

CITY AND COUNTY OF HONOLULU

**REPORT OF A RECONNAISSANCE STUDY
OF THE CITY AND COUNTY OF HONOLULU**

FINAL REPORT

MARCH 1994

CITY AND COUNTY OF HONOLULU, HAWAII

REPORT OF A RECONNAISSANCE STUDY
OF THE CITY AND COUNTY OF HONOLULU

TABLE OF CONTENTS

<u>Chapter</u>		<u>Page</u>
I	EXECUTIVE SUMMARY	I-1
	Police Department	I-1
	Fire Department and Emergency Medical Services	I-4
	Public Works Department	I-7
	Parks And Recreation Department	I-9
	Public Transit Authority	I-11
	Other Departments And Issues	I-12
	Implications	I-13
II	INTRODUCTION	II-1
	Objectives And Scope	II-1
	Study Approach	II-2
	Arrangement Of This Report	II-2
III	OVERVIEW	III-1
	Description of the City and County	III-1
	Governance	III-1
	Organization	III-1
	Resources	III-4
	Quality of Management	III-5
IV	POLICE DEPARTMENT	IV-1
	A-Background	IV-1
	B-Findings And Recommendations	IV-5
	Patrol	IV-5
	Community Policing and Intervention Programs	IV-12
	Investigations	IV-14
	Other HPD Operations and Issues	IV-16
	Criminal Justice System	IV-19
	C-Areas for Further Study	IV-21
	D-Staffing And Budget Implications	IV-23

TABLE OF CONTENTS (Continued)

<u>Chapter</u>		<u>Page</u>
V	FIRE DEPARTMENT AND EMERGENCY MEDICAL SERVICES	V-1
	A-Fire Protection Concepts	V-1
	B-Background: Fire Protection	V-4
	C-Findings And Recommendation: Fire Protection	V-9
	Station Location and Apparatus Deployment	V-9
	Apparatus Staffing	V-15
	Organization	V-15
	Fire Suppression Relief	V-16
	Fire Prevention	V-19
	Overall Management	V-20
	D-Background: Emergency Medical Services	V-21
	E-Findings And Recommendations: EMS	V-23
	F-Areas For Further Study	V-30
	G-Staffing and Budget Implications	V-31
VI	PUBLIC WORKS DEPARTMENT	VI-1
	A-Background	VI-1
	B-Findings And Recommendations	VI-4
	Refuse Operations	VI-4
	Land Acquisition	VI-9
	Road Maintenance	VI-10
	C-Areas For Further Study	VI-12
	Vehicle and Equipment Purchasing Approaches	VI-12
	D-Staffing And Budget Implications	VI-12
VII	PARKS AND RECREATION DEPARTMENT	VII-1
	A-Background	VII-1
	B-Findings and Recommendations	VII-4
	Programs, Fees, and Planning	VII-4
	Parks Maintenance and Recreation	VII-6
	Maintenance Support Services and Facilities Development	VII-11
	C-Areas for Further Study	VII-16
	D-Staffing and Budget Implications	VII-17

TABLE OF CONTENTS (Continued)

<u>Chapter</u>		<u>Page</u>
VIII	PUBLIC TRANSIT AUTHORITY	VIII-1
	A-Background	VIII-1
	B-Findings and Recommendations	VIII-3
	Operations	VIII-3
	Organization and Governance	VIII-4
	C-Staffing and Budget Implications	VIII-7
IX	OTHER DEPARTMENTS AND ISSUES	IX-1
	A-Findings and Recommendations	IX-1
	Department of Transportation	
	Services (DTS)	IX-1
	Coordination of Road Work	IX-2
	Motor Vehicle Licensing	IX-2
	Safety and Worker's Compensation	IX-3
	Risk Management and Construction	IX-4
	B-Staffing and Budget Implications	IX-5
X	IMPLEMENTATION	X-1
	Implications	X-1
	Next Steps and Action Plan	X-2
	Keys to Structuring Implementation	X-2
	Priorities for Further Assistance and Study	X-5

I - EXECUTIVE SUMMARY

I - EXECUTIVE SUMMARY

The City and County of Honolulu is generally well-managed. In fact, Honolulu's managers are among the brightest, most professional, and most service-oriented we have encountered in our many consulting engagements. There are, however, a number of opportunities to reap substantial operating efficiencies, often while enhancing the quality of service to the public. This report of our reconnaissance study of the city government outlines a number of specific steps which can be taken to achieve these efficiencies and improvements, and highlights a number of areas meriting further study. This chapter highlights the major findings and recommendations in each department reviewed, and summarizes the staffing and budget implications of the recommendations.

