually 100 percent unallocated time. Thus, in patrol there is presently a dichotomy of utilization rates, as some officers have very low utilization rates while other members are consistently over utilized. Complicating matters further is the fact that the redeployment of patrol resources to Charlie or Delta shift projects occurs in the evening when call loads are highest. As has already been shown in the Patrol Deployment Study, the VPD currently requires more patrol resources at these times.

Despite the benefits that arise from Charlie and Delta shift projects, their consistent use is not recommended by the Patrol Deployment Study Project Team. The redeployment of these resources often occurs at times of the day when additional patrol officers are required. The frequent use of these projects in effect creates additional District Surveillance Teams that are staffed on a rotating basis by the patrol teams. Deploying resources in this manner is inefficient. This was discussed and examined in the previous section on District Surveillance Teams. Fortunately, the District Surveillance Teams will be more efficient and effective at these types of projects due to their superior experience, training, and equipment. Rather than using a rotating base of patrol resources for these projects, the District Surveillance Teams should be used for targeted proactive projects. In the future, if it is determined that there is sufficient need for additional District Surveillance Teams, a business case should be presented examining both the benefits and drawbacks of deploying patrol resources in this manner. While the frequent and systematic use of Charlie and Delta projects is not supported by the Patrol Deployment Study Project Team, it should be noted that this recommendation by no means prevents such projects from occurring on occasion at the discretion of the management. Obviously, a problem in a district may occur that requires targeted action by patrol members that are deployed in plainclothes and are dedicated

to that project. The Patrol Deployment Study Project Team recognizes that managers should still have the ability and discretion to deploy the patrol resources in their district in the most effective and efficient manner possible. It is suggested that proposed projects should be accompanied by an operational plan and be reviewed by the district manager, who can determine if the proposed use of patrol resources is required given the nature of the problem, the potential costs, and likely impact on other patrol teams.



## 15 THE EMERGENCY RESPONSE TEAM

Officers in the Emergency Response Team (ERT) are widely recognized as highly trained and incredibly motivated police officers. ERT units have the tactical capabilities and the operational training necessary to handle the most dangerous situations and critical incidents. However, the Patrol Deployment Study Project Team believes that they could handle more calls for service that do not normally require a complex investigation or a long police report.

The mandate of ERT is to:

1. Provide specialized tactics and equipment to deal with critical incidents safely and professionally. Operationally, ERT takes on other responsibilities and roles that are not recorded in CAD. This includes, for instance, the time spent planning high-risk warrant executions. Often, 2 to 4 members are spending one to two shifts planning for a delicate operation. In addition, ERT units often "shadow" surveillance units when they are tracking "high-risk" targets. Such targets can include suspected kidnapers (as in the Graham McMynn case), bank robbers, home invaders, gang members and murderers. In the past, these activities have not been consistently recorded in the CAD system.
2. Maintain readiness via training and equipment maintenance. Currently, ERT members receive the majority of their training during their regular shift. The training schedule includes many different mandatory qualifications that reflect various tactical capabilities such as rappelling, marine interdiction, and the variety of weapons issued and available to the members. At least 3 times per year, the entire team spends a complete week in an advanced course so that there is an opportunity for combined and focused training. In addition to their own training, ERT members take on the responsibility for Cycle III training for the Operations Division. In 2006, a few ERT members spent approximately two weeks developing the training package for patrol members and then spent their

entire day shift providing training through September and October. None of these training activities were accounted for by the CAD system.

3. Act as a resource for units in the VPD. ERT regularly assists the Operations Division by conducting focused patrol duties on various priorities (and in specific target areas) as determined during the RAM meetings that are held every Thursday morning. Up until now, these projects by ERT have not been recorded effectively.

Between 2005-06-01 and 2006-05-31, according to the CAD system:

- A total of approximately 2,522 ERT units were deployed citywide (including 739 ERT supervisors). These 2,522 ERT units were composed of a total of 3,966 ERT officers. This implies that almost 6.9 ERT units were deployed each day on average between 2005-06-01 and 2006-05-31.
- ERT units were dispatched to a total of 1,934 calls and approximately 1.7 ERT units were dispatched to each of those calls. This implies that the Emergency Response Team handles 5.3 calls per day on average and each ERT unit is expected to be dispatched to 1.3 calls per day.
- ERT units spent a total of approximately 5,101 hours on the 1,934 calls for service they were dispatched to between 2005-06-01 and 2006-05-31. This corresponds to a total of 2 hours and 38 minutes per dispatched call<sup>26</sup> and approximately 2 hours of committed time per deployed ERT unit.<sup>27</sup>
- ERT units were the primary unit on only approximately 500 of the calls they were dispatched to between 2005-06-01 and 2006-05-31. This corresponds to less than 1.4 calls per day or 0.2 calls per deployed unit.
- ERT units generated a total of only 35 street checks (approximately 8 to 11 street checks per team).

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<sup>26</sup> For instance, this could translate into one ERT unit spending 2 hours and 38 minutes on a call or two ERT units spending 1 hour and 19 minutes on a call.

<sup>27</sup> ERT units will typically spend less time out of their shift on calls for service than regular patrol units because they spend a lot more time on specialized training and special projects (e.g. patrolling hot spots, attending locations that require a special attention).

**Table 15-1 Total Number of ERT Units Deployed**

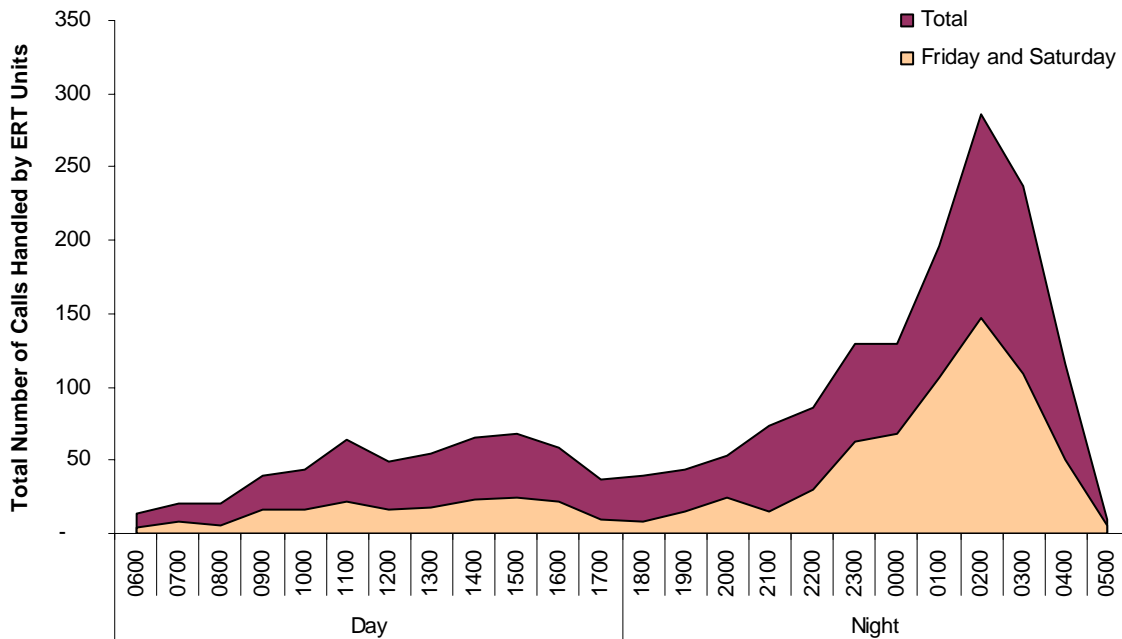
Call Sign		Total Number of Units Deployed
ERT NCOs	VA7Z51	188
	VA7Z52	177
	VA7Z53	184
	VA7Z54	190
Regular ERT Units	VA7Z11	109
	VA7Z12	62
	VA7Z14	58
	VA7Z15	44
	VA7Z16	78
	VA7Z17	33
	VA7Z18	11
	VA7Z21	75
	VA7Z22	85
	VA7Z24	80
	VA7Z25	82
	VA7Z26	29
	VA7Z27	80
	VA7Z28	11
	VA7Z31	115
	VA7Z32	108
	VA7Z34	125
	VA7Z35	14
	VA7Z36	34
	VA7Z37	38
	VA7Z38	9
	VA7Z39	2
	VA7Z41	94
	VA7Z42	124
	VA7Z43	3
	VA7Z44	64
	VA7Z45	113
	VA7Z46	38
	VA7Z47	44
	VA7Z48	14
VA7Z49	2	
Other	5	
<b>Total</b>		<b>2,522</b>
<b>Average per Day</b>		<b>6.91</b>

**Table 15-2 ERT at a Glance**

2005-06-01 to 2006-05-31	ERT	Regular Patrol	
Total Number of Units Deployed	2,522	33,347	units
Total Number of Units Dispatched	3,205	232,616	units
Total Number of Calls Dispatched	1,934	147,501	calls
Total Service Time on Calls for Service	5,101	196,778	hours
Number of Units Deployed per Day	6.9	91.4	units per day
Number of Units Dispatched per Call	1.7	1.6	units per call
Number of Calls Dispatched per Day	5.3	404.1	calls per day
Number of Calls Handled by Each Unit per Day	1.3	7.0	calls per unit
Average Service Time per Call for Service	2.6	1.3	hours per call
Average Committed Time per Deployed Unit	2.0	5.9	hours per unit

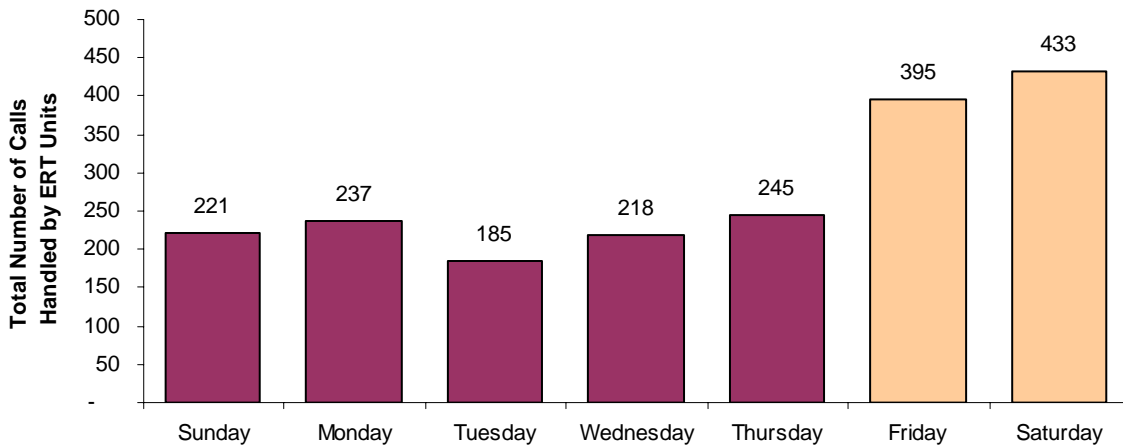
A larger proportion of the calls dispatched to ERT units between 2005-06-01 and 2006-05-31 were received at night. This is at least partially expected because proportionately more calls are received at night on average and some of the calls have the potential to become more serious at night.

**Figure 15-1 Total Number of Calls Handled by ERT Units by Hour of the Day**



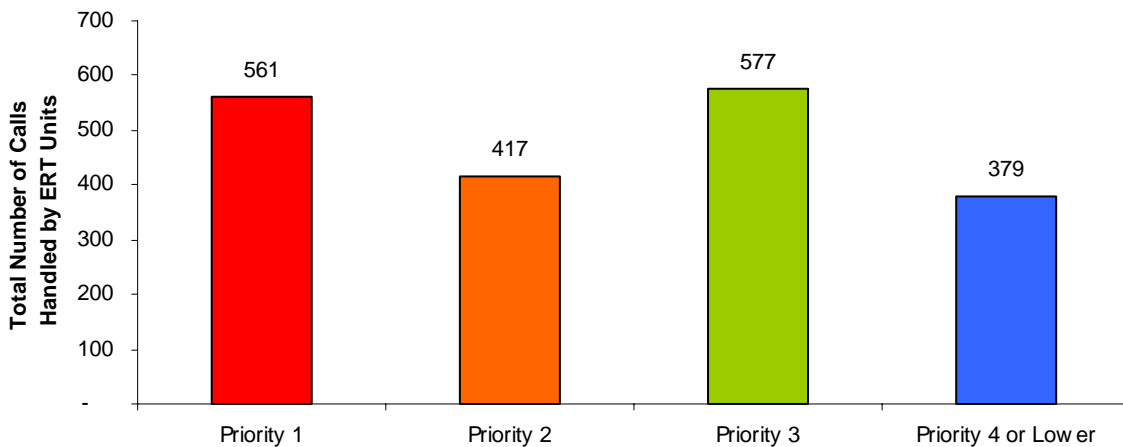
Moreover, ERT units were dispatched to noticeably more calls on Friday and Saturday. Again, this is expected because proportionately more calls for service are received during the weekend overall.

**Figure 15-2 Total Number of Calls Handled by ERT Units by Day of the Week**



As expected, ERT units tend to be dispatched to proportionately more high priority calls (i.e. priority 1 or 2 calls) than regular patrol units. Approximately 561 of the calls dispatched to ERT units between 2005-06-01 and 2006-05-31 were priority 1 calls, 417 were priority 2 calls, 577 were priority 3 calls and 379 were lower priority calls.

**Figure 15-3 Total Number of Calls Handled by ERT Units by Priority**



The data supports the idea that ERT units tend to handle more serious calls for service than regular patrol units. More than half of the 1,934 calls dispatched to ERT units consisted in:

- Weapons in progress
- Suspicious circumstances
- Fights
- Warrants
- Traffic suspensions
- Suspicious persons
- Shots heard or shots fired
- Request for assistance from the general public
- Break & enters in progress
- Assaults in progress
- Suicidal persons

Among the most serious incidents dispatched to ERT units, there were at least:

- 146 assaults (including 5 aggravated assaults and 84 assaults with a weapon or causing bodily harm).
- 85 weapon-related incidents.
- 69 impaired driving incidents.
- 59 robberies (including 28 robberies with a firearm and 12 robberies with another offensive weapon).
- 56 intelligence reports (including 31 gang-related intelligence reports).
- 46 break & enters (including 23 commercial break & enters and 20 residential break & enters).
- 26 thefts (including 5 thefts of vehicles).
- 25 mischiefs.
- 25 cases of possession of stolen property.
- 24 drug-related cases.
- 16 shots fired incidents.
- 14 kidnapping or forcible confinement cases.

- 8 attempted murders.
- 7 fraud cases.
- 4 sexual assaults.
- 4 sudden deaths.
- 3 murders.
- 3 arsons.
- 3 bomb threats (including at least one actual bomb).

ERT will be studied further during the Investigative Deployment Study (mini-business plans). In light of the empirical evidence readily available however, the Patrol Deployment Study Project Team recommends that, when ERT is not tied up on serious calls, training activities or special assignments, they reprioritize how they spend their unallocated time to handle more calls that do not usually require a report or lengthy investigation. This would include calls such as audible alarms, annoying circumstances, disturbance calls, fights, noise complaints and suspicious circumstances, persons and vehicles.

An expansion of ERT's involvement in patrol could ultimately reduce the workload of regular patrol units, increase the performance of patrol units and improve the service offered to the citizens of Vancouver by the VPD. Nevertheless, ERT units cannot be tied on lengthy, complex investigations or incidents requiring long police reports because they need to remain available to provide tactical support to patrol units.

## 16 STAFFING AND DEPLOYMENT OPTIONS

This section summarizes the staffing options available to the VPD. Each option will lead to substantial performance gains and service improvements for the citizens of Vancouver.

Thorough patrol deployment analysis informed by best practices and based on cutting-edge analytical models has determined that the VPD requires an additional 122 Constables and 7 to 11 Sergeants in patrol. This study has also identified some internal inefficiencies that need to be addressed in order to optimize the performance of VPD patrol operations.

Three options are presented with different deployment models for the additional officers that are recommended. Each option identifies proposed stages for implementing the new officers.

- Under Option A, the VPD implements a fixed 4-on-3-off Delta shift working from Wednesday to Saturday every week in addition to the other existing shifts. This is the most efficient option and it is recommended by the Project Team. Option A leads to a 7-minute average response time for priority 1 calls and an average utilization rate of 46%. This would place the VPD among the best practice police agencies in North America.
- Under Option B, the VPD implements a fixed 4-on-4-off Delta shift in addition to the other existing shifts. This is still a viable option but is less efficient than Option A.
- Under Option C, the VPD implements some changes to improve efficiency internally and maintains the existing shifting model. Unfortunately, peak times of inefficiency would remain under Option C. In turn, the impact of the new officers on the average priority 1 response time would be reduced and span of control issues would arise. This Option is not recommended by the Project Team.



Overall, Option A is the most efficient deployment model and is therefore recommended by the Patrol Deployment Study Project Team. Option B is the second most efficient model and Option C is the least efficient model.

Each of these options is explained below and details are provided as to how they could be staged. The financial implications of each option are also included.

## **16.1 OPTION A**

Under Option A, the VPD implements a fixed 4-on-3-off Delta shift working from Wednesday to Saturday every week in addition to the other existing shifts.

The relatively lower number of regular patrol officers deployed in the morning (between 0600 and 1200 hours) under Option A would be compensated by the fact that:

- Relatively more single-officer units would be deployed during the Alpha shift and the Bravo shift, in accordance with the findings presented in the section on two-officer deployment.
- The minimum staffing levels during the day would increase slightly, in accordance with the findings presented in the section on minimum staffing levels.
- Fewer priority 1 and 2 calls are received in the morning, as shown by the analysis of the call load by hour of the day.
- ERT units would be expected to handle more calls for service during the day, as recommended in the section on ERT.

### **16.1.1 Stage A1**

Under Stage A1, the VPD implements some changes to improve efficiency internally. Among others:

1. The District Surveillance Teams (DST) in District 1 (Team 11) and District 2 combine to create a Patrol North Surveillance Team (responsible for District 1

and District 2). This team is made up from the existing Sergeant and 6 Constables from District 1 Team 11 and 3 Constables from the District 2 DST. The remaining 4 Constables and Sergeant from District 2 DST return to their home teams. The DST in District 3 and District 4 combine to create a Patrol South Surveillance Team (responsible for District 3 and District 4). This team is made up from 5 Constables from the District 3 DST and 4 Constables from the District 4 DST. One additional authorized Sergeant position is required to supervise the Patrol South Surveillance Team. The remaining 5 Constables and 2 Sergeants from the District 3 and District 4 DST return to their home teams. The new North and South Surveillance Teams will be formalized teams that are fully staffed, properly equipped and trained.

2. A permanent fixed Delta shift is implemented in District 1. A total of 11 Constables from District 1 are reassigned to the permanent Delta shift in District 1. One authorized Constable position is deducted from Team 3 to Team 10 in District 1 (this frees up 8 Constables) and 3 Constables from the DST in District 1 are reassigned to the permanent Delta shift (for a total of 11 Constables). These Constable positions are already authorized. One new Sergeant is required to supervise the Permanent Delta team in District 1. The permanent Delta shift extends from 1800 to 0400 hours on Wednesday, Thursday, Friday and Saturday (4-on-3-off rotation).
3. The existing Delta shift continues to extend from 1600 to 0400 hours (as opposed to 0300 hours).
4. Special patrol-based projects are reduced (e.g. Charlie and Delta patrol projects). These projects are limited to situations that require targeted action by patrol officers in plainclothes to address a serious crime problem. These projects must be accompanied by an Operational Plan that is evaluated and approved by the District Inspector. These projects should not take place on Fridays or Saturdays between 1200 and 0400 hours.
5. Minimum staffing levels are properly adjusted to match the call load.

6. The 60-40 deployment split mandated by the Collective Agreement between the VPU and the Vancouver Police Board is enforced. This implies that the proportion of two-officer regular patrol units deployed decreases from approximately 65% to 60%.
7. A new policy is introduced to ensure that managers and supervisors maintain their actual patrol strength as close as possible to the authorized strength (at least in the long-run).
8. When ERT is not tied up on serious calls, training activities or special assignments, they reprioritize how they spend their unallocated time to handle more calls that do not usually require a report or lengthy investigation. This would include calls such as alarms, annoying circumstances, disturbance calls, noise complaints and suspicious circumstances, persons and vehicles.
9. Patrol operations are regularly monitored and evaluated. The following performance measures are measured and analyzed on an annual basis at year-end:
  - Number of calls recorded, dispatched and attended
  - Total number of patrol officers deployed
  - Proportion of two-officer units deployed
  - Average proportion of unallocated (proactive policing) and allocated time (reactive policing)
  - Average response time for priority 1, 2, 3 and 4 calls
  - Average service time
  - Average number of units and officers per call
  - Clearance rates
  - Number of cancelled calls for service
  - Number of on-view calls
  - Number of on-view criminal offences
  - Number of street checks
  - Number of traffic tickets

- Number of report errors (e.g. “Bring Forwards”)

**Net Staffing Request**

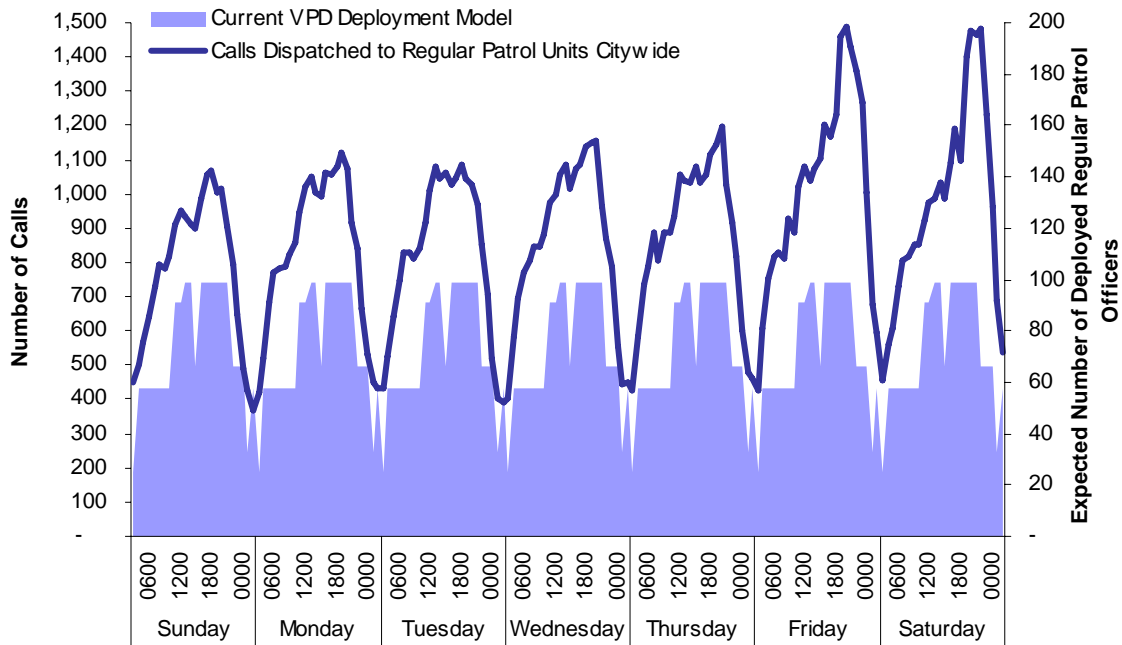
2 Sergeants (one for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

**Net Gains**

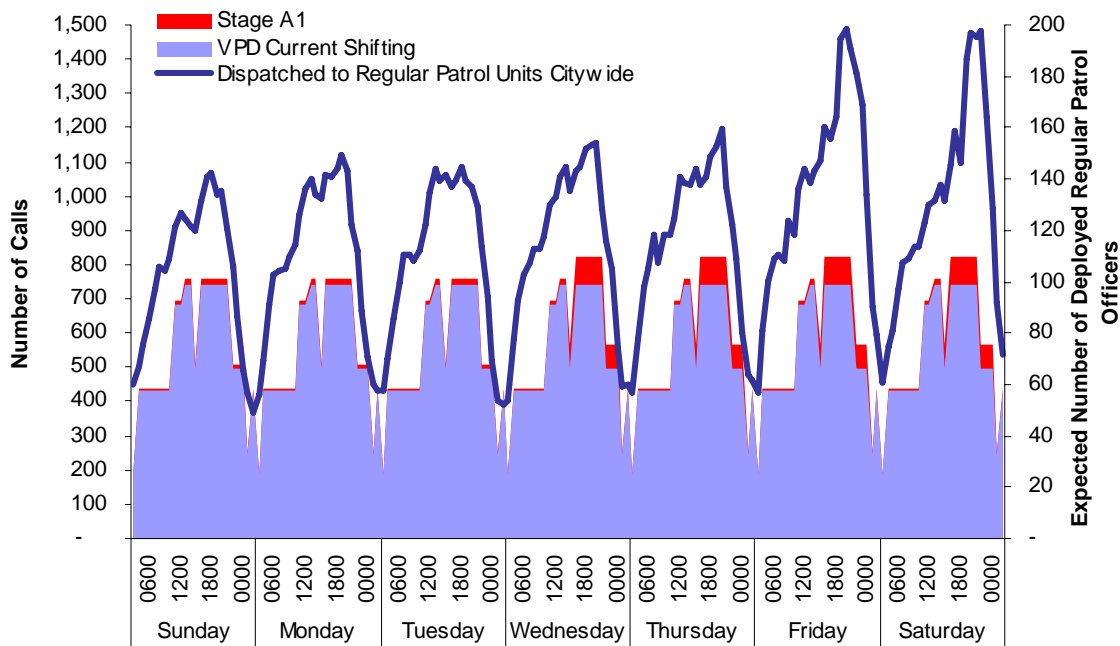
- Internal efficiency gains.
- Permanent Delta Team in District 1.
- Consolidated Patrol Surveillance teams that are formalized.
- More proactive time for patrol officers.

The following two graphs show how the call load by hour of the day and day of week relates to the patrol staffing implied by the current VPD shifting model and the patrol staffing expected under Stage A1.

**Figure 16-1 Call Load and Patrol Staffing Under the Current VPD Deployment Model**



**Figure 16-2 Call Load and Patrol Staffing Under Stage A1**



**Predicted Change in the Average Response Time**

Citywide, the adjustments proposed under Stage A1 are expected to lead to a decrease of approximately 31 seconds in the average priority 1 response time. More specifically, the average priority 1 travel time would be reduced by approximately 21 seconds in District 1, 14 seconds in District 2, 54 seconds in District 3 and 33 seconds in District 4.

This would imply that the average priority 1 response time would then decrease to 10 minutes and 54 seconds.

For its part:

- The average response time to priority 2 calls would be expected to fall by approximately 1 minute and 34 seconds to 33 minutes and 3 seconds.
- The average response time to priority 3 calls would be expected to fall by approximately 8 minutes and 6 seconds to 1 hour and 58 minutes.

- The average response time to priority 4 calls would be expected to fall by approximately 31 minutes and 32 seconds to 4 hours and 54 minutes.

### **Expected Change in the Average Utilization Rate**

The implementation of an improved deployment model using existing resources deployed more efficiently should achieve a utilization rate in the 60% to 65% range.

## **16.1.2 Stage A2**

Under Stage A2, the VPD implements the changes suggested under Stage A1 and creates a Metro Team comprised of 28 Constables and 2 Sergeants working from 1500 to 0200 hours on a 4-on-4-off schedule (one team of 14 Constables and 1 Sergeant on the even side and 14 Constables and 1 Sergeant on the odd side). The Metro Team requires the standard patrol equipment supplied to patrol units (including cars, laptops and radios) as well as 10 cell phones (one per deployed unit).

### **Net Staffing Request**

2 Sergeants (one for the permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

28 Constables and 2 Sergeants (two Metro Teams comprised of 14 Constables and 1 Sergeant each) and equipment for the Metro Team.

= 28 Constables and 4 Sergeants.

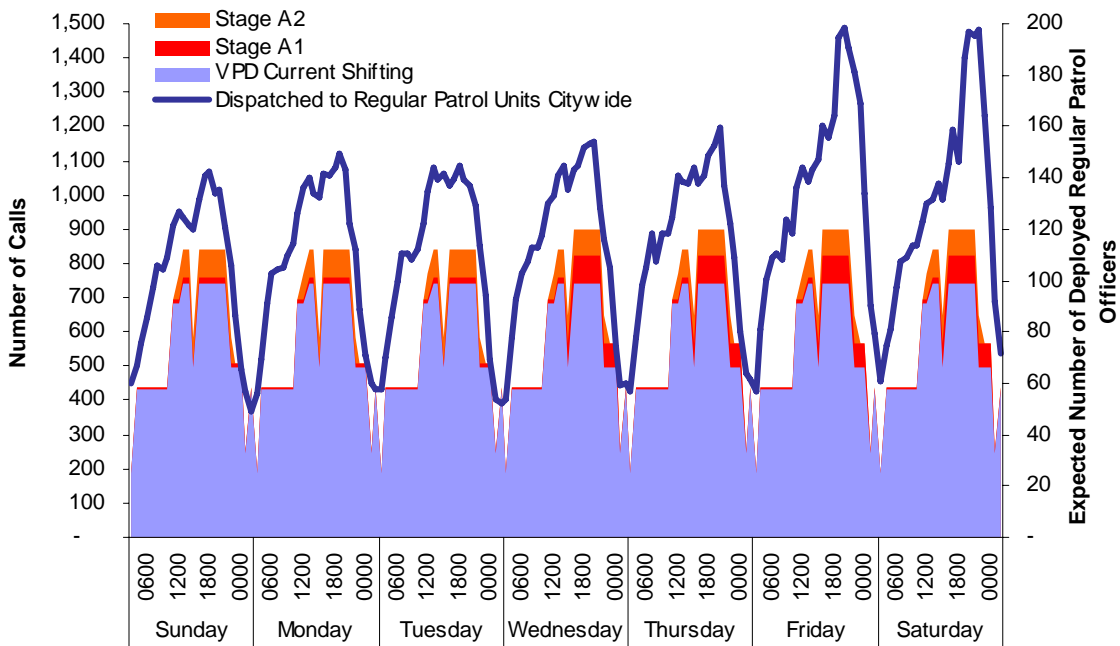
### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in District 1.
- Consolidated Patrol Surveillance teams that are formalized.

- Metro Team providing a highly flexible response team deployable citywide.
- More proactive time for patrol officers.

The following graph shows how the call load by hour of the day and day of week would compare to the patrol staffing under Stage A2.

**Figure 16-3 Call Load and Patrol Staffing Under Stage A2**



### Predicted Change in the Average Response Time

When the adjustments from Stage A1 are taken into account, the citywide average priority 1 response time would decrease by approximately 1 minute and 13 seconds under Stage A2. More specifically, the average priority 1 travel time would be reduced by 26 seconds in District 1, 27 seconds in District 2, 1 minute and 13 seconds in District 3 and 52 seconds in District 4. Since patrol units would be readily available to be dispatched more often, the average queuing delay could also decrease by up to 28 seconds.

This would imply that the average priority 1 response time would then decrease to 10 minutes and 12 seconds.

For its part:

- The average response time to priority 2 calls would be expected to fall by approximately 3 minutes and 9 seconds to 31 minutes and 28 seconds.
- The average response time to priority 3 calls would be expected to fall by approximately 15 minutes and 56 seconds to 1 hour and 50 minutes.
- The average response time to priority 4 calls would be expected to fall by approximately 54 minutes and 57 seconds to 4 hours and 31 minutes.

### **Expected Change in the Average Utilization Rate**

The deployment of the citywide Metro Team is expected to lead to an average utilization rate of 58%. This would imply an improvement of 7 percentage points compared to the 2005 average utilization rate of 65%.

### **16.1.3 Stage A3**

Under Stage A3, the VPD implements the changes suggested under Stage A1 and Stage A2. It also implements a permanent delta shift in District 2, District 3 and District 4. As in District 1, the permanent Delta shift in District 2, District 3 and District 4 work between 1800 to 0500 hours on Wednesday, Thursday, Friday and Saturday (4-on-3-off rotation). This requires a total of 30 Constables and 3 Sergeants (10 Constables and 1 Sergeant per team) in addition to the staffing request under Stage A2.

#### **Net Staffing Request**

2 Sergeants (one for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

28 Constables and 2 Sergeants (two Metro Teams comprised of 14 Constables and 1 Sergeant each) and equipment for the Metro Team.



30 Constables and 3 Sergeants (10 Constables and 1 Sergeant per team in District 2, District 3 and District 4).

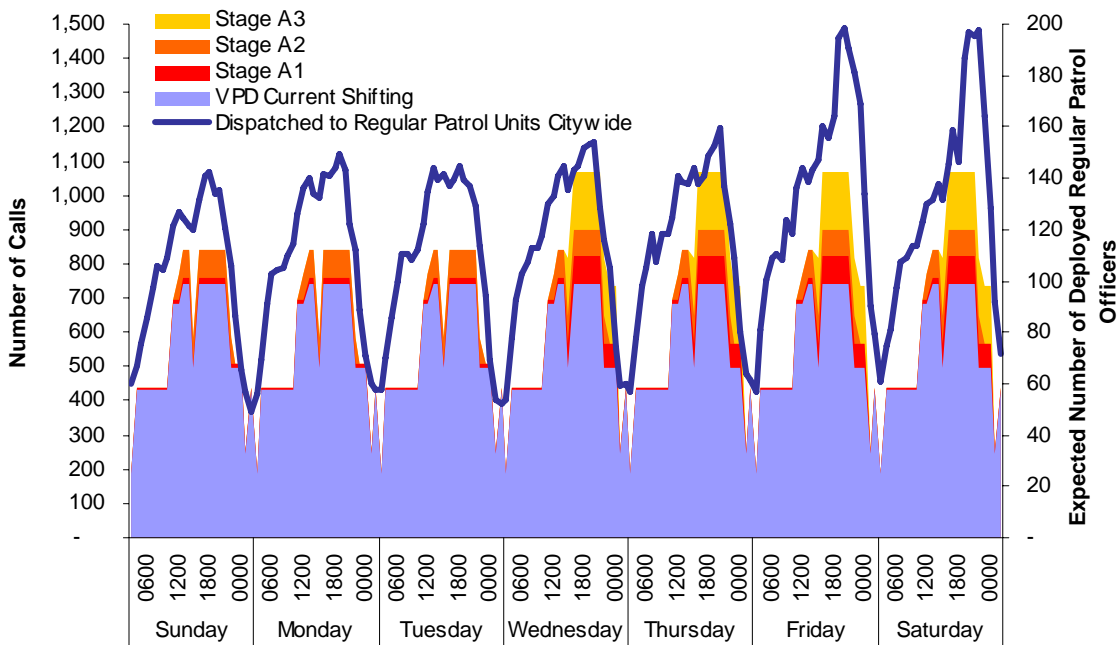
= 58 Constables and 7 Sergeants.

**Net Gains**

- o Internal efficiency gains.
- o Permanent Delta Team in all patrol districts.
- o Consolidated Patrol Surveillance teams that are formalized.
- o Metro Team providing a highly flexible response team deployable citywide.
- o More proactive time for patrol officers.

The following graph shows how the call load by hour of the day and day of week would compare to the patrol staffing under Stage A3.

**Figure 16-4 Call Load and Patrol Staffing Under Stage A3**



**Predicted Change in the Average Response Time**

When the adjustments from Stage A1 and Stage A2 are taken into account, the citywide average priority 1 response time would decrease by approximately 2 minutes and 10 seconds under Stage A3. More specifically, the average priority 1 travel time would be reduced by 26 seconds in District 1, 50 seconds in District 2, 1 minute and 50 seconds in District 3 and 1 minute and 41 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 58 seconds.

This would imply that the average priority 1 response time would then decrease to 9 minutes and 15 seconds.

For its part:

- The average response time to priority 2 calls would be expected to fall by approximately 5 minutes and 15 seconds to 29 minutes and 22 seconds.
- The average response time to priority 3 calls would be expected to fall by approximately 25 minutes and 43 seconds to 1 hour and 40 minutes.
- The average response time to priority 4 calls would be expected to fall by approximately 1 hour and 29 minutes to 3 hours and 56 minutes.

### **Expected Change in the Average Utilization Rate**

The deployment of the citywide Metro Team and 58 additional patrol constables throughout District 2, District 3 and District 4 is expected to lead to an average utilization rate of 54%. This would imply an improvement of 11 percentage points compared to the 2005 average utilization rate of 65%.

#### **16.1.4 Stage A4**

Under Stage A4, the VPD implements the changes suggested under Stage A1, Stage A2 and Stage A3. It also assigns a total of 24 additional Constables in District 2, District 3 and District 4. The additional Constables would allow the VPD to backfill the patrol surveillance positions that were previously included in the official authorized strength.

This implies that 3 Constables would be allocated to District 2 to backfill the authorized positions that were transferred to the Patrol North Surveillance Team and a total of 9 additional Constables would be allocated to District 3 and District 4 to backfill the authorized positions that were transferred to the Patrol South Surveillance Team. Approximately 3 additional Constables would be allocated to the Alpha shift (Team 1 or 2) in District 3 and 3 Constables would be allocated to the Alpha shift in District 4. The remaining 6 Constables would be divided between the existing patrol squads.

### **Net Staffing Request**

2 Sergeants (one for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

28 Constables and 2 Sergeants (two Metro Teams comprised of 14 Constables and 1 Sergeant each) and equipment for the Metro Team.

30 Constables and 3 Sergeants (10 Constables and 1 Sergeant per team in District 2, District 3 and District 4).

24 Constables (including 3 Constables on the Alpha shift in District 3, 3 Constables on the Alpha shift in District 4, 3 Constables in District 2 to backfill the authorized positions that were transferred to the Patrol North Surveillance Team and a total of 9 additional Constables in District 3 and District 4 to backfill the authorized positions that were transferred to the Patrol South Surveillance Team).

= 82 Constables and 7 Sergeants.

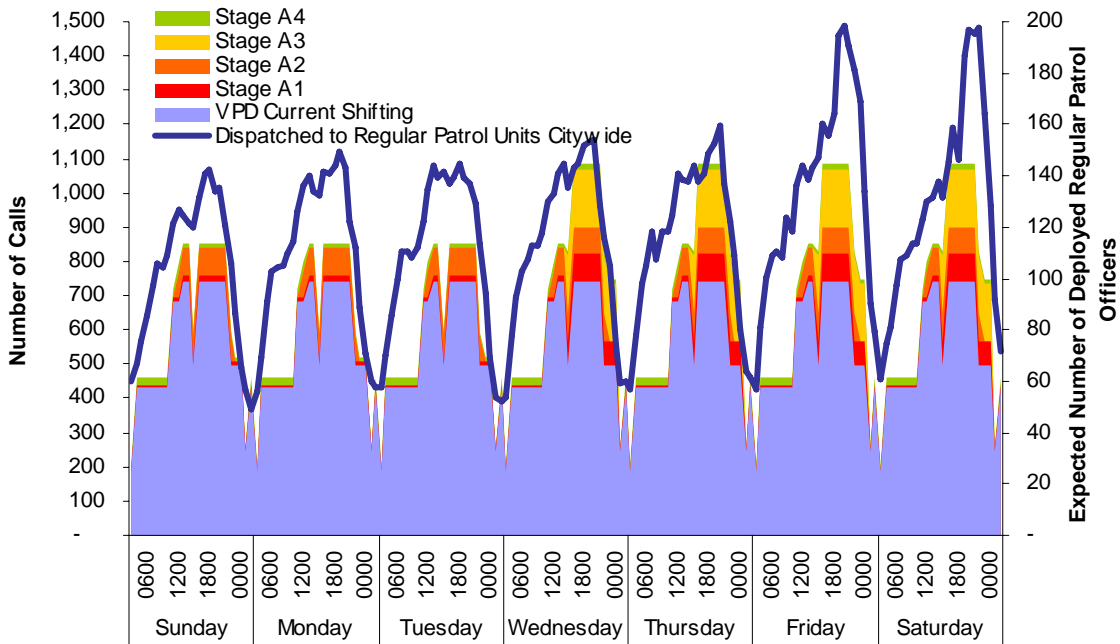
### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in all patrol districts.
- Consolidated Patrol Surveillance teams that are formalized.
- Metro Team providing a highly flexible response team deployable citywide.

- Slightly larger patrol teams (including larger Alpha teams).
- More proactive time for patrol officers.

The following graph shows how the call load by hour of the day and day of week would compare to the patrol staffing under Stage A4.

**Figure 16-5 Call Load and Patrol Staffing Under Stage A4**



**Predicted Change in the Average Response Time**

When the adjustments from Stage A1, Stage A2 and Stage A3 are taken into account, the citywide average priority 1 response time would decrease by approximately 3 minutes and 13 seconds under Stage A4. More specifically, the average priority 1 travel time would be reduced by 26 seconds in District 1, 1 minute and 21 seconds in District 2, 2 minutes and 43 seconds in District 3 and 2 minutes and 54 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 22 seconds.

This would imply that the average priority 1 response time would then decrease to 8 minutes and 12 seconds.

For its part:

- The average response time to priority 2 calls would be expected to fall by approximately 6 minutes and 24 seconds to 28 minutes and 13 seconds.
- The average response time to priority 3 calls would be expected to fall by approximately 31 minutes and 13 seconds to 1 hour and 35 minutes.
- The average response time to priority 4 calls would be expected to fall by approximately 1 hour and 45 minutes to 3 hours and 40 minutes.

### **Expected Change in the Average Utilization Rate**

The deployment of additional patrol resources is expected to lead to an average utilization rate of 50% in every patrol district. This would imply an improvement of 15 percentage points compared to the 2005 average utilization rate of 65%.

Optimal staffing deployment would be achieved using the lowest total number of officers, the lowest number of new teams and 4 fewer new Sergeant positions.

### **16.1.5 Stage A5**

Under Stage A5, the patrol authorized strength would increase by a total of 122 Constables. The first 82 Constables would allow the VPD to implement all the recommendations proposed under Stage A1 to A4. The 40 remaining officers would allow the VPD to reach an average priority 1 response time of approximately 7 minutes. In practice, the authorized strength of each patrol squad (Team 1 to Team 10 in each patrol district) could increase by one Constable. The average priority 1 response time of 7 minutes is generally recognized as a best practice in the field of law enforcement.

### **Net Staffing Request**

2 Sergeants (one for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

28 Constables and 2 Sergeants (two Metro Teams comprised of 14 Constables and 1 Sergeant each) and equipment for the Metro Team.

30 Constables and 3 Sergeants (10 Constables and 1 Sergeant per team in District 2, District 3 and District 4).

24 Constables (including 3 Constables on the Alpha shift in District 3, 3 Constables on the Alpha shift in District 4, 3 Constables in District 2 to backfill the authorized positions that were transferred to the Patrol North Surveillance Team and a total of 9 additional Constables in District 3 and District 4 to backfill the authorized positions that were transferred to the Patrol South Surveillance Team).

40 Constables (one additional Constable in each patrol squad in each patrol district).

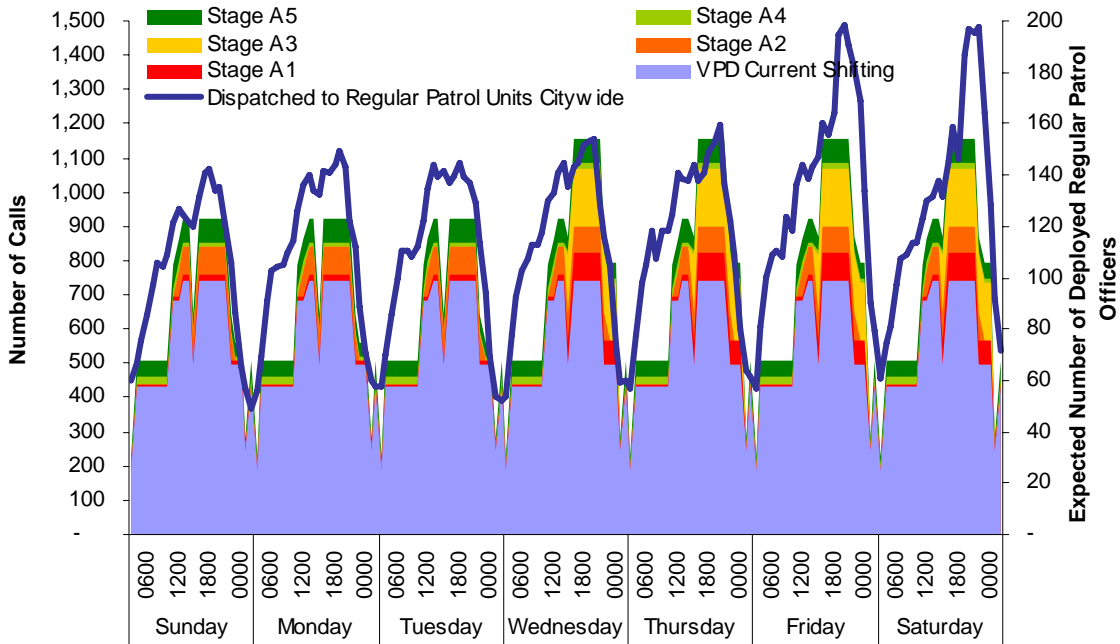
= 122 Constables and 7 Sergeants.

### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in all patrol districts.
- Consolidated Patrol Surveillance teams that are formalized.
- Metro Team providing a highly flexible response team deployable citywide.
- Slightly larger patrol teams (including larger Alpha teams).
- Best practice priority 1 response time of approximately 7 minutes (excluding motor vehicle incidents with injuries).
- More proactive time for patrol officers.

The following graph shows how the call load by hour of the day and day of week would compare to the patrol staffing under Stage A5.

**Figure 16-6 Call Load and Patrol Staffing Under Stage A5**



**Predicted Change in the Average Response Time**

Under Stage A5, the citywide average priority 1 response time would decrease by approximately 4 minutes and 25 seconds. More specifically, the average priority 1 travel time would be reduced by 39 seconds in District 1, 1 minute and 49 seconds in District 2, 3 minutes and 26 seconds in District 3 and 3 minutes and 55 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 59 seconds.

Under Stage A5, the additional patrol resources allow the VPD to obtain a 7-minute average travel time.

For its part:

- The average response time to priority 2 calls would be expected to fall by approximately 7 minutes and 24 seconds to 27 minutes and 13 seconds.

- The average response time to priority 3 calls would be expected to fall by approximately 36 minutes and 44 seconds to 1 hour and 29 minutes.
- The average response time to priority 4 calls would be expected to fall by approximately 2 hours and 4 minutes to 3 hours and 22 minutes.

### **Predicted Change in the Average Utilization Rate**

The deployment of 122 additional Constables in patrol is expected to lead to an average utilization rate of 46% in District 1 and District 2 and 47% in District 3 and District 4. This would imply an improvement of 19 percentage points compared to the 2005 average utilization rate of 65%.

### **16.1.6 Summary of Option A**

The following table shows summarizes how patrol staffing would be allocated under each stage of Option A.



**Table 16-1 Actual Patrol Strength Under Option A's Staffing Options**

	Current		Stage A1		Stage A2		Stage A3		Stage A4		Stage A5	
	Constables*	Sergeants	Constables	Sergeants	Constables	Sergeants	Constables	Sergeants	Constables	Sergeants	Constables	Sergeants
D1 Team 1-2	18	2	18	2	18	2	18	2	18	2	20	2
D1 Team 3-10	104	8	96	8	96	8	96	8	96	8	104	8
D1 Fixed Delta	-	-	11	1	11	1	11	1	11	1	11	1
D2 Team 1-2	18	2	18	2	18	2	18	2	18	2	20	2
D2 Team 3-10	73	7	77	8	77	8	77	8	82	8	90	8
D2 Fixed Delta	-	-	-	-	-	-	10	1	10	1	10	1
D3 Team 1-2	15	2	15	2	15	2	15	2	18	2	20	2
D3 Team 3-10	97	7	100	8	100	8	100	8	106	8	114	8
D3 Fixed Delta	-	-	-	-	-	-	10	1	10	1	10	1
D4 Team 1-2	15	2	15	2	15	2	15	2	18	2	20	2
D4 Team 3-10	81	7	83	8	83	8	83	8	90	8	98	8
D4 Fixed Delta	-	-	-	-	-	-	10	1	10	1	10	1
District Surveillance	30	4	18	2	18	2	18	2	18	2	18	2
Metro Team	-	-	-	-	28	2	28	2	28	2	28	2
<b>Total</b>	<b>451</b>	<b>41</b>	<b>451</b>	<b>43</b>	<b>479</b>	<b>45</b>	<b>509</b>	<b>48</b>	<b>533</b>	<b>48</b>	<b>573</b>	<b>48</b>
<b>Required Increase</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>28</b>	<b>4</b>	<b>58</b>	<b>7</b>	<b>82</b>	<b>7</b>	<b>122</b>	<b>7</b>

\* The number of Constables in District 2, District 3 and District 4 includes some Acting Sergeants.

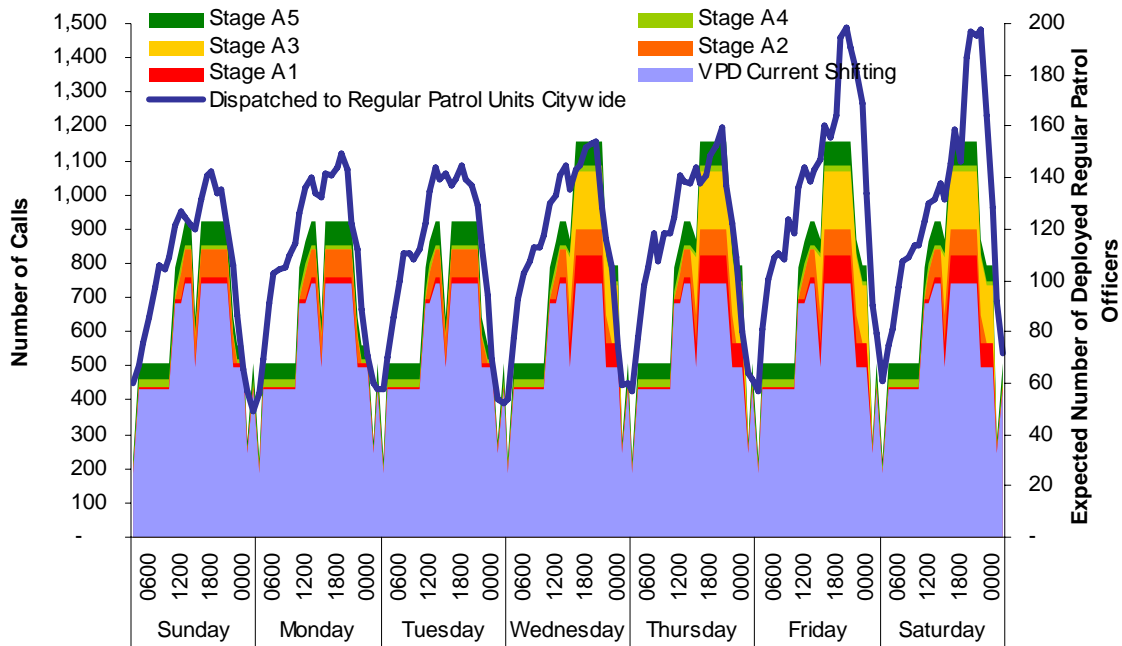
The following table summarizes the required staffing increase, the projected average priority 1 response time, the projected average utilization rate and the estimated correlation between staffing and call load under each stage of Option A.

**Table 16-2 Staffing Implications for Option A**

		FTE			Expected Performance			
		Sgt.	Cst.	Total FTE	Average P1 Response Time	Decrease in Average P1 Response Time	Average Utilization Rate	Correlation Between Staffing and Call Load
	Current				0:11:25		65.0%	0.770
<b>Option A</b>	Stage A1	2	0	<b>2</b>	0:10:54	0:00:31	65.0%	0.805
	Stage A2	4	28	<b>32</b>	0:10:12	0:01:13	58.0%	0.816
	Stage A3	7	58	<b>65</b>	0:09:15	0:02:10	54.0%	0.838
	Stage A4	7	82	<b>89</b>	0:08:12	0:03:13	50.0%	0.839
	Stage A5	7	122	<b>129</b>	0:07:00	0:04:25	46.0%	0.839

The following graph illustrates how patrol staffing would increase to match the call load under each stage of Option A. Graphically, the most significant gains would be obtained under A3, when fixed Delta teams are implemented in District 2, District 3 and District 4.

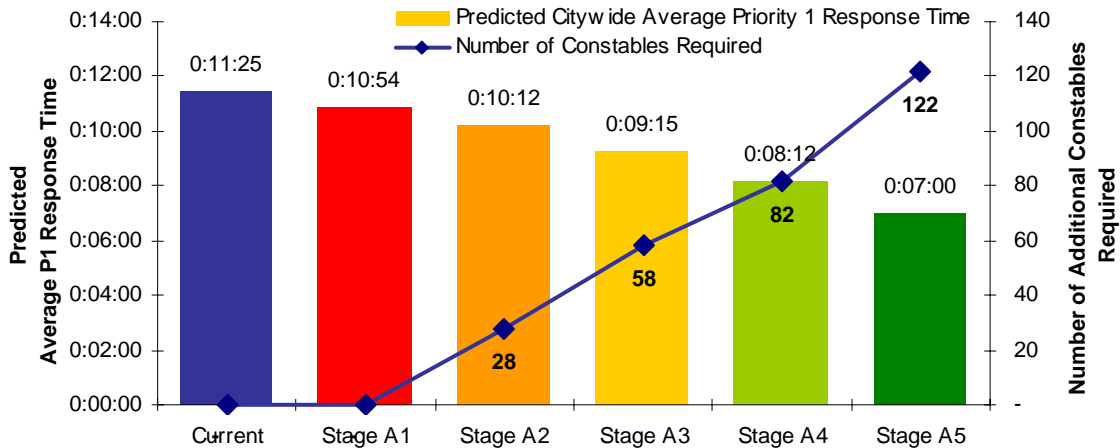
**Figure 16-7 Call Load and Patrol Staffing Under Option A**



The following graph illustrates how the average priority 1 response time would decrease as patrol staffing increases under each stage of Option A. The average priority 1

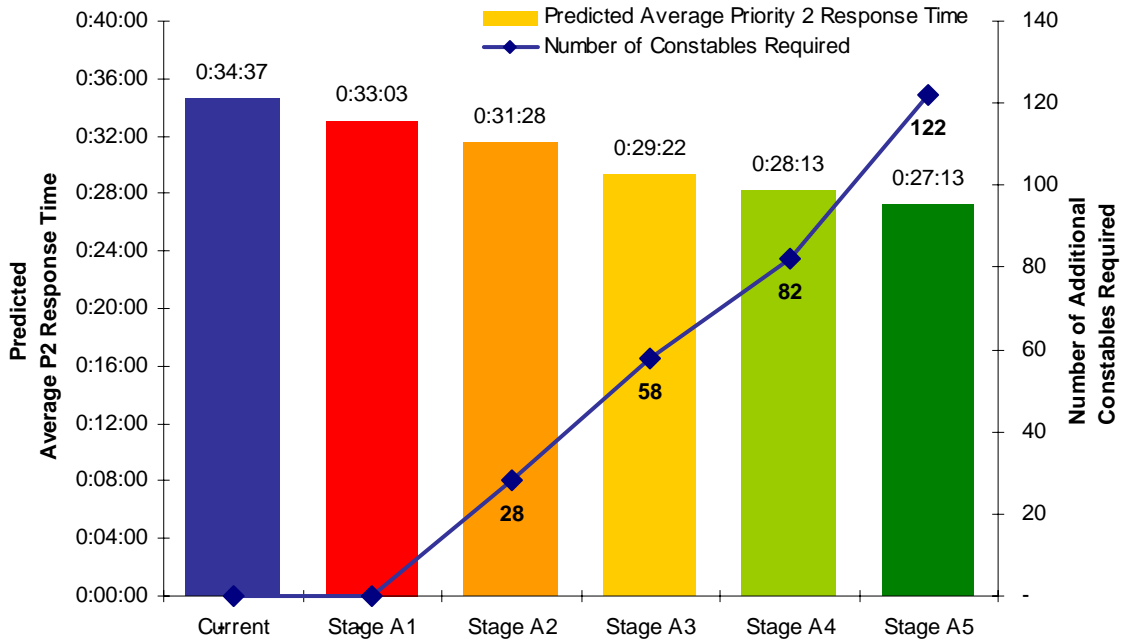
response time would be expected to decrease to 10 minutes and 54 seconds under A1, 10 minutes and 12 seconds under A2, 9 minutes and 15 seconds under A3, 8 minutes and 12 seconds under A4 and 7 minutes under A5.

**Figure 16-8 Number of Additional Constables and Predicted Average Priority 1 Response Time Under Option A**



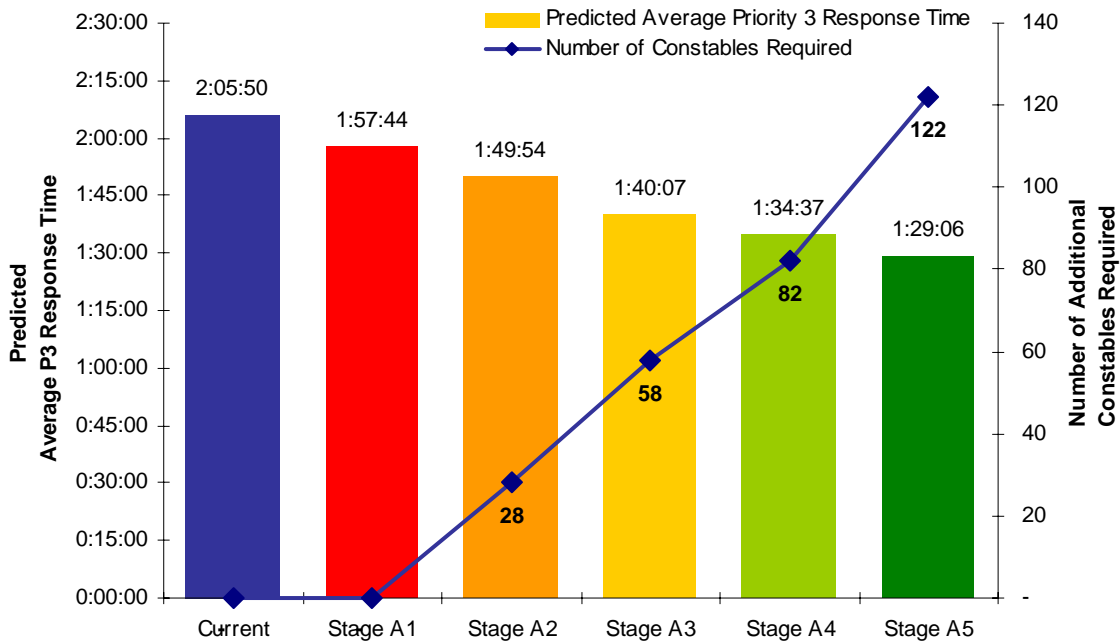
The following graph illustrates how the average priority 2 response time would decrease as patrol staffing increases under each stage of Option A. The average priority 2 response time would be expected to decrease to 33 minutes and 3 seconds under A1, 31 minutes and 28 seconds under A2, 29 minutes and 22 seconds under A3, 28 minutes and 13 seconds under A4 and 27 minutes and 13 seconds under A5.

**Figure 16-9 Number of Additional Constables and Predicted Average Priority 2 Response Time Under Option A**



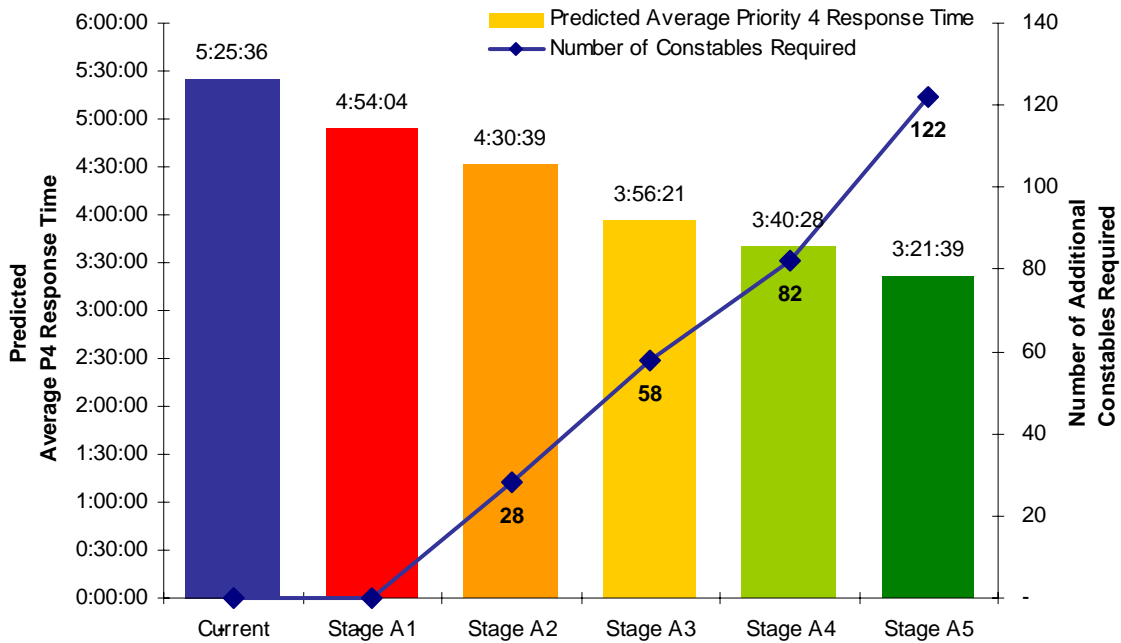
The following graph illustrates how the average priority 3 response time would decrease as patrol staffing increases under each stage of Option A. The average priority 3 response time would be expected to decrease to 1 hour and 58 minutes under A1, 1 hour and 50 minutes under A2, 1 hour and 40 minutes under A3, 1 hour and 35 minutes under A4 and 1 hour and 29 minutes under A5.

**Figure 16-10 Number of Additional Constables and Predicted Average Priority 3 Response Time Under Option A**



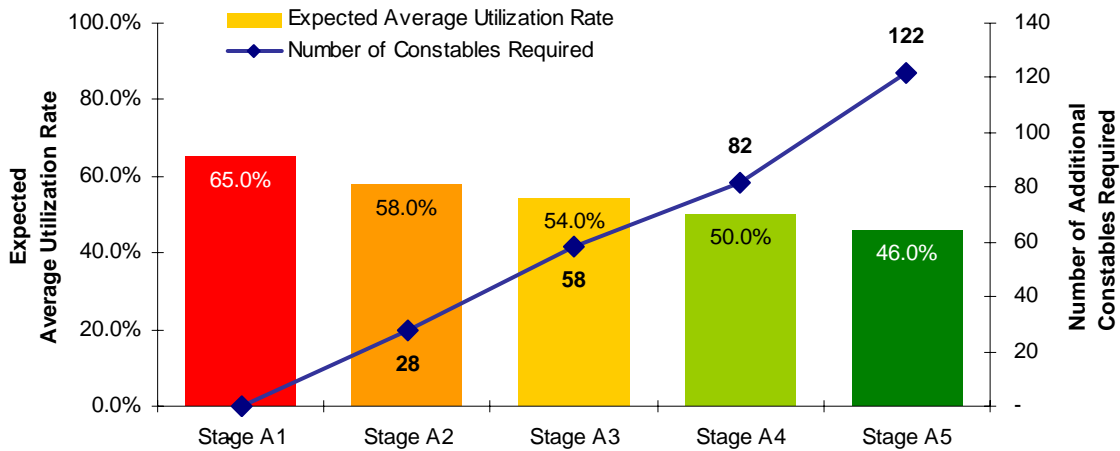
The following graph illustrates how the average priority 4 response time would decrease as patrol staffing increases under each stage of Option A. The average priority 4 response time would be expected to decrease to 4 hours and 54 minutes under A1, 4 hours and 31 minutes under A2, 3 hour and 56 minutes under A3, 3 hours and 40 minutes under A4 and 3 hours and 22 minutes under A5.

**Figure 16-11 Number of Additional Constables and Predicted Average Priority 4 Response Time Under Option A**



The following graph illustrates how the average utilization rate would decrease as patrol staffing increases under each stage of Option A. The average utilization rate would be expected to decrease to 58% under A2, 54% under A3, 50% under A4 and 46% under A5.

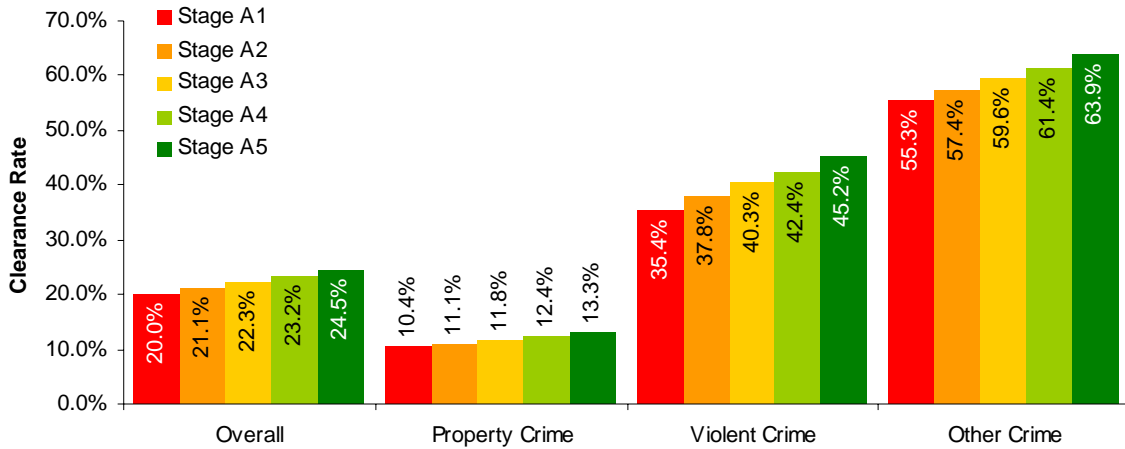
**Figure 16-12 Number of Additional Constables and Predicted Average Utilization Rate Under Option A**



The following graph illustrates how the clearance rate would increase with patrol staffing under each stage of Option A. The overall clearance rate would be expected to increase to 21.1% under A2, 22.3% under A3, 23.2% under A4 and 24.5% under A5. In particular:

- The property crime clearance rate would be expected to increase to 11.1% under A2, 11.8% under A3, 12.4% under A4 and 13.3% under A5.
- The violent crime clearance rate would be expected to increase to 37.8% under A2, 40.3% under A3, 42.4% under A4 and 45.2% under A5.
- The other crime clearance rate would be expected to increase to 57.4% under A2, 59.6% under A3, 61.4% under A4 and 63.9% under A5.

**Figure 16-13 Predicted Clearance Rates Under Option A**



The following table summarizes the required staffing increase, the fleet requirements and the financial implications under each stage of Option A.

**Table 16-3 Financial Summary for Option A**

Option A	FTE			Fleet	Financial Summary	
	Sergeants	Constables	Total		One Time Cost	Annual Operating Costs
Stage A1	2	0	2	12	\$ 65,490	\$ 529,785
Stage A2	4	28	32	22	\$ 481,140	\$ 3,855,795
Stage A3	7	58	65	43	\$ 910,680	\$ 7,865,535
Stage A4	7	82	89	47	\$1,249,360	\$ 10,419,015
Stage A5	7	122	129	54	\$1,780,960	\$ 14,602,410

The table on the next page shows the detailed financial implications of each stage of Option A.



**Table 16-4 Financial Details for Option A**

		<b>Stage A1</b>	<b>Stage A2</b>	<b>Stage A3</b>	<b>Stage A4</b>	<b>Stage A5</b>
<b>FTE</b>	Sergeants	2	4	7	7	7
	Constables	0	28	58	82	122
	<b>Total</b>	<b>2</b>	<b>32</b>	<b>65</b>	<b>89</b>	<b>129</b>
<b>Fleet</b>	Marked	2	12	33	37	44
	Unmarked	10	10	10	10	10
	<b>Total</b>	<b>12</b>	<b>22</b>	<b>43</b>	<b>47</b>	<b>54</b>
<b>Annual Operating Costs</b>	Salaries & Benefits	\$ 244,950	\$ 2,903,100	\$ 5,789,525	\$ 7,931,425	\$ 11,407,325
	Uniforms & Equipment	12,230	75,600	145,315	196,025	280,525
	Facilities (Lockers/Workstations & Renovations)	16,315	91,315	201,555	261,555	372,870
	E-Comm & Prime (Laptop & Radios)	87,720	218,720	483,740	561,820	694,180
	IT - Computers & Softwares	400	6,400	13,000	17,800	25,800
	Fleet	158,000	398,000	902,000	998,000	1,166,000
	Administrative Costs	10,170	162,660	330,400	452,390	655,710
	<b>Total</b>	<b>529,785</b>	<b>3,855,795</b>	<b>7,865,535</b>	<b>10,419,015</b>	<b>14,602,410</b>
<b>One-Time Costs</b>	Salaries & Benefits	\$ 800	\$ 12,800	\$ 26,000	\$ 35,600	\$ 51,600
	Uniforms & Equipment	41,840	309,440	603,800	817,880	1,174,680
	Facilities (Lockers/Workstations & Renovations)	3,400	85,400	119,650	195,250	288,550
	E-Comm & Prime (Laptop & Radios)	16,200	43,500	102,900	120,900	150,000
	IT - Computers & Softwares	2,200	13,200	24,200	33,000	48,400
	Fleet	-	-	-	-	-
	Administrative Costs	1,050	16,800	34,130	46,730	67,730
	<b>Total</b>	<b>65,490</b>	<b>481,140</b>	<b>910,680</b>	<b>1,249,360</b>	<b>1,780,960</b>
<b>Total Cost</b>	<b>\$ 595,275</b>	<b>\$ 4,336,935</b>	<b>\$ 8,776,215</b>	<b>\$ 11,668,375</b>	<b>\$ 16,383,370</b>	

## **16.2 OPTION B**

Under Option B, the VPD implements a fixed 4-on-4-off Delta shift in addition to the other existing shifts.

### **16.2.1 Stage B1**

Under Stage B1, the VPD implements some changes to improve efficiency internally. Among others:

1. The District Surveillance Teams (DST) in District 1 (Team 11) and District 2 combine to create a Patrol North Surveillance Team (responsible for District 1 and District 2). This team is made up from the existing Sergeant and 3 Constables from District 1 Team 11 and 6 Constables from the District 2 DST. The remaining Constable and Sergeant from District 2 DST return to their home teams. The DST in District 3 and District 4 combine to create a Patrol South Surveillance Team (responsible for District 3 and District 4). This team is made up from 5 Constables from the District 3 DST and 4 Constables from the District 4 DST. One additional authorized Sergeant position is required to supervise the Patrol South Surveillance Team. The remaining 5 Constables and 2 Sergeants from the District 3 and District 4 DST return to their home teams. The new North and South Surveillance Teams will be formalized teams that are fully staffed, properly equipped and trained.
2. A permanent Delta shift is implemented in District 1. A total of 22 Constables in District 1 are reassigned to the permanent Delta shift in District 1. Two authorized Constable positions are deducted from Team 3 to Team 10 in District 1 (this frees up 16 Constables) and 6 Constables from the DST in District 1 are reassigned to the permanent Delta shift (for a total of 22 Constables). These Constable positions are already authorized. Two Sergeants are required to supervise the Permanent Delta team in District 1 (one for the odd side and one for the even side). The permanent Delta shift extends from 1800 to 0500 hours.

3. The existing Delta shift continues to extend from 1600 to 0400 hours (as opposed to 0300 hours).
4. Special patrol-based projects are reduced (e.g. Charlie and Delta patrol projects). These projects are limited to situations that require targeted action by patrol officers in plainclothes to address a serious crime problem. These projects must be accompanied by an Operational Plan that is evaluated and approved by the District Inspector. These projects should not take place on Fridays or Saturdays between 1200 and 0400 hours.
5. Minimum staffing levels are properly adjusted to match the call load.
6. The 60-40 deployment split mandated by the Collective Agreement between the VPU and the Vancouver Police Board is enforced. This implies that the proportion of two-officer regular patrol units deployed decreases from approximately 65% to 60%.
7. A new policy is introduced to ensure that managers and supervisors maintain their actual patrol strength as close as possible to the authorized strength (at least in the long-run).
8. When ERT is not tied up on serious calls, training activities or special assignments, they reprioritize how they spend their unallocated time to handle more calls that do not usually require a report or lengthy investigation. This would include calls such as alarms, annoying circumstances, disturbance calls, noise complaints and suspicious circumstances, persons and vehicles.
9. Patrol operations are regularly monitored and evaluated. The following performance measures are measured and analyzed on an annual basis at year-end:
  - Number of calls recorded, dispatched and attended
  - Total number of patrol officers deployed
  - Proportion of two-officer units deployed

- Average proportion of unallocated (proactive policing) and allocated time (reactive policing)
- Average response time for priority 1, 2, 3 and 4 calls
- Average service time
- Average number of units and officers per call
- Clearance rates
- Number of cancelled calls for service
- Number of on-view calls
- Number of on-view criminal offences
- Number of street checks
- Number of traffic tickets
- Number of report errors (e.g. “Bring Forwards”)

### **Net Staffing Request**

3 Sergeants (two for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in District 1.
- Consolidated Patrol Surveillance teams that are formalized.
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

Including the gains obtained from the extension of the Delta shift, the adjustments proposed under Stage B1 are expected to lead to a decrease of approximately 32 seconds in the citywide average priority 1 response time. More specifically, the average priority 1 travel time would be reduced by 25 seconds in District 1, 14 seconds in District 2, 54 seconds in District 3 and 34 seconds in District 4.

This would imply that the average priority 1 response time would then decrease to 10 minutes and 53 seconds.

### **Expected Change in the Average Utilization Rate**

The implementation of an improved deployment model using existing resources deployed more efficiently should achieve an average utilization rate in the 60% to 65% range.

## **16.2.2 Stage B2**

Under Stage B2, the VPD implements the changes suggested under Stage B1 and creates a Metro Team comprised of 26 Constables and 2 Sergeants working from 1500 to 0200 hours on a 4-on-4-off schedule (one team of 13 Constables and 1 Sergeant on the even side and 13 Constables and 1 Sergeant on the odd side). The Metro Team requires the standard patrol equipment supplied to patrol (including cars, laptops and radios) as well as 10 cell phones (one per deployed unit).

### **Net Staffing Request**

3 Sergeants (two for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

26 Constables and 2 Sergeants (two Metro Teams comprised of 13 Constables and 1 Sergeant each) and equipment for the Metro Team.

= 26 Constables and 5 Sergeants.

### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in District 1.
- Consolidated Patrol Surveillance teams that are formalized.

- Metro Team providing a highly flexible response team deployable citywide.
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

When the adjustments from Stage B1 are taken into account, the citywide average priority 1 response time would decrease by approximately 1 minute and 12 seconds under Stage A2. More specifically, the average priority 1 travel time would be reduced by 30 seconds in District 1, 27 seconds in District 2, 1 minute and 13 seconds in District 3 and 52 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 26 seconds.

This would imply that the average priority 1 response time would then decrease to 10 minutes and 13 seconds.

