

Deployment of Patrol Staff in the Portland Police Bureau

February, 1994



Office of the City Auditor
Portland, Oregon



CITY OF
PORTLAND, OREGON

OFFICE OF CITY AUDITOR

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February 23, 1994

TO: Vera Katz, Mayor
Earl Blumenauer, Commissioner
Charlie Hales, Commissioner
Gretchen Kafoury, Commissioner
Mike Lindberg, Commissioner
Charles Moose, Chief of Police

SUBJECT: Audit of Patrol Deployment in the Portland Police Bureau

Attached is Audit Report #185 on the Deployment of Patrol Staff in the Portland Police Bureau. The Audit was conducted in response to a request by the Police Bureau and focused on the efficient use of patrol staff and on Bureau efforts to incorporate community policing into its deployment strategies.

We have reviewed drafts of the report with staff from the Mayor's office and the Bureau of Police. Mayor Katz and Chief Moose are in agreement with the report's recommendations, and their written responses are included at the back of the report.

Our report indicates the Bureau has made progress in making efficient use of patrol resources since our 1987 patrol audit. We have identified additional steps which can be taken to further enhance effective patrol deployment and successful transition into community policing.

We appreciate the cooperation and assistance we received from Police Bureau personnel in conducting this audit and in preparing the report. We believe the audit was constructive and resulted in timely information to assist the Bureau in refining its deployment practices.

Barbara Clark

Barbara Clark, CPA
Portland City Auditor

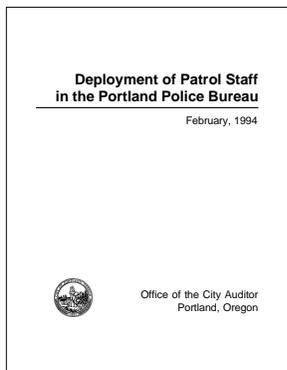
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A Report by the Audit Services Division
Report #185

Office of the City Auditor
Portland, Oregon



Production/Design

This report was produced in-house using desktop publishing software on IBM and compatible personal computers, and a Postscript laser printer. Aldus Pagemaker 5.0 for Windows was used to produce the finished product. Tables were created manually on Pagemaker, while Wordperfect 5.1, Quattro Pro 4.0 and Harvard Graphics were used to enter text, produce graphs/figures. Maps were obtained from the Police Bureau's annual report and inserted manually.

Desktop Publishing: Robert Cowan

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Summary

At the request of the Portland Police Bureau, we have reviewed the deployment of patrol staff. We evaluated the Bureau's progress in matching patrol resources to call-for-service workload and adjusting patrol deployment to accommodate community policing.

Our review indicates the Bureau has better matched available staff to call work by adjusting shift schedules throughout the City. As a result, patrol units are more available when most needed and fewer officers are on duty when calls-for-service are low. Officers, in turn, respond to calls faster and have more balanced workloads. Additional deployment refinements may be possible by shifting staff levels among the precincts and shifts.

In addition, the Bureau has eased the workload of patrol staff primarily by reducing the calls handled by patrol. More low-priority calls are handled by the Telephone Reporting Unit and fewer alarm calls are received due to stiffer penalties on repeat false alarms. Our review indicates the number of calls per precinct officer dropped from 527 to 457 over the past six years, a 13% reduction.

The workload of patrol officers has also declined because additional staff were hired over the past several years. Largely in response to recommendations contained

in the 1990 Institute of Law and Justice report, City Council approved hiring 200 new officers to increase patrol strength and give officers sufficient time to do neighborhood problem solving. As of January 1994, 41 officers were added to the Bureau's three precincts and 102 were added to other units in the Bureau including Gang Enforcement, Tri-Met Patrol and the Telephone Reporting Unit.

Police patrol staff have more time available to perform community policing. Officers are now busy on calls an average of 35% of the time, down from 43% in 1986. As a result, officers have 45% of their time available for problem solving compared to 37% in 1986. Although some day shifts are still too busy with calls to conduct neighborhood problem solving, half of the officers we rode with had at least an hour of uncommitted time during the day. However, much of what district officers do is still driven by calls-for-service and more needs to be done to fully integrate problem solving in officers' daily routines.

In general, we believe that police commanders use sound judgment in deploying patrol resources. Officers are deployed so that they are safe, respond quickly to calls, and can address neighborhood problems. However, the Bureau could improve the efficiency and effectiveness of patrol deployment by:

- establishing measurable and prioritized deployment objectives, and
- developing better management information on staffing and workload.

We provide several examples in Chapter 4 to show how better objectives and information can improve staff deployment among precincts, help address community policing demands, and improve efficient use of patrol resources.

In addition, patrol staff can be used more effectively if the Bureau would:

- systematically identify and prioritize neighborhood livability problems and
- redirect activities of sergeants and lieutenants to provide more supervision and guidance to street officers.

Chapter 1 Background

This report covers our review of the Portland Police Bureau's deployment of patrol staff. The audit was requested by the Police Bureau to help identify needed improvements in the Bureau's deployment practices and assist in developing a new deployment methodology that incorporates community policing. We conducted the audit in accordance with generally accepted government auditing standards and limited the scope of our review to those areas specified in the objectives, scope, and methodology section of the report.

This is our second audit of the Bureau's patrol operations. In our 1987 audit (IAR #2-87) we found some mismatches between patrol workload and staffing of officers at precincts. We recommended the Bureau utilize overlapping shift schedules to minimize such mismatches. In addition, we recommended the Bureau reduce the call load of patrol officers by diverting more low-priority calls to its Telephone Reporting Unit (TRU).

Subsequent to our 1987 audit, the Institute for Law and Justice (ILJ), under contract with the Citizens Crime Commission, conducted a comprehensive study of the Bureau. Chief among the recommendations made in the 1990 ILJ study was that 180 patrol officers and sergeants be added

to give patrol staff sufficient time to perform neighborhood problem solving along with their routine call-for-service handling. As a result, Council approved the hiring of 200 new officers and the Bureau will hire the final 38 of these new personnel during the current fiscal year.

The Patrol Function

The Bureau’s patrol function, termed Neighborhood Policing Services in the City’s FY 1993-94 budget, provides a uniformed police response to emergency and other calls-for-service, as well as patrol of Portland neighborhoods and assistance to citizens, neighborhood associations, and business and civic groups. Neighborhood Policing’s \$50.8 million budget and 750 authorized positions represent nearly two-thirds of the Bureau’s total \$80.8 million adopted budget, and 1,189 total staff, in FY 1993-94. (See Table 1.)

Table 1 Police Bureau FY 1993-94 Adopted Budget

Program	Budget (millions)	Authorized Positions	
Neighborhood Policing	\$ 50.8	750	63%
Investigations	\$ 11.8	174	15%
Crime Interdiction	\$ 7.2	94	8%
Support Services	\$ 11.0	171	14%
TOTAL	\$ 80.8	1,189	100%

SOURCE: City of Portland FY 1993-94 Adopted Budget

Patrol operations are provided by the Bureau's three precincts – Central, East, and North. The majority of precinct personnel are street officers whose primary responsibility is to respond to citizen calls-for-service. In addition, there are some staff who, for the most part, do not respond to calls-for-service. These include the desk, bike patrol, mounted patrol, walking beat, crime analysis, and special units (e.g., Neighborhood Response Teams and Safety Action Teams). Sworn staffing at the three precincts is shown in Table 2.

Table 2 Sworn Precinct Personnel, January 1994

Rank	Central Precinct	East Precinct	North Precinct
Captains/Lieutenants	5	5	5
Sergeants	15	21	15
Officers	109	180	141
Detectives	2	5	3
TOTAL	131	211	164

SOURCE: Police Bureau internal reports. Figures represent actual sworn officers assigned, not total positions authorized/budgeted.

Patrol is further augmented by a variety of special field operations. The Traffic Division, consisting of 43 officers and sergeants, is located at East Precinct and provides city-wide traffic surveillance and enforcement. Other services

available as needed include the Special Emergency Response Team, the Canine Unit, the Gang Enforcement Unit, and the Reserve Unit.

**Transition to
Community Policing**

In 1989, the Portland City Council passed resolutions adopting community policing as the City's new policing philosophy and mandating its implementation over a five-year period. The new community-based policing philosophy encourages greater citizen participation in crime reduction and encourages increased coordination with other City bureaus and government agencies in addressing crime-related problems. In January 1990, the Bureau issued the Community Policing Transition Plan, which initiated the transition to community policing. Community Policing has brought changes to patrol operations, including:

- Officers have been given training in community policing and are expected to incorporate neighborhood problem-solving strategies into their day-to-day activities.
- Approximately 70 patrol officers have been designated as Neighborhood Liaison Officers responsible for maintaining contact with neighborhood crime prevention staff and the public, and for being knowledgeable of community resources, crime problems, neighborhood concerns, and major incidents that occur in the assigned district.
- A Neighborhood Response Team (NRT) consisting of two to three officers has been established at each of the precincts. The NRTs

are special units that do not respond to calls-for-service, but work exclusively on solving identified neighborhood crime problems.

- Partnership agreements between the precincts and the community have resulted in an increased commitment of officers to bike patrols and walking beats, and in the establishment of special problem-solving teams (e.g., Central Precinct's Drug Interdiction Team).
- A Precinct Detective Unit was established at each of the precincts to allow detectives to work more closely with patrol officers and citizens in gathering information and solving cases.

The Bureau, in conjunction with the University of Oregon and Portland State University, is working on a two-year project to develop and implement methods for measuring the performance of community policing. The community policing assessment research project is funded by a grant from the National Institute of Justice and is scheduled for completion in early 1995.

New Equipment and Facilities

The Portland Police Bureau will soon benefit from significant technological improvements. In conjunction with the completion of the City's new emergency communication center this coming year, the Bureau will benefit from a new computer-aided dispatch (CAD) system. The new CAD system will improve emergency dispatch operations and provide the Bureau with an opportunity to enhance information available on its calls-for-service work.

Along with the new CAD system, patrol cars will be equipped with mobile digital terminals (MDTs) which will provide officers with a link to computerized dispatch and crime information. The City will also be installing an 800 MHz radio system which will improve police and other public safety radio communications. In addition, all new patrol cars are being equipped with cellular phones, which greatly facilitate officer communication with citizens and other City bureaus and government agencies. Finally, because of growth in East Precinct's service area due to annexations, the Bureau will soon be splitting the precinct and creating a new fourth precinct. The Bureau plans to eventually add a fifth precinct as well.

Deployment of Patrol Staff

The Bureau's three precincts operate 24 hours a day, seven days a week. Each precinct has three primary work shifts – morning, afternoon, and night – with Central and East Precincts also having overlay shifts from 6:00 p.m. to 4:00 a.m. In order to optimally match staffing to call load and avoid staffing shortages during shift change, most shifts include a “pre-relief” in which a portion of the officers begin work an hour or two before the beginning of the regular shift. See Appendix A for a display of the precincts' shift configurations.