POLICE DEPARTMENT

The Honolulu Police Department (HPD) is the primary law enforcement agency on Oahu. It provides a full range of typical police services including responding to calls for service and other incidents, performing follow-up investigations of crimes, enforcing various laws and ordinances, and working with the community to minimize crime and fear. The Department is staffed with nearly 2,500 permanent positions, including nearly 2,000 sworn police officers, and has an annual operating budget of nearly \$120 million, not including benefits.

The level of violent crime in Honolulu is very low compared with the rest of the nation and compared with other large cities. The property crime rate is higher than national averages, although the rate is inflated somewhat by Honolulu's large number of visitors. The HPD's performance according to such measures of response time, crime solution, and working relationship with the Prosecuting Attorney is generally solid.

Patrol

Regular beat patrol officers work evenly-staffed rotating shifts. The calls-for-service workload, however, is not even throughout the day. As a result, there are some times of day when not enough officers are on duty to be sufficiently responsive, and other times of day when more officers are on duty than necessary. There are similar variations in workload across patrol districts. Moreover, the average call workload per officer is somewhat lower than expected. It is recommended that patrol staff allocations be adjusted to better match the pattern of call workload throughout the day and across districts, while maintaining a high level of responsiveness to citizens and a reasonable workload for officers. A specific plan for adjusting the patrol allocation is presented in the report, along with a plan for officer shift scheduling that will continue to meet contract parameters. Annual savings of approximately \$2.2 million are possible as a result.

The HPD should also expand its successful Alternative Call Servicing (ACS) program. The program, which gives citizens the option of handling certain routine cases over the telephone rather than in person, offers a much more efficient way of handling certain calls. The program does not yet operate on weekends however, and its current cost structure is higher than necessary because it is staffed exclusively with officers and their utilization is below potential. The Department should expand ACS coverage to weekends, increase staff slightly, and change the mix of staff to include civilians. Savings of nearly \$600,000 can be achieved.

The Department's vehicle program includes a mix of 1245 unmarked subsidized cars, and approximately 110 marked cars shared by 259 patrol officers. With such a heavy reliance on unmarked cars, the HPD fails to project the visibility that such a large number of cars ordinarily would provide. Moreover, because only the marked cars have prisoner shields, there can be delays in the field in waiting for a "blue and white" to come and transport a suspect. We recommend converting to a take-home car plan featuring all marked cars purchased (or leased) by the city. Because the operating costs of a police fleet tend to be proportional to total miles driven rather than the number of cars in stock, we estimate that the city can convert to this plan at a relatively small annual cost, while achieving substantial benefits in HPD visibility and operational flexibility.

Community Policing and Intervention Programs

The Department has undertaken a number of innovative programs that emphasize crime prevention, early intervention, and improved communication with the community. Unlike some other police departments who have invested inordinate resources into "innovative" programs with little to show as a result, the HPD has taken a balanced approach to investing in such programs and can demonstrate signs of success. The Department should continue to implement a community oriented policing philosophy throughout the Department, but proceed with care. In particular, it should keep its activities tied to crime and fear-related issues, maintain a focus on results, continue to leverage external resources, and set reasonable expectations for what specialized and regular beat patrol officers can accomplish.

In the area of youth programs, the HPD has been considering how best to coordinate various programs within the Juvenile Crime Prevention Division and the Community Relations Division. We encourage the Department to consolidate these programs within one division to achieve greater coordination and to achieve operating efficiencies.

Investigations

The Criminal Investigations Division operates according to sound case management practices, and its staff are assigned full case workloads. If the

Department proceeds with a planned decentralization of property crime investigations, it should proceed cautiously to preserve the success that has already been attained.