### **Expected Change in the Average Utilization Rate**

The deployment of the citywide Metro Team is expected to lead to an average utilization rate of 59%. This would imply an improvement of 6 percentage points compared to the 2005 average utilization rate of 65%.

## **16.2.3 Stage B3**

Under Stage B3, the VPD implements the changes suggested under Stage B1 and Stage B2. It also implements a permanent delta shift in District 2, District 3 and District 4. As in District 1, the permanent Delta shift in District 2, District 3 and District 4 work between 1800 to 0500 hours on a 4-on-4-off rotation. This requires a total of 56 Constables and 6 Sergeants (9 Constables and 1 Sergeant per odd/even team in District 2 and District 4, 10 Constables and 1 Sergeant per odd/even team in District 3) in addition to the staffing request under Stage B2.

### **Net Staffing Request**

3 Sergeants (two for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

26 Constables and 2 Sergeants (two Metro Teams comprised of 13 Constables and 1 Sergeant each) and equipment for the Metro Team.

56 Constables and 6 Sergeants (9 Constables and 1 Sergeant per odd/even team in District 2 and District 4, 10 Constables and 1 Sergeant per odd/even team in District 3).

= 82 Constables and 11 Sergeants.

### **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in all patrol districts.
- Consolidated Patrol Surveillance teams that are formalized.
- Metro Team providing a highly flexible response team deployable citywide.
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

When the adjustments from Stage B1 and Stage B2 are taken into account, the citywide average priority 1 response time would decrease by approximately 2 minutes and 44 seconds under Stage A3. More specifically, the average priority 1 travel time would be reduced by 30 seconds in District 1, 57 seconds in District 2, 2 minutes and 2 seconds in District 3 and 1 minute and 57 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 22 seconds.

This would imply that the average priority 1 response time would then decrease to 8 minutes and 41 seconds.

### **Expected Change in the Average Utilization Rate**

The deployment of additional patrol resources is expected to lead to an average utilization rate of 50% in every patrol district. This would imply an improvement of 15 percentage points compared to the 2005 average utilization rate of 65%.

Stage B3 implies an average utilization rate that supports proactive policing. By comparison to Stage A4, which required 7 new Sergeant positions to support 6 new patrol teams, Stage B3 requires 11 new Sergeant positions to support a total of 10 new patrol teams.

#### **16.2.4 Stage B4**

Under Stage B4, the patrol authorized strength would increase by a total of 122 Constables. The first 82 Constables would allow the VPD to implement all the recommendations proposed under Stage A1 to A4. The 40 remaining officers would allow the VPD to reduce the average priority 1 travel time further. Overall, the average priority 1 response time would be expected to decrease below 8 minutes.

##### **Net Staffing Request**

3 Sergeants (two for the Permanent Delta Team in District 1 and one for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

26 Constables and 2 Sergeants (two Metro Teams comprised of 13 Constables and 1 Sergeant each) and equipment for the Metro Team.

56 Constables and 6 Sergeants (9 Constables and 1 Sergeant per odd/even team in District 2 and District 4, 10 Constables and 1 Sergeant per odd/even team in District 3).

40 Constables (one additional Constable in each patrol team in each patrol district).

= 122 Constables and 11 Sergeants.



## **Net Gains**

- Internal efficiency gains.
- Permanent Delta Team in all patrol districts.
- Consolidated Patrol Surveillance teams that are formalized.
- Metro Team providing a highly flexible response team deployable citywide.
- Slightly larger patrol teams (including larger Alpha teams).
- Better-practice priority 1 response time of less than 8 minutes.
- More proactive time for patrol officers.

## **Predicted Change in the Average Response Time**

Under Stage B4, the citywide average priority 1 response time would decrease by approximately 3 minutes and 56 seconds. More specifically, the average priority 1 travel time would be reduced by 43 seconds in District 1, 1 minute and 25 seconds in District 2, 2 minutes and 45 seconds in District 3 and 2 minutes and 58 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 59 seconds.

This would imply that the average priority 1 response time would then decrease to 7 minutes and 28 seconds.

## **Expected Change in the Average Utilization Rate**

The deployment of 122 additional Constables in patrol is expected to lead to an average utilization rate of 46% in District 1 and District 2 and 47% in District 3 and District 4. This would imply an improvement of 19 percentage points compared to the 2005 average utilization rate of 65%.

## 16.2.5 Summary of Option B

The following table shows summarizes how patrol staffing would be allocated under each stage of Option B.

**Table 16-5 Actual Patrol Strength Under Option B's Staffing Options**

	Current		Stage B1		Stage B2		Stage B3		Stage B4	
	Constables*	Sergeants	Constables	Sergeants	Constables	Sergeants	Constables	Sergeants	Constables	Sergeants
D1 Team 1-2	18	2	18	2	18	2	18	2	20	2
D1 Team 3-10	104	8	88	8	88	8	88	8	96	8
D1 Fixed Delta Shift	-	-	22	2	22	2	22	2	22	2
D2 Team 1-2	18	2	18	2	18	2	18	2	20	2
D2 Team 3-10	73	7	74	8	74	8	74	8	82	8
D2 Fixed Delta Shift	-	-	-	-	-	-	18	2	18	2
D3 Team 1-2	15	2	15	2	15	2	15	2	17	2
D3 Team 3-10	97	7	100	8	100	8	100	8	108	8
D3 Fixed Delta Shift	-	-	-	-	-	-	20	2	20	2
D4 Team 1-2	15	2	15	2	15	2	15	2	17	2
D4 Team 3-10	81	7	83	8	83	8	83	8	91	8
D4 Fixed Delta Shift	-	-	-	-	-	-	18	2	18	2
District Surveillance	30	4	18	2	18	2	18	2	18	2
Metro Team	-	-	-	-	26	2	26	2	26	2
<b>Total</b>	<b>451</b>	<b>41</b>	<b>451</b>	<b>44</b>	<b>477</b>	<b>46</b>	<b>533</b>	<b>52</b>	<b>573</b>	<b>52</b>
<b>Required Increase</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>26</b>	<b>5</b>	<b>82</b>	<b>11</b>	<b>122</b>	<b>11</b>

\* The number of Constables in District 2, District 3 and District 4 includes some Acting Sergeants.

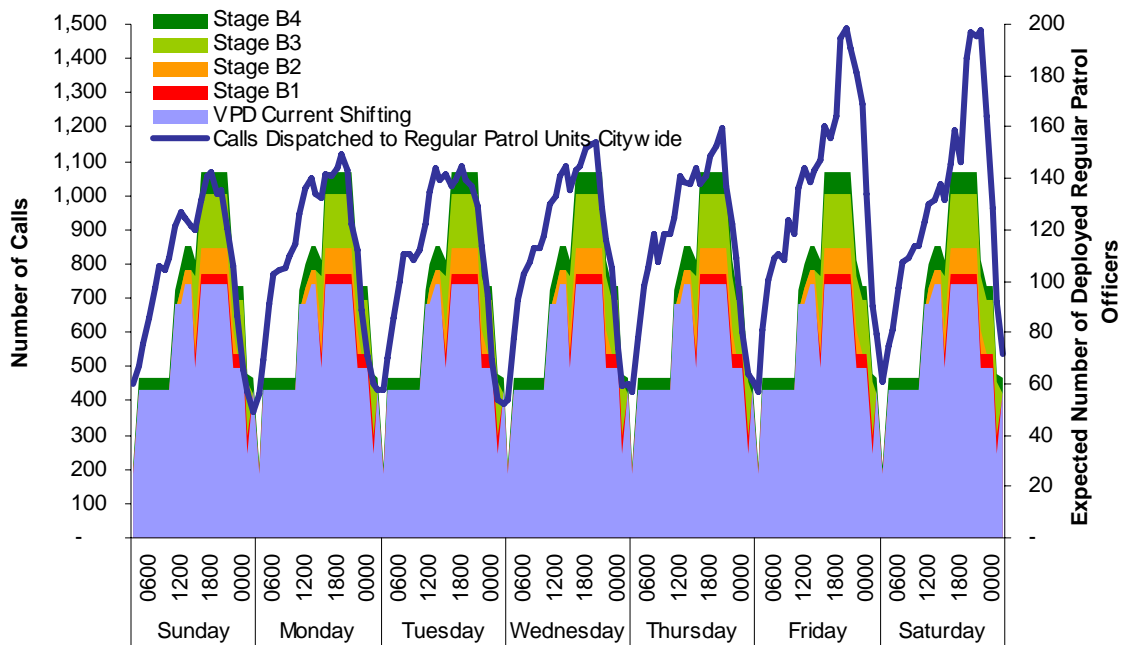
The following table summarizes the required staffing increase, the projected average priority 1 response time, the projected average utilization rate and the estimated correlation between staffing and call load under each stage of Option B.

**Table 16-6 Staffing Implications for Option B**

		FTE			Expected Performance			
		Sgt.	Cst.	Total FTE	Average P1 Response Time	Decrease in Average P1 Response Time	Average Utilization Rate	Correlation Between Staffing and Call Load
	Current				0:11:25		65.0%	0.770
<b>Option B</b>	Stage B1	3	0	<b>3</b>	0:10:53	0:00:32	65.0%	0.785
	Stage B2	5	26	<b>31</b>	0:10:13	0:01:12	59.0%	0.797
	Stage B3	11	82	<b>93</b>	0:08:41	0:02:44	50.0%	0.769
	Stage B4	11	122	<b>133</b>	0:07:28	0:03:57	46.0%	0.775

The following graph illustrates how patrol staffing would increase to match the call load under each stage of Option B. Graphically, the most significant gains would be obtained under B3, when fixed Delta teams are implemented in District 2, District 3 and District 4.

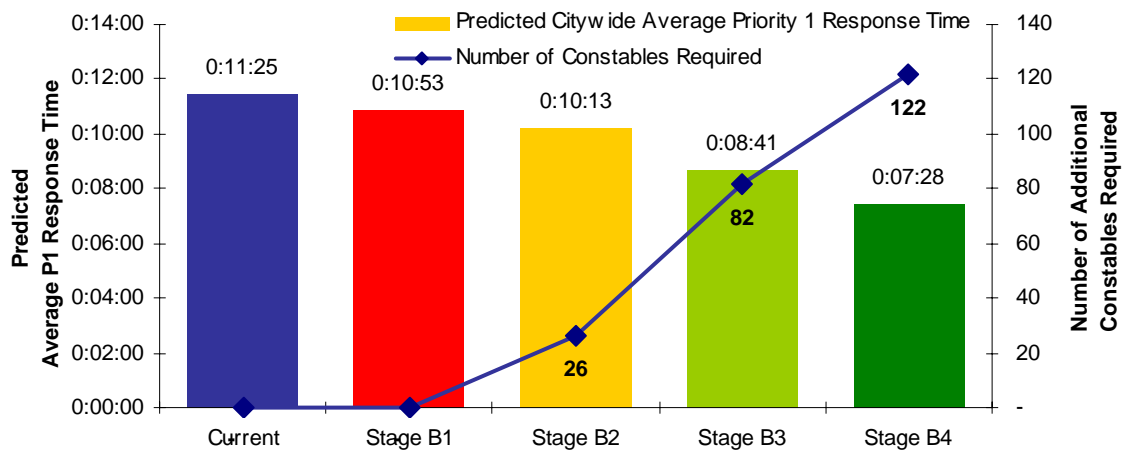
**Figure 16-14 Call Load and Patrol Staffing Under Option B**



The following graph illustrates how the average priority 1 response time would decrease as patrol staffing increases under each stage of Option B. The average priority 1 response time would be expected to decrease to 10 minutes and 53 seconds under B1,

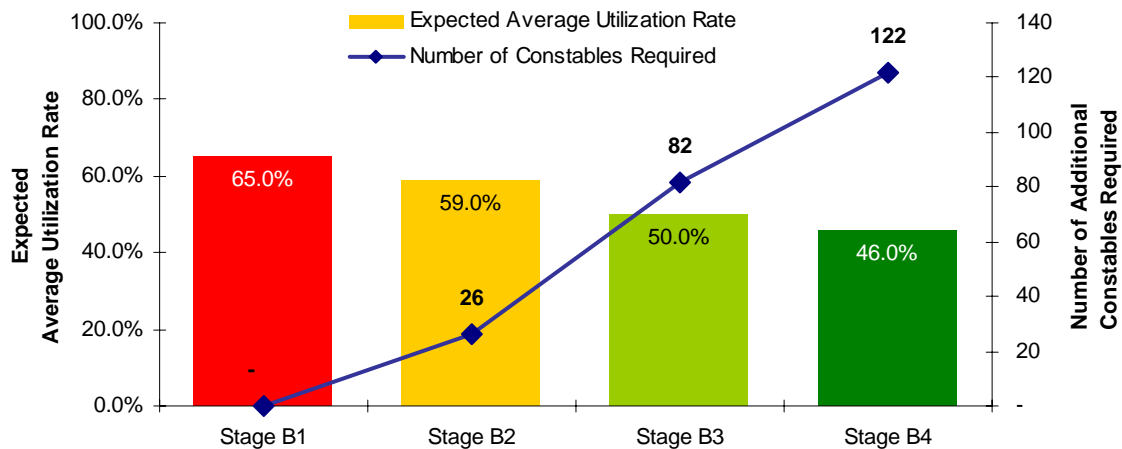
10 minutes and 13 seconds under B2, 8 minutes and 41 seconds under B3 and 7 minutes and 28 seconds under B4.

**Figure 16-15 Number of Additional Constables and Predicted Average Priority 1 Response Time Under Option B**



The following graph illustrates how the average utilization rate would decrease as patrol staffing increases under each stage of Option B. The average utilization rate would be expected to decrease to 59% under B2, 50% under B3 and 46% under B4.

**Figure 16-16 Number of Additional Constables and Predicted Average Utilization Rate Under Option B**



The following table summarizes the required staffing increase, the fleet requirements and the financial implications under each stage of Option B.

**Table 16-7 Financial Summary for Option B**

Option B	FTE			Fleet	Financial Summary	
	Sergeants	Constables	Total		One Time Cost	Annual Operating Costs
Stage B1	3	0	3	13	\$ 77,890	\$ 685,855
Stage B2	5	26	31	22	\$ 470,550	\$ 3,782,175
Stage B3	11	82	93	38	\$1,269,440	\$ 10,477,875
Stage B4	11	122	133	45	\$1,801,040	\$ 14,752,770

The table on the next page shows the detailed financial implications of each stage of Option B.

**Table 16-8 Financial Details for Option B**

		<b>Stage B1</b>	<b>Stage B2</b>	<b>Stage B3</b>	<b>Stage B4</b>
<b>FTE</b>	Sergeants	3	5	11	11
	Constables	0	28	58	82
	<b>Total</b>	<b>3</b>	<b>33</b>	<b>69</b>	<b>93</b>
<b>Fleet</b>	Marked	3	12	28	35
	Unmarked	10	10	10	10
	<b>Total</b>	<b>13</b>	<b>22</b>	<b>38</b>	<b>45</b>
<b>Annual Operating Costs</b>	Salaries & Benefits	\$ 356,675	\$ 2,839,875	\$ 8,274,025	\$ 11,841,425
	Uniforms & Equipment	14,335	73,495	204,475	288,975
	Facilities (Lockers/Workstations & Renovations)	18,815	88,815	271,555	382,870
	E-Comm & Prime (Laptop & Radios)	98,180	218,220	454,500	586,860
	IT - Computers & Softwares	600	6,200	18,600	26,600
	Fleet	182,000	398,000	782,000	950,000
	Administrative Costs	15,250	157,570	472,720	676,040
	<b>Total</b>	<b>685,855</b>	<b>3,782,175</b>	<b>10,477,875</b>	<b>14,752,770</b>
<b>One-Time Costs</b>	Salaries & Benefits	\$ 1,200	\$ 12,400	\$ 37,200	\$ 53,200
	Uniforms & Equipment	50,760	300,520	853,560	1,210,360
	Facilities (Lockers/Workstations & Renovations)	4,150	84,650	200,150	293,450
	E-Comm & Prime (Laptop & Radios)	18,000	43,500	94,500	123,600
	IT - Computers & Softwares	2,200	13,200	35,200	50,600
	Fleet	-	-	-	-
	Administrative Costs	1,580	16,280	48,830	69,830
	<b>Total</b>	<b>77,890</b>	<b>470,550</b>	<b>1,269,440</b>	<b>1,801,040</b>
<b>Total Cost</b>	<b>\$ 763,745</b>	<b>\$ 4,252,725</b>	<b>\$ 11,747,315</b>	<b>\$ 16,553,810</b>	

## **16.3 OPTION C**

Under Option C, the VPD implements some changes to improve efficiency internally and maintains the existing shifting model. Unfortunately, peak times of inefficiency would remain under Option C. In turn, the impact of the new officers on the average priority 1 response time would be reduced and span of control issues would arise.

### **16.3.1 Stage C1**

Under Stage C1, the VPD implements some changes to improve internal efficiency. Among others:

1. The District Surveillance Team (DST) in District 1 (Team 11) becomes the Patrol North Surveillance Team (responsible for District 1 and District 2). This team is made up from the existing Sergeant and 9 Constables from District 1 Team 11. The 7 Constables and the Sergeant from the District 2 DST return to their home teams. The DST in District 3 and District 4 combine to create a Patrol South Surveillance Team (responsible for District 3 and District 4). This team is made up from 5 Constables from the District 3 DST and 4 Constables from the District 4 DST. One additional authorized Sergeant position is required to supervise the Patrol South Surveillance Team. The remaining 5 Constables and 2 Sergeants from the District 3 and District 4 DST return to their home teams. The new North and South Surveillance Teams will be formalized teams that are fully staffed, properly equipped and trained.
2. The existing Delta shift continues to extend from 1600 to 0400 hours (as opposed to 0300 hours).
3. Special patrol-based projects are reduced (e.g. Charlie and Delta patrol projects). These projects are limited to situations that require targeted action by patrol officers in plainclothes to address a serious crime problem. These projects must be accompanied by an Operational Plan that is evaluated and approved by the

District Inspector. These projects should not take place on Fridays or Saturdays between 1200 and 0400 hours.

4. Minimum staffing levels are properly adjusted to match the call load.
5. The 60-40 deployment split mandated by the Collective Agreement between the VPU and the Vancouver Police Board is enforced. This implies that the proportion of two-officer regular patrol units deployed decreases from approximately 65% to 60%.
6. A new policy is introduced to ensure that managers and supervisors maintain their actual patrol strength as close as possible to the authorized strength (at least in the long-run).
7. When ERT is not tied up on serious calls, training activities or special assignments, they reprioritize how they spend their unallocated time to handle more calls that do not usually require a report or lengthy investigation. This would include calls such as alarms, annoying circumstances, disturbance calls, noise complaints and suspicious circumstances, persons and vehicles.
8. Patrol operations are regularly monitored and evaluated. The following performance measures are measured and analyzed on an annual basis at year-end:
  - Number of calls recorded, dispatched and attended
  - Total number of patrol officers deployed
  - Proportion of two-officer units deployed
  - Average proportion of unallocated (proactive policing) and allocated time (reactive policing)
  - Average response time for priority 1, 2, 3 and 4 calls
  - Average service time
  - Average number of units and officers per call
  - Clearance rates
  - Number of cancelled calls for service



- Number of on-view calls
- Number of on-view criminal offences
- Number of street checks
- Number of traffic tickets
- Number of report errors (e.g. “Bring Forwards”)

### **Net Staffing Request**

One Sergeant for the Patrol South Surveillance Team) and equipment for the patrol surveillance teams (North and South).

### **Net Gains**

- Internal efficiency gains.
- Consolidated Patrol Surveillance teams that are formalized.
- More proactive time for patrol officers.

### **Predicted Change in the Average Response Time**

Under Stage C1, the citywide average priority 1 response time would decrease by approximately 28 seconds. More specifically, the average priority 1 travel time would be reduced by 9 seconds in District 1, 15 seconds in District 2, 54 seconds in District 3 and 34 seconds in District 4.

This would imply that the average priority 1 response time would then decrease to 10 minutes and 57 seconds.

### **Expected Change in the Average Utilization Rate**

The implementation of an improved deployment model using existing resources deployed more efficiently should achieve an average utilization rate in the 60% to 65% range.

### **16.3.2 Stage C2**

Under Stage C2, the VPD implements some changes to improve internal efficiency and 82 new Constables are assigned to District 2, District 3 and District 4. Because it already received a total of 33 new officers in 2005, District 1 does not receive additional patrol officers under Stage C2. District 2 receives 22 new Constable positions, District 3 receives 36 new Constable positions and District 4 receives 24 new Constable positions. The shift deployment model remains unchanged.

#### **Net Staffing Request**

One Sergeant for the Patrol South Surveillance Team and equipment for the patrol surveillance teams (North and South).

82 Constables.

= 82 Constables and 1 Sergeant.

#### **Net Gains**

- Internal efficiency gains.
- Consolidated Patrol Surveillance teams that are formalized.
- More proactive time for patrol officers.

#### **Predicted Change in the Average Response Time**

Under Stage C2, the citywide average priority 1 response time would decrease by approximately 2 minute and 38 seconds. More specifically, the average priority 1 travel time would be reduced by 16 seconds in District 1, 51 seconds in District 2, 1 minute and 59 seconds in District 3 and 1 minute and 56 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 22 seconds.

This would imply that the average priority 1 response time would then decrease to 8 minutes and 47 seconds.

### **Expected Change in the Average Utilization Rate**

The additional 82 Constables should allow the VPD to obtain an average utilization rate of 50%. However, peak times of inefficiency would remain.

### **16.3.3 Stage C3**

Under Stage C2, the VPD implements some changes to improve internal efficiency and 122 new Constables are assigned citywide. This allows the VPD to obtain an average priority 1 response time of approximately 8 minutes.

#### **Net Staffing Request**

One Sergeant for the Patrol South Surveillance Team and equipment for the patrol surveillance teams (North and South).

122 Constables.

= 122 Constables and 1 Sergeant.

#### **Net Gains**

- Internal efficiency gains.
- Consolidated Patrol Surveillance teams that are formalized.
- More proactive time for patrol officers.
- Better-practice priority 1 response time of approximately 8 minutes.

#### **Predicted Change in the Average Response Time**

Under Stage C3, the citywide average priority 1 response time would decrease by approximately 3 minutes and 25 seconds. More specifically, the average priority 1 travel time would be reduced by 26 seconds in District 1, 59 seconds in District 2, 2 minutes and 8 seconds in District 3 and 2 minutes and 8 seconds in District 4. Since patrol units would be readily available to be dispatched, the average queuing delay could also decrease by up to 1 minute and 59 seconds.

This would imply that the average priority 1 response time would then decrease to 8 minutes.

**Expected Change in the Average Utilization Rate**

The additional 122 Constables should allow the VPD to obtain an average utilization rate of 46% to 47%. However, peak times of inefficiency would remain.

**16.3.4 Summary of Option C**

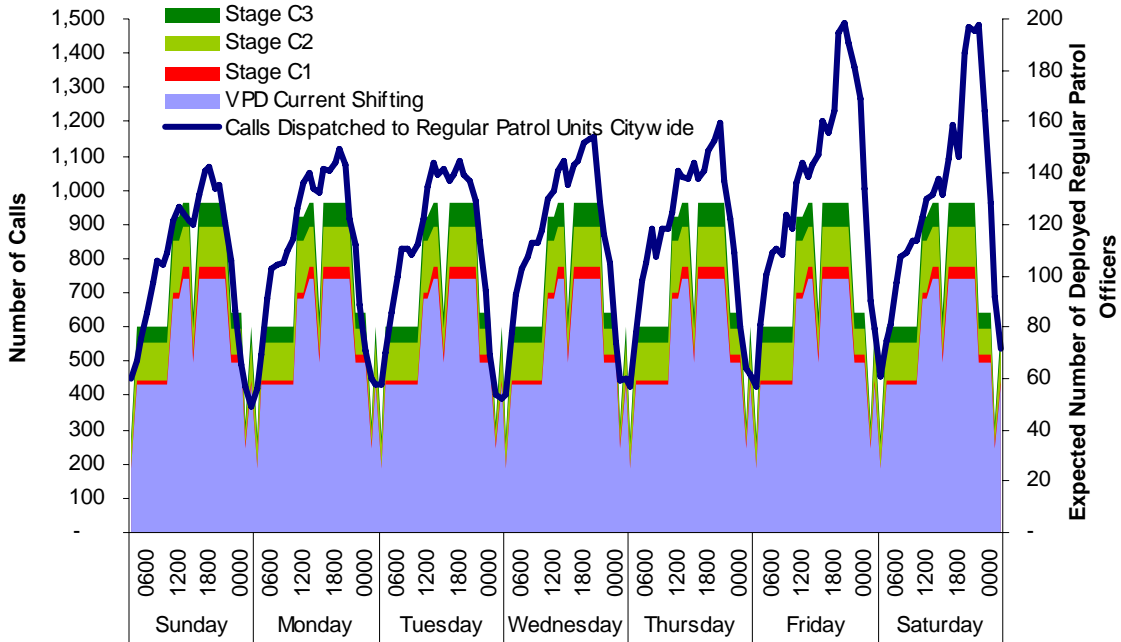
The following table summarizes the required staffing increase, the projected average priority 1 response time, the projected average utilization rate and the estimated correlation between staffing and call load under each stage of Option C.

**Table 16-9 Staffing Implications for Option C**

		FTE			Expected Performance			
		Sgt.	Cst.	Total FTE	Average P1 Response Time	Decrease in Average P1 Response Time	Average Utilization Rate	Correlation Between Staffing and Call Load
	Current				0:11:25		65.0%	0.770
<b>Option C</b>	Stage C1	1	0	<b>1</b>	0:10:57	0:00:28	65.0%	0.772
	Stage C2	1	82	<b>83</b>	0:08:47	0:02:38	50.0%	0.759
	Stage C3	1	122	<b>123</b>	0:08:00	0:03:25	46.0%	0.757

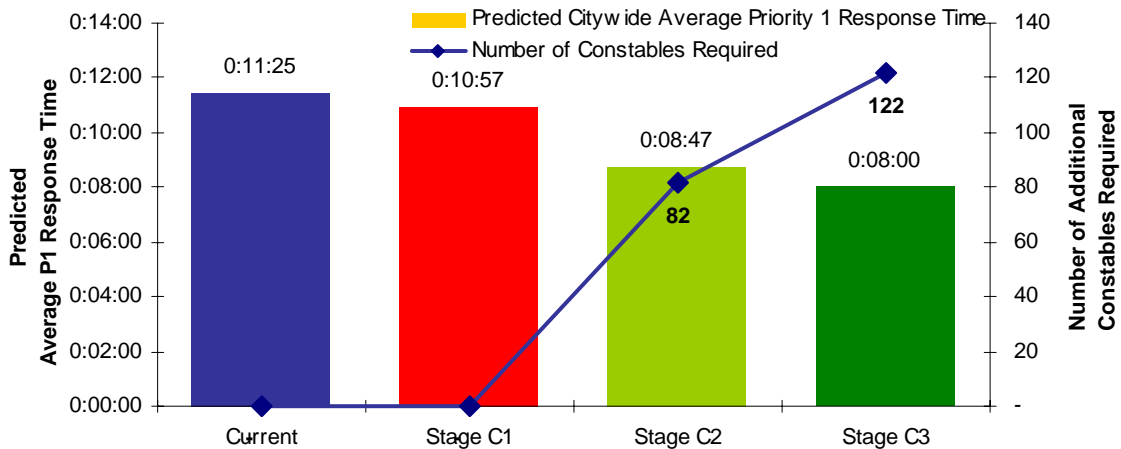
The following graph illustrates how patrol staffing would increase to match the call load under each stage of Option C. Graphically, the most significant gains would be obtained with the addition of 82 additional Constables under C2.

**Figure 16-17 Call Load and Patrol Staffing Under Option C**



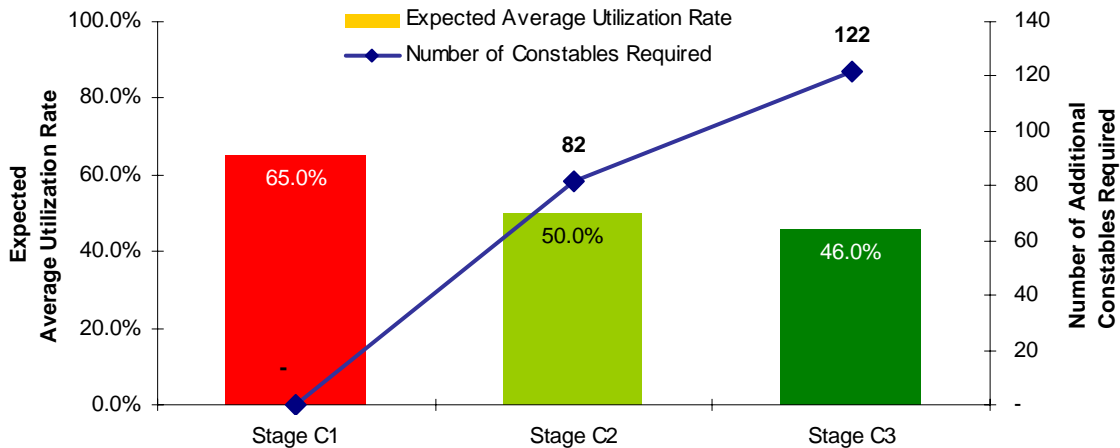
The following graph illustrates how the average priority 1 response time would decrease as patrol staffing increases under each stage of Option C. The average priority 1 response time would be expected to decrease to 10 minutes and 57 seconds under C1, 8 minutes and 47 seconds under C2 and 8 minutes under C3.

**Figure 16-18 Number of Additional Constables and Predicted Average Priority 1 Response Time Under Option C**



The following graph illustrates how the average utilization rate would decrease as patrol staffing increases under each stage of Option C. The average utilization rate would be expected to decrease to 50% under C2 and 46% under C3.

**Figure 16-19 Number of Additional Constables and Predicted Average Utilization Rate Under Option C**



The following table summarizes the required staffing increase, the fleet requirements and the financial implications under each stage of Option C.

**Table 16-10 Financial Summary for Option C**

Option C	FTE			Fleet	Financial Summary	
	Sergeants	Constables	Total		One Time Cost	Annual Operating Costs
Stage C1	1	0	1	11	\$ 51,900	\$ 373,595
Stage C2	1	82	83	25	\$1,135,490	\$ 8,947,725
Stage C3	1	122	123	32	\$1,656,490	\$ 13,077,235

The table on the next page shows the detailed financial implications of each stage of Option C.

**Table 16-11 Financial Details for Option C**

		<b>Stage C1</b>	<b>Stage C2</b>	<b>Stage C3</b>
<b>FTE</b>	Sergeants	1	1	1
	Constables	0	82	122
	<b>Total</b>	<b>1</b>	<b>83</b>	<b>123</b>
<b>Fleet</b>	Marked	1	15	22
	Unmarked	10	10	10
	<b>Total</b>	<b>11</b>	<b>25</b>	<b>32</b>
<b>Annual Operating Costs</b>	Salaries & Benefits	\$ 133,125	\$ 7,263,075	\$ 10,679,050
	Uniforms & Equipment	10,115	183,345	265,740
	Facilities (Lockers/Workstations & Renovations)	13,815	246,555	371,795
	E-Comm & Prime (Laptop & Radios)	77,260	346,260	478,120
	IT - Computers & Softwares	200	16,600	24,400
	Fleet	134,000	470,000	638,000
	Administrative Costs	5,080	421,890	620,130
	<b>Total</b>	<b>373,595</b>	<b>8,947,725</b>	<b>13,077,235</b>
	<b>One-Time Costs</b>	Salaries & Benefits	\$ 400	\$ 33,200
Uniforms & Equipment		32,920	764,360	1,112,240
Facilities (Lockers/Workstations & Renovations)		2,650	188,850	281,400
E-Comm & Prime (Laptop & Radios)		13,200	74,700	103,800
IT - Computers & Softwares		2,200	30,800	46,200
Fleet		-	-	-
Administrative Costs		530	43,580	64,050
<b>Total</b>		<b>51,900</b>	<b>1,135,490</b>	<b>1,656,490</b>
<b>Total Cost</b>	<b>\$ 425,495</b>	<b>\$ 10,083,215</b>	<b>\$ 14,733,725</b>	

## **16.4 COMPARISONS BETWEEN OPTIONS A, B AND C**

As opposed to Option A and Option B, which introduce a fixed Delta shift and a Metro Team, peak times of inefficiency would remain under Option C. Unfortunately, the existing shifting model retained under Option C leads to periods of both high and low utilization. This results in a shifting pattern that fails to adequately match resources with call load. The resulting peaks and lows illustrate periods of extreme activity or inactivity. In either case, there is either an abundance of resources disproportionate to the demand or insufficient resources to meet the demand. In essence, the current shifting model artificially generates heightened periods of stress and anxiety because it fails to address the lack of shift overlap during times of peak call load.

To illustrate the inefficiency associated with Option B and Option C, the correlation between the hourly call load and the expected staffing level in patrol was estimated for each stage under each deployment option. Intuitively, in a “perfect” deployment model, staffing would be perfectly positively correlated with call load. This would entail a coefficient of correlation of 1. At the other extreme, the worse possible deployment model would be such that staffing is perfectly inversely correlated with call load. This type of deployment model would be characterized by a coefficient of correlation of -1. Finally, a deployment model that is completely independent of the call load would be characterized by a coefficient of correlation equal to zero.

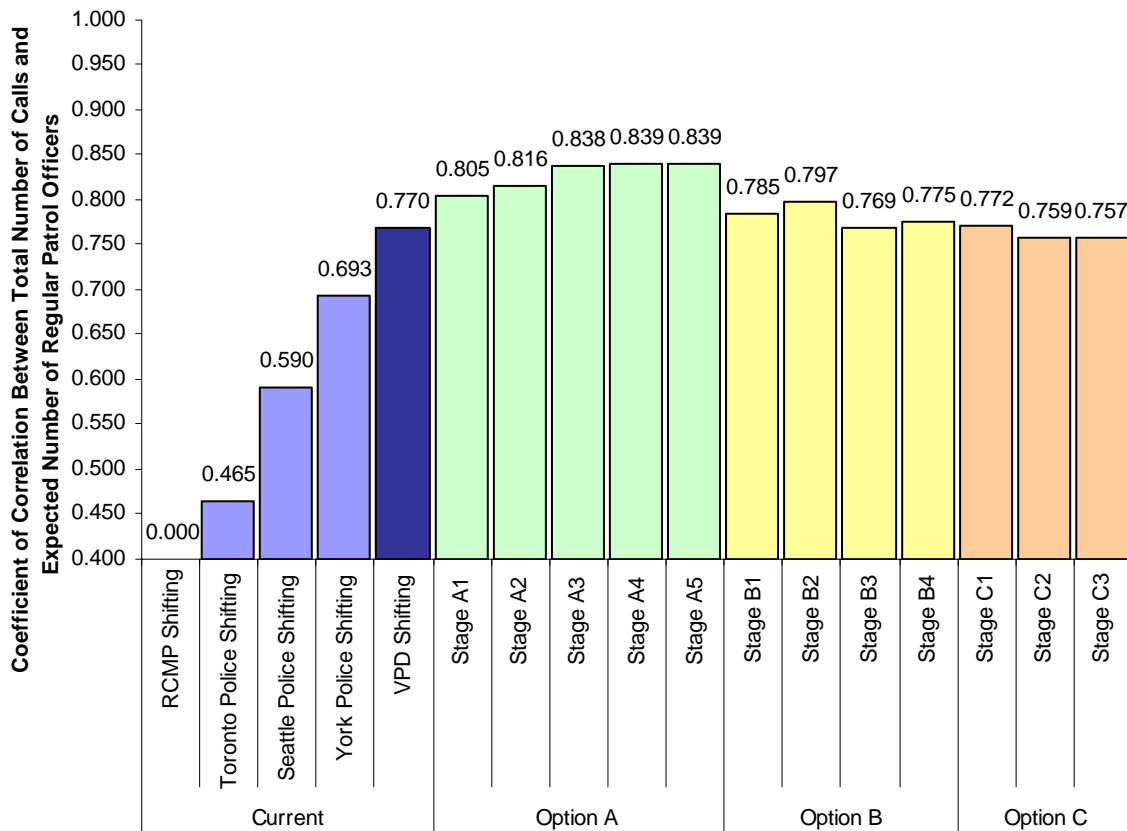
First, the current VPD deployment model was determined to be superior (given the current call load) to the RCMP patrol shifting model (two 12-hour shifts), the Toronto Police Service shifting model (three rotating shifts), the Seattle Police shifting model (three fixed shifts) and the York Regional Police Service shifting model (three fixed shifts). The RCMP patrol shifting model, Toronto Police Service shifting model, the Seattle Police shifting model and the York Regional Police Service shifting model, like the current VPD shifting model, do not specifically allocate more officers on Friday and Saturday. However, because the VPD can rely on 5 different shifts, it has more flexibility and can usually benefit from more overlap during the busiest times of the day. As expected, the RCMP patrol shifting model does not incorporate any overlap period and



implies a virtually constant patrol staffing level. The correlation of correlation of zero reflects this.

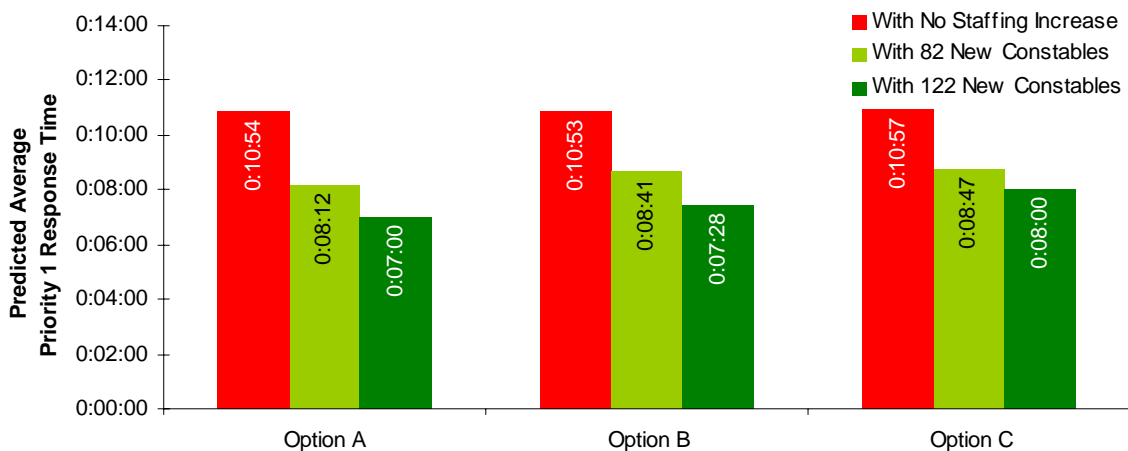
Secondly, it was found that Option A consistently leads to the closest match between call load and staffing. The coefficient of correlation associated with Stage A5 is 8.3% larger than the coefficient of correlation associated with Stage B4, 10.8% larger than the coefficient of correlation associated with Stage C3 and 9.0% larger than the coefficient of correlation associated with the current VPD shifting model. At most stages, Option B is also associated with a larger coefficient of correlation than Option C. For instance, the coefficient of correlation associated to Stage B2 is 5.0% larger than the coefficient associated with Stage C2.

**Figure 16-20 Correlation Between Call Load and Expected Number of Regular Patrol Officers Under Each Stage**



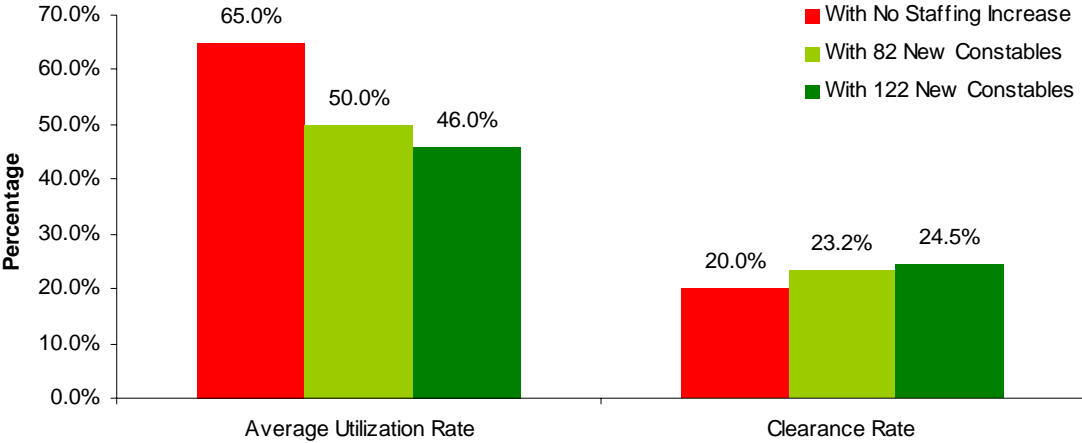
As shown in the graph below, the marginal impact of additional patrol resources is maximized under Option A. By comparison, the impact of staffing increases is attenuated under Option B and Option C. This reflects the fact that the shifting patterns under Option B and Option C are less efficient than the shifting pattern proposed under Option A. The decrease in the average priority 1 response time expected under Stage A5 is approximately 30 seconds larger than the decrease in the average response time expected under Stage B4 and 60 seconds larger than the decrease in the average response time expected under Stage C3.

**Figure 16-21 Predicted Average Priority 1 Response Time Under Each Deployment Option**



In order to examine how clearance rates could be improved under the different staffing options that have been presented, an analysis of performance data from leading Canadian police agencies was conducted. A predictive model explaining up to 98.7% of the variation in the clearance rate was estimated using data on the number of calls per officer, the number of criminal offences per officer and the number of officers per civilian staff member. The following graph summarizes the performance gains that are possible to achieve given the appropriate increase in patrol resources.

**Figure 16-22 Predicted Average Utilization Rate and Clearance Rate Under Each Staffing Option**





Whether the regular patrol teams are staffed at minimums or not, Option A and Option B ensure that more officers are deployed during the evening because they imply the deployment of at least one additional late afternoon shift (i.e. fixed Delta shift and/or Metro Team). Finally, Option C also creates span of control issues by leading to an increase in the size of each existing patrol team to as many as 17 Constables per team, which is not in line with best practices.

In light of this, Option A is the most efficient deployment model and is therefore recommended by the Patrol Deployment Study Project Team. Option B is the second most efficient model and Option C remains the least efficient model.

# 17 OTHER RECOMMENDATIONS

## 17.1 THE DEPLOYMENT OF TWO-OFFICER UNITS

Past research in the field of law enforcement suggests that:

- In general, single-officer units were more likely to be deployed during the day (i.e. during daylight hours) and in less densely populated areas (Wilson and Brewer, 1991).
- Police agencies that routinely deployed single-officer units typically restricted their use to “low-risk” taskings such as report taking, traffic enforcement and patrol supervision (Wilson, 1991).
- Two-officer units tend to generate more traffic citations and handle each call for service relatively more quickly on average (Wilson, 1990).
- Two-officer units were relatively more likely to make an arrest or complete a formal police report after responding to a domestic argument (Wilson and Brewer, 1991).
- For a given response time, a two-officer unit arriving first at the scene of an incident was 18% to 25% more likely to make an arrest than a single-officer unit (Tarr, 1978).
- In general, a two-officer unit is more cost-efficient than a single-officer unit requiring backup support (Wilson, 1990). In other words, two-officer units are more cost-effective than two single-officer units on calls that can be successfully resolved only with a minimum of 2 officers.
- An optimal deployment model must incorporate a judicious ratio of single to two-officer units and an efficient dispatching procedure (National Institute of Justice, 1986). In particular, the dispatching personnel play a central role in minimizing risk for the single-officer unit (Wilson, 1991).
- Single-officer patrol units are significantly most likely to be injured when assaulted (Wilson, Brunk and Meyer, 1990).

In the current environment, the 60-40 deployment model emerges as the single most attractive option for patrol. The 60-40 model has the desirable property of harmonizing

the proportion of two-officer units with the proportion of two-officer calls. Moreover, the 60-40 model does not require any change in the number of patrol cars that need to be fielded and maintained. Also, two-officer partnerships tend to be more proactive, respond faster to high priority calls and generally do not have to wait for backup. The 60-40 deployment model takes advantage of this. Finally, the 60-40 deployment model is already formalized in Section 22 of the *2003-2006 Collective Agreement* between the Vancouver Police Board and the Vancouver Police Union. As such, no major change in policy or in principle would be needed to enforce it.<sup>28</sup>

In light of this, it is recommended:

- THAT the VPD enforce the 60-40 deployment split prescribed by the current Collective Agreement between the VPU and the Vancouver Police Board.
- THAT approximately 55.0% of all regular patrol units deployed during the Alpha shift and Bravo shift be comprised of two officers.
- THAT approximately 60.0% of all regular patrol units deployed during the Charlie shift be comprised of two officers.
- THAT approximately 65.0% of all regular patrol units deployed during the Delta and Echo shifts be comprised of two officers.
- THAT plainclothes patrol units, beat patrol units and BET units continue to be comprised of two officers.
- THAT patrol wagons continue to be comprised of a single officer.
- THAT patrol supervisors be responsible for maintaining the prescribed proportion of two-officer units recommended above.

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<sup>28</sup> It should be noted that this section of the Collective Agreement is very loosely worded and does not clearly define what units and what time period is included in this calculation. During the next round of union negotiations, the wording in this section should be clarified.

## 17.2 GLOBAL POSITIONING SYSTEMS

The use of GPS at the VPD would increase officer safety and improve patrol deployment and the dispatching of patrol resources.

### 1. Officer Safety

GPS would be a valuable tool to assist in locating officers who are in trouble and are unable to give complete broadcast information, or don't know their exact location. It would also be of assistance when officers hit their emergency buttons by mistake and the radio dispatcher is unable to raise the unit on the air. Even though the technology is associated with the vehicle it still gives a logical starting point to locate an officer.

### 2. Patrol Deployment and Unit Dispatching

GPS technology allows dispatchers and officers to know the location of police units. This can assist in effective call management by assigning the nearest appropriate unit to a call for service. This assists with response times and would be beneficial from a patrol efficiency perspective. There are also tactical advantages during containment and pursuit situations whereby the location of units can be determined and coordinated in the most effective manner.

It is acknowledged that there are legitimate issues to address from a labour/management perspective over the use of this technology for performance monitoring or disciplinary proceedings. There are also significant costs associated with implementing and maintaining this technology and the costs of archiving the data.

The project team is aware that the VPD Communications Section is currently exploring this technology for use in VPD vehicles. After exploring the best practices utilized by other police agencies, the Patrol Deployment Study Project Team supports the ongoing efforts by the Communications Section and recommends the implementation of GPS in VPD patrol vehicles.



### 17.3 THE MINIMUM STAFFING LEVELS

These minimum staffing levels provide appropriate patrol coverage during the evening and at night but empirical evidence suggests that they are often insufficient late at night and during the morning in District 1 and District 4.

In general, the minimum staffing levels recommended below are not significantly different from the current minimum staffing levels. Most notably, the proposed minimum staffing levels lead to a sizeable increase in the minimum number of officers deployed in District 1 during the evening. Anecdotal evidence suggests that this is both justified and desirable.

**Table 17-1 Recommended Minimum Staffing Levels in Patrol**

District	Alpha	Bravo	Charlie	Delta	Echo	Total
D1 Week	5	5+1	5	6+1	7+1	<b>28+3</b>
D1 Weekend	5	7+1	7	7+1	8+1	<b>34+3</b>
D2 Week	5+1	5	5+1	6	7+1	<b>28+3</b>
D2 Weekend	5+1	5	5+1	7	8+1	<b>30+3</b>
BET		9		9		<b>18</b>
D3 Week	4	6+1	6	6+1	7+1	<b>29+3</b>
D3 Weekend	4	6+1	6	6+1	8+1	<b>30+3</b>
D4 Week	4+1	6	6+1	5	7+1	<b>28+3</b>
D4 Weekend	4+1	6	6+1	5	8+1	<b>29+3</b>
<b>Total</b>	<b>18+2</b>	<b>31 (Week) or 33 (Weekend) +2</b>	<b>22 (Week) or 24 (Weekend) +2</b>	<b>32 (Week) or 34 (Weekend) +2</b>	<b>28 (Week) or 32 (Weekend) +4</b>	<b>131 (Week) or 141 (Weekend) +12</b>
* Patrol wagons are +1. Patrol supervisors are excluded.						
** Weekends are defined as Friday and Saturday.						

## 18 CONCLUSION

A best practice police organization ensures that its resources are deployed efficiently and effectively, and that its finite resources are put to the best possible use. In the case of patrol operations, this can best be achieved by examining ways to improve patrol deployment and provide patrol members with the equipment, training and resources they need to perform their core functions.

This report contains a detailed quantitative and qualitative analysis of patrol deployment in the VPD and sets out a number of recommendations that:

- Address internal inefficiencies that have been identified in the patrol operations of the VPD;
- Increase the effectiveness and efficiency of patrol by scientifically determining the resource requirements necessary to place the VPD among best practice police agencies in North America;
- Clearly define performance indicators for patrol deployment that are informed by best practices in the field of law enforcement. In addition, the Planning and Research Section has built the capacity to monitor and evaluate patrol deployment on a regular and ongoing basis.

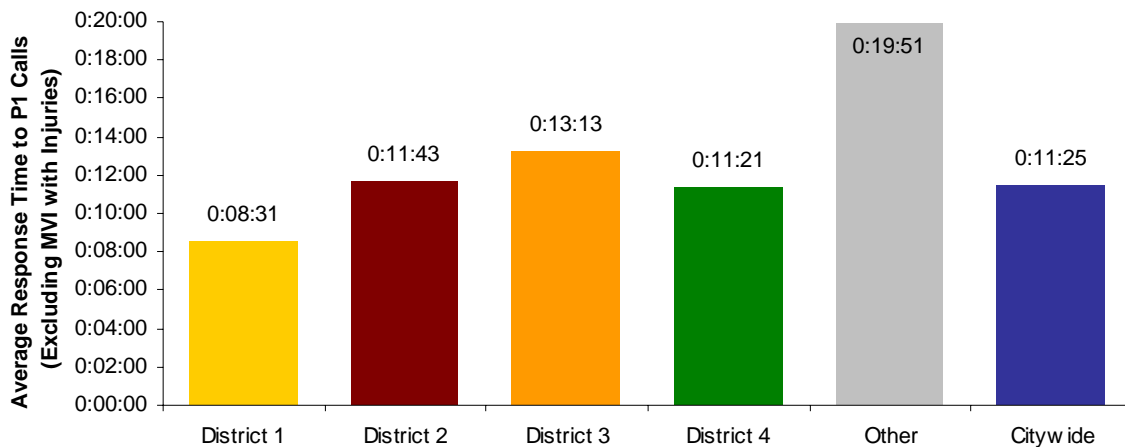
The VPD patrol data suggests that not enough patrol resources are available on the road to handle the current call load. This leads to a situation where:

- When a citizen calls the police to report an emergency situation between 0300 and 0700 hours, there is a probability of 20% to 40% that no patrol unit will be available to be dispatched immediately and there is a probability of 35% to 70% that strictly less than two patrol units will be available to be dispatched. Between 0400 and 0500 hours on Friday and Saturday, the probability that no patrol unit will be available increases to more than 40% (higher in some patrol districts).
- On Friday and Saturday at midnight, approximately 20 calls for service are waiting to be dispatched citywide on average. Some of the calls waiting to be dispatched are potentially serious and include suspicious circumstances,

mischiefs in progress, break & enters in progress, assaults, sexual assaults, robberies, thefts, domestic situations and motor vehicle incidents with injuries.

- Even when priority 1 motor vehicle incidents with injuries are excluded, the citywide average response time to priority 1 calls is longer than 11 minutes. Between 2005-06-01 and 2006-05-31, excluding priority 1 motor vehicle incidents with injuries, the average priority 1 response time was approximately 8 minutes and 31 seconds in District 1, 11 minutes and 43 seconds in District 2, 13 minutes and 13 seconds in District 3 and 11 minutes and 21 seconds in District 4.

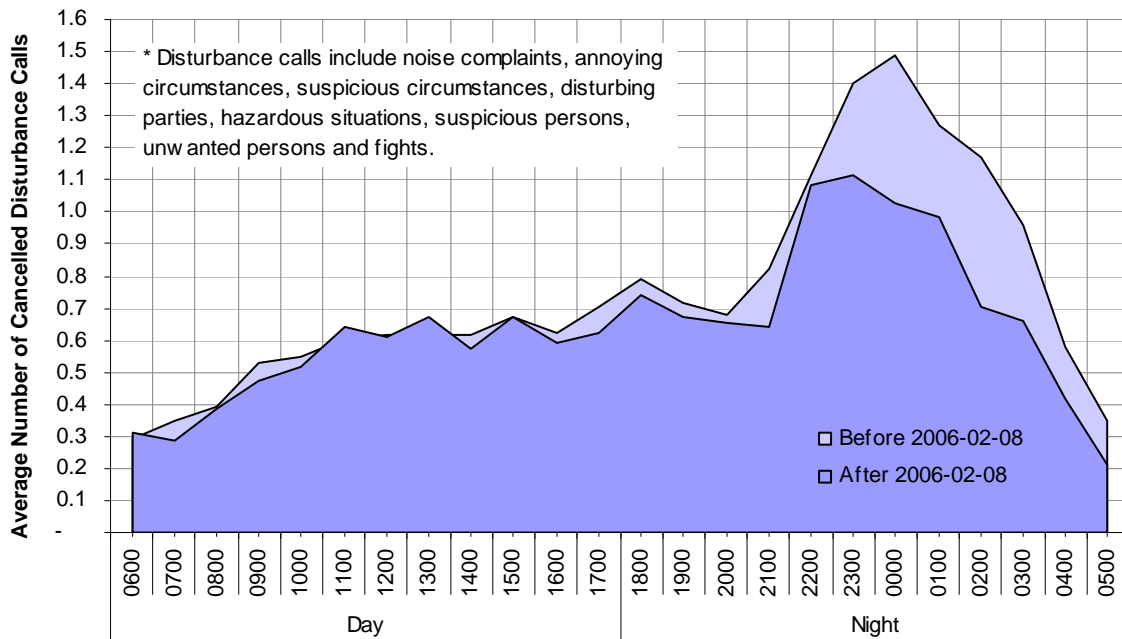
**Figure 18-1 Average Response to Priority 1 Calls by District (Excluding MVI with Injuries)**



- The average response time to priority 2, 3 and 4 calls is also unacceptably long. Between 2005-06-01 and 2006-05-31, the average response time to priority 2 calls was 34 minutes and 37 seconds, the average response time to priority 3 calls was 2 hours and 6 minutes and the average response time to priority 4 calls was 5 hours and 26 minutes.
- Each year, the VPD is unable to attend approximately 1,500 noise complaints, 1,400 annoying circumstances, 650 suspicious circumstances, 650 suspicious persons, 600 unwanted persons, 450 disturbing parties and 450 hazardous situations. Although the extension of the Delta shift led to a reduction in the incidence of call shedding, almost one disturbance call continues to be cancelled every two hours on average. Between 2200 and 0100 hours, more than one

disturbance call is cancelled every hour on average. These calls represent quality of life issues that affect the citizens of Vancouver on a daily basis and contribute to street disorder.

**Figure 18-2 Average Number of Disturbance Calls Cancelled Daily Citywide**



The current situation implies that Vancouver citizens and VPD officers face inflated risks because patrol resources are stretched too thin late at night and during the weekend. This deployment strategy is inherently inefficient because proactive policing activities have the potential to be most rewarding just as there are fewer available units patrolling in the street (i.e. very late at night, when most honest citizens are sleeping or at work) and fewer cover units are available when the risk faced by patrol officers is highest (as demonstrated in the literature on policing).

A careful analysis of the empirical data and an exhaustive review of the patrol deployment literature confirmed that the existing VPD patrol resources are working efficiently:

- Patrol workload is shared relatively equitably between the existing patrol districts. Similar trends are observed across all patrol districts. Most discrepancies

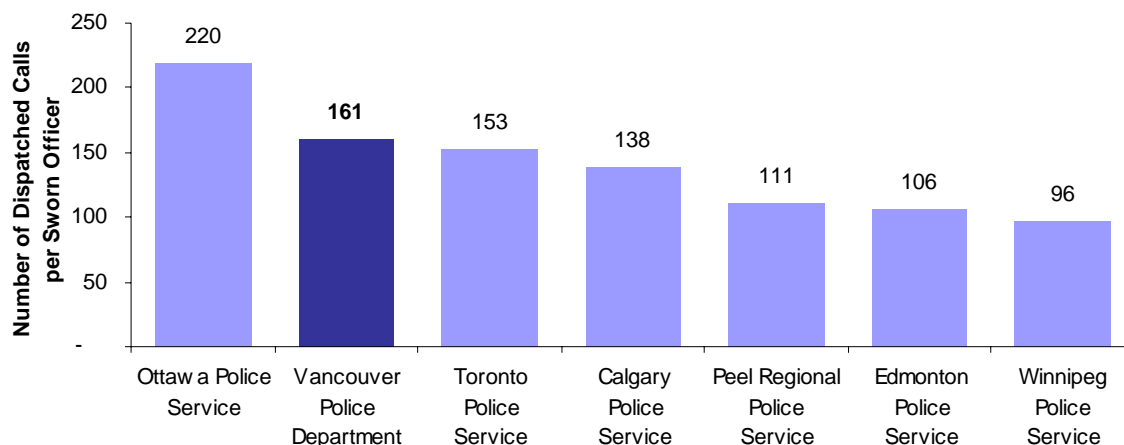
between patrol districts can be explained satisfactorily by a careful analysis of the data.

- The VPD's operational policies and tactical guidelines appear to be applied consistently across the existing four patrol districts. Overall, empirical evidence suggests that patrol officers and supervisors are able to reliably assess how many units should be assigned to each incident and how much time they should spend on each case.
- No patrol time is being wasted on unfounded or minor calls for service by VPD regular patrol units. On average, VPD regular patrol units spend approximately 1 hour and 20 minutes on each call for service they are dispatched to. On average, the police agencies surveyed under the framework of this Patrol Deployment Study were spending an average of approximately 1 hour and 22 minutes per call. In general, patrol officers at the VPD spend more time on serious incidents. This represents an efficient allocation of patrol resources and it follows the best practices in the field of law enforcement.
- The current VPD shifting pattern is able to match patrol resources with call load very closely. This suggests that the current VPD shifting pattern is efficient.
- The average call load per officer at the VPD is higher than most other comparable Canadian police agencies. Between 2005-06-01 and 2006-05-31, a total of 188,616 calls were dispatched to VPD units. This corresponds to 161 dispatched calls per officer on average and this represents a higher call load per officer than the Toronto Police Service, the Calgary Police Service, the Peel Regional Police Service, the Edmonton Police Service and the Winnipeg Police Service.<sup>29</sup>

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<sup>29</sup> While more calls are dispatched per officer at the Ottawa Police Service, Vancouver has twice the crime rate of Ottawa.

**Figure 18-3 Average Number of Dispatched Calls per Sworn Officer in Select Canadian Police Agencies**



The Patrol Deployment Study Project Team has identified some internal inefficiencies that need to be addressed in order to optimize the performance of VPD patrol operations. The following internal changes should be implemented in order to ensure the efficient use of existing patrol resources:

- Reducing the total number of officers working in District Surveillance Teams (DSTs). Currently, the VPD makes use of 4 DSTs, 3 of which are drawn from existing patrol resources. An examination of these DSTs showed that, while the teams are effective at investigating certain types of crimes, 2 formalized DSTs would be more efficient at this time. The Patrol Deployment Study Project Team therefore recommends that the extra officers that were in these teams be redeployed into a uniform patrol function. The Patrol Deployment Study Project Team recognizes that VPD's capacity to target chronic property offenders would be reduced, but believes that the balance between emergency response to calls for service and proactive crime fighting would be enhanced.
- Reducing the frequency and the length of special patrol-based projects (commonly referred to as Charlie or Delta projects). While special patrol-based projects can be effective at targeting specific crime problems, they reduce the number of uniform officers on patrol during the busiest times of the day. The Patrol Deployment Study Project Team therefore recommends that special

patrol-based projects be limited to situations that require targeted action by patrol officers in plainclothes to address a serious crime problem. These projects should be accompanied by an Operational Plan that is evaluated and approved by the District Inspector and should not take place on Fridays or Saturdays between 1200 and 0400 hours.

- Adjusting the minimum staffing levels in patrol. Based on an analysis of historical data, the Patrol Deployment Study Project Team suggests that minimum staffing levels be adjusted. In general, the new recommended minimum staffing levels do not differ significantly from the current minimum staffing levels. The recommended minimum staffing levels are meant to ensure that enough patrol officers are deployed to maintain a minimum level of public safety and to ensure the safety of on-duty officers.
- Reducing slightly the number of two-officer units deployed. An analysis of the deployment data showed that approximately 65% of all deployed regular patrol units at the VPD were two-officer units. Based on the empirical data, the Patrol Deployment Study Project Team concluded that the 60-40 deployment model was the most efficient option for patrol. In other words, 60% of all deployed police units should be two-officer units and 40% should be single-officer units. In practice, the proportion of two-officer units should be slightly less than 60% during the day and slightly more during the evening and at night. Overall, the proportion of two-officer units would average out to approximately 60%. The 60-40 model has the desirable property of harmonizing the proportion of two-officer units with the proportion of calls requiring a minimum of two officers. Moreover, the 60-40 model does not require any change in the number of patrol cars that need to be fielded and maintained. Also, the 60-40 deployment model is already formalized in Section 22 of the 2003-2006 Collective Agreement between the Vancouver Police Board and the Vancouver Police Union. As such, no major change in policy or in principle is required to enforce it.
- Maintaining the actual patrol strength closer to the authorized patrol strength. The Patrol Deployment Study Project Team recommends that a new policy be introduced to ensure that managers and supervisors maintain their actual patrol

strength as close as possible to the authorized strength (at least in the long-run). The goal of this policy would be to deter the loaning of patrol officers to other non-patrol duties.

- Assigning more calls for service to the Emergency Response Team (ERT). The Emergency Response Team (ERT) assists patrol officers with the most serious types of calls. It is recommended that when ERT is not tied up on serious calls, training activities or special assignments, they reprioritize how they spend their unallocated time to handle more calls that do not usually require a report or a lengthy investigation. This would include calls such as alarms, annoying circumstances, disturbance calls, noise complaints and suspicious circumstances, persons and vehicles.
- Maintaining the extended Delta shift. The VPD began extending the late afternoon shift by one hour in February 2006 on a trial basis. The existing Delta shift was extended from 1600 to 0400 hours (as opposed to 0300 hours). The extra hour comes from Paid Time Owed by the officers. The extension of the Delta shift has proven to be a worthwhile experiment and provides additional staff coverage during a busy time of the evening. The extra hour adds the equivalent of at least 5.5 additional patrol officers on the street over each calendar year.
- Implementing a weekend Delta Team in District 1. Based on the call load data, the Patrol Deployment Study Project Team recommends that a permanent fixed Delta Team be implemented in District 1 using existing patrol resources. The officers assigned to the fixed Delta Team would be drawn from the 33 officers that were added to District 1 as a result of the 2005 Council approvals. A team of 11 Constables would work Wednesday to Saturday from 1800 to 0400 hours. This would provide more officers in the Entertainment District during the busiest days of the week and busiest hours of the day.

These internal changes would be expected to lead to an average priority 1 response time shorter than 11 minutes and would provide some additional proactive time to patrol officers. To further reduce the VPD's average priority 1 response time and to provide more unallocated time for officers to conduct proactive policing activities, the VPD requires additional patrol resources.



To further improve patrol operations at the VPD, a set of staffing and deployment options are proposed by the Patrol Deployment Study Project Team. Three options are presented with different deployment models for the additional officers that are recommended. Each option identifies proposed stages for implementing the new officers. The recommendations that are contained in this report provide options to enable the Department to effectively address the top community safety concerns that are identified in the Vancouver Police Department Strategic Plan 2004-2008.

The Patrol Deployment Study Project Team estimates that a minimum of 122 additional Constables and 7 additional Sergeants are required to allow the VPD to reduce the average priority 1 response time to the best practice standard of 7 minutes. A minimum of 82 additional Constables would allow the VPD to attain an average utilization rate of 50%. With the addition of patrol officers at the VPD, it is expected that:

- Public safety would be increased.
- Response times to calls for service would be reduced.
- More criminals would be apprehended.
- Injuries to victims would be reduced.
- Witnesses would become more available.
- Clearance rates would be increased.
- The integrity of crime scenes and forensic evidence would be preserved more effectively.
- More proactive policing could be conducted.
- More criminal intelligence could be gathered.
- More on-view or self-generated arrests would be made.
- Customer service would improve.
- Some calls that were previously cancelled will be attended.
- Street disorder would be reduced.
- Traffic safety and traffic enforcement would be improved.
- Fewer report errors would be committed.
- Investigations would be more thorough.
- Police visibility and police presence would increase.



# 19 GLOSSARY

## **Available Unit-Minutes**

Total number of minutes during which patrol units are available to take calls.

## **Benchmark**

A point of reference or a standard against which measurements can be compared. The origin of the term benchmark can be traced historically to woodworking on a bench or table, where a mark was placed as a point of reference from which relative lengths could be measured. In the context of indicators, a benchmark is an accurate data point which is used as a reference for future comparisons (similar to a baseline). The term may also be used to denote “best practices” in a particular field.

## **Benchmarking**

A measured, "best-in-class" achievement; a reference or measurement standard for comparison. This performance level is recognized as the standard of excellence for a specific business process. The process of setting “benchmarks” involves identifying accurate historical data against which a current data set can be compared now and in the future.

## **Best Practices**

There is no single "best practice" because “best” is not best for every organization or circumstance. Every organization is different in some way in terms of: mission, culture, environment, technologies, financial situation, available resources and others. What is meant by "best" are those practices that have been shown, through empirical research, to produce superior results; selected by a systematic process; and judged as exemplary, good, or successfully demonstrated. Best practices are then adapted to fill

the specific needs of individual organizations. This term is often confused with “common practices”.

### **BET**

Beat Enforcement Team. Formerly known as the Citywide Enforcement Team (CET), the BET works in the Downtown Eastside neighbourhood of District 2 and provides a high visibility foot beat presence on the street.

### **Board**

The Vancouver Police Board.

### **BTA**

Breath Test Analysis.

### **CAD**

Computer Aided Dispatch. A CAD system is used by communications personnel to record calls for service and monitor the response of units in the field. CAD systems are widely used across the emergency services sector in general and the law enforcement field in particular. Before 2002-12-10, the VPD was using the Macro CAD system. Between 2002-12-10 and 2005-05-08, the VPD was using the Altaris CAD system. On 2005-05-08, the VPD implemented the Versadex Police CAD system.

## **Call Sign**

This is the police radio identifier for an individual police unit. An example would be "3D11". This means a police unit that works in District 3 (southeast Vancouver), on Delta shift (late afternoons) and is car number 11.

## **Call Stacking**

This is when police calls for service are being held by E-Comm and awaiting to be dispatched to police units. During busy times there may not be enough police units available to respond to all the calls for service, therefore, the calls are "stacked" or held in queue for police units when they become available.

## **Call Taker**

A call taker is the person at the emergency communications centre who normally speaks with the person who has dialled 9-1-1.

Call takers and dispatchers work together, sharing information through computer and radio systems. They coordinate all communications between police officers, firefighters and paramedics to ensure a safe, swift and appropriate response.

## **Case**

Police activity or investigation recorded in RMS. Also commonly referred to as a file, occurrence, incident or event where a police General Occurrence (GO) report is generated.

## **CET**

Citywide Enforcement Team. Formed in 2003, the CET changed its name in 2006 to the Beat Enforcement Team (BET). The CET works in the Downtown Eastside neighbourhood of District 2 and provides a high visibility foot beat presence on the street.

## **Common Practice**

A common practice is an approach or specific strategy that is frequently used in a particular industry or field. It may or may not be a best practice and the two should not be confused. The common use of a specific practice does not ensure that it is a best practice.

## **CompStat**

CompStat is a name derived from the words “computer statistics.” CompStat is the name given to a crime control model that was originally developed in the New York Transit Authority Police, and later the New York Police Department, in the early 1990s. Other police agencies such as the Los Angeles Police Department have subsequently adopted similar practices to increase organizational effectiveness, efficiency, and accountability. The model is based on the principle that police managers require a continual flow of information on crime patterns in their districts which will, in turn, increase the effectiveness of their decisions and of resource deployment.

CompStat rests on four basic principles:

1. Timely and accurate intelligence
2. Effective strategies and tactics
3. Rapid deployment of personnel and resources

#### 4. Relentless follow-up and assessment

### **Consumed Unit-Minutes**

Total number of minutes spent on calls for service by police units. This includes the time from which the unit is dispatched to the time the unit clears the call and becomes available to take another call.

### **Council**

The Mayor and City Council for the City of Vancouver.

### **COV**

City of Vancouver

### **Criminal Incidents**

Incidents that are offences under the Criminal Code of Canada (e.g. robbery), the Controlled Drugs and Substances Act (e.g. drug trafficking) or other federal statutes for which a person would obtain a criminal record if convicted. These are offences for which a person would usually (but not always) be fingerprinted and photographed.

### **Differential Response Unit**

The Telephone Response Team (TRT), the civilian report takers at E-Comm, the Safe Ride Program (civilian volunteers) and the staff working in the Public Service Counters at 2120 Cambie Street and 312 Main Street are differential response units because they offer alternative ways to handle calls for service.

## **Dispatched Incident or Call**

A call is dispatched when a police unit is formally assigned to respond to the incident.

## **Dispatcher**

A dispatcher is the person who speaks with the emergency personnel in the field. The dispatcher will also sometimes speak and listen to the caller as well.

Call takers and dispatchers work together, sharing information through computer and radio systems. They coordinate all communications between police officers, firefighters and paramedics to ensure a safe, swift and appropriate response.

## **District 1**

The Northwest quadrant of the City of Vancouver. This includes Stanley Park, Coal Harbour, the West End, the Downtown Core, BC Place (home of the BC Lions), GM Place (home of the Vancouver Canucks), Yaletown and the Entertainment District.

## **District 2**

The Northeast quadrant of the City of Vancouver. This includes the Downtown Eastside, Chinatown, Gastown, Strathcona, Grandview Woodlands, Hastings Sunrise and the Pacific National Exhibition (PNE).



### **District 3**

The Southeast quadrant of the City of Vancouver. This includes Mount Pleasant, Kensington Cedar-Cottage, Renfrew-Collingwood, Sunset, Victoria-Fraserview and Killarney.

### **District 4**

The Southwest quadrant of the City of Vancouver. This includes Kitsilano, West Point Grey, Fairview, Dunbar Southlands, Arbutus Ridge, Shaughnessy, South Cambie, Riley Park, Oakridge, Kerrisdale, Marpole and Musqueam.

### **Division**

The Vancouver Police Department is divided into four Divisions. Each one is commanded by a Deputy Chief Constable.

- Operations Division – Patrol operations fall under the Operations Division.
- Investigation Division
- Operations Support Division
- Support Services Division

### **DRE**

Drug Recognition Expert.

### **E-Comm**

Emergency Communications for Southwest British Columbia. E-Comm is the regional emergency communications centre for southwest British Columbia. Through a 911 call-centre, radio and dispatch system located in Vancouver, E-Comm provides

communication services and support systems to emergency responders and 2 million residents of Southwest British Columbia. E-Comm provides 911, call taking and dispatch services to the VPD.

E-Comm abides by the policies and procedures of the agencies for which it dispatches. This includes the appropriate units to dispatch, the size of the response and even if a response is warranted.

## **ERT**

Emergency Response Team. Sometimes referred to as the SWAT team.

## **General Occurrence (GO)**

A general occurrence is an incident report, completed within the PRIME-BC Records Management System. Each general occurrence is assigned a GO# (general occurrence number). These are commonly referred to as police reports.

## **Incident**

Police activity or call for service recorded in the CAD system. Also commonly referred to as a file, occurrence, case or event where a police report may or may not be generated. Police officers do not submit reports in RMS for every incident they attend. Some incidents turn out to be minor in nature and can be resolved without a formal report. Most incidents attended by police officers do not involve a crime.

## **Incident Number**

A unique occurrence number that is assigned to each call or incident recorded by the VPD's Computer Aided Dispatch (CAD) system. The numbers begin at 1 on January 1st

each year and are assigned sequentially as they are generated throughout the calendar year. An example would be when a citizen is provided with a police incident number for a B&E so they can notify their insurance company (e.g. 2006-123456). These are also referred to as a case number, file number, event number, occurrence number or a GO number.

### **MWS**

Mobile Work Station. These are the laptops/mobile workstations that officers use in their police cars to receive calls for service, query police databases and write police reports.

### **Metro Unit**

A patrol unit that is not assigned to a particular patrol district and can respond to calls anywhere in the City. They would be part of the Metro Team.

### **MVI**

Motor Vehicle Incident. Commonly referred to as a car accident.

### **NCO**

Non-Commissioned Officer. In policing this refers to officers holding the supervisory rank of Corporal, Sergeant or Staff Sergeant. In this report it refers to the rank of Sergeant only.

## **On-View Call**

Incidents that don't originate from the E-Comm dispatch centre where the officer has come across an incident in the field. An example would be an officer coming across a car accident or witnessing a crime in progress.

## **Patrol-Based Specialty Squad**

Patrol-based specialty squads or units include the beach patrol squad (seasonal in District 4), the Marine Squad, the Mounted Squad, the Dog Squad, the Emergency Response Team (ERT), the Car 86 (Police/Social Worker), the Car 87 (Police/Mental Health), the police units deployed to the Pacific National Exhibition (PNE), the Neighbourhood Policing Teams and the traffic units. Patrol-based specialty squads or units offer tactical support to regular patrol units or have specialized mandates.

## **Patrol-Based Call-Out Unit**

Patrol-based call-out units include the Liquor Control Squad (Lima Units) in District 1, the Firearms Interdiction Team (FIT), Counter Attack units (impaired driver checks), police units deployed on movie call-outs and other police units deployed on various special events like the Celebration of Lights, sporting events and concerts. Patrol-based call-out units are deployed only sporadically and usually receive overtime pay when they are deployed. These officers are deployed in uniform and would look like any other officer to a member of the public.

## **Patrol District**

The City of Vancouver is divided up into four separate patrol districts (see District 1, 2, 3, 4). Each district is under the control of an Inspector. There are 10 regular patrol teams per district and each team is supervised by a sergeant. There are a total of 40 patrol teams in the VPD.

## **PC**

Police Constable

## **Plainclothes**

An officer who is not working in uniform and is wearing normal street clothes to fit in with the general public.

## **PRIME**

Police Records Information Management Environment. This is the RMS system used by the Vancouver Police Department since 2001. It is the provincial standard for police records in BC and has been mandated for use by all police agencies in the province (RCMP and municipal police). Some agencies are still in the process of transitioning to the PRIME system. PRIME allows police agencies to browse police records from other jurisdictions to improve communications and assist in investigations.

## **Priority 1 Calls**

Emergency calls that require immediate police attention. They are life threatening calls that can lead to death or grievous bodily harm. In essence, priority 1 calls are the most serious calls that the VPD responds to. Priority 1 calls include armed robberies, assaults in progress, sexual assaults in progress, domestic violence in progress, home invasions, shootings and stabbings.