Each precinct is divided into various districts for the purpose of deploying patrol cars. (See Figure 1.) Commanders at each precinct establish minimum staffing requirements for each shift. These minimums are the number of officers they believe are needed to safely handle the anticipated call load. They are established by analysis

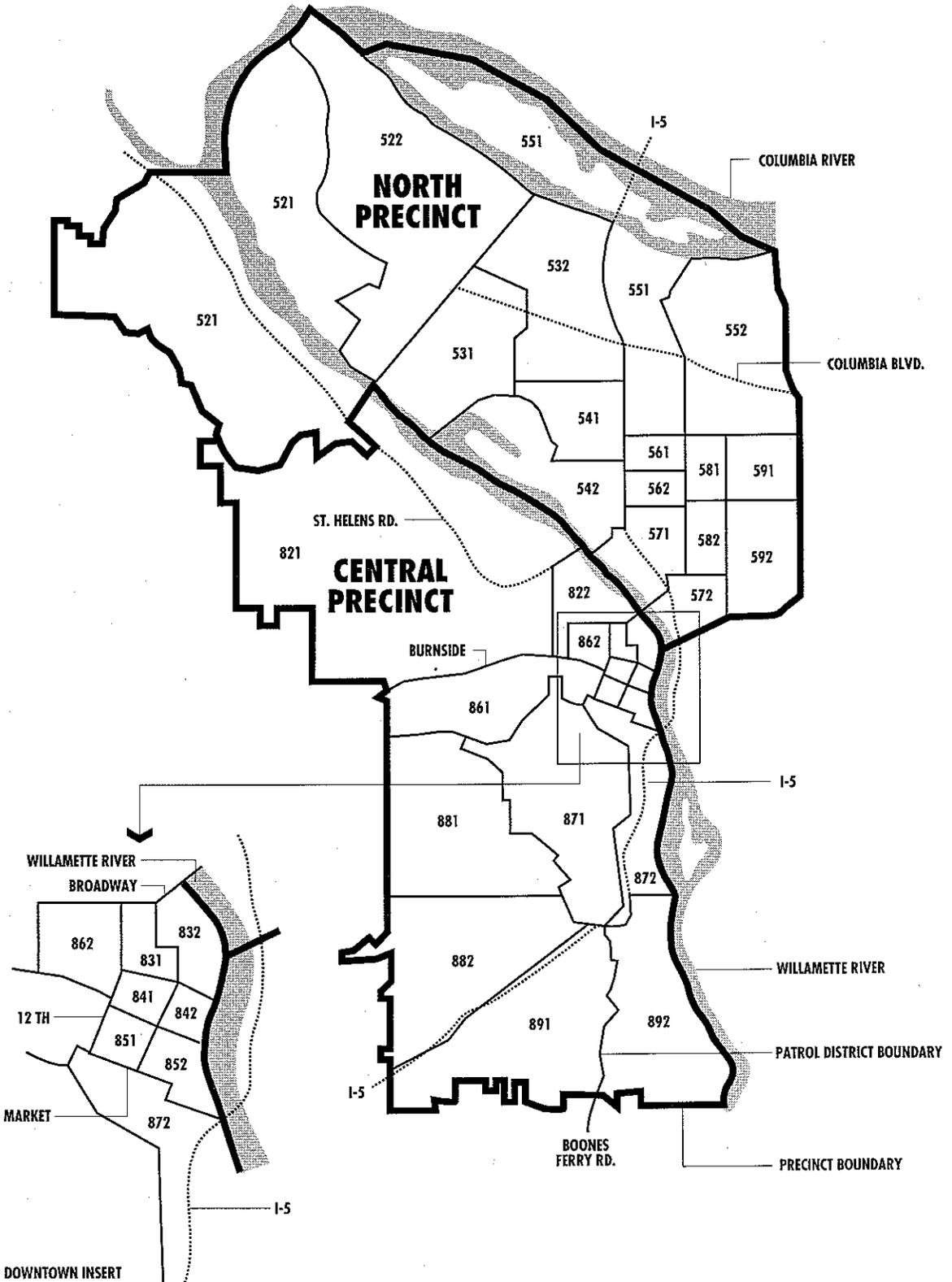
of crime and call-for-service information, and consideration of officer safety.

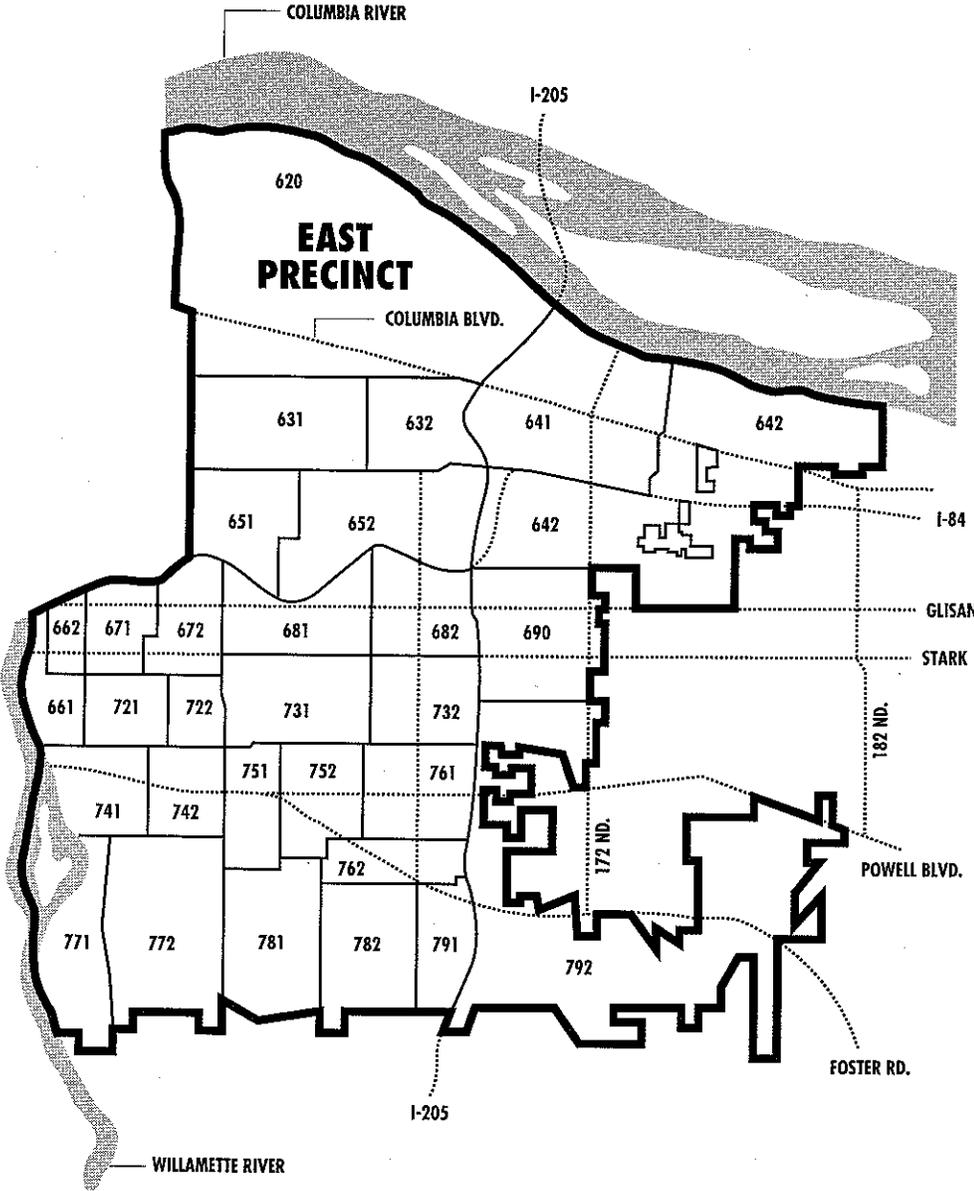
Precinct commanders try to schedule enough officers to meet the minimum staffing requirements but hire off-duty officers on overtime, when necessary. Precincts are sometimes staffed below the minimum levels when, in the judgment of commanders, it is safe to do so. Precinct commanders also combine or split patrol districts as needed, depending on the number of officers available to work a particular shift. In addition, some units, such as bike details and walking beats, may not be staffed if there are not enough officers to fill district assignments. See Appendix A for a display of the precincts' minimum staffing requirements.

Because community policing has added new activities to the work of patrol staff, the Bureau has been working on a new deployment model to integrate neighborhood problem solving with call-for-service work. The Bureau researched deployment models used by other police departments and computerized models available from the private sector. The Bureau found no police agency that was fully-reliant on a quantitative model and concluded that a deployment method should involve both quantitative data and management judgments.

The Bureau has worked on a neighborhood-based patrol deployment plan to (1) create new roles and responsibilities for patrol officers and their supervisors, (2) re-align patrol district boundaries to make them consistent with neighborhood boundaries, and (3) base deployment of staff on neighborhood crime profiles and livability issues.

Figure 1
Map of Central, East, and North Precinct Patrol Districts





SOURCE: Planning and Support Division, Portland Police Bureau

**Audit Objectives,
Scope, and
Methodology**

The objectives of this audit were to evaluate the efficiency and effectiveness of the Police Bureau's patrol deployment practices and assist the Bureau in its effort to re-define its deployment methodology. Specifically, we reviewed the Bureau's methods for allocating and scheduling officers at Central, East, and North Precincts, and evaluated achievement of its deployment objectives. We interviewed the Chief of Police and his deputy chiefs, precinct commanders, Planning and Support staff, and other Police Bureau personnel.

For eight sample weeks during FY 1992-93 (two each in August and November 1992 and February and May 1993), we collected call data from the City's CAD system and obtained corresponding staffing information from precinct rosters. From our sample, we determined how busy officers were on calls, how well staffing matched call load, and the impact of any mismatches on police response time.

We participated in 18 ride-alongs during August and September 1993 with patrol officers (6 at each precinct) to obtain sample data on the time available for officers to do neighborhood problem solving. We also observed what officers did during their uncommitted time and asked about their efforts to integrate problem solving into their patrol activities. We were assisted in this effort by staff from the Police Bureau's Planning and Support Division and by Portland State University researchers working on the community policing assessment model project.

We reviewed community policing planning and policy documents, including the Bureau's Community Policing Transition Plan, the draft Community Policing Strategic

Plan, the Neighborhood-Based Patrol Deployment - A Concept Proposal, the Neighborhood Liaison Officer Program, community policing assessment model documents, and other related materials. We reviewed Bureau plans for MIS enhancements in the new CAD system.

In addition, we reviewed historical overtime expenditures and conducted limited tests on the precincts' use of overtime due to personnel shortages. Appendix D contains our analysis of Bureau overtime expenditures.

Chapter 2 Improved Management of Call-For-Service Workload

We reported in our 1987 patrol deployment audit that officer work schedules did not always match the fluctuations in call workload. As a result, officers were not always available when most needed and were sometimes overstaffed when call demand was low. In 1987 the precincts basically operated three standard shifts – morning (8:00 a.m. to 4:00 p.m.), afternoon (4:00 p.m. to 12:00 midnight), and night (12:00 midnight to 8:00 a.m.). We recommended that the Bureau develop alternative shift schedules to better match staffing to calls, particularly at shift change. Since 1987 the Bureau has increased the number of overlay shifts at the precincts and extended some 8-hour shifts to 10 hours.

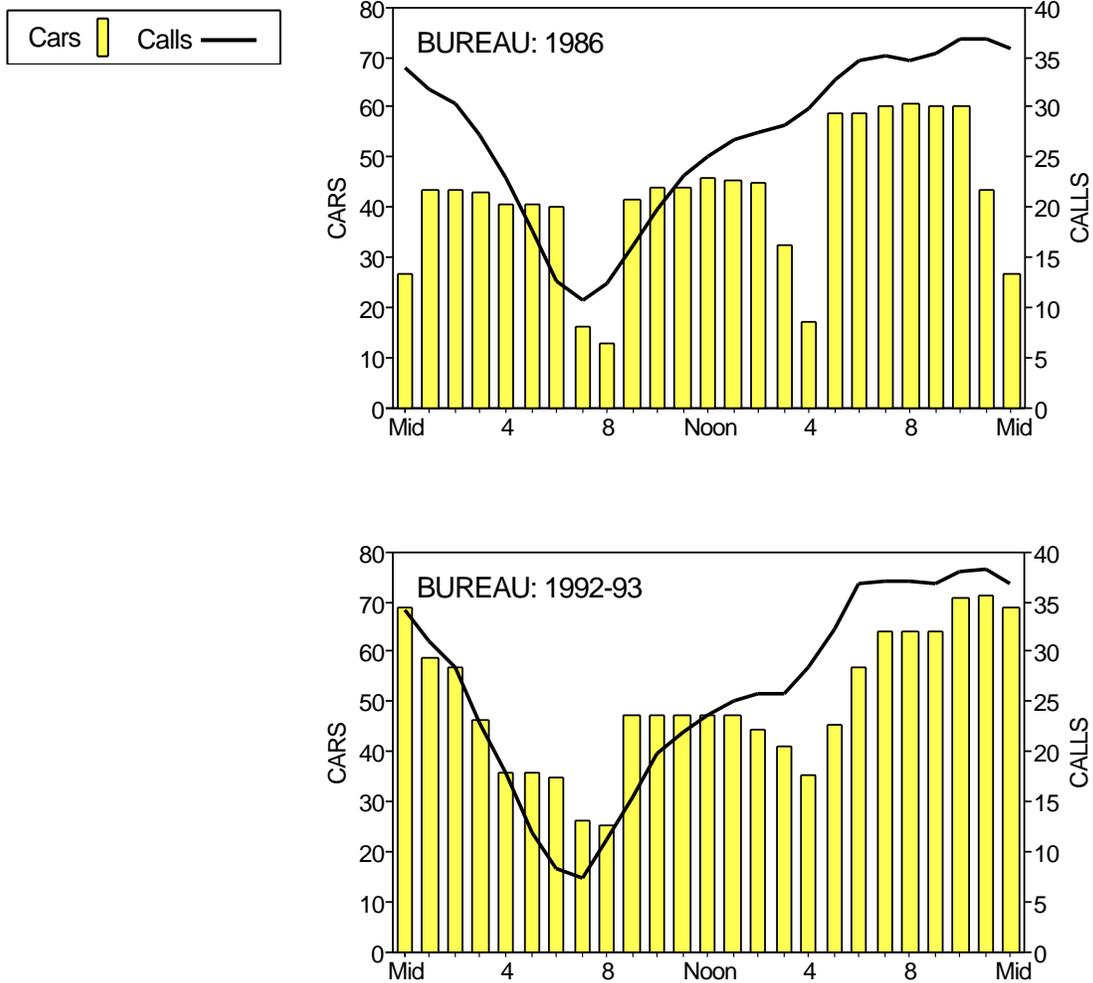
In addition, we recommended that the Bureau refer more low-priority calls to TRU to reduce the call workload of patrol units. The Bureau has since diverted more calls to TRU and has taken even further steps to reduce the call load of patrol staff.