The primary opportunity for efficiency within investigations is to make the rank structure more flexible. Currently, almost all criminal investigators have a rank equivalent to sergeant. The Department can reduce its costs by close to \$500,000 and achieve greater flexibility in staff assignment throughout the Department by adjusting the rank structure in investigations to include a mix of officers at the police officer and sergeant levels.

Other HPD Operations

The Department spends an excessive amount of money on stand-by pay for officers who have been subpoenaed by the Prosecuting Attorney to be available to appear at court proceedings with no fixed dates. Over the long-term, the city should work with the Judiciary to determine if scheduling practices can be adjusted to achieve greater certainty and predictability in case scheduling. In the near-term, the HPD and Prosecuting Attorney should take steps to obviate the need for subpoenas, and to ensure officer attendance in court through more cost-effective means. Specifically, we have suggested establishing a court liaison unit within the HPD to ensure such attendance. If this unit can help reduce stand-by pay by just 50 percent, net annual savings will be nearly \$800,000.

The HPD's Central Receiving Unit processes and holds the majority of arrestees on Oahu. It is presently staffed almost exclusively with sworn police officers. We recommend that the HPD use primarily civilian staff in Central Receiving, either directly or under contract with the State Department of Public Safety. Annual savings are projected to be \$200,000.

Criminal Justice System

There are clear indications that the criminal justice system is out of balance. Specifically, the HPD and Prosecuting Attorney have more capacity to arrest and prosecute than the state's Judiciary and Corrections operation have to judge and punish. As long as this situation continues, the HPD will be frustrated in its attempts to reduce property and other non-violent crime. The city should work with the state to move the criminal justice system into greater balance, particularly by identifying cost-effective means to expand judicial and correctional capacity.

FIRE DEPARTMENT AND EMERGENCY MEDICAL SERVICES

Fire and EMS operations are discussed in the same chapter because they are both part of the same emergency medical response system, and because there is potential for greater integration of their operations.

The Honolulu Fire Department is the primary fire protection and rescue agency on the island of Oahu. Its core fire protection services are provided through 39 engine companies and 13 ladder companies (as of April 1994), along with several other specialized companies, located throughout the island. The Department is authorized 1,065 employees and has an operating budget of \$45 million, not including benefits. It responds to approximately 11,000 calls for service per year. The largest category involves "first responder" services to emergency medical calls. Just 27 percent are fire related, and just 4 percent (about one per day) involve structure fires.

Emergency medical services are provided by the EMS Division of the Health Department, under contract to the state. The Division operates 16 ambulances from sites around the island, including some co-located with fire stations. The Division is authorized 212 positions, and has an operating budget of \$10.5 million, not including benefits. The EMS Division comprises more than 90 percent of the staff and budget of the Health Department.

Fire Protection Concepts

Certain basic concepts are central to considering fire suppression service and costs:

- The number of fire stations/companies should reflect a balance between the level of responsiveness expected by the community and the costs involved. The primary measure of responsiveness is the time it takes for an engine to travel from the station to the scene of a fire call.
- Small increases in response time have only a marginal impact on public safety. Engine response time is just one component of several in the response to a fire. It often takes longer to detect, call in, and dispatch a fire than to respond, so marginal reductions in response time may have minimal impacts on the overall response.
- Fire stations/companies should be located to avoid overlaps in primary coverage areas. Once one decides what the maximum acceptable response time should be, first-due boundaries for each station can be drawn based on travel speed assumptions. There is little value in enabling more than one company to respond within the first due target.

- The number of staff assigned to an apparatus is often less important than the total number responding to a fire scene. The frequency of real working fires is quite small compared with the total volume of fire calls. When working fires do occur, they are never fought by one company alone. The capacity to fight the fire is determined by the total amount of resources at the scene.

Station Location and Apparatus Deployment

We conducted a thorough examination of HFD station location and apparatus deployment using a sophisticated geographic modeling tool tailored to Honolulu. The analysis assumed a maximum engine travel time of four minutes island-wide, and three minutes in selected high-density, high-value areas. The analysis assumed a maximum ladder response time of eight minutes island-wide, and 6 minutes in selected high-density, high value areas. Since these standards are maximums, most calls would be responded to in half this time. These assumptions reflect an extremely high level of service that exceeds what many other cities expect.