## Priority 2 Calls

Urgent calls that require immediate police attention but do not involve a life threatening situation. Priority 2 calls include abandoned 9-1-1 calls, break and enters in progress, fights, frauds in progress, indecent acts in progress, mischiefs in progress and prowlers.

## Priority 3 Calls

Routine calls. Priority 3 calls include assaults (not in progress), sexual assaults (not in progress), noise complaints, disturbing parties, hazardous situations, missing persons, suspicious circumstances/persons/vehicles and sudden deaths.

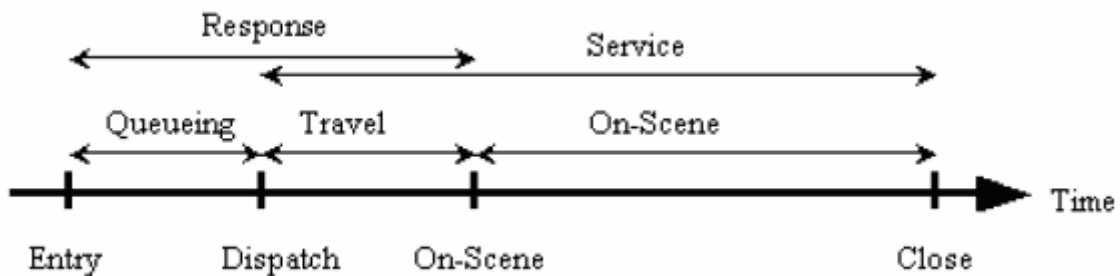
## Priority 4 Calls

Low priority non-urgent calls. Priority 4 calls include break and enters (not in progress), frauds, mischiefs and thefts.

## Queuing Delay

The elapsed time from when a call for service is received by 911 (E-Comm) to when it is dispatched to an officer/unit.

### Queuing Delay, Travel Time, On-Scene Time, Response Time and Service Time



## **Queuing Theory**

The mathematical study of waiting lines (or queues). It is generally considered a branch of operations research and is applicable to a wide variety of situations in business, commerce, industry, public service and engineering. The theory enables mathematical analysis of several related processes, including arriving at the back of the queue, waiting in the queue (essentially a staging process) and being served by the servers at the front of the queue. The theory permits the derivation and calculation of several performance measures.

## **Ratio of Consumed Unit-Minutes to Available Unit-Minutes**

This is another way of saying unit utilization. The percentage of the time spent on calls for service.

## **Regular Patrol Unit**

Regular patrol units include the uniform patrol units, the Beat Enforcement Team, the bicycle units, the patrol beat teams and the plainclothes patrol units.

Among others, patrol wagons, patrol supervisors, the beach patrol squad, the Marine Squad, the Mounted Squad, the Dog Squad, the Emergency Response Team (ERT), the Car 86 (Police/Social Worker), the Car 87 (Police/Mental Health), the traffic units and the traffic authority members are not regular patrol units.

## **RMS**

Records Management System. This is the computer system that stores the records of police reports completed by officers. The VPD RMS is commonly referred to as PRIME.

## **Self-Initiated or Officer-Initiated Call**

This includes on-view calls and any other type of self initiated incident the officer generates that didn't originate from E-Comm.

## **Property Crime**

Property crime includes:

- Break and Enter (all categories)
- Theft – Motor Vehicle
- Theft (over and under \$5000)
- Possession of Stolen Property
- Fraud
- Arson
- Mischief (over and under \$5000), commonly referred to as vandalism/damage to property

## **RCMP**

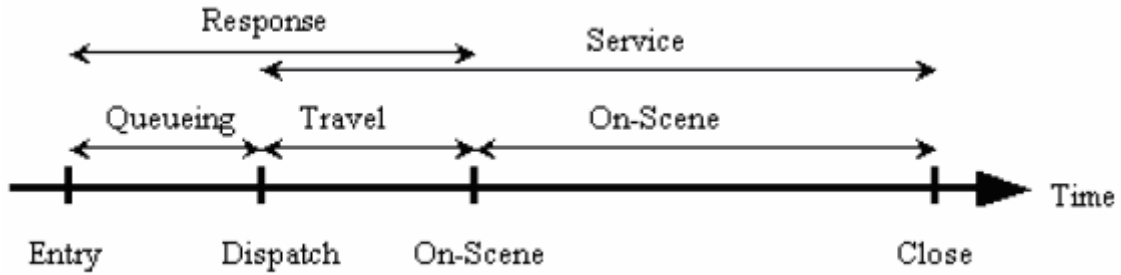
Royal Canadian Mounted Police

## **Response Time**

The elapsed time from when a call for service is received by 911 (E-Comm) to when the officer/unit arrives at the site of the emergency/incident.

**Queuing Delay, Travel Time, On-Scene Time, Response Time and Service Time**

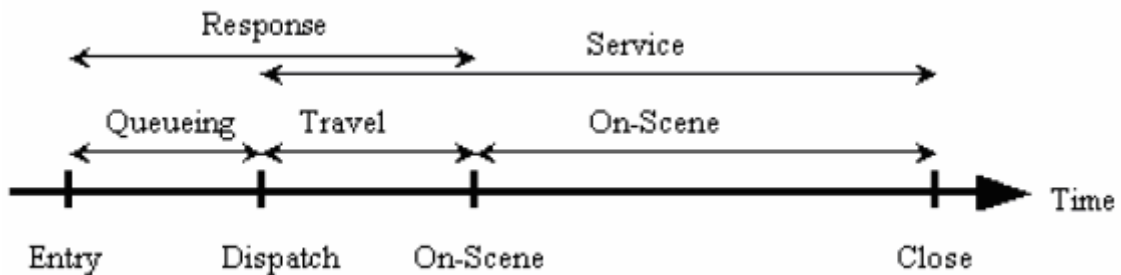




### Service Time

The elapsed time from when a call for service is dispatched to an officer/unit and the officer/unit closes/finishes the call.

### Queuing Delay, Travel Time, On-Scene Time, Response Time and Service Time



### Shifts

The VPD deploys five different patrol shifts every day of the year.\*

- Alpha Shift: 0445 – 1600 hours (11 hours and 15 minutes)
- Bravo Shift: 0700 – 1800 hours (11 hours)
- Charlie Shift: 1400 – 0100 hours (11 hours)
- Delta Shift: 1600 – 0400 hours (12 hours)
- Echo Shift: 1900 – 0600 hours (11 hours)

\*Note: The Alpha Shift is a fixed shift where officers work four days-on then four days-off. The Bravo, Charlie, Delta and Echo shift are rotating shifts where officers work four

on then four off. For example, an officer would work four Bravo Shifts, have four days off then return to work four Charlie Shifts.

## **SIPP**

State of Intoxication in a Public Place. This refers to be drunk/intoxicated in public contrary to Section 41 of the Liquor Control and Licensing Act (LCLA).

## **SFST**

Standard Field Sobriety Testing.

## **Stacked Calls**

See Call Stacking.

## **Strategic Plan**

The Vancouver Police Department has a Strategic Plan 2004 – 2008 that explains the goals and objectives of the Department.

Mission: In fulfillment of its public trust the Vancouver Police Department maintains public order, upholds the rule of law, and prevents crime.

Vision: Canada's leader in policing – providing safety for all

Values: "IPAR" – Integrity, Professionalism, Accountability, Respect

The five strategic steps are:

- Improving Community Safety, Specifically:
  - a. Reducing property crime

- b. Reducing violence against the vulnerable
  - c. Reducing violence caused by gangs and guns
  - d. Improving traffic safety
  - e. Reducing street disorder
- Implementing Best Practices
  - Marketing the Services of the VPD
  - Creating a Supportive Workplace
  - Securing Required Resources

### **Street Disorder**

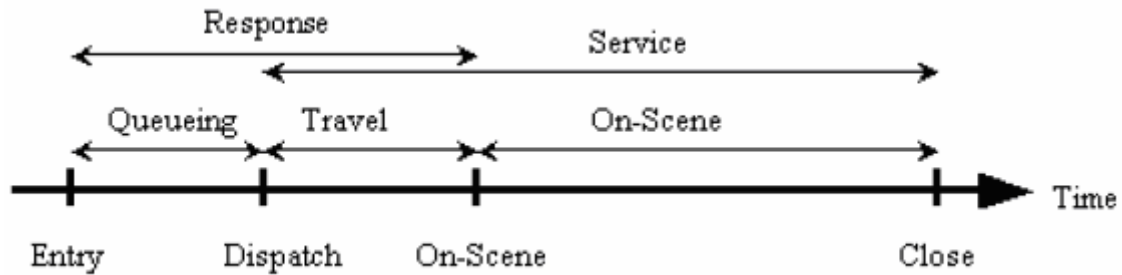
Any behaviour or activity that, while not necessarily criminal in nature, nevertheless contributes to a deterioration in the quality of life in a neighbourhood or district, including citizens' perception of personal safety. This behaviour includes, but is not restricted to:

- Aggressive panhandling
- Squeegeeing
- Graffiti
- Fighting
- Loud noises and disturbances in public places
- Drunken hooliganism
- Disorder associated with open air drug markets
- Unlicensed street vending
- Sleeping/camping in parks and other public spaces

### **Travel Time**

The elapsed time from when a call for service is dispatched to an officer/unit and the officer/unit arrives on scene.

### **Queuing Delay, Travel Time, On-Scene Time, Response Time and Service Time**



## Unit

This term can have two meanings in policing. It can refer to a squad or team of officers normally supervised by a sergeant. In dispatch terminology it refers to a designation given to one or two officers working together with a common call sign (see Call Sign). Two uniformed officers working together in the same police car would be called a unit.

## Unit Utilization

Proportion of the available unit minutes consumed by calls for service.

## Violent Crime

Violent crime includes:

- Homicide
- Attempted Murder
- Sexual Offences
- Assaults
- Robbery

**Versaterm/Versadex**

Versaterm is a Canadian company founded in 1977 and headquartered in Ottawa, Ontario. It also owns a US based subsidiary in Scottsdale, Arizona. They provide police, fire and ambulance services with advanced information management and dispatch systems. It is the vendor of the Versadex CAD and RMS products (commonly referred to as PRIME) used by E-Comm and the VPD.

**VPD**

Vancouver Police Department

**Vulnerable**

The Strategic Plan identifies the vulnerable as:

- Victims of domestic violence
- Victims of sexual abuse/violence
- Sex trade workers
- The elderly
- Children

## 20 REFERENCES

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## 21 APPENDIX I –TWO-OFFICER DEPLOYMENT MODELS

The queuing models used to study two-officer deployment were built under the assumption that:

- When a two-officer call is received, the dispatcher assigns a two-officer unit if a two-officer unit is available to be dispatched. If no two-officer unit is available to be dispatched and at least two single-officer units are available, the dispatcher assigns two single-officer units to the two-officer call. If no unit is available to be dispatched, the two-officer call is temporarily queued.
- When a single-officer call is received, the dispatcher assigns a single-officer unit if a single-officer unit is available to be dispatched. If no single-officer unit is available to be dispatched and a two-officer unit is available, the dispatcher assigns a two-officer unit to the single-officer call. If no unit is available to be dispatched, the single-officer call is temporarily queued.

For simplicity, the models rely on the assumption that the proportion of two-officer units deployed does not vary during each hour of the day. Intuitively, given the fact that queuing theory can only offer approximate results, this assumption should not significantly affect any of the more general conclusions.

Currently, approximately 65.0% of all regular patrol units deployed at the VPD are two-officer units. A total of four alternatives are studied in the context of the VPD Patrol Deployment Study:

- First, the possibility of deploying 70% of all regular patrol units as two-officer units and 30% as single-officer units is examined.
- Secondly, the possibility of deploying 60% of all regular patrol units as two-officer units and 40% as single-officer units is examined.
- Thirdly, the possibility of deploying 50% of all regular patrol units as two-officer units and 50% as single-officer units is examined.

- Finally, the possibility of deploying 40% of all regular patrol units as two-officer units and 60% as single-officer units is examined.

Each patrol district is analyzed separately because deployment and the workload will typically vary significantly across districts. The current staffing levels and call load are maintained under each scenario. Only the proportion of two-officer units is adjusted.

The average number of calls recorded during each hour of the day in each district is combined with queuing theory to simulate how patrol would operate under the various scenarios described above. To simplify the analysis, it is assumed under each scenario that:

- Single-officer units spend an average of 1 hour and 15 minutes on each call they are dispatched to.
- Two-officer units spend an average of 1 hour on each call they are dispatched to.
- Each call only requires one or two officers. In practice, some calls (e.g. the most serious incidents) will obviously require more officers. To capture this effect in the model, the number of calls is inflated to reflect the number of dispatches to each call. This allows the model to approximate patrol workload more precisely and to predict slightly more accurately how busy single-officer and two-officer units will be on average.
- Suspicious persons, suspicious circumstances, suspicious vehicles, requests for assistance from the general public, assault cases, threatening cases and harassment cases are primarily single-officer calls. In practice, some of these calls should probably be handled by at least two officers. However, this assumption is unlikely to affect the general conclusions suggested by the model.

Obviously, these assumptions are simplistic compared to what is observed in practice. However, for the most part, these are approximations supported by the empirical data presented above.

## 21.1 THE 70-30 DEPLOYMENT MODEL

The first option available to the VPD is to increase the proportion of two-officer regular patrol units deployed from 65.0% to 70.0%.

If the proportion of two-officer units deployed in District 1 had increased from 61.0% to 70.0% between 2005-06-01 and 2006-05-31, a total of 421 fewer regular patrol units would have been deployed overall. More precisely, 842 fewer single-officer units and 421 additional two-officer units would have been deployed in District 1 annually.

**Table 21-1 Number of Single and Two-Officer Regular Patrol Units Deployed in District 1 with the 70-30 Deployment Model**

	70-30 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	1,331	17.6%	2,173	27.3%
Single-Officer with Recruit	935	12.4%	935	11.7%
Two-Officer Unit	5,286	70.0%	4,865	61.0%
<b>Total Under 70-30 Model</b>	<b>7,552</b>	<b>100.0%</b>	<b>7,973</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			(842)	Units
Change in Number of Two-Officer Units:			421	Units
Net Change in Total Number of Units:			(421)	Units

If the proportion of two-officer units deployed in District 1 increased to 70.0%:

- 1,150 (126 fewer) regular patrol units would be deployed during the Alpha shift annually.
- 1,509 (70 fewer) regular patrol units would be deployed during the Bravo shift annually.
- 1,795 (41 fewer) regular patrol units would be deployed during the Charlie shift annually.
- 1,578 (155 fewer) regular patrol units would be deployed during the Delta shift annually.
- 1,520 (29 fewer) regular patrol units would be deployed during the Echo shift annually.

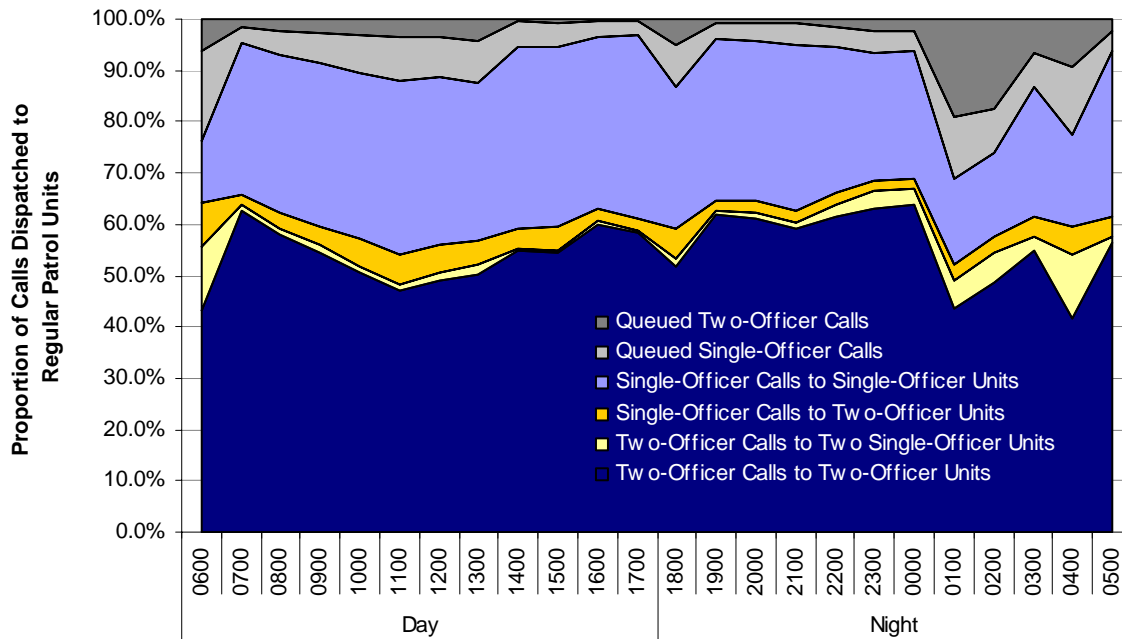
**Table 21-2 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 1 with the 70-30 Deployment Model**

	<b>70-30 Model</b>				
<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	278	67	805	1,150	70.0%
Bravo	262	191	1,057	1,509	70.0%
Charlie	297	241	1,256	1,795	70.0%
Delta	245	228	1,104	1,578	70.0%
Echo	248	208	1,064	1,520	70.0%
<b>Total</b>	<b>1,331</b>	<b>935</b>	<b>5,286</b>	<b>7,552</b>	<b>70.0%</b>

Overall, under the 70-30 deployment model and the assumptions presented above, it can be shown that:

- Approximately 74.4% of all single-officer calls in District 1 would be dispatched to a single-officer unit. An additional 9.3% would be dispatched to a two-officer unit and 16.3% would be queued or cancelled. Unfortunately, the model used here to simulate the deployment and dispatching of single and two-officer units is not refined enough to determine with any level of certainty what would happen to the queued calls.
- Approximately 88.7% of all two-officer calls in District 1 would be dispatched to a two-officer unit. An additional 4.2% would be dispatched to two single-officer units and 7.0% would be queued or cancelled.
- There would be 1.9 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this implies that a backup single-officer unit could arrive at the scene approximately 5 minutes and 57 seconds after being dispatched.
- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 59.6%. The average utilization rate for two-officer units would be 51.2%.

**Figure 21-1 Proportion of Single and Two-Officer Calls in District 1 Dispatched to Single and Two-Officer Units with the 70-30 Deployment Model**



If the proportion of two-officer units deployed in District 2 had decreased from 73.2% to 70.0% between 2005-06-01 and 2006-05-31, a total of 199 additional regular patrol units would have been deployed overall. More precisely, 398 additional single-officer units and 199 fewer two-officer units would have been deployed in District 2 annually.

**Table 21-3 Number of Single and Two-Officer Regular Patrol Units Deployed in District 2 with the 70-30 Deployment Model**

	70-30 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	2,225	20.8%	1,827	17.4%
Single-Officer with Recruit	984	9.2%	984	9.4%
Two-Officer Unit	7,489	70.0%	7,688	73.2%
<b>Total Under 70-30 Model</b>	<b>10,698</b>	<b>100.0%</b>	<b>10,499</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			398	Units
Change in Number of Two-Officer Units:			(199)	Units
Net Change in Total Number of Units:			199	Units

If the proportion of two-officer units deployed in District 2 decreased slightly to 70.0%:

- 1,186 (60 fewer) regular patrol units would be deployed during the Alpha shift annually.
- 3,356 (132 additional) regular patrol units would be deployed during the Bravo shift annually.
- 1,354 (38 fewer) regular patrol units would be deployed during the Charlie shift annually.
- 3,191 (160 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,611 (5 additional) regular patrol units would be deployed during the Echo shift annually.

**Table 21-4 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 2 with the 70-30 Deployment Model**

	<b>70-30 Model</b>				
<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	243	113	830	1,186	70.0%
Bravo	729	278	2,350	3,356	70.0%
Charlie	239	167	947	1,354	70.0%
Delta	699	258	2,234	3,191	70.0%
Echo	315	168	1,128	1,611	70.0%
<b>Total</b>	<b>2,225</b>	<b>984</b>	<b>7,489</b>	<b>10,698</b>	<b>70.0%</b>

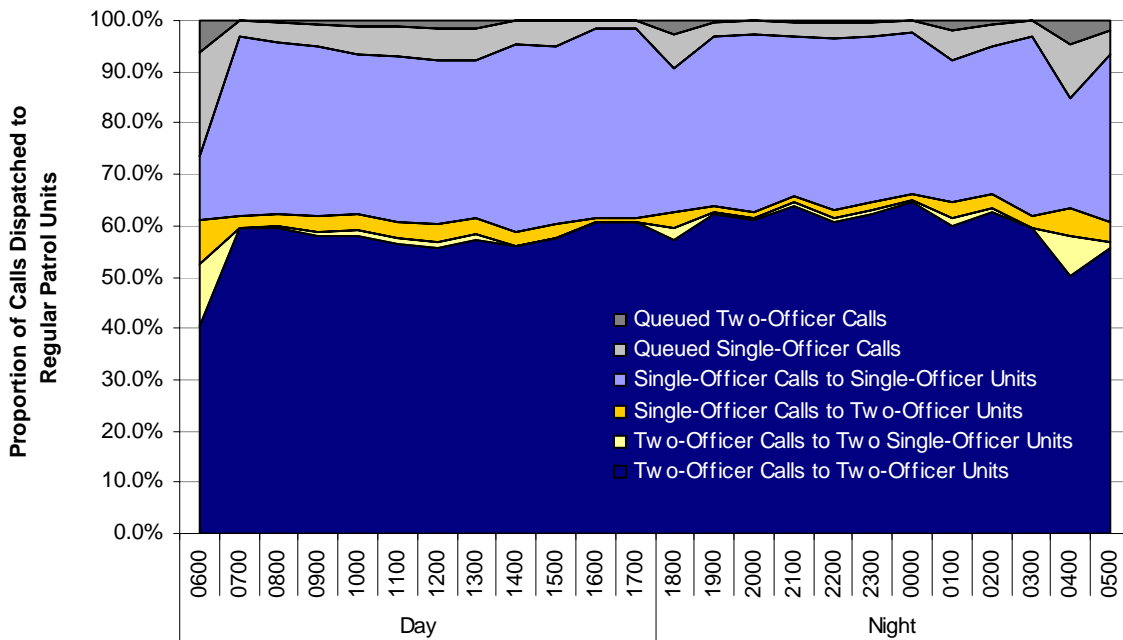
Overall, under the 70-30 deployment model and the assumptions presented above, it can be shown that:

- Approximately 82.1% of all single-officer calls in District 2 would be dispatched to a single-officer unit. An additional 6.3% would be dispatched to a two-officer unit and 11.6% would be queued or cancelled.
- Approximately 96.7% of all two-officer calls in District 2 would be dispatched to a two-officer unit. An additional 1.8% would be dispatched to two single-officer units and 1.5% would be queued or cancelled.



- There would be 2.2 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this implies that a backup single-officer unit could arrive at the scene approximately 6 minutes and 19 seconds after being dispatched.
- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 58.3%. The average utilization rate for two-officer units would be 45.6%.

**Figure 21-2 Proportion of Single and Two-Officer Calls in District 2 Dispatched to Single and Two-Officer Units with the 70-30 Deployment Model**



If the proportion of two-officer units deployed in District 3 had increased from 65.6% to 70.0% between 2005-06-01 and 2006-05-31, a total of 194 fewer regular patrol units would have been deployed overall. More precisely, 388 fewer single-officer units and 194 additional two-officer units would have been deployed in District 3 annually.

**Table 21-5 Number of Single and Two-Officer Regular Patrol Units Deployed in District 3 with the 70-30 Deployment Model**

	70-30 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	1,474	20.0%	1,861	24.6%
Single-Officer with Recruit	736	10.0%	736	9.7%
Two-Officer Unit	5,157	70.0%	4,963	65.6%
<b>Total Under 70-30 Model</b>	<b>7,366</b>	<b>100.0%</b>	<b>7,560</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			(388)	Units
Change in Number of Two-Officer Units:			194	Units
Net Change in Total Number of Units:			(194)	Units

If the proportion of two-officer units deployed in District 3 increased to 70.0%:

- 944 (117 fewer) regular patrol units would be deployed during the Alpha shift annually.
- 1,585 (32 fewer) regular patrol units would be deployed during the Bravo shift annually.
- 1,696 (71 additional) regular patrol units would be deployed during the Charlie shift annually.
- 1,582 (96 fewer) regular patrol units would be deployed during the Delta shift annually.
- 1,560 (19 additional) regular patrol units would be deployed during the Echo shift annually.

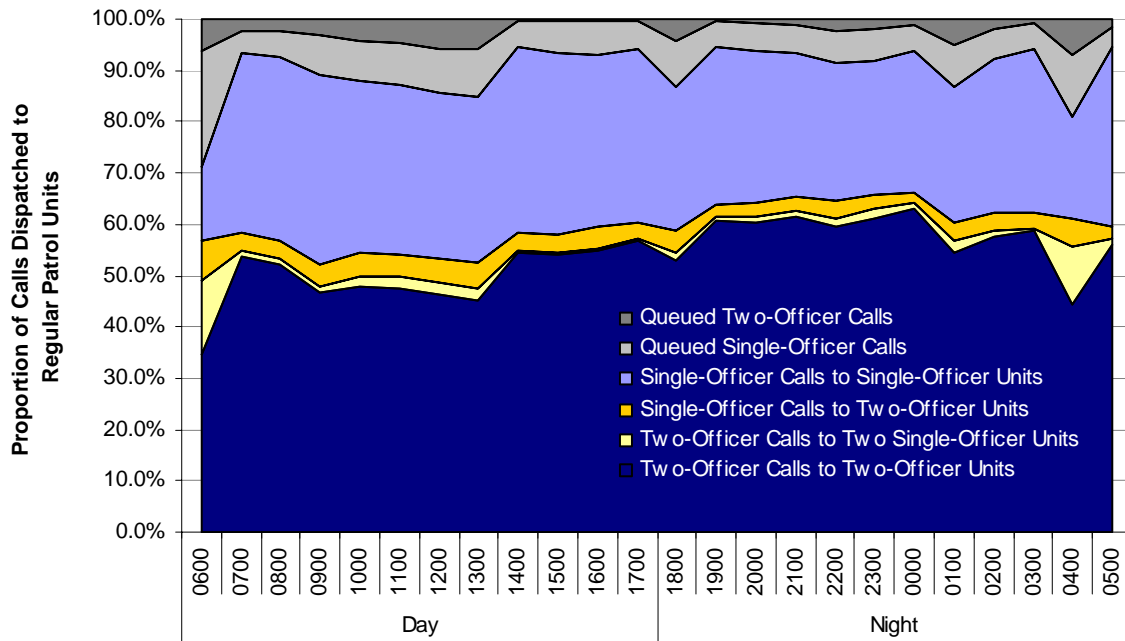
**Table 21-6 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 3 with the 70-30 Deployment Model**

Shift	70-30 Model				
	Single-Officer Units	Single-Officers with Recruit	Two-Officer Units	Total Units	Proportion of Two-Officer Units
Alpha	186	97	660	944	70.0%
Bravo	308	168	1,110	1,585	70.0%
Charlie	363	146	1,187	1,696	70.0%
Delta	313	162	1,107	1,582	70.0%
Echo	305	163	1,092	1,560	70.0%
<b>Total</b>	<b>1,474</b>	<b>736</b>	<b>5,157</b>	<b>7,366</b>	<b>70.0%</b>

Overall, under the 70-30 deployment model, it can be shown that:

- Approximately 74.6% of all single-officer calls in District 3 would be dispatched to a single-officer unit. An additional 8.8% would be dispatched to a two-officer unit and 16.6% would be queued or cancelled.
- Approximately 92.8% of all two-officer calls in District 3 would be dispatched to a two-officer unit. An additional 3.0% would be dispatched to two single-officer units and 4.1% would be queued or cancelled.
- There would be 1.6 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this implies that a backup single-officer unit could arrive at the scene approximately 7 minutes and 28 seconds after being dispatched.
- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 58.1%. The average utilization rate for two-officer units would be 46.9%.

**Figure 21-3 Proportion of Single and Two-Officer Calls in District 3 Dispatched to Single and Two-Officer Units with the 70-30 Deployment Model**



If the proportion of two-officer units deployed in District 4 had increased from 57.0% to 70.0% between 2005-06-01 and 2006-05-31, a total of 559 fewer regular patrol units would have been deployed overall. More precisely, 1,118 fewer single-officer units and 559 additional two-officer units would have been deployed in District 4 annually.

**Table 21-7 Number of Single and Two-Officer Regular Patrol Units Deployed in District 4 with the 70-30 Deployment Model**

	70-30 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	1,263	18.7%	2,381	32.5%
Single-Officer with Recruit	764	11.3%	764	10.4%
Two-Officer Unit	4,729	70.0%	4,170	57.0%
<b>Total Under 70-30 Model</b>	<b>6,756</b>	<b>100.0%</b>	<b>7,315</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			(1,118)	Units
Change in Number of Two-Officer Units:			559	Units
Net Change in Total Number of Units:			(559)	Units

If the proportion of two-officer units deployed in District 4 increased to 70.0%:

- 808 (150 fewer) regular patrol units would be deployed during the Alpha shift annually.
- 1,502 (106 fewer) regular patrol units would be deployed during the Bravo shift annually.
- 1,485 (175 fewer) regular patrol units would be deployed during the Charlie shift annually.
- 1,587 (64 fewer) regular patrol units would be deployed during the Delta shift annually.
- 1,374 (64 fewer) regular patrol units would be deployed during the Echo shift annually.

**Table 21-8 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 4 with the 70-30 Deployment Model**

	<b>70-30 Model</b>				
<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	157	85	565	808	70.0%
Bravo	288	163	1,052	1,502	70.0%
Charlie	252	193	1,039	1,485	70.0%
Delta	302	174	1,111	1,587	70.0%
Echo	263	149	962	1,374	70.0%
<b>Total</b>	<b>1,263</b>	<b>764</b>	<b>4,729</b>	<b>6,756</b>	<b>70.0%</b>

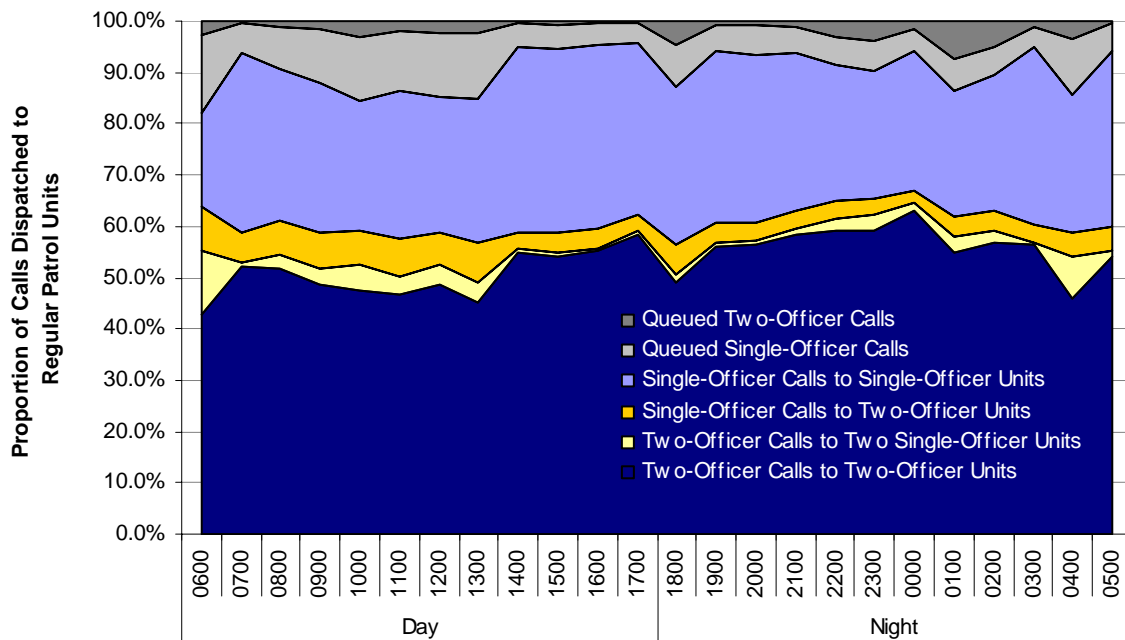
Overall, under the 70-30 deployment model, it can be shown that:

- Approximately 72.6% of all single-officer calls in District 4 would be dispatched to a single-officer unit. An additional 10.8% would be dispatched to a two-officer unit and 16.6% would be queued or cancelled.
- Approximately 92.4% of all two-officer calls in District 4 would be dispatched to a two-officer unit. An additional 3.8% would be dispatched to two single-officer units and 3.8% would be queued or cancelled.
- There would be 1.3 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this

implies that a backup single-officer unit could arrive at the scene approximately 8 minutes and 21 seconds after being dispatched.

- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 57.0%. The average utilization rate for two-officer units would be 45.6%.

**Figure 21-4 Proportion of Single and Two-Officer Calls in District 4 Dispatched to Single and Two-Officer Units with the 70-30 Deployment Model**



## 21.2 THE 60-40 DEPLOYMENT MODEL

Section 22 of the 2003-2006 Collective Agreement between the Vancouver Police Board and the Vancouver Police Union (VPU) states that:

*Normal deployment of the Operations Division shall be undertaken so as to ensure that a minimum of sixty percent (60%) of the cars deployed are deployed as two-person cars.*

The second option available to the VPD is to enforce the minimum deployment ratio mandated by the Vancouver Police Union Collective Agreement and deploy 60.0% of two-officer units.

If the proportion of two-officer units deployed in District 1 had decreased from 61.0% to 60.0% between 2005-06-01 and 2006-05-31, a total of 51 additional regular patrol units would have been deployed overall. More precisely, 102 additional single-officer units and 51 fewer two-officer units would have been deployed in District 1 annually.

**Table 21-9 Number of Single and Two-Officer Regular Patrol Units Deployed in District 1 with the 60-40 Deployment Model**

	60-40 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	2,275	28.3%	2,173	27.3%
Single-Officer with Recruit	935	11.7%	935	11.7%
Two-Officer Unit	4,814	60.0%	4,865	61.0%
<b>Total</b>	<b>8,024</b>	<b>100.0%</b>	<b>7,973</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			102	Units
Change in Number of Two-Officer Units:			(51)	Units
Net Change in Total Number of Units:			51	Units

If the proportion of two-officer units deployed in District 1 decreased to 60.0%:

- 1,222 (54 fewer) regular patrol units would be deployed during the Alpha shift annually.
- 1,604 (25 additional) regular patrol units would be deployed during the Bravo shift annually.
- 1,907 (71 additional) regular patrol units would be deployed during the Charlie shift annually.
- 1,676 (57 fewer) regular patrol units would be deployed during the Delta shift annually.
- 1,615 (66 additional) regular patrol units would be deployed during the Echo shift annually.

**Table 21-10 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 1 with the 60-40 Deployment Model**

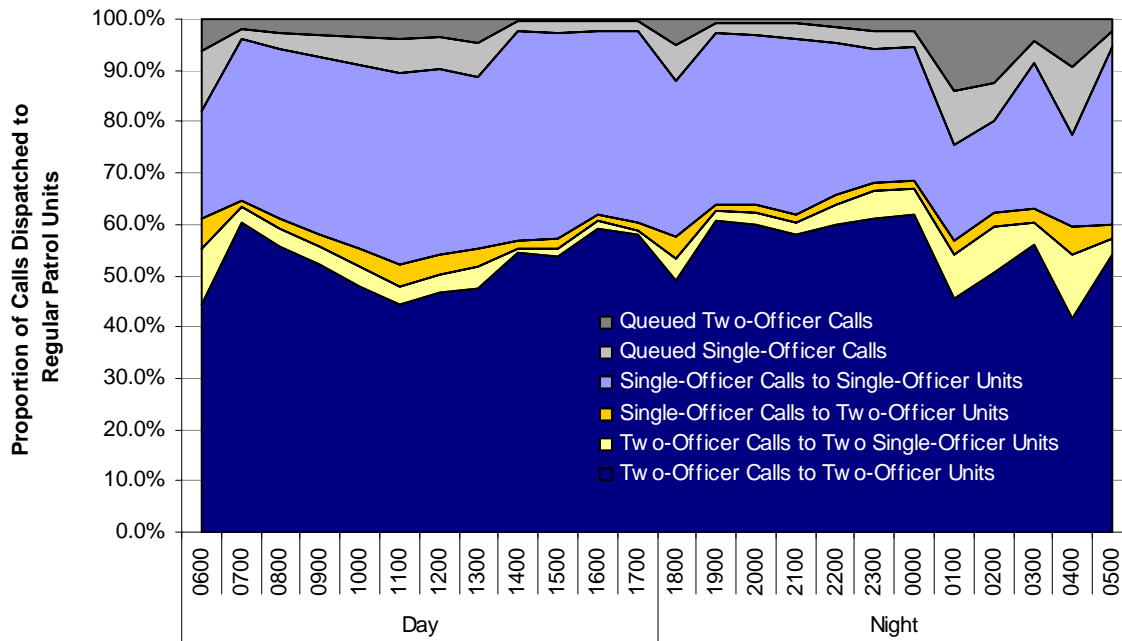
	<b>60-40 Model</b>				
<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	422	67	733	1,222	60.0%
Bravo	451	191	962	1,604	60.0%
Charlie	522	241	1,144	1,907	60.0%
Delta	443	228	1,006	1,676	60.0%
Echo	438	208	969	1,615	60.0%
<b>Total</b>	<b>2,275</b>	<b>935</b>	<b>4,814</b>	<b>8,024</b>	<b>60.0%</b>

Overall, under the 60-40 deployment model, it can be shown that:

- Approximately 80.9% of all single-officer calls in District 1 would be dispatched to a single-officer unit. An additional 6.7% would be dispatched to a two-officer unit and 12.5% would be queued or cancelled.
- Approximately 87.1% of all two-officer calls in District 1 would be dispatched to a two-officer unit. An additional 6.8% would be dispatched to two single-officer units and 6.1% would be queued or cancelled.
- There would be 2.3 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this implies that a backup single-officer unit could arrive at the scene approximately 5 minutes and 50 seconds after being dispatched.
- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 58.7%. The average utilization rate for two-officer units would be 53.6%.



**Figure 21-5 Proportion of Single and Two-Officer Calls in District 1 Dispatched to Single and Two-Officer Units with the 60-40 Deployment Model**



If the proportion of two-officer units deployed in District 2 had decreased from 73.2% to 60.0% between 2005-06-01 and 2006-05-31, a total of 199 additional regular patrol units would have been deployed overall. More precisely, 398 additional single-officer units and 199 fewer two-officer units would have been deployed in District 2 annually.

**Table 21-11 Number of Single and Two-Officer Regular Patrol Units Deployed in District 2 with the 60-40 Deployment Model**

	60-40 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	3,563	31.3%	1,827	17.4%
Single-Officer with Recruit	984	8.7%	984	9.4%
Two-Officer Unit	6,820	60.0%	7,688	73.2%
<b>Total</b>	<b>11,367</b>	<b>100.0%</b>	<b>10,499</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			1,736	Units
Change in Number of Two-Officer Units:			(868)	Units
Net Change in Total Number of Units:			868	Units

If the proportion of two-officer units deployed in District 2 decreased to 60.0%:

- 1,260 (14 additional) regular patrol units would be deployed during the Alpha shift annually.
- 3,566 (342 additional) regular patrol units would be deployed during the Bravo shift annually.
- 1,438 (46 additional) regular patrol units would be deployed during the Charlie shift annually.
- 3,391 (360 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,712 (106 additional) regular patrol units would be deployed during the Echo shift annually.

**Table 21-12 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 2 with the 60-40 Deployment Model**

	<b>60-40 Model</b>				
<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	391	113	756	1,260	60.0%
Bravo	1,149	278	2,140	3,566	60.0%
Charlie	408	167	863	1,438	60.0%
Delta	1,098	258	2,034	3,391	60.0%
Echo	517	168	1,027	1,712	60.0%
<b>Total</b>	<b>3,563</b>	<b>984</b>	<b>6,820</b>	<b>11,367</b>	<b>60.0%</b>

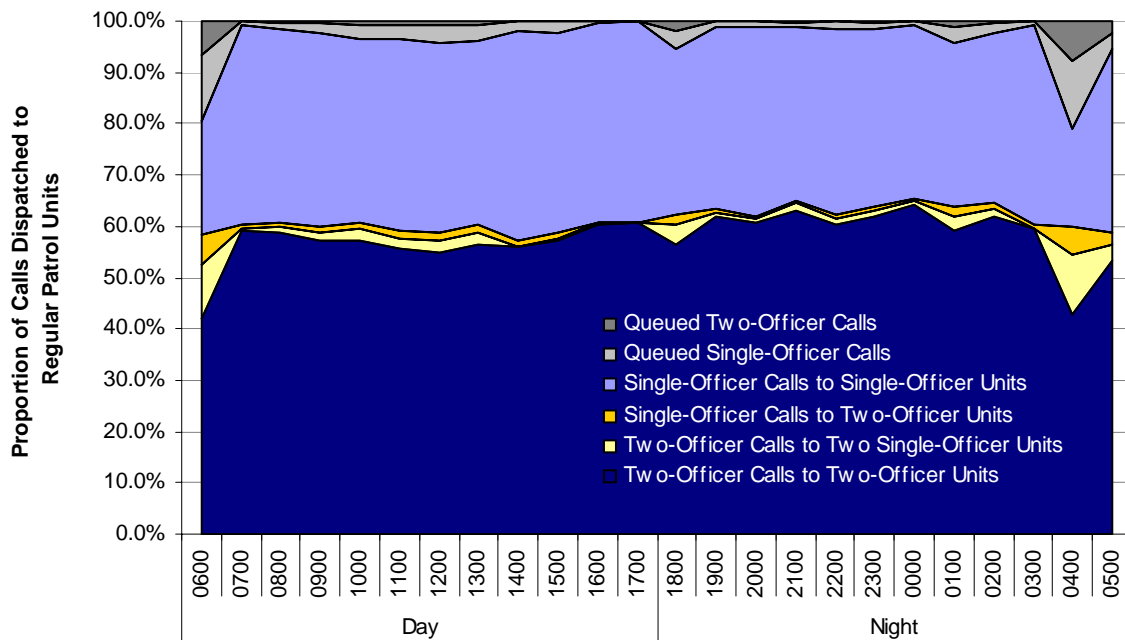
Overall, under the 60-40 deployment model, it can be shown that:

- Approximately 91.2% of all single-officer calls in District 2 would be dispatched to a single-officer unit. An additional 3.0% would be dispatched to a two-officer unit and 5.8% would be queued or cancelled.
- Approximately 95.6% of all two-officer calls in District 2 would be dispatched to a two-officer unit. An additional 3.0% would be dispatched to two single-officer units and 1.3% would be queued or cancelled.
- There would be 2.7 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this

implies that a backup single-officer unit could arrive at the scene approximately 6 minutes and 10 seconds after being dispatched.

- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 52.9%. The average utilization rate for two-officer units would be 48.3%.

**Figure 21-6 Proportion of Single and Two-Officer Calls in District 2 Dispatched to Single and Two-Officer Units with the 60-40 Deployment Model**



If the proportion of two-officer units deployed in District 3 had decreased from 65.6% to 60.0% between 2005-06-01 and 2006-05-31, a total of 267 additional regular patrol units would have been deployed overall. More precisely, 534 additional single-officer units and 267 fewer two-officer units would have been deployed in District 3 annually.

**Table 21-13 Number of Single and Two-Officer Regular Patrol Units Deployed in District 3 with the 60-40 Deployment Model**

	60-40 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	2,395	30.6%	1,861	24.6%
Single-Officer with Recruit	736	9.4%	736	9.7%
Two-Officer Unit	4,696	60.0%	4,963	65.6%
<b>Total</b>	<b>7,827</b>	<b>100.0%</b>	<b>7,560</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			534	Units
Change in Number of Two-Officer Units:			(267)	Units
Net Change in Total Number of Units:			267	Units

If the proportion of two-officer units deployed in District 3 decreased to 60.0%:

- 1,003 (59 fewer) regular patrol units would be deployed during the Alpha shift annually.
- 1,684 (67 additional) regular patrol units would be deployed during the Bravo shift annually.
- 1,802 (177 additional) regular patrol units would be deployed during the Charlie shift annually.
- 1,681 (3 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,658 (79 additional) regular patrol units would be deployed during the Echo shift annually.

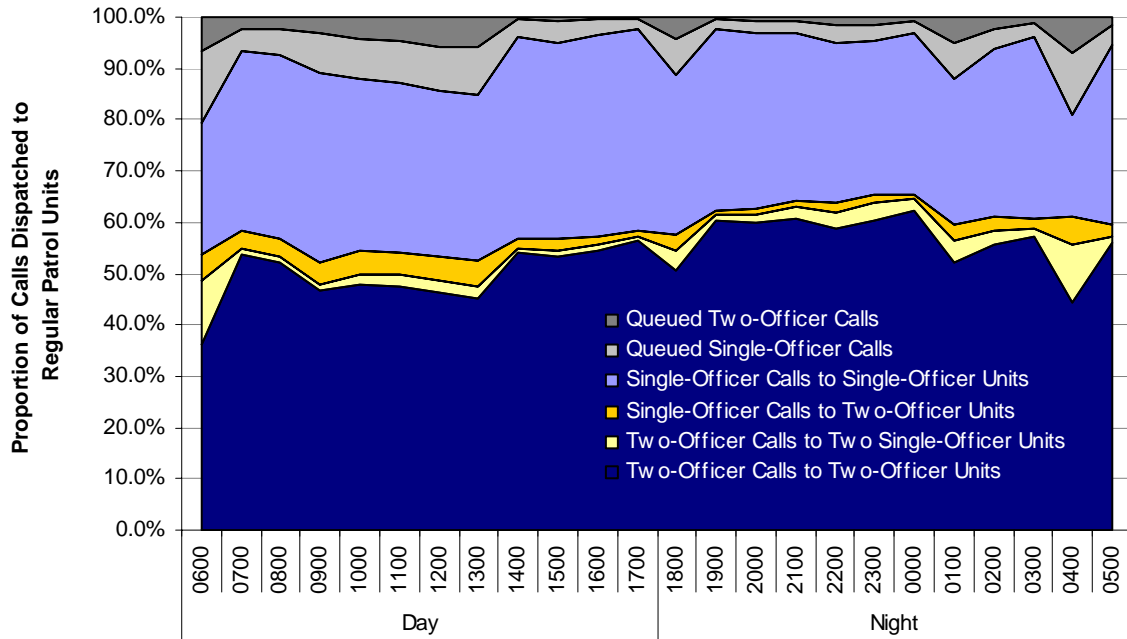
**Table 21-14 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 3 with the 60-40 Deployment Model**

	<b>60-40 Model</b>				
<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	304	97	602	1,003	60.0%
Bravo	506	168	1,011	1,684	60.0%
Charlie	575	146	1,081	1,802	60.0%
Delta	510	162	1,008	1,681	60.0%
Echo	500	163	995	1,658	60.0%
<b>Total</b>	<b>2,395</b>	<b>736</b>	<b>4,696</b>	<b>7,827</b>	<b>60.0%</b>

Overall, under the 60-40 deployment model, it can be shown that:

- Approximately 81.8% of all single-officer calls in District 3 would be dispatched to a single-officer unit. An additional 6.3% would be dispatched to a two-officer unit and 11.9% would be queued or cancelled.
- Approximately 91.7% of all two-officer calls in District 3 would be dispatched to a two-officer unit. An additional 4.4% would be dispatched to two single-officer units and 3.9% would be queued or cancelled.
- There would be 1.9 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this implies that a backup single-officer unit could arrive at the scene approximately 7 minutes and 12 seconds after being dispatched.
- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 56.3%. The average utilization rate for two-officer units would be 48.6%.

**Figure 21-7 Proportion of Single and Two-Officer Calls in District 3 Dispatched to Single and Two-Officer Units with the 60-40 Deployment Model**



If the proportion of two-officer units deployed in District 4 had increased slightly from 57.0% to 60.0% between 2005-06-01 and 2006-05-31, a total of 137 fewer regular patrol units would have been deployed overall. More precisely, 274 fewer single-officer units and 137 additional two-officer units would have been deployed in District 4 annually.

**Table 21-15 Number of Single and Two-Officer Regular Patrol Units Deployed in District 4 with the 60-40 Deployment Model**

	60-40 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	2,107	29.4%	2,381	32.5%
Single-Officer with Recruit	764	10.6%	764	10.4%
Two-Officer Unit	4,307	60.0%	4,170	57.0%
<b>Total</b>	<b>7,178</b>	<b>100.0%</b>	<b>7,315</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			(274)	Units
Change in Number of Two-Officer Units:			137	Units
Net Change in Total Number of Units:			(137)	Units

If the proportion of two-officer units deployed in District 4 increased to 60.0%:

- 858 (100 fewer) regular patrol units would be deployed during the Alpha shift annually.
- 1,596 (12 fewer) regular patrol units would be deployed during the Bravo shift annually.
- 1,578 (83 fewer) regular patrol units would be deployed during the Charlie shift annually.
- 1,686 (35 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,460 (22 additional) regular patrol units would be deployed during the Echo shift annually.

**Table 21-16 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 4 with the 60-40 Deployment Model**

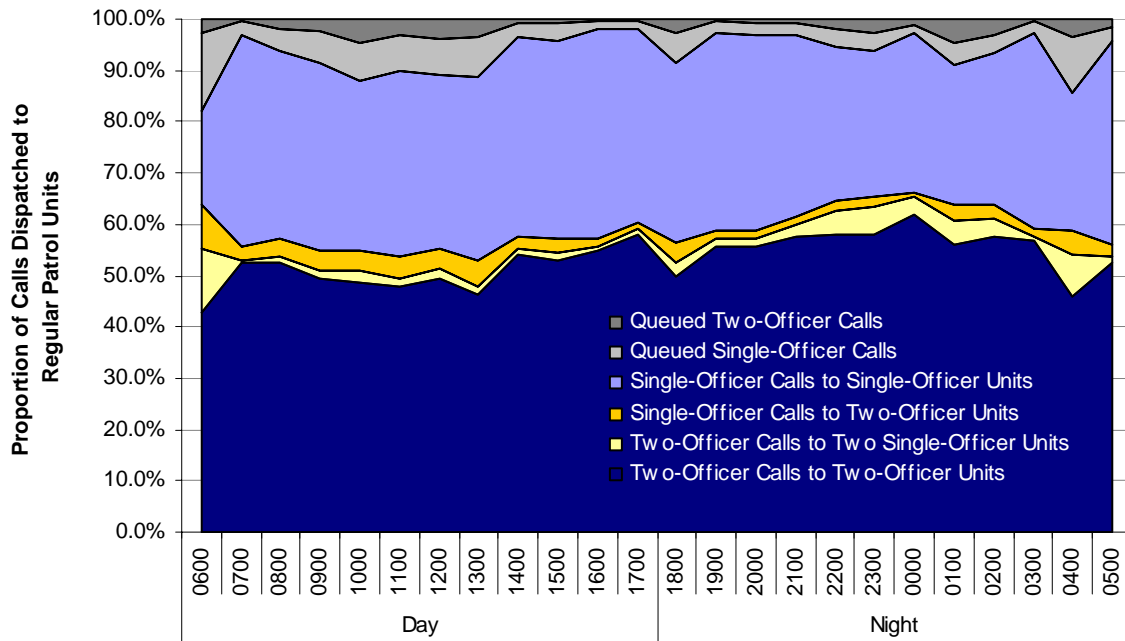
Shift	60-40 Model				
	Single-Officer Units	Single-Officers with Recruit	Two-Officer Units	Total Units	Proportion of Two-Officer Units
Alpha	258	85	515	858	60.0%
Bravo	476	163	958	1,596	60.0%
Charlie	438	193	947	1,578	60.0%
Delta	501	174	1,012	1,686	60.0%
Echo	435	149	876	1,460	60.0%
<b>Total</b>	<b>2,107</b>	<b>764</b>	<b>4,307</b>	<b>7,178</b>	<b>60.0%</b>

Overall, under the 60-40 deployment model, it can be shown that:

- Approximately 83.8% of all single-officer calls in District 4 would be dispatched to a single-officer unit. An additional 6.4% would be dispatched to a two-officer unit and 9.9% would be queued or cancelled.
- Approximately 92.1% of all two-officer calls in District 4 would be dispatched to a two-officer unit. An additional 4.6% would be dispatched to two single-officer units and 3.3% would be queued or cancelled.
- There would be 1.7 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this implies that a backup single-officer unit could arrive at the scene approximately 7 minutes and 56 seconds after being dispatched.
- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 53.6%. The average utilization rate for two-officer units would be 46.6%.



**Figure 21-8 Proportion of Single and Two-Officer Calls in District 4 Dispatched to Single and Two-Officer Units with the 60-40 Deployment Model**



### 21.3 THE 50-50 DEPLOYMENT MODEL

The third option available to the VPD is to deploy as many single-officer units as two-officer units.

If the proportion of two-officer units deployed in District 1 had decreased from 61.0% to 50.0% between 2005-06-01 and 2006-05-31, a total of 586 additional regular patrol units would have been deployed overall. More precisely, 1,172 additional single-officer units and 586 fewer two-officer units would have been deployed in District 1 annually.

**Table 21-17 Number of Single and Two-Officer Regular Patrol Units Deployed in District 1 with the 50-50 Deployment Model**

	50-50 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	3,344	39.1%	2,173	27.3%
Single-Officer with Recruit	935	10.9%	935	11.7%
Two-Officer Unit	4,279	50.0%	4,865	61.0%
<b>Total</b>	<b>8,559</b>	<b>100.0%</b>	<b>7,973</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			1,172	Units
Change in Number of Two-Officer Units:			(586)	Units
Net Change in Total Number of Units:			586	Units

If the proportion of two-officer units deployed in District 1 decreased to 50.0%:

- 1,303 (27 additional) regular patrol units would be deployed during the Alpha shift annually.
- 1,711 (132 additional) regular patrol units would be deployed during the Bravo shift annually.
- 2,034 (198 additional) regular patrol units would be deployed during the Charlie shift annually.
- 1,788 (55 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,723 (174 additional) regular patrol units would be deployed during the Echo shift annually.

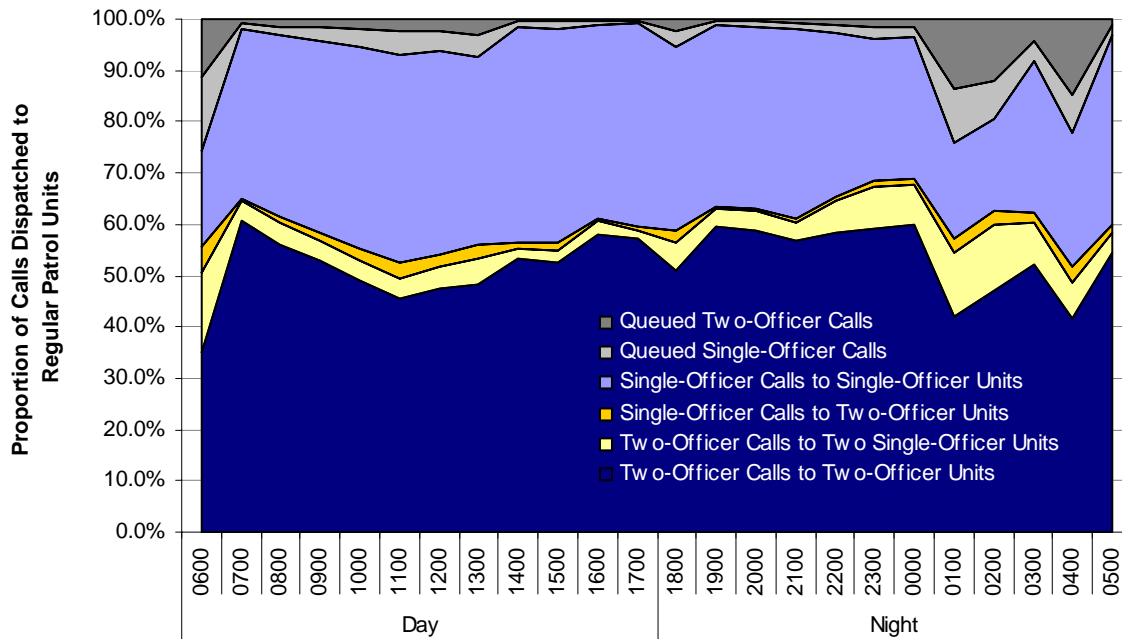
**Table 21-18 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 1 with the 50-50 Deployment Model**

Shift	50-50 Model				
	Single-Officer Units	Single-Officers with Recruit	Two-Officer Units	Total Units	Proportion of Two-Officer Units
Alpha	585	67	652	1,303	50.0%
Bravo	664	191	855	1,711	50.0%
Charlie	776	241	1,017	2,034	50.0%
Delta	666	228	894	1,788	50.0%
Echo	653	208	861	1,723	50.0%
<b>Total</b>	<b>3,344</b>	<b>935</b>	<b>4,279</b>	<b>8,559</b>	<b>50.0%</b>

Overall, under the 50-50 deployment model, it can be shown that:

- Approximately 86.8% of all single-officer calls in District 1 would be dispatched to a single-officer unit. An additional 4.3% would be dispatched to a two-officer unit and 8.9% would be queued or cancelled.
- Approximately 85.1% of all two-officer calls in District 1 would be dispatched to a two-officer unit. An additional 9.5% would be dispatched to two single-officer units and 5.4% would be queued or cancelled.
- There would be 2.8 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this implies that a backup single-officer unit could arrive at the scene approximately 5 minutes and 44 seconds after being dispatched.
- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 56.1%. The average utilization rate for two-officer units would be 55.0%.

**Figure 21-9 Proportion of Single and Two-Officer Calls in District 1 Dispatched to Single and Two-Officer Units with the 50-50 Deployment Model**



If the proportion of two-officer units deployed in District 2 had decreased from 73.2% to 50.0% between 2005-06-01 and 2006-05-31, a total of 1,626 additional regular patrol units would have been deployed overall. More precisely, 3,252 additional single-officer units and 1,626 fewer two-officer units would have been deployed in District 2 annually.

**Table 21-19 Number of Single and Two-Officer Regular Patrol Units Deployed in District 2 with the 50-50 Deployment Model**

	50-50 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	5,078	41.9%	1,827	17.4%
Single-Officer with Recruit	984	8.1%	984	9.4%
Two-Officer Unit	6,062	50.0%	7,688	73.2%
<b>Total</b>	<b>12,125</b>	<b>100.0%</b>	<b>10,499</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			3,252	Units
Change in Number of Two-Officer Units:			(1,626)	Units
Net Change in Total Number of Units:			1,626	Units

If the proportion of two-officer units deployed in District 2 decreased to 50.0%:

- 1,344 (98 additional) regular patrol units would be deployed during the Alpha shift annually.
- 3,804 (580 additional) regular patrol units would be deployed during the Bravo shift annually.
- 1,534 (142 additional) regular patrol units would be deployed during the Charlie shift annually.
- 3,617 (586 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,826 (220 additional) regular patrol units would be deployed during the Echo shift annually.

**Table 21-20 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 2 with the 50-50 Deployment Model**

	<b>50-50 Model</b>				
<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	559	113	672	1,344	50.0%
Bravo	1,624	278	1,902	3,804	50.0%
Charlie	600	167	767	1,534	50.0%
Delta	1,550	258	1,808	3,617	50.0%
Echo	745	168	913	1,826	50.0%
<b>Total</b>	<b>5,078</b>	<b>984</b>	<b>6,062</b>	<b>12,125</b>	<b>50.0%</b>

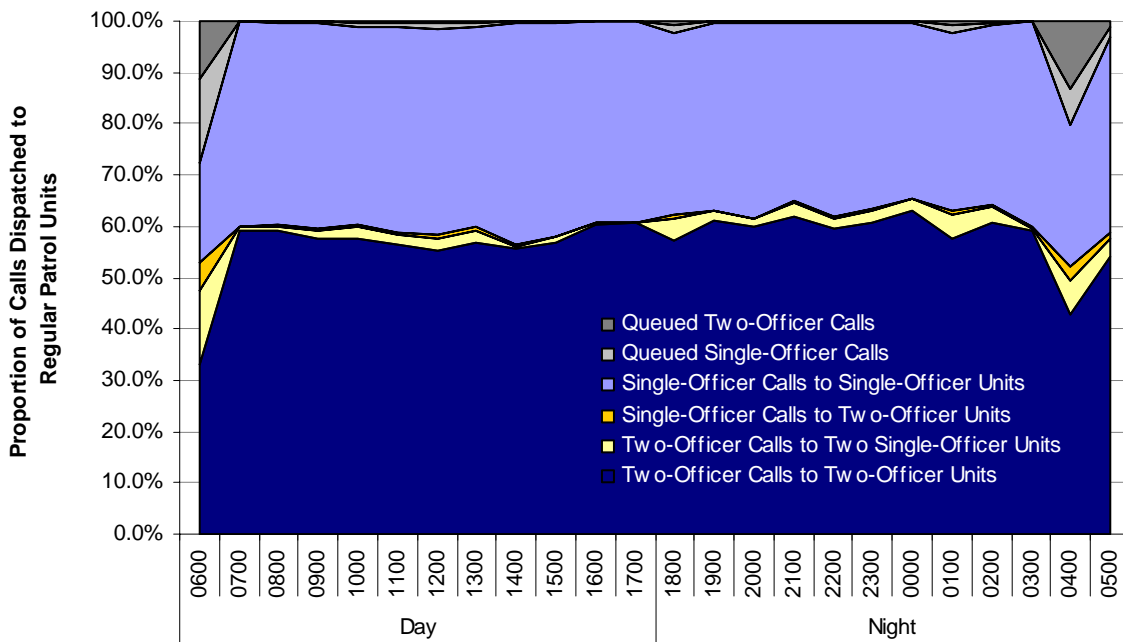
Overall, under the 50-50 deployment model, it can be shown that:

- Approximately 96.0% of all single-officer calls in District 2 would be dispatched to a single-officer unit. An additional 1.2% would be dispatched to a two-officer unit and 2.8% would be queued or cancelled.
- Approximately 94.9% of all two-officer calls in District 2 would be dispatched to a two-officer unit. An additional 3.9% would be dispatched to two single-officer units and 1.3% would be queued or cancelled.
- There would be 3.0 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this

implies that a backup single-officer unit could arrive at the scene approximately 6 minutes and 6 seconds after being dispatched.

- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 46.2%. The average utilization rate for two-officer units would be 49.8%.

**Figure 21-10 Proportion of Single and Two-Officer Calls in District 2 Dispatched to Single and Two-Officer Units with the 50-50 Deployment Model**



If the proportion of two-officer units deployed in District 3 had decreased from 65.6% to 50.0% between 2005-06-01 and 2006-05-31, a total of 789 additional regular patrol units would have been deployed overall. More precisely, 1,578 additional single-officer units and 789 fewer two-officer units would have been deployed in District 3 annually.

**Table 21-21 Number of Single and Two-Officer Regular Patrol Units Deployed in District 3 with the 50-50 Deployment Model**

	50-50 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	3,438	41.2%	1,861	24.6%
Single-Officer with Recruit	736	8.8%	736	9.7%
Two-Officer Unit	4,174	50.0%	4,963	65.6%
<b>Total</b>	<b>8,349</b>	<b>100.0%</b>	<b>7,560</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			1,578	Units
Change in Number of Two-Officer Units:			(789)	Units
Net Change in Total Number of Units:			789	Units

If the proportion of two-officer units deployed in District 3 decreased to 50.0%:

- 1,069 (8 additional) regular patrol units would be deployed during the Alpha shift annually.
- 1,797 (180 additional) regular patrol units would be deployed during the Bravo shift annually.
- 1,922 (297 additional) regular patrol units would be deployed during the Charlie shift annually.
- 1,793 (115 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,768 (189 additional) regular patrol units would be deployed during the Echo shift annually.

**Table 21-22 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 3 with the 50-50 Deployment Model**

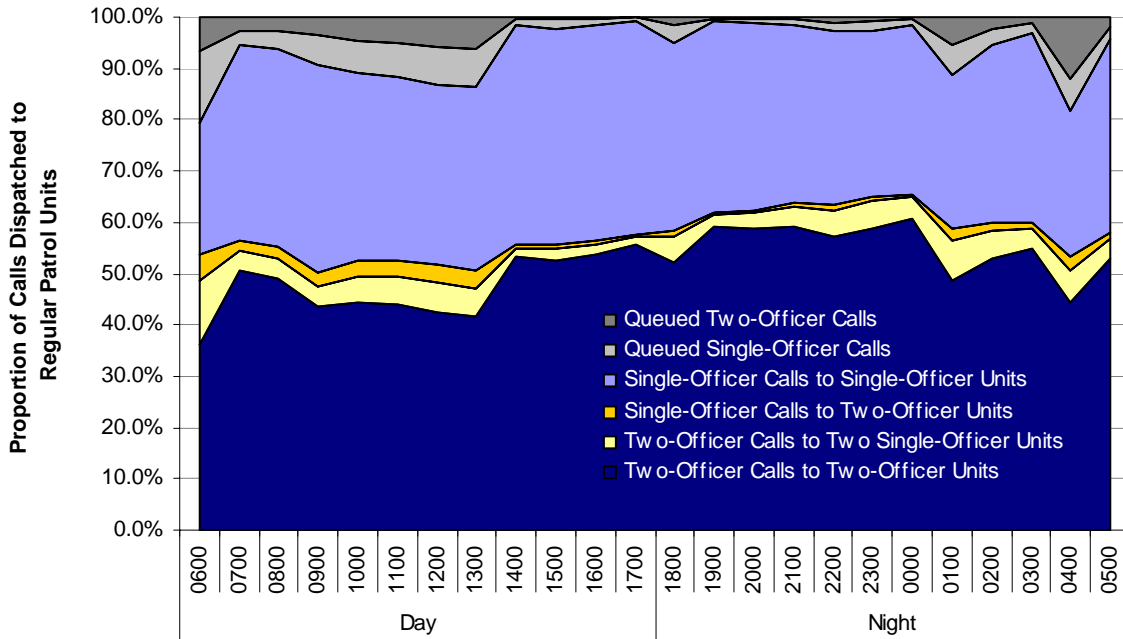
Shift	50-50 Model				
	Single-Officer Units	Single-Officers with Recruit	Two-Officer Units	Total Units	Proportion of Two-Officer Units
Alpha	438	97	535	1,069	50.0%
Bravo	730	168	898	1,797	50.0%
Charlie	815	146	961	1,922	50.0%
Delta	734	162	896	1,793	50.0%
Echo	721	163	884	1,768	50.0%
<b>Total</b>	<b>3,438</b>	<b>736</b>	<b>4,174</b>	<b>8,349</b>	<b>50.0%</b>

Overall, under the 50-50 deployment model, it can be shown that:

- Approximately 88.6% of all single-officer calls in District 3 would be dispatched to a single-officer unit. An additional 3.7% would be dispatched to a two-officer unit and 7.6% would be queued or cancelled.
- Approximately 88.8% of all two-officer calls in District 3 would be dispatched to a two-officer unit. An additional 7.3% would be dispatched to two single-officer units and 3.9% would be queued or cancelled.
- There would be 2.4 single-officer backup units available on average to assist another single-officer unit dispatched to a two-officer call. On average, this implies that a backup single-officer unit could arrive at the scene approximately 6 minutes and 57 seconds after being dispatched.
- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 53.6%. The average utilization rate for two-officer units would be 51.4%.



**Figure 21-11 Proportion of Single and Two-Officer Calls in District 3 Dispatched to Single and Two-Officer Units with the 50-50 Deployment Model**



If the proportion of two-officer units deployed in District 4 had decreased from 57.0% to 50.0% between 2005-06-01 and 2006-05-31, a total of 342 additional regular patrol units would have been deployed overall. More precisely, 684 additional single-officer units and 342 fewer two-officer units would have been deployed in District 4 annually.

**Table 21-23 Number of Single and Two-Officer Regular Patrol Units Deployed in District 4 with the 50-50 Deployment Model**

	50-50 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	3,064	40.0%	2,381	32.5%
Single-Officer with Recruit	764	10.0%	764	10.4%
Two-Officer Unit	3,828	50.0%	4,170	57.0%
<b>Total</b>	<b>7,657</b>	<b>100.0%</b>	<b>7,315</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			684	Units
Change in Number of Two-Officer Units:			(342)	Units
Net Change in Total Number of Units:			342	Units

If the proportion of two-officer units deployed in District 4 decreased to 50.0%:

- 1,069 (8 additional) regular patrol units would be deployed during the Alpha shift annually.
- 1,797 (180 additional) regular patrol units would be deployed during the Bravo shift annually.
- 1,922 (297 additional) regular patrol units would be deployed during the Charlie shift annually.
- 1,793 (115 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,768 (189 additional) regular patrol units would be deployed during the Echo shift annually.

**Table 21-24 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 4 with the 50-50 Deployment Model**

	<b>50-50 Model</b>				
<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	373	85	458	915	50.0%
Bravo	688	163	851	1,703	50.0%
Charlie	648	193	841	1,683	50.0%
Delta	725	174	899	1,799	50.0%
Echo	630	149	779	1,557	50.0%
<b>Total</b>	<b>3,064</b>	<b>764</b>	<b>3,828</b>	<b>7,657</b>	<b>50.0%</b>

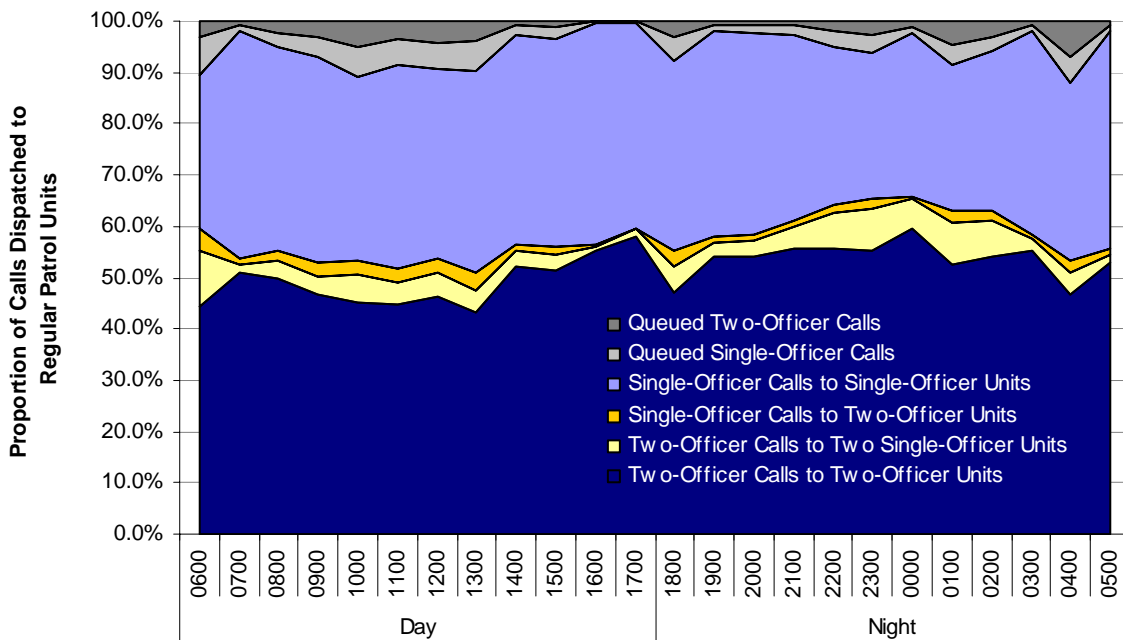
Overall, under the 50-50 deployment model, it can be shown that:

- Approximately 88.8% of all single-officer calls in District 4 would be dispatched to a single-officer unit. An additional 4.1% would be dispatched to a two-officer unit and 7.0% would be queued or cancelled.
- Approximately 88.7% of all two-officer calls in District 4 would be dispatched to a two-officer unit. An additional 7.7% would be dispatched to two single-officer units and 3.6% would be queued or cancelled.
- There would be 2.1 single-officer backup units available on average to assist another single-officer unit dispatched to a two-officer call. On average, this

implies that a backup single-officer unit could arrive at the scene approximately 7 minutes and 37 seconds after being dispatched.

- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 51.7%. The average utilization rate for two-officer units would be 49.1%.

**Figure 21-12 Proportion of Single and Two-Officer Calls in District 4 Dispatched to Single and Two-Officer Units with the 50-50 Deployment Model**



## 21.4 THE 40-60 DEPLOYMENT MODEL

The final option available to the VPD is to decrease the average proportion of two-officer regular patrol units deployed from 65.0% to 40.0%.

If the proportion of two-officer units deployed in District 1 had decreased from 61.0% to 40.0% between 2005-06-01 and 2006-05-31, a total of 1,197 additional regular patrol units would have been deployed overall. More precisely, 2,394 additional single-officer units and 1,197 fewer two-officer units would have been deployed in District 1 annually.

**Table 21-25 Number of Single and Two-Officer Regular Patrol Units Deployed in District 1 with the 40-60 Deployment Model**

	40-60 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	4,567	49.8%	2,173	27.3%
Single-Officer with Recruit	935	10.2%	935	11.7%
Two-Officer Unit	3,668	40.0%	4,865	61.0%
<b>Total</b>	<b>9,170</b>	<b>100.0%</b>	<b>7,973</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			2,394	Units
Change in Number of Two-Officer Units:			(1,197)	Units
Net Change in Total Number of Units:			1,197	Units

If the proportion of two-officer units deployed in District 1 decreased to 40.0%:

- 1,396 (120 additional) regular patrol units would be deployed during the Alpha shift annually.
- 1,833 (254 additional) regular patrol units would be deployed during the Bravo shift annually.
- 2,179 (343 additional) regular patrol units would be deployed during the Charlie shift annually.
- 1,916 (183 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,846 (297 additional) regular patrol units would be deployed during the Echo shift annually.