Better Match of Staff to Call Workload

Scheduling patrol staff in proportion to the location and number of calls-for-service is important to help ensure timely response, balanced workloads, officer safety, and efficient use of patrol resources. Our analysis of FY 1992-93 data shows the Bureau has improved its matching of

staff to calls. In our 1987 audit, we found a correlation in staff-to-calls of $r^2 = .25$, while the correlation improved to $r^2 = .53$ during FY 1992-93 ($r^2 = 1.00$ is perfect correlation). As shown in Figure 2, the number of cars on duty in FY 1992-93 more closely track with fluctuations in calls than in 1986.

Figure 2 Bureau-wide Calls and Cars Fielded by Hour of Day, 1986 and FY 1992-93



SOURCE: Auditor analysis of precinct roster data and call statistics obtained from the City's computer-aided dispatch system.

However, as shown in Figure 3, there are variations in the match of staff to call workload among the three precincts.

Faster Response Times

Response time to high priority calls has also improved since our first patrol audit. As Table 3 shows, average response time for all precincts declined from 5.25 minutes in 1988 to 4.94 minutes in 1993.

Table 3 Response Time to High Priority Calls, 1988 - 1993

Year	Response Time * (minutes)
1988	5.25
1989	5.20
1990	4.85
1991	4.75
1992	4.89
1993	4.94 **

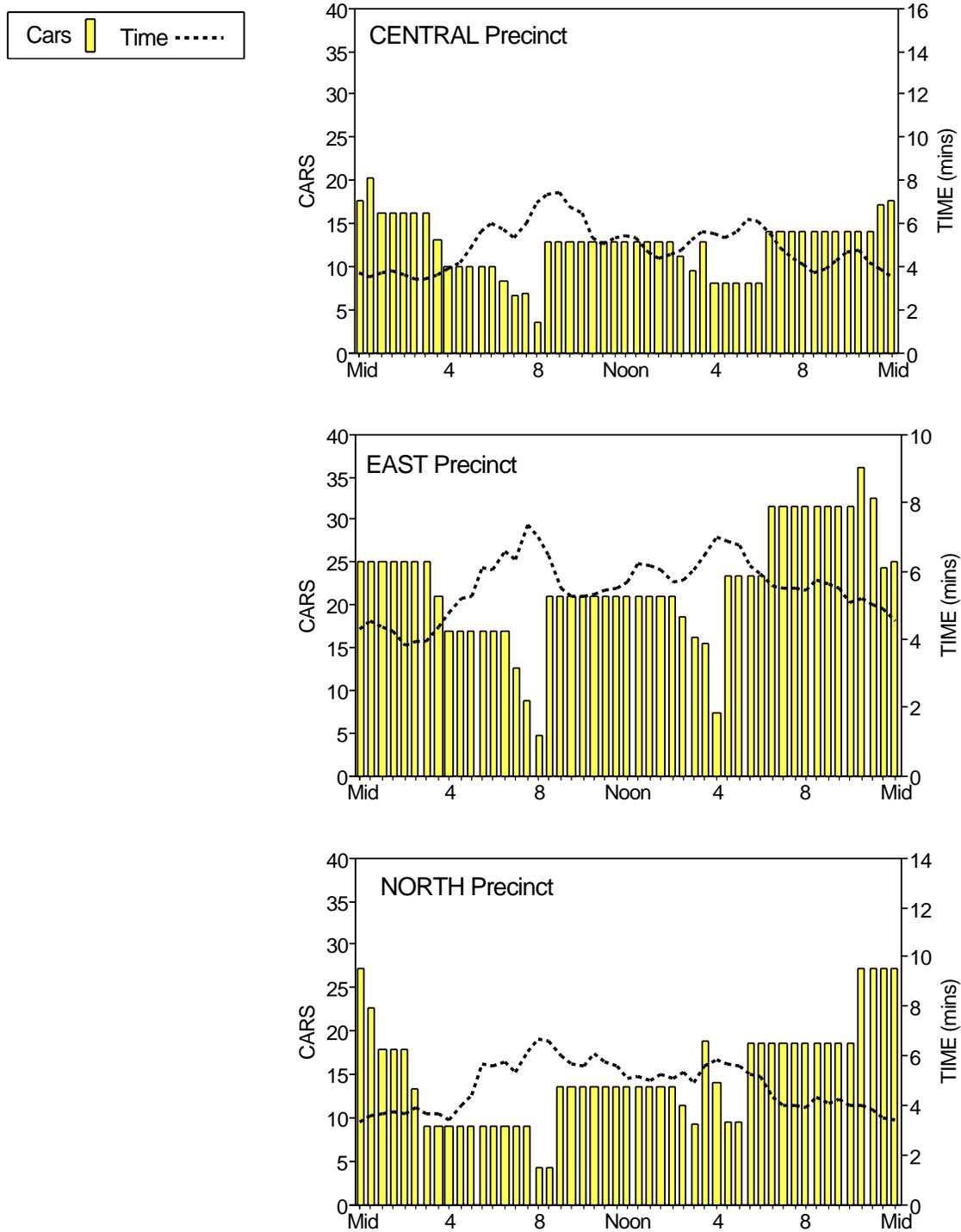
SOURCE: Portland Police Bureau records. High priority calls include life-threatening incidents and incidents in progress with potential for physical harm.

* Travel time – from dispatch to arrival

** 1993 figure based on 11 months of data

Response times at individual precincts appear to be tied to changes in staffing levels. As Figure 4 shows, response times slow during periods when staffing drops, particularly around shift change (e.g., 8:00 a.m. and 5:00 p.m.).

Figure 4 Travel Time to High Priority Calls and Number of Cars Fielded by Hour of Day, FY 1992-93



SOURCE: Auditor analysis of precinct roster data and call statistics obtained from the City's computer-aided dispatch system

**Low-Priority Calls
Diverted From Patrol**

The Bureau has taken several steps to divert low priority calls away from patrol units. In 1992, the Bureau established a non-emergency telephone number, and 9-1-1 operators at the Bureau of Emergency Communications (BOEC) stopped taking non-emergency calls. Since then, the Bureau increased staffing of TRU, and the number of calls handled by TRU increased dramatically. As shown in Table 4, the number of calls handled by TRU more than doubled from 1987 to 1993, increasing from 43,594 to 97,034 (+123%). The average staffing at TRU increased from 12 to 19 (+58%) during the same period.

Table 4 Growth in Staff and Calls Handled by TRU, 1987 - 1993

Year	Average No. of Staff	No. Calls Handled
1987	12	43,594
1988	12	49,643
1989	12	45,034
1990	12	45,406
1991	15	48,588
1992	19	87,063
1993	19	97,034
CHANGE, '87-'93 (%)	+7 (+58%)	+53,440 (+123%)

SOURCE: Police Bureau records. The 1993 figures were estimated based on 11 months of actual data.

The adoption of a new alarms ordinance in 1991 has also helped reduce the call load of patrol officers. The ordinance increased the fines on multiple false alarms and encouraged the public to take steps needed to avoid false alarms. As a result, alarm calls dropped from 33,368 in 1989 to 20,634 in 1992, a 38% reduction. The Bureau also established the Information and Referral Unit in late September 1992, which handled 72,202 calls through the first 11 months of 1993.

These call-diversion efforts helped reduce the call load of staff by 3% from 1987 to 1993. In addition, the ratio of calls per precinct officer dropped from 527 to 457 (-13%) during the same period. (See Table 5.)

Table 5 Change in Calls Per Officer, 1987-1993

Year	Dispatched Calls-For- Service *	Precinct Officers **	Calls Per Officer
1987	236,801	449	527
1988	270,682	433	625
1989	256,748	440	584
1990	230,015	437	526
1991	231,617	468	495
1992	231,806	492	471
1993	230,530	504	457
CHANGE, '87-'93 (%)	-6,271 (-3%)	+55 (+12%)	-70 (-13%)

* SOURCE: Police Bureau records. Excludes calls handled by the Traffic Division. The 1993 figure was estimated based on 11 months of actual data.

** SOURCE: Police Bureau personnel archive records. Figures represent actual sergeants and officers assigned to the three precincts. Includes officers in non-patrol functions (e.g., Neighborhood Response Teams and crime analysis) and trainees.

Chapter 3 More Time Available for Community Policing

The Bureau has reduced the amount of time patrol staff are busy on calls-for-service and increased the number of officers at the precincts. As a result, patrol officers have more time to do neighborhood problem solving work. Although some day shifts are too busy with calls to conduct problem solving, half of the officers we rode with had at least an hour of uncommitted time during the day. However, while much has been done to implement community policing, additional efforts are needed to more fully integrate community policing techniques into traditional patrol duties.

Patrol Staff Spend Less Time on Calls

The hiring of additional police over the past several years was intended to help patrol staff achieve sufficient time to perform neighborhood problem solving. The ILJ and the Bureau's Patrol Allocation Task Force stated that to do community policing, patrol staff should spend less than 30% of their time handling citizen calls-for-service.

In our 1987 patrol deployment audit we determined patrol units were busy on calls an average of 43% of the time, while the 1990 ILJ study found officers were busy on calls 40% of the time. Our analysis of FY 1992-93 data shows that the Bureau has reduced the percent of time on

calls to 35%. While the Bureau as a whole has not yet achieved the 30% standard cited by the ILJ, it has made progress toward this standard. As shown in Table 6, Central Precinct has surpassed the standard, dropping to an average of 28% during FY 1992-93, while patrol units at East and North Precincts were busy on calls an average of 36% and 40%, respectively.