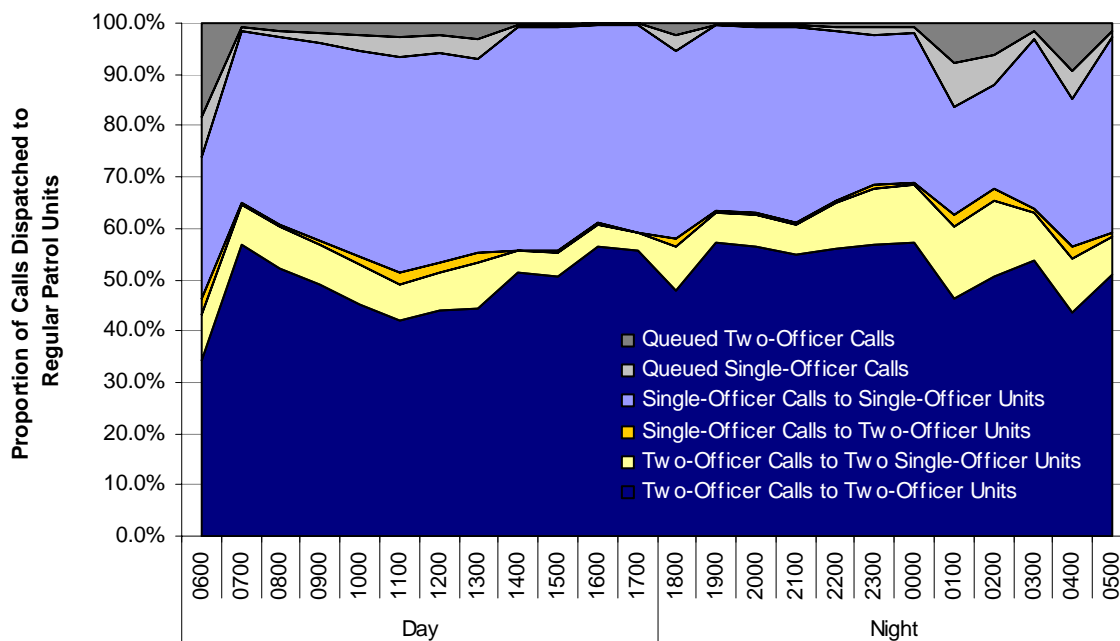
**Table 21-26 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 1 with the 40-60 Deployment Model**

Shift	40-60 Model				
	Single-Officer Units	Single-Officers with Recruit	Two-Officer Units	Total Units	Proportion of Two-Officer Units
Alpha	771	67	559	1,396	40.0%
Bravo	909	191	733	1,833	40.0%
Charlie	1,067	241	872	2,179	40.0%
Delta	921	228	766	1,916	40.0%
Echo	899	208	738	1,846	40.0%
<b>Total</b>	<b>4,567</b>	<b>935</b>	<b>3,668</b>	<b>9,170</b>	<b>40.0%</b>

Overall, under the 40-60 deployment model, it can be shown that:

- Approximately 91.0% of all single-officer calls in District 1 would be dispatched to a single-officer unit. An additional 2.8% would be dispatched to a two-officer unit and 6.2% would be queued or cancelled.
- Approximately 82.6% of all two-officer calls in District 1 would be dispatched to a two-officer unit. An additional 13.4% would be dispatched to two single-officer units and 4.0% would be queued or cancelled.
- There would be 3.4 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this implies that a backup single-officer unit could arrive at the scene approximately 5 minutes and 39 seconds after being dispatched.
- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 54.0%. The average utilization rate for two-officer units would be 57.7%.

**Figure 21-13 Proportion of Single and Two-Officer Calls in District 1 Dispatched to Single and Two-Officer Units with the 40-60 Deployment Model**



If the proportion of two-officer units deployed in District 2 had decreased from 73.2% to 40.0% between 2005-06-01 and 2006-05-31, a total of 2,492 additional regular patrol units would have been deployed overall. More precisely, 4,984 additional single-officer units and 2,492 fewer two-officer units would have been deployed in District 2 annually.

**Table 21-27 Number of Single and Two-Officer Regular Patrol Units Deployed in District 2 with the 40-60 Deployment Model**

	40-60 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	6,810	52.4%	1,827	17.4%
Single-Officer with Recruit	984	7.6%	984	9.4%
Two-Officer Unit	5,196	40.0%	7,688	73.2%
<b>Total</b>	<b>12,991</b>	<b>100.0%</b>	<b>10,499</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			4,984	Units
Change in Number of Two-Officer Units:			(2,492)	Units
Net Change in Total Number of Units:			2,492	Units

If the proportion of two-officer units deployed in District 2 decreased to 40.0%:

- 1,440 (194 additional) regular patrol units would be deployed during the Alpha shift annually.
- 4,076 (852 additional) regular patrol units would be deployed during the Bravo shift annually.
- 1,644 (252 additional) regular patrol units would be deployed during the Charlie shift annually.
- 3,875 (844 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,956 (350 additional) regular patrol units would be deployed during the Echo shift annually.

**Table 21-28 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 2 with the 40-60 Deployment Model**

	<b>40-60 Model</b>				
<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	751	113	576	1,440	40.0%
Bravo	2,167	278	1,630	4,076	40.0%
Charlie	819	167	657	1,644	40.0%
Delta	2,067	258	1,550	3,875	40.0%
Echo	1,006	168	783	1,956	40.0%
<b>Total</b>	<b>6,810</b>	<b>984</b>	<b>5,196</b>	<b>12,991</b>	<b>40.0%</b>

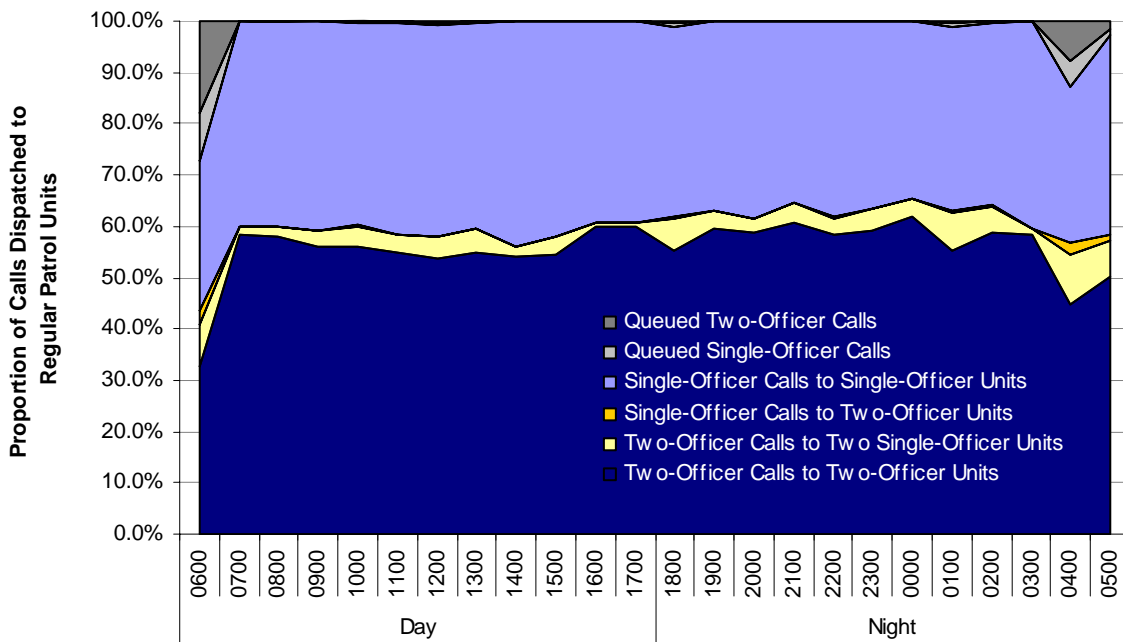
Overall, under the 40-60 deployment model, it can be shown that:

- Approximately 98.1% of all single-officer calls in District 2 would be dispatched to a single-officer unit. An additional 0.6% would be dispatched to a two-officer unit and 1.3% would be queued or cancelled.
- Approximately 92.5% of all two-officer calls in District 2 would be dispatched to a two-officer unit. An additional 6.3% would be dispatched to two single-officer units and 1.2% would be queued or cancelled.
- There would be 3.3 single-officer units available on average for backup to assist another single-officer unit dispatched to a two-officer call. On average, this

implies that a backup single-officer unit could arrive at the scene approximately 6 minutes and 2 seconds after being dispatched.

- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 41.2%. The average utilization rate for two-officer units would be 53.6%.

**Figure 21-14 Proportion of Single and Two-Officer Calls in District 2 Dispatched to Single and Two-Officer Units with the 40-60 Deployment Model**



If the proportion of two-officer units deployed in District 3 had decreased from 65.6% to 40.0% between 2005-06-01 and 2006-05-31, a total of 1,385 additional regular patrol units would have been deployed overall. More precisely, 2,770 additional single-officer units and 1,385 fewer two-officer units would have been deployed in District 3 annually.



**Table 21-29 Number of Single and Two-Officer Regular Patrol Units Deployed in District 3 with the 40-60 Deployment Model**

	40-60 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	4,631	51.8%	1,861	24.6%
Single-Officer with Recruit	736	8.2%	736	9.7%
Two-Officer Unit	3,578	40.0%	4,963	65.6%
<b>Total</b>	<b>8,945</b>	<b>100.0%</b>	<b>7,560</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			2,770	Units
Change in Number of Two-Officer Units:			(1,385)	Units
Net Change in Total Number of Units:			1,385	Units

If the proportion of two-officer units deployed in District 3 decreased to 40.0%:

- 1,440 (194 additional) regular patrol units would be deployed during the Alpha shift annually.
- 4,076 (852 additional) regular patrol units would be deployed during the Bravo shift annually.
- 1,644 (252 additional) regular patrol units would be deployed during the Charlie shift annually.
- 3,875 (844 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,956 (350 additional) regular patrol units would be deployed during the Echo shift annually.

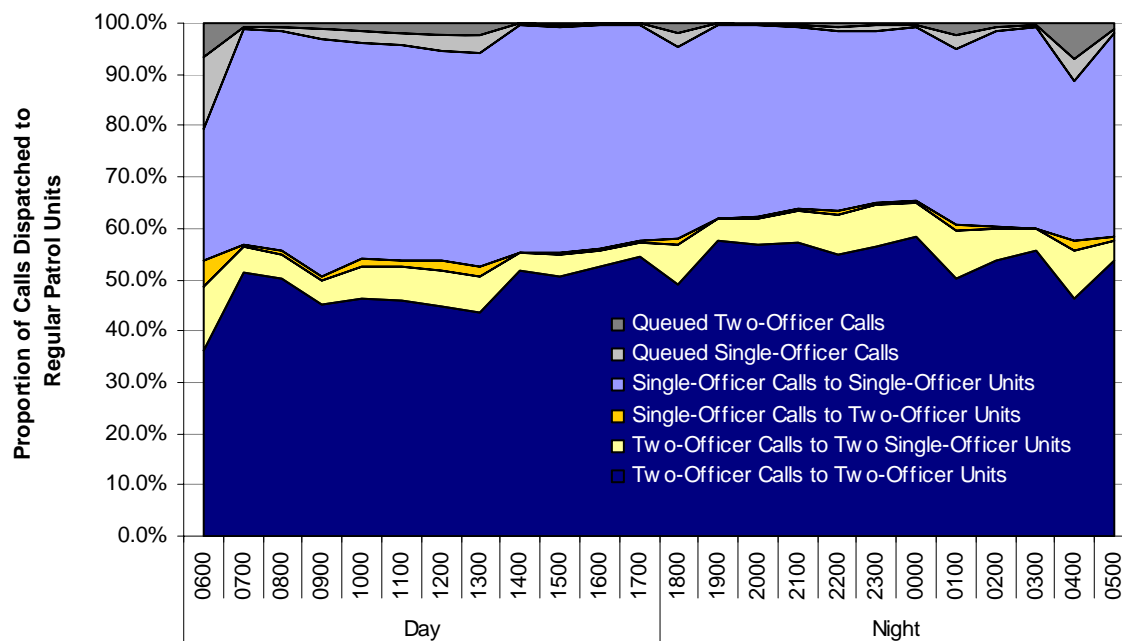
**Table 21-30 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 3 with the 40-60 Deployment Model**

	<b>40-60 Model</b>				
<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	590	97	458	1,146	40.0%
Bravo	987	168	770	1,925	40.0%
Charlie	1,090	146	824	2,059	40.0%
Delta	990	162	768	1,921	40.0%
Echo	974	163	758	1,894	40.0%
<b>Total</b>	<b>4,631</b>	<b>736</b>	<b>3,578</b>	<b>8,945</b>	<b>40.0%</b>

Overall, under the 40-60 deployment model, it can be shown that:

- Approximately 94.5% of all single-officer calls in District 3 would be dispatched to a single-officer unit. An additional 1.8% would be dispatched to a two-officer unit and 3.7% would be queued or cancelled.
- Approximately 87.8% of all two-officer calls in District 3 would be dispatched to a two-officer unit. An additional 10.4% would be dispatched to two single-officer units and 1.9% would be queued or cancelled.
- There would be 2.8 single-officer backup units available on average to assist another single-officer unit dispatched to a two-officer call. On average, this implies that a backup single-officer unit could arrive at the scene approximately 6 minutes and 46 seconds after being dispatched.
- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 49.0%. The average utilization rate for two-officer units would be 52.9%.

**Figure 21-15 Proportion of Single and Two-Officer Calls in District 3 Dispatched to Single and Two-Officer Units with the 40-60 Deployment Model**



If the proportion of two-officer units deployed in District 4 had decreased from 57.0% to 40.0% between 2005-06-01 and 2006-05-31, a total of 889 additional regular patrol units would have been deployed overall. More precisely, 1,778 additional single-officer units and 889 fewer two-officer units would have been deployed in District 4 annually.

**Table 21-31 Number of Single and Two-Officer Regular Patrol Units Deployed in District 4 with the 40-60 Deployment Model**

	40-60 Model		Current	
	Number of Units	%	Number of Units	%
Single-Officer Unit	4,158	50.7%	2,381	32.5%
Single-Officer with Recruit	764	9.3%	764	10.4%
Two-Officer Unit	3,281	40.0%	4,170	57.0%
<b>Total</b>	<b>8,204</b>	<b>100.0%</b>	<b>7,315</b>	<b>100.0%</b>
Change in Number of Single-Officer Units:			1,778	Units
Change in Number of Two-Officer Units:			(889)	Units
Net Change in Total Number of Units:			889	Units

If the proportion of two-officer units deployed in District 4 decreased to 40.0%:

- 981 (23 additional) regular patrol units would be deployed during the Alpha shift annually.
- 1,824 (216 additional) regular patrol units would be deployed during the Bravo shift annually.
- 1,803 (143 additional) regular patrol units would be deployed during the Charlie shift annually.
- 1,927 (276 additional) regular patrol units would be deployed during the Delta shift annually.
- 1,669 (231 additional) regular patrol units would be deployed during the Echo shift annually.

**Table 21-32 Number of Single and Two-Officer Regular Patrol Units Deployed by Shift in District 4 with the 40-60 Deployment Model**

	<b>40-60 Model</b>				
<b>Shift</b>	<b>Single-Officer Units</b>	<b>Single-Officers with Recruit</b>	<b>Two-Officer Units</b>	<b>Total Units</b>	<b>Proportion of Two-Officer Units</b>
Alpha	503	85	392	981	40.0%
Bravo	932	163	730	1,824	40.0%
Charlie	889	193	721	1,803	40.0%
Delta	982	174	771	1,927	40.0%
Echo	852	149	667	1,669	40.0%
<b>Total</b>	<b>4,158</b>	<b>764</b>	<b>3,281</b>	<b>8,204</b>	<b>40.0%</b>

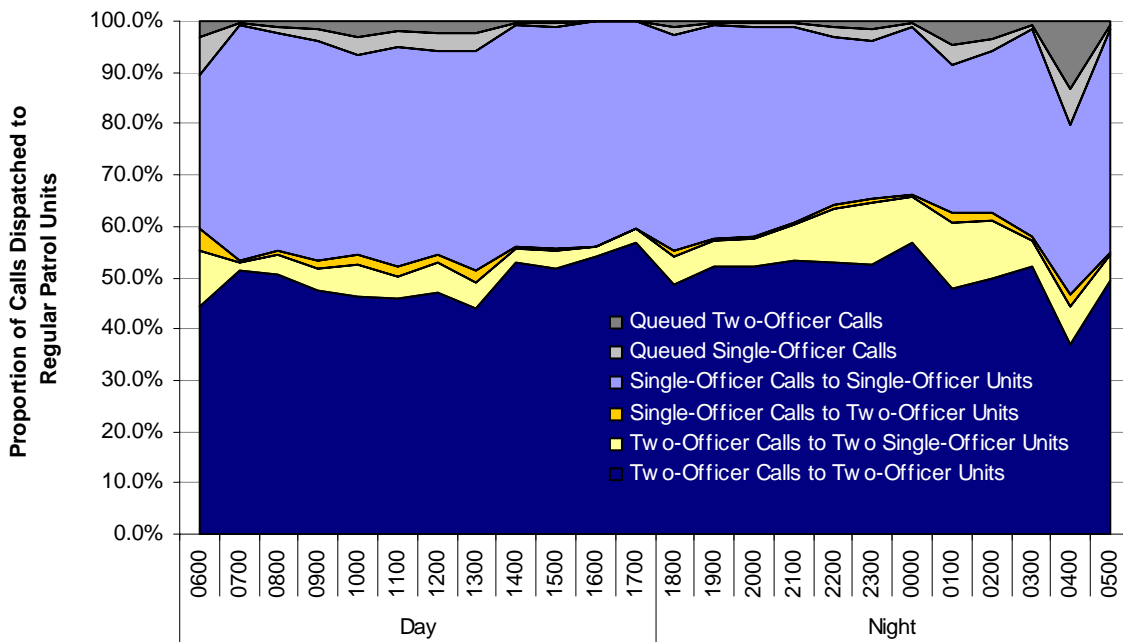
Overall, under the 40-60 deployment model, it can be shown that:

- Approximately 93.2% of all single-officer calls in District 4 would be dispatched to a single-officer unit. An additional 2.4% would be dispatched to a two-officer unit and 4.4% would be queued or cancelled.
- Approximately 86.1% of all two-officer calls in District 4 would be dispatched to a two-officer unit. An additional 11.2% would be dispatched to two single-officer units and 2.8% would be queued or cancelled.
- There would be 2.5 single-officer backup units available on average to assist another single-officer unit dispatched to a two-officer call. On average, this

implies that a backup single-officer unit could arrive at the scene approximately 7 minutes and 23 seconds after being dispatched.

- Without taking into account meal breaks or coffee breaks, the average utilization rate for single-officer units would be approximately 48.8%. The average utilization rate for two-officer units would be 50.7%.

**Figure 21-16 Proportion of Single and Two-Officer Calls in District 4 Dispatched to Single and Two-Officer Units with the 40-60 Deployment Model**



## **22 APPENDIX II – VPD DEPLOYMENT SURVEY OF OUTSIDE AGENCIES**

## Vancouver Police Department

### Deployment Survey

September 2006

The Vancouver Police Department (Canada) is currently involved in an Operational Review which includes an in-depth examination of police operations and deployment. As part of this review, the Department is gathering information on deployment from various police agencies in Canada and the United States. Accordingly, your input is valuable to the study and you have been selected to participate in a survey.

This survey is an opportunity for your agency to showcase its achievements and demonstrate its ability to innovate. **The results will be available upon request to those agencies that choose to respond to the survey.**

Given the complexity of some questions, you may not have the answers to all questions. If so, please write "NOT AVAILABLE" if the information is not available.

Once the survey is completed, please send any supporting documentation back to the Planning & Research Section of the Vancouver Police Department by **October 6, 2006** either by e-mail ([P&R.VPD@vpd.ca](mailto:P&R.VPD@vpd.ca)) or by fax (604-678-3765).

If you have questions, comments or suggestions, please contact Simon Demers, Planning Analyst in the Planning & Research Section of the Vancouver Police Department by e-mail ([simon.demers@vpd.ca](mailto:simon.demers@vpd.ca)) or by phone (604-717-2690).

Thank you in advance for your participation.

### Contact Information

<b>Name:</b>	
<b>Rank and/or title:</b>	
<b>Section or Division:</b>	
<b>Agency:</b>	
<b>Phone:</b>	
<b>Email:</b>	



## **Patrol (General Duty)**

1. How many Sworn Members work in patrol (e.g. units specifically dedicated to answering calls for service, excluding specialty units like SWAT/ERT, K-9, traffic, etc.)?
2. How much overtime was incurred by patrol units in 2005?
3. What is the average patrol team/squad size?
4. How many calls for service did your agency handle in 2005?
5. How many of these calls were dispatched to patrol units?
6. How many calls were self-initiated (or on-view or officer-initiated) incidents?
7. How does your agency define high priority (i.e. Priority 1) calls?
8. What was the average response time to high priority (i.e. Priority 1) calls in 2005?
9. What is the average time spent by patrol officers on each call for service? What is the average number of patrol units attending each call for service?

10. What is the average length of service of your patrol members?

11. What is the average length of service of your patrol supervisors?

12. Do you have minimum staffing levels in patrol? If so, are they mandated by a formal policy? How are the minimum staffing levels determined?

13. What is the scheduling pattern used in patrol?

E.g. 4-on-4-off, 4-on-3-off, etc.

14. What is the shifting pattern used in patrol?

E.g. morning shift from 0700 to 1900 hours, night shift from 1900 to 0700, etc.

15. How are shifts scheduled/allocated in patrol?

E.g. fixed, rotation, mixed, shift bidding (based on seniority/age or discretionary).

16. Do you use some software to determine how patrol resources should be allocated?

E.g. Managing Patrol Performance (MPP), Patrol Car allocation Model (PCAM), Desktop Hypercube, Staff Wizard, PROS, etc.

17. Excluding specialty units like the K-9 unit, SWAT or ERT, are patrol units assigned to a specific patrol district/area/region?

18. a. Do you have a patrol unit or a patrol team dedicated to specific types of calls (e.g. high priority calls, domestic violence calls, break & enters or burglaries, etc.)? If so, what is its mandate and what was the rationale for its creation?

b. If you have a patrol unit or a patrol team dedicated to specific types of calls, is it assigned to a specific patrol district or is it covering the entire jurisdiction?

19. Do you have dedicated foot patrol units or beat teams?

20. Do sworn officers attend cold burglaries or break & enters (B&E's) even when there is no physical evidence or suspect?

<b>Yes. Attend all of them.</b>	
<b>Yes. Attend most of them.</b>	
<b>No. Civilians or other personnel attend and write the report.</b>	
<b>No. Officers do not attend but take the report over the phone.</b>	
<b>No. Officers do not attend. A civilian takes the report over the phone.</b>	
<b>No. The complainant fills out a report using the Internet.</b>	

21. Does your agency deploy two-officer units? If so, how many (or in what proportion)?

E.g. 60% two-officer units and 40% one-officer units.

22. Is the proportion of two-officer units mandated by a labour agreement or by some departmental policies?

23. Are there specific times/instances where two-officer units are deployed? If so, what are they?

24. Do you have policies or performance goals for patrol? If so, what are they?

<b>% Proactive/uncommitted time</b>	
<b>% Reactive/committed time</b>	
<b>Average response time to high priority calls</b>	
<b>Probability of units free</b>	
<b>Minimum number of available units</b>	
<b>Other...</b>	

25. Do you measure/track the productivity of the patrol officers/units? If so, what do you measure?

### **Investigations**

26. How many investigative/specialty (non-patrol) units does your Department have (e.g. homicide, robbery, sexual assault, etc.)? Please include an organizational chart of your Department.

27. How many sworn officers (including special constables and secondments) and civilian employees are assigned to each unit?

28. How much overtime was incurred by each of those units in 2005?

29. a. What shifting model/structure is used in the investigative units?

b. If different shifting models/structures exist, what is/was the rationale?

30. Do detectives/investigators work evenings and weekends?

31. How long are the detectives' shifts?

E.g. 8 hours, 10 hours, 12 hours, etc.

## **Other**

32. What is your Department's authorized sworn strength? What is your Department's authorized civilian strength?

33. Does your police service have policies or processes in place to monitor and control the use of overtime? If so, describe them.

34. When you report crime statistics, does your agency report all offences related to each incident or only the most serious offence (e.g. uniform crime reporting or UCR).

35. Is there a program or an initiative that your agency is particularly proud of? If so, please explain.

36. Do you have additional comments or information that you would be willing to share with the Vancouver Police Department (VPD) and that could be relevant to the Operational Review?

Thank you for completing this survey. Your input is appreciated.

## **23 APPENDIX III – INTERVIEW QUESTIONS FOR E-COMM PERSONNEL**



**Vancouver Police Department**

**Interviews with E-Comm Personnel**

**November 2006**

Under the framework of the Operational Review, the Vancouver Police Department (VPD) is preparing a Patrol Deployment Study. We would like to know how you feel about some specific issues and would like to obtain your input.

Thank you very much for your assistance.

### Contact Information

<b>Name:</b>	
<b>Position or title:</b>	
<b>Agency:</b>	
<b>Section:</b>	
<b>Phone:</b>	
<b>Email:</b>	

### Interview Information

<b>Interviewer #1:</b>	
<b>Interviewer #2:</b>	
<b>Date:</b>	
<b>Time:</b>	
<b>Location:</b>	

1. What is your role with E-Comm? Please explain your duties.
  
2. What is your shifting/scheduling pattern? Are you assigned to a specific rotation (e.g. odd vs. even)? Are you assigned to a specific shift (e.g. Alpha, Bravo, Charlie, etc.)?  
Note: This information will be obtained from Shelly McMahon – Operations Manager.
  
3. Are you assigned to a specific patrol district?
  
4. Do you have any comments about how the VPD district boundaries are currently configured?
  
5. Explain the process through which 9-1-1 calls are handled from the time a 9-1-1 call is made/received to the time the last officer clears the call.
  
6. Do you have a formal policy/procedure for handling 9-1-1 calls?  
Note: This information will be obtained from Shelly McMahon – Operations Manager
  
7. How do you think VPD staffing levels affect the response time of police units?

8. At what time of the day and on which day of the week do you feel you are most/least busy? Why?
9. How are calls prioritized?
10. How are queued calls managed?
11. Are VPD patrol resources sufficient to handle the call load?
12. Do VPD patrol shifting patterns properly match the call load? Do you have any suggestions how to improve the shifting pattern?
13. Do patrol officers spend the majority of their time on calls for service or on proactive/self initiated events?
14. Do you have any comments about the plainclothes "Charlie" and "Delta" projects that Patrol Teams sometimes undertake (e.g. a theft from auto project on Delta shift)?
15. How are general broadcasts (GBs) managed?
16. Are priority 1 calls handled differently from other calls?

17. Under what circumstances would a call be received by E-Comm but not dispatched to a patrol officer?
18. Under what circumstances would a call be cancelled?
19. Under what circumstances would a call be dispatched to the Telephone Response Team (TRT)?
20. Under what circumstances would a call be dispatched directly to a specialty unit (e.g. ERT, dog squad, etc.)?
21. Under what circumstances is a call referred directly to the civilian report takers?
22. When and how is a patrol unit assigned to a call by the dispatcher?
23. How do you decide whether to dispatch a single-officer unit or a two-officer unit?  
Do you have any comment about the number of single-officer vs. two-officer units that VPD deploys?
24. When will a patrol unit volunteer for a call?

25. What is the process to record on-view incidents?
26. What kind of calls do you feel the VPD should respond faster to?
27. What kind of calls do you feel the VPD could respond slower to? Or not at all?
28. Generally, what is the experience level of the communications personnel at E-Comm?  
Note: This information will be obtained from Shelly McMahon – Operations Manager.
29. Do you feel that the low experience level of patrol officers affect their efficiency?
30. Do you feel that the low experience level of patrol officers make your work more difficult?
31. Do you think that priority 1 calls are generally handled properly by patrol officers?
32. How would you characterize the relationship between E-Comm and the VPD?
33. What are your thoughts about implementing GPS technology for the VPD? Do you think the implementation of GPS technology at the VPD would contribute to

improve the quality of your work? Do you think the implementation of GPS technology at the VPD would make your work easier? Do you think the implementation of GPS technology at the VPD would contribute to improve the performance of patrol units? Do you think the implementation of GPS technology at the VPD would make the work of patrol units easier?

34. Are you aware of some of the practices in place at other communications centers in Canada, in the United States or elsewhere? If so, do you know about any best practice that could potentially be implemented at E-Comm/VPD?

35. Can you think about any additional ways to improve the quality of the patrol services delivered by the VPD (other than what you have already mentioned)?

36. Do you have other comments?

Thank you for your help!

## **24 APPENDIX IV – INTERVIEW QUESTIONS FOR PATROL PERSONNEL**



## **Vancouver Police Department**

### **Interviews with Patrol Personnel**

**October 2006**

As part of the on-going VPD Operational Review, members of the Planning & Research Section are currently working with an outside consultant and staff at the City of Vancouver to prepare a Patrol Deployment Study.

The 2006 Patrol Deployment Study will try to answer:

1. How patrol officers are deployed?
2. What patrol officers are currently doing?
3. What resources are needed to allow patrol officers to accomplish what they should be doing?
4. When, where and how should existing and new resources be deployed based on the current workload, the desired service goals and the deployment constraints?

This interview was designed to:

- Obtain your opinion/perception of patrol operations.
- Obtain your input/ideas.
- See whether some of our ideas are viable/desirable.

Thank you for your participation.

### Contact Information

<b>Name:</b>	
<b>Rank and/or title:</b>	
<b>Team (if applicable):</b>	
<b>District (if applicable):</b>	
<b>Division:</b>	
<b>Phone:</b>	
<b>Email:</b>	

### Interview Information

<b>Interviewer #1:</b>	
<b>Interviewer #2:</b>	
<b>Date:</b>	
<b>Time</b>	
<b>Location:</b>	

1. What is your role in the Operations Division of the VPD?
  
2. FOR MANAGERS/SUPERVISORS ONLY  
How do you measure your success? How do you know when you successfully fulfilled your mission?
  
3. FOR MANAGERS/SUPERVISORS ONLY  
What do you expect from your subordinates?
  
4. How do you think E-Comm/VPD staffing levels affect the response time to calls for service?
  
5. At what time of the day do you feel you are most busy? Why?
  
6. On which day of the week do you feel you are most busy? Why?
  
7. On what kind of calls do you feel you are spending most of your time?
  
8. What kind of calls do you think we should not be attending?
  
9. From the calls that we are not attending, what kind of calls do you think patrol officers should attend?

10. Under what circumstances would a call be cancelled by a patrol supervisor?

11. Typically, how do you determine what calls you will attend?

12. What kind of on-view incidents will you generally record?

13. What do you do when you are not answering calls for service?

14. What kind of proactive policing activities are you currently doing?

15. What kind of proactive policing activities would you do if more time was available?

16. On average, how long do you spend writing/processing police reports per shift?

17. On average, do you feel you spend too much time writing reports?

18. How would you improve the report writing process?

19. What are the benefits of two-officer patrol units vs. one-officer patrol units?
20. Do you think that we deploy enough two-officer units/cars in patrol? When and where do you think we should deploy more two-officer units/cars? Do you think that we deploy too many two-officer units/cars in patrol? When and where do you think we should deploy less two-officer units/cars?
21. How is the work of patrol officers interfacing with the other specialty units at the VPD?
22. What do you think is the most important policing problem affecting the City of Vancouver?
23. What kind of calls do you feel we should respond faster to?
24. What kind of calls do you feel we could respond later to?
25. What is the average experience level of the patrol personnel? Do you feel that the low experience level of patrol officers affect their efficiency? Do you feel that the low experience level of patrol officers make your work more difficult?
26. What do you think could be done to make patrol attractive to the more senior members of the Department?

27. Do you think that priority 1 calls are generally handled properly at E-Comm? Do you think that priority 1 calls are generally handled properly by patrol officers?

28. How would you feel about the creation of a patrol team dedicated to answering priority 1 calls?

OR

How would you feel about the creation of a roving patrol team which could be deployed wherever in the City at the discretion of Car 10?

29. How would you improve the shifting model in patrol? How do you feel about the current 4-on-4-off scheduling pattern? How would you feel about fixed patrol shifts? How would you feel about shift bidding?

30. How would you change the boundaries of the four (4) existing patrol districts?

31. What do you think about the current minimum staffing levels for patrol? How would you change the minimum staffing levels for patrol? What do you think the minimum staffing levels for patrol should be?

32. How would you improve patrol operations in general?

33. What issues are affecting your morale? How do you think your morale could be improved?

34. What kind of issues do you usually face when you are at work?

35. In general, do you feel that the span of control is appropriate in patrol?

36. FOR MANAGERS/SUPERVISORS ONLY

Do you feel that your span of control is appropriate?

37. How would you characterize the relationship between the VPD and E-Comm?

38. Do you think the implementation of GPS technology at the VPD would contribute to improve the performance of patrol units? Do you think the implementation of GPS technology at the VPD would contribute to improve the dispatching process? Do you think the implementation of GPS technology at the VPD would make your work easier? Do you think the implementation of GPS technology at the VPD would make the work of dispatchers easier? What do you think would be the greatest pros/cons of implementing GPS technology at the VPD?

39. Are you aware of some of the practices in place in other police agencies in Canada, in the United States or elsewhere? If so, do you know about any best practice that should potentially be implemented at the VPD?

40. Can you think about ways to improve the quality of the services delivered by the VPD?

41. Can you think about some tasks that you currently do but should not be doing?

42. Do you have other comments?

Thank you for your help!





## **25 APPENDIX V – EMAIL TO VPD PERSONNEL**

**From:** King, Lisa

**Sent:** Tuesday, September 26, 2006 3:55 PM

**To:** All VPD Civilian Staff - DL; All VPD Sworn Staff - DL

**Subject:** Patrol Deployment Study - your feedback is important

[Sent on Behalf of Sgt Adam Palmer, Planning and Research](#)

**If you have an idea that may improve the Patrol operations of the Department, now is your time to be heard!**

The VPD is currently involved in a large Operational Review Project. A major component of this project is a Patrol Deployment Study which will look at all aspects of Patrol operations.

Your input could have an impact on the future of the Department.

All VPD employees are invited to submit any suggestions or comments on how to improve Patrol operations to one of the following project team members by October 13<sup>th</sup>, 2006.

**Sergeant Adam Palmer**

Planning & Research Section

Email: [adam.palmer@vpd.ca](mailto:adam.palmer@vpd.ca)

Phone: 604-717-2688

**Constable Phil Heard**

Planning & Research Section

Email: [philip.heard@vpd.ca](mailto:philip.heard@vpd.ca)

Phone: 604-717-2692

**Special Constable Ryan Prox**

Criminal Intelligence Section

Email: [ryan.prox@vpd.ca](mailto:ryan.prox@vpd.ca)

Phone: 604-717-3239

**Simon Demers, Planning Analyst**

Planning & Research Section

Email: [simon.demers@vpd.ca](mailto:simon.demers@vpd.ca)

Phone: 604-717-2690

Thank you





## 26 APPENDIX VI – 2006 COMMUNITY DIALOGUE SURVEY



## 2006 VPD Community Dialogue Survey

### Informed Consent Form

The Vancouver Police Department is conducting a survey on the perceptions of community members with respect to policing in Vancouver. Your opinion is important, and the data will be used to assist with the Vancouver Police Department's Strategic Planning.

The survey consists of 28 questions and will take approximately 10 to 15 minutes to complete. Your participation in this survey is voluntary, and your responses will remain anonymous. Please do not record your name or any identifying information on the survey.

If you have any questions about this survey, please feel free to contact Inspector Daryl Wiebe, the officer in charge of the Planning & Research Section of the Vancouver Police Department. He may be reached at (604) 717-2682.

If you agree to participate in this study, please complete the attached survey. Thank you for your participation, as the Vancouver Police Department strives to realize its vision of becoming "Canada's Leader in Policing".

**I have read the information above and I agree to participate in this survey.**

- Yes
- No



## 2006 VPD Community Dialogue Survey

*All delegates involved in the 2006 Community Dialogue sponsored by the Vancouver Police Department and the Vancouver Police Board are invited to voluntarily complete this survey. Please read each of the questions carefully and answer them as accurately as possible. Your opinion is important to us, and the data will be used to assist with the Vancouver Police Department's Strategic Planning.*

### BACKGROUND INFORMATION

#### 1. What is your gender?

- (a)  Male
- (b)  Female

#### 2. What is your age?

- (a)  Under 18
- (b)  Between 18 and 24
- (c)  Between 25 and 34
- (d)  Between 35 and 44
- (e)  Between 45 and 54
- (f)  Between 55 and 64
- (g)  Over 65

#### 3. Do you reside in the City of Vancouver?

- (a)  Yes
- (b)  No

#### 4. Do you work in the City of Vancouver?

- (a)  Yes
- (b)  No

#### 5. Is the business/organization you represented at the 2006 VPD Community Dialogue located within the City of Vancouver?

- (a)  Yes
- (b)  No





**6. In what industry or field is the business/organization you represented at the 2006 VPD Community Dialogue primarily involved?**

- (a)  Business Services
- (b)  Educational
- (c)  Entertainment
- (d)  Health Services
- (e)  Legal
- (f)  Non-profit
- (g)  Personal Services
- (h)  Research and Development
- (i)  Social Services
- (j)  Law Enforcement
- (k)  Other (please specify) \_\_\_\_\_



## POLICING IN GENERAL

### 7. In general, do you think that the City of Vancouver is policed adequately?

- (a)  Yes
- (b)  No
- (c)  I do not know.

### 8. The Vancouver Police Department has various policing priorities. On a scale of 0 to 10, with 0 being not important at all and 10 being extremely important, please rank the following strategic priorities of the Vancouver Police Department. You may assign the same numerical value to multiple priorities.

- |     |                      |   |
|-----|----------------------|---|
| (a) | <input type="text"/> | Reduce property crime.  |
| (b) | <input type="text"/> | Reduce violence against seniors.  |
| (c) | <input type="text"/> | Reduce violence against sex trade workers.  |
| (d) | <input type="text"/> | Reduce domestic violence.   |
| (e) | <input type="text"/> | Reduce violence against children.   |
| (f) | <input type="text"/> | Reduce violence caused by gangs.  |
| (g) | <input type="text"/> | Reduce violence caused by guns.   |
| (h) | <input type="text"/> | Improve traffic safety by targeting drivers exceeding the speed limit.  |
| (i) | <input type="text"/> | Improve traffic safety by targeting impaired drivers.   |
| (j) | <input type="text"/> | Improve traffic safety by increasing police presence on the street.   |
| (k) | <input type="text"/> | Reduce street disorder.   |
| (l) | <input type="text"/> | Arrest more violent criminals.  |
| (m) | <input type="text"/> | Arrest more drug dealers.   |
| (n) | <input type="text"/> | Solve more violent crimes.  |
| (o) | <input type="text"/> | Solve more property crimes.   |
| (p) | <input type="text"/> | Respond faster to emergencies.  |
| (q) | <input type="text"/> | Respond faster to calls for service that are not emergencies.   |
| (r) | <input type="text"/> | Spend more time on each call for service.   |
| (s) | <input type="text"/> | Ensure that victims of crime receive emotional support, general criminal justice information, case specific updates, practical assistance, etc. |
| (t) | <input type="text"/> | Investigate criminal incidents in a timely manner.  |



## POLICING VIOLENT CRIME

You have just participated in a dialogue session with the Vancouver Police Department and the Vancouver Police Board dedicated to the problem of violent crime. Drawing on this experience, please answer the following questions.

**9. In general, do you think that the Vancouver Police Department is effective in preventing violent incidents in the City of Vancouver?**

- (a)  Yes
- (b)  No
- (c)  I do not know.

**10. The Vancouver Police Department partners with the community in crime prevention and takes the lead in criminal investigations. Do you think that the Vancouver Police Department should do more to prevent violent incidents in the City of Vancouver?**

- (a)  Yes (if yes, proceed to question 10a)
- (b)  No (if no, proceed to question 11)
- (c)  I do not know.

**10a. If yes, what do you think the Vancouver Police Department should do to prevent violent incidents in the City of Vancouver? (select all that apply)**

- (a)  Build more partnerships with community organizations/groups.
  - (b)  Build more partnerships with other law enforcement agencies.
  - (c)  Build more partnerships with the government.
  - (d)  Acquire more resources (i.e. personnel, material, facilities) from the City of Vancouver and allocate them to the prevention of violent crime.
  - (e)  Manage its resources more efficiently.
  - (f)  Explore other funding opportunities in order to acquire more resources and allocate them to violent crime prevention.
  - (g)  Other (please specify):
-



**11. The Vancouver Police Department has various priorities with respect to the policing of violent crime. What types of violent crime should be the focus of the Vancouver Police Department's partnership efforts and investigative efforts, in terms of priorities and resource allocation?**

**On a scale of 0 to 10, with 0 being not important at all and 10 being extremely important, please rank the following strategic priorities of the Vancouver Police Department. You may assign the same numerical value to multiple priorities.**

- |     |                      |                                    |
|-----|----------------------|------------------------------------|
| (a) | <input type="text"/> | Violence against seniors           |
| (b) | <input type="text"/> | Violence against sex trade workers |
| (c) | <input type="text"/> | Domestic violence                  |
| (d) | <input type="text"/> | Violence against children          |
| (e) | <input type="text"/> | Violence caused by gangs           |
| (f) | <input type="text"/> | Violence caused by guns            |
| (g) | <input type="text"/> | Hate crimes                        |
| (h) | <input type="text"/> | Violent crimes of a sexual nature  |
| (i) | <input type="text"/> | Drug-related violence              |
| (j) | <input type="text"/> | Street violence                    |



## COMMUNITY POLICING

### 12. Which of the following statements best describes your perception of the Community Policing Centres in Vancouver? (please select one)

- (a)  The Community Policing Centres in Vancouver are used extensively by the residents and/or businesses in the community and improve the safety of the community.
- (b)  The Community Policing Centres in Vancouver are used to some degree by the residents and/or businesses in the community. They improve the safety of the community.
- (c)  The Community Policing Centres in Vancouver are used rarely by the residents and/or businesses in the community and do not contribute significantly to improve the safety of the community.
- (d)  The residents and/or businesses in the community never attend the Community Policing Centres in Vancouver. The Community Policing Centres do nothing to improve the safety of the community.
- (e)  I do not know enough about Community Police Centres to comment.

### 13. What do you think the Community Policing Centres in Vancouver are best at doing? (please select one)

- (a)  Providing a public relations function for the community
  - (b)  Acting as an information/referral source
  - (c)  Promoting community safety
  - (d)  I do not know enough about Community Police Centres to comment.
  - (e)  Other (please specify):
-



## PATROL OPERATIONS

**14. Priority 1 calls include incidents such as gun shots, stabbings, home invasions, and robberies in progress. In Vancouver, the first police unit will arrive at the scene of a Priority 1 call approximately 13 minutes on average after the initial call for service is received by the 911 operator. In your opinion, is this delay acceptable?**

- (a)  Yes
- (b)  No
- (c)  I do not know.

**15. The availability of patrol units at the time a call for service is received is one factor that affects police response times. The availability of patrol units can be increased with the allocation of additional financial resources (i.e. tax dollars) to the Vancouver Police Department. Would you be willing to pay increased property taxes annually to increase the number of patrol units and improve the police response time to Priority 1 calls?**

- (a)  Yes (*please proceed to question 15a*)
- (b)  No (*please proceed to question 16*)

**15a. If you would be willing to pay more taxes annually to reduce the response time to Priority 1 calls, as an average taxpayer, would you be willing to pay:**

- (a)  \$15 to reduce the average response time to 11 minutes.
- (b)  \$25 to reduce the average response time to 9 minutes.
- (c)  \$40 to reduce the average response time to 7 minutes.
- (d)  \$80 to reduce the average response time to 5 minutes.
- (e)  \$150 to reduce the average response time to 3 minutes.

**16. Problem premises are commercial properties that consistently generate a disproportionate number of calls for police service. Problem premises can include specific hotels, bars, restaurants and apartment complexes associated with numerous police incidents every week. Do you think that the owners of problem premises should reimburse the City of Vancouver for the additional burden they place on police services?**

- (a)  Yes
- (b)  No
- (c)  I do not know.



**17. New high-density residential complexes often trigger large start-up costs because additional police officers are required to maintain the ratio of police officer to residential population. Do you think that the developers of high-density residential complexes should be required to compensate the City of Vancouver in order to offset these start-up costs?**

- (a)  Yes
- (b)  No
- (c)  I do not know.



## POLICE INVESTIGATIONS

The availability of resources (i.e. police officers, support staff, equipment, etc.) is one factor that affects police effectiveness. The availability of resources can be increased with the allocation of additional financial resources (i.e. tax dollars) to the Vancouver Police Department. However, to increase funding to the police department, Vancouver City Council may need to reallocate funding from other city-funded organizations and programs.

**18. If the allocation of city dollars to city-funded organizations was up to you, and if you had to make a choice, would you: (select only one)**

- (a)  Hire more firemen
- (b)  Hire more animal control officers
- (c)  Hire more police officers
- (d)  Create a Youth Advocate Program in order to liaise with disenfranchised youth
- (e)  Build a new Community Centre
- (f)  Reduce the municipal tax rate by two percent (2%)

**19. In your opinion, should more city dollars be allocated to the Vancouver Police Department so that more murders can be solved annually, even if that would result in a reduction in other City services?**

- (a)  Yes
- (b)  No
- (c)  I do not know.

**20. In your opinion, should more city dollars be allocated to the Vancouver Police Department so that more robberies can be solved, even if that would result in a reduction in other City services?**

- (a)  Yes
- (b)  No
- (c)  I do not know.

**21. In your opinion, should more city dollars be allocated to the Vancouver Police Department so that more sex offenders could be actively monitored on an ongoing basis, even if that would result in a reduction in other City services?**

- (a)  Yes
- (b)  No
- (c)  I do not know.





**22. In your opinion, should more city dollars be allocated to the Vancouver Police Department so that more gang members could be monitored on an ongoing basis, even if that would result in a reduction in other City services?**

- (a)  Yes
- (b)  No
- (c)  I do not know.

**23. In your opinion, should more city dollars be allocated to the Vancouver Police Department to track down individuals who possess illegal weapons, even if that would result in a reduction in other City services?**

- (a)  Yes
- (b)  No
- (c)  I do not know.

**24. In your opinion, should more city dollars be allocated to the Vancouver Police Department to reduce the quantity of illegal drugs sold on the streets of Vancouver, even if that would result in a reduction in other City services?**

- (a)  Yes
- (b)  No
- (c)  I do not know.

**25. In your opinion, should more city dollars be allocated to the Vancouver Police Department to allow more police officers (School Liaison Officers) to be in schools on a full-time basis, even if that would result in a reduction in other City services?**

- (a)  Yes
- (b)  No
- (c)  I do not know.

**26. In your opinion, should more city dollars be allocated to the Vancouver Police Department to reduce the incidence of property crime (e.g. car thefts, B&Es, thefts from auto), even if that would result in a reduction in other City services?**

- (a)  Yes
- (b)  No
- (c)  I do not know.

**27. In your opinion, should more city dollars be allocated to the Vancouver Police Department to collect, analyze and disseminate information on potential terrorist threats, even if that would result in a reduction in other City services?**

- (a)  Yes
- (b)  No
- (c)  I do not know.







# 27 APPENDIX VII – PATROL RESOURCE ALLOCATION REVIEW PHASE III



**Vancouver Police Department  
Planning & Research Section**

**Patrol Resource Allocation Review  
Phase 3 Report**

Ryan Prox, Special Constable  
Vancouver Police Department

**February 5, 2007**

## Table of Contents

<b>Executive Summary</b> .....	iv
<b>1 Background</b> .....	<b>1</b>
<b>2 Objective</b> .....	<b>2</b>
<b>3 Methodology and Assumptions</b> .....	<b>4</b>
3.1 Data Collection Framework.....	4
3.1.1 Introduction .....	4
3.1.2 Historical Changes to CAD .....	4
3.1.3 VPD Process Changes .....	4
3.1.4 Hardware and Software .....	5
3.2 Databases .....	5
3.2.1 Vancouver Police Department SQL Server.....	5
3.2.2 Police CAD (May 08th, 2005 – December 31st 2005 (Present)).....	5
3.2.3 Altaris CAD (December, 10 <sup>th</sup> , 2002 – May 8 <sup>th</sup> , 2005).....	5
3.2.4 Macro CAD (April 03 <sup>rd</sup> , 1988 – December, 10 <sup>th</sup> , 2002) .....	6
3.3 Calculations.....	6
3.4 General Assumptions .....	6
3.5 <i>Response Time Assumptions</i> .....	7
3.6 <i>Consumed Minutes Assumptions</i> .....	7
3.7 <i>Available Minutes Assumptions</i> .....	7
3.8 Queries .....	8
3.8.1 Response Time.....	8
3.8.2 Consumed Minutes .....	8
3.9 <i>Available Minutes</i> .....	8
3.10 Utilization Rate .....	9
3.11 Units Considered.....	9
3.12 Shifts .....	10
<b>4 Data Usage and Interpretation</b> .....	<b>11</b>
4.1 Data Application and Analysis Process .....	11
4.2 Assumptions.....	12
4.3 Data Definitions .....	12
4.4 Consumed Patrol Unit-Minutes Special Consideration .....	13
<b>5 Research Findings</b> .....	<b>14</b>
5.1 Overview.....	14
5.2 Beat Assignment .....	15
5.3 Roving Metro Patrols.....	15
5.4 <i>Scheduling</i> .....	16
5.5 <i>Evaluation Objectives</i> .....	17
5.6 Methods for Analysis.....	20
5.7 Patrol Resource Analysis Issues .....	20
5.8 Consumed Minutes .....	21
5.9 Available Minutes.....	22
5.10 Response Times .....	25
5.10.1 Overview.....	25
5.10.2 City-wide .....	26

---

**Planning & Research Section**

5.10.3 District Comparison .....27

5.11 Overtime ..... 28

5.11.1 Overtime Overview .....28

5.11.2 Background.....28

5.11.3 Overtime Methodology.....29

5.11.4 Overtime Usage Findings ..... 30

**6 Patrol Workload Detailed Analysis..... 33**

6.1 Project Outline ..... 33

6.2 District 1..... 35

6.2.1 Overview.....35

6.2.2 Analysis .....37

6.3 District 2..... 38

6.3.1 Overview.....38

6.3.2 Analysis .....40

6.4 District 3..... 41

6.4.1 Overview.....41

6.4.2 Analysis .....43

6.5 District 4..... 45

6.5.1 Overview.....45

6.5.2 Analysis .....46

6.6 City Comparison..... 48

6.6.1 Overview.....48

**7 Resource Distribution by District..... 49**

7.1 Overview..... 49

**8 Deployment Model Recommendations ..... 51**

8.1 Overview..... 51

8.2 Analysis..... 52

8.3 Recommendation Methodology..... 53

8.4 Resource Requirements ..... 54

8.4.1 Proposed 50% Utilization.....54

8.4.2 Proposed 40% Utilization.....57

8.5 Proposed Shift Models..... 59

8.5.1 Overview.....59

8.5.2 Proposed Shift Model Option “A” .....59

8.6 Internal Efficiency Issues with Patrol..... 62

8.7 Shift Model Implementation Option “A” ..... 63

8.7.1 Proposed Shift Model Option “B” .....64

8.8 Shift Model Implementation Option “B”..... 66

8.8.1 Proposed Shift Model Option “C” .....67

8.8.2 Proposed Shift Model Option “D” .....72

8.8.3 Option “D” District Deployment .....78

**9 CONCLUSION ..... 79**

**10 RECOMMENDATIONS..... 81**

**11 APPENDIX..... 82**

## 1 Background

The Vancouver Police Department's (VPD) Planning and Research Section (P&R) initiated a detailed study to determine whether the current patrol shift deployment meets the demands of each district, at various times throughout the day. Further, the study was intended to examine the effectiveness and efficiency of patrol operations to determine whether patrol was meeting its goals and objectives in its current state.

In November 2002, a report presenting the results of the first stage of the study was completed. Ryan Prox and Isabelle Groc from the Planning and Research Section were the authors of the *Resource Allocation Review – Phase 1 Report*. Two variables were then examined: 1) the number of calls for service by day of the week and time of the day; and 2) the time spent on calls for service (defined as unit-minutes). These two variables were used to examine the distribution of patrol workload throughout the Districts. The analysis was based on a custom Computer Aided Dispatch (CAD) data extraction for the year 2000.

While the Phase 1 analysis showed call distribution patterns, as well as unit-hours spent on calls by time of the day, it did not include data on the actual number of units deployed by hour and by day. In order to fully understand the current patrol resource allocation model and to make recommendations in this area, the Planning and Research Section initiated a second phase for the project. To this end, the P&R Section collected attendance data with respect to patrol deployment, which was entered into an Access database to integrate the information with workload-related data and aid in the final analysis.

A custom data extraction program was created to identify the actual patrol unit-hours deployed by day and by hour in each of the four policing districts. This statistical model was necessary to perform calculations, such as: patrol utilization based on available unit-hours, number of calls for service, and time spent on calls for service. The program calculated what percent of available patrol time was consumed by calls for service and what the peak times were by hour and day. The analysis of this data produced several recommendations and a proposed patrol deployment model that addressed key areas of inefficiency. This was the first detailed analysis of the VPD patrol deployment model and with it several shortcomings were identified in the report. For example, the report did not contain historical data needed to conduct time series analysis and to identify yearly trends and patterns. As well, overtime data was not included as part of the analysis, thereby overlooking a key element of patrol deployment. While workload was examined in detail, police response times to emergency calls were not evaluated as part of the overall patrol model. The combination of these issues had a detrimental effect on the acceptance of the final report.

In response, a third phase analysis of patrol was developed that took into account these issues, with the intent of providing an analysis of both past and present patrol deployment that is as comprehensive as possible.



## **2 Objective**

This document, the *Patrol Resource Allocation Review: Phase 3 Report*, is an evolution of the two previous Vancouver Police Department reports on patrol deployment and efficiency, with the added benefit of both retrospection and improved data analysis techniques. As detailed in the Background Section, Phase 3 contains six years of data spanning January 1<sup>st</sup> 2000 to December 31<sup>st</sup> 2005 inclusive. This provides a point of departure from where the previous reports left off, while analyzing deployment in terms of changes and modifications that have occurred in the last six years. It also provides the unique opportunity to review recommendations put forward in the previous reports to ascertain whether the findings are still accurate today.

The methodology used in this report was compared to the best practices of organizations that are considered leaders in policing to determine whether any additional techniques or modifications to the process should be incorporated into the analysis. A review of best practices literature determined that the methodology used in the Patrol Allocation Review was sound, and in some cases superior to those used by other review and audits of police patrol deployments.

There are two main areas of police patrol that this report will address. First, the report will examine whether there are sufficient resources to respond to calls for service. Included in this is the number of resources necessary in order to meet certain thresholds of effectiveness. Second, changes to the existing system of deployment that maximize the efficient use of resources are examined. While each topic requires a review of different components of patrol, the two are interrelated. An organization that is efficiently deployed will make the best use of the finite resources it has at its disposal. This involves reviewing shift scheduling and deployment to eliminate times of inefficiency and ensuring deployment corresponds with the predicted call-load according to the time of day and day of the week. These factors have a profound impact on when and how many officers should be deployed to respond to emergency calls.

The Phase 3 report also incorporates a detailed analysis of district overtime usage, examining the extent, types and frequency of overtime. This level of detail makes it possible to also analyse overtime usage by day of week and time of day, as well as identify distinct differences that exist between the patrol districts of the city. Callouts to maintain staffing minimums and extended tours of duty (otherwise known as holding back officers at the end of a shift to deal with arrests and unanticipated emergencies) are the two main types of overtime used in patrol. The main thrust of the analysis delves into these types of overtime usage in detail.

Further, police response times to emergency calls were analyzed according to priority, day of the week, time of day and district variations. This was deemed important to analyze, as a lack of resources, poor shift scheduling and a deficient business process, both by the police agency or E-Comm itself, can have a profound affect on the time it

**Planning & Research Section**

takes police officers to arrive at emergency calls. Structured interviews were conducted at E-Comm, the emergency call centre that dispatches 911 calls to police officers, with the intent of examining the entire response process from the time a 911 call is received to the time when police arrive on the scene. The same process was repeated with VPD patrol personnel to explore similar issues. Rather than looking at the process in a compartmentalized manner, a more global and holistic approach was preferred. The results of this analysis provide keen insight into areas of inefficiency, resource deficiencies and possibly ways to improve the process.

The final analysis and findings were used to accomplish two objectives. First, to identify existing inefficiencies and impediments to the most effective use of current patrol resources. This included a review of the current deployment model and the workload that patrol manages on a regular basis. Second, to make recommendations on how to correct any efficiency shortcomings through a modified shift deployment model and other innovative techniques used to maximize efficiency. Several options are presented in the recommendations section with cost implications and efficiency gains detailed for each.

### **3 Methodology and Assumptions**

#### **3.1 Data Collection Framework**

##### **3.1.1 Introduction**

The following provides an outline as to how data was extracted and synthesized in preparation for the data analysis that was conducted for the Patrol Deployment Study Phase 3. A total of six years of data was compiled for this project.

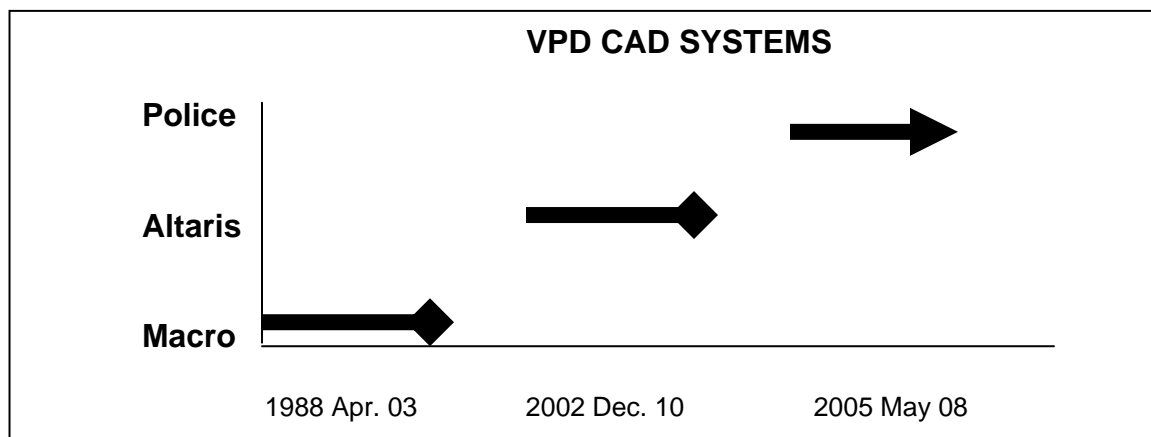
The following limitations were taken into account when the data sets were created:

- historical changes to CAD
- VPD process changes
- hardware and software.

##### **3.1.2 Historical Changes to CAD**

In the last ten years the VPD has utilized three different CAD systems. Each system brought with it a new vendor as well as the introduction of unique features and functions pertaining specifically to that system. Some of these specific features include additional data fields and different methods for data collection and storage. These different CAD systems are listed below.

*Diagram 1.0 – VPD CAD SYSTEMS*



##### **3.1.3 VPD Process Changes**

The adoption of the three different systems created a need for changes in operational practice. Some of these changes were driven by internal operational decisions and others by the requirements of external agencies (i.e. Justice System, PRIME Corp.). An example of an internal change that impacted operational practice is the transition of the

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**Planning & Research Section**

Call Centre from the VPD to E-Comm, while an example of an external change implemented by E-Comm is the change in priority of the call type “*Motor Vehicle Accident with Injury (MVI)*” from a priority one to a priority two call for service.

**3.1.4 Hardware and Software**

All data on calls for service is generated and stored at E-Comm. Since August 2006 the VPD has received ongoing data extracts from E-Comm that provide access to the core component data as selected by the VPD.

Mini databases were created from the E-Comm extract data to facilitate analysis of all the data from the three different CAD systems. The database application used to build the databases was MS Access 97. A series of linked queries were used to access the “raw” data from the SQL Server; this resulted in the creation of data tables. The final aggregate tables were presented in an MS Excel format.

Database limitations such as blank data fields, unidentifiable data fields and disk volume errors were encountered in the course of creating the data tables.

**3.2 Databases**

**3.2.1 Vancouver Police Department SQL Server**

The SQL Server comprises of three CAD data sets:

- Police (PC) CAD
- Altaris CAD
- Macro CAD

**3.2.2 Police CAD (May 08th, 2005 – December 31st 2005 (Present))**

This data set is comprised of twenty data tables, with over 600, 000 transaction records. For the purpose of this study, three tables were used and two tables were created with additional information. The five tables are:

- |                                  |              |
|----------------------------------|--------------|
| 1. dc_data                       | - CAD System |
| 2. cc_data                       | - CAD System |
| 3. unit_mileage                  | - CAD System |
| 4. Translation_Code_Table_PC_CAD | - Created    |
| 5. tbl_shift                     | - Created    |

**3.2.3 Altaris CAD (December, 10<sup>th</sup>, 2002 – May 8<sup>th</sup>, 2005)**

This data set is comprised of seven data tables with over 700,000 transaction records spanning over three years including part of 2005. The following five tables were used:

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**Planning & Research Section**

1. mis\_rpt\_evh\_stl - *CAD System*
2. mis\_rpt\_evh - *CAD System*
3. uhist\_primary - *CAD System*
4. Translation\_Code\_Table\_PC\_CAD - *Created*
5. tbl\_shift - *Created*

**3.2.4 Macro CAD (April 03<sup>rd</sup>, 1988 – December, 10<sup>th</sup>, 2002)**

The data set tables for the Macro CAD are very similar to Altaris CAD; the same processes and analysis were applied to Macro CAD as to Altaris. The following four tables were used:

1. chist\_primary - *CAD System*
2. uhist\_primary - *CAD System*
3. Translation\_Code\_Table\_Macro\_CAD - *Created*
4. tbl\_shift - *Created*

**3.3 Calculations**

Three main data calculations were performed.

1. Response Times - total time it takes a patrol unit to response to a call for service (“at\_scene” – “time-received”).
2. Consumed Minutes - total minutes in a time period when a patrol unit is dispatched (“cleared\_time” – “time\_dispatched”)
3. Available Minutes - total minutes a patrol unit is available for work (“time\_logoff” – “time\_logon”)

**3.4 General Assumptions**

The documented processes for the building and translation of the tables are based on the PC CAD database tables. There was no need to replicate the same information for all three CAD systems. They all shared the same data extraction process and queries.

For maximum efficiency and accuracy between databases the technique of “*Aliasing*” was used. Aliasing is used to specify a custom name for a source table or query when the same table or query is used more than once. This facilitated using the same queries for all three CAD databases with minimal adjustments.

The following patrol units were extracted from the three CAD systems’:

- Uniform Patrol Units (i.e. VA1A11)
- Plainclothes Patrol Units (i.e. VA1D21)
- Patrol Beat (Foot) Units (i.e. VA1B77)
- Beach Patrol Units (i.e. VA4H11)

## **Planning & Research Section**

- Bicycle Squad (i.e. VA4C44)
- CITU/SOCO (VA5S20)
- Telephone Response Team (TRT) (VA5B52)

With the joining of multiple data tables duplicate records do occur, and they must be filtered out. Using MS Access to filter out the records, a nine step elimination process, available in the Help Index under “Automatically delete duplicate records from a table”, was used.

Where District identifiers are not present within the record, the District can be identified by the district identifier within the Unit call sign (i.e. unit\_id - VA2G18, first numeric value indicates the district. This numeric value was appended to the record entry. In some cases a unit in District 02 VA2xx will assist in District 03, the time will be credited to District 02 not District 03.

### **3.5 Response Time Assumptions**

Records included:

- All records where the “time\_received” or “at\_scene\_time” was not null

Records excluded:

- All records where the Unit call sign was a Wagon (VAxxx62) or NCO (VAxxx51)
- On View calls – “how\_received” = ‘s/v’
- Priority 1 (P1) calls less than 1 minute or greater than 2 hours in duration
- Priority 2 (P2) calls less than 1 minute or greater than 12 hours in duration
- Priority 3 (P3) calls less than 1 minute or greater than 24 hours in duration
- Priority 4 (P4) calls less than 1 minute or greater than 24 hours in duration

### **3.6 Consumed Minutes Assumptions**

Records included:

- All records where the “time\_dispatched” or “clear\_time” was not null

Records excluded:

- All records where the “clear\_time” – “time\_dispatched” is greater than 11 hours.
- Any dispatch record that shows a unit particular unit dispatched more than once to the same call
- Any record where the Unit dispatched is an NCO (VAxxx51)

### **3.7 Available Minutes Assumptions**

For records where the logoff times were not available, the following assumptions were made:

- That all units log on immediately when on shift and log off thirty minutes before the end the shift. i.e. (BRAVO SHIFT 0700 hrs – 1800 hrs. Adjusted Time 0700 hrs – 1730 hrs)

Records excluded:

- All records where the “clear\_time” – “time\_dispatched” is greater than 11 hours.
- Any dispatch record that shows a particular unit dispatched more than once to the same call
- Any record where the Unit dispatched is an NCO (VAxxx51)

### 3.8 Queries

#### 3.8.1 Response Time

Response time was calculated by finding the difference between the **at scene time** and **time received**. The results were then converted to minutes i.e. (24\*60).

**Response Time** = (24\*60\*([at\_scene\_time]-[time\_received]))

- 24 hours a per day
- 60 minutes in a hour

This function calculates the number of minutes.

**Hour of the Day** = Hour ([time\_received]) (hour)

**Day of the Week** = Day ([time\_received]) (day of the week)

**Week Day** = Weekday ([time\_received]) (week day)

response_time	hour_day	day_wec	week_day
1.0333333339077	18	1	Sunday

complaint_rin	date_added	priority	district	how_received	time_received	dispatch_time	at_scene_time	clear_time	unit_id
VA05000285558	2005/11/27	1	02	9	2005/11/27 6:48:37 PM	2005/11/27 6:49:39 PM	2005/11/27 6:49:39 PM	005/11/28 12:43:31 AM	VA2D12

#### 3.8.2 Consumed Minutes

Consumed minutes were calculated by finding the difference between the **clear time** and **dispatch time**. This time difference is stored in a field named **Service Time**

In-service or (time the call was cleared)

Clear\_time

Dispatched Time - time the call was dispatched

**Service\_Time** = ([in-service\_time]-[dispatch\_time])

in-service_time	time_dispatched	service_time
2005/05/09 12:04:22 PM	2005/05/09 10:15:53 AM	0.07538564815094

Results

date_inc_entry	occ_num	district	priority	unit_id	time_dispatched	time_cleared	service_time
2005/05/08 7:27:44 AM	120002	02	3	VA2B11	2005/05/08 8:49:45 AM	2005/05/08 9:23:23 AM	0.02335648147709

### 3.9 Available Minutes

Available minutes were calculated by finding the difference between the **CDate ([time\_logoff])**-**CDate ([time\_logon])**.

Vancouver Police Department  
**Planning & Research Section**

The time difference was stored in a field named **total time deployed**.

time\_logon

time\_logoff (Adjusted logoff time)

$$\text{total\_time\_deployed} = ([\text{time\_logoff}] - [\text{time\_logon}])$$

time_logon	time_logoff	total_time_deployed
2005/12/16 4:59:09 AM	2005/12/16 3:30:00 PM	0.438087962960708

**Results**

unit_stamp	jurisd	shift	shift	unit_id	vehicle_nu	officer_nc	officer_no2	unit	uhist_date	time_logon	time_logoff	translation
VA2G14	08/13/20	VA	G	Delta	VA2G14	VAD8035	VA2162	VA1999	IS	2005/08/13 5:08/13 5:15:29 PM	08/14 3:30:30 AM	BEAT ENFORCEMENT TEAM

**3.10 Utilization Rate**

The calculation for the Utilization Rate, which is the percentage of available time consumed by calls for service, was computed using an MS Excel spreadsheet. Formula: Utilization Rate = (consumed minutes/available minutes).

**Sample MS Excel – Utilization Rate**

	A	B	C	D	E	F	G	H	I
1	Year	2000							
2									
3	HOUR OF DAY	DISTRICT 1							
4		Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
5	0000 to 0059	0.529	0.537	0.524	0.485	0.475	0.563	0.528	<b>0.521</b>
6	0100 to 0159	0.566	0.509	0.533	0.509	0.482	0.521	0.582	<b>0.535</b>
7	0200 to 0259	0.593	0.487	0.553	0.579	0.539	0.548	0.617	<b>0.567</b>

**Sample Formula**

=SUM('M:\P&R\PROJECTS\PR2005\078\PHASE II\Patrol Deployment Study\Ryan Prox\Ryan's Minutes Consumed 2000-2005.xls]2000'!C\$6:C\$8)/'M:\P&R\PROJECTS\PR2005\078\PHASE II\Patrol Deployment Study\Ryan Prox\Ryan's Minutes Available 2000-2005.xls]2000'!B5

**3.11 Units Considered**

In order to accurately reflect patrol workload, certain unit types were excluded from the study. Specifically, some units that organizationally belonged to the Patrol Division were not counted as “deployable” units, as they either fulfilled very specialized functions, took very few calls, or were limited to a very small geographic area. In short, they are not patrol units and are typically not dispatched to 911 calls for service. As a result, the following units were excluded:

- Patrol team supervisors
- Mounted Squad
- Waterfront Unit (District 2 “Team 11”)
- Marine Squad
- Youth Squad
- Community Policing Officers
- School Liaison Officers



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**Planning & Research Section**

- Car 86 and Car 87

Only the following units were included in the study:

- District 1 Bike Team (“Team 11 Bicycle Patrol”)
- Uniform Patrol Units (i.e. VA1A11)
- Plainclothes Patrol Units (i.e. VA1D21)
- Patrol Beat (Foot) Units (i.e. VA1B77)
- Beach Patrol Units (i.e. VA4H11)
- Bicycle Squad (i.e. VA2E11)
- CITU/SOCO (VA5S20)
- Telephone Response Team (TRT) (VA5B52)

The same rules were applied to the CAD workload data collected in Phase 2, which allows consistent comparisons to be made between the workload data – number of consumed unit-hours by calls, and the deployment data, i.e., number of available unit-hours.

### 3.12 Shifts

Because CAD data only records the time when a officer is logged on to the system and taking calls the recording of data took into account any modified shift scheduling in place throughout the districts. The patrol division has a system comprised of 11 patrol teams in each district, eight of which work four shift rotations for 24-hour coverage. Some districts have modified start times for Friday and Saturday afternoon shifts. The specific shift configuration used by each district will be examined within the overview and analysis section for each district. Generally speaking, the shift rotations follow the outline below:

- Early Day shift (0500-1600) – **Alpha**
- Day shift (0700-1800) – **Bravo**
- Afternoon shift (1400-0100 Monday to Thursday) or (1600-0300 Friday to Saturday) – **Charlie**
- Late Afternoon shift (1600-0300 Monday to Thursday) or (1700-0400 Friday to Saturday) – **Delta**
- Nights (1900-0600) – **Echo**

It’s important to note that the adjusted weekend start times are not universally applied throughout the districts. Each district has adopted combinations of the above scheduling, or has not adjusted start times at all for Friday or Saturday, depending on the call-load pattern for the district.

## **4 Data Usage and Interpretation**

### **4.1 Data Application and Analysis Process**

With respect to consumed unit-minutes, the database considered the fact that several units might attend a call, in addition to the dispatched primary unit. Given that one or more units can attend a call, and that units arrive and leave the scene at different times, the program allocated the time spent by each unit on a given call to the 24-hour time-blocks that make up a day. Recognizing that calls have different durations, each call was broken into the time consumed by hour of the day and on the appropriate day of the week. For example, a call that began at 11:45 p.m. on Saturday and concluded at 12:30 a.m. Sunday was broken into the 15 minutes consumed in the 11 p.m. to 12-midnight block on Saturday, and 30 minutes in the midnight to 1 a.m. block on Sunday.

Only those calls that were actually attended by patrol officers, as opposed to calls where a police officer was not dispatched, were captured. As a result, based on disposition information, a number of incidents were excluded. In all, 17 disposition types disqualified CAD calls from the data collection. These dispositions included cancelled calls, general broadcast calls, and reports to follow from com-centre that indicated no police unit was dispatched.

The available unit minute tables and the consumed unit minute tables were then used to calculate an additional table that shows, by hour and day, what percent of the available time is consumed by calls for service ("unit utilization" table). This table was used to determine how well the current use of time matches that desired by management. Specifically, using target percent time allocations (i.e., ratio of time consumed by calls for service), the matrices were then used to assess how time is currently being used and how close current usage matches the target allocation percentages. It was then ascertained whether more or less officers were needed to reach the target percent time allocations. Each district was individually evaluated to determine the number of officers required to meet target rates.

An additional matrix was produced incorporating the total consumed unit-minutes by factored available unit-minutes expressed as a ratio. The average time consumed by calls for service was calculated for each day of the week. Unit utilization by hour and day was then graphically charted to assist in the analysis.

The number of units available to take calls was compared to the total number of calls for service on an hourly basis, according to each day of the week. This relationship was charted for analysis purposes to determine weekly and hourly trends and to assess whether there were times and days that were under or over resourced for the call demand.

Similarly, a city-wide comparison matrix was produced, which incorporated the average unit utilization for each one hour block within a twenty-four hour period for each district.

The results of this matrix were graphically charted to aid in district comparisons and identify call-load patterns.

The statistical package SPSS version 15.0 (SPSS Inc.) was also used to assist in the data analysis and to help identify relationships and patterns within the various data-sets. Specifically, regression analysis features of the statistical software and binomial staffing analysis based on mathematical probabilities was utilized for the analysis section of the report.

## **4.2 Assumptions**

Even though officers work 11-hour shifts, they don't actually spend their entire shift attending calls. Available unit-hours are usually adjusted to account for the various tasks occurring during a shift that render a unit unavailable to attend calls. These tasks include meetings, squad briefings, meal breaks, vehicle servicing and other various administrative functions. Previous studies used percentages ranging between 20%<sup>1</sup> and 25%<sup>2</sup>. For this study, the 13.6% factor was used, which means that nine hours and thirty minutes out of an 11-hour shift were available for deployment. In practical terms, this accounts for the one hour, plus two 15 minute coffee breaks, that are mandated by the collective agreement.

To facilitate analysis, an extraction table was built to illustrate the staffing data with no built-in assumptions (i.e. 100% of patrol time is available to take calls), as well as tables that include the 13.6% assumption. Administrative tasks were considered to be accounted for by the CAD data, given the fact that the CAD system accurately records only those times when officers are logged into the system and able to respond to emergency calls. Officers can still be deployed to a call, even when on a meal break if the situation warrants it. While the system does not record a unit as taking calls when on a meal break, as a dispatcher will try to use the other available units if possible, it still records the officers as available. In essence, a dispatcher will try to accommodate meal breaks as best as possible, but at times of high volumes of calls, meal breaks are sometimes overlooked or interrupted. Therefore the 13.6% unavailability factor is a conservative estimate.

## **4.3 Data Definitions**

The following terms and definitions are used throughout the report:

- **Consumed patrol unit-minutes** are defined as the total number of minutes in the period from when the unit is dispatched to a call until the unit is cleared and available

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<sup>1</sup> Holland, Melissa. *Update of Workload Data for 1995*. Planning, Research and Audit Section, August 1999.

<sup>2</sup> Fleming, Zach and Cst. D. Kim Rossmo. *Optimizing Patrol Resources: Vancouver's 4/11 Team Model*. 1995.

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**Planning & Research Section**

to take another call. This is a precise method of measuring call load in terms of patrol resources devoted to responding to calls within each hour block.

- **Available patrol unit-minutes** are defined as the total number of minutes that a patrol officer is available for work. This is a key indicator of patrol resources available to respond to calls within each hour interval.
- **Unit utilization** refers to the percent of the available time consumed by calls for service (calculated as: consumed patrol unit-minutes/available patrol unit-minutes).
- **Unavailability factor** accounts for the Collective Agreement – *Schedule G No.4 – Rest and Meal Breaks* – that accounts for one 60 minute meal break and two 15 minute rest breaks during an 11 hour shift that render a unit unavailable to attend calls. A 13.6% unavailability factor was applied to the data, and the data was also run with no factor applied (i.e. assuming that patrol officers are devoting 100% of their time attending calls for service).