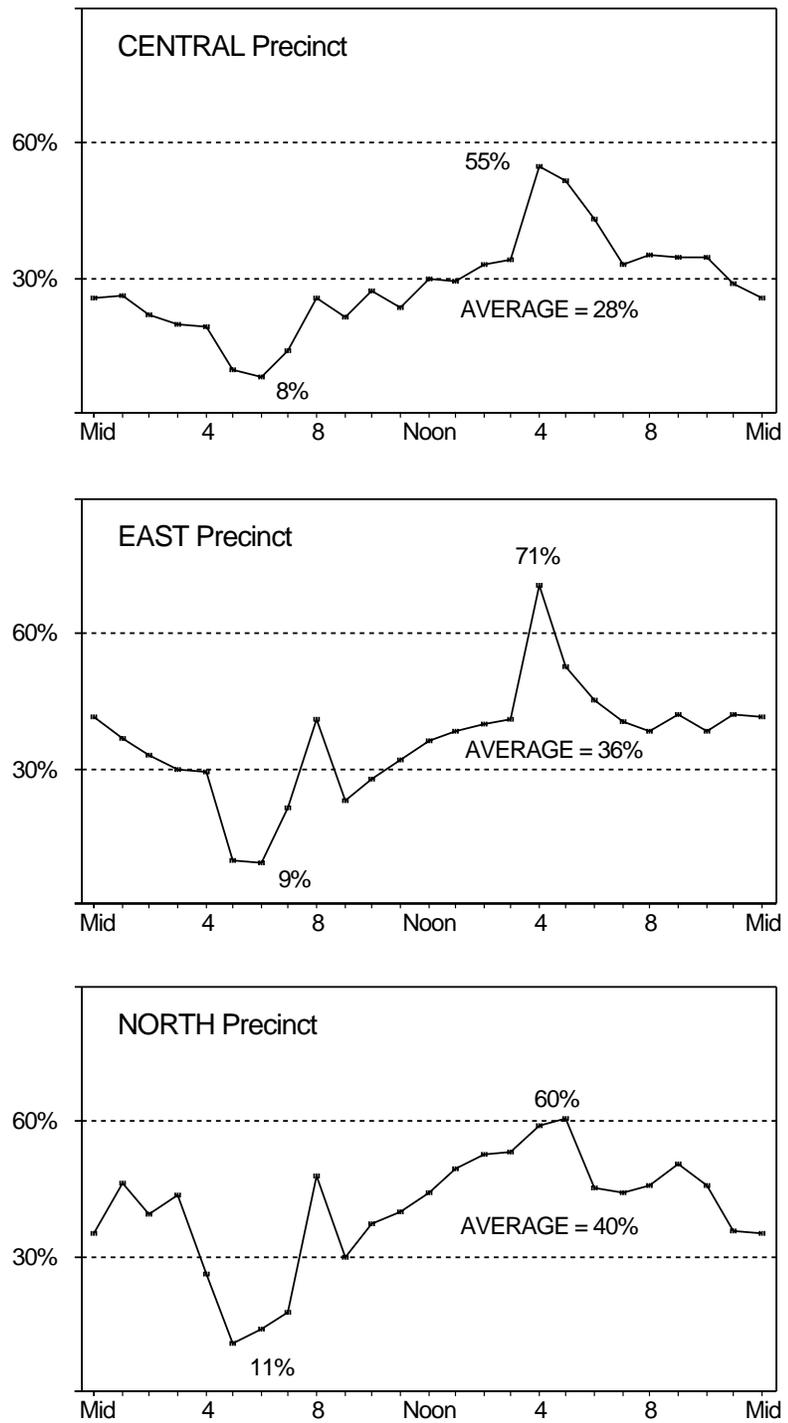
Table 6 Percent of Patrol Staff Time on Citizen Calls-For-Service at Central, East, and North Precincts

Precinct	1986	1989	FY 1992-93
Central	–	29%	28%
East	–	41%	36%
North	–	49%	40%
Combined	43%	40%	35%

SOURCE: 1986 percentage taken from City Auditor's 1987 report on patrol deployment (IAR #2-87); 1989 percentages taken from the 1990 ILJ Study; and FY 1992-93 percentages determined by auditor analysis of eight weeks of CAD and precinct roster data.

However, much of the reduced “busy” time occurs during the early morning hours when there is less opportunity to meet with the public to identify and solve problems. As shown in Figure 5, officers at East and North Precincts meet the 30% standard approximately 6 hours a day, but do so only during the early morning hours. Central Precinct officers meet the standard most of the time, but exceed the standard during approximately half of the daytime hours (after 2:00 p.m.). In addition, extremely high “busy” time percentages occur around 4:00 p.m. at all three precincts, a time when there are fewer officers due to shift change.

Figure 5 Percent Time Busy on Calls by Hour of Day, FY 1992-93



SOURCE: Auditor analysis of precinct roster data and call statistics obtained from the City's computer-aided dispatch system

Increase in Patrol Strength

In response to ILJ's recommendations and in support of the transition to community policing, City Council authorized hiring 200 additional officers. The ILJ recommended increasing patrol staff by 180 officers and sergeants. Seventy-seven of these positions were needed to adequately handle the Bureau's calls-for-service workload and 103 positions were needed to give patrol staff more time for community policing.

Since City Council approval, the number of officers and sergeants in the Bureau has increased by 143. Forty-one officers and sergeants were added to the precincts while 102 were added to other divisions in the Bureau. As shown in Table 7, total precinct staffing increased from 440 in 1989 to 481 in January 1994. Central Precinct grew by 5 officers, East by 31 and North by 5.

The Bureau's hiring efforts have been offset somewhat by retirements and other attrition that have reduced the number of officers in the Bureau by approximately 40 each year. In addition, the lengthy process to hire and train a new police officer delays the time when new hires can assume a patrol assignment. It takes about 6 months to recruit and hire an officer and an additional 12 months before a new hire is trained and ready for duty.

In addition to the increased hiring, the number of trainees at the precincts has risen significantly. For example, while East Precinct averaged 8 trainees during 1989, it averaged 27 in 1993. While historical data was unavailable for Central and North Precincts, we believe they experienced similar increases in trainees. Not only are trainees unable to assume a full portion of the patrol workload, they also require more training and supervision than experienced officers.

Table 7 Officers and Sergeants at Precincts, 1989-1994

Year	Central Precinct	East Precinct	North Precinct	All Precincts
6/89	119	170	151	440
6/90	128	171	138	437
6/91	132	183	153	468
6/92	132	200	160	492
1/93	145	200	159	504
1/94	124	201	156	481
Change, '89-'94 (%)	+5 (+4%)	+31 (+18%)	+5 (+3%)	+41 (+9%)

SOURCE: Police Bureau personnel archive records. Figures represent actual sergeants and officers assigned to the three precincts. They include officers assigned to non-patrol functions (e.g., Neighborhood Response Teams and mounted patrol) and trainees.

Table 8 shows the change in officers and sergeants in the other divisions in the Bureau. Many of the 102 added to these other divisions have helped the Bureau in its efforts to further community policing. For example, officers added to TRU and the Gang Enforcement Team have helped reduce the call load of patrol staff. In addition, officers added to Personnel and Training have helped hire and train new officers.

Table 8 Increase in Officers and Sergeants in the Police Bureau, 1989-1994

Division/Program	June 1989	Jan. 1994	Change
Tactical Operations*	2	56	+54
Operations Support**	14	30	+16
Training	5	16	+11
Youth and Family Services	0	7	+7
Personnel	6	12	+6
Chief's Office/Reserve Program	1	4	+3
Planning and Support	3	5	+2
Criminal Intelligence	5	7	+2
Traffic	41	42	+1
Drugs and Vice	25	24	-1
Regional Organ. Crime/Narc.	1	1	0
Internal Investigations	0	0	0
Identification	2	2	0
Detectives	16	15	-1
Other	35	37	+2
SUBTOTAL	156	258	+102
Central/East/North Precincts	440	481	+41
BUREAU TOTAL	596	739	+143

SOURCE: Police Bureau personnel archive records. Figures represent actual officers and sergeants assigned.

- * Most increases were in Gang Enforcement and Tri-Met Patrol.
- ** Includes TRU.

More Time Available for Problem Solving

The 1990 ILJ study stated that patrol officers should spend 45%-50% of their time doing problem solving work and have one to two-hour blocks of uncommitted time. We found that on average in FY 1992-93, patrol staff had about 45% of their patrol time available for problem solving, up from 37% in 1986 and 40% in 1989. As shown in Table 9, officers had 52% of their time available at Central Precinct, 44% at East Precinct, and 40% at North Precinct.

Table 9 Percent of Patrol Staff Time Available for Problem Solving

Precinct	1986	1989	FY 1992-93
Central	–	51%	52%
East	–	39%	44%
North	–	31%	40%
Combined	37%	40%	45%

SOURCE: Percentages were calculated by subtracting percent of time on calls in Table 6 plus an estimated 20% for administrative tasks (e.g., meals, roll call) from 100%.

We also found in our 18 ride-alongs that patrol units have blocks of time available for problem solving. Every ride-along except two – both at East Precinct – had at least one 1-hour block of uncommitted time: Central Precinct had an average of 2.2 blocks per shift, North Precinct had 1.7 blocks per shift, and East Precinct had 1.0 block per shift. Sixteen of the total 29 blocks of uncommitted time in our ride-alongs occurred between 8:00 a.m. and 8:00 p.m., hours when patrol staff are best able to contact the public,

government agencies, and others to work on neighborhood problem-solving. (See Appendix B for a display of uncommitted time blocks during each of our 18 ride-alongs.)

However, blocks of uncommitted time occur randomly. Because officers do not know when the blocks will occur, or for how long, they have difficulty planning and conducting problem solving activities.

In addition, Bureau managers indicated trainees reduce the amount of uncommitted time that is available for problem solving. Senior officers who coach trainees must devote uncommitted time to their coaching responsibilities. The Bureau anticipates that the number of trainees will be exceptionally high during the next two years, before returning to a normal level.

Opportunities to Improve Community Policing Implementation

The Bureau has recognized the need to improve the implementation of community policing. The Bureau's draft Community Policing Strategic Plan, Mid-Course Review of Community Policing, and Functional Analysis of the Operations Branch each identified the successes and problems in community policing implementation. Some of the problems described in these documents concern the lack of guidance and support provided to district patrol officers. Most significantly, problem solving was not well integrated into officers' daily activities. Most of what district officers were doing was still driven by citizen calls-for-service.

Our interviews and observations during 18 ride-alongs confirmed these findings of the Bureau studies. We observed that officers tended to practice traditional patrolling

techniques, such as random patrol and surveillance of streets for prostitutes, public inebriates, and stolen vehicles. Officers also told us that when they had time between calls-for-service they generally continued traditional patrol tactics rather than contact the public. (See Appendix C for a summary of officer comments.)

The draft Strategic Plan calls for several strategies to address the objective of strengthening the implementation of neighborhood problem solving by district officers. Some of the strategies proposed by the Bureau include:

- implementation of procedures to ensure that officers are well informed of problem solving activity undertaken within their district.
- development of policies to support the implementation of community policing on all shifts.
- stabilization of district assignments to promote long-term community relationships.
- development of rotation policies between special units and patrol districts that maintain key community contacts.

The Bureau also proposes a number of other strategies in the draft Strategic Plan to encourage and enhance problem solving, improve internal and external communication, strengthen customer service orientation, and improve police officer training. We support these objectives and the strategies proposed to address identified problems. We also suggest in Chapter 4 additional actions which we believe would enhance the Bureau's efforts to better utilize its patrol staff.

Chapter 4 Recommendations to Better Manage Patrol Deployment

The Police Bureau has recognized that the transition to community policing requires a new approach to deployment of police officers. Street officers will not only continue to respond to emergency calls but also handle new workload involving neighborhood problem solving, coordination with other agencies, and pro-active crime prevention. However, the Bureau is struggling with how to deploy staff to ensure equity among precincts, to meet conflicting demands, and to use finite resources most efficiently. The Bureau has made several efforts to revise its deployment methodology and requested our help in developing a new patrol deployment scheme.

Based on our review, current methods used by precinct commanders to deploy patrol resources are generally sound. However, commanders need clearer deployment objectives and better management information on patrol staffing and workload. These changes could help the Bureau use staff resources more efficiently and improve their effectiveness in meeting community policing goals.

In addition, we believe that the use of patrol staff can be enhanced if the Bureau would (1) systematically identify and prioritize neighborhood livability problems throughout the City and (2) redirect the activities of sergeants and lieutenants to supervise and guide street officers.

Integrating Problem Solving and Call-for-Service Work

Patrol deployment was more straightforward before community policing. The Bureau tried to put sufficient officers in areas of town where calls happened in order to ensure fast response to emergencies and adequate safety for officers. In addition, the Bureau attempted to ensure that officer call workload was reasonably balanced throughout the City by time of day and day of week.

Community policing requires the integration of new objectives and different work into the traditional duties of police patrol. Solving neighborhood livability problems and working with citizens and businesses becomes as important to the Bureau as fast response to emergencies. Patrol work is now more than just radio calls; it includes a variety of activities such as neighborhood meetings and coordination with other government agencies.

The Institute of Law and Justice recognized this change in Bureau objectives and work activities. Their 1990 study of the Bureau measured deployment effectiveness in part by the amount of time patrol officers had free to solve problems and work with the community. They found that the Bureau needed more staff in patrol to both respond to calls quickly and to have sufficient time for problem solving.

In general, we believe that precincts use sound judgment in deploying patrol resources. Commanders attempt to schedule officers in ways that ensure their safety, provide quick response to calls, and help address neighborhood problems. However, optimal deployment of patrol staff is hampered by a lack of clearly defined patrol objectives and by the lack of adequate management information.