#### **4.4 Consumed Patrol Unit-Minutes Special Consideration**

As was the case in Phase 2, when examining calls attended, consumed patrol unit-minutes are impacted by the availability of police resources. Priority three calls are the most likely to be impacted by the number of police officers available to attend calls and address the call load. These two variables directly impact the total time available for units to attend calls. In other words, consumed unit-minutes are dependent on whether supply (officers) can keep pace with demand (call for service).

Given a situation of scarce resources available to attend calls, the Patrol Division often finds itself vetting calls and limiting the time spent on calls in order to meet demands. Therefore, limited resources only permit patrol to spend a finite number of minutes attending calls before a district vetting process is implemented and lesser priority calls are not responded to. This is where a patrol sergeant calls complainants and cancels calls or places calls in a holding queue for the next day. This sometimes causes citizens to wait over 24 hours until a police officer attends their lower priority call. This has the effect of capping the total number of consumed patrol unit-minutes according to the number of units available and the level of the resource burden. Simply, a heavily taxed patrol district can only consume so many unit-minutes per hour given the maximum number of unit-minutes that can be consumed. In practice, patrol officers who are constantly attending queued calls would only have the ability to attend as many calls as time permits. Calls unattended remain in the queue until they are cancelled or dealt with through other means. Team sergeants regularly monitor the call load during a shift and will call back a complainant to inform them there are no police units available to be dispatched and that they will be contacted the next day.

Considering the internal vetting process, in circumstances where demand exceeds the resources available, the consumed patrol unit-minutes may not accurately reflect the actual unit-utilization, which at times would be represented as over 100%.

The use of consumed unit minutes for part of the analysis is considered a superior measure of workload, especially when compared to simple reporting of dispatched calls for service. While many police audits and efficiency studies have been based on dispatched calls for service, the use of consumed unit minutes is a better overall indicator of actual patrol workload. Unlike aggregate calls for service data, consumed unit minutes take into account the total time spent on a call. Additional units, such as cover units, containment units, and additional resources required for major incidents, are all captured in consumed unit minute data.

As well, the difference in call types are accounted for using consumed unit minutes, as it records the total officer time spent on a call. For example, a *break and enter* call typically requires additional investigative follow up that is recorded by the CAD system and used to calculate consumed unit minutes. Conversely, a simple fight call can usually be resolved quite quickly, which is also reflected in the data. Variations in call types distributed by district and at different times of the day are then reflected by the total amount of time it takes officers to deal with each call recorded. The total number of dispatched calls in a give hour would only provide a partial picture of actual workload performed. As well, district variations and changes in call types by time of day are not accounted for with calls for service data. For these reasons, consumed unit minutes and the subsequent unit utilization ratios that are partially based on this data, are considered a valid indicator for evaluating police deployment, efficiency and patrol effectiveness.

## **5 Research Findings**

### **5.1 Overview**

One of the goals of most police agencies is to ensure efficient Operations that meet the goals and priorities of the organization while staying on track and within the annual agency budget. This is best accomplished through proper planning and review of two significant issues. The first issue delves into the way resource allocation is managed within a police agency, by examining ways to maximize efficiency through scheduling and deployment. The second looks at enhancing effectiveness, which can be accomplished through the use of internal processes that reduce administrative burdens, addressing morale issues and providing staff with adequate equipment and training to perform their job.

When discussing benchmark information from other police agencies, it is important to remember that this information is only relevant when used to compare against the current performance and practices of your own organization. This information is then used to develop mechanisms and strategies to facilitate progressive change within the organization, such as greater efficiency and improved policies and procedures. Factors that distinguish a police department as a leader in policing and one where best practices are used to advance the goals and objectives of the organization change from agency to agency. However, in terms of evaluating a Department's Patrol Division, the standard is

far more evident. Patrol units that simply respond to calls, in a relentless pursuit of trying to catch up with the incoming calls for service, will never be in a position to solve the underlying issues that are driving these calls. “Pro-active policing”, or “problem solving policing” requires a deployment model that provides officers the ability to develop strategies and plans that will encourage officers to take responsibility for issues. To obtain accountability in Patrol, it must flow from management as part of the overall goals and objectives of the organization. In order to empower officers to act as problem solvers, they must be given the opportunity to get to know their local community, its individual needs and issues, and to develop an awareness of the broader context in which they operate. This is not accomplished by responding to calls while working a patrol shift each day. Adequate time, support from supervisors and individual ability come into play. Other less tangible issues, such as two-officer units versus one, impact effectiveness and the ownership officers feel over a particular problem. While scheduling and deployment factor into these considerations, they are not answers unto themselves to community crime problems.

## **5.2 Beat Assignment**

Other recent developments in policing include the assignment of beat responsibility as a way to enhance the effectiveness of patrol officers. The main premise behind beat responsibility is that an officer should attempt to develop a geographic identification within the patrol beat that they are assigned to. A beat or sector refers to a relatively small geographic area, usually four to six blocks, where patrol officers are assigned to work on a consistent basis. This facilitates patrol officers becoming familiar with community needs, unique crime patterns, trouble spots and policing issues within their beat. Further, any crime reduction or proactive policing initiatives are expected to be lead by the officer responsible for that beat. Most calls located within a particular geographic area are fielded by the responsible beat officer. Proactive and focused police attention on problem areas is a method for increasing the effectiveness of patrol units and has been regarded as a best practice by literature on the subject.<sup>3</sup> This allows police to target recurring crimes, repeat offenders, and problem premises, resulting in a more effective method for reducing crime.

## **5.3 Roving Metro Patrols**

Roving Patrols, otherwise known as units established for cross-district dispatching, are a cost effective way to maximize available resources while not creating a large number of new shifts and teams to staff them. Roving patrols work as a city-wide resource that is available for dispatch to areas of the city that are experiencing the greatest demand for service. In circumstances where the call-load is evenly distributed, the roving team can also be distributed evenly to the city’s four districts. This is a fluid resource that adjusts to

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3 Broom Cheryle. (2004). Performance Audit of the King County Sheriff’s Office. Seattle, WA: Metropolitan King County.

call-load variations in a very uncomplicated manner. For example, on any given day District 3 may be experiencing a series of bank robberies that has the potential to tie up police resources within the district for a considerable amount of time, rendering them unavailable for further emergency calls for service. This can create call stacking and a serious disruption in service for adjacent districts if police units are called from neighbouring districts to help lessen the resource crisis. In this situation a roving team could be deployed to District 3 on a temporary basis to assist with taking calls, while the remaining units finish attending the bank robbery calls. Neighbouring districts would be left unaffected and a resource crisis could be averted. This is a very efficient use of resources, as it only requires the creation of two additional teams that can have a similar effect on call utilization issues as the creation of four new teams (one team per district and four districts).

#### **5.4 Scheduling**

A detailed analysis of efficiency looks at ways that scheduling can improve patrol efficiency. Modification of an existing deployment model, or the complete redesign of the way officers are scheduled, depends on whether the analysis indicates a very low level of efficiency or whether only minor modifications are necessary to optimize the current system. Another factor to consider is the level of efficiency desired. No deployment model can achieve perfect efficiency, as there are always tradeoffs between gains in one area and losses in others. Less tangible issues such as quality of life, which can have a detrimental effect on morale, must also be weighed when any proposed changes are considered. Efficiency gains must also be weighed against costs associated with certain proposed deployment models.

Typically, an eight hour shift creates the best options for scheduling resources to meet demands for service. However, in a large department this can create an undesirable consequence of a prohibitively large infrastructure requiring a large number of managers, support services and equipment. As well, it creates a substantial number of shifts to cover a 24 hour period; far more than is cost effective compared to efficiency gains that are acquired. Conversely, twelve hour shifts provide less flexibility for managers to schedule shifts to maximize efficiency and match resources to service demands. Yet, twelve hour shifts require the least amount of infrastructure to support, making it cost effective and easier to manage. Therefore, a compromise between the two extremes is the most desirable option, taking advantage of the best each has to offer. Another important factor to consider when developing a deployment model is the total police resources available.

Independent of considerations for the total number of officers available to respond to calls, scheduling must account for the workload variation and take the steps to equalize these fluctuations by adjusting deployment. One of the main goals of scheduling is to even out workload across the hours of the day and days of the week, and to establish a deployment model that assigns officers to work at times of greatest demand. A further

difficulty is designing a shift schedule that doesn't artificially create times of peak inefficiency during shift changes.

The elimination of gaps between the end and start of shifts is a complex endeavour. Several competing issues must be addressed for everything to function smoothly. For example, multiple shifts should only provide coverage during times of high demand for service. At times of lower call demand, a reduced number of resources should be scheduled. While at first glance appearing reasonable, it is the transition between the two that can be problematic. Even during times of low demand, an improperly scheduled shift transition can create chaos for the oncoming shift. Inadequate overlap can create a substantial spike in the utilization ratio, where the oncoming shift can spend a considerable amount of time playing catch-up with stacked calls. This artificially created inefficiency can be resolved by creating an overlap at the time when the shifts start and end. However, when operating with a set number of shifts, the change of one shift's start time to an hour earlier can have an escalating effect, by eliminating an overlap that may already exist at the shifts end time. The only viable solution is to create additional shifts to fill the inefficiency gaps or to accept that a certain degree of inefficiency is acceptable. Either option has a consequence in terms of increased cost for additional teams or reduced service levels.

The process of staggering shifts start and end times to reduce inefficiency spikes is also problematic unto itself. A one hour overlap between the ending of one shift and the start of another is not the most desirable option either; the rationale being that officers are more productive during the middle of their shift than at the start or end. Another strategy to address this issue includes staggering shifts at half hour intervals to provide a greater spread in overlap. While shift staggering issues can rarely be eliminated entirely, steps can be taken to mitigate the disruption, but with a compromise for any solution adopted.

### **5.5 Evaluation Objectives**

An efficient use of resources will not ensure there are sufficient officers available to deal with emergency calls. Efficiency can only go so far to improving service delivery. Complimentary to maximizing efficiency is an assessment of the effectiveness of existing resources to respond to calls for service, factoring in response times, and the balance between the ability to respond to emergency calls and the demand created by emergency calls. Within the realm of police resource effectiveness, these variables are measured as *available unit minutes* and *consumed unit minutes*, respectively. The ratio of the two variables is called *unit utilization* and is represented as a percentage. This ratio is a good indicator of how busy patrol officers are at a given time and day and whether there is sufficient time available to engage in proactive policing activities. The methodology section provides a detailed explanation of the terms and the calculations involved in generating these figures. Most police agencies strive for a utilization ratio that ranges from 40% to 50% at the extreme high end. For example, the Shreveport (LA) police resource study indicated that the standard for most organizations, taking into account the actual time available to respond to calls was 50%.



While issues such as crime rate and crime types are not directly evaluated by this type of review, it is generally accepted that these issues will be indirectly incorporated into the data when calculating the total *consumed minutes*. In brief, *consumed minutes* are calculated as the total time it takes for each unit to respond, resolve and clear each call within an hour block of time. This data is expressed as the total consumed minutes per hour of the day and day of the week. Therefore, the total consumed minutes will reflect the type of calls responded to within a given hour. This type of calculation is more accurate than a simple total of the calls for emergency services because it accounts for calls that require more than one police unit to respond. Consumed minutes is an aggregate of every minute consumed by every police unit that responds to calls within a given hour of the day. This is a concise figure that accounts for every minute that patrol units spend dealing with emergency 911 calls. As there are only a finite number of available minutes to address emergency calls for service, the utilization ratio is a good indicator of how busy patrol units are at different times of the day and days of the week. As well, it provides a good indication of how effectively patrol is carrying out its duties and meeting its objectives. Certain performance thresholds in the unit utilization, as established by the Department, will indicate when staffing levels should be increased, reduced or left unchanged.

When examining deployment, scheduling and effectiveness, invariably the question arises as to the best way to make use of existing resources before considering additional resources in the equation. Herein lies one of the most difficult issues with reviews of efficiency and effectiveness. There are basically two ways to address inefficiency that exist in scheduling. First, you can redesign the existing deployment model to fix inefficiencies. Second, you can add additional shifts and staff more teams to correct inefficiencies. Both options have benefits and disadvantages. The scheduling section looks at these issues in detail, but for discussion purposes it is important to bear in mind the costs associated with creating more shifts and additional teams, such as supervision, administrative support, equipment, vehicles and scheduling difficulties. One of the understated goals of deployment modelling is to create the best level of efficiency using the least resources possible, which is referred to as a cost benefit analysis in business terminology.

Within the VPD context, certain realities must be considered when developing a more efficient model. The aim of the analysis was to determine the efficiency of the existing model and explore how minor adjustments could potentially improve overall performance. To reach these goals, a detailed analysis of each district for a twenty-hour period, spanning seven days a week, and using six years of data. Certain inefficiencies were observed in each district with distinct and consistent patterns. The analysis section of this report contains a very detailed breakdown of each district's identified periods of inefficiency. In general terms, each district had, on average, three periods of inefficiency. These periods were either times of high demand for resources that were poorly compensated for by shift scheduling, or conversely, times of low demand for resources that were poorly compensated for by shift scheduling.

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**Planning & Research Section**

Generally, the VPD patrol deployment model is a progressive model that compensates for most periods of high volume of calls with an escalating increase in resources. The only caveat being, there is no mechanism built into the current system to address the gradual built-up of demand for services that takes place from Monday to Saturday. That issue aside, the current system makes reasonable use of existing resources. The Department has five distinct shifts for each district that are staffed by two teams each; with a total of 40 teams for the entire Patrol Division. For an organization the size of the VPD, with an authorized strength of 1,214 sworn officers, 40 teams is considered quite high. Most other agencies the size of the VPD have on average, 20 to 30 teams. Of course, the higher the number of teams, and the greater number of shifts the better management is equipped to schedule resources to mirror demands for service more accurately. But as mentioned, having a large number of shifts does not guarantee the best efficiency, as there are negative costs associated with an overly high number of teams needed to staff these shifts. The existing shift model is generally accepted to be the most efficient model possible, given the realities that it operates under.

Reviewing the VPD's situation, there are two options available to deal with the current inefficiency issues, while still operating within the existing resources. The first option is to split existing shifts to create extra shifts that can address those times and days of greatest inefficiency. *Option "D"* provides a model that can be phased in over the course of several years while additional resources are added to the deployment model, yet gaining immediate efficiency that can be carried throughout the process. However, the downside to splitting existing shifts is that it may create new inefficiencies at other times of the day. *Option "D"* creates up to three more shifts per district, requiring an additional six teams for each district for a total of 24 new teams. An additional 24 more teams, whether reduced in size or not, is problematic. These new teams would require one line supervisor each (24 new Sergeants) and administrative support to maintain these new teams. The cost for additional vehicles for these staff would also weigh against the net gains in efficiency. As well, by splitting shifts to create new shifts, there are practicality issues with only deploying a five to six person team. When vacation leave, sick time and training is incorporated into the analysis there is a very real possibility that only a three person team may be deployed on a regular basis. In reality, a three person team, which equates to one, one person unit and one, two person unit fielded per shift, has no practical benefit for the time they are deployed. If anything, this creates more issues than solutions for fielding emergency calls. It then requires a large number of teams to be deployed simultaneously to address emergency 911 calls. In the final analysis, there is very little distinction to the current model, except it creates a heavy administrative burden and has high costs associated with maintaining it.

The other alternative is to accept a certain level of inefficiency with the presumption that future staffing will be deployed to address this issue in the most cost effective manner possible. For example, the preferred recommendation for addressing both efficiency and patrol effectiveness does so with the creation of only a minimum number of shifts. This option reduces associated infrastructure costs, limits the number of new supervisors and does not create an unwieldy deployment model that is difficult to maintain and staff. Given the negative realities of splitting shifts, the possibility of introducing new

inefficiencies and the limited gains from creating up to 24 new teams using existing resources, it may be more cost effective and wise to accept a limited degree of inefficiency until such time as a fully staffed new team can be created.

## **5.6 Methods for Analysis**

The analysis of staffing needs can be grouped into a number of approaches that attempt to provide the best estimate of the number of officers necessary to respond to emergency calls for service. Queuing analysis is typically used to determine the number of officers needed to ensure a high probability that an officer will be available to respond to an emergency 911 call. There are several commercially available programs that conduct queuing analysis and several private companies that will conduct patrol audits that will provide an organization with a set figure on what its deployment profile should look like. Most of these options are quite costly and only provide a one-time analysis of deployment. Another shortcoming of these systems is that a limited number of variables are examined to make recommendations that may result in sweeping changes.

In response, the VPD Planning and Research Section chose to develop an in-house expertise on patrol deployment analysis using many of the concepts and methodologies used by past audits, but with the added benefit of incorporating additional elements that are missing from many of these approaches. For example, a well know process called MPP (Managing Patrol Performance) assists in establishing staffing requirements based on response time targets, call volume, and the policy expectations and benchmark set by management for the amount of time available to engage in proactive policing, otherwise known as unallocated patrol time. However, MPP does not account for the total time spent on calls, which is especially important when more than one unit responds to a call, effectively doubling the resource commitment. Further, MPP does not fully account for the total time available to take calls within a given hour, based on the number of officers, breaks, shift overlap, and a multitude of other factors.

## **5.7 Patrol Resource Analysis Issues**

Any examination of VPD's Patrol deployment model must take into account the established operational performance goals set for the Operations Division. The operational goals and standards are important when reviewing organizational performance, as it helps to gauge whether current practices meet the expectations set by management. Patrol utilization and the effectiveness of patrol districts has a direct bearing when analyzing whether the organization is meeting its patrol objectives<sup>4</sup>.

It is anticipated the best practices research conducted as part of this report will help establish and implement set guidelines and standards for patrol that will help shape future

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<sup>4</sup> Broom Cheryle. (2004). Performance Audit of the King County Sheriff's Office. Seattle, WA: Metropolitan King County.

deployment reviews. Clearly defined objectives help ensure that resource deployments are consistent with these goals and objectives.

### **5.8 Consumed Minutes**

Consumed minutes provide the best indicator of actual hours worked by patrol officers over a six year period. Over the course of six years the total city consumed minutes has been in transition, depending on how the data is interpreted.

City-wide, from 2000 to 2005, a 7.2% drop in consumed minutes was recorded, with District 2 recording the largest reduction of 28% for the same period. However, this figure is somewhat misleading, as the City-wide Enforcement Team (CET) was created in the spring of 2003, whereby 56 beat officers were deployed in a ten block radius of the Downtown Eastside (DTES). This had a profound impact on patrol resources in District 2, as the influx of officers to the area assumed the majority of calls and problem drivers in the area. While the DTES only composes a small geographic portion of District 2, it accounts for the majority of calls for that district. A review of calls for service for the DTES for a five year period prior to CET's inception, indicates a range of between 40% and 55% of the calls within District 2 were located within the DTES. Similarly, for the period between 2000 and 2005, the total consumed officer minutes were calculated for both District 2 and the DTES. This comparison revealed a range of between 52% to 58% of the District's total officer consumed minutes were within the DTES. Given the fact that the majority of calls for service and consumed office time for District 2 is focused in the DTES, it stands to reason that eliminating this area of responsibility from District 2 would have a significant impact on resource and workload levels. Therefore, the 28% reduction in consumed officer time for the district can be attributed to the creation of the CET.

When consumed minutes are re-examined and CET, now called BET (Beat Enforcement Team), data is added to the District 2 calculation, there is a 0.4% increase recorded for 2000 to 2005. For the same period the population of District 2 increased slightly by 1.7%. The addition of the CET/BET data to the analysis also impacts the city-wide total consumed minutes. The addition of CET/BET data alters the total consumed minutes for the city with a marginal increase of 1.6%. This is a significant difference than the 7.2% drop recorded with the CET/BET data removed. Clearly, the size and complexity of District 2 workload has an impact on both the district itself and city-wide analysis. For this reason, the analysis will present both CET/BET data when its inclusion or exclusion impacts the results.

**Consumed Minutes by District and City-wide Total**

	District 1	District 2	District 3	District 4	City-wide
<b>2000</b>	2,329,221	3,372,083	2,814,838	2,479,887	10,996,029
<b>2001</b>	2,537,700	3,275,824	3,020,435	2,562,828	11,396,787
<b>2002</b>	2,409,315	3,099,586	2,847,764	2,259,754	10,616,419
<b>2003</b>	2,480,150	2,798,128	2,753,936	2,418,421	10,450,635
<b>2004</b>	2,659,288	2,553,117	2,917,958	2,613,298	10,743,660
<b>2005</b>	2,539,691	2,424,143	2,743,295	2,500,998	10,208,126
<b>Total</b>	<b>14,955,363</b>	<b>17,522,880</b>	<b>17,098,227</b>	<b>14,835,186</b>	<b>64,411,656</b>
<b>2007 Predicted</b>	<b>2,723,452</b>	<b>2,001,184</b>	<b>2,792,011</b>	<b>2,581,130</b>	<b>10,097,777</b>
<b>Consumed Minutes 00 to 05</b>	2,492,560.56	2,920,479.97	2,849,704.50	2,472,530.96	10,735,275.99
<b>% Change 00 to 05</b>	<b>9.0%</b>	<b>-28.1%</b>	<b>-2.5%</b>	<b>0.9%</b>	<b>-7.2%</b>
<b>Forecast % Change 05 to 07</b>	<b>7.2%</b>	<b>-17.4%</b>	<b>1.8%</b>	<b>3.2%</b>	<b>-1.1%</b>

**Note: Excluding CET / BET Data**

Continuing at the district level, District 1 experienced the greatest increase in workload in relation to the other districts. District 1 encompasses the downtown business core, and has seen its population increase by approximately 9,600 from 2000 to 2005<sup>5</sup>. With a population increase of 12.9% from 2000 to 2005, it is not surprising that consumed officer minutes have also increased in the District for the same period by 9%. Conversely, District 3 saw a 2.5% drop in consumed minutes and District 4 had a marginal increase of 0.9% from 2000 to 2005. Interestingly, both District 3 and 4 experienced a 2% and 2.5% population increase respectively for the same period.

**5.9 Available Minutes**

Available unit minutes provide the best indicator of the actual officer deployment level at any given hour or day of the week. This is important for further calculations and comparison with consumed unit minutes, but it also provides insight into Department deployment practices within patrol. When examined in relation to authorized strength changes, it provides some understanding of whether patrol is being used as effectively as possible and whether there is a deviation from the Operations Division goals and objectives.

The authorized strength in patrol has not increased in any sizable manner in the past six years, with two exceptions. District 1 changed from 98 patrol officers to 131 on October 4<sup>th</sup> 2005. This addition was in direct response to uncurbed street disorder issues in the downtown core and the escalating downtown population which created a significant need for additional officers, more than any other area of the city.

<sup>5</sup> BC Stats Population Estimates for BC Metropolitan Centres, 2006.

As well, the City-wide Enforcement Team (CET) was created to police the Downtown Eastside (DTES) in April 2003, resulting in an additional 56 patrol officers being added to that initiative. In 2006, CET evolved into the Beat Enforcement Team (BET) and by default, the 56 officers augmented the District 2 authorized strength. In fact, the majority of officers within CET/BET originated from District 2, augmented by officers drawn from throughout the Department. However, an important distinction must be made with CET/BET, as these officers are used exclusively for enforcement and proactive initiatives in the Downtown Eastside, and do not take calls elsewhere in the district. Further, CET/BET is a beat enforcement team, meaning they are mainly foot patrol based, and therefore are not typically used to respond to 911 emergency calls. That does not mean CET/BET officers do not take calls in the DTES, but rather that is not the focus of their deployment. The CET/BET is premised on a proactive enforcement strategy and the ability to address on-view incidents, meaning taking immediate action as situations unfold in plain view of the beat officers. It also involves officers taking proactive measures to address repeat and systemic issues in their area of responsibility.

In total, from 2000 to 2005 there has only been an increase of 33 officers to patrol. If 2006 is included, then the realignment of staffing within District 2 and the addition of 18 officers is incorporated under the authorized strength for District 2. As is apparent, the inclusion of CET/BET in the analysis of total available minutes for District 2 is a complex undertaking. Since CET/BET has been in existence in April 2003, there has a reduction in the total available officer minutes for the area not including the DTES. This has tended to skew the District 2 data, requiring special attention when examining the analysis results.

#### **Patrol Authorized Strength 2005**

	<b>District 1</b>	<b>District 2</b>	<b>District 3</b>	<b>District 4</b>	<b>Total</b>
<b>Current Patrol Team Staffing</b>	<b>131</b>	<b>136</b>	<b>119</b>	<b>103</b>	<b>489</b>

There are two major issues to consider when reviewing these results. First, the primary role of CET/BET is not to respond to 911 calls for service, which is the main focus of this review when exploring patrol scheduling and efficiency. Second, when CET/BET available minutes are added to the district totals it creates a very different picture of available resources. While CET/BET does not focus on responding to 911 calls in District 2, by default of patrolling the DTES area they assume responsibility for many calls that normally would fall to the District 2 teams. In conclusion, when comparing available unit minutes it is not unreasonable to include both CET/BET within the total available minutes for the district. Consumed unit minutes are a completely different issue and will be dealt with in that section.

City-wide, the percentage of available minutes has increased marginally from 2000 to 2005 by 0.4%. This figure includes CET/BET staffing for District 2, which has an upward driving affect on the overall city available minutes. When CET/BET data is excluded from the analysis there is a significantly different result of a 10.3% reduction in available unit minutes. A district analysis provides further insight into patrol deployment practices. In

Vancouver Police Department  
**Planning & Research Section**

District 1, there was a net reduction in total available minutes of 4.2% from 2000 to 2005. In contrast, District 2 saw a net gain of 15.5% available minutes from 2000 to 2005 when CET/ BET data is included in the analysis. However, for the reasons stipulated above, when the CET/BET data is removed from the calculations there is a drop in available unit minutes for District 2 by 22.4%. This stands to reason given the majority of staff originated from District 2, causing a reduction in the total available minutes for the district. District 3 mirrored District 1 closely, with a 2.3% reduction in available minutes from 2000 to 2005. For the same period, District 4 witnessed the greatest decrease in available minutes, with an 8.9% decrease recorded.

**Available Minutes by District and City-wide Total**

	District 1	District 2	District 3	District 4	City-wide
<b>2000</b>	4,814,835	5,892,017	5,018,285	5,074,320	20,799,456
<b>2001</b>	4,875,026	5,855,666	5,125,018	5,074,140	20,929,851
<b>2002</b>	4,645,632	5,393,413	4,764,732	4,299,356	19,103,133
<b>2003</b>	4,340,923	5,130,425	4,865,334	4,432,502	18,769,185
<b>2004</b>	4,595,536	4,972,037	4,926,902	4,729,123	19,223,599
<b>2005</b>	4,611,428	4,575,109	4,843,957	4,622,809	18,653,304

<b>Total</b>	<b>27,883,381</b>	<b>31,818,667</b>	<b>29,544,228</b>	<b>28,232,250</b>	<b>117,478,527</b>
<b>2007 Predicted</b>	<b>4,485,674</b>	<b>4,212,344</b>	<b>4,732,020</b>	<b>4,382,262</b>	<b>18,320,113</b>

<b>Available Minutes 00 to 05</b>	4,647,230.24	5,303,111.22	4,924,038.00	4,705,374.98	19,579,754.43
<b>% Change 00 to 05</b>	<b>-4.2%</b>	<b>-22.4%</b>	<b>-3.5%</b>	<b>-8.9%</b>	<b>-10.3%</b>
<b>Forecast % Change 05 to 07</b>	<b>-2.7%</b>	<b>-7.9%</b>	<b>-2.3%</b>	<b>-5.2%</b>	<b>-1.8%</b>

Note: Excluding CET / BET Data

If current trends continue, it is predicted that District 1 will experience a further 2.7% decrease in available minute from 2005 to 2007. District 2 depending on whether CET/BET data is included, will experience either a 22.3% increase or a 22.4% decrease. District 3 is predicted to have a further 2.3% decrease in available minutes from 2005 to 2007 and District 4 will likely see a 5.2% decrease for the same period.

The authorized strength data indicates that there has been either an increase in staff to the districts, such as District 1 or staffing has remained constant. Therefore the reduction in available unit minutes can not be attributed to a decrease in the number of officers available to work. Alternative causes must be examined. A likely possibility is that while the officers still show on the official authorized strength for the various districts, they have been deployed to other duties. Likely explanations for this include patrol based surveillance teams that are comprised of patrol officers, but whose task is primarily conducting surveillance on property offenders. In essence, these officers show on the authorized strength of a team, but their duties have been altered to meet some other

need. Other possible explanations include special initiatives throughout the various districts. It is not uncommon for a District Commander or Inspector to create special initiatives whereby patrol officers are assigned to deal with an issue. While these initiatives are frequently based on problem solving techniques and proactive policing, the negative affect they have on patrol deployment cannot be ignored. If on the other hand, patrol had additional resources and a utilization ratio that allowed for unallocated time to engage in preventive and intelligence lead initiatives, then the redirected use of the above resources would be a welcome addition to any patrol environment. However, given the realities of a consistently high utilization ratio and unallocated time that is far below the threshold to support proactive policing, the best use of these resources would be to maintain a strictly 911 based response to calls for service. Any proactive initiatives should be reviewed with the intent of maximizing officer availability to take 911 calls.

## **5.10 Response Times**

### **5.10.1 Overview**

The VPD experiences a significant time lag between when a call is received at the 911 Call Centre (E-Comm) and the time it takes for the call to be dispatched to a unit. This has an adverse affect on the total response time, as this figure is calculated from the time a 911 call is received to the time it takes for a police unit to arrive on the scene. The elements of this calculation include the total of queuing delay, unit travel time and arrival time on scene. On average, looking at city-wide data, queuing delay accounts for 30% of the total response time, with travel time accounting for the remaining 70%. In terms of total minutes, this equates to a little less than eight minutes of travel time and a little over three minutes of time spent in a queue for priority one calls. City-wide response time data for 2005 indicates an average of eleven minute and forty seconds (11 min, 40 sec) response time for priority one calls. Priority one calls are the most serious 911 emergency calls that require immediate police attention.

For priority two calls, the second tier of emergency calls requiring police response, the ratio is almost the exact reverse. Approximately 30% of the total response time is consumed travelling to a call and the remaining 70% is spent waiting in a queue at E-Comm. In terms of actual time, this translates into approximately 13.5 minutes of travel time and 31 minutes waiting in a queue, for a total 45 minute response time for city-wide data.

Extensive interviews were conducted at E-Comm to determine the nature of the excessive time that calls wait in a queue before being dispatched to a unit, and to ascertain whether there were systemic inefficiencies related to the call centre that were adversely affecting police response times. Structured interviews were conducted with a sampling of staff members throughout the call centre, ranging from actual call-takers and dispatchers to staff supervisors and senior managers. As well, a thorough review was conducted of their current business model, staffing practices and workflow in handling incoming calls.



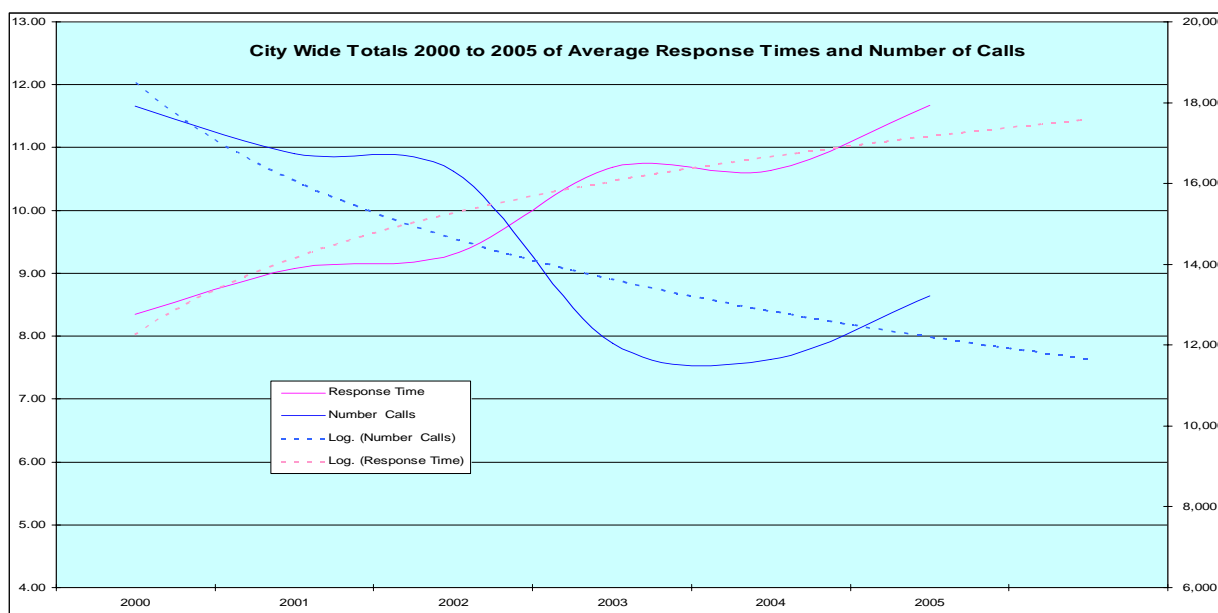
The results of this examination determined that the nature of the lengthy call queuing times was a result of low number of police units available to take the incoming calls. Due to police units being unavailable to respond to emergency calls, incoming calls were subsequently stacked or put on hold until a unit could be made available. As is quite evident, this process is less than ideal, as extreme emergency calls are simply not responded to immediately, due to lack of police resources. This situation must be kept in mind when reviewing unit utilization ratios. Unit utilization ratios, taken in isolation, do not tell the whole story of police resource issues. Generally speaking, whenever high utilization ratios are observed there is a very good chance that call stacking is also taking place. Simply, whenever police units are proceeding from call to call, typically a utilization ratio above 55%, then call stacking is also occurring because there are only a finite number of units available to take incoming calls. Furthermore, when a substantial number of units are occupied with existing calls it stands to reason that there are fewer units available to field new calls for service.

### **5.10.2 City-wide**

Looking at priority 1 city-wide response times by each day of the week, they are lowest on Sundays with a sharp build-up to Tuesday. From Tuesday, there is a gradual increase to Friday, where it peaks and then drops sharply on Saturday. On a yearly basis, 2005 had the highest response times, both by day of week and for time of day. From 2000 onward, every successive year saw marginal increases in priority 1 response times, starting at a low of 8.3 minutes and escalating to 11.7 minutes in 2005. If the current city-wide trend continues unabated, by 2007 it will take 13.1 minutes on average to respond to priority 1 calls.

In detail, it took the longest to respond to priority 1 calls between 0800 H and 1800 H, but dropped sharply before and after these times. Peak response times were observed at 1500 H. Looking at City-wide totals for 2005, the range between the highest and lowest response times was 6.2 minutes. The slowest average response time was 15.5 minutes at 1500 H and the quickest average response time was 9.14 minutes at 0400 H.

The relationship between response times and number of calls from 2000 to 2005 indicates that as responses times increase every year, the number of calls decreases for the same period. This inverse relationship is contradictory to what would be expected under the circumstances. A more expected relationship would be for response times to decrease in relation to a drop in the number of calls for service. The rationale is that a reduction in the number of calls for service would result in an increased availability of officers to respond more quickly to calls. Given indications from the data, it can not be said that such a relationship exists and other factors are likely driving response times higher. Other explanations include that there are fewer officers available to take calls than in the past. A reduction in the total available minutes per hour reflects this possibility. As well, the total time spent on calls has increased, reflected in the consumed unit minutes data, thereby further reducing the number of officers available at any give time to respond to calls in an expedited manner.



### 5.10.3 District Comparison

When examining Districts 1 through 4, the change in priority 1 response times from 2000 to 2005 increased by 29.5%, 40%, 43% and 44% respectively. This resulted in it taking on average 9.3 minutes in District 1, 11 minutes in District 2, 13.2 minutes in District 3, and 13.2 minutes in District 4 to respond to priority 1 calls. Priority 1 calls are the most serious emergency 911 calls that the police department responds to. This includes calls such as armed robbery, sexual assault in progress, shots being fired and other life threatening emergencies requiring immediate police attention. If unchecked and no steps are taken to alter this trend it is predicted that by 2007, all things being equal, it will take 11.3 minutes for District 1, 12.2 minutes for District 2, 14.4 minutes for District 3 and 14.2 minutes for District 4 to respond to these types of calls. This will reflect an increase in response times of 21.3%, 10.2%, 9.2% and 7.8% for District 1 through 4 respectively from 2005 to 2007.

District averages do not always tell the full story of response times, as it tends to have a mediating affect over extremes, even when those extremes are experienced on a consistent basis, albeit for a shorter period of time, such as two to three hours. To provide a more complete picture of actual response times experienced by the general public at various times of the day and in each district, a comparison between highs and lows is provided. When examining 2005 high and low response times by district for priority 1 calls, District 1 took the longest to respond to calls at 1500 H with an average 13.4 minute response. Conversely, at 0200 H it only took 6.3 minutes to respond to calls. District 2 followed a similar pattern with a high 13.8 minute response at 1400 H compared to a 8.4 minute response at 0200 H. District 3 experienced significantly higher average response

**Planning & Research Section**

times, with an average high of 18.3 minutes at 1300 H and a low of 9.4 at 0500 H. District 4 took the longest to respond to priority 1 calls at 1400 H, with an average 19 minutes and the quickest response took place at 0400 H at 8.1 minutes.

**Response Times by District and City-wide Total**

	District 1	District 2	District 3	District 4	City-wide
<b>2000</b>	7.22	7.91	9.21	9.18	8.38
<b>2001</b>	8.03	8.63	10.18	9.82	9.17
<b>2002</b>	8.40	8.76	10.18	10.43	9.44
<b>2003</b>	9.89	10.58	11.72	11.52	10.93
<b>2004</b>	10.26	9.71	11.65	11.24	10.72
<b>2005</b>	9.35	11.08	13.21	13.21	11.71
<b>2007</b>	<b>11.34</b>	<b>12.21</b>	<b>14.43</b>	<b>14.23</b>	<b>13.1</b>
<b>Average Response Time 00 to 05</b>	8.86	9.45	11.03	10.90	10.06
<b>% Change 00 to 05</b>	<b>29.5%</b>	<b>40.0%</b>	<b>43.4%</b>	<b>43.9%</b>	<b>39.8%</b>
<b>Forecast % Change 05 to 07</b>	<b>21.3%</b>	<b>10.2%</b>	<b>9.2%</b>	<b>7.8%</b>	<b>11.8%</b>

**5.11 Overtime**

**5.11.1 Overtime Overview**

Overtime is used in patrol for several purposes. First, it is used for hold-back (extended tour) whereby a patrol team is held back at the end of its shift due to an unusually high workload or series of emergencies that necessitate additional resources to maintain minimum service levels. Second, overtime can be used to maintain minimum staffing levels (callout), which are important not only to ensure appropriate to response to calls for service, but for the safety of those officers working and the preservation of sufficient backup officers. Callout and extended tour are the main reasons overtime is used in patrol.

**5.11.2 Background**

As part of the ongoing Operational Review, the Vancouver Police Department developed an Overtime Database in June of 2005 to identify and quantify the primary drivers of overtime use in the organization. In order to achieve these goals, the Overtime Database was designed to capture detailed information about each overtime claim. Prior to the inception of this database, the VPD relied on SAP software for information regarding

overtime usage. Unfortunately, the SAP product was not designed to capture basic information regarding overtime usage, such as the type of overtime being used, the reason why the overtime was required, or the times when the overtime occurred. As a result, only limited information regarding overtime can be obtained for dates prior to June 2005.

As part of the Patrol Resource Allocation Review, a year's worth of data from the Overtime Database was extracted to examine the efficiency with which the VPD currently deploys its patrol officers. Ideally, the overtime data used by patrol officers in the most recent calendar year would have been compiled. Unfortunately, this could not be accomplished. While the Overtime Database has been established for over a year, this period actually straddles two calendar years (the years of 2005 and 2006). As a result, it was only possible to extract annual overtime data for patrol officers for the period from June 1<sup>st</sup>, 2005 to May 31<sup>st</sup>, 2006.

### **5.11.3 Overtime Methodology**

The Overtime Database is robust in that it records both the number of hours earned by the individual, as well as the time period during which the overtime occurred. Thus, either the actual number of hours worked or the number of hours earned by the officer can be obtained. As a result, hourly figures represent the number of actual hours worked by the individual (e.g. if an officer worked a callout that lasted eleven hours, this will be recorded as eleven hours, not the 22 hours that the officer receives in compensation for this overtime tour).

The Overtime Database records information on all overtime worked by employees of the VPD, both sworn and civilian. As a result, the first step in this compilation involved isolating operational overtime worked by sworn patrol officers. In order to achieve this goal, the data was sorted by division. Only overtime which occurred in the Operations Division was considered. Because only data for frontline patrol sergeants and constables was desired, it was necessary to remove overtime claims submitted by managers and overtime worked by support units in the Operations Division, such as the district surveillance teams and the units in the Patrol Support Section. Next, data that was worked by patrol officers but was billed to other sections of the VPD or other police agencies was removed from the data; this was achieved by examining each cost center and/or determining if the overtime had been funded by another agency.

While it was clear that the above items should be removed from the overtime data that was collected, overtime used to fund the Liquor Squads (which are commonly referred to as Lima callouts) was also excluded from the main data-set used for patrol analysis. Arguably, this overtime should not be included because it is not used to deploy patrol officers in a traditional sense (the primary focus of this overtime is not 911 response, but the creation of order and the preservation of peace in the entertainment district). However, it can be argued that these squads provide additional resources which are required to meet the excess demand for police services in District One (if these squads

were not deployed this work would fall to the on duty District One patrol teams). Because there was no clear answer, it was decided that two separate data sets should be compiled for the subsequent analysis, one set with the Liquor Squad callouts included and the other with this overtime removed; in effect, creating two data sets.

Once the entries for patrol officers were isolated, the data was then sorted by district, day of the week, and type of overtime. This process allowed for the computation of aggregate levels of overtime usage for each district according to the day of the week. The breakdown of overtime usage by day of the week was simplistic when compared to the time series analysis that was performed.

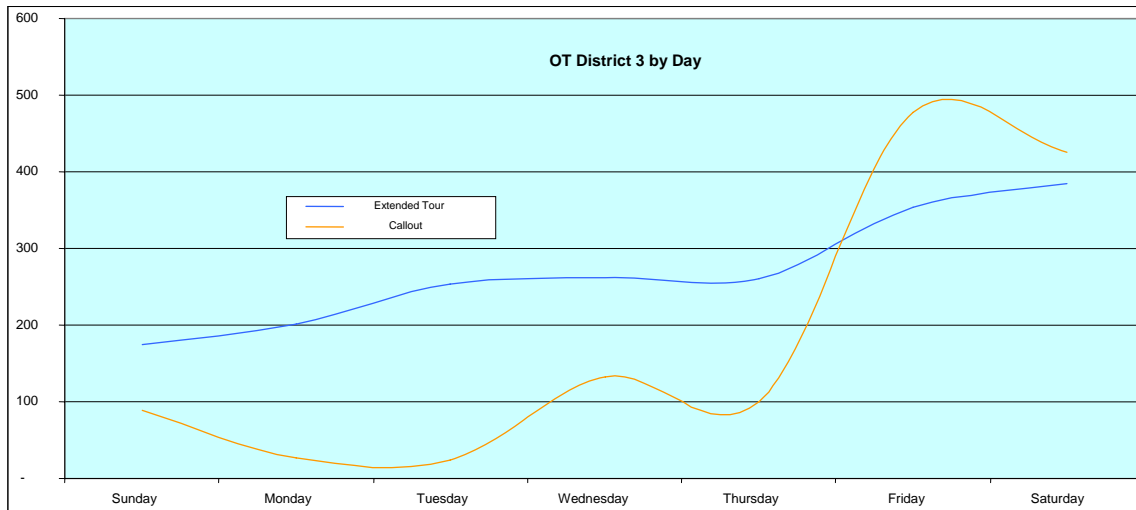
It was also necessary for cross comparison analysis with utilization data that the overtime data illustrate the times when demand for overtime began. The data also needed to account for the number of officers working at any given time. This was accomplished by first breaking the day into 15 minute intervals. Next, an automated program of binary data switches was incorporated to record the period over which the overtime occurred. As a result, the computer would turn on all the data switches for the intervals that covered the period over which the overtime occurred, while leaving all the other data switches for the rest of the day turned off (a switch that was turned on was recorded as a one, while a switch that was turned off was represented by a zero). This analysis allowed for the preparation of graphs that depict the timing, length, type, and frequency of overtime usage.

The analysis that was performed allowed for a comprehensive examination of the data contained in the VPD Overtime Database. Rather than simply examining overtime start times or total expenditures billed to a given cost centre, this methodology permitted a detailed analysis regarding the frequency of overtime, the specific time over which it occurred, and the underlying reason why this work was required.

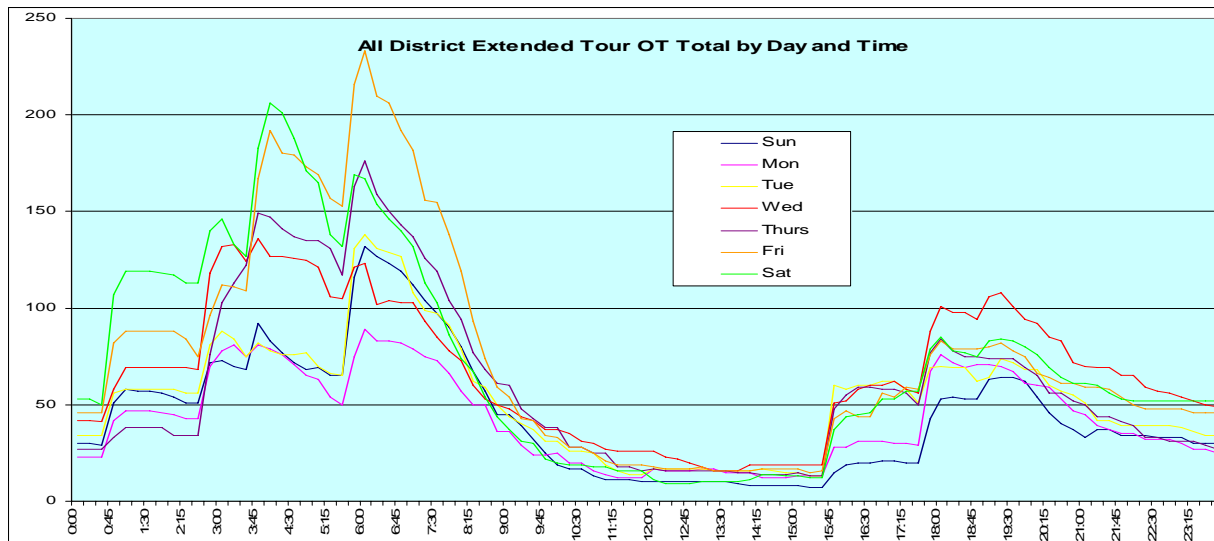
#### **5.11.4 Overtime Usage Findings**

When examining overtime usage in patrol it is evident that its use is limited for most days of the week with the exception of Thursday, Friday and Saturday where it is more prevalent. Callouts (to maintain minimum staffing) are used most extensively on Thursday to Saturday, compared to extended tours which are more gradual and a stepped increase throughout the week from Sunday to Saturday. Further, extended tour overtime was used 67% more than callouts to maintain minimums. This use of extended tour overtime is consistently higher than callouts by 2/3 for each district, regardless of day or time in question. As well, each district follows a similar and consistent pattern, but with District 3 experiencing the greatest increase near the end of the week compared to the other districts. Interestingly, callout overtime used to maintain minimum staffing was not used as extensively as first thought and extended tour overtime was used far more than anticipated, indicating a possible issue with shift deployment at the times of high overtime usage.

Vancouver Police Department  
**Planning & Research Section**



In terms of hour of the day and day of the week where extended tour overtime was used more extensively, Friday early morning between the hours of **0345 and 0430** and between **0600 and 0645**. A similar practice is repeated on Thursday and Saturday at the same times, but with slightly lower usage.



When examining district discrepancies, District 1 is unique, in that Thursday evening for the same times listed above record the highest use of overtime, followed closely by Friday and Saturday. For District 3, Saturday is disproportionately higher than any other day of the week for the same times listed above, followed by Friday and Thursday. District 2 and 4 are consistent for Friday and Saturday morning, at the same times listed above, as being the highest use of overtime.

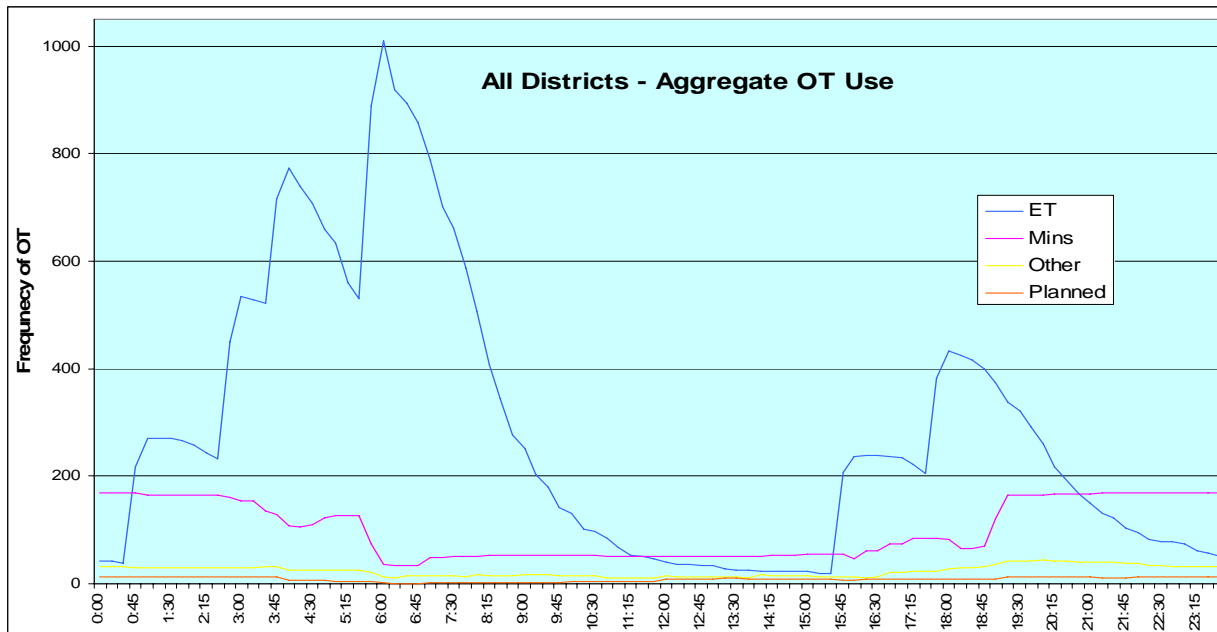
Given these findings, there is some evidence to support an argument that extended tour overtime is being used to compensate for inadequate weekend resources and a poor shift

scheduling at times when arrests are occurring as shifts are endings during times of peak utilization.

As detailed in the utilization analysis section, weekend (Thursday to Sunday morning) has long been problematic for patrol, regardless of district. The times between **0300 H and 0430 H** and between **0600 H to 0630 H** consistently have high peak utilization, indicating inefficiency with the current deployment model. This is a mirror overlap of the extended tour overtime peak usage as well. Interestingly, both times of high inefficiency and highest use of overtime are one in the same. It appears that extended tour overtime is being used as an ad hoc way to compensate for shift resource issues. Albeit, not the most cost-effective manner to correct deployment model shortcomings, the regular and extensive use of extended callouts can have a mediating effect on times of peak inefficiency without adding an entirely new shift to compensate.

This is an important distinction to make, as the use of extended tour overtime is limited to individual officers that are engaged in a serious call and cannot be released or officers that have a suspect in custody that requires documentation that can not wait until another shift. One of the main reasons for the concentration of extended tour overtime at the two times listed above, as opposed to other times of the day, is that in the early morning there are fewer shifts available to handover serious calls to. Typically, during the afternoon, a dispatcher will assign calls that have a substantial investigative component to oncoming shifts rather than to a unit that is about to go off shift. This reduces the need to use extended tour overtime, as the fresh unit has the entire shift to wrap up the call. However, this situation does not exist during the early morning between 0300 H and 0500 H, as there is only a Delta shift (Delta ends 0400 H) and then only an Echo shift available to field calls (Echo ends at 0600 H). The next shift doesn't start until 0500 H. This limits the ability to transfer serious calls that occur between 0300 H and 0430 H to an oncoming team that will have 11 hours to deal with the situation. The two available teams are left to deal with the situation, regardless if it happens very close to the end of their shift.

The alternative is to create a transition shift to bridge the gap between the end of Echo and the start of Alpha shift. However, certain realities must be considered. Throughout the city the call load is very low between 0400 H and 0700 H, with 0630 H having the lowest call-load in any given 24 hour period, regardless of day of the week. Therefore, the cost implications of creating an entire team to exclusively address these early morning times of peak utilization is far greater than the overtime generated by individual officers on a need basis. An entire shift devoted to fixing the overtime issue would be a very poor use of resources given the extremely low call load at this time. While some modifications can be made to help address the use of extended tour overtime in the early morning, the complete elimination of all overtime can not be accomplished in a cost effective manner. A detailed examination of proposed shift modifications that will help address some of these issues is contained in the recommendations section.



## 6 Patrol Workload Detailed Analysis

### 6.1 Project Outline

While Phase 2 identified call distribution patterns and the unit-hours spent on calls by time of day, Phase 3 represents a follow-up analysis that more accurately depicts resource allocation. The addition of data spanning six years from 2000 to 2006 includes available unit-minutes, consumed unit-minutes and utilization figures. This provides crucial information as to how active patrol officers are at various times and days of the week, as well as compared to other districts within the city.

By benchmarking unit utilization (time consumed / available minutes) with an unavailability factor of 13.6% to account for unavailability during meal breaks, the current shift deployment model can be compared to the demand for service and changes that have occurred over the six years. Through this analysis, a better appreciation of the nature of the call load and police resource availability can be made. Ultimately, this report will assess whether the current deployment model accurately mirrors demands for service and, if not, which time blocks, days and districts would benefit from modified scheduling.

The intent of this section of the report is to review the deployment of patrol officers and determine whether the current shift model accommodates the changing needs of the Districts. The results of the analysis will then be used to assess the current shift deployment model and which peak call-load times have the greatest need for resource



modification. In some cases this may involve a modified shift model, such as the creation of additional shifts to more closely match resources to demands for service.

A unit utilization ratio of 70% or higher was used as a benchmark to indicate a workload that has reached a level where it has a limiting effect on the ability for police to respond to additional demands for service or respond in a proactive manner. Police that are deployed in a reactive model, going from call to call, cannot be expected to produce or respond to calls beyond their means. The 70% cut-off was used, as this equates to 10 minutes or less of unallocated time within each hour block.

The calculation is based on 9.5 hours available to take calls using the unavailability factor of 13.6% after meal breaks have been deducted from each 11 hour shift. Further, the 10 minutes that is unallocated within each hour block may be further broken down into small time-block segments, such as five minutes or less, which is virtually unusable in terms of proactive policing. In reality, 10 minutes or less within an hour time-block would allow for little more than finishing up report entry and preparing for the next call. At this heightened level of call load, officers are simply responding to dispatched calls that are queued in a priority sequence.

In practical terms, officers who spend 70% of their time responding to calls for service are considered extremely high within the policing community. For example, the International City/County Management Association has stated:

Generally when a department operates at optimum efficiency, patrol officers will spend approximately 30 to 35 percent of their time committed to calls for service. Spending 45 to 50 percent of patrol time on calls leads to call stacking, citizen dissatisfaction, neglect of crime prevention, and officer stress. This also means that there may not be enough time to conduct proper investigations.<sup>6,7</sup>

While adverse affects have been noted in police departments whose patrol officers spend over 45% of their time responding to calls, at levels above 70% the degradation of service is so severe that patrol officers are stretched beyond their ability to effectively respond to emergency calls. Under these conditions, emergency calls become backlogged and are transferred to a queue for the next available unit. Any form of proactive policing is virtually non-existent, including core functions such as traffic enforcement. Special notations are made throughout the report identifying those days and times when unit utilization surpassed the 70% mark. When reviewing the findings outlined in the subsequent section, consider the implications each percentage value represents in terms of time spent responding to calls and what effect that has on the ability to provide an emergency service to the public.

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<sup>6</sup> VPD. *Administrative Report to Vancouver City Council*. Planning Research & Audit Section. March 2003.

<sup>7</sup> International City/County Management Association (ICMA). 1997. *Comparative Performance Measurement: FY 1995 Data Report*. Washington DC: ICMA.

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## **6.2 District 1**

### **6.2.1 Overview**

District 1 has been noted as the district that has experienced the greatest growth and transition within the past 10 years compared to any other area of the city. For example, District 1 has seen a population increase of 52% from 1993 to 2001<sup>8,9</sup>. Furthermore, from 2000 to 2006 the population continued to grow, recording an increase of 12.9% or 9,667 people. This population increase becomes significantly more pronounced when contributing factors such as an estimated 125,000 commuters enter the district during the day, according to GVRD estimates for 2001.

Similarly, licensed premises seating capacity has increased by 20% from 1998 to 2001 within the downtown core<sup>10</sup>. The impact on police resources has been most significant within the Granville Mall area, where late night bar crowds and intoxicated persons have created social disorder problems for police (e.g. assaults, disturbances, noise, intoxicated persons). These changes and other contributing factors resulted in the VPD transferring an additional 33 officers to the district. This benefited the District by increasing patrol team strength to approximately 13 officers versus a previous team strength of approximately 9 officers, depending on individual teams. However, while these officers were added to the authorized strength on October 4<sup>th</sup> 2005, their actual deployable strength did not come into effect until late 2006, after a lengthy recruiting and training process. As a result, given that this report was produced in mid 2006, it was impossible to weigh their impact on the district's available minutes and utilization ratio. However, given that the additional resources were simply added to the existing deployment structure, it is safe to assume that the same pattern in utilization was maintained, although at a reduced level.

Extrapolating from 2000 to 2005 data should not be problematic in terms of assessing inefficiency peaks and issues with deployment. Regardless of the additional officers added to District 1, the same times and days that create scheduling issues will continue in 2006, independent of the 33 officers added to the existing shift model. However, it would stand to reason that levels of inefficiency will be considerably lower with the added resources. Following this reasoning, the 2000 to 2005 data was still analyzed with the intent to assess shift deployment issues that could be improved upon and possibly modified to provide a better use of resources. This is premised on the analysis still carrying through to the current District 1 staffing composition and informing possible deployment changes.

The number of available patrol units within District 1 comprises of 23% of the total patrol units within the city. With slightly less than one quarter of the Operations Division's patrol units, District 1 attends 21% of the total calls for service within the city. Similarly, the

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<sup>8</sup> Prox, Ryan. *Patrol Shift Analysis District 1*. Planning, Research and Audit Section, February 2002.

<sup>9</sup> BC Provincial Government. *Total Municipal Population 1991-2002*. BC Stats

<sup>10</sup> Meeres, Grant. *Patrol District 1, An Analysis on Demographic and Workload Changes – Addressing the Policing Issues*. District 1 Patrol, September 2003.

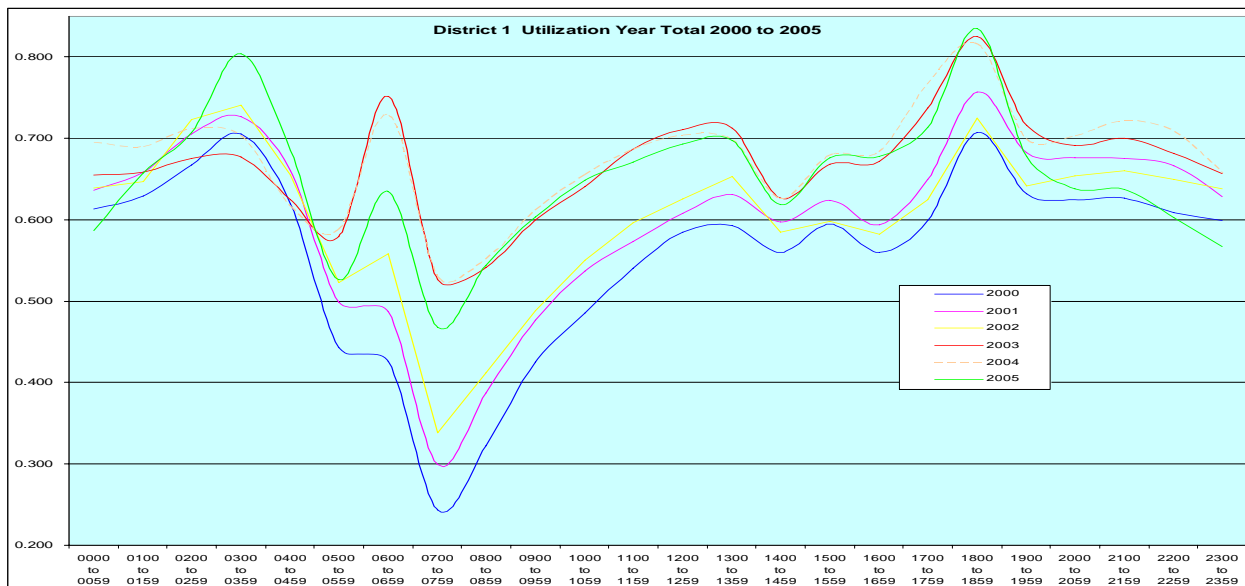
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Vancouver Police Department  
**Planning & Research Section**

number of patrol minutes consumed by District 1 was 25% of the city total.

District 1 unit utilization, which is the percentage of time consumed relative to available time, fluctuates significantly by day of the week and the hour of the day. As well, there are slight variations from year to year, that will be examined separately when there is a deviation from the established trend. Using 2000 data, starting at 7:00 am, unit utilization progressively builds for every day of the week from the 15% to 25% range until reaching a plateau at noon that slightly drops off until 2:00 pm. In contrast, the same trend is followed by 2005 data, with the exception that the utilization rate has increased by an average of 13.8%. For example, 7:00 am Tuesday, which is the lowest point of utilization for every time and day of the week, the utilization 16.3% compared to the same time and day in 2005, which is 45.7%. Another example is Wednesday evening at 6:00 pm in 2000, which recorded a utilization ratio of 74.4% in 2000 compared to the same day and time in 2005 which increased to a utilization ratio of 84.8%.

For every year studied, after 5:00 pm, unit utilization increases sharply for each day of the week until reaching a peak at 6:00pm. For 2005, Saturday had the highest utilization with an average high of 89.4%. At this level of unit utilization only 6 minutes are unaccounted for within the hour block. The remaining days were within the 73% to 90% range of utilization, which is a remarkable increase within a very compressed time. Continuing to look at 2005 data, after 6:00 pm, unit utilization once again dropped sharply to the 50% to 56% range with a slight increased noted between 8:00 pm and 9:00 pm and then continuing to drop again. Interestingly, Friday and Saturday unit utilization increased slightly above the norm to midnight, from the years 2000 to 2002. From 2003 onward, every day followed the same pattern outlined above, which was a gradual decrease until a 3:00 am spike.



Saturday and Sunday early morning utilization did not spike until 4:00 am, likely attributed to a modified weekend shift extended to 4:00 am. Wednesday, Thursday and Friday

early morning experienced a substantial spike (up to 85% in 2005) occurring at 3:00 am. After 3:00 am, mid-week utilization, which includes Thursday and Friday mornings, drops significantly to a 40% to 51% range in 2005, while Saturday and Sunday morning remain elevated in the 67% to 68% range. In 2000, for the same time and day, utilization ranged from 52% to 53%.

For the six years studied, utilization spiked everyday of the week at 6:00 am, with the highest levels displayed for Saturday and Sunday in the 82% to 76% range in 2005, versus midweek, which was significantly lower in the 50% to 68% (2005) range. Friday morning was the midweek day with the closest level to weekend rates, at 68% in 2005, with the second highest day being Tuesday at 61%. Again looking at 2005, between 6:00 am and 7:00 am, unit utilization dropped to the lowest levels in a 24 hour period, with midweek at 40% to 50% and Saturday and Sunday levels at 55% to 48% respectively.

District 1 reaches its weekend early morning peak of consumed minutes between 0200 H and 0300 H. This is a significant change from the past, where the same District hit its weekend early morning peak between 0100 H. and 0200 H. This is probably a reflection of later bar closings that have extended the time when drinking related calls impact the District.

Interestingly, District 1 peak consumed minutes was higher in 2000 and 2001 compared to 2004 and 2005. However, the overall level of consumed minutes stayed relatively higher for 2004 and 2005 compared to the past. In other words, the volume of consumed minutes was consistently higher on average than in the past, but extremes were higher in the past compared to more recent years. This indicates more recent police intervention tactics have had a preventative effect on calls for service and consumed minutes. While the volume of calls has not abated, the extreme peaks has been mediated through a strong enforcement presence on weekends. While not exactly equal to mid-week consumed minutes for the evening, there is a closer mirroring for 2005 than the extremes observed in 2000.

### **6.2.2 Analysis**

As to be expected, unit utilization was greatest during weekends, with early mornings recording the highest elevated rates that deviated from midweek levels. On closer examination, the primary factor for the elevated unit utilization during these weekend times was an elevated call load that resulted in a substantial increase in consumed patrol unit-minutes. Despite the fact that available unit-minutes were also higher on weekend evenings and early mornings, this was not adequate to cope with the spike in consumed unit-minutes. In other words, while District 1 did attempt to compensate for the increase in consumed unit-minutes during weekend evenings and early mornings by increasing available units through modified shifts, deployment was still below the level required to prevent extreme spikes in unit utilization levels.

The spikes at 3:00 am and 4:00 am were also compounded by the fact that available

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**Planning & Research Section**

units decreased at these two crucial times because of shifts ending despite the elevated call load. The substantial call-load volume during weekend bar hours, coupled with shift changes that do not align well with the current call load pattern, results in several spikes in unit utilization.

Early morning midweek unit utilization also followed a similar pattern, albeit at a less magnified level. As was the case on the weekend, midweek experienced a spike in unit utilization at 3:00 am. While not as significant as the weekend, it clearly demonstrates that similar issues are at play during the early morning. As was the case with the weekend, consumed unit minutes was quite elevated at 3:00 am in District 1, but resource levels drop off sharply as a result of shifts concluding. Following a comparable trend to the weekend but one hour earlier, midweek unit utilization climbs significantly at 3:00 am. This was a result of an elevated call load consuming available unit-minutes, but also a consequence of a late afternoon shift ending at 3:00 am on Monday to Thursday, compared to ending at 4:00 am on Saturday and Sunday. In essence, the weekend unit utilization spike is offset by one hour due to a modification in shift scheduling.

As mentioned previously, each day recorded a significant rise in unit utilization at 6:00 pm. While the call load gradually increased from 6:00 am onward for every day of the week, the sharp increase in unit utilization was a direct result of resource scheduling. At 6:00 pm, day shift ended (Bravo shift) and there was an hour lag before the next significant shift became available, namely the 7:00 pm Echo shift. This resulted in a yo-yo effect in the unit utilization, as remaining shifts scrambled to deal with the number of calls until the next shift became available. Unit utilization then dropped sharply once more units were available, but only temporarily.

Call load (consumed minutes) continued to build and place increasing demand on available shifts until 9:00 pm when it hit a plateau and then continued to slowly drop off until 6:00 am the next morning. Friday and Saturday evening and the following early morning were the exception to this midweek trend, as the call load decreased slight until 2:00 am, then increased slightly before continuing on a downward trend to 6:00 am. This pattern was most prevalent in 2005.

In terms of adequately resourced days, Monday and Tuesday appear to have the best ratio of unit-minutes to call load compared to other days of the week. This translates into the greatest number of available units at most hours of the day. However, calls for service are consistently low on Tuesday and Wednesday, which together impact the low unit utilization percentage for these two days.

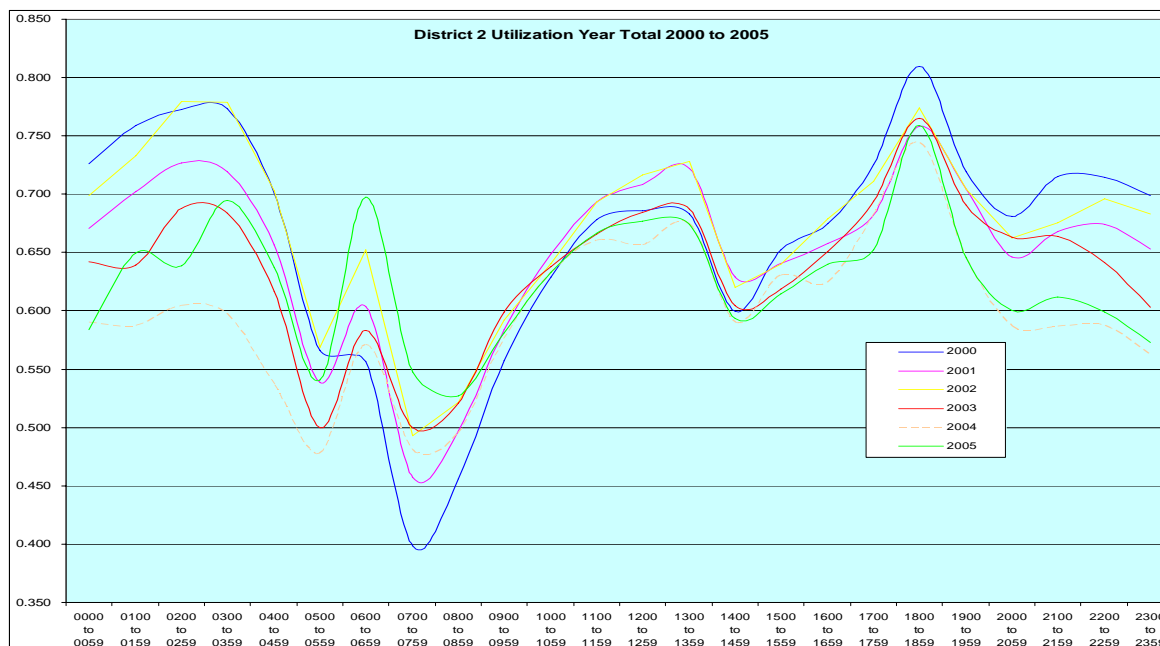
### **6.3 District 2**

#### **6.3.1 Overview**

District 2 has traditionally been viewed as a district with an intense workload. This is partially attributable to the inclusion of the Downtown Eastside (DTES), which is a

significant consumer of district. Despite the fact that it only comprises 3% of the city population, the DTES is responsible for nearly 18% of all calls for service compared to the remainder of the City of Vancouver (COV)<sup>11</sup>. The majority of Vancouver's homicides and overdose deaths occur within District 2, and it is generally regarded as one of the more dangerous areas of the city. In April 2003, the DTES experienced a patrol based initiative to restore order and assist a community in crisis. The City-wide Enforcement Team (CET) and eventually the Beat Enforcement Team (BET) was premised on a highly visible police presence aimed at restoring order to one of the most impoverished and drug filled areas of the city. District 2 also includes the areas east of Clark Drive to Boundary Road, which encompass several gentrified neighbourhoods, as well as middle income and lower income areas with diverse policing needs and unique service requirements.

Using 2005 data as an illustration, District 2's unit utilization ratio corresponds to extremes that range from 44% to 80% depending, on day and time. Using 7:00 am as a point of departure, as this time consistently has the lowest values, utilization increased incrementally every hour until reaching a high at 1:00 pm. The 1:00 pm peak ranged from 62% to 74% (2005). This increase is evident for every day of the week, but Saturday and Sunday represent markedly higher ratios than the midweek increases. From 1:00 pm to 2:00 pm, unit utilization drops significantly to the 56% to 63% range. Everyday experiences a significant upward spike at 6:00 pm. After 6:00 pm, unit utilization drops for each day at 7:00 pm and then gradually climbs to 9:00 pm. After 9:00 pm, Friday continues to climb and the remaining days gradually decrease until midnight.



From midnight onward, unit utilization increased rapidly reaching a peak at 1:00 am. Midweek levels are within the 60% to 63% range, and weekends 77% to 68% range. Utilization levels dropped at 2:00 am for 2005 and the remaining years are split between

<sup>11</sup> Based on 2002 Prime BC figures prior to the inception of the City-Wide Enforcement Team initiative.

decreasing at either 1:00 am or 2:00 am. In 2005, levels sharply increased again at 3:00 am, reaching 74% to 60% utilization before dropping to the 46% to 64% range at 5:00 am. Weekend unit utilization closely mirrored midweek trends, with the exception of the 3:00 am peak occurring one hour later. After dropping at 2:00 am, weekend levels rose sharply at 4:00 am. From 4:00 am onward, weekend levels dropped until 5:00 am. From 5:00 am, unit utilization increased rapidly to 6:00 am for each day, including weekends, and then dropped again at 7:00 am. Throughout these fluctuations, Friday and Sunday morning utilization levels were appreciably higher than during midweek days.

### **6.3.2 Analysis**

District 2 has five significant increases in unit utilization that are examined in detail. The first section will deal with late morning and early evening periods of fluctuation, and the second section will deal with late evening and early morning shift variances.

Call load (consumed minutes), gradually increased throughout the day, starting from a low at 6:00 am and generally building to a high at 9:00 pm. Consumed minutes increased more aggressively from 7:00 am to 11:00 am, then generally levelled until 2:00 pm, at which time it escalated more abruptly until 4:00 pm. From 4:00 pm to 6:00 pm, call load remained relatively level before increasing again from 6:00 pm to 8:00 pm. After 8:00 pm the call load plateaued before dropping slightly until midnight. Weekends presented some variations in the call load trend by increasing more rapidly in the evening, and continuing to increase after 8:00 pm, but generally followed the same pattern of build up.

In contrast, available unit-minutes, which are dependent on the number of units available, followed a more abrupt pattern of increases and reductions throughout the same time period. Considering the extreme fluctuations in unit utilization, it appears that the deployment model fails to keep pace with the gradual increase in calls for service. Calls for service and the associated consumed unit-minutes are predictable over time. Therefore the most efficient use of patrol resources would mirror call load with the appropriate units required to field calls.

Notably, the number of available units increased significantly at 7:00 am as Bravo (day shift) started. From 7:00 am to 9:00 am the available unit-minutes kept pace with consumed unit-minutes. However, as the call load continued to climb and the number of units remains constant, unit utilization levels peaked at well over 73% (2005) at 1:00 pm. As was mentioned previously, a high unit utilization ratio is indicative of overworked patrol officers that are unable to engage in proactive policing.

At 2:00 pm, Charlie shift started, which increased the available unit-minutes in a significant step that reduced the unit utilization ratio to a more manageable level, within the 56% to 63% range in 2005. However, the compensating effect of Charlie shift is negated by the 5:00 pm reduction in available unit-minutes on Friday and Saturday and the 6:00 pm ending of Bravo shift, which isn't replaced until 7:00 pm by Echo shift. The ending of Bravo shift created a jump to the 74% to 78% range for one hour in 2005.

The following section will focus on the late evening and early morning variations in unit utilization, as well as influencing factors. At 1:00 am, available unit-minutes drop off significantly as a result of Charlie shift ending. This results in a significant spike in unit utilization, as the remaining units are left to manage a call load that is significantly elevated compared to day shift. Weekends were the most appreciably impacted, as Saturday unit utilization, on average, reached 77% (2005).

The situation is further compounded at 3:00 am when Delta shift ends. This substantially reduces the number of units available to field calls, resulting in a unit utilization that is in the 60% to 75% range (2005), depending on the day of the week. In 2005, weekends are impacted by the adjustment of Delta shift, which ends at 4:00 am. The modified Friday, Saturday shift repositions the weekend unit utilization spike to 4:00 am. Regardless of the one-hour variation between times when unit utilization surges, it is quite evident that resources are considerably over extended, both on weekdays and on weekends.

At 5:00 am Alpha shift starts, creating a temporary reduction in unit utilization; however, at 6:00 am, Echo shift ends creating another surge. While not as pronounced as earlier utilization increases, due to a decrease in call load, the surge still represents an inefficiency that requires other patrol teams that are only just starting, to attempt to compensate for the spike.

While an overlap of shift end times would help alleviate the drastic surges in unit utilization at 1:00 am, 3:00 am, 4:00 am (weekends) and 6:00 am, the elevated call load and rapid reduction in available units would still result in a high unit utilization ratio. A comprehensive strategy needs to incorporate an increase in available resources for the late evening/early morning call load, an extending of the shifts to provide longer coverage at peak times, and an overlapping of the shifts to reduce unnecessary utilization surges. This topic will be discussed in detail within the Deployment Model Recommendations section.

## **6.4 District 3**

### **6.4.1 Overview**

District 3 encompasses one of the more ethnically diverse and stratified areas of the city. While the majority of the district is primarily single-family residential housing, the highly concentrated businesses along Kingsway and Main Street represent a unique challenge to policing. The distinct neighbourhoods and sub-communities that are characterized throughout the policing area compound this challenge. Further, the SkyTrain transportation corridor that cuts through this district also impacts policing issues and the distribution of crime. For example, areas that were previously less accessible, except by vehicle, are now easily targeted by criminals that make use of the transit system to both aid in their movement and avoid apprehension.



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**Planning & Research Section**

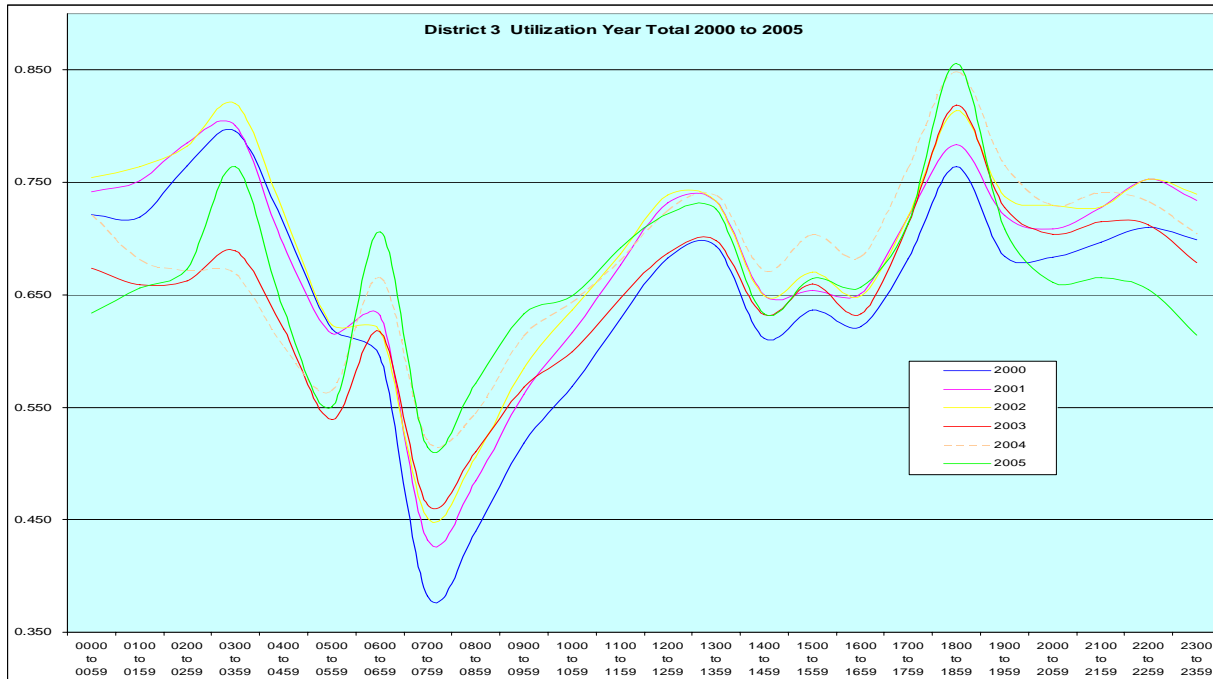
Geographically, District 3 is considerably larger than Districts 1 and 2, which has an impact on response times. Resources available to take calls in District 3 comprise 28% of all patrol units, which closely mirrors the consumed patrol unit-minutes (27% of the total consumed unit-minutes).

Changes impacting the current deployment model also include an increase in licensed establishments and licensed seating capacity within the district. This has influenced the late night call load and created similar trends to those seen in Districts 1 and 2, which in the past were primarily where drinking establishments were located.

District 3 experienced a similar pattern of unit utilization to that of District 2, albeit at an elevated level. The ebb and flow of the unit utilization closely mirrored District 2, with weekend peak utilization matching and at times surpassing those seen in District 1.

Specifically, District 3 unit utilization was quite low at 7:00 am, with a range of 43% to 64% in 2005. From 7:00 am to 1:00 pm, the unit utilization ratio increased progressively, until reaching a high point at 65% to 76% (2005), depending on the day of the week. Saturday and Sunday were the two days with the highest utilization ratio at 1:00 pm in the afternoon. Between 1:00 pm and 2:00 pm, utilization plummeted, before increasing slightly at 3:00 pm and then dropping slightly at 4:00 pm. More importantly, unit utilization increased from the range of 70% to 75% at 5:00 pm to 89% to 89% at 6:00 pm in 2005. Immediately after 6:00 pm, unit utilization dropped sharply at 7:00 pm to levels similar to those seen at 5:00 pm before increasing again at 9:00 pm. From 9:00 pm to midnight, unit utilization drops slightly plateau, with only minor fluctuations noted.

From midnight to 7:00 am unit utilization data demonstrated wide variances. Starting at midnight, unit utilization increased gradually to 1:00 am, with weekends peaking at 72% and 73% for Saturday and Sunday respectively. In fact, weekend levels remain elevated above those recorded for midweek for the entire early morning timeframe.



From 1:00 am to 3:00 am, the most significant utilization ratio increases were recorded compared to any other time block. Weekend levels peaked at 96% and 85% for Saturday and Sunday, respectively in 2005. While midweek levels also increased substantially, with highs in the 70% to 75% level for Thursday and Friday morning. From 3:00 am to 5:00 am, unit utilization recorded its most significant drop. For example, on Saturday, utilization changed from 96% to 73% in only two hours (2005).

Similar trends were observed for the other days of the week, with Monday and Tuesday recording the lowest utilization ratio compared to the other days. From 5:00 am to 6:00 am there is a substantial spike in utilization, with Saturday and Sunday reaching highs in the ranging from 91% to 86% respectively. Surprisingly, Friday does not follow the same trend, but rather more closely mirrors midweek levels in the 65% range.

From 6:00 am to 7:00 am utilization levels drop to all-time lows, with Monday, Tuesday and Wednesday grouped closely at the 45% level (2005). Saturday and Sunday were more elevated, in the 60% range (2005). Friday morning was between these two sets at 51% (2005).

#### 6.4.2 Analysis

From 2000 to 2005, District 3 resource deployment was an exception to the other districts in that it did not have a modified weekend Charlie or Delta shift. Throughout this period, District 3, both midweek and weekend shift patterns, were exactly the same. This practice was despite substantial variations in call-load, especially on Friday and Saturday evenings, as well as Saturday and Sunday early mornings. The following analysis will

identify the times and days that are influenced by resource availability and calls for service fluctuations.

Unit utilization levels were at their lowest point at 7:00 am for every day of the week. While calls load was lowest at 6:00 am, the start of Bravo shift at 7:00 am resulted in an elevated but steady overall unit usage, despite a notable increase in the call-load. From 7:00 am to 1:00 pm, the unit utilization ratio increased substantially, a direct product of the rise in consumed unit-minutes. In other words, the total number of minutes spent attending calls increased throughout the late morning until reaching a peak at 1:00 pm in the 65% to 76% range (2005).

At 2:00 pm, Charlie shift started, which caused a drop in the unit utilization ratio despite a continued increase in the call-load. The extra patrol resources temporarily reduced the utilization ratio to approximately 62%, but the level of consumed unit-minutes continued to rise, creating a slight upsurge at 3:00 pm before levelling off again at 4:00 pm when Delta shift started, providing much needed units to cope with the mounting calls for service. This levelling continued until 6:00 pm when unit utilization increased rapidly. For example, Wednesday and Monday recorded ratios of 85% and 88% respectively (2005). The ending of Bravo shift created a temporary gap in resources until 7:00 pm when Echo shift became available to take calls. Consequently, unit utilization dropped again at 7:00 pm, although still maintaining a higher level than at 5:00 pm, as a result of a continued increase in the call load.

From 8:00 pm to 9:00 pm, unit utilization increased slightly while patrol resources remained stable. From 10:00 pm to midnight, there was a gradual decrease recorded in the utilization ratio.

From midnight to 1:00 am, unit utilization climbed for every day of the week with the exception of Saturday and Sunday, that were notably higher with levels at 72% and 73% compared to 60% and 66% for Monday and Friday. While in the early morning, call load decreased for every day, the ending of Charlie shift at 1:00 am was substantial enough to create a resource dependant spike.

At 3:00 am, Delta shift ended creating a sizeable increase in unit utilization. In fact, utilization levels were at their highest level at 3:00 am, with Saturday and Sunday leading at 96% and 85% respectively. However, Wednesday, Thursday and Friday were still quite high, recording utilization ratios of 75%, 69% and 77% respectively. As is evident from the data, Echo shift was left to respond to the bulk of the calls for service within the district until 5:00 am. From 3:00 am to 5:00 am consumed unit-minutes continued to drop, which impacted the unit utilization ratio causing it to fall. The rapid drop after the 3:00 am spike was further fuelled by the additional resources of Alpha shift, which came available at 5:00 am. However, the low utilization ratio was soon reversed by a spike at 6:00 am when Echo shift ended. The one hour that Alpha shift was left without other resources created a spike such that Saturday and Sunday morning levels were in the 91% to 86% range. The remaining days were considerably lower at the 65% level. From 6:00 am to 7:00 am unit utilization dropped to its lowest level, as Bravo shift started,

resulting in a substantial influx of available patrol units when the call load was still quite low and only starting to build.

## **6.5 District 4**

### **6.5.1 Overview**

District 4 is the largest of the patrol districts. Land use in this district is primarily residential, with mixed business use scattered throughout the district, but predominantly located in the north along Broadway, Granville, Cambie, 4<sup>th</sup> Avenue, in Kitsilano and on Granville Island. The residential areas are in well-established neighbourhoods that are, generally speaking, stable and homogeneous compared to the other districts. As was the case in District 3, nightclubs and bars are not the primary destination point within this district, however, there has been a slight increase over the years that have altered the late evening and early morning call load.

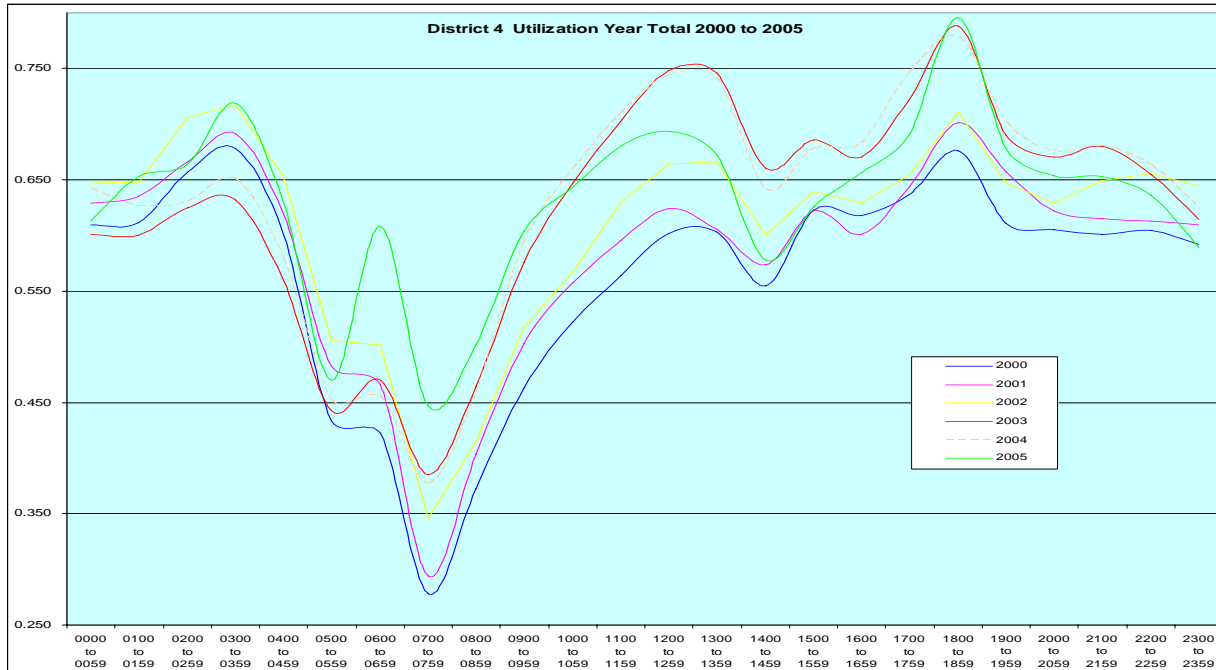
Similar to District 3, District 4 response times are adversely impacted by the large geographic size of the policing area. The business corridors to the north consume a disproportionate amount of police resources, with Vancouver General Hospital (VGH) requiring special police attention. The higher density housing and business areas to the north also experience more disorder and crime control related calls requiring a greater police presence. In contrast, the residential areas to the south predominantly record property crime offences, but at a far lower rate than the rest of the city. As well, the light industrial use concentrated along the Fraser River primarily experience property related crime.

In terms of current resource deployment, District 4 has 25% of the total available units allocated within the city. The number of calls for service is also reflected in 25% of the city total. Similarly, the consumed patrol unit-minutes is 25% as well.

Unit utilization fluctuated throughout the twenty-four hour period for each day of the week, with weekend levels consistently recording higher values than midweek. Beginning at 7:00 am, District 4 unit utilization was at its lowest point for the twenty-four hour period. Midweek levels were in the 44% range and weekend levels were slightly elevated in the 47% range (2005). From 7:00 am, unit utilization increased until reaching a high at noon. At noon the utilization ratio was approximately 71% for Saturday and Sunday, and midweek was within a range of 64% to 70% (2005).

From noon to 2:00 pm, utilization decreased sharply, to the 54% to 60% range for both weekdays and weekends (2005). From 2:00 pm, utilization increased until reaching a peak at 6:00 pm. However, at 3:00 pm utilization spiked slightly, with Friday reacting in a more pronounced manner. Neither of these spikes were at levels close to the 6:00 pm peak, which for Friday was 89% and for Thursday 81% in 2005. Immediately after 6:00 pm, utilization levels dropped sharply at 7:00 pm and then increased again at 9:00 pm

before slowly decreasing to midnight. Looking back to 2000 data, Friday and Saturday evening deviated from the other years by increasing from 9:00 pm to midnight, with Friday evening reaching a utilization ratio of 71% at 11:00 pm.



From midnight to early morning, unit utilization continued sporadic shifts between extremes, with weekend levels reaching highs in the 84% range. For midweek, utilization increased from midnight to 1:00 am reaching levels that ranged from 59% (Tuesday) to 68% (Friday). In comparison, Saturday and Sunday noted increases that were substantially more pronounced at 75% and 73% respectively.

From 1:00 am to 3:00 am midweek levels spiked to a range of 65% (Tuesday) to 84% (Friday) in 2005. For the same time, weekend levels increased sharply. Midweek levels then dropped drastically to 5:00 am to a range of 42% to 40% for Monday to Thursday and 48% for Friday (2005). Weekend levels also reacted similarly, by decreasing to 61% range. From 5:00 am to 6:00 am, weekday utilization levels increased to a range of 50% to 66% (2005). In the same pattern, weekend levels also increased, but to a higher point at 67% to 77% (2005). From 6:00 am to 7:00 am, utilization dropped again, but in this instance to the lowest point in the twenty-four hour period at an average of 45%.

### **6.5.2 Analysis**

From 7:00 am, unit utilization climbed sharply to 8:00 am. This increase was a result of a substantial rise in the number of calls and a static number of units available after day shift (Bravo) started at 7:00 am. From 7:00 am, the number of available unit-minutes remains constant until 1:00 pm. In other words, no other shifts began until 2:00 pm, despite the

fact that call load builds throughout the day. This resulted in an increased unit utilization that eventually peaked at 1:00 pm. The utilization ratio dropped significantly at 2:00 pm, as a direct result of Charlie shift starting and a relative levelling in the call load. The extra resources assisted with the elevated afternoon call-load.

From 2:00 pm to 4:00 pm, call-load continued to climb, while available unit-minutes remained constant. At 4:00 pm, early day shift (Alpha) ended and Monday to Thursday Delta shift started. This had little effect on unit utilization, bearing in mind the call-load is stable for this part of the day. In contrast, for the same time, Friday and Saturday recorded a spike in unit utilization. This spike was a direct result of the one-hour interval between Alpha shift ending and the 5:00 pm start time for Delta shift on Friday and Saturday. The Friday and Saturday delay in the Delta shift start-time also created a drop in unit utilization at 5:00 pm, as extra police resources became available to deal with the previous hour's spike in call load.

At 6:00 pm, Bravo shifted ended, which adversely impacted unit utilization, creating an increase that was recorded for each day of the week. Friday was most significantly impacted with a utilization ratio reaching 89%. For one hour, available unit-minutes remained low until Echo shift started at 7:00 pm, generating a pool of police resources that increased the unit-minutes available to deal with calls. The availability of Echo shift also mitigated the impact of the call-load spike at 7:00 pm resulting in a net decrease in unit utilization for this time. However, the call-load (consumed unit-minutes) continued to increase from 7:00 pm to 9:00 pm resulting in an eventual jump in utilization. From 9:00 pm to midnight, utilization remained stable with a slight decrease noted.

From midnight to 1:00 am, unit utilization spiked sharply. Weekend utilization was the most severely impacted, with Saturday hitting a high of 75% and Sunday at 73%. At 1:00 am Charlie shift ended, resulting in a resource generated utilization spike. This substantial increase in utilization occurred despite a slight drop in consumed unit-minutes. However, weekend levels were already at an excessive level for this time of the morning and any slight decrease had little effect on overall unit utilization. Similarly, midweek days were impacted by the ending of Charlie shift at 1:00 am, but not to the same extent as weekends. The utilization spike was not as pronounced considering the reduced call-load during midweek early mornings.

From 1:00 am to 3:00 am, available unit-minutes remained constant compared to consumed unit-minutes that decreased substantially within the 2 hours. From 1:00 am to 3:00 am, this trend reversed, as Delta shift ended at 3:00 am. The ending of this shift resulted in a substantial reduction in the total available minutes. Consequently, unit utilization surged to new highs. For example, Monday and Friday utilization levels were at 65% and 84% respectively, which is the second highest level either day attained within the twenty-four hour period (2005). Weekend utilization reacted slightly differently, pushing the utilization spike to 4:00 am on Saturday and Sunday morning. From 1:00 am to 4:00 am, utilization increased significantly, such that Saturday went to 81% (2005) at 4:00 am. This was due to an adjusted end time for weekend Delta shift.

5:00 am recorded a substantial decline in utilization, both weekend and midweek alike. The predominant cause was a rapid decrease in call-load paired with the start of the early morning Alpha shift at 5:00 am.

From 5:00 am to 6:00 am, both midweek and weekend utilization spiked upwards when night shift (Echo) ended, but dropped again at 7:00 am when Bravo shift started. While the range between unit utilization was not as pronounced as that recorded during early morning, it nonetheless represented a period of fluctuation and resource inefficiency with Saturday hitting a high of 77% utilization at 6:00 am.

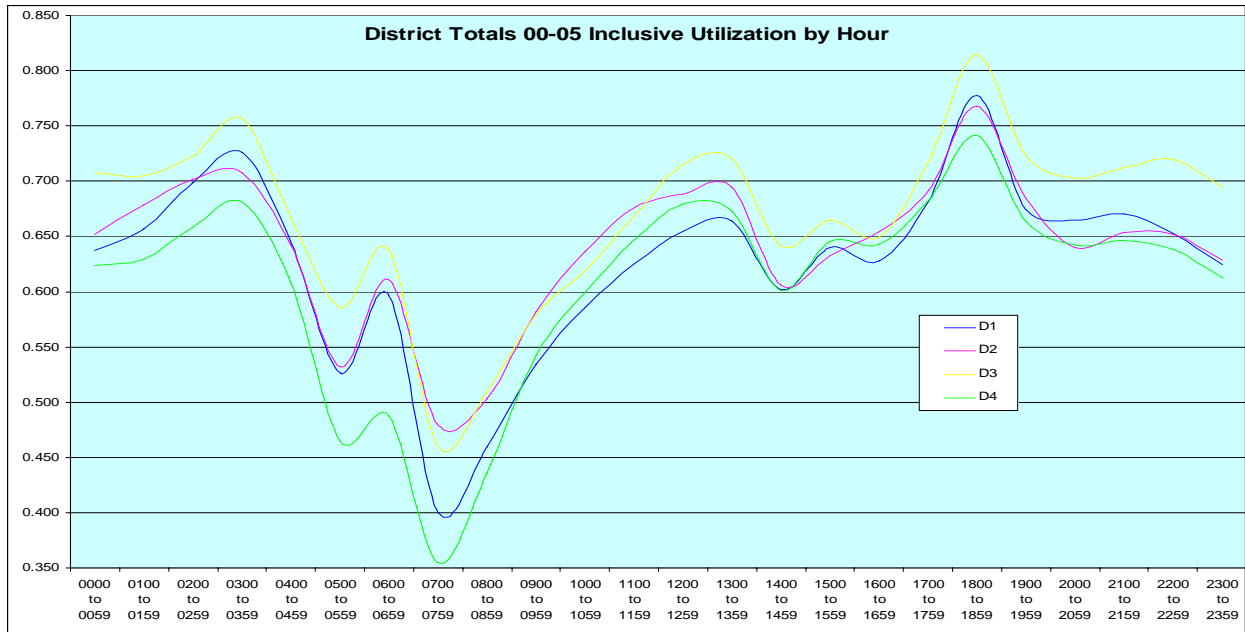
## **6.6 City Comparison**

### **6.6.1 Overview**

When examining 2005 district utilization rates, in rank order, District 3 had the highest average unit utilization at 67%, followed by District 1 at 65%, District 2 at 62% and District 4 at 64%.

Still using 2005 data, when weekends (Saturday and Sunday early mornings) were examined independently of the other days of the week, District 3 consistently had a higher utilization ratio than any other district. For example, at 1:00 am and 4:00 am, the average weekend utilization ratio was 73% and 70% respectively. Similarly Monday to Thursday data also recorded District 3 peaking higher than the other districts between 1:00 am and 3:00 am and at 6:00 am.

The fact that District 3 did not adjust its Charlie and Delta shifts from 2000 to 2005 is quite apparent when the utilization percentages are compared across districts. While more pronounced on weekends, the 3:00 am spike in unit utilization for District 3 is considerably higher than even District 2. This abnormally high level in unit utilization, compared to the other districts, is caused by Delta shift ending when the call load is still quite high for only one shift to deal with. The deployment of a single shift, namely Echo, is inadequate to deal with the call load at 3:00 am. The lack of available resources creates utilization levels that are consistently in the high 80% range during peak times (2005).



In contrast, District 1 had several times when utilization was elevated, especially on weekends, but the extent of the increase was still well below levels seen during District 3 high points. District 1 utilization patterns were extensively detailed within the analysis section; however, it is important to note that despite fluctuations, the levels recorded were substantially higher than the other districts. District 1 utilization was second highest for 2005, compared to the other districts from midnight to 6:00 am. After 6:00 am, utilization dropped significantly, save from 6:00 pm to 7:00 pm where it was the second highest and only slightly below District 3 at a high of 89%.

## 7 Resource Distribution by District

### 7.1 Overview

This study included a complete and detailed data set of consumed unit-minutes, total calls for service and available unit-minutes ordered by district. This data allowed for an analysis of the distribution of resources throughout the patrol districts and provided a means to determine the relative efficiency of each district's deployment. This analysis also provided an opportunity to evaluate which districts would benefit from additional resources or a redistribution of existing patrol staff.

Compared to the other districts, District 1 had the second highest percentage of total available minutes with 25% of the patrol total in 2005. In 2005, this roughly equated to 89 officers available to respond to calls for service. In other words, District 1 officers comprised 22% of the total officers available in patrol.

Despite having the lowest authorized strength of the four districts, District 1 maintained a percentage of available unit-minutes of 25% compared to the other districts. The



Vancouver Police Department  
**Planning & Research Section**

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percentage of consumed unit-minutes was also 25% of the city total, which equates to a 65% utilization ratio for the entire district in 2005.

**Resource Distribution by District**

	District 1	District 2	District 3	District 4	Total
Consumed Patrol Unit Minutes	2,539,691	2,424,143	2,743,295	2,500,998	10,208,126
Percent of Total Consumed Minutes	25%	24%	27%	25%	100%
Available Unit Minutes	7,286,057	6,954,166	7,847,211	7,165,353	29,252,787
Percent of Total Available Minutes	25%	24%	27%	24%	100%
Number of Calls	32,749	49,606	35,117	38,981	156,453
Percent of Total Calls	21%	32%	22%	25%	100%

District 2 has the second smallest complements compared to the other districts, with 98 officers available to respond to calls. This translates into 24% of the total patrol strength. In terms of available unit-minutes, District 2 had 24% of the city total. Consumed patrol unit-minutes for District 2 was also 24% of the city total (2005).

District 2 had an average unit utilization level of 62% in 2005. Interestingly, the number of calls for service ratio was higher than any other district, with 32% of the total calls responded to by the VPD. This indicates that the calls were of the type that required less time to complete and conduct investigative follow-up.

District 3 available unit-minutes was the highest in the city at 27%. This matched consumed unit minutes which was also 27% for the district in 2005. District unit utilization was on average 67% in 2005, which was the highest in the city.

While District 4 has the largest geographic area to police in the city, the resources allocated to this district are the second lowest after District 2. In 2005, District 4 had 103 officers, 25% of the total patrol strength in the city. In terms of calls for service, District 4 had the second highest level after District 2, with 25% of the city total. Despite having a relatively high number of calls for service, consumed unit-minutes were lower than would be expected at 25% of the city total. In a reversal of the phenomenon seen in District 3, the matching of consumed unit-minutes with calls for service indicate many of the calls were dealt with much more quickly, and were of the type that did not require as much investigative follow-up. This could be explained by more minor and nuisance type calls.

On average, District 4 had the second lowest utilization rate compared to the other patrol districts at 64% in 2005. This indicates District 4 available unit-minutes were the second closest paired to the consumed unit-minutes relative to the other districts. However, as will be examined in the recommendation section, this does not indicate that the resources

allocated were sufficient to deal with the call-load and maintain an acceptable level of service.

## **8 Deployment Model Recommendations**

### **8.1 Overview**

The following section will provide six proposed deployment models that are premised on improving efficiency and reducing instances of peak utilization that are known to create periods of instability and an unusually high workload. The first set of shift deployment models were developed with the goal of reaching a 50% utilization ratio across each district. The second set of shift deployment models closely mirrors the first set in structure, but with a change in the projected utilization ratio used to calculate the resources necessary to implement the model. In the second set, a utilization ratio of 40% was used to calculate staffing strength and unit composition.

Each recommended shift model advances a range of efficiencies that varies in degree and outcome. Each has its own strengths and shortcomings, depending on the measurements being used to evaluated against. With this in mind, there are no perfect solutions to any staffing situation. Each solution is wrought with positive gains mixed with some degree of consequences. For these reasons, an array of options is provided to ensure any decisions are premised on reaching a balanced and realistic approach to patrol deployment. Any decision on the best course of action should then be weighed against the intended goals and objectives of the organization, cost effectiveness, the degree of efficiency to be obtained, and the proposed service levels to the public. The shift model of choice will then depend on the level of importance placed on each influencing variable.

From an efficiency perspective, the oscillation in unit utilization, or the fluctuating level in which patrol units are engaged in taking calls, creates numerous issues for patrol officers. Under these circumstances, officers are constantly shifting from periods that are extremely demanding to periods of relative normality in a very short time. Ultimately, the impact of an escalating workload is degraded service, significantly increased response times for emergency incidents and an increased risk to police due to unfilled shifts. The use of excessive overtime is not an efficient strategy and, in the long-term, the costs are greater than the solution.

Ultimately, these circumstances create stress and reduce the quality of life for officers, as well as negatively impacting the level of policing within the community. Not only is this an inefficient use of police resources, but also the scheduling system artificially creates unnecessary periods of stress and fatigue.

## **8.2 Analysis**

Generally, call-load is quite predictable over time, with only occasional variations due to special events, holidays and seasonal changes. Given this scenario, it is possible to match resources to call-load with a reasonable degree of certainty. Therefore, more efficient models, such as the options presented below, incorporate a best fit between the pairing of police officers to the call load and a gradual layering of available officers as the call load changes.

As previously stated, the optimum level for patrol utilization, based on the industry workload standard is in the 40% to 50% range. As is evident from the preceding analysis, the Patrol Division currently operates at a level considerably higher than that. In some instances, unit utilization reaches levels that are consistently over 70%. Under these circumstances, patrol units are simply responding to emergency 911 calls in priority sequence while lesser priority calls are stacked waiting for available resources. In some situations, calls are simply not responded to due to a lack of available units. Team supervisors are then left to contact the complainants to inform them no unit will be attending their call. The limitations on officer availability also has serious implications, as there have been situations where there are not enough available officers to respond to emergency calls. Part of the problem rests with the Department operating with too few officers to ensure there is a contingent of units unassigned to calls and available for emergencies.

The solution to the fluctuations and lack of resources, due to peak utilization, is the addition of more shifts staggered over time to coincide with the gradual increase and decrease of the call load. The best way to accomplish this depends not only on the level of service sought, but on the intended effectiveness of the deployed resources. Basically, two things must happen concurrently. First, additional resources must be added to address the elevated utilization ratio that is negatively impacting the police department's ability to adequately respond to calls for service. Second, modifications need to be made to the existing shift deployment model to make better use of existing resources in a more efficient manner. Simply doing one or the other independently will not have the desired effect of improving the ability of patrol to respond to calls for service.

For example, adopting only one option of redesigning the shift model to maximize efficiency, will result in some efficiency gains throughout the patrol squads, but it will be insufficient to address the issue of a consistently high utilization ratio. While some inefficiency peaks may be reduced with such an approach, the fact remains that the utilization ratio for each district is consistently above 60% the majority of the time (85%). No degree of efficiency gains will compensate for a continually elevated utilization ratio that only drops below a 60% utilization ratio 15% of the time. The best that efficiency gains could hope to accomplish would be to even out times of extremely high and low utilization, where available officers do not match the call-load as efficiently as possible. However, for the majority of the remaining times, where efficiency is already optimized, the only method to reduce utilization is through the addition of more resources. This results in an increase in the number of available minutes to better match consumed

minutes, thereby reducing the utilization ratio to a more manageable level. It is also important to keep in mind that the existing patrol deployment model is a relatively efficient model. Generally speaking, it gradually increases the number of officers on shifts as the call load increases throughout the day. When discussing inefficiencies in patrol, there are approximately three significant times throughout a 24 hour period when the utilization ratio indicates a period of ill-matched resources to call-load. However, with relatively minor adjustments and fine-tuning, and a limited impact on the existing infrastructure, these issues can be resolved satisfactorily. Still, these efficiency gains do little to address the overall systemic issues of an elevated utilization ratio, indicative of an under-resourced patrol division.

### **8.3 Recommendation Methodology**

A computational matrix was developed to ascertain unit utilization ratios as resources are adjusted to target levels. Specifically, using staffing data (available minutes) and workload data (consumed minutes) to calculate the percentage of available time consumed by calls for service, equally weighted by time and day, an adapted version of the unit utilization matrix was produced. The matrix was designed to allow for the modification of available unit-minutes by adjusting the percentage of resources allocated to each district.

Available unit-minutes were manipulated by adjusting the percentage of resources assigned to each time block and to each day of the week. By adjusting the available unit-minutes in a systematic manner, the target utilization ratio could be attained. For example, in order to attain an average unit utilization ratio for each district, at each time and day of the week within a 24 hour period, incorporating a full seven day period at a 50% level, each district available unit-minutes was increased by the percentage necessary to meet this target. This percentage increase was then translated from the target available unit-minutes into the number of officers required to reach this level of utilization. Once this figure was calculated it was then a matter of determining how many officers were required to distribute equally to each team within the districts and to adjust the figure to compensate for the deployment of one and two officer units and specific nuisances of a proposed shift model. The Department policy of a 60/40 ratio between one to two officer units was used.

For each district, a figure was obtained that captured the true number of officers that respond to calls for service as a normal function of their position. Each district's authorized strength was then calculated using the same exclusions that were used in the "*Units Considered*" section of this report. In particular, the following units and individuals were not included as deployable patrol officers that respond to 911 emergency service calls: Patrol team supervisors, Mounted Squad, Waterfront Unit, Marine Squad, Youth Squad, Community Policing Officers, School Liaison Officers, and Car 86 and Car 87. As well, District 1 surveillance team was excluded, as was CET/BET; as their primary function is proactive policing activities, versus exclusively responding to 911 emergency calls. Given these exclusions, the adjusted figure more accurately reflects the number of officers within the Patrol Division that are tasked with responding to dispatched calls. This

figure may differ slightly from the official authorized strength figures for each district.

## **8.4 Resource Requirements**

The following section details the exact number of officers necessary for each district, in order to meet a target efficiency of a 50% utilization ratio. Subsequent to this section will be a detailed examination of the number of officers needed to meet a 40% utilization ratio, using the same methodology and benchmarks. While from a policing perspective a 40% utilization ratio is preferred, budget constraints, electoral satisfaction, service levels and organizational objectives must be considered as part of the decision making process. For these reasons, both options are presented so that management, the Police Board and elected officials can weigh the implications of each option, and make an informed decision as to the best possible approach.

### **8.4.1 Proposed 50% Utilization**

Overall, in order for the VPD Patrol to reach an acceptable level of efficiency, where the delivery of emergency services are no longer an issue and proactive work and more thorough investigations can occur, an additional 82 constables are required within the three districts. The addition of 82 constables will provide sufficient resources to meet a benchmark that an average of 50% of officer time will be consumed responding to calls for service. This standard will be equally applied to every district and will adjust staffing so as to provide a consistent level of policing, regardless of location within the city.

The figures listed below do not include supervisory positions, which would vary according to the modified shift model adopted by the Department. Typically, each additional team requires one supervisory sergeant. In situations where new positions are integrated into existing teams, an additional sergeant is only required when the span of control exceeds 14 constables. In situations of split teams, where the team composition is particularly low, such as below six constables, it is possible to share sergeants amongst two split teams. Each proposed shift model will provide details regarding supervisory span of control and the required sergeant positions.

Vancouver Police Department  
**Planning & Research Section**

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**Adjusted Patrol Authorized Strength<sup>8</sup>**

	District 1 <sup>67</sup>	District 2 <sup>5</sup>	District 3	District 4	Total
Current Patrol Team Staffing	89	98	119	103	409
Authorized Strength % Adjustment <sup>1</sup>	27%	22%	30%	24%	
Evaluated Resource Total <sup>2</sup>	113	120	155	128	515
District Increase	24.0	21.6	35.7	24.7	106
Factored Team Increase <sup>3</sup>	-33	0	0	1	
<b>Adjusted District Increase<sup>4</sup></b>	<b>0</b>	<b>22</b>	<b>36</b>	<b>24</b>	<b>82</b>
Percentage Proactive Time	50%	50%	50%	50%	
Percentage Allocated Time	50%	50%	50%	50%	
<b>New Patrol Team Staffing</b>	<b>122</b>	<b>120</b>	<b>155</b>	<b>127</b>	<b>524</b>

Note:

1. Based on obtaining unit utilization percentage range below 50% weighted by day and time for each district
2. Figure based on the calculation (Patrol Team x Percent Adjustment).
3. An adjusted figure that takes into account an even distribution of officers for each patrol team within the district. All districts have ten teams that respond to calls for service. Furthermore, the staff increase for each team is adjusted to compensate for one and two officer units in order to impact unit utilization to the level stated.
4. The actual number of officers required per district in order to effect change in the unit utilization ratio to the level stated.
5. Based on District 2 authorized strength, but excluding CET/BET staffing. See analysis section for complete explanation of FTE figures.
6. Excludes recent addition of 33 officers to District 1 that only became deployable in late 2005 through mid 2006.
7. On October 4th 2005 the VPD increased the number of officers in District 1 by 33. This resulted in patrol teams increasing from a norm of 9 to a new norm of 13 person teams. The authorized strength for PCs in District 1 is now at 122 officers.
8. These numbers do not include Sergeants (supervisors)

Looking only those patrol teams that exclusively respond to calls for service, the current aggregate total is 409 constables distributed between the four districts. By adopting the recommended staff increase to attain optimal efficiency, the total number of constables responding to calls for emergency service would increase to 524.

Specifically, in order for District 1 to obtain target efficiency, whereby patrol officers spend 50% or less of their time responding to calls for service, the district will need to increase the number of 911 responder units by 27%. Therefore, District 1 will need to bolster its strength from its complement of 89 constables to a minimum of 113 constables.

However, the District 1 recommended staffing increase is not included in the current patrol submission. The reason for this exclusion is due to a previous staffing request in 2005 that resulted in an additional 33 officers being assigned to this district by 2006.

While the additional officers were added to the authorized strength in mid 2005, the recruit and training process is quite lengthy and it takes approximately 9 months of Academy and Field Training before a new recruit is considered a deployable resource.

For these reasons, and the fact that the current study examined the period from 2000 to 2005 inclusive, the new positions were not incorporated into the evaluation. As well, the 33 new constable positions that were added to District 1 exceed the current district evaluation by nine positions. It should be recognized that the current workload and utilization for District 1 has been underestimated due to the liquor squads (Lima units) and the Firearms Interdiction Team (FIT). These units were deployed on weekends to deal with the street disorder in the Entertainment District, and the gang and gun violence that has become commonplace in District 1. In fact, more than nine officers were deployed to Lima and FIT to deal with the unique problems that have developed over time in District 1. By deploying these extra squads in District 1 it took a significant workload away from the regular patrol units that would have had to deal with these issues otherwise. The full impact of these 33 constables has not been evaluated, given they only became fully operational in the summer of 2006. A follow up evaluation in mid-2007 will need to be conducted to examine the net benefit from these positions over a one year period.

The projected staff requirements for District 1 are then included in this report for comparison purposes only, as the 2005 staffing allocation to VPD has already addressed this need. Further, the proposed shift modifications require an equal allocation of resources amongst the four districts, which is relevant to follow-up discussions and explanatory sections below. Therefore, it is necessary to look at the resources required across every district to fully evaluate the various shift models put forward below.

As previously stated, District 2 had the lowest utilization ratio in the Patrol Division. In order to meet target efficiency, this district will require the lowest contingent of constables compared to the other districts. Currently, there are 98 constables that respond to calls for service. The district requires an additional 22 constables to reduce the percentage of time consumed by responding to immediate calls for service to 50%.

District 3 requires the largest increase in patrol team staffing after in order to meet minimum target efficiencies. At present, the district has 119 constables distributed amongst ten teams that respond to dispatched calls. The proposed efficiency level for District 3 requires patrol strength to increase by 30% to reach a unit utilization ratio of 50%. This would require 36 constables distributed amongst the teams. With four additional constables allocated per team, the total deployable strength will increase to 155 constables, bearing in mind that this figure only refers to those officers that respond to calls as a regular function of their position.

**50% Utilization Ratio  
Adjusted Resource Distribution by District<sup>1</sup>**

	District 1	District 2	District 3	District 4	Total
Consumed Patrol Unit Minutes	2,539,691	2,424,143	2,743,295	2,500,998	10,208,126
Percent of Total Consumed Minutes	25%	24%	27%	25%	100%
Available Unit Minutes	5,856,514	5,581,633	6,297,145	5,732,283	23,467,575
Percent of Total Available Minutes	25%	24%	27%	24%	100%
Number of Calls	32,749	49,606	35,117	38,981	156,453
Percent of Total Calls	21%	32%	22%	25%	100%

**Unit Utilization**

**50%                      50%                      50%                      50%**

1. The 50% utilization factor considered a 13.6% unavailability factor as part of the available unit minutes to address Collective Agreement meal breaks.

District 4 requires the second lowest number of additional officers in order to meet the objective of 50% of officer time spent responding to service calls. Given the current deployable strength of 103 constables, District 4 requires an additional 24% to meet this goal. In real terms, this translates into 25 additional officers allocated amongst the ten teams. The total number of district patrol officers would then increase from 103 to 128.

**8.4.2 Proposed 40% Utilization**

Following from the 50% utilization section, the total officers required within the Patrol Division to meet a 40% utilization ratio is 611. This is based on an existing city-wide authorized strength of 409 and an additional 202 officers distributed throughout the four districts. As was the situation with the 50% utilization analysis, District 1 staffing is modified to incorporate the 33 officers the district received as part of the 2005 staffing request. Therefore, any projected staffing increases for District 1 factor in the existing 33 new officers.



Vancouver Police Department  
**Planning & Research Section**

**Adjusted Patrol Authorized Strength<sup>8</sup>**

	District 1 <sup>6,7</sup>	District 2 <sup>5</sup>	District 3	District 4	Total
Current Patrol Team Staffing	89	98	119	103	409
Authorized Strength % Adjustment <sup>1</sup>	58%	52%	62%	55%	
Evaluated Resource Total <sup>2</sup>	141	149	193	160	642
District Increase	52	51	74	57	233
Factored Team Increase <sup>3</sup>	-19	-1	0	1	
<b>Adjusted District Increase<sup>4</sup></b>	<b>20</b>	<b>50</b>	<b>74</b>	<b>58</b>	<b>202</b>
Percentage Proactive Time	60%	60%	60%	60%	
Percentage Allocated Time	40%	40%	40%	40%	
<b>New Patrol Team Staffing</b>	<b>109</b>	<b>148</b>	<b>193</b>	<b>161</b>	<b>611</b>

Note:

1. Based on obtaining unit utilization percentage range below 40% weighted by time and day for each district
2. Figure based on the calculation (Patrol Team x Percent Adjustment).
3. An adjusted figure that takes into account an even distribution of officers for each patrol team within the district. All districts have ten teams that respond to calls for service. Furthermore, the staff increase for each team is adjusted to compensate for one and two officer units in order to impact unit utilization to the level stated.
4. The actual number of officers required per district in order to effect change in the unit utilization ratio to the level stated.
5. Based on District 2 authorized strength, but excluding CET/BET staffing. See analysis section for complete explanation of FTE figures.
6. Excludes recent addition of 31 officers to District 1 that only became deployable in late 2005 through mid 2006.
7. On October 4th 2005 the VPD increased the number of officers in District 1 by 33. This resulted in patrol teams increasing from a norm of 9 to a new norm of 13 person teams. The authorized strength for PCs in District 1 is now at 122 officers.
8. These numbers do not include Sergeants (supervisors)

Specifically, District 1 requires 20 additional officers over the 33 it has already received, to achieved a 40% utilization. This would result in a total district authorized strength of 141 officers compared to the current 122 officers, including the 33 recently deployed and the elimination of the district surveillance team. The recommended elimination of the district surveillance team provides an additional 9 officers to be added to the authorized strength as well. This redeployment is explained in detail in the proposed shift models outlined below. However, it is fair to say that the elimination of the district surveillance team is a proactive measure aimed at eliminating internal inefficiencies and maximizing the number of deployable officers in patrol.

District 2 requires the second lowest number of officers compared to the other districts to reach an optimal utilization ratio. Based on a current staffing of 98 officers, District 2 staffing would need to increase by 51 additional officers to reach a 40% utilization. The district authorized strength would then move to 148 total officers.

District 3 currently has an authorized strength of 119 constables. At 40% utilization this would increase by 74 officers to a total of 193 constables, the largest district increase in patrol. District 4 follows closely behind with the second largest increase in patrol. An additional 57 officers need to be added to its existing strength of 103, for a total of 161 officers.

## **8.5 Proposed Shift Models**

### **8.5.1 Overview**

To address systemic inefficiencies with the current shift deployment model three proposed models have been designed that will correct this problem with varying degrees of improvement and efficiency gains. When examining these proposed changes it is important to note that no one deployment model can create a perfectly efficient system. While one model may create a statistically ideal and efficient deployment in terms of patrol utilization, it may also introduce new issues that impact efficiency and cost effectiveness. Patrol efficiency goes beyond maximizing the amount of officer time available to respond to emergency calls and includes striking a balance between response times, effective policing strategies and resource management considerations. Therefore, a more holistic approach is necessary that weighs the merits of deployment efficiency, quality of life for police officers, infrastructure support, span of control for supervisors, and changes in demands for emergency services.

The first deployment model that is examined (*Option A*) offers the best balance between the above noted considerations. As well, it offers the greatest efficiency gains with the lowest number of officers needed to support the model and with only marginal increases in infrastructure support. Other important factors relate to change management and implementation within the patrol. Those models that can integrate easily with the existing system and cause the least disruption in services, will ultimately make the transition more seamless. While not directly related to efficiency, these issues are still important concerns when making changes in any organization.

### **8.5.2 Proposed Shift Model Option “A”**

*Deployment Model Option “A”* introduces two additional shifts in order to maximize efficiency over a 24 hour period and to adjust for service demands over a seven day period. These are the two major issues with the current deployment structure, in that it fails to adequately compensate for hourly fluctuations within a twenty-four hour period or adjust for a gradual increase in demands for service that starts building on Monday and eventually peaks on Sunday early morning (late Saturday night). Therefore, any efficiency changes will at a minimum, need to correct these shortcomings.

Other inefficiencies that are introduced by the current deployment model concentrate around shift start and end times that do not adequately overlap at times of high demand for service. This has a magnifying effect, in that a one hour period of ill matched shift



new modified Charlie shift will be kept to a minimum. Four teams of approximately nine to 12 constables, depending on the district, will be required for a Department-wide rollout.

In addition to the creation of a new fixed shift for each district, there is an added requirement for resources to address demands for service throughout the entire week and to compensate for ill matched shift changes primarily seen in the afternoon and evening. While Monday typically has approximately a 10% drop in demand for service, there are still peak times of inefficiency created by the current shift model. To compensate for these peaks in resource utilization, a second 'fixed shift' is required. As a result of the net gains in efficiency from the modified Charlie shift, a reduced number of officers are required for the second fixed shift. Therefore, a new shift deployed as a city-wide resource will meet the remaining service demands and compensate for shift overlap. The new shift, a 'fixed' modified Charlie, will work a four 'on' and four 'off' rotation requiring a total of two squads to staff. Each team will work an 11 hour shift with a staff of 14 constables each.

This city-wide resource, otherwise known as a 'roving patrol' team or 'Metro team', will provide the flexibility to deploy officers throughout the city wherever the demand is greatest and will account for daily fluctuations. As well, the team can be split and sent to any district to help reduce stacked calls or other unanticipated developments. The new modified Delta shift will have a fixed start and end time of 3:00 pm to 2:00 am (everyday). The combination of the new modified fixed Delta and Metro fixed Delta shift will address the inefficiencies seen in the current deployment model, while requiring the fewest officers to accomplish the greatest gains. A total of six new squads will be required to staff this model, with four teams for the new modified fixed Charlie shift and two for the modified fixed Delta roving shift.

Other benefits of this model include the ability to phase in components over a gradual time frame. For example, the Metro roving teams can be created with only 28 patrol officers and two supervisors. This option will still have a marked impact on patrol efficiency, with no modifications required of the existing shift deployment model. This strategy could be implemented until such time as the fixed Delta resources are available for district-wide augmentation.

The officer staffing for this model, whether at a 50% or a 40% utilization, is detailed in the tables that follow. Each district's specific needs are taken into account with this staffing estimate, including internal staffing redeployments that advance internal efficiency and help address patrol resource issues in the most cost effective manner. As well, supervisory positions are added to the staffing table according to the needs of each option. While supervisory positions were not included as part of the calculation, the general rule is that each team requires one sergeant and any team over 14 constables requires additional supervision due to the larger span of control. These general rules were applied in the allocation of supervisory positions in each model.

## **8.6 Internal Efficiency Issues with Patrol**

In addition to the creation of a fixed 4/3 Delta shift and a Metro roving team under Option “A”, several internal efficiency modifications are also required to field as many patrol officers as possible. For example, current practices include every district maintaining its own district surveillance team. The staffing for these surveillance teams are skimmed from teams 3 through 10 in each district, creating a seven constable and one sergeant special project / surveillance team.

This is problematic for several reasons. First, the authorized strength for each district does not accurately reflect the true staffing deployment within each district. With the exception of District 1, which has its surveillance team counted as part of its actual authorized strength, namely team 11, the remaining districts simply loan the officers from each team. Second, by loaning up to seven constables and 1 sergeant from each district to an ad hoc surveillance team, on an indefinite basis, and in some cases several years, the remaining officers are left to compensate for the reduced staffing levels. This creates further problems for maintaining minimum staffing on busy weekends and for the individual officers themselves, who find it difficult to book leave with a understaffed team. Additionally, by reducing each team’s strength by one person, there are less officers available to take calls in each district, thereby leading to a higher utilization ratio and call stacking. While the reduction of one person per team is not a significant driver in elevating the utilization ratio, at times when the call load is already elevated, any reduction in available minutes will likely compound the problem.

To address the necessary and important work that these units fulfil, it is recommended that two patrol based surveillance teams be created using resources drawn from each of the four districts. The various shift model options outlined below provide a template for the best use of these officers in addressing the current resource inefficiency while still maintaining a surveillance capability spread between the North and South districts. The solution of creating two properly equipped and staffed surveillance teams will free up approximately 10 constables for redeployment back into squads that actively respond to calls for service. As well, the creation of the two new surveillance teams effectively stops the current practice of loaning out officers to special projects without adequate adjustments in the district resources to compensate. In practical terms, a newly created Patrol North Surveillance Team will be shared between District 1 and 2, and a new Patrol South Surveillance Team will be shared between District 3 and 4. The Patrol North Surveillance Team is a progressive step towards eliminating individual district surveillance teams and amalgamating resources between two consolidated surveillance teams.

It is recommended that the District 1 Team 11 Surveillance Team, District 2 Rapid Action Team (RAT), the District 3 Street Crime Enforcement Unit (SCEU), and District 4 Property Crime Reduction Unit (PCRU) be disbanded and the officers currently staffing these adjunct units return to regular patrol duties. Some of these officers will be used to create a Patrol North Surveillance Team and a Patrol South Surveillance Team. It is further recommended that the Deputy Chief of the Operations Division establish a policy directive

that prevents future adjunct specialty squads from being created within patrol and that the practice of loaning officers out of patrol without receiving a replacement cease immediately. As is evident, both these current practices add to the issues patrol is facing and negatively affects the ability of patrol to manage its high call load. In contrast, measures such as the above should be endorsed to maximize the number of officers that are deployed and able to respond to emergency calls for service.

### **8.7 Shift Model Implementation Option “A”**

To adequately staff patrol to meet the projected utilization ratio of 50%, an additional 82 officers are required. In addition, several modifications to the current deployment model must take place to facilitate this transition. At a 50% utilization ratio, the creation of the District 1 4/3 fixed Delta team requires a redistribution of existing district resources to accomplish the creation of a new team. This is based on the fact that 33 new constables were added to District 1 in 2005 and no other new resources will be transferred to this district. Any further additions to the authorized strength will be distributed to Districts 2 through 4 according to the implementation plan outlined below.

The current District 1 team composition of 13 constables will need to be dropped to 12 constables, with the 8 constables coming from teams 3 to 10 and the remaining 3 coming from the redeployed District 1 Team 11 surveillance team. In detail, the 9 constables from the District 1 surveillance team are divided between the creation of an 11 constable fixed 4/3 Delta team and a newly created Patrol North Surveillance Team. Three constables from team 11 are to be used for the 4/3 Delta team and the remaining 6 constables form part of the district contribution to the amalgamated Patrol North Surveillance Team.

District 2 is projected to receive 22 additional constables to reach a 50% utilization in this district. As well, the disbandment of the RAT will provide an additional seven constables for redeployment. Six of those officers from District 2, plus three constables and a sergeant from Team 11 in District 1 will form the new Patrol North Surveillance Team. The remaining staff are distributed amongst the new fixed 4/3 Delta shift (9), the Metro roving team contribution (7) and the district patrol teams (6).

District 3 is predicted to receive an additional 36 new constables. The creation of the amalgamated district Patrol South Surveillance Team sees five officers contributed to that undertaking, with the remaining three (2 constables and 1 sergeant) redistributed back to the district. From the 36 new constables, 12 form the new fixed 4/3 Delta and 13 go to the Metro roving team and 11 are distributed amongst the 10 teams.

For District 4, four officers from the PCRU help form the Patrol South Surveillance Team, and three are redeployed back into patrol. From the 24 new constables, 9 create the 4/3 fixed Delta shift, 8 contribute to the Metro roving team and 7 augment the existing patrol teams.

Vancouver Police Department  
**Planning & Research Section**

The distribution of resources and breakdown of staffing for both a 50% and 40% utilization is detailed in the following tables:

**50% Utilization Staffing Projections**

**Option A**

	Team	Redeployed to Patrol	Combined Tm	Delta (4/3)	Roving	Total	New FTE
	Increase	Officers	Increase	4 Teams	2 Teams	6 Teams	Increase
District 1 <sup>1</sup>	-8	3	0	11 (8 + 3)		11	
District 2	6	4	10	9	7	16	22
District 3	11	3	14	12	13	25	36
District 4	7	3	10	9	8	17	24
Team Supervisor North		4		4	2	6	4
Surveillance South		9 ([D1] 6 + [D2] 3)					
Surveillance South		9 ([D3] 5 + [D4] 4)					
<b>PC Only Total</b>				<b>41</b>	<b>28</b>	<b>69</b>	<b>82</b>
<b>Total</b>	<b>24</b>	<b>35</b>	<b>34</b>	<b>45</b>	<b>30</b>	<b>75</b>	<b>86</b>

Note: 2% efficiency gain over Option B  
 1. District 1 - Team 3 to 10 reduces in size from 13 to 12 constables.

**40% Utilization Staffing Projections**

**Option A**

	Team	Redeployed	Combined Tm	Delta (4/3)	Roving	Total	New FTE
	Increase	Officers	Increase	4 Teams	2 Teams	6 Teams	Increase
District 1	3	3	6	11	6	17	20
District 2	34	4	38	9	7	16	50
District 3	54	3	57	12	8	20	74
District 4	42	3	45	9	7	16	58
Team Supervisor North		4		4	2	6	4
Surveillance South		9 ([D1] 6 + [D2] 3)					
Surveillance South		9 ([D3] 5 + [D4] 4)					
<b>PC Only Total</b>				<b>52</b>	<b>28</b>	<b>69</b>	<b>202</b>
<b>Total</b>	<b>133</b>	<b>35</b>	<b>146</b>	<b>56</b>	<b>30</b>	<b>75</b>	<b>206</b>

Note: 2% efficiency gain over Option B

**8.7.1 Proposed Shift Model Option “B”**

*Deployment Model Option “B”* is very similar to the first model proposed with a few minor alterations. In lieu of the fixed modified Delta shift that is four days on and three days off, the alternative model has the fixed modified Delta shift work a four ‘on’ and four ‘off’ rotation. This four day rotation more closely emulates current shift cycles, in that each team would work an 11 hour shift starting at 6:00 am and ending 5:00 am. Because this shift does not mirror a seven day cycle, and it advances one day forward every eight day





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**Planning & Research Section**

Just as the *Deployment Model Option "A"* detailed, there is a need for resources to address demands for service throughout the entire week and to compensate for ill matched shift changes primarily seen in the afternoon and evening. The new Metro fixed afternoon shift will compensate for lack of shift overlap. As in the previous model, the new Metro shift will work a four 'on' and four 'off' rotation, requiring a total of two squads to staff.

The flexibility of a 'roving patrol' team is that it can be sent throughout the city wherever the demand is greatest. The combination of the new modified Delta and the new Metro shift will address the inefficiencies seen in the current deployment model. However, this model requires more officers in order to reach efficiencies that are equal to those expected in *Deployment Model Option "A"*. A total of ten new squads are required to staff this model, with eight required for the modified fixed Delta and two for the fixed Metro roving shift. For that reason alone this model is a secondary recommendation.

The officer staffing for this model, whether at a 50% or a 40% utilization, is detailed in the below table. Each district's specific needs are taken into account with this staffing estimate, including internal staffing redeployments that advance internal efficiency and help address patrol resource issues in the most cost effective manner.

### **8.8 Shift Model Implementation Option "B"**

Following a similar process as Option "A" for a 50% utilization ratio, Option "B" requires two (2) constables to be drawn from teams 3 to 10 in District 1, in order to staff the shift model without additional resources beyond the already 33 allocated to the district in 2005. By reducing the number of constables in each of the eight teams, 16 staff are now available for reallocation. However, Option "B" involves the creation of two fixed Delta shifts per district (odd and even shift), unlike Option "A" which only required one new shift per district with the 4/3 model. District 1 requires a 22 constable fixed 4/4 Delta team to effect change in the district and address shift inefficiencies. With that in mind, an additional six more constables are required for District 1. The elimination of the District 1 Team 11 surveillance team provides the necessary 6 constables to create a fully staffed fixed 4/4 Delta shift. The remaining 3 constables and 1 sergeant from the 9 person team are attached to the shared Patrol North Surveillance Team.

District 2 contributes the remaining 6 officers to staff the Patrol North Surveillance Team, for a total of 9 officers and 1 sergeant. One officer and one sergeant return to the district in a capacity to respond to calls for service. From the 22 (adjusted to 23 for even staffing) new positions allocated to the district, 7 are slated for the Metro roving team and 16 are allocated to the 4/4 fixed Delta team.

District 3 allocates 5 officers from the eliminated SCEU to the Patrol South Surveillance Team and the remaining 3 officers are reintegrated back into patrol. From the District's allocated 36 new officers, 12 help form the Metro unit roving and 24 create the 4/4 fixed Delta shift.

Vancouver Police Department  
**Planning & Research Section**

District 4 has 4 officers transfer to the Patrol South Surveillance Team and the remaining 3 (2 PCs and 1 Sgt) return to the Districts patrol strength. District 4 is predicted to receive 24 new officers, of which 7 will contribute to the Metro roving team and 17 will create the fixed 4/4 Delta shift.

The following tables outline in detail the distribution of staff for the Option “B” shift model, both with a 50% utilization and a 40% utilization.

**50% Utilization Staffing Projections**

**Option B**

	Team Adjustment	Redeployed Officers	Combined Tm Increase	Delta (Fixed) 8 Teams	Roving 2 Teams	Total 10 Teams	New FTE Increase
District 1 <sup>1</sup>	-16	6	0	22 (16 + 6)		22	
District 2		1	1	16	7	23	23
District 3		3	3	24	12	36	36
District 4		3	3	17	7	24	24
Team Supervisor		4		8	2	10	8
North Surveillance		9 ([D1] 3 + [D2] 6)					
South Surveillance		9 ([D3] 5 + [D4] 4)					
<b>PC Only Total</b>		<b>31</b>		<b>78</b>	<b>26</b>	<b>104</b>	<b>83</b>
<b>Total</b>	<b>-16</b>	<b>35</b>	<b>7</b>	<b>86</b>	<b>28</b>	<b>114</b>	<b>90</b>

Note:

1. District 1 - Team 3 to 10 reduces in size from 13 to 11 constables.

**40% Utilization Staffing Projections**

**Option B**

	Team Adjustment	Redeployed Officers	Combined Tm Increase	Delta (Fixed) 8 Teams	Roving 2 Teams	Total 10 Teams	New FTE Increase
District 1	0	4	4	22 (20 + 2)	6	28	20
District 2	25	1	26	18	7	25	50
District 3	46	3	49	20	8	28	74
District 4	33	3	36	18	7	25	58
Team Supervisor		4		8	2	10	8
North Surveillance		9 ([D1] 3 + [D2] 6)					
South Surveillance		9 ([D3] 5 + [D4] 4)					
<b>PC Only Total</b>		<b>29</b>		<b>78</b>	<b>28</b>	<b>106</b>	<b>202</b>
<b>Total</b>	<b>104</b>	<b>33</b>	<b>115</b>	<b>86</b>	<b>30</b>	<b>116</b>	<b>210</b>

Note:

1. From the 20 officers deployed to District 1,

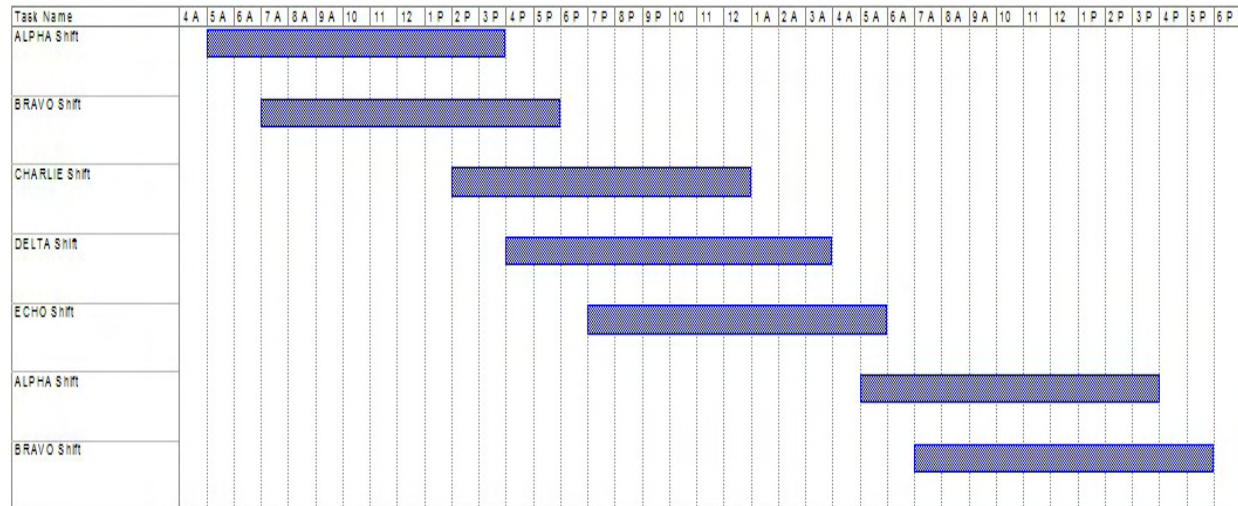
**8.8.1 Proposed Shift Model Option “C”**

A third option involves maintaining the existing deployment model with no changes, but

Vancouver Police Department  
**Planning & Research Section**

redistributing the estimated 82 new patrol constables to Districts 2 to District 4. Under this proposed model, District 1 would not receive any new patrol constables as the new constables would only be distributed amongst the remaining three districts. The distribution of constables would be in relation to district size, call-load and the utilization ratio. Specifically, District 2 would receive 22, District 3 would receive 36, and District 4 would receive 24 patrol constables. As well, patrol efficiencies discussed in detail in the preceding sections would also be incorporated into the redistribution. In other words, District 2 would regain much of its authorized strength by the elimination of the district surveillance team and the creation of a shared Patrol North Surveillance Team. The same would apply to Districts 3 and 4, and the creation of the Patrol South Surveillance Team. Further, the elimination of the current practice of using Charlie and Delta teams for special projects would apply to this model, thereby maximizing the utilization of existing resources. The existing Delta shift would continue to extend from 4:00 pm to 4:00 am (12 hours) throughout the districts and minimum staffing levels would be properly adjusted to match call-load.

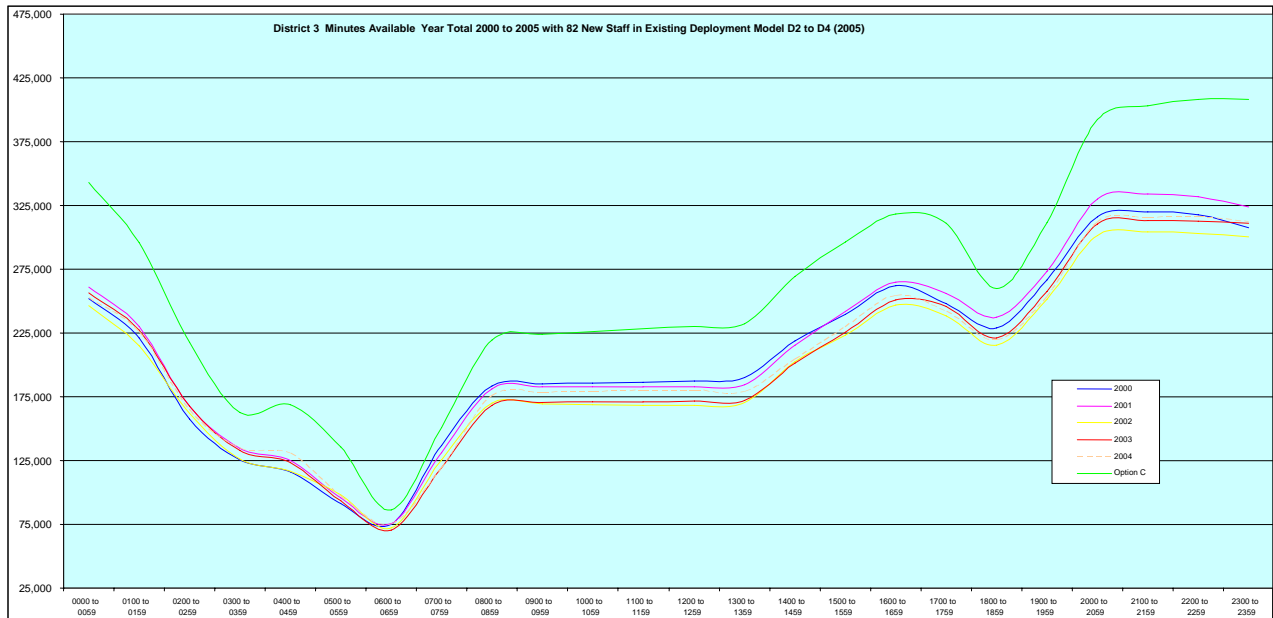
**CURRENT SHIFT DEPLOYMENT MODEL ALL DISTRICTS 2006/02/06 TO CURRENT**



By adhering to the above criteria, and the addition of 82 new constables to patrol, an average utilization of 50% is still obtained with this model. However, this figure does not fully account for district efficiencies and maximizing the use of resources. As detailed throughout this report, one of the major shortcomings of the existing patrol deployment model are periods of both high and low utilization. This is typically a result of poor deployment scheduling that fails to adequately pair resources to call-load. The subsequent peaks and lows indicate periods of extreme activity or inactivity. In either case, there is an abundance of resources disproportionate to the demand, or an inadequate allocation of resources to meet demand. Regardless, each type of variability are indicators of periods of inefficiency. Other areas of concern rest in the fluctuation between the two extremes that create further problems for officers and exemplify a shift deployment model that artificially generates heightened periods of stress and anxiety.

An examination of these factors provides some insight into the situation. This is done

using a predictive model, based on the redistribution of resources according to the proposed deployment option, covering a 24 hour period of deployment. To start, additional constables distributed throughout the districts have a positive affect on the available minutes compared to previous years. For example, the chart below illustrates a gain in resources available to take calls in District 3 compared to previous years without the additional constables or internal efficiency gains. Clearly, the additional officers deployed in the existing model demonstrate an improvement over past years.

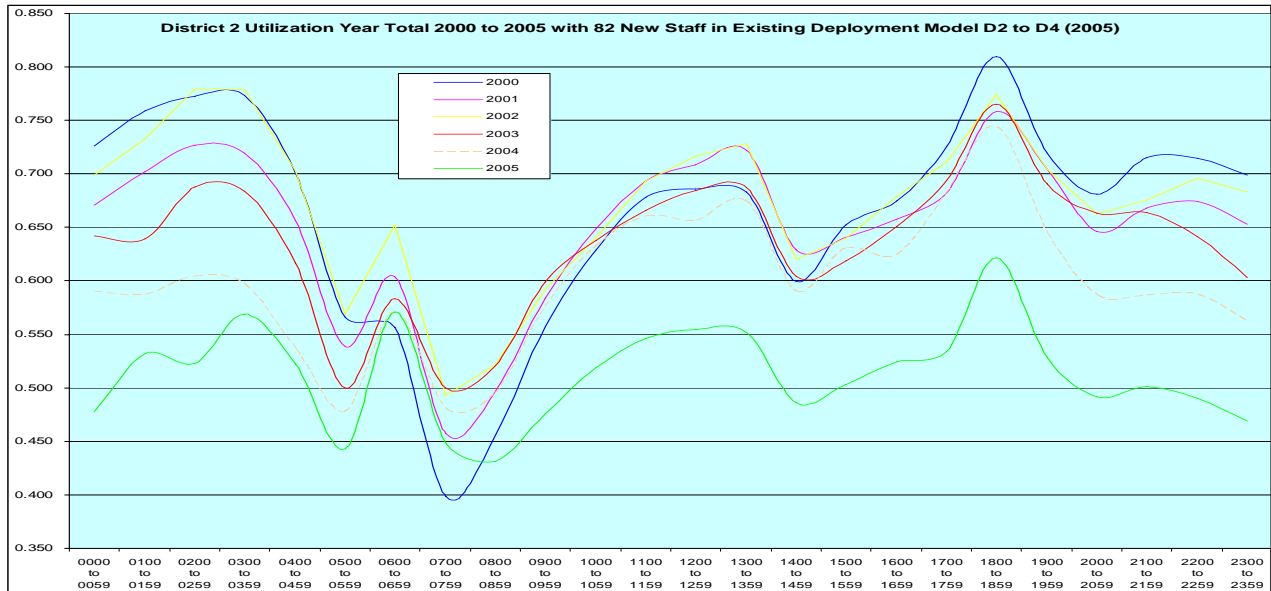


While the additional officers illustrate a net gain in the total available minutes over a 24 hour period, this does not provide a complete representation of the situation. A district by district examination of the predicted utilization ratio will help explain some of the issues related to this option.

While District 2 has an *average* utilization ratio of 50%, there are 14 times through the 24 hour period where the ratio peaks over 50% and there are nine (9) times throughout the same time frame where utilization drops below 50%. Looking specifically at the extremes, utilization reaches a high of 62% and a low of 43%, each illustrating periods of substantial inefficiency.

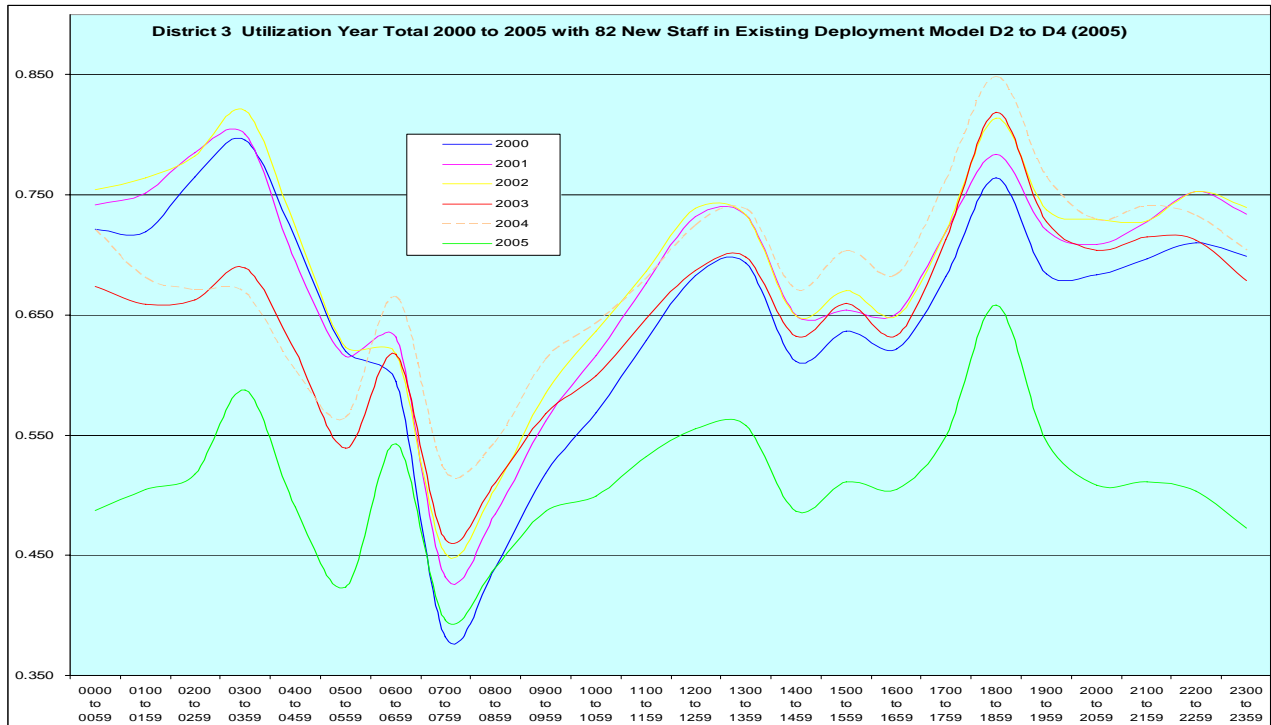
A special notation on measurements of central tendency may help explain this effect. When measuring central tendency such as the mean (average), the purpose is to summarize in a single value the typical size or central location of a set of values. The most familiar measure of central tendency is of course the mean. However, some data-sets have a skewed distribution, when the values are much larger or smaller than the typical values found in the data set. Because it is affected by all the values of the variable, the mean can lose its representative quality in badly skewed data sets. When this occurs it is important to account for dispersion or variability in the data-set. By measuring the spread in a data-set it is then possible to compare distributions with the same mean

(average) and different dispersions. The simplest way to measure dispersion is by providing the range, which are the highest and lowest values recorded, as indicated above, District 2 has a range of 43% to 62%. An efficient deployment model is premised on reducing skew around the mean and maintaining a concentration around the central tendency. It is for this reason that additional shifts were created in the proposed models detailed in Options “A” and “B”.