***Recommendation #1
Establish Clear Deployment Objectives***

We believe that the Bureau cannot effectively deploy patrol staff until it establishes measurable and prioritized deployment objectives. Deployment objectives state what the Bureau desires to achieve by putting certain numbers of officers in certain places at certain times. The deployment objectives guide scheduling decisions and facilitate evaluation of the efficiency and effectiveness of staff allocation. Prioritization helps resolve conflicts between problem solving and traditional patrol work.

The Bureau's deployment objectives regarding response times can greatly affect the number of officers needed on patrol. Is fast response more or less important than time available for problem solving? How fast should response be? Are we willing to reduce response time in order to give officers more time to problem solve? Should response times be the same on all shifts at all times of day?

Also, objectives regarding the use of special units versus street officers will influence how officers are assigned. Is problem solving by special units more or less important than problem solving by street officers? What is the appropriate balance between street officer problem solving and special units? Where and when are special units more effective?

In order to help the Bureau develop more measurable performance objectives, we offer a list of potential objectives. We left performance targets blank and did not prioritize them. The list is not exhaustive and does not preclude

other objectives for patrol deployment. The objectives should support the Bureau's strategic plan goals of improving crime response, increasing problem solving, and supporting district officers, and be coordinated with objectives established for other divisions.

Sample Patrol Deployment Objectives

- Respond quickly to high priority calls at all times of the day. Goal: Respond within __ minutes on average
- Provide an adequate level of back-up patrol units to reasonably assure officer safety. Goal: Cover units arrive within __ minutes on average
- Between the hours of __ a.m. and __ p.m. allow patrol units more time to work on neighborhood problems than they spend responding to calls. Goal: Spend an average of __% of the time on calls and an average of __% on problem-solving
- Reinforce officers in districts with severe livability problems with additional staff dedicated to problem solving. Goal: Neighborhoods with problems above __ severity level have special units assigned for __ to __ months
- Maximize problem solving ability in all districts by stabilizing district assignments. Goal: Keep officers in same area for __ months
- Balance staffing and workload throughout the City to minimize salary and overtime costs. Goal: Ratio of assigned to required staff should be __ for each shift

Recommendation #2
Gather Better Management Information

In addition to clear, measurable deployment objectives, the Bureau needs to develop better management information to assist in deployment decision-making and evaluation. Our review indicates that the Bureau has a pervasive problem with management information. Although much information is available in various forms, it is incomplete, varies from precinct to precinct, and is difficult to obtain. Generally, the Bureau lacks easily accessible data about daily operations that are needed to analyze and monitor efficiency and effectiveness.

Specifically, we found:

- incomplete information on staffing levels and officer assignments
- inconsistent attendance records
- short record retention practices
- lack of data on time spent by cover units on calls
- lack of data on the amount and type of problem solving work conducted by patrol officers, and
- lack of historical information on minimum staffing requirements at each precinct

Although Bureau planners intended the new CAD system to provide information on problem solving activities, the development of new radio codes to capture such information has not been completed. The Bureau indicates it may be several years before the new codes are implemented.

To develop more complete, timely, and reliable management information to manage the deployment of patrol staff, we recommend the Bureau establish uniform guidelines and policies for record-keeping and reporting on precinct staffing and workload. The guidelines should be centrally established by Planning and Support, Management Services, or other management arm of the Bureau, and administered uniformly at each precinct. The guidelines should establish the information that is to be maintained, the format and frequency of reporting, and retention requirements. At a minimum, we believe that the Bureau should maintain the following patrol staffing and workload data.

Basic Information Needed for Deployment Decisions

- Number of officers authorized and assigned to each precinct
- Number of officers assigned, scheduled, and working on each shift by day of week, type of assignment, and trainee status
- Minimum number of officers required to be on duty each shift
- Number of calls by type and priority by district and precinct, day of week, and time of day
- Time spent by primary units and cover units on each call by precinct, day of week, and time of day
- Travel time to high priority calls
- A prioritized list of livability problems by district and by precinct

- Amount and type of work performed to address identified livability problems
- Amount of time spent on neighborhood problem solving

How to Use Data to Improve Patrol Deployment

In order to show the Bureau how clearer deployment objectives and better management information can improve allocation of patrol resources, we have developed several examples of real opportunities for better deployment. The data used in these examples was collected by our staff in the course of this audit. Much of it is not readily available to the Bureau due to weaknesses in current record-keeping practices.

Example #1 Adjust number of officers assigned to shifts at East Precinct

As shown below, the afternoon shift at East Precinct during FY 1992-93 averaged 3.6 fewer officers than needed to meet staffing requirements. As a result, it had to hire an average of 1.3 officers each day on overtime to ensure sufficient number of officers on duty. However, each of the other three shifts had significantly less daily overtime and fewer staff shortages.

The Bureau has found that two officers are needed to fill one position 365 days a year. Therefore, to avoid hiring on overtime, a ratio of two officers assigned for each minimum staffing position is needed. As shown, the afternoon shift had a lower ratio of assigned to minimum staff than the other shifts. This analysis suggests that moving some staff to the afternoon shift might reduce overtime costs and better balance patrol officer workload throughout the precinct.

East Precinct Shift Staffing, 1992-93 Averages

	Total officers assigned to shift	Minimum required daily *	Average daily on duty	Daily average below minimum	Daily hired on overtime	Assigned/Min. RATIO
Morning	48	24.5	24.5	0	0.5	1.96
Afternoon	48	27.1	23.5	-3.6	1.3	1.77
Night	38.2	17.9	18.2	+0.3	0.7	2.13
Evening	21.1	7	8.4	+1.4	0.2	3.01

SOURCE: Precinct daily rosters and personnel assignment reports
 * Includes minimum district officers, desk, NRT, details and crime analyst

Example #2 *Balance number of staff authorized and assigned among the precincts*

As shown below, Central Precinct appears more understaffed than the other two precincts. However, the officers at Central have significantly more free time from calls to perform problem solving than officers at North or East. Central officers have an average of 52% of their time free from calls while North and East have 40% and 44% respectively. In addition, not only do officers have more free time for problem solving at Central but the precinct has more special unit officers available to conduct other problem solving than the other two precincts.

This analysis suggests that precincts do not have an equal ability to conduct problem solving in the neighborhoods they serve. Downward adjustment of Central authorized staffing levels may be appropriate.

Comparison of Authorized and Assigned Officers

	Authorized	Actual assigned	% understaffed	Patrol time free for problem solving	Number in special units
Central	144	109	-24%	52%	9
East	231	180	-22%	44%	5
North	146	141	-3%	40%	2

SOURCE Police Bureau personnel archive records, auditor analysis of daily rosters and CAD data

Example #3 Reduce time busy on calls throughout the precincts

The table below compares workload, staffing, and travel time statistics for six blocks of time at each precinct. Review of the data shows a number of conditions that may indicate over- or understaffing at the precincts at different times of the day using the following sample deployment standard:

Between 8 a.m. and 8 p.m. - officers should spend less than 30% of their time on calls; over 40% would be unacceptable.

After 8 p.m. - officers should spend less than 40% of their time on calls; over 50% would be unacceptable.

Potential overstaffing conditions:

- Central Precinct has very fast response time and very low busy time from midnight to 4 a.m.
- East Precinct has fast response time and is not very busy from midnight to 4 a.m.

Potential understaffing conditions:

- From 4 p.m. to 8 p.m. Central Precinct has its highest call load of the day (32 calls) and the highest percent of time busy on calls (46%). However, they have the second lowest number of cars on duty (10) compared to the other five time blocks at the precinct.
- North Precinct exceeds the sample busy time goals in five continuous blocks of time from 8 a.m. through 4 a.m.

- North, Central, and East Precinct all have unacceptable busy time percentages 4 p.m. to 8 p.m.

This data suggests some improvements could be made in equalizing time officers are busy on calls while still maintaining reasonable response time.

Comparison of Precinct Workload by Time of Day, FY 1992-93 Averages

	Midnight - 4 a.m.	4 a.m. - 8 a.m.	8 a.m. - Noon	Noon - 4 p.m.	4 p.m. - 8 p.m.	8 p.m. - Midnight
Central						
# of calls	21	7	20	25	32	30
# of cars	16	9	12	12	10	14
Busy on calls	23%	13%	24%	31%	46%	33%
Travel time	3.6	5.6	6.2	5	5.2	4.1
East						
# of calls	50	16	37	44	69	69
# of cars	25	15	19	19	24	31
Busy on calls	35%	17%	31%	39%	52%	40%
Travel time	4.2	6.3	5.4	6.1	6	5.2
North						
# of calls	32	11	25	34	46	52
# of cars	17	9	11	13	16	22
Busy on calls	41%	17%	39%	50%	52%	44%
Travel time	3.6	5.5	5.7	5.3	4.7	3.9

SOURCE: Auditor analysis of precinct daily rosters and CAD data

**Other Actions to
Enhance Utilization
of Patrol Staff**

The Bureau is taking steps to improve the implementation of community policing. The draft Strategic Plan in particular clarifies goals, objectives, and strategies for the next five years, and provides a strong foundation for implementation and evaluation. The Plan proposes strategies to encourage and enhance problem solving, improve internal and external communication, and strengthen officer training and customer orientation. We have several suggestions that we believe would further enhance the efficient and effective use of patrol staff. The following recommendations are intended to reinforce the objectives and strategies proposed in the Bureau's draft Strategic Plan.

***Recommendation #3
Identify and prioritize livability problems***

The Bureau should initiate a major effort to identify and prioritize the major livability problems in each patrol precinct and district. Each district and precinct should identify a few top problems that will receive the most intensive effort from various operational units in a coordinated problem solving campaign. This effort should be consistent among the precincts, guided by commanders, coordinated by supervisors, and carried out by district and neighborhood liaison officers in cooperation with citizens and businesses. Once the problems are clearly identified and prioritized, they should guide the non-call work of district officers, help focus efforts of special units, and be used as workload information when allocation and scheduling decisions are made. This information should be tied to Bureau monitoring of the results of its problem solving efforts.

Recommendation #4
Redirect activities of sergeants and lieutenants

Precinct sergeants and lieutenants should provide more supervision and guidance to district patrol officers and special units. Sergeants and lieutenants should facilitate the identification and prioritization of district problems, provide more visible support and advice to street officers, and help ensure that information on problem solving actions is communicated across shifts and throughout the precinct.

The Bureau believes its new employee performance evaluation program will help address the need for increased communication and accountability. Under the new program, supervisors will be required to meet with their employees on a monthly basis. The monthly meetings should provide a good opportunity for supervisors to give needed direction to patrol officers.

To give sergeants and lieutenants more time to conduct street supervision, the Bureau and precinct commanders should consider freeing them from some existing administrative burdens. There are a number of actions the Bureau could take to reduce administrative burdens, including adopting a uniform scheduling and roster system. In addition, the Bureau could review existing reporting and administrative requirements for possible streamlining.

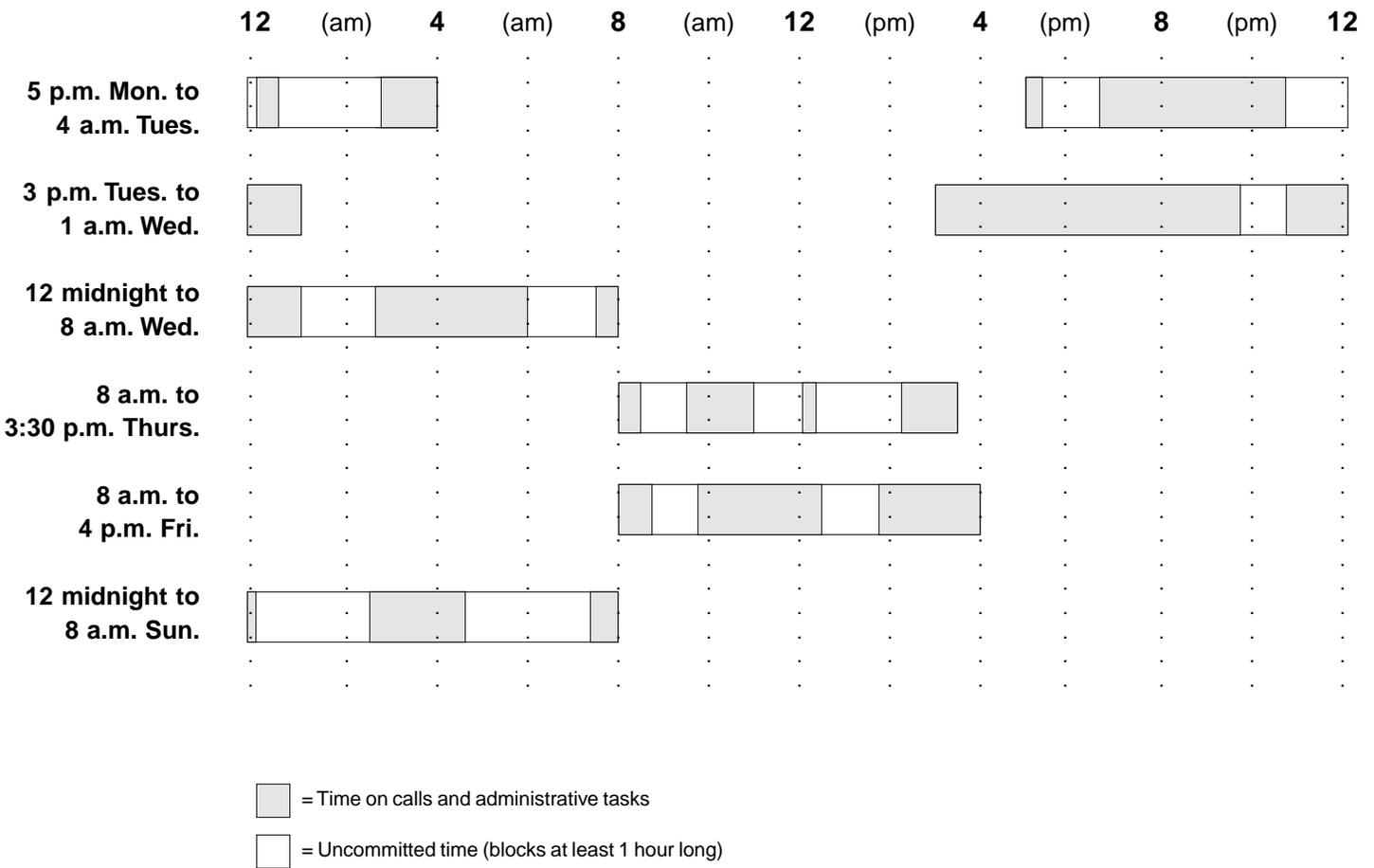
Appendices

Appendix A

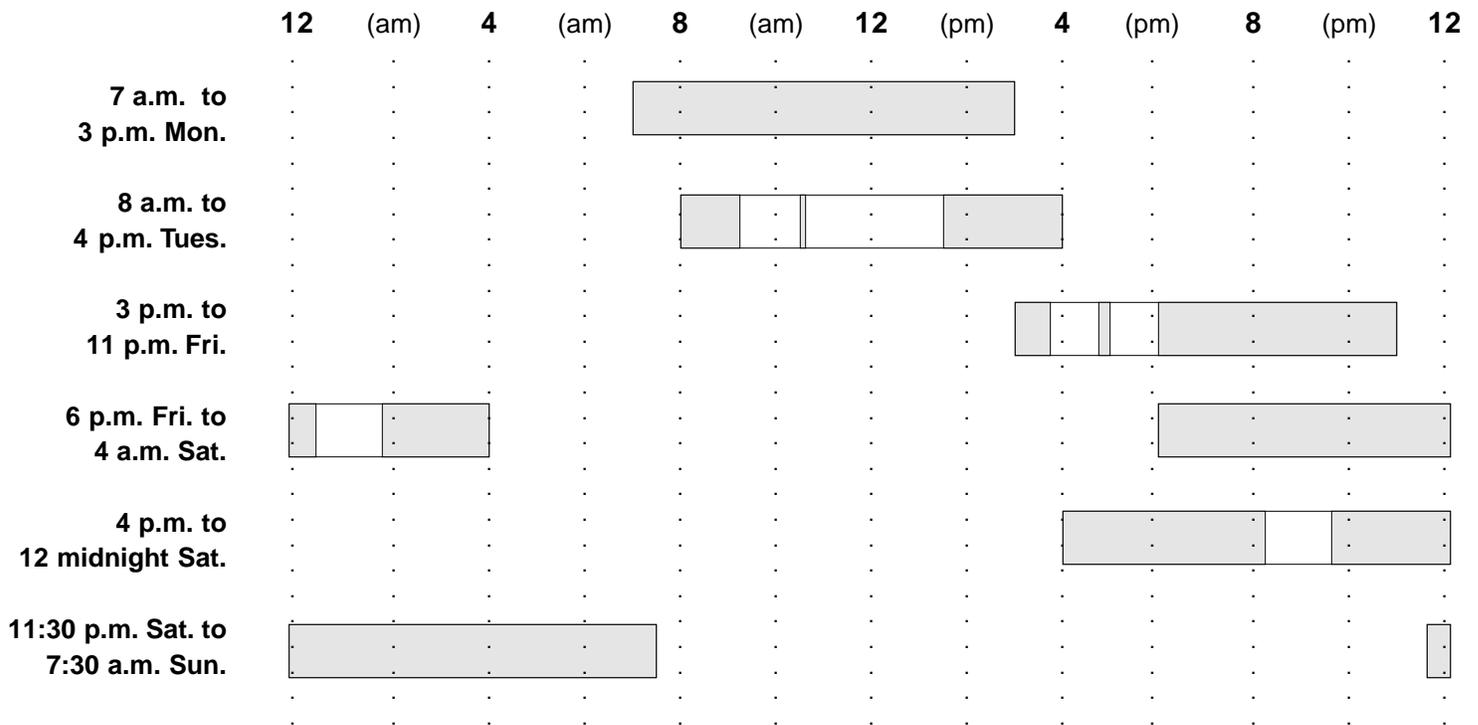
Precinct Shift Configurations and Minimum Staffing Levels, October 1993

	Central Precinct Shifts	Min. Staffing
Morning	pre-relief: 7 a.m. - 3 p.m. (five 8-hr shifts/week) regular: 8 a.m. - 4 p.m.	17 - weekdays 16 - weekends
Afternoon	first: 3 p.m. - 1 a.m. (four 10-hr shifts/week) second: 6 p.m. - 4 a.m.	19
Night	pre-relief: 11 p.m. - 7 a.m. (five 8-hr shifts/week) regular: 12 midnight - 8 a.m.	8
	East Precinct Shifts	Min. Staffing
Morning	pre-relief: 7 a.m. - 3 p.m. (five 8-hr shifts/week) regular: 8 a.m. - 4 p.m.	21
Afternoon	pre-relief: 3 p.m. - 11 p.m. (five 8-hr shifts/week) regular: 4 p.m. - 12 midnight	23
Evening	regular: 6 p.m. - 4 a.m. (four 10-hr shifts/week)	7
Night	pre-relief: 10 p.m. - 8 a.m. (four 10-hr shifts/week) regular: 11:30 p.m. - 7:30 a.m. (five 8-hr shifts/week)	16 - weekdays 18 - weekends
	North Precinct Shifts	Min. Staffing
Morning	pre-relief: 7 a.m. - 3 p.m. (five 8-hr shifts/week) regular: 8:30 a.m. - 4:30 p.m.	15
Afternoon	pre-relief: 3 p.m. - 1 a.m. (four 10-hr shifts/week) regular: 5 p.m. - 3 a.m.	24 - weekdays 26 - weekends
Night	regular: 10 p.m. - 8 a.m. (four 10-hr shifts/week)	14

CENTRAL PRECINCT Blocks of Uncommitted Time on Ride-Alongs

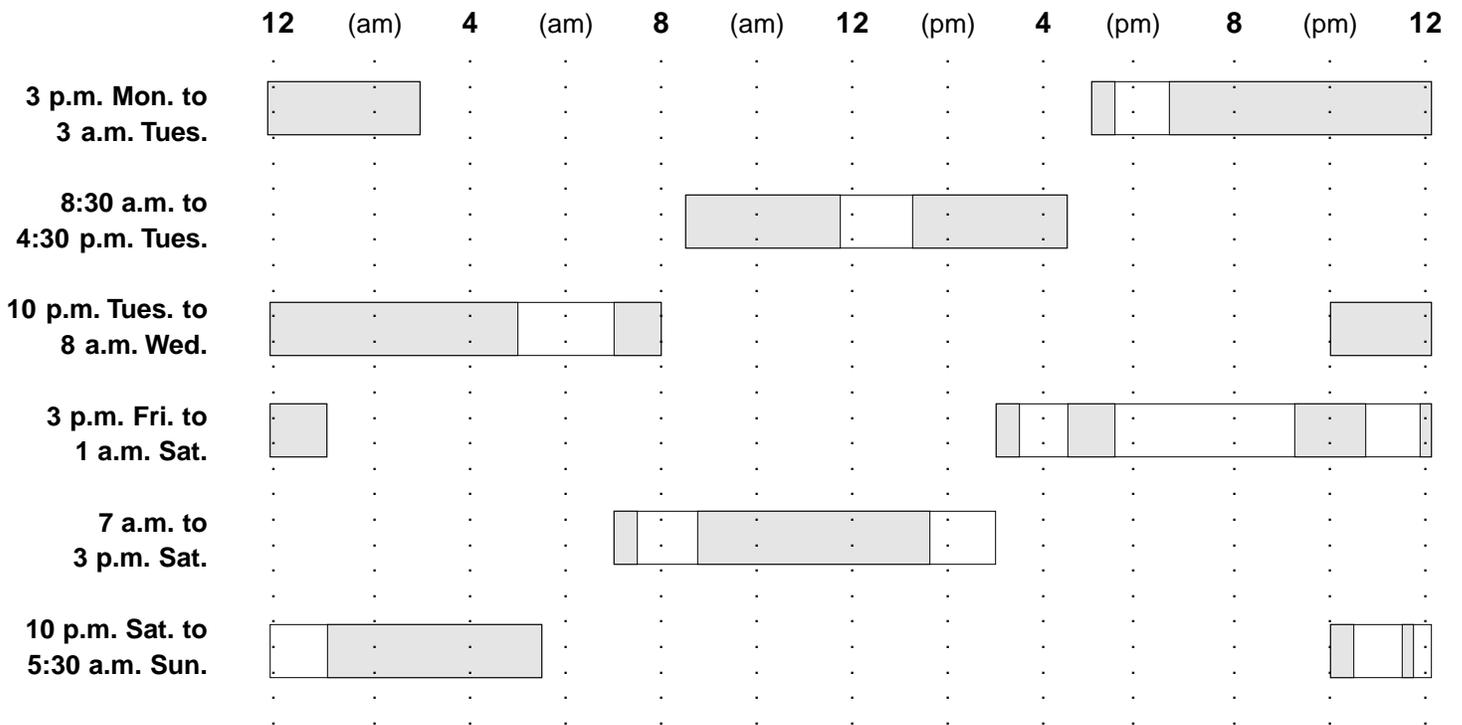


EAST PRECINCT Blocks of Uncommitted Time on Ride-Alongs



= Time on calls and administrative tasks
 = Uncommitted time (blocks at least 1 hour long)

NORTH PRECINCT Blocks of Uncommitted Time on Ride-Alongs



= Time on calls and administrative tasks
 = Uncommitted time (blocks at least 1 hour long)

Appendix C

Officer Comments During 18 Ride-Alongs

What kind of work do you do in addition to calls?

No. of Officers	Officer Response
15	Surveillance - vehicles (e.g., stolen/abandoned cars, parking enforcement)
7	Surveillance - general
5	Surveillance - prostitutes
4	Surveillance - problem establishments (e.g., motels, bars, apartments)
4	Surveillance - problem people (e.g. drunks, transients, mentally ill)
3	Surveillance - wanted people
3	Surveillance - drug deals
7	Contact with public/businesses - walk and talk
3	Contact with public/businesses - neighborhood associations, other organ.
5	Other - self-initiated cover, gather gang and drug intelligence, follow-up of domestic violence and burglaries

How do you figure out what needs to be done in your district?

No. of Officers	Officer Response
8	Familiarity with the type of calls received in the district
6	Talking to local residents and businesses
5	Surveillance of the district
5	Sharing information with other officers
4	Reading information posted on the district board
2	Information received at roll call
1	Information obtained from neighborhood associations
1	Communicating with detectives
1	Knowledge gained from working on special details
1	Information provided by the multi-agency task force on fugitives

What problems do you face in trying to do community policing work?