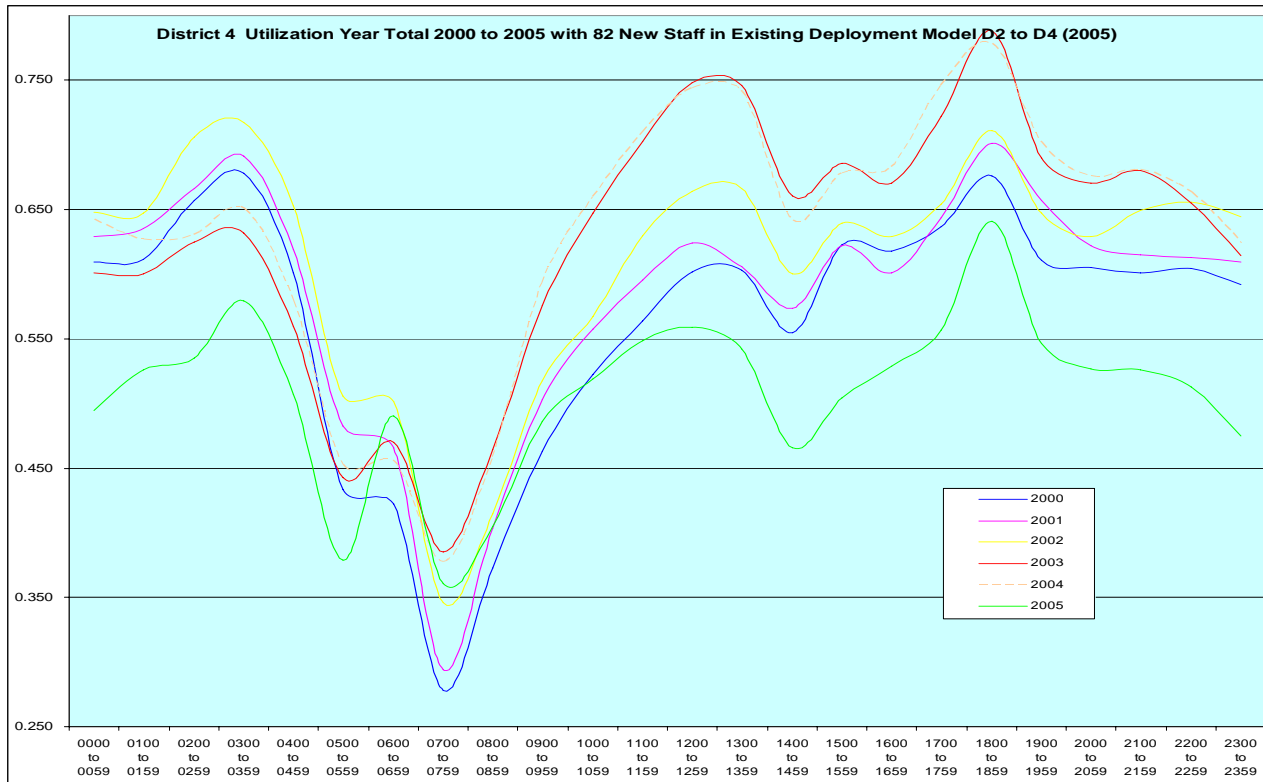
As was the case with the existing shift deployment model, there are still periods of peak inefficiency in District 2 that are not addressed by simply adding more constables to a poorly structured deployment model. Similar to the previous six years, 6:00 pm is problematic, as it reached peak utilization well above 60%. As well, between the times of 1:00 am and 4:00 am, the current shift deployment model fails to account for an elevated call-load and reduced resources; this combination results in an elevated utilization ratio.

District 3 experienced much of the same issues as District 2, in terms of periods of peak inefficiency, but with the added factor of greater fluctuations and extremes. For example, in terms of range, the uppermost utilization ratio was 66% and the lowest was 40%, indicating periods of significant inefficiency and dispersion. In other words, 66% and 40% measure how far away the peak and low utilization ratio are from the average of 50%. This is further reflected in the spread in the data, where nine times in a twenty-four hour period the utilization ratio was above 52% and four times it was below 48%. One of the goals of a shift deployment model is to reduce this amount of spread or scatter and to implement corrective measures that result in the values more tightly clustered about their mean.



As was the case with District 2, the additional constables in District 3 did little to address periods of systemic inefficiency seen over the past six years, but it did significantly reduce baseline utilization to within the 50% limit. Previous years illustrate how the utilization ratio was consistently above the 50% threshold, in fact rarely dropping below it. After the deployment of 36 additional constables within the district, it was only during periods of peak utilization, which was quite frequently observed in the chart above, that the ratio crossed the 50% mark. A more efficient deployment model, such as those outlined in Option “A” or “B”, would address times of peak inefficiency and correct the highs and lows observed with this model.

District 4 witnessed three distinct times where there were substantial peaks in utilization spread throughout the day. Mirroring much of the patterns seen in other districts, this indicates a shift model that generates deficiency in deployment; District 4 reached its highest point at 6:00 pm. Between the times of 6:00 pm and 7:00 pm was problematic for every district. This was due to Bravo shift ending at 5:00 pm and the next shift, Echo, not starting until 7:00 pm. The ending of Bravo occurs during a time of high demand for service, reflected in the elevated call-load. Yet this is the exact time when a crucial shift ends, generating a peak inefficiency. This one hour period of operating with a reduced number of officers creates a series of issues that takes hours to recover from. Whenever utilization peaks over 60% it can take the oncoming shift hours to adequately deal with the backlog of calls that have been placed in a priority queue. Therefore, even with the additional 24 constables added to the deployment model, the range for District 4 was 36% to 64%.



At 8:00 pm the utilization rate has still not completely recovered, hovering at 53%. However, this is still an improvement over 2004 when at the same time the utilization levelled at 67% after a sharp drop from a high of 78%.

Other factors to consider with this model are a phased in approach that can be accomplished with relative ease. While it is unlikely that 82 officers will be deployed simultaneously to correct the existing deployment deficiency, a phased approach could see up to 30 patrol constables allocated to the districts. Following a similar deployment pattern as the 82 officers detailed above, 30 officers would see an improvement in the average utilization ratio ranging from the current 2005 city-wide ratio of 66% to a low of 57%. The exact utilization rate would be dependent on the number of constables deployed per district and the implementation time frame. A cautionary note concerning the expected utilization ratio is required. While under optimal conditions 30 constables could be deployed relatively quickly and reach an average utilization rate of 57%, the same high and low issues that plagued the deployment of 82 would still hold true. A reduction in the baseline utilization ratio would be a welcome improvement over the current elevated rate; however, regardless if 30 or 82 officers are deployed, the current model fails to address even basic issues of inefficiency and the lack of shift overlap during times of peak call-load.

**8.8.2 Proposed Shift Model Option “D”**

The final deployment model offers the greatest potential for overall efficiency gains, but

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**Planning & Research Section**

with several unintended consequences. The introduction of three new shifts in this model creates a need for a substantial increase in infrastructure support and supervisory control. Therefore, not only will the creation of three new shifts require the greatest number of officers to staff these positions, it will create a need for additional sergeant and inspector positions as well. Further, administrative support will need to be increased to accommodate these new teams and additional equipment support, such as vehicles, laptop computers and office space. When examining this model, these considerations should be weighed against the benefits of improved efficiency, as the overall cost for service support and additional officers may outweigh the gains in efficiency.

However, the adoption of three additional shifts will help reduce peak utilization and more efficiently distribute resources according to calls for service. There are three significant problems with the current shift model that create circumstances where resources are not deployed in a very efficient manner. First, gaps in service occur at critically busy times of the day. This is created by the erratic transition from one shift to another without the benefit of sufficient overlap or staggering. Second, during peak workloads, one shift will end and the replacement shift doesn't start for another hour. In this situation, the one-hour lag leaves the remaining shift scrambling to adjust to the lack of officers required for the call load.

While call volume has increased over the years, the times that are busiest have remained constant in each district depending on the day of the week. However, the current shift model does not field adequate shifts at the times that are busiest and pair resources to call load effectively.

The proposed shift model addresses these shortcomings and more effectively allocates resources to meet demand. This is accomplished through realigning the current shifts to more accurately mirror patrol utilization trends and by the addition of three new shifts, Split Bravo, Split Charlie and Split Echo shift. The creation of three new shifts allows for a more gradual augmentation of resources and provides greater flexibility to distribute shifts more efficiently based on resource utilization on an hourly basis.

Further, the proposed shift model maintains uniformity with the prior model, as much as practicable, to limit disruption and social impact on police officers. However, the ultimate goal was to eliminate periods of inefficiency, which by adopting the proposed system will virtually remove periods of extreme workload and provide an environment where officers can respond to calls for service in a uniform manner. By eliminating periods of severe fluctuation in workload, there will be an anticipated reduction in call stacking and an improvement in response times for emergency incidents. The projected gains in efficiency are in the 7% to 10% range, depending on the district and extent of the spikes during peak times. In districts where unit utilization reaches levels close to 100%, improvements to the shift model will result in more substantial gains in efficiency.

The current shift pattern of five distinct shifts should be replaced with a more efficient eight-shift model. The addition of three more shifts would allow for the overlap and staggering of teams that would still maintain the required 24-hour coverage, but it would



also reduce the extreme fluctuations in available unit-minutes based on call load demand.

There are too few officers in Patrol. Until this situation improves, an interim solution could incorporate the splitting of existing patrol teams to provide coverage for the three new shifts. In practical terms, this would require teams working these shifts to split, in order to provide overlap coverage. Upon rotation to the next shift, the teams would merge again and work as a consolidated team for the other shifts that do not require staggering.

Under the proposed schedule, team sergeants would be required to supervise both of the split shifts administratively. However, at those times when one of the split teams is working outside of the sergeant's normal duty hours, other on-duty sergeants would be required to assist in patrol supervision. Ultimately, the goal of the modified shift deployment would be to create fully staffed teams, rather than split teams. Additional sergeants will eventually be required to supervise the newly created teams once staffing is at a level where splitting shifts was no longer required and stand-alone teams were formed.

While the splitting of the teams and the addition of the three extra shifts will address the extreme fluctuation in unit utilization, the overall issue of operating levels well above the recommended 35% rate will only be resolved through the addition of more officers. Recommendations will be made, specific to each district, outlining the resources required in order to reduce unit utilization levels using the evaluative approach outlined below.

Considering current fiscal constraints, a shortage of police officers due to retirement attrition and logistics alone, a more realistic target for utilization is 50%. This figure is still obtainable given the realities of police budgets and furthermore, it still falls within the upper limits of acceptable allocated time. At this level, patrol could still operate efficiently, as only 50% of officer time would be committed to responding to calls for service. This would still allow the minimum time recommended in order for police to be able to engage in proactive initiatives and provide a level of service that promotes crime prevention, public satisfaction and a timely response to calls.

The adoption of three additional shifts will help reduce peak utilization and more efficiently distribute resources according to calls for service. There are three significant problems with the current shift model that create circumstances where resources are not deployed in a very efficient manner. First, gaps in service occur at critically busy times of the day. This is created by the erratic transition from one shift to another without the benefit of sufficient overlap or staggering. Second, during peak workloads, such as 6:00 pm, one shift will end and the replacement shift doesn't start for another hour. In this situation, the one-hour lag leaves the remaining shift scrambling to adjust to the lack of officers required for the call load. Third, the pattern that the call-load follows has been stable and consistent for the past five years or more.

While the volume has increased over the years, the times that are busiest have remained constant in each district depending on the day of the week. However, the current shift model does not field adequate shifts at the times that are busiest and pair resources to call load effectively. For example, 6:00 pm is consistently one of the more demanding



a new shift model, it is still obtainable using resourceful shift re-engineering. Until additional resources can be added to reduce the inordinate percentage of time spent attending calls for service, the current system can still be redesigned to function more efficiently.

Operating under the assumption that no additional resources can be added in the immediate future, the option still exists to redistribute current patrol officers according to the proposed shift model. Under the proposed model, Alpha and Delta shift would remain unchanged; however, the addition of Split Bravo, Split Charlie and Split Echo would alter the composition of Bravo, Charlie and Echo shift. Specifically, Bravo, Charlie and Echo shift would be split in half, with half the police officers moving to the newly created Split Bravo, Split Charlie and Split Echo shifts. Therefore, Bravo and Split Bravo shifts, while staffed by a single patrol team, will in fact be distributed between two distinct shifts with independent start and end times. Likewise, officers originally slated for only Charlie shift would now be split and distributed between two shifts and fill both Charlie and Split Charlie. The same process is then repeated for Echo and split Echo shift as well.

The splitting of Bravo, Charlie and Echo shift into six shifts would result in each shift being deployed with only half the regular complement of officers. In effect, each of these shifts would only be operating at half strength. The half shift deployment provides flexibility in arranging teams to match call load, but it also creates some organizational issues. Where in the past, it was only possible to arrange shift overlap of two, three or four fully staffed shifts, under the proposed system shift overlap can now incorporate shifts staffed by only half a team. For example, a shift with half the regular staff complement can now be arranged so as to provide extra overlap when less than a fully staffed team is required to meet call-load. Therefore, shift deployments of 1, 1½, 2, 2½, 3, 3½ and 4 can be used where needed. In practice, a fully staffed Alpha shift could be scheduled with a half team such as Bravo shift, resulting in 1½ teams deployed when both overlap. In some circumstances this model provides more efficient options.

This system could operate temporarily until additional officers are permanently allocated to the teams operating at half strength. Ultimately the goal would be to create independently staffed shifts with the addition of extra teams, rather than relying on team splitting to gain efficiency.

Vancouver Police Department  
**Planning & Research Section**

*Proposed shift schedule:*

Shift	Current Shift Model	Proposed Shift Model
Alpha	0500-1600	0500-1600
Bravo	0700-1800	0700-1800 (½ team)
<b>Bravo Split</b>	-----	<b>1100-2200 (½ team)</b>
Charlie	1400-0100	1200-2300 (½ team)
<b>Charlie Split</b>	-----	<b>1800-0500 (½ team)</b>
Delta	1600-0300	1600-0300
Echo	1900-0600	1900-0600
<b>Echo Split</b>	-----	<b>2000-0700 (½ team)<sup>12</sup></b>

As is evident from the preceding analysis, each district has very distinct characteristics and issues that impact the times and days that require more or less resources according to demand. However, call-load patterns follow a fairly consistent format for mid-week and weekend time-blocks, with only minor variations within a definable range. With the exception of differences in volume that change from district to district, the model for addressing shift distribution should not need to change by district. Therefore, the requirements of the districts can be accommodated through a universal shift model that addresses both midweek and weekend shift allocation and incorporates sufficient buffering to manage district variations.

**50% Utilization Staffing Projections  
Option D**

	Split Shift B 8 Teams	Split Shift C 8 Teams	Split Shift E 8 Teams	Total 24 Teams	New FTE Increase	Redeployed Officers
District 1 <sup>1</sup>	11	11	11	33		3
District 2	8	8	6	22	22	4
District 3	13	14	11	38	38	3
District 4	8	8	6	22	22	3
North Surveillance						9 ([D1] 6 + [D2] 3)
South Surveillance						9 ([D3] 5 + [D4] 4)
<b>Total</b>	<b>40</b>	<b>41</b>	<b>34</b>	<b>115</b>	<b>82</b>	<b>31</b>

Note:

1. District 1 - Team 3 to 10 reduces in size from 13 to 9 constables. Team 1 and 2 reduce to 8 constables

<sup>12</sup> Staffed using over time call-out. No permanent officers allocated given that only two shifts a week are required.

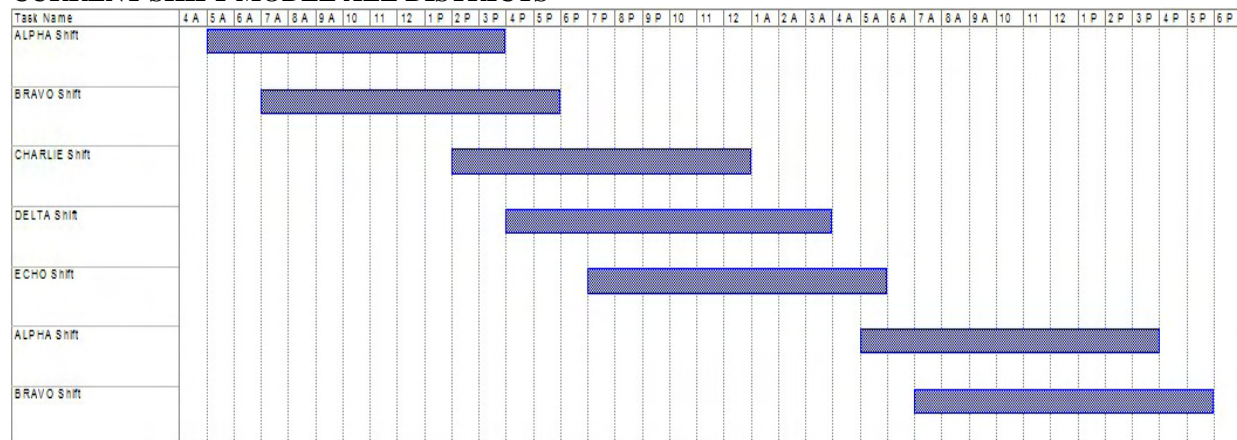
**40% Utilization Staffing Projections**  
**Option D**

	Split Shift B 8 Teams	Split Shift C 8 Teams	Split Shift E 8 Teams	Total 24 Teams	Redeployed Officers
District 1	6	8	6	20	3
District 2	17	17	16	50	4
District 3	25	25	24	74	3
District 4	19	20	19	58	3
North Surveillance					9 ([D1] 6 + [D2] 3)
South Surveillance					9 ([D3] 5 + [D4] 4)
<b>Total</b>	<b>67</b>	<b>70</b>	<b>65</b>	<b>202</b>	<b>31</b>

**8.8.3 Option “D” District Deployment**

Midweek, the current district shift model allocates an inadequate level of resources from 12:00 am to 1:00 pm, with both Alpha and Bravo shift deployed at this time. This issue is evident in all the districts. The gradual build-up throughout the morning culminates with an elevated unit utilization that requires additional resources from 12:00 am onward. The proposed shift model provides an additional split shift (Split Bravo) at noon, bringing the total number of shifts available to 2 ½. Throughout the afternoon, 2 ½ shifts are consistently available to respond to calls, as the end and start of shifts are arranged in a manner so as to provide sufficient overlap and maintain consistent resource allocation through the afternoon.

**CURRENT SHIFT MODEL ALL DISTRICTS**



At 7:00 pm, which corresponds to the next measurable increase in call-load, the available shifts again increases to 3 ½ to match demand. From 7:00 pm to 10:00 pm the available shifts remain at 3 ½ until gradually decreasing to 3 shifts at 10:00 pm and then 2 ½ shifts from 11:00 pm to 3:00 am. This shift adjustment closely corresponds to the change in call-load, which is substantially elevated between 7:00 pm and 10:00 pm and then gradually reduces throughout the morning.

The proposed shift model maintains the same shift structure for weekends as it does for the mid-week. The Split Echo shift mirrors the existing Echo shift but provides much needed overlap during times of early morning inefficiency. The additional shift is designed to provide the necessary number of officers to deal with the elevated call-load and to reduce the severe increases in unit utilization levels during these times.

For example, the identified spikes in unit utilization at 1:00 am and 4:00 am are eliminated by the gradual reduction in resources. Unlike the current system, which has two shifts available at 1:00 am and only one shift available after 4:00 am, the proposed model has 2 ½ shifts available until 3:00 am and 1 ½ shifts available until 5:00 am.

From 5:00 am to 6:00 am the continued practice of overlap between Echo and Alpha shift is maintained. From 6:00 am to 7:00 am, the period with the lowest call-load, the proposed model has only one shift scheduled (Alpha). This setup is consistent with the current shift model arrangement and does not adversely affect unit utilization.

The current practice of attempting to compensate for an inefficient shift model will no longer be required. Ultimately, these adjustments may have provided temporary assistance during the early mornings, but the afternoon unit utilization levels were adversely affected, creating ancillary problems. The proposed model accommodates variances between districts and provides for the adjustment of Echo shift staffing to compensate for variances between district bar issues and alcohol problems. It is clear District 1 and 2 require more early morning resources due to the concentration of bars and nightclubs, and District 3 and District 4 now experience similar issues in the early morning that warrant staffing of a Split Echo shift as well. Further, bar issues are no longer confined to weekends only, as every district experience weekend like issues through everyday of the week, although at a reduced level midweek.

## **9 CONCLUSION**

The ongoing costs associated with overtime and holding back teams at the end of their shift in order to deal in an ad hoc manner with unit utilization levels are creating more issues than they resolve. Under the current system both the financial and human costs are substantial and must be considered when weighing the option of maintaining the status quo or facing the challenge of adopting innovative strategies and solutions. The oscillation in unit utilization, or the fluctuating level in which patrol units are engaged in taking calls, creates numerous issues for patrol officers. Officers are constantly faced with extremely demanding work and must remain in a state of heightened response for prolonged periods of time. Not only is this an inefficient use of police resources, but also the scheduling system artificially creates unnecessary periods of stress and fatigue.

Shifts are left to deal with an extremely busy call load with limited resources. In some instances, shifts are temporarily left to deal with a period of frenzied response until

another shift becomes available to render assistance. A more efficient model, such as one of the proposed patrol deployments, incorporates a more gradual decrease in police officers paired to the call load and a more gradual phasing in of officers as the call load builds. The current shift pattern of five distinct shifts could be replaced with a more efficient model. Each recommended model addresses shift inefficiency in a slightly different way, but ultimately results in a more efficient deployment model than the current process provides.

The matching of resources to call load under one of the proposed systems will result in a very efficient model that has the potential to increase productivity, as well as maximize the performance of patrol teams. While there are other shift models available that also improve efficiency and match resources to demand, the gains between highly efficient models are relatively inconsequential.

In terms of systemic problems with elevated levels of unit utilization, a threshold should be set at which unit utilization should not exceed a certain level in order to maintain an acceptable level of policing service. The current situation, where unit utilization levels frequently exceeding 70%, is not in accordance with best practices and a more appropriate target would be in the 50% range. This would allow patrol officers the available time to engage in proactive policing in support of the VPD's strategic objectives, specifically "improving community safety".

While the initial conclusion could be drawn that adopting the proposed shift model will resolve workload issues and periods of over utilization, this is not entirely accurate. While the reduction of extreme peaks and fluctuations will certainly make utilization levels more consistent, the fact remains that Patrol is substantially under staffed given their workload. When staff are continually taxed beyond their ability to meet call load demand, service to the public suffers. The only tangible solution is to increase the authorized strength in order to meet the target utilization rate of 40% to 50%. Without these additional officers, Patrol will continue to operate at elevated utilization levels and be severely limited in its ability to engage in any form of proactive policing.

## **10 RECOMMENDATIONS**

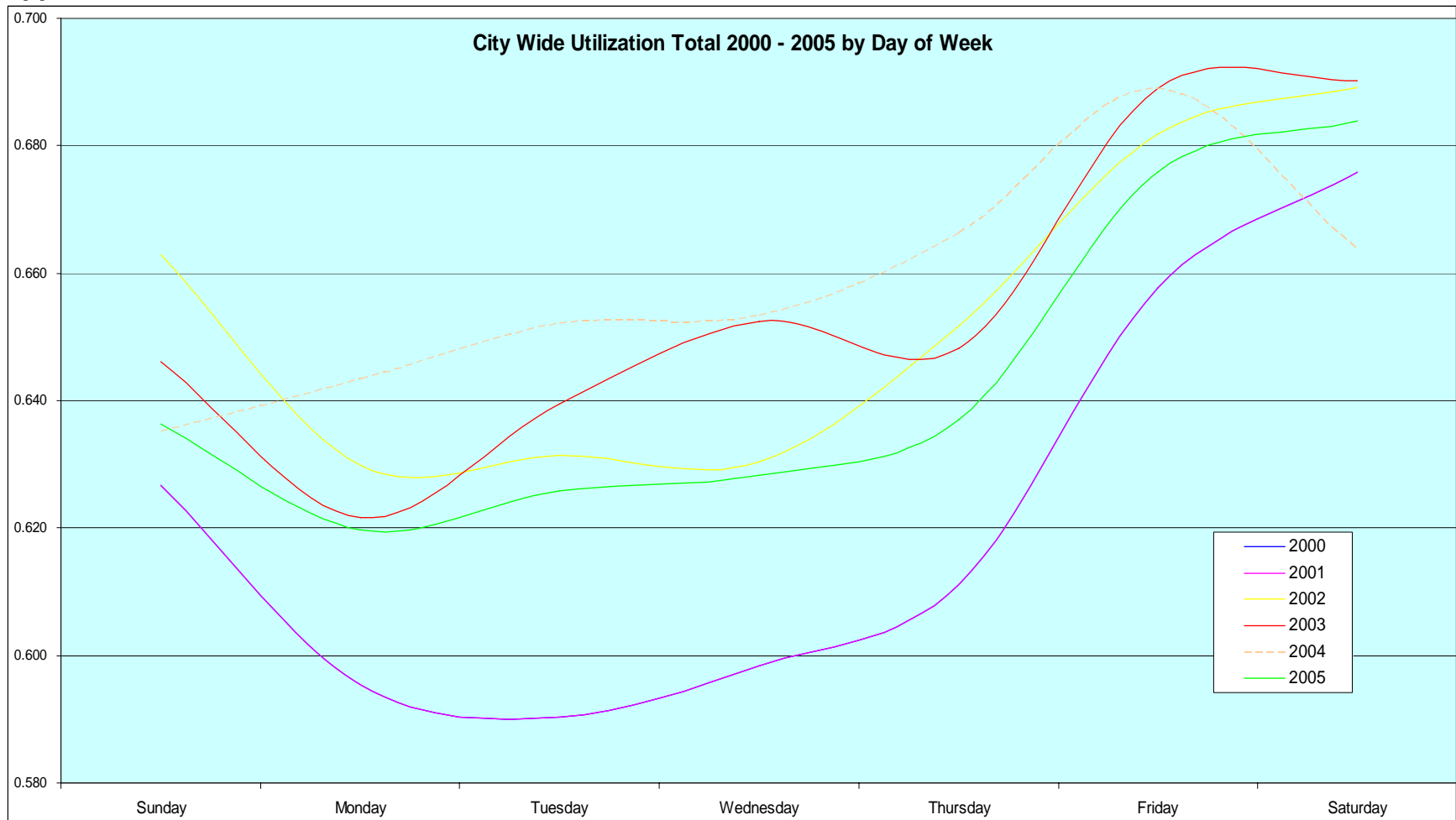
I recommend:

1. THAT, the VPD adopt one of the proposed patrol deployment models on a trial basis in District 1 for a 12-month duration.
2. THAT, on successful completion of a trial deployment, the VPD adopt, on a city-wide basis, the proposed patrol deployment model.
3. THAT, the Planning and Research Section incorporates the results of this analysis into the pending report to the Police Board and Vancouver Council in support of a request for a substantial increase in authorized strength.
4. THAT, future increases in authorized strength be allocated to the four districts based on their utilization rates as these rates could change in the future.
5. THAT, regular evaluations are conducted of patrol efficiency, unit-utilization and the shift deployment model to ensure current practices are in keeping with call load pattern changes within the districts.
6. THAT, the District 1 Team 11 Surveillance Team, District 2 Rapid Action Team (RAT), the District 3 Street Crime Enforcement Unit (SCEU), and District 4 Property Crime Reduction Unit (PCRU) be disbanded and the officers currently staffing these adjunct units return to regular patrol duties.
7. THAT, the Deputy Chief of the Operations Division establish a policy directive that prevents future adjunct specialty squads from being created within patrol without a business case, and that the practice of loaning officers out of patrol for specialty projects cease immediately.
8. THAT, a new Patrol North Surveillance Team and a new Patrol South Surveillance Team be created using existing resources.

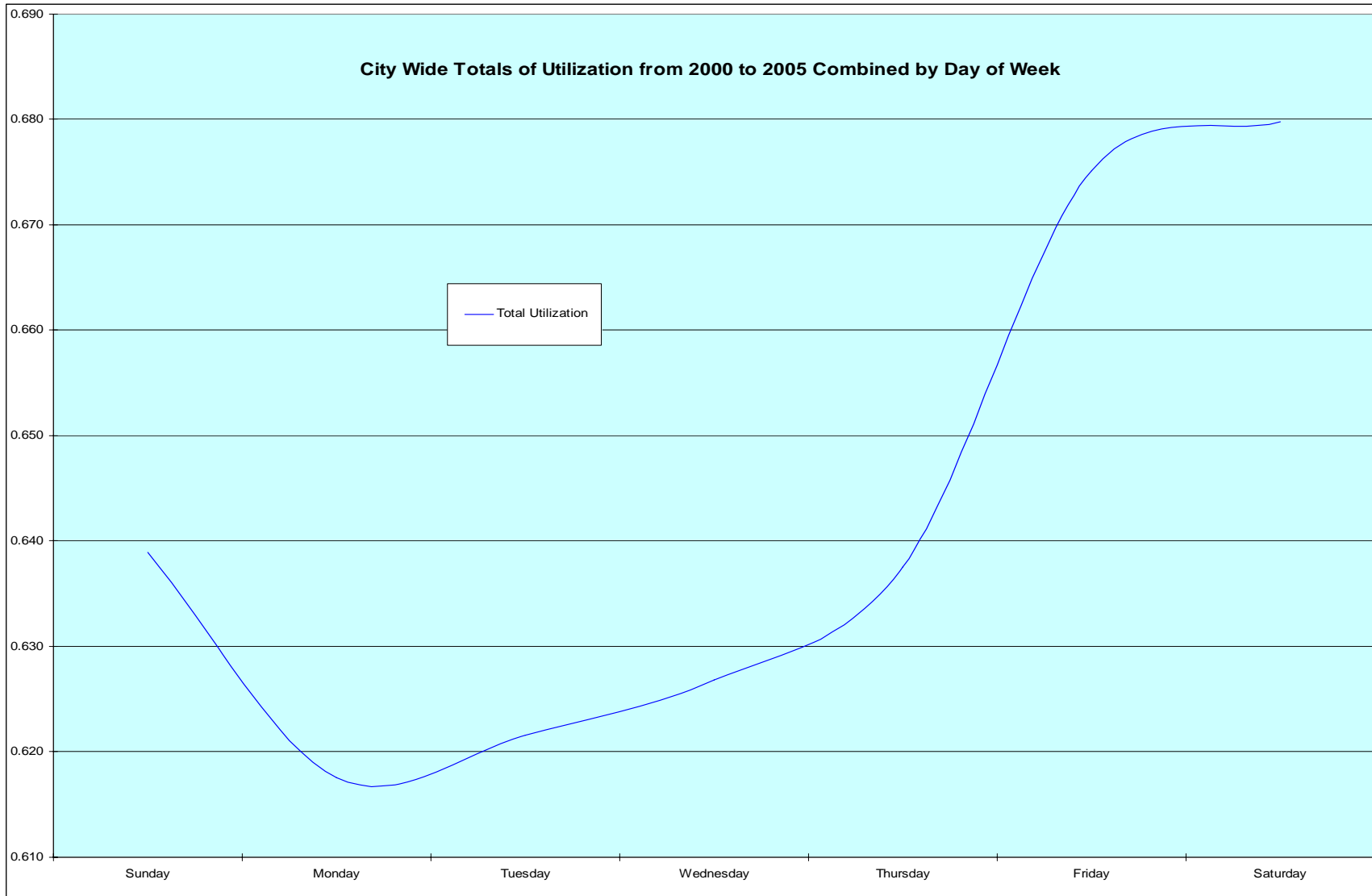


### 11 APPENDIX

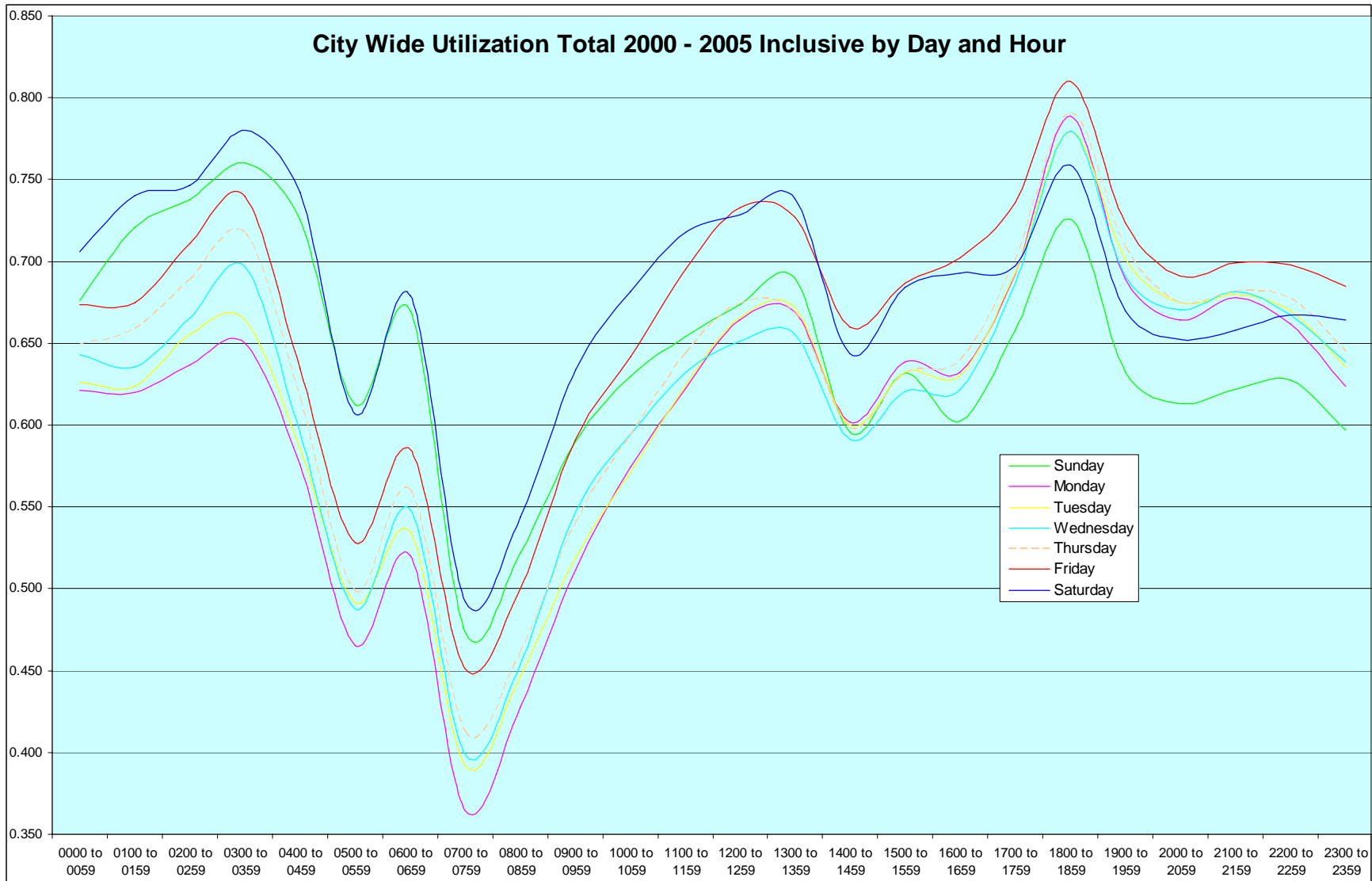
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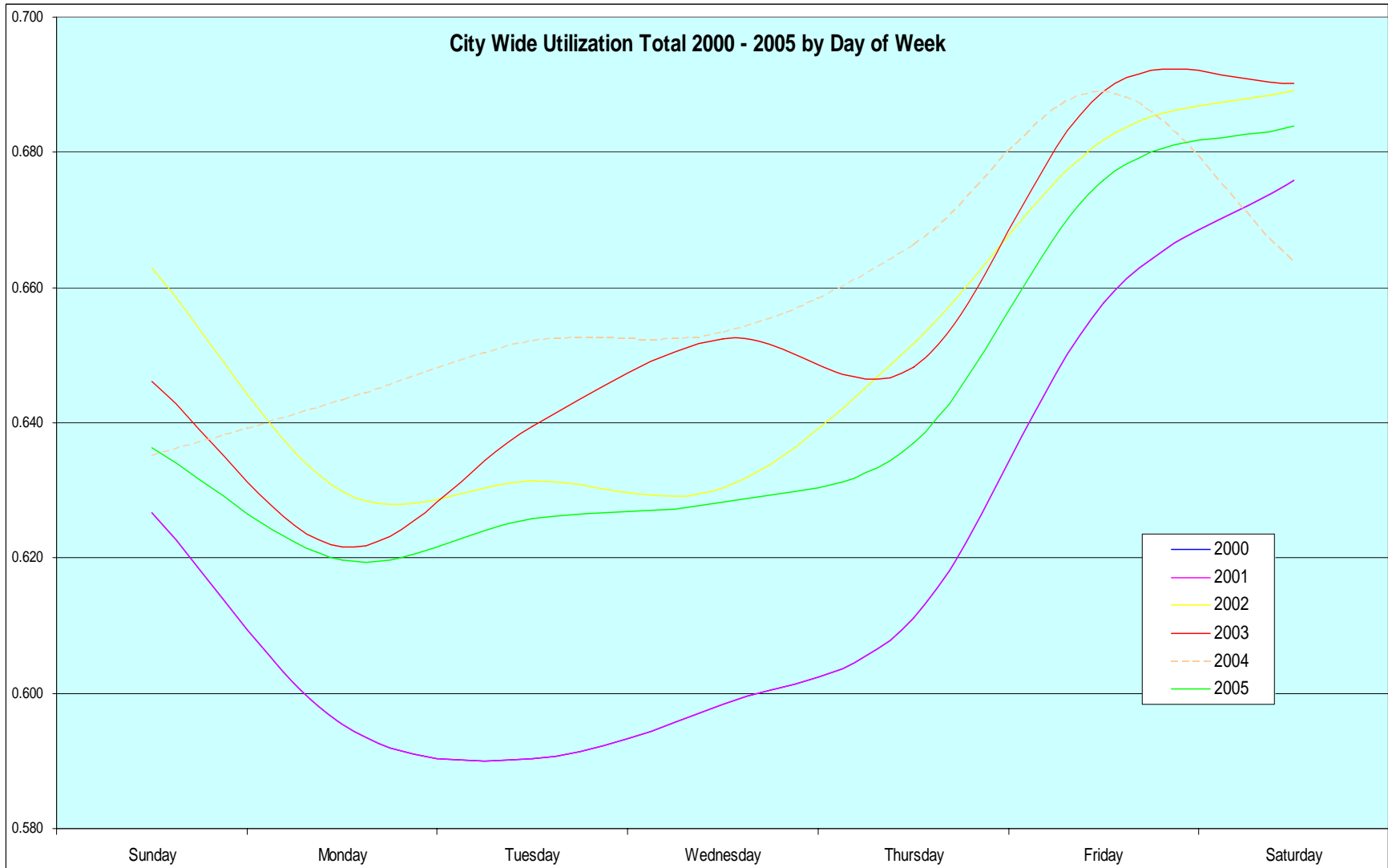
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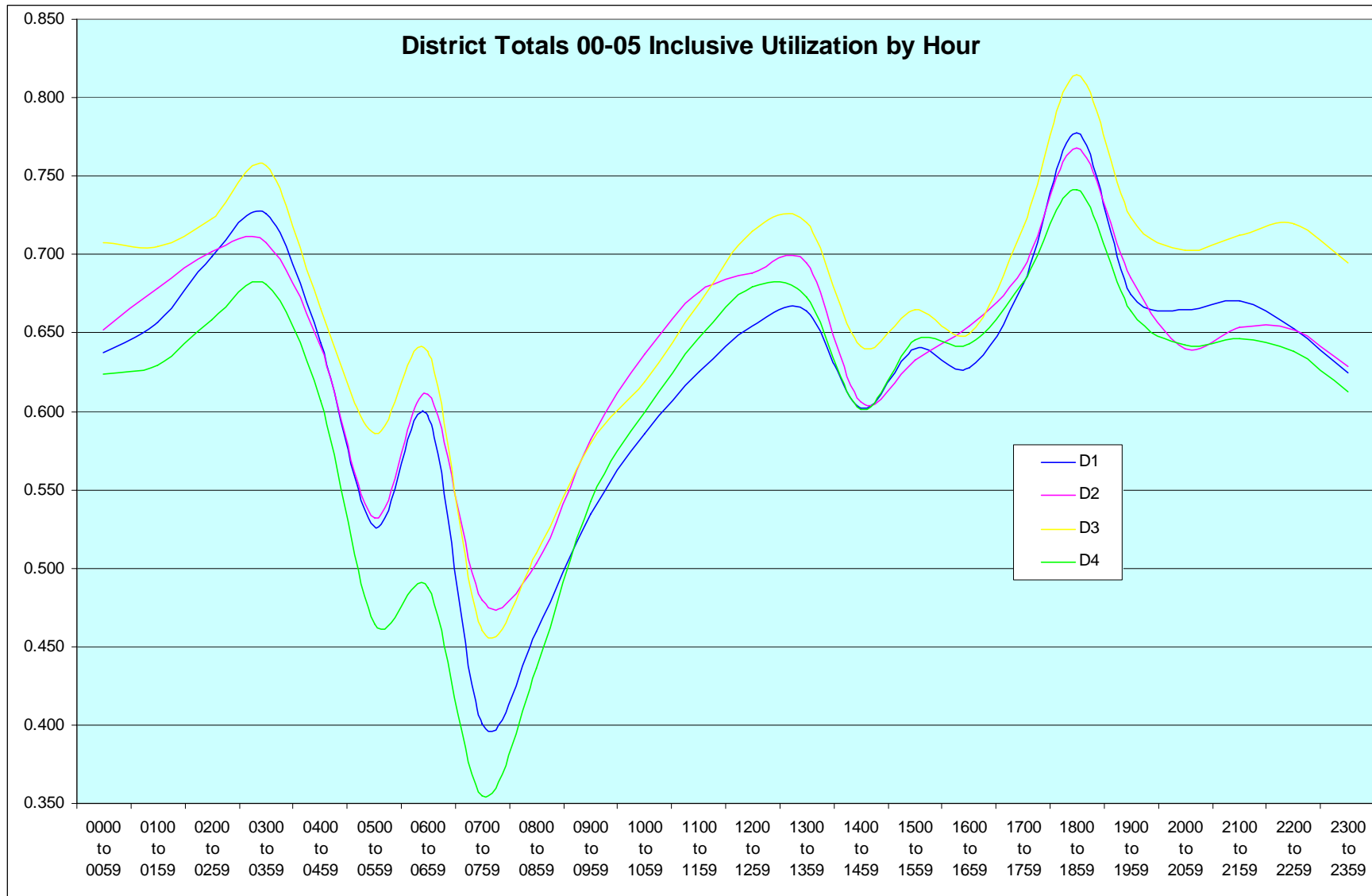
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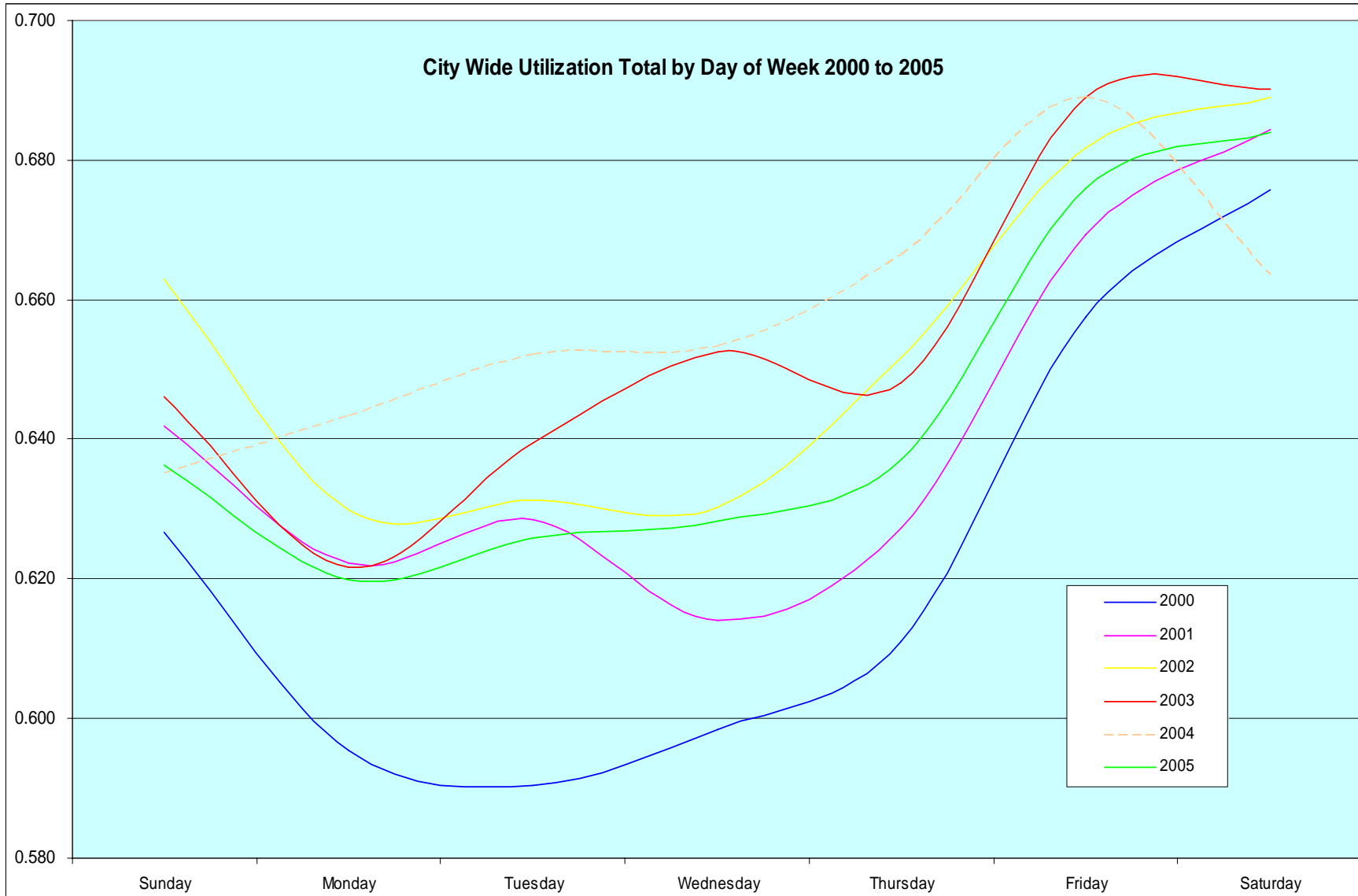
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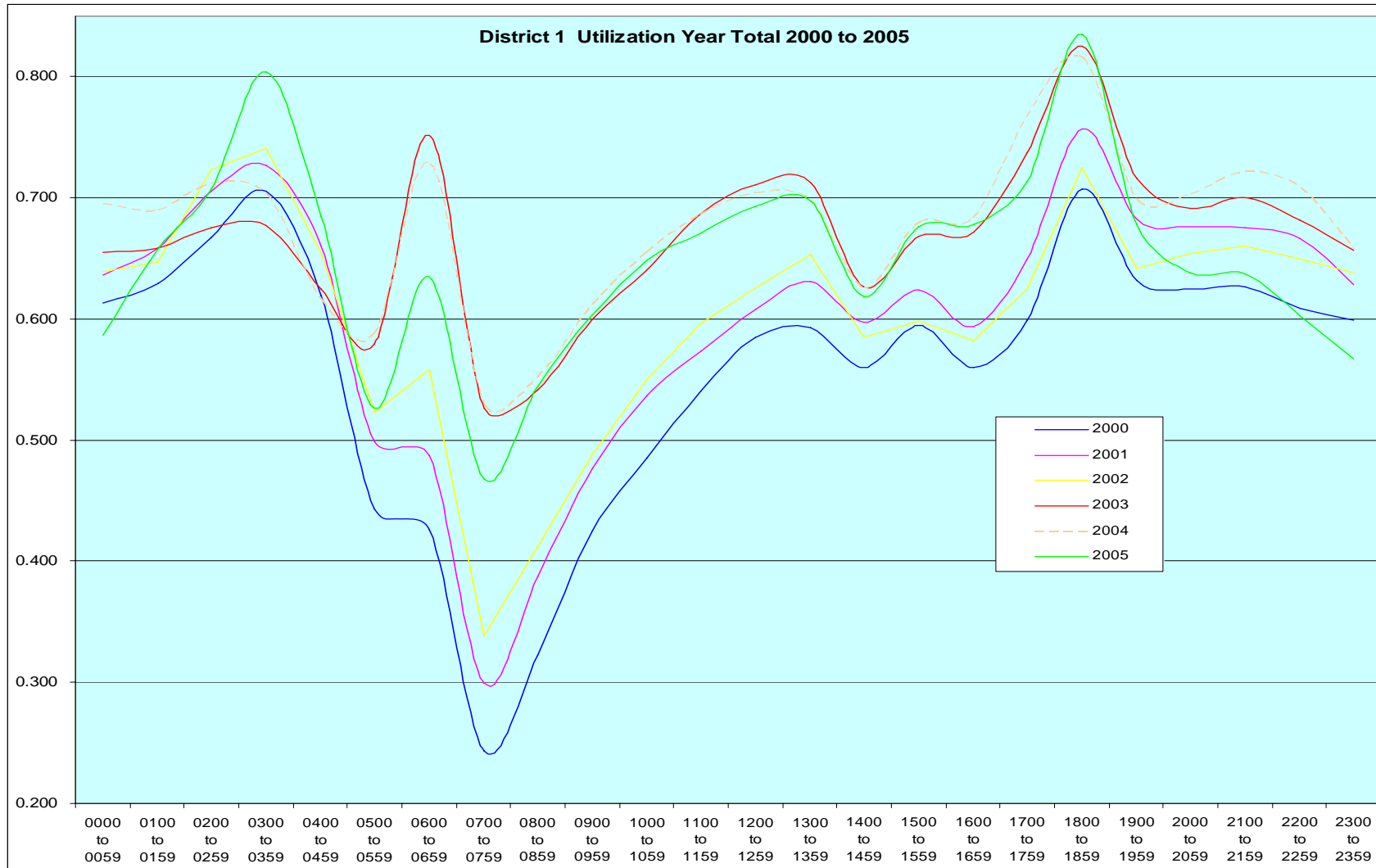
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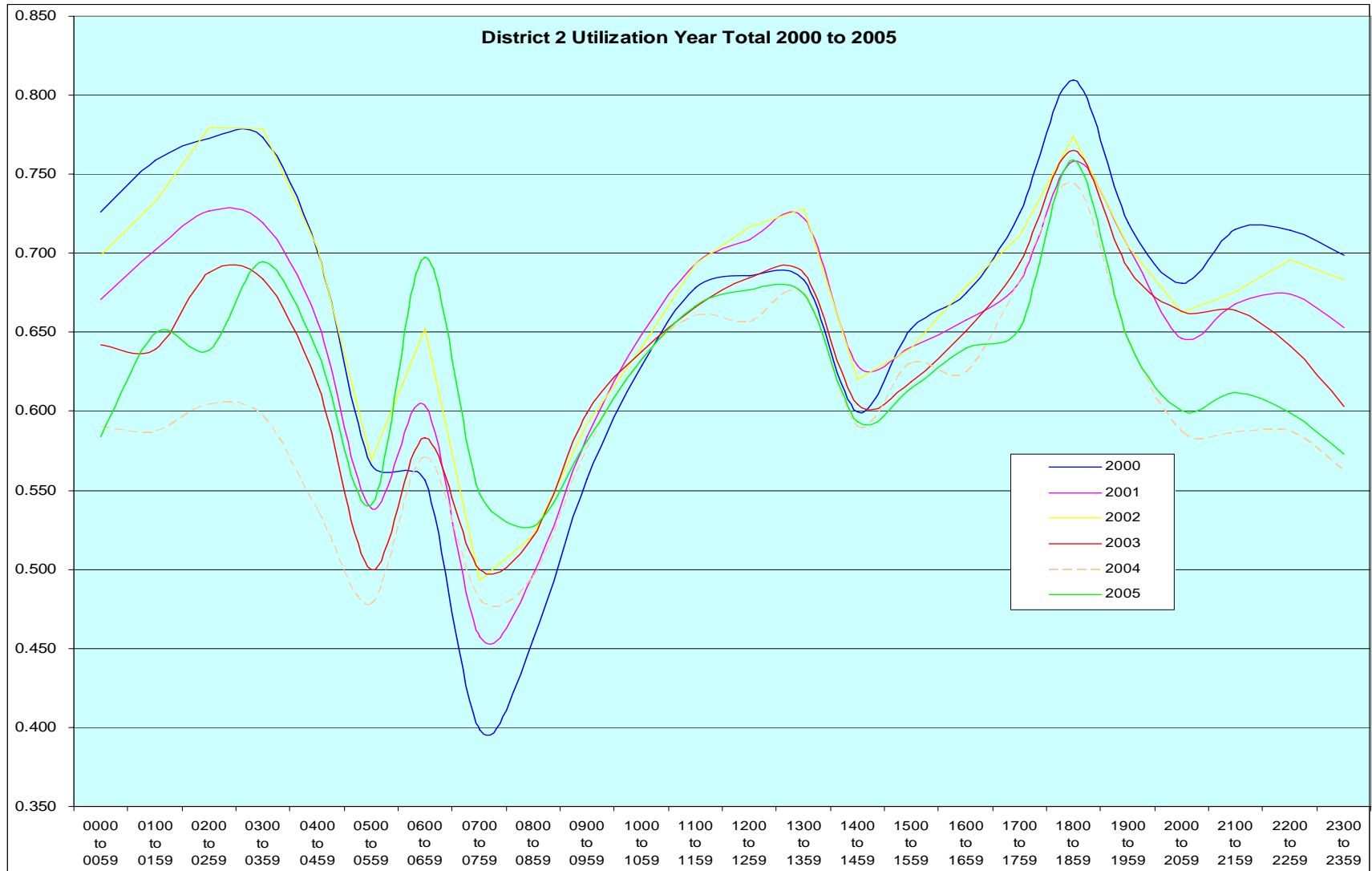
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Appendix A-7

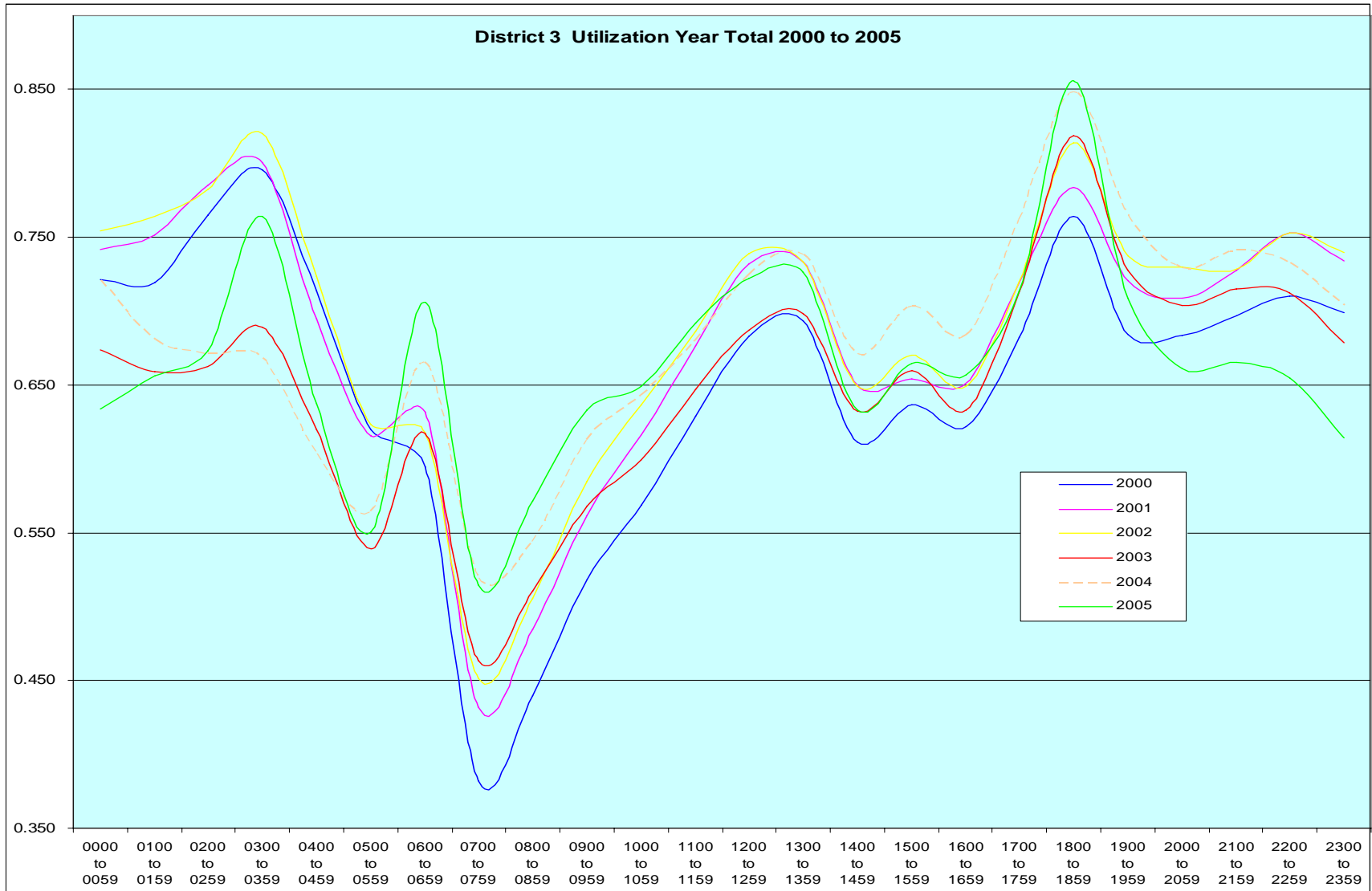


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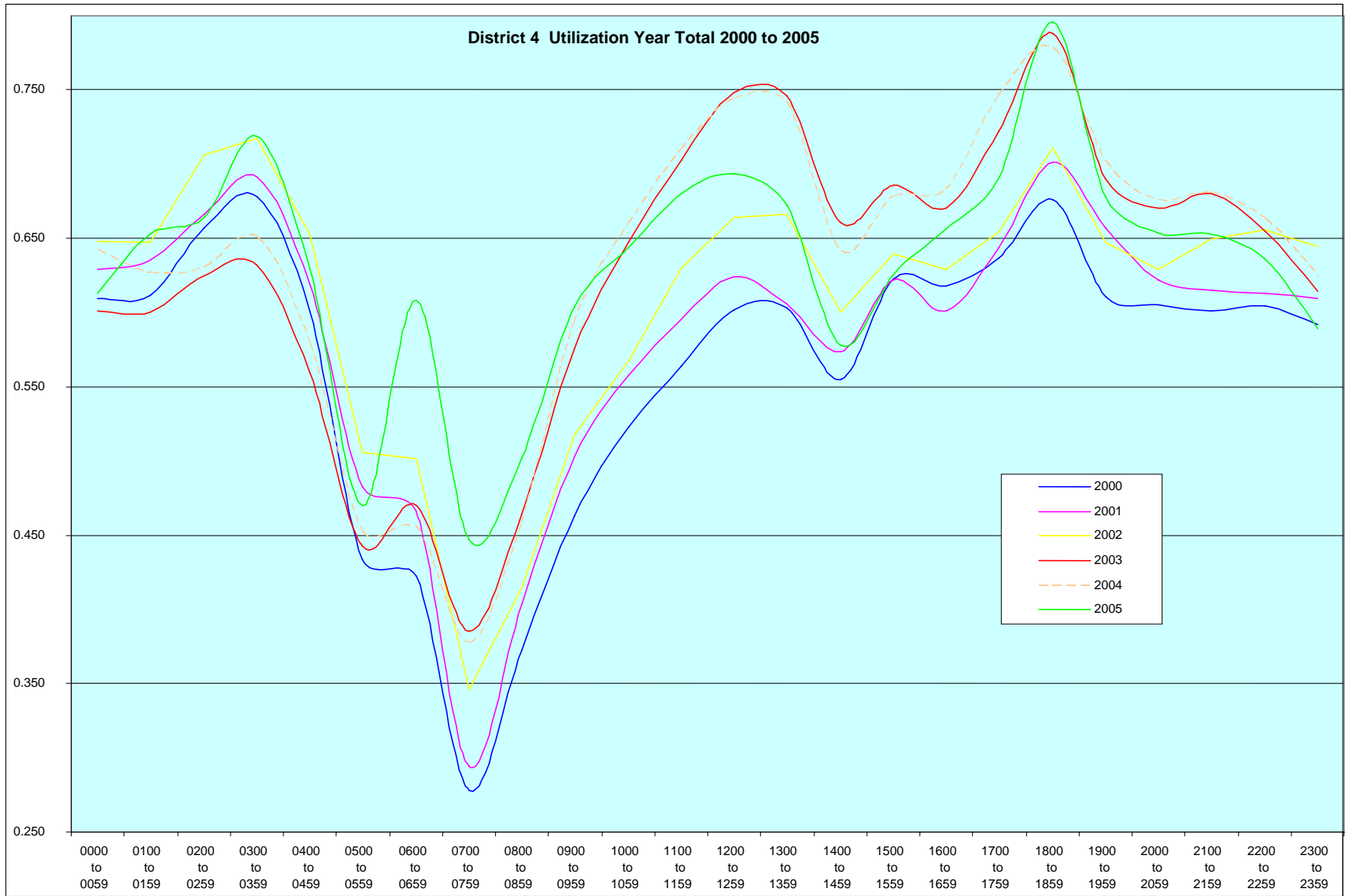




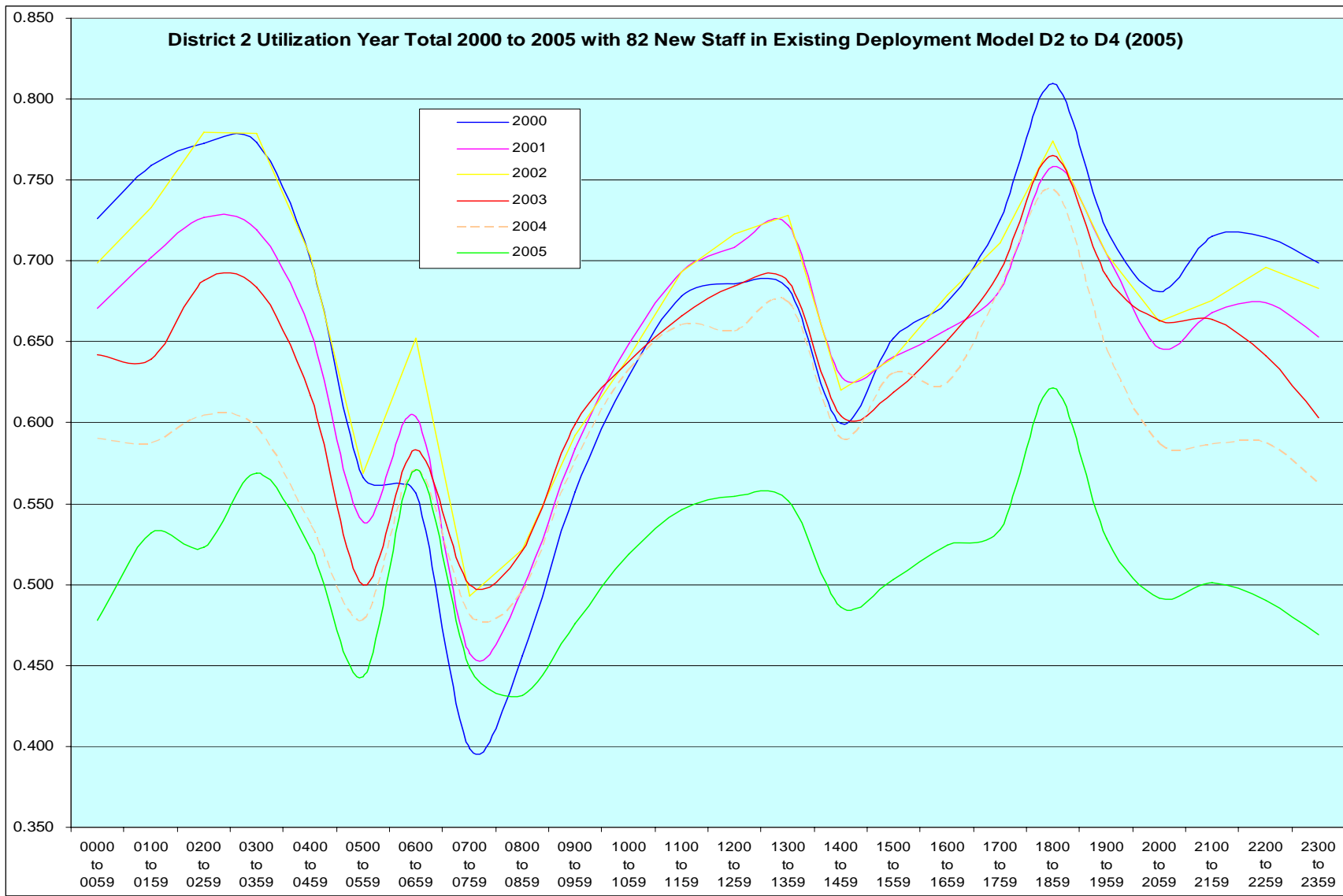
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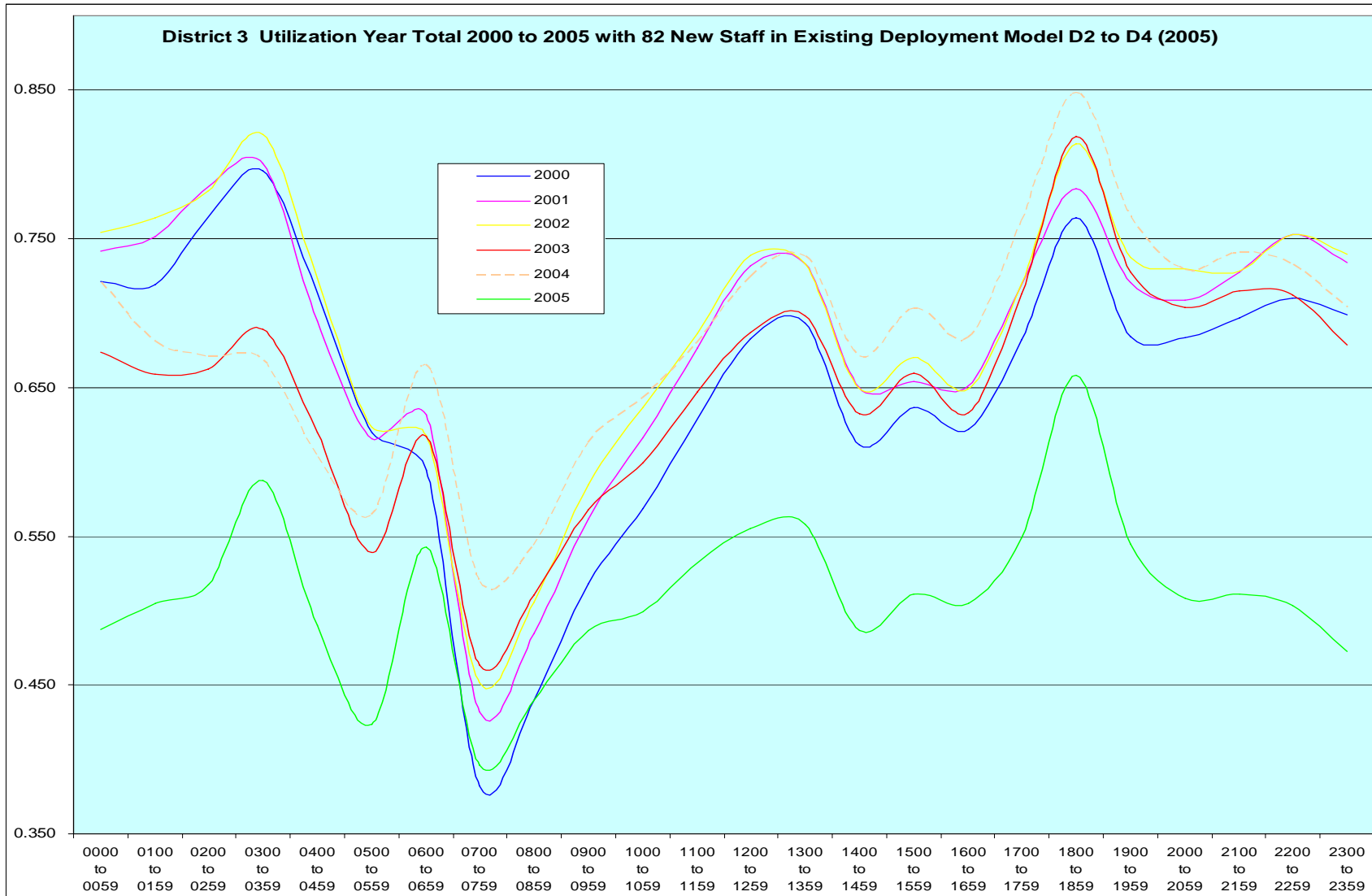
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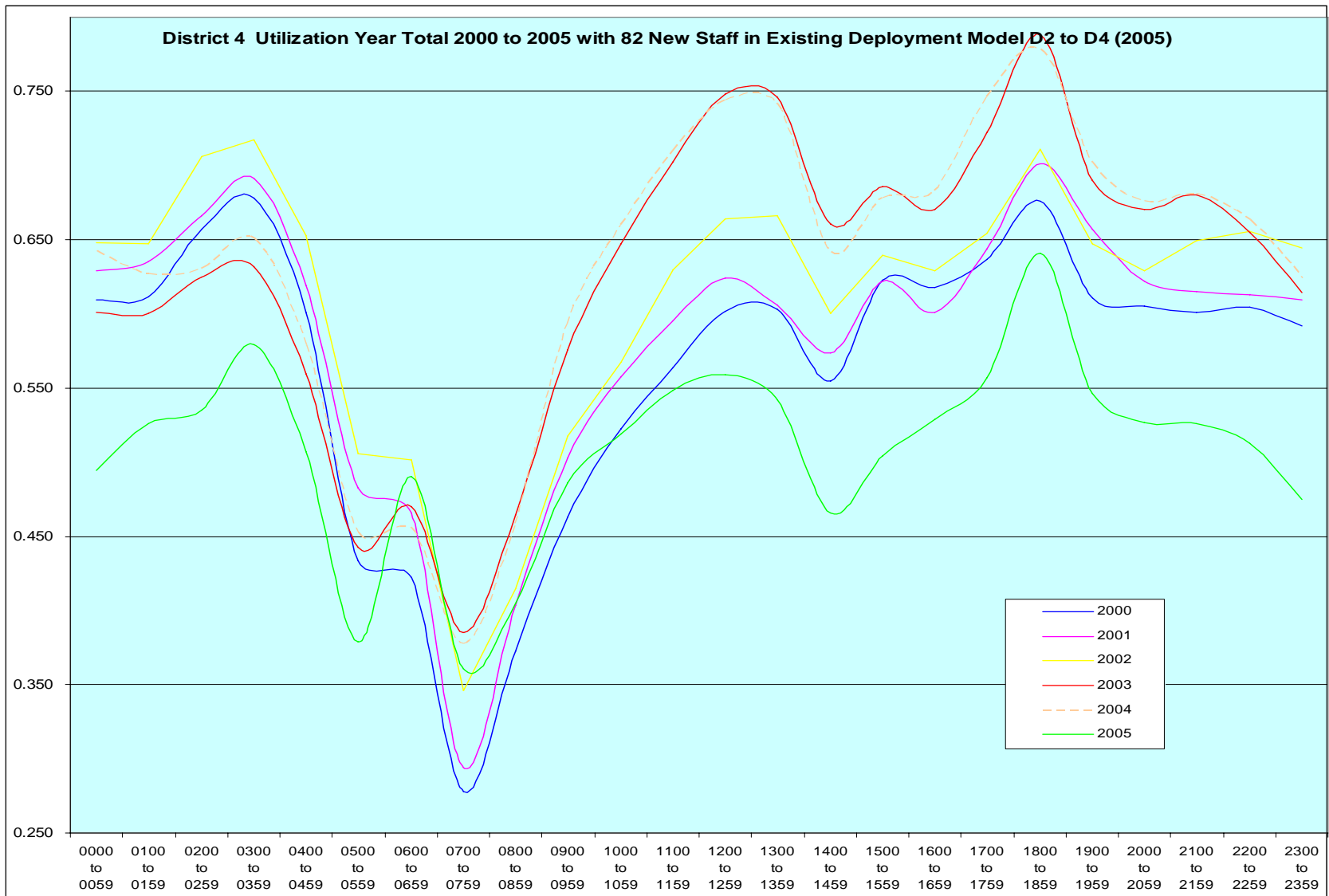
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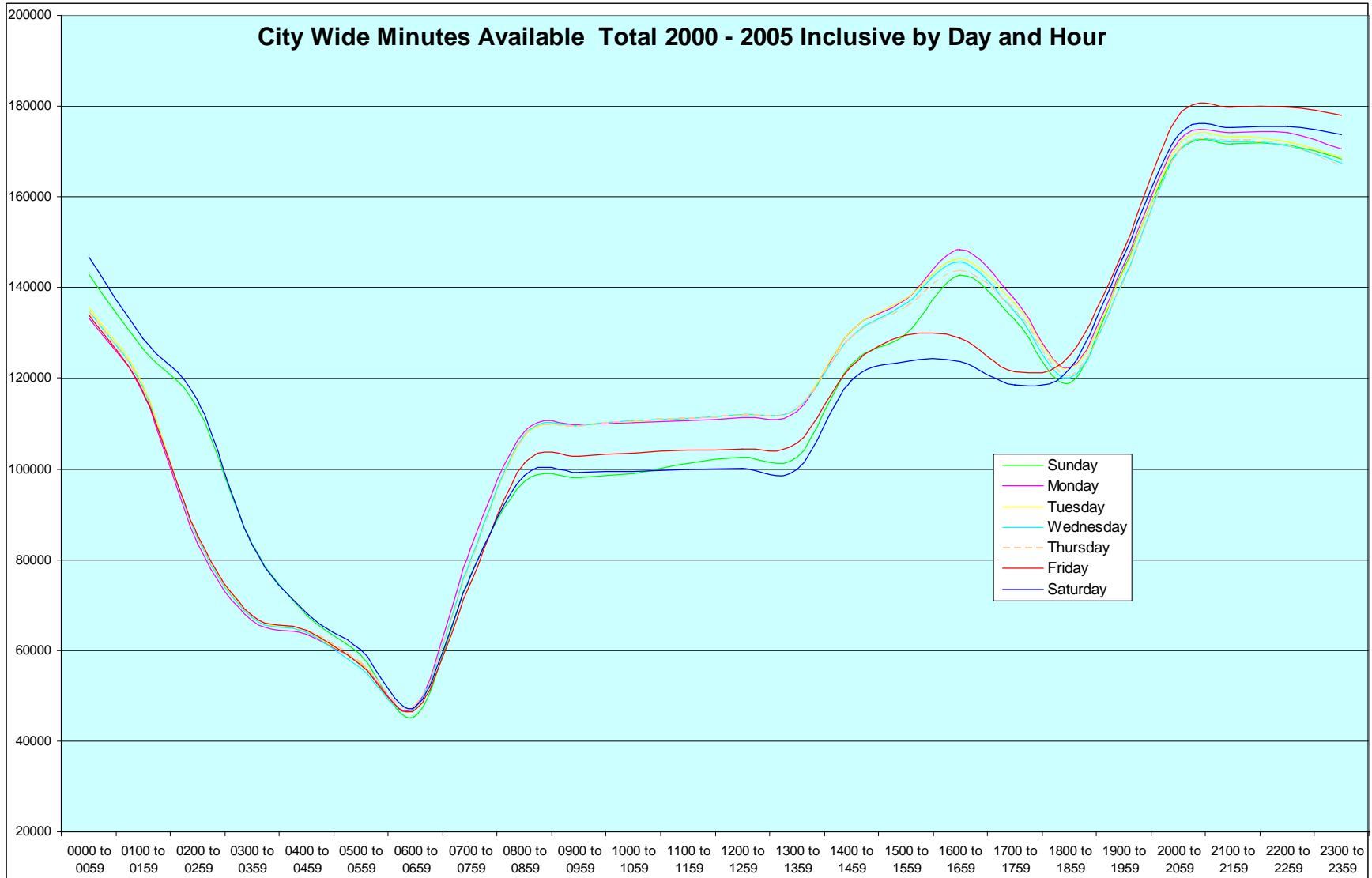
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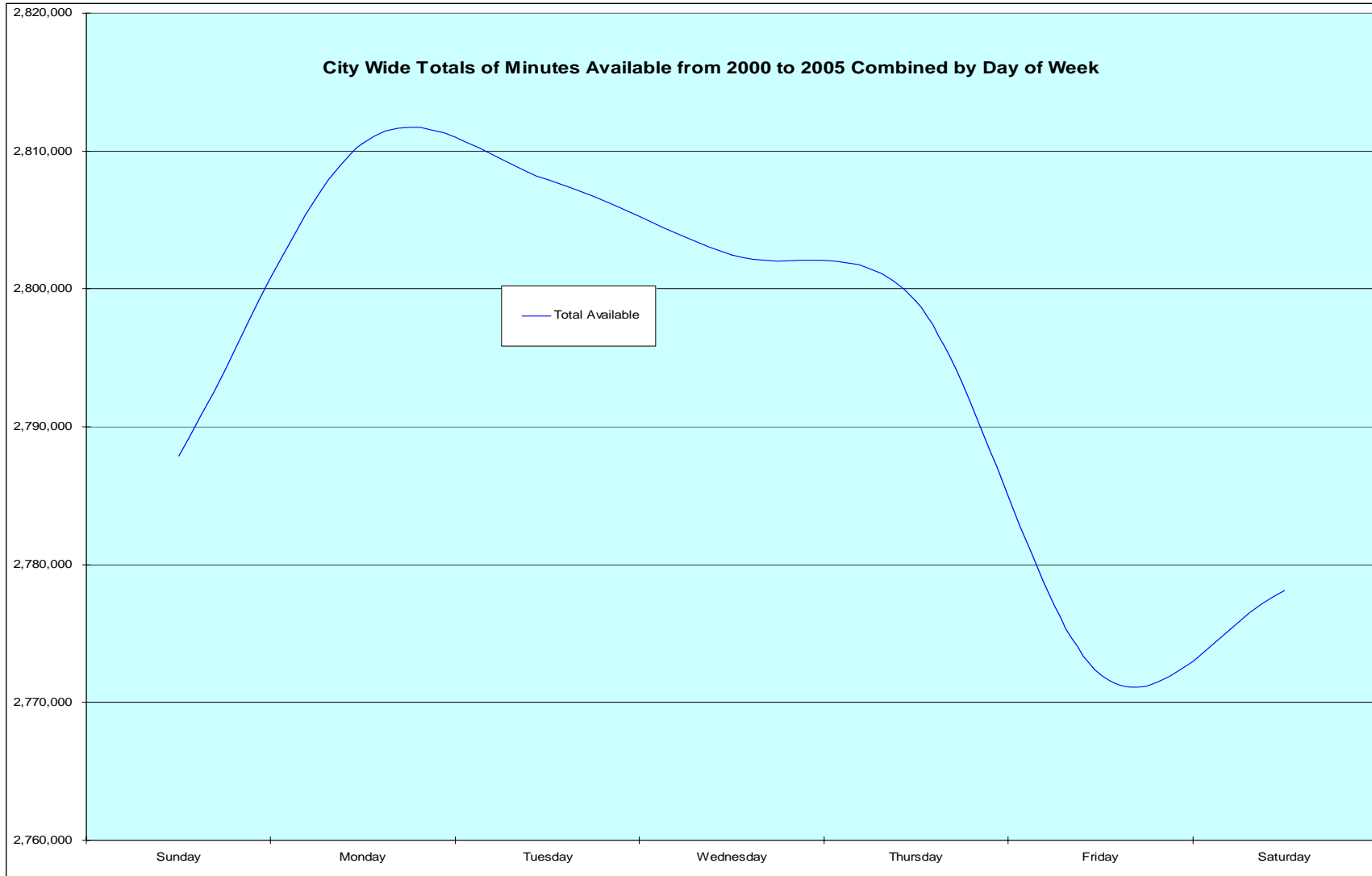
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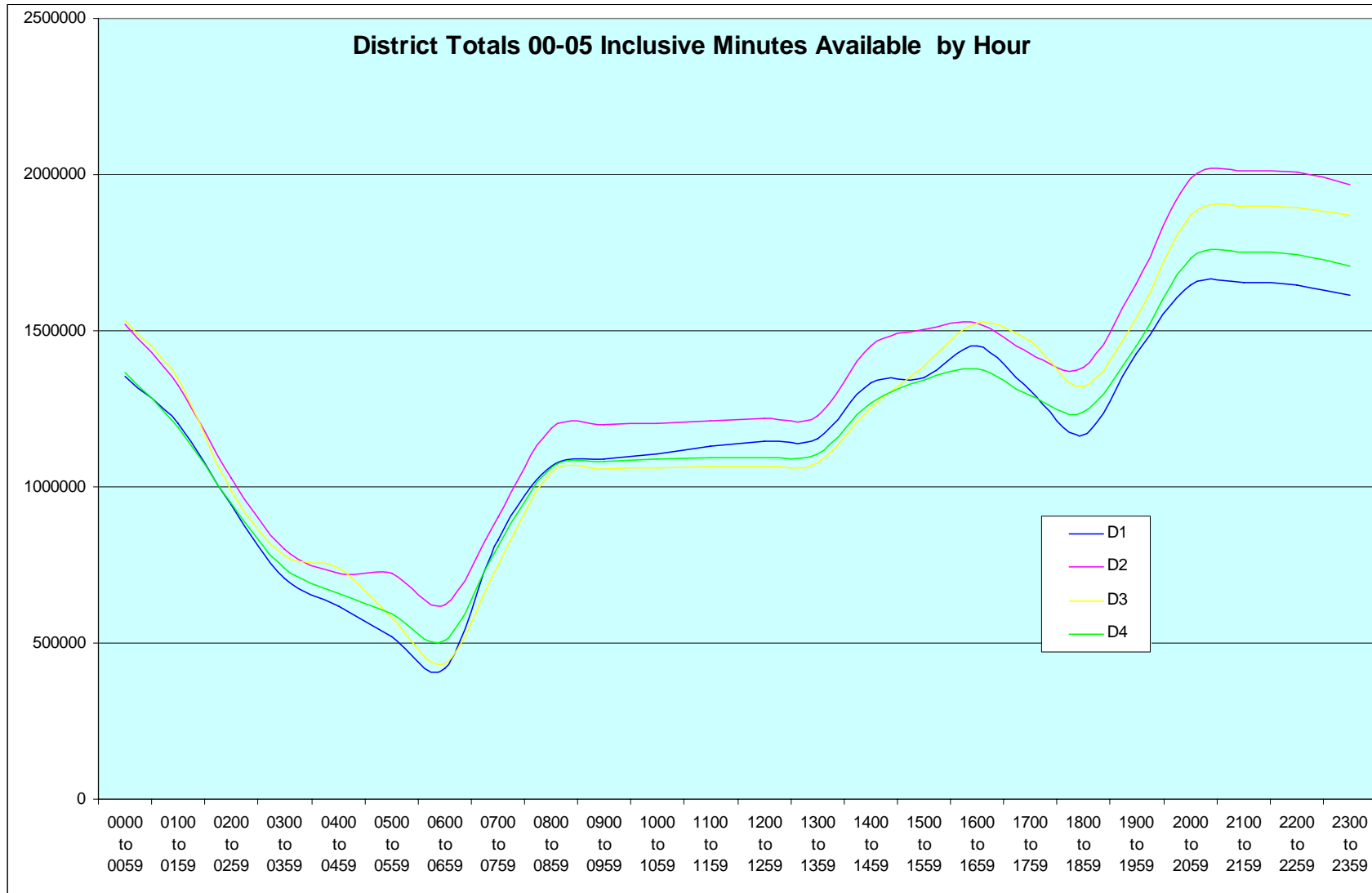
Appendix B-1