No. of Officers	Officer Response
7	Not enough time
2	Not enough officers to handle all problems and calls
1	Blocks of time between calls are random/irregular
1	Getting called away while in the middle of something
1	Special units don't take calls, thus increasing the call load of officers who do
1	BOEC doesn't follow Bureau policy that E-relief cars are to take calls until midnight, then serve as cover
1	Lack of support/resources from other City bureaus
1	Recidivism of the people involved
1	Unrealistic expectations
1	Lack of resources while on the street
1	Unwilling/uncooperative citizens (e.g., reluctant to get involved, conform to deviant peer pressure to go along with group/gang)
1	Don't get community policing training that special units (e.g., NRT) get
1	Delayed follow-up on crimes because Bureau policy requires detectives to do all case investigation
1	Cannot get information on cars/people when DMV is "down"
1	Lack of City policies prohibiting pan handling, living in cars, etc.
1	It's unsafe doing drug enforcement in a one-officer car

What would help you the most to work on neighborhood problems?

No. of Officers	Officer Response
3	More patrol officers
2	Public agencies available during night shift's hours
2	Good citizen cooperation in doing self-protection
2	A 4-10 shift
1	More time
1	More monitoring by Bureau management to ensure community policing strategies are being used by street officers
1	More information sharing among shifts
1	A better system for identifying/highlighting neighborhood problems
1	MDTs in patrol cars to access call-for-service information
1	Dependable information on neighborhoods from the community instead of just district reports
1	Help from GET in gathering intelligence on gangs
1	More in-service training on community policing
1	More public education on community policing
1	More partnership agreements to clarify roles and expectations of police and citizens
1	Adequate community resources to support creative police work
1	More incentives for officers to remain a district officer
1	Permanent patrol district assignments
1	Fewer specialized units
1	Special units (e.g., NRT, Domestic Violence) that work nights
1	More decentralization
1	Mental health interdiction teams
1	A place to take mentally ill to prevent a crisis situation
1	Ordinances that support police in dealing with neighborhood concerns
1	BOEC adhere to policy of giving calls to E-Relief officers until midnight

Appendix D

Overtime Analysis

Analysis of Bureau Overtime Expenditures

In conjunction with our review of patrol deployment, Bureau commanders asked us to review the growth in recent years in Bureau overtime expenditures. Commanders were unsure why overtime expenditures had increased dramatically. It was suggested their method of deploying staff, based primarily on call-load, was outmoded given the Bureau's transition to community policing.

Our analysis indicates that while overtime expenditures have increased, overtime hours worked by Bureau personnel are about the same. It does not appear that community policing, or an "outmoded" deployment methodology, is having a negative impact on overtime.

The reason overtime expenditures have increased is because more Bureau personnel are taking immediate cash payments for overtime worked instead of opting for compensatory time off. As shown in Table 10, immediate cash payments increased by \$1.2 million from FY 1986-87 to FY 1992-93, while the value of compensatory time decreased the same amount--\$1.2 million. Total Bureau overtime expenses remained the same--\$4.9 million (in constant dollars)--during the seven-year period.

Table 10 Police Bureau Overtime Expenses, FY 1986-87 through FY 1992-93 (constant dollars, in millions)

Fiscal Year	Cash Payments	Value of Comp. Time	Total Expense
1986-87	\$ 3.0	\$ 1.9	\$ 4.9
1987-88	2.9	2.0	4.9
1988-89	2.8	1.6	4.4
1989-90	3.2	1.7	4.9
1990-91	3.6	not avail.	not avail.
1991-92	3.7	0.7	4.4
1992-93	4.2	0.7	4.9
Change ('87-'93) (%)	+ \$ 1.2 (+40%)	- \$ 1.2 (-63%)	\$ 0 (0%)

SOURCE: Bureau accounting records/IBIS.

At the precincts, total overtime expenses (including compensatory time) have actually declined. As shown in Table 11, precinct overtime expenses declined by 12%, dropping from \$2.6 million in FY 1986-87 to \$2.3 million in FY 1992-93 (in constant dollars).

Table 11 Precinct Overtime Expenses - Including Cash Payments and Dollar Value of Compensatory Time, FY 1986-87 - FY 1992-93 (constant dollars)

Fiscal Year	Central Precinct	East Precinct	North Precinct	All Precincts
1986-87	\$ 733,000	\$ 1,010,000	\$ 860,000	\$ 2,603,000
1987-88	867,000	1,112,000	936,000	2,916,000
1988-89	754,000	892,000	943,000	2,589,000
1989-90	896,000	866,000	868,000	2,630,000
1990-91	not avail.	not avail.	not avail.	not avail.
1991-92	542,000	716,000	733,000	1,991,000
1992-93	649,000	883,000	753,000	2,285,000
Change ('87-'93) (%)	-\$ 84,000 (-11%)	-\$127,000 (-13%)	-\$ 107,000 (-12%)	-\$318,000 (-12%)

SOURCE: Bureau accounting records/IBIS.

We performed a detailed review of Bureau overtime records during two weeks of November 1992. Our sample included only overtime worked at the three precincts and excluded court overtime. As shown in Table 12, "officer shortage" and "late work" (e.g., an officer completing a citizen call after the end of his/her shift) constituted most of the overtime worked at the precincts (41% and 22% of the total, respectively). Attendance at neighborhood meetings made up only 5% of total overtime worked. We also found in conducting our analysis that reporting of overtime work categories was sometimes inconsistent. For example, some overtime worked in order to staff a special detail was

coded as "personnel shortage." Bureau managers have recognized this problem and indicated new procedures are needed to ensure accurate reporting.

Table 12 Non-Court Overtime Hours Worked, November 1992

Reason for Overtime	Central Precinct	East Precinct	North Precinct	All Precincts	%
Officer Shortage	18	423	186	627	(41%)
Late Work	76	139	122	337	(22%)
Special Events	34	82	104	220	(14%)
Training	7	65	48	120	(8%)
Administrative	0	85	16	101	(7%)
Neighborhood Meetings	22	22	30	74	(5%)
Missions/Details	37	0	6	43	(3%)
TOTAL	194	816	512	1522	(100%)

SOURCE: Auditor review of Police Bureau overtime slips for November 5-17, 1992

Appendix E

FY 1992-93 Deployment Data

The graphs in Figures 3, 4 and 5 are based on the data in the following table. The data represent half hour averages for FY 1992-93, and are based on complete data for 8 weeks during August and November, 1992, and February and May, 1993. The data are:

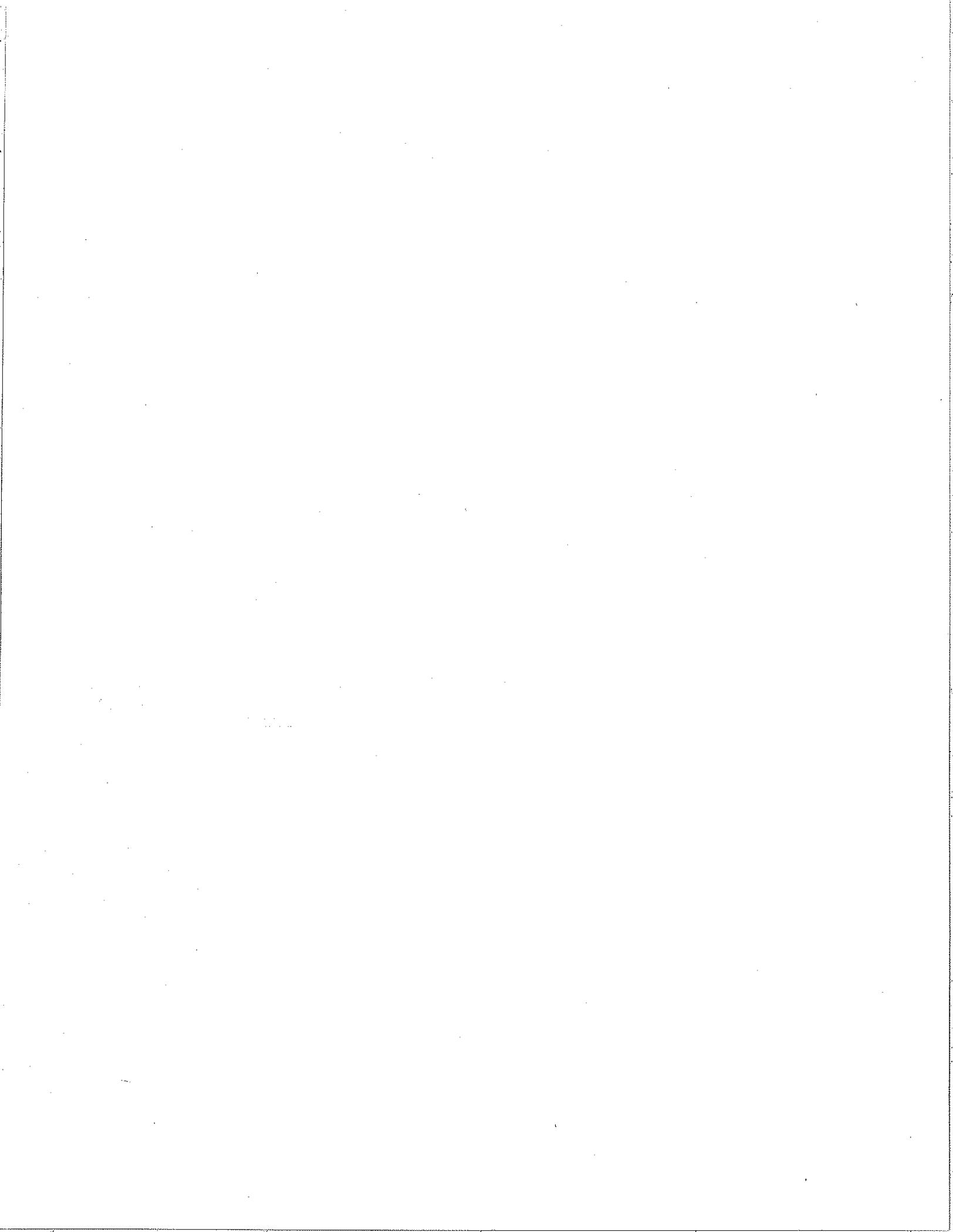
- Call (N) - number of calls-for-service dispatched during the half hour
- Call (Mins) - number of minutes that all cars, including cover cars, were busy on calls during the half hour
- Cars - number of district and/or beat cars that were deployed
- Busy time - minutes of calls divided by total available car minutes; e.g., between midnight and 12:30 cars in Central Precinct spent an average of 150 minutes on calls; there were 17.7 cars deployed on average; $17.7 \text{ cars} \times 30 \text{ minutes} = 531 \text{ available car minutes}$; $150/531=28\%$ of time busy on calls
- Travel time - average travel time, in minutes, to high priority calls (priority 1 and 2)

The number of patrol cars deployed was collected from the precincts' daily assignment rosters. The calls-for-service and travel time data were extracted from the Police Bureau's "CAD Incident" computer tapes of information from the computer-aided dispatch system.