Appendix B-2

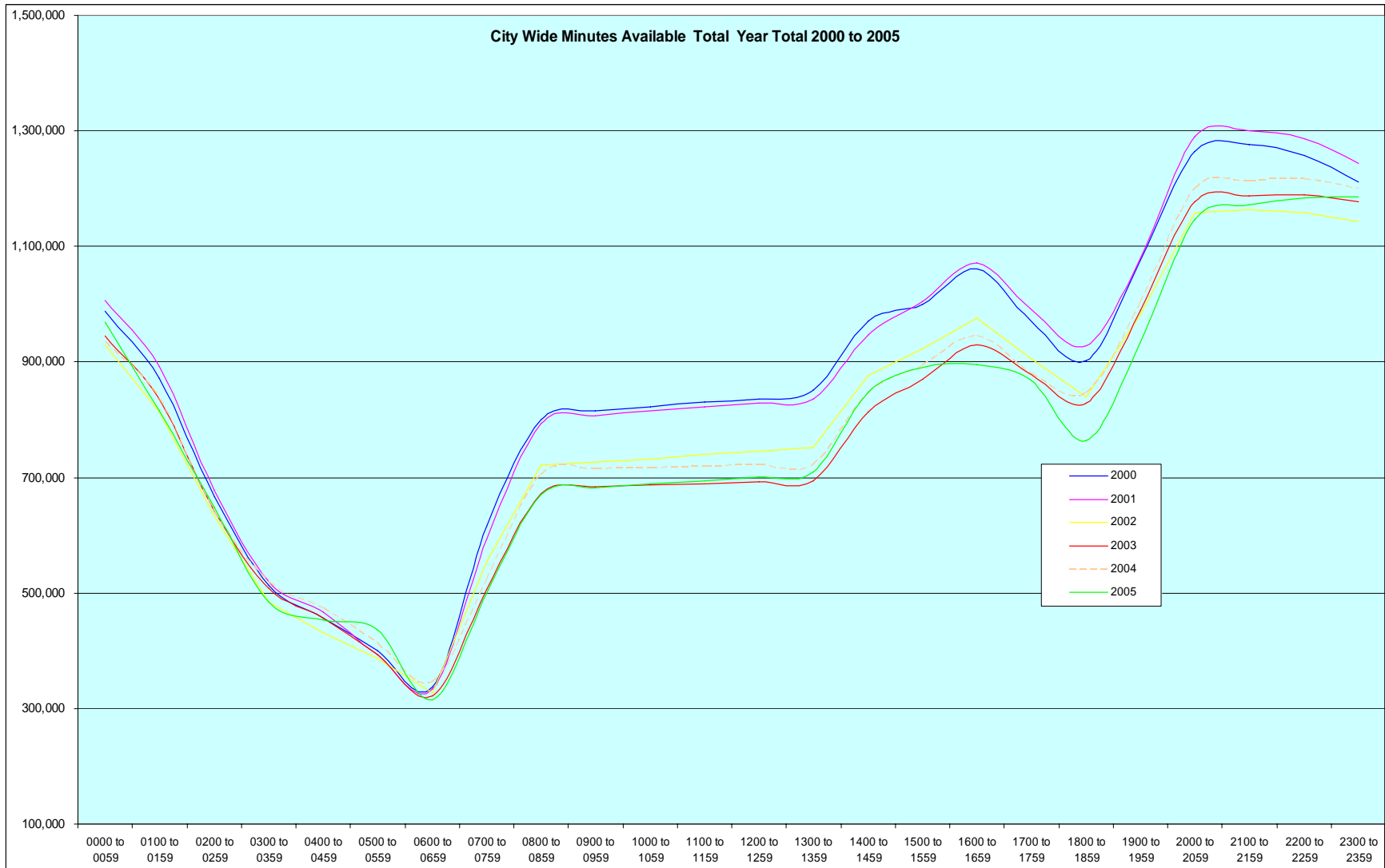


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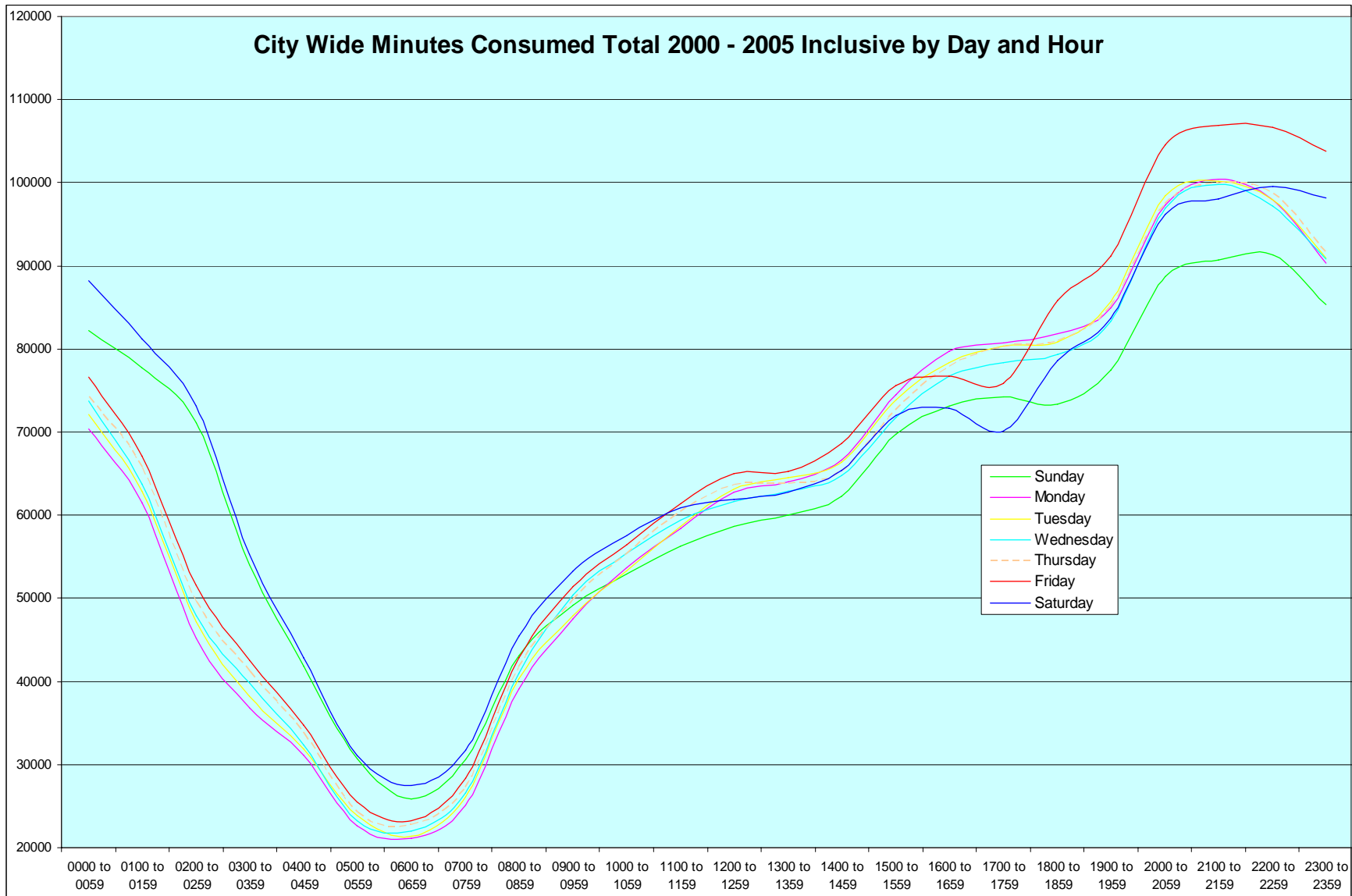




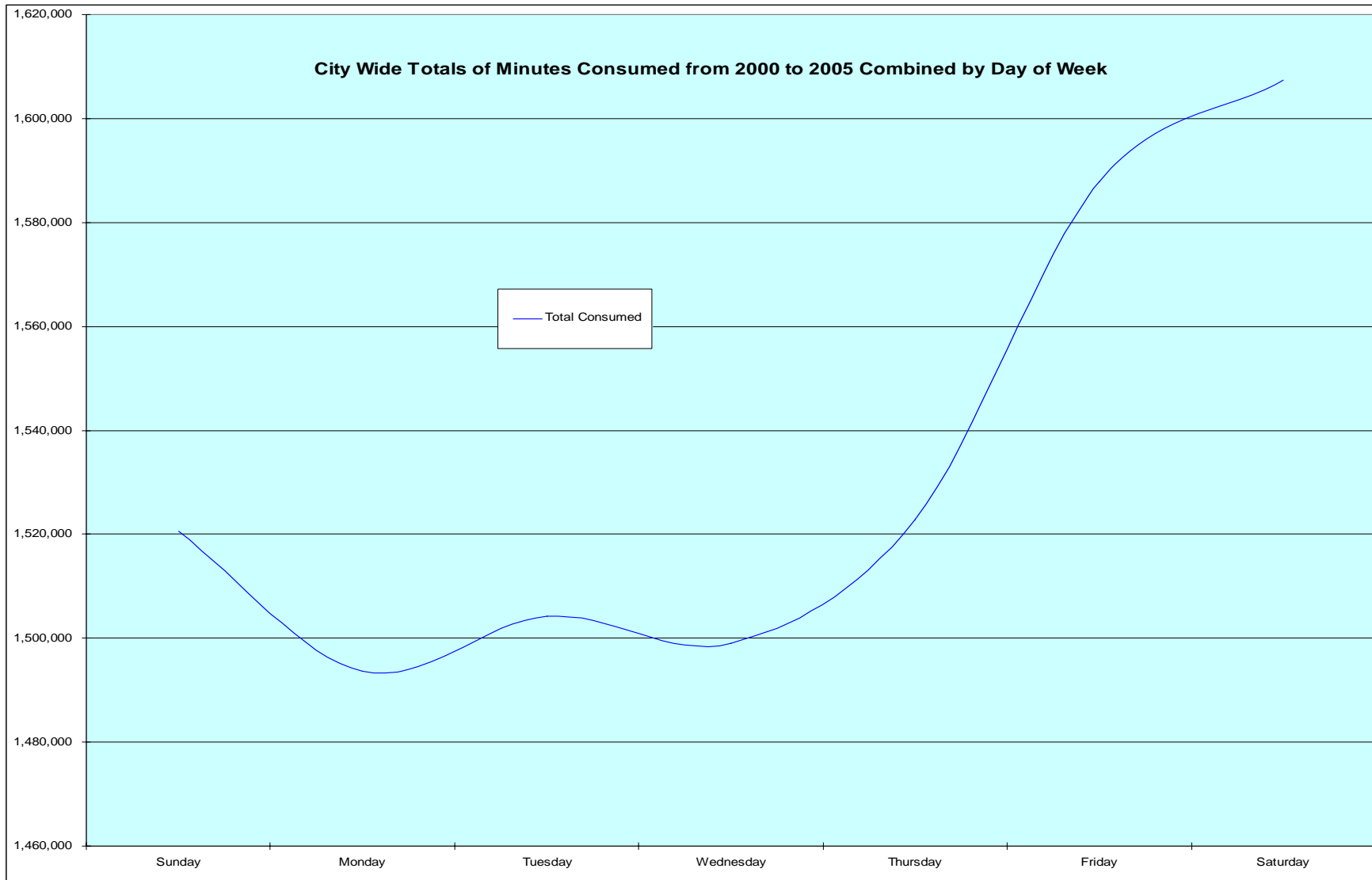
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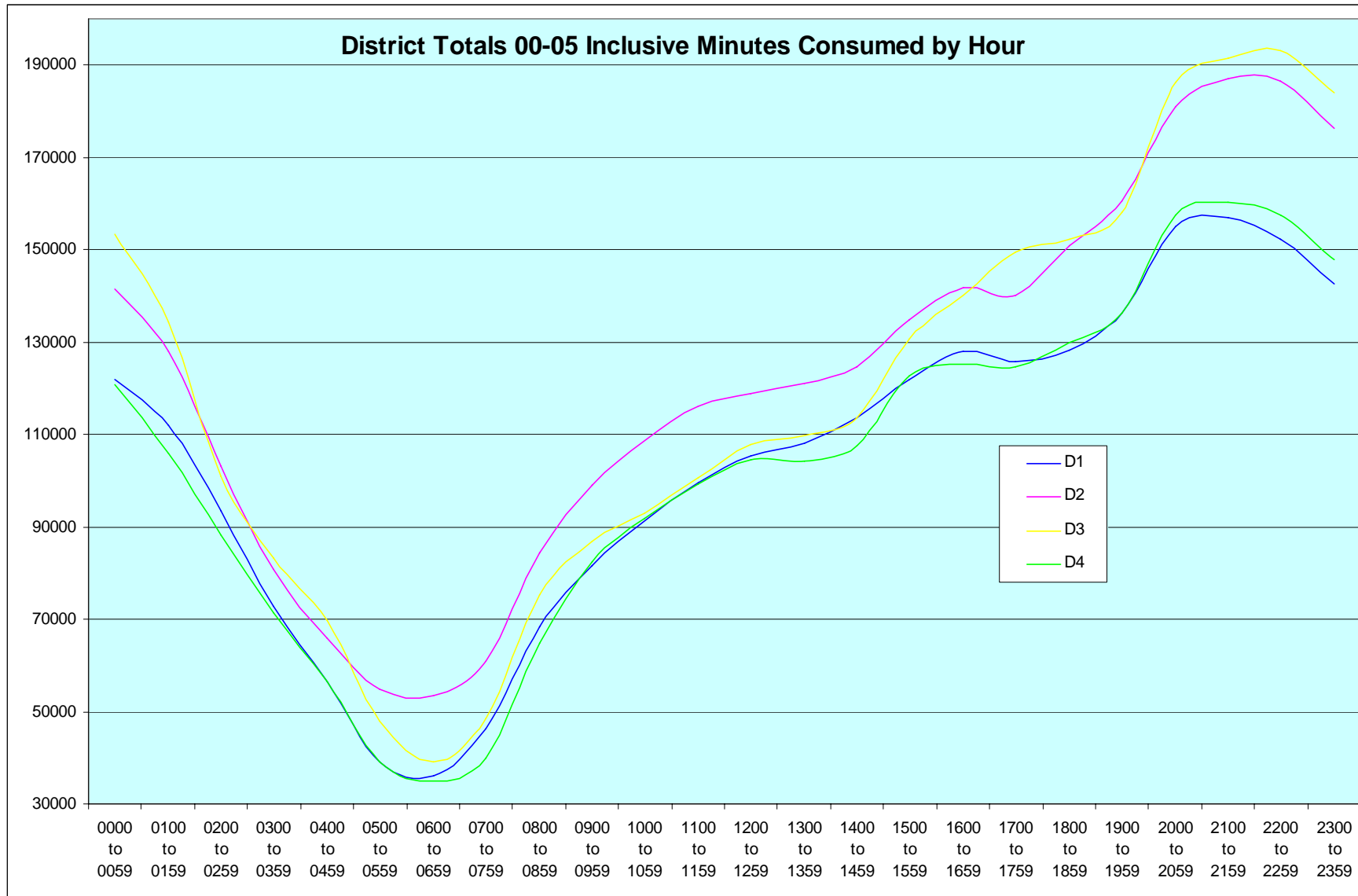
Appendix C-1



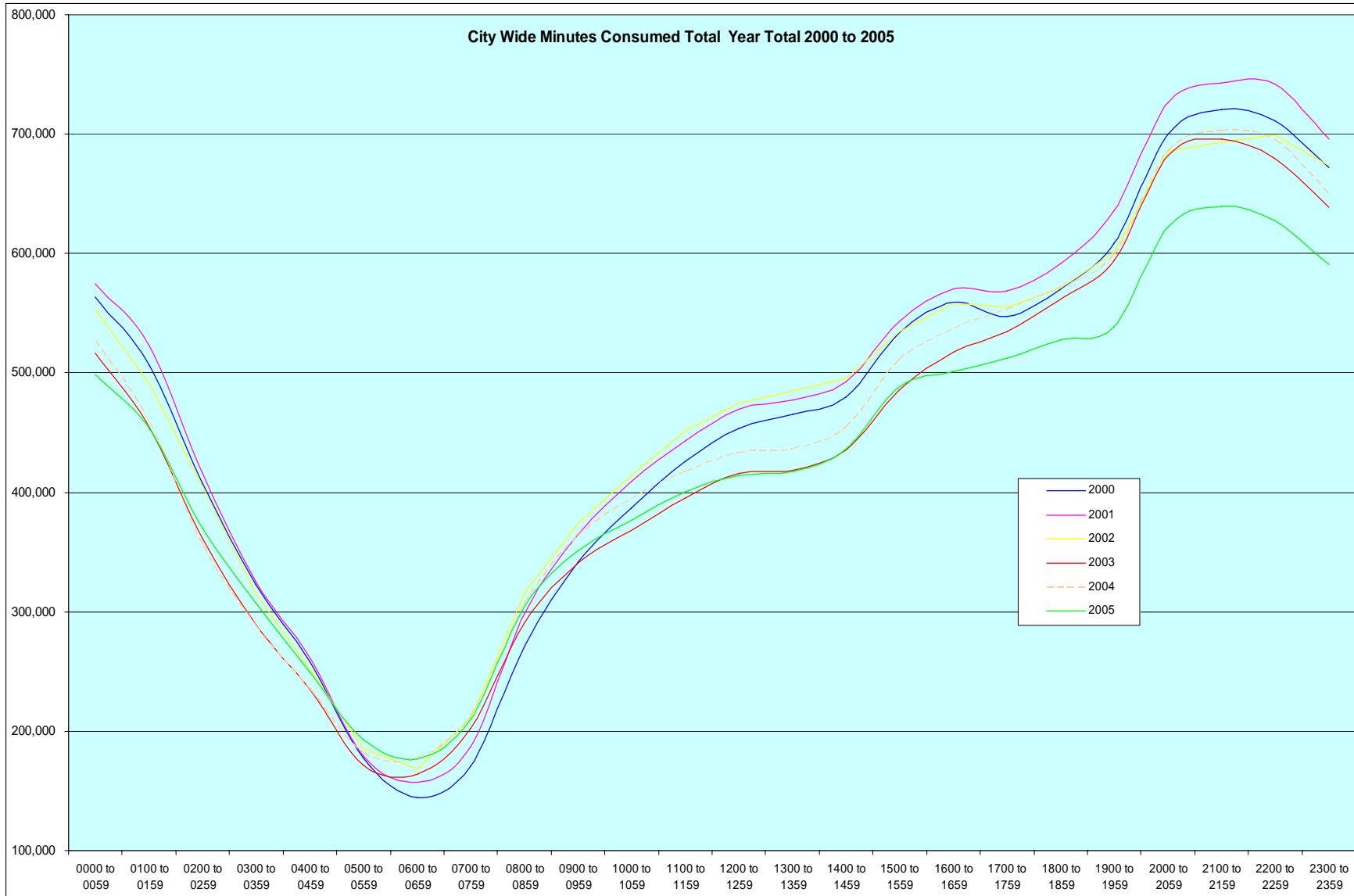
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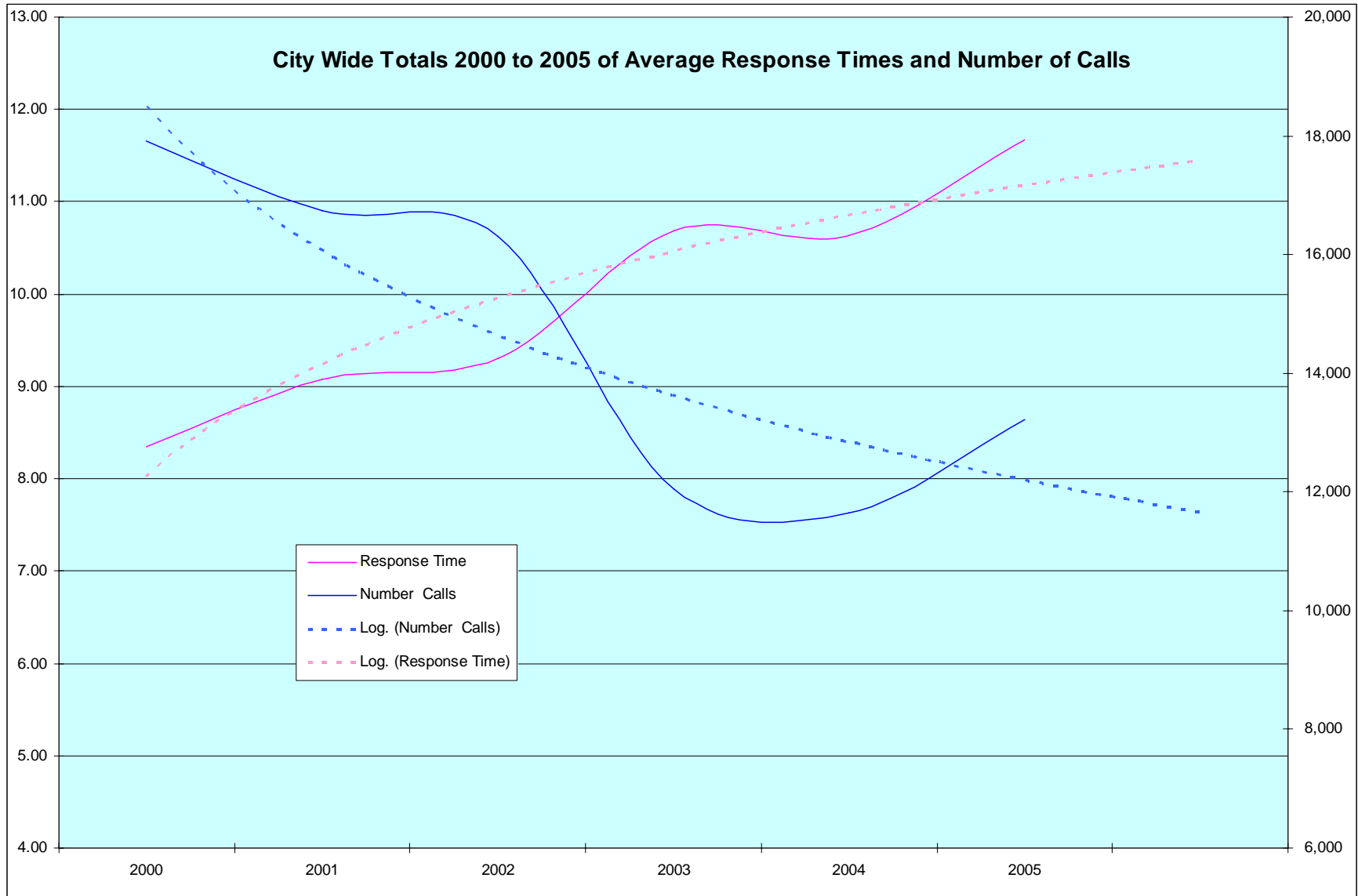
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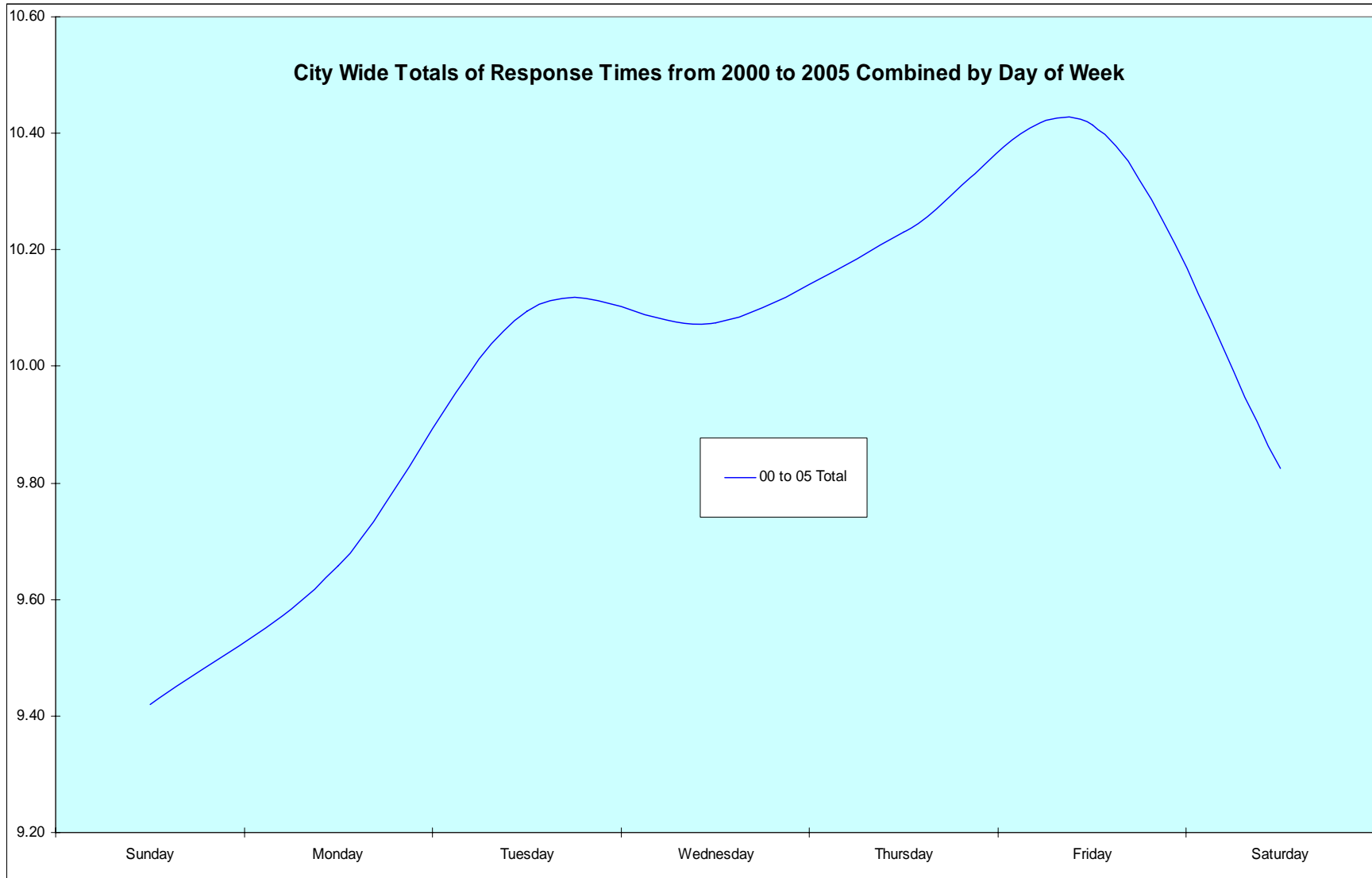
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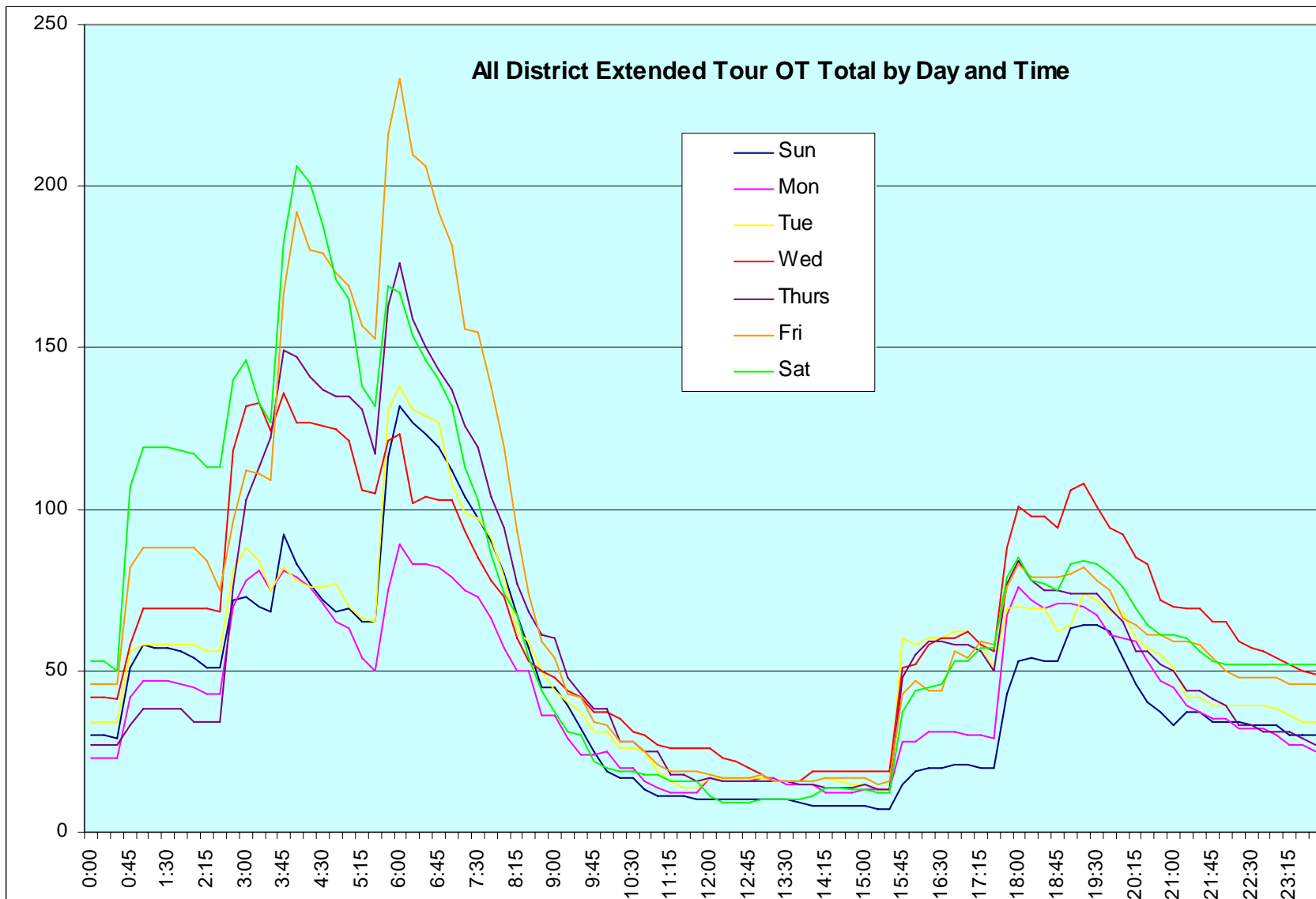
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Appendix D-2

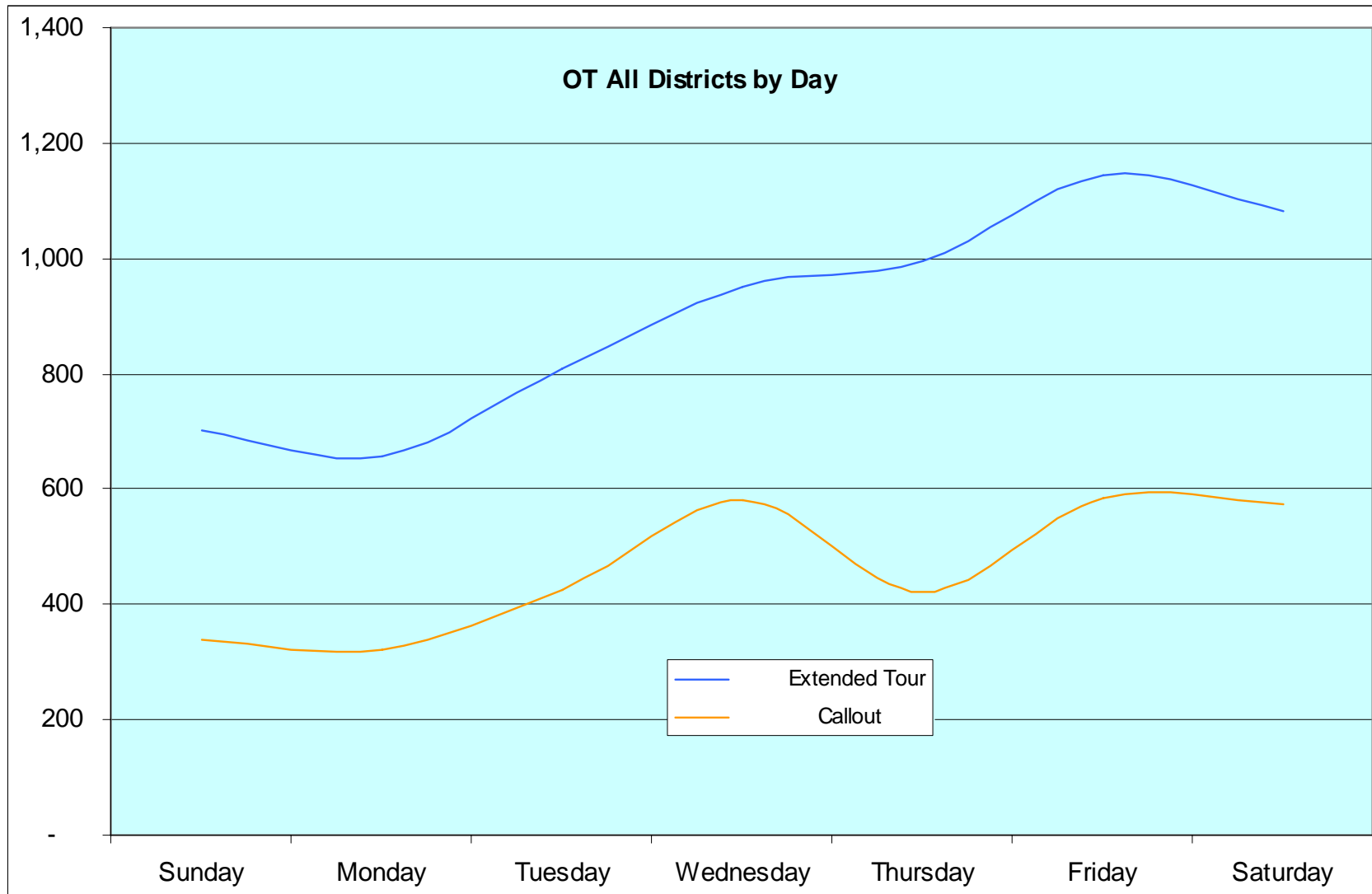


Appendix E-1

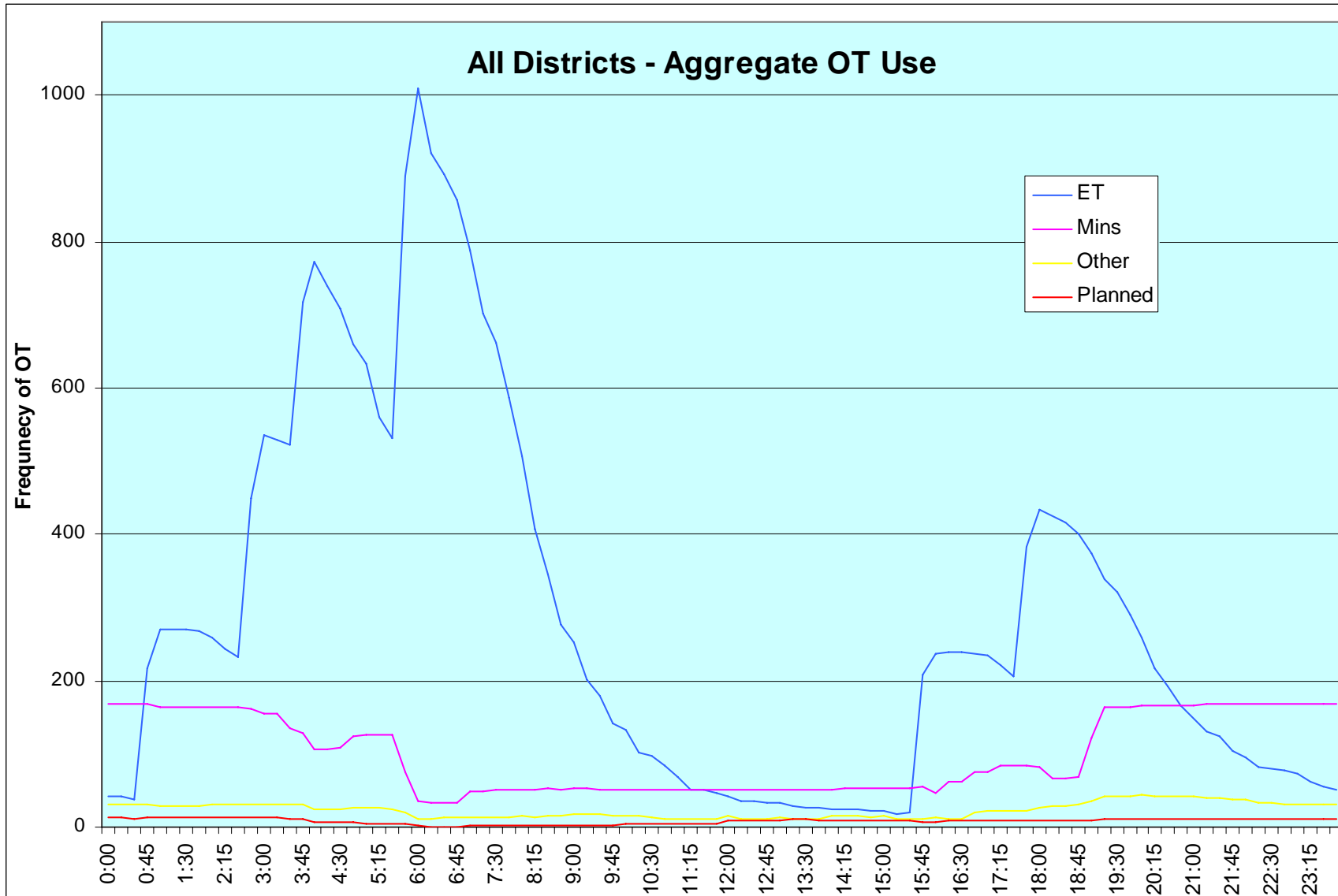




Appendix E-2



Appendix E-3



Vancouver Police Department  
**Planning & Research Section**

**Appendix F-1**

**50% Utilization Ratio**

**Adjusted Resource Distribution by District**

	District 1	District 2	District 3	District 4	Total
Consumed Patrol Unit Minutes	2,539,691	2,424,143	2,743,295	2,500,998	10,208,126
Percent of Total Consumed Minutes	25%	24%	27%	25%	100%
Available Unit Minutes	5,856,514	5,581,633	6,297,145	5,732,283	23,467,575
Percent of Total Available Minutes	25%	24%	27%	24%	100%
Number of Calls	32,749	49,606	35,117	38,981	156,453
Percent of Total Calls	21%	32%	22%	25%	100%
<b>Unit Utilization</b>	<b>50%</b>	<b>50%</b>	<b>50%</b>	<b>50%</b>	

**Adjusted Patrol Authorized Strength**

	District 1 <sup>67</sup>	District 2 <sup>5</sup>	District 3	District 4	Total
Current Patrol Team Staffing	89	98	119	103	409
Authorized Strength % Adjustment <sup>1</sup>	27%	22%	30%	24%	
Evaluated Resource Total <sup>2</sup>	113	120	155	128	515
District Increase	24.0	21.6	35.7	24.7	106
Factored Team Increase <sup>3</sup>	-33	0	0	1	
<b>Adjusted District Increase<sup>4</sup></b>	<b>0</b>	<b>22</b>	<b>36</b>	<b>24</b>	<b>82</b>
Percentage Proactive Time	50%	50%	50%	50%	
Percentage Allocated Time	50%	50%	50%	50%	
<b>New Patrol Team Staffing</b>	<b>89</b>	<b>120</b>	<b>155</b>	<b>127</b>	<b>491</b>

Note:

1. Based on obtaining unit utilization percentage range below 50% weighted by day and time for each district
2. Figure based on the calculation (Patrol Team x Percent Adjustment).
3. An adjusted figure that takes into account an even distribution of officers for each patrol team within the district. Most districts have either ten or eleven teams that respond to calls for service. Furthermore, the staff increase for each team is adjusted to compensate for one and two officer units in order to impact unit utilization to the level stated.
4. The actual number of officers required per district in order to effect change in the unit utilization ratio to the level stated.
5. Based on District 2 authorized strength, but excluding CET/BET staffing. See analysis section for complete explanation of FTE figures.
6. Excludes recent addition of 33 officers to District 1 that only became deployable in late 2006.
7. On October 4th 2005 the VPD increased the number of officers in District 1 by 33. This resulted in patrol teams increasing from a norm of 9 to a new norm of 13 person teams. The authorized strength for PCs in District 1 is now at 131 officers.

Vancouver Police Department  
**Planning & Research Section**

**Appendix F-2**

**50% Utilization Staffing Projections**

**Option A**

	Team Increase	Redeployed Officers	Combined Tm Increase	Delta (4/3) 4 Teams	Roving 2 Teams	Total 6 Teams	New FTE Increase
District 1 <sup>1</sup>	-8	3	0	11 (8 + 3)		11	
District 2	6	4	10	9	7	16	22
District 3	11	3	14	12	13	25	36
District 4	7	3	10	9	8	17	24
Team Supervisor		4		4	2	6	4
North Surveillance		9 ([D1] 6 + [D2] 3)					
South Surveillance		9 ([D3] 5 + [D4] 4)					
<b>PC Only Total</b>				<b>41</b>	<b>28</b>	<b>69</b>	<b>82</b>
<b>Total</b>	<b>24</b>	<b>35</b>	<b>34</b>	<b>45</b>	<b>30</b>	<b>75</b>	<b>86</b>

Note: 2% efficiency gain over Option B

1. District 1 - Team 3 to 10 reduces in size from 13 to 12 constables.

**Option B**

	Team Adjustment	Redeployed Officers	Combined Tm Increase	Delta (Fixed) 8 Teams	Roving 2 Teams	Total 10 Teams	New FTE Increase
District 1 <sup>1</sup>	-16	6	0	22 (16 + 6)		22	
District 2		1	1	16	7	23	23
District 3		3	3	24	12	36	36
District 4		3	3	17	7	24	24
Team Supervisor		4		8	2	10	8
North Surveillance		9 ([D1] 3 + [D2] 6)					
South Surveillance		9 ([D3] 5 + [D4] 4)					
<b>PC Only Total</b>		<b>31</b>		<b>78</b>	<b>26</b>	<b>104</b>	<b>83</b>
<b>Total</b>	<b>-16</b>	<b>35</b>	<b>7</b>	<b>86</b>	<b>28</b>	<b>114</b>	<b>90</b>

Note:

1. District 1 - Team 3 to 10 reduces in size from 13 to 11 constables.

Vancouver Police Department  
**Planning & Research Section**

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**Appendix F-3**

**50% Utilization Staffing Projections**

**Option D**

	Split Shift B 8 Teams	Split Shift C 8 Teams	Split Shift E 8 Teams	Total 24 Teams	New FTE Increase	Redeployed Officers
District 1 <sup>1</sup>	11	11	11	33		3
District 2	8	8	6	22	22	4
District 3	13	14	11	38	38	3
District 4	8	8	6	22	22	3
North Surveillance						9 ([D1] 6 + [D2] 3)
South Surveillance						9 ([D3] 5 + [D4] 4)
<b>Total</b>	<b>40</b>	<b>41</b>	<b>34</b>	<b>115</b>	<b>82</b>	<b>31</b>

Note:

1. District 1 - Team 3 to 10 reduces in size from 13 to 9 constables. Team 1 and 2 reduce to 8 constables

Vancouver Police Department  
**Planning & Research Section**

**Appendix F-3**

**40% Utilization Ratio**

**Adjusted Resource Distribution by District**

	District 1	District 2	District 3	District 4	Total
Consumed Patrol Unit Minutes	2,539,691	2,424,143	2,743,295	2,500,998	10,208,126
Percent of Total Consumed Minutes	25%	24%	27%	25%	100%
Available Unit Minutes	7,286,057	6,954,166	7,847,211	7,165,353	29,252,787
Percent of Total Available Minutes	25%	24%	27%	24%	100%
Number of Calls	32,749	49,606	35,117	38,981	156,453
Percent of Total Calls	21%	32%	22%	25%	100%
<b>Unit Utilization</b>	<b>40%</b>	<b>40%</b>	<b>40%</b>	<b>40%</b>	

**Adjusted Patrol Authorized Strength**

	District 1 <sup>67</sup>	District 2 <sup>5</sup>	District 3	District 4	Total
Current Patrol Team Staffing	89	98	119	103	409
Authorized Strength % Adjustment <sup>1</sup>	58%	52%	62%	55%	
Evaluated Resource Total <sup>2</sup>	141	149	193	160	642
District Increase	52	51	74	57	233
Factored Team Increase <sup>3</sup>	-19	-1	0	1	
<b>Adjusted District Increase<sup>4</sup></b>	<b>20</b>	<b>50</b>	<b>74</b>	<b>58</b>	<b>202</b>
Percentage Proactive Time	60%	60%	60%	60%	
Percentage Allocated Time	40%	40%	40%	40%	
<b>New Patrol Team Staffing</b>	<b>109</b>	<b>148</b>	<b>193</b>	<b>161</b>	<b>611</b>

Note:

1. Based on obtaining unit utilization percentage range below 40% weighted by time and day for each district
2. Figure based on the calculation (Patrol Team x Percent Adjustment).
3. An adjusted figure that takes into account an even distribution of officers for each patrol team within the district. Most districts have either ten or eleven teams that respond to calls for service. Furthermore, the staff increase for each team is adjusted to compensate for one and two officer units in order to impact unit utilization to the level stated.
4. The actual number of officers required per district in order to effect change in the unit utilization ratio to the level stated.
5. Based on District 2 authorized strength, but excluding CET/BET staffing. See analysis section for complete explanation of FTE figures.
6. Excludes recent addition of 31 officers to District 1 that only became deployable in late 2006.
7. On October 4th 2005 the Department increased the number of officers in District 1 by 33. This resulted in patrol teams increasing from a norm of 9 to a new norm of 13 person teams. The authorized strength for District 1 is now at 131 officers.

Vancouver Police Department  
**Planning & Research Section**

**Appendix F-4 40% Utilization Staffing Projections**

**Option A**

	Team Increase	Redeployed Officers	Combined Tm Increase	Delta (4/3) 4 Teams	Roving 2 Teams	Total 6 Teams	New FTE Increase
District 1	3	3	6	11	6	17	20
District 2	34	4	38	9	7	16	50
District 3	54	3	57	12	8	20	74
District 4	42	3	45	9	7	16	58
Team Supervisor		4		4	2	6	4
North Surveillance		9 ([D1] 6 + [D2] 3)					
South Surveillance		9 ([D3] 5 + [D4] 4)					
<b>PC Only Total</b>				<b>52</b>	<b>28</b>	<b>69</b>	<b>202</b>
<b>Total</b>	<b>133</b>	<b>35</b>	<b>146</b>	<b>56</b>	<b>30</b>	<b>75</b>	<b>206</b>

Note: 2% efficiency gain over Option B

**Option B**

	Team Adjustment	Redeployed Officers	Combined Tm Increase	Delta (Fixed) 8 Teams	Roving 2 Teams	Total 10 Teams	New FTE Increase
District 1	0	4	4	22 (20 + 2)	6	28	20
District 2	25	1	26	18	7	25	50
District 3	46	3	49	20	8	28	74
District 4	33	3	36	18	7	25	58
Team Supervisor		4		8	2	10	8
North Surveillance		9 ([D1] 3 + [D2] 6)					
South Surveillance		9 ([D3] 5 + [D4] 4)					
<b>PC Only Total</b>		<b>29</b>		<b>78</b>	<b>28</b>	<b>106</b>	<b>202</b>
<b>Total</b>	<b>104</b>	<b>33</b>	<b>115</b>	<b>86</b>	<b>30</b>	<b>116</b>	<b>210</b>

Note:

1. From the 20 officers deployed to District 1,

Vancouver Police Department  
**Planning & Research Section**

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**Appendix F-5 40% Utilization Staffing Projections**

**Option D**

	<b>Split Shift B 8 Teams</b>	<b>Split Shift C 8 Teams</b>	<b>Split Shift E 8 Teams</b>	<b>Total 24 Teams</b>	<b>Redeployed Officers</b>
<b>District 1</b>	6	8	6	20	3
<b>District 2</b>	17	17	16	50	4
<b>District 3</b>	25	25	24	74	3
<b>District 4</b>	19	20	19	58	3
<b>North Surveillance</b>					9 ([D1] 6 + [D2] 3)
<b>South Surveillance</b>					9 ([D3] 5 + [D4] 4)
<b>Total</b>	<b>67</b>	<b>70</b>	<b>65</b>	<b>202</b>	<b>31</b>



Vancouver Police Department  
**Planning & Research Section**

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**Appendix G-1**

**Unit Utilization by District and City-wide Total**

	District 1	District 2	District 3	District 4	City-wide
<b>2000</b>	0.569	0.673	0.660	0.575	0.6220
<b>2001</b>	0.612	0.658	0.693	0.594	0.6406
<b>2002</b>	0.610	0.676	0.703	0.618	0.6877
<b>2003</b>	0.672	0.642	0.666	0.642	0.6551
<b>2004</b>	0.681	0.604	0.697	0.650	0.6575
<b>2005</b>	0.648	0.623	0.666	0.636	0.6575
<b>2007 Predicted</b>	<b>0.726</b>	<b>0.609</b>	<b>0.688</b>	<b>0.683</b>	<b>0.679</b>
<b>Average Utilization 00 to 05</b>	<b>63%</b>	<b>65%</b>	<b>68%</b>	<b>62%</b>	<b>65%</b>
<b>% Change 00 to 05</b>	<b>13.8%</b>	<b>-7.4%</b>	<b>1.0%</b>	<b>10.7%</b>	<b>5.7%</b>
<b>Forecast % Change 05 to 07</b>	<b>12.0%</b>	<b>-2.3%</b>	<b>3.3%</b>	<b>7.3%</b>	<b>3.3%</b>

Vancouver Police Department  
**Planning & Research Section**

**Appendix H-1**

**Available Minutes by District and City-wide Total**

	District 1	District 2	District 3	District 4	City-wide
<b>2000</b>	4,814,835	5,892,017	5,018,285	5,074,320	20,799,456
<b>2001</b>	4,875,026	5,855,666	5,125,018	5,074,140	20,929,851
<b>2002</b>	4,645,632	5,393,413	4,764,732	4,299,356	19,103,133
<b>2003</b>	4,340,923	5,130,425	4,865,334	4,432,502	18,769,185
<b>2004</b>	4,595,536	4,972,037	4,926,902	4,729,123	19,223,599
<b>2005</b>	4,611,428	4,575,109	4,843,957	4,622,809	18,653,304
<b>Total</b>	<b>27,883,381</b>	<b>31,818,667</b>	<b>29,544,228</b>	<b>28,232,250</b>	<b>117,478,527</b>
<b>2007 Predicted</b>	<b>4,485,674</b>	<b>4,212,344</b>	<b>4,732,020</b>	<b>4,382,262</b>	<b>18,320,113</b>
<b>Available Minutes 00 to 05</b>	4,647,230.24	5,303,111.22	4,924,038.00	4,705,374.98	19,579,754.43
<b>% Change 00 to 05</b>	<b>-4.2%</b>	<b>-22.4%</b>	<b>-3.5%</b>	<b>-8.9%</b>	<b>-10.3%</b>
<b>Forecast % Change 05 to 07</b>	<b>-2.7%</b>	<b>-7.9%</b>	<b>-2.3%</b>	<b>-5.2%</b>	<b>-1.8%</b>

Note: Excluding CET / BET Data

**Consumed Minutes by District and City-wide Total**

	District 1	District 2	District 3	District 4	City-wide
<b>2000</b>	2,329,221	3,372,083	2,814,838	2,479,887	10,996,029
<b>2001</b>	2,537,700	3,275,824	3,020,435	2,562,828	11,396,787
<b>2002</b>	2,409,315	3,099,586	2,847,764	2,259,754	10,616,419
<b>2003</b>	2,480,150	2,798,128	2,753,936	2,418,421	10,450,635
<b>2004</b>	2,659,288	2,553,117	2,917,958	2,613,298	10,743,660
<b>2005</b>	2,539,691	2,424,143	2,743,295	2,500,998	10,208,126
<b>Total</b>	<b>14,955,363</b>	<b>17,522,880</b>	<b>17,098,227</b>	<b>14,835,186</b>	<b>64,411,656</b>
<b>2007 Predicted</b>	<b>2,723,452</b>	<b>2,001,184</b>	<b>2,792,011</b>	<b>2,581,130</b>	<b>10,097,777</b>
<b>Consumed Minutes 00 to 05</b>	2,492,560.56	2,920,479.97	2,849,704.50	2,472,530.96	10,735,275.99
<b>% Change 00 to 05</b>	<b>9.0%</b>	<b>-28.1%</b>	<b>-2.5%</b>	<b>0.9%</b>	<b>-7.2%</b>
<b>Forecast % Change 05 to 07</b>	<b>7.2%</b>	<b>-17.4%</b>	<b>1.8%</b>	<b>3.2%</b>	<b>-1.1%</b>

Note: Excluding CET / BET Data

Vancouver Police Department  
**Planning & Research Section**

**Appendix H-2**

**Available Minutes by District and City-wide Total**

	District 1	District 2	District 3	District 4	City-wide
<b>2000</b>	4,814,835	5,892,017	5,018,285	5,074,320	20,799,456
<b>2001</b>	4,875,026	5,855,666	5,125,018	5,074,140	20,929,851
<b>2002</b>	4,645,632	5,393,413	4,764,732	4,299,356	19,103,133
<b>2003</b>	4,340,923	7,521,836	4,865,334	4,432,502	21,160,597
<b>2004</b>	4,595,536	7,784,721	4,926,902	4,729,123	22,036,283
<b>2005</b>	4,611,428	6,804,946	4,843,957	4,622,809	20,883,140
<b>Total</b>	<b>27,883,381</b>	<b>39,252,600</b>	<b>29,544,228</b>	<b>28,232,250</b>	<b>124,912,459</b>
<b>2007 Predicted</b>	<b>4,485,674</b>	<b>8,322,546</b>	<b>4,732,020</b>	<b>4,382,262</b>	<b>21,922,502</b>
<b>Available Minutes 00 to 05</b>	4,647,230.24	6,542,099.97	4,924,038.00	4,705,374.98	20,818,743.19
<b>% Change 00 to 05</b>	<b>-4.2%</b>	<b>15.5%</b>	<b>-3.5%</b>	<b>-8.9%</b>	<b>0.4%</b>
<b>Forecast % Change 05 to 07</b>	<b>-2.7%</b>	<b>22.3%</b>	<b>-2.3%</b>	<b>-5.2%</b>	<b>5.0%</b>

Note: CET / BET Data Included 2003 to 2005

**Consumed Minutes by District and City-wide Total**

	District 1	District 2	District 3	District 4	City-wide
<b>2000</b>	2,329,221	3,372,083	2,814,838	2,479,887	10,996,029
<b>2001</b>	2,537,700	3,275,824	3,020,435	2,562,828	11,396,787
<b>2002</b>	2,409,315	3,099,586	2,847,764	2,259,754	10,616,419
<b>2003</b>	2,480,150	3,352,552	2,753,936	2,418,421	11,005,058
<b>2004</b>	2,659,288	3,512,781	2,917,958	2,613,298	11,703,324
<b>2005</b>	2,539,691	3,385,224	2,743,295	2,500,998	11,169,207
<b>Total</b>	<b>14,955,363</b>	<b>19,998,049</b>	<b>17,098,227</b>	<b>14,835,186</b>	<b>66,886,825</b>
<b>2007 Predicted</b>	<b>2,723,452</b>	<b>3,484,782</b>	<b>2,792,011</b>	<b>2,581,130</b>	<b>11,581,375</b>
<b>Consumed Minutes 00 to 05</b>	2,492,560.56	3,333,008.09	2,849,704.50	2,472,530.96	11,147,804.11
<b>% Change 00 to 05</b>	<b>9.0%</b>	<b>0.4%</b>	<b>-2.5%</b>	<b>0.9%</b>	<b>1.6%</b>
<b>Forecast % Change 05 to 07</b>	<b>7.2%</b>	<b>2.9%</b>	<b>1.8%</b>	<b>3.2%</b>	<b>3.7%</b>

Note: CET / BET Data Included 2003 to 2005

**Appendix I-1**

**Response Times by District and City-wide Total**

	District 1	District 2	District 3	District 4	City-wide
<b>2000</b>	7.22	7.91	9.21	9.18	8.38
<b>2001</b>	8.03	8.63	10.18	9.82	9.17
<b>2002</b>	8.40	8.76	10.18	10.43	9.44
<b>2003</b>	9.89	10.58	11.72	11.52	10.93
<b>2004</b>	10.26	9.71	11.65	11.24	10.72
<b>2005</b>	9.35	11.08	13.21	13.21	11.71
<b>2007</b>	<b>11.34</b>	<b>12.21</b>	<b>14.43</b>	<b>14.23</b>	<b>13.1</b>
<b>Average Response Time 00 to 05</b>	8.86	9.45	11.03	10.90	10.06
<b>% Change 00 to 05</b>	<b>29.5%</b>	<b>40.0%</b>	<b>43.4%</b>	<b>43.9%</b>	<b>39.8%</b>
<b>Forecast % Change 05 to 07</b>	<b>21.3%</b>	<b>10.2%</b>	<b>9.2%</b>	<b>7.8%</b>	<b>11.8%</b>

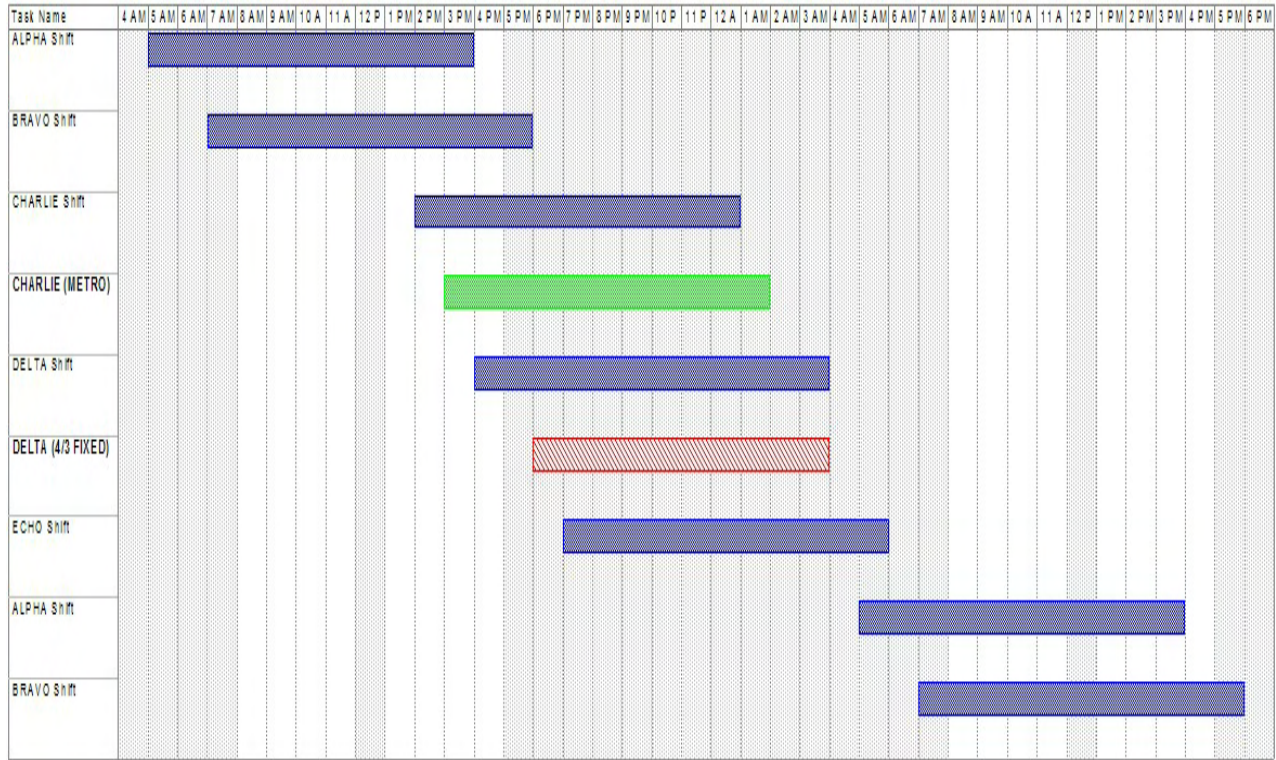




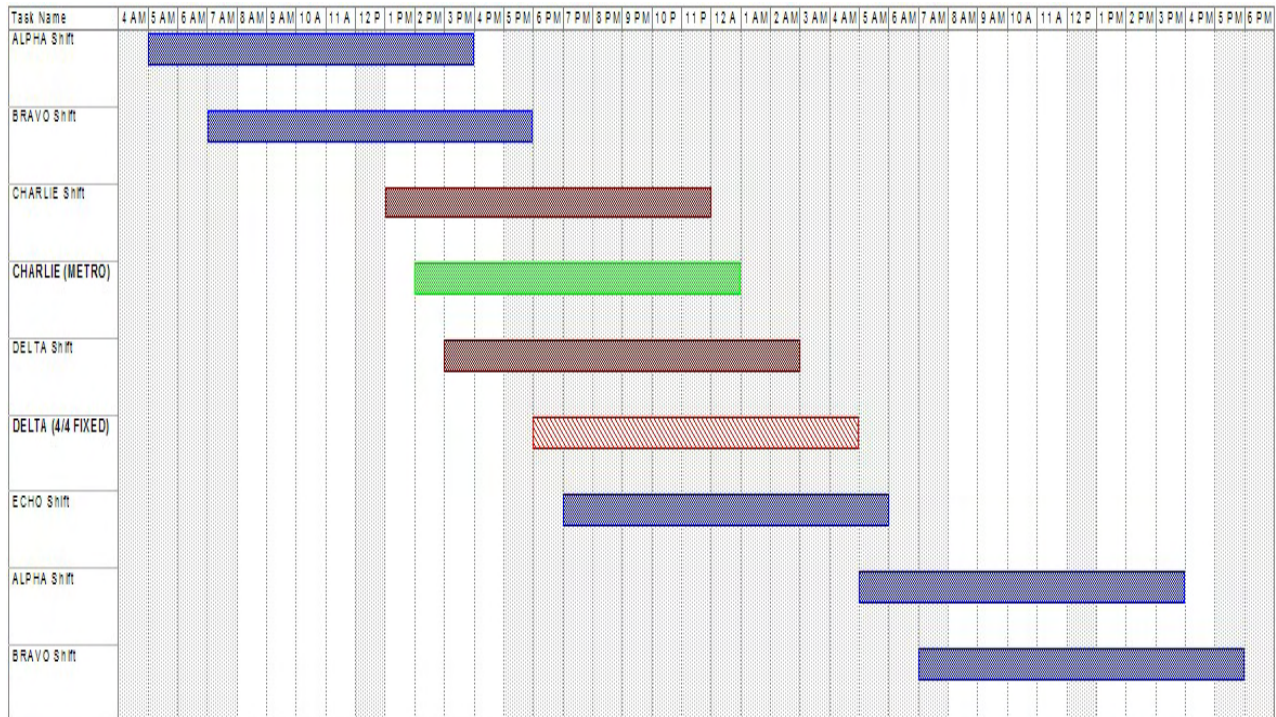
Vancouver Police Department  
**Planning & Research Section**

**APPENDIX K-1**

**PROPOSED SHIFT DEPLOYMENT MODEL ALL DISTRICTS "OPTION A"**

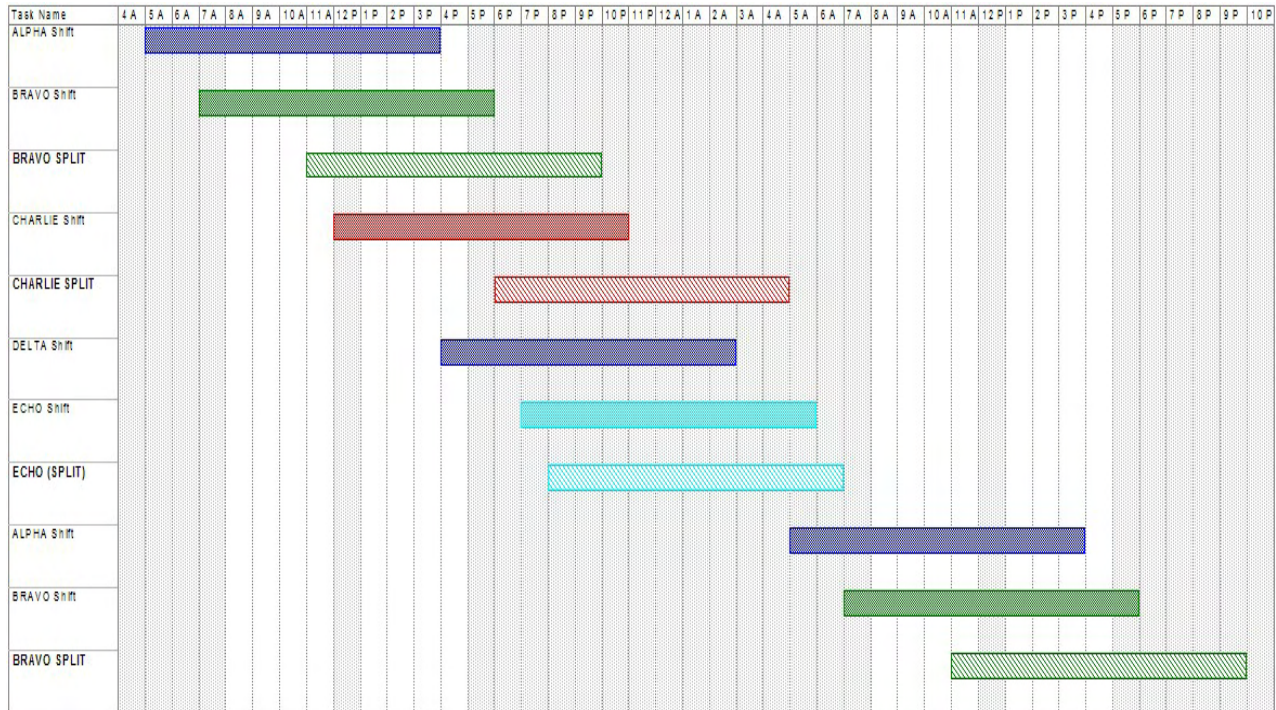


**PROPOSED SHIFT DEPLOYMENT MODEL ALL DISTRICTS "OPTION B"**



**APPENDIX K-2**

**PROPOSED SHIFT DEPLOYMENT MODEL ALL DISTRICTS “OPTION D”**



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