FY 1992-93 Deployment Data

	CENTRAL					EAST					NORTH				
	Calls		Cars	Busy time	Travel time	Calls		Cars	Busy time	Travel time	Calls		Cars	Busy time	Travel time
	N	Mins				N	Mins				N	Mins			
MIDNIGHT	3.3	150	17.7	28%	3.7	8.8	317	25.0	42%	4.3	5.2	264	27.3	32%	3.4
12:30 am	3.6	141	20.2	23%	3.4	8.0	307	25.0	41%	4.8	5.4	257	22.6	38%	3.9
1:00 am	3.3	142	16.1	29%	3.9	7.0	281	25.0	37%	3.9	5.0	259	17.9	48%	3.7
1:30 am	2.3	110	16.1	23%	3.9	6.0	270	25.0	36%	4.0	4.1	236	17.9	44%	3.8
2:00 am	2.4	108	16.1	22%	3.2	5.9	253	25.0	34%	3.6	3.7	203	17.9	38%	3.5
2:30 am	2.6	102	16.1	21%	3.2	5.3	244	25.0	33%	4.2	3.3	165	13.4	41%	4.4
3:00 am	2.3	94	16.1	19%	3.9	4.5	221	25.0	29%	4.1	2.8	132	8.9	49%	3.2
3:30 am	1.6	76	13.0	19%	3.6	4.1	189	20.9	30%	4.9	2.4	100	8.9	37%	3.4
4:00 am	1.2	62	9.9	21%	4.2	3.7	164	16.8	33%	5.4	2.1	78	8.9	29%	3.6
4:30 am	1.2	52	9.9	18%	4.7	2.3	130	16.8	26%	5.3	1.8	61	8.9	23%	5.0
5:00 am	0.9	41	9.9	14%	5.7	1.6	71	16.8	14%	5.0	1.2	40	8.9	15%	4.6
5:30 am	0.4	14	9.9	5%	6.4	0.8	26	16.8	5%	8.0	0.5	17	8.9	6%	7.4
6:00 am	0.7	15	9.9	5%	6.0	1.7	32	16.8	6%	5.1	1.1	24	8.9	9%	4.8
6:30 am	0.8	27	8.3	11%	4.7	1.8	61	16.8	12%	6.7	1.4	49	8.9	18%	5.0
7:00 am	0.9	27	6.6	14%	5.3	2.2	64	12.6	17%	7.2	1.2	47	8.9	18%	6.2
7:30 am	1.3	29	6.8	14%	8.0	2.2	68	8.8	26%	8.1	1.6	46	8.9	17%	7.4
8:00 am	1.8	33	3.4	32%	7.6	4.0	84	4.7	60%	5.7	1.7	59	4.2	47%	6.5
8:30 am	2.6	73	12.9	19%	6.5	4.1	137	20.9	22%	5.5	2.5	61	4.2	48%	6.0
9:00 am	2.3	75	12.9	19%	8.2	4.5	139	20.9	22%	5.2	3.5	109	13.5	27%	5.6
9:30 am	2.6	92	12.9	24%	5.6	4.5	150	20.9	24%	5.0	3.4	131	13.5	32%	5.4
10:00 am	2.8	108	12.9	28%	5.6	4.6	167	20.9	27%	5.6	3.1	138	13.5	34%	5.7
10:30 am	2.6	101	12.9	26%	4.8	5.1	177	20.9	28%	5.4	3.8	164	13.5	40%	7.1
11:00 am	2.3	93	12.9	24%	4.7	5.1	196	20.9	31%	5.2	3.6	160	13.5	40%	4.5
11:30 am	2.8	90	12.9	23%	6.3	5.3	203	20.9	32%	5.9	3.8	163	13.5	40%	5.0
NOON	2.9	109	12.9	28%	5.1	5.9	223	20.9	36%	5.8	3.8	175	13.5	43%	5.7
12:30 pm	3.3	123	12.9	32%	4.4	6.0	229	20.9	37%	6.9	4.0	181	13.5	45%	4.9
1:00 pm	3.1	117	12.9	30%	4.4	5.7	237	20.9	38%	5.8	4.4	199	13.5	49%	4.3
1:30 pm	3.2	109	12.9	28%	4.3	6.1	244	20.9	39%	5.5	4.1	203	13.5	50%	6.5
2:00 pm	3.2	118	12.9	30%	5.0	5.5	237	20.9	38%	5.8	4.2	207	13.5	51%	4.6
2:30 pm	2.8	117	11.2	35%	4.9	5.5	234	18.6	42%	5.9	3.6	185	11.4	54%	5.0
3:00 pm	2.8	100	9.5	35%	5.8	4.5	203	16.3	42%	6.3	3.9	189	9.3	68%	5.1
3:30 pm	3.9	126	12.9	33%	6.0	5.1	188	15.6	40%	7.2	5.6	215	18.7	38%	6.6
4:00 pm	3.9	130	8.1	53%	4.8	6.9	210	7.4	95%	7.5	4.7	202	14.1	48%	5.9
4:30 pm	4.1	136	8.1	56%	5.3	10.0	330	23.3	47%	6.0	4.8	197	9.4	70%	4.5
5:00 pm	3.8	131	8.1	54%	6.8	8.3	374	23.3	54%	6.8	5.5	209	9.4	74%	6.3
5:30 pm	3.4	120	8.1	49%	6.4	8.2	361	23.3	52%	5.6	7.1	260	18.5	47%	4.9
6:00 pm	4.4	126	8.1	52%	5.1	8.8	351	23.3	50%	5.4	6.5	255	18.5	46%	4.3
6:30 pm	4.4	146	14.1	35%	5.1	9.6	377	31.6	40%	5.7	5.8	246	18.5	44%	3.9
7:00 pm	4.1	145	14.1	34%	4.2	8.4	386	31.6	41%	5.4	5.2	239	18.5	43%	3.7
7:30 pm	3.4	135	14.1	32%	3.9	8.4	376	31.6	40%	5.4	6.1	250	18.5	45%	4.3
8:00 pm	4.0	144	14.1	34%	4.0	8.1	358	31.6	38%	5.5	5.9	255	18.5	46%	3.6
8:30 pm	3.9	151	14.1	36%	3.2	8.2	369	31.6	39%	6.3	5.9	252	18.5	45%	5.1
9:00 pm	3.8	152	14.1	36%	4.4	9.2	387	31.6	41%	5.0	6.5	266	18.5	48%	3.5
9:30 pm	3.4	138	14.1	33%	5.1	9.2	412	31.6	43%	5.1	6.5	292	18.5	53%	4.0
10:00 pm	3.9	143	14.1	34%	4.5	8.6	394	31.6	42%	5.1	6.4	291	18.5	52%	4.3
10:30 pm	3.5	150	14.1	35%	4.7	9.0	381	36.1	35%	5.3	7.9	317	27.3	39%	3.7
11:00 pm	3.8	132	14.1	31%	3.4	8.1	363	32.4	37%	4.7	6.8	296	27.3	36%	3.6
11:30 pm	3.7	137	17.2	27%	3.5	8.5	343	24.4	47%	4.7	6.0	287	27.3	35%	3.3
Ave. (½ hr)	2.8	104	12.4	28%	5.0	5.9	240	22.3	36%	5.5	4.2	180	14.6	40%	4.8

Responses to the Audit





City of Portland
Vera Katz
Mayor

M E M O R A N D U M

DATE: February 18, 1994

TO: City Auditor Barbara Clark

FROM: Mayor Vera Katz *VK*

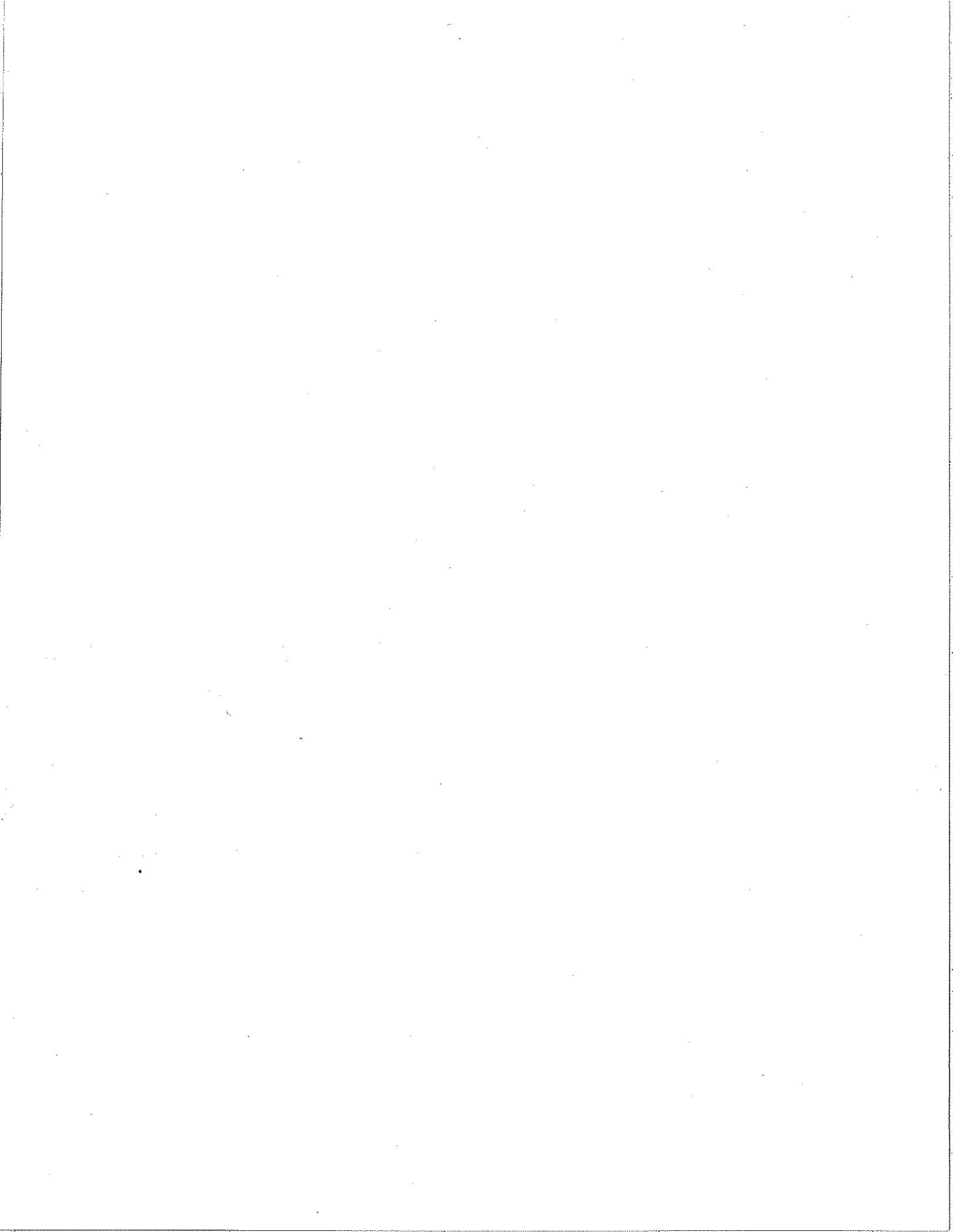
SUBJECT: Auditor's Report on Police Bureau Patrol Staff Deployment

I would like to thank you and your staff for the thorough work done on the Deployment of Patrol Staff report. I was pleased to see the report reflect the significant progress the Police Bureau has made in improving the delivery of patrol service to our citizens. The report also highlights the value of problem-solving activity as a key element of community policing, and notes the value of solid operations data as a management tool in making strategic decisions about patrol deployment.

My office agrees with the critical issues you identify for Police Bureau follow-up -- overtime, performance measurements and management information -- and will work with the bureau to ensure results are reported on the suggested schedule.

Again, thank you for your hard work and comprehensive results. I understand from the bureau your staff performed in a very professional, courteous and receptive manner throughout the project, and I commend you all for your efforts.

cc: Charles Moose, Chief of Police





CITY OF
PORTLAND, OREGON
BUREAU OF POLICE

VERA KATZ, MAYOR
Charles A. Moose, Chief of Police
1111 S.W. 2nd Avenue
Portland, Oregon 97204

MEMORANDUM

February 15, 1994

TO: City Auditor Barbara Clark

RE: Auditor's Report on Patrol Staff Deployment

The Portland Police Bureau reviewed your report on Deployment of Patrol Staff in the Portland Police Bureau 1994. The report acknowledges that the Bureau has improved matching workload and staffing and precincts, a recommendation of the 1987 patrol deployment audit, and that the City has followed through on hiring additional officers for patrol, a recommendation of the 1990 National Institute of Law and Justice (ILJ) report. This audit provides us with valuable information to better respond to community safety issues, and we appreciate the analysis your staff has provided.

The audit brought up several important issues that we will be addressing:

- **Overtime:** The report's detailed analysis of overtime deployment and compensation will assist the Bureau in prioritizing community issues in our deployment model as part of our work with neighborhood based deployment strategies.
- **Performance measurement:** The Bureau agrees that performance measurements are necessary to maintain credibility and accountability as a public agency, and our grant work with the National Institute of Justice (NIJ) will create a national model for community policy performance measurements. The creation and monitoring of these measurements is a major component of our 1994-96 Strategic Plan.
- **Management information:** The Bureau acknowledges the constant need for complete data about daily operations that is needed to monitor deployment efficiencies and effectiveness. The new Computer Aided Dispatch (CAD) system and its Management Information System (MIS) system will greatly improve our ability to collect this data.

Bureau members who participated in this report said that your staff sought out all information relevant to the report and were receptive to our comments and contributions. Thank you for your hard work and professionalism in creating this valuable tool.

Charles A. Moose

CHARLES A. MOOSE
Chief of Police

CM:MP/jb