Our analysis shows that there are several clear areas of overlap, as well as some gaps in engine and ladder coverage under the current apparatus deployment pattern. We therefore recommend a reconfiguration of the engine and ladder deployment to eliminate most of the overlaps, and to fill the gaps. As a result, one ladder will need to be re-assigned stations, while three engines and three aerial companies can be discontinued. The new configuration will not result in any perceptible decrease in citizens' safety while enabling the city to save approximately \$4.1 million per year in operating costs.

Company Structure

The Department is in the process of converting its apparatus staffing to an island-wide standard: a minimum of four fire fighters on an engine and five on a ladder (including one captain on each). Although staffing a minimum of four on an engine is quite appropriate (some cities run with three), there is no need to staff a minimum of five on a ladder. Just two fire fighters are needed to erect the ladder, with the remaining fire fighters present to provide general support at the fire scene. Moreover, at any working fire, several companies with one to two dozen (depending on location) fire fighters will be dispatched to the scene immediately; the marginal benefit of one or two extra ladder-based fire fighters is quite small. That is why many fire departments in the U.S. and Canada use a minimum of just four on a ladder, or even three. Honolulu should convert its minimum ladder staffing from five to four, saving more than \$1.3 million in annual operating costs.

Relief Practices

To ensure proper minimum staff at all times on each apparatus, the Fire Department needs to employ extra fire fighters to provide relief for absences due to illness, vacation, and other reasons. The Department has chosen to provide relief by allocating one extra fire fighter per company. For example, five are assigned to an engine to ensure that four will be on duty at any one time. Although this system has the advantage of simplicity and reliability, it also provides far more relief than needed to ensure that minimum staffing standards are met. In fact, analysis of fire fighter absence statistics suggests that the department employs 94 more fire fighters than are needed to fill the number of absences. We recommend, therefore, that the Department reduce the number of staff available for relief by assigning an extra fire fighter to just over half, not 100 percent, of all fire companies. At the same time, the Department should establish a pool of trainee positions to ensure that routine turnover does not leave essential field positions vacant. Altogether, these changes will still provide a margin of 16 more fighters than strictly necessary for relief (to ensure that the recommendation is easy to manage), while saving the Department at least \$2.3 million per year.

Organization and Management

The Fire Department is in the process of reorganizing at both the administrative and company levels. Aside from our recommended changes in station location, ladder deployment, and ladder staffing, we encourage this reorganization to proceed. Among other things, it will provide needed resources to Fire Prevention, and will add to the management capacity at the Battalion level.

Other improvements to Fire Department management are possible through a greater reliance on quantitative analysis. The Department would be well-served in its future planning to develop the capacity to analyze such critical issues and trends as station location, relief factors, and company responsiveness more systematically.

EMS Governance

The State of Hawaii sets standards, supplies funding and training, and provides detailed operational oversight of all county EMS operations. From a financial perspective, the most distinctive feature of this approach is that it represents a subsidy by Honolulu's economy of EMS services on the less populated (and more expensive to serve) islands. From an operational perspective, it prevents Honolulu from exercising the control over EMS operations that most local governments around the country enjoy.

Given its size and competence, the city should lobby the state for more control over its EMS operations. Ideally, the state would devolve all responsibility for EMS back to the local governments, with a concurrent reduction in taxes. Realistically,

the current financial structure is likely to continue. At the very least, then, Honolulu should seek greater operational control. For example, Honolulu could receive a lump sum grant for EMS services from the state, agree to meet certain general service standards, and be free to make most critical operations decisions on such issues as staffing, scheduling, and deployment on its own. This would enable managers to better tailor the service to local needs, and more reasonably be held accountable for the quality of service.

Fire and EMS Integration

The Fire Department and EMS Division are already a part of the same emergency response system. An analysis of call patterns in both departments suggests that some greater integration of the two departments could lead to substantial cost savings while maintaining a high level of service. Indeed, it is possible that some of these savings could be used to fund needed enhancements to the EMS service. Before rushing forward to integrate the departments on a mass scale, however, the city needs to confront a host of very real obstacles, which include differences in contracts, union representation and organizational culture between the two groups, as well as a fundamental concern for mutual respect and commitment to service quality objectives.

We recommend, therefore, that the city begin by experimenting with an integration of Fire and EMS companies in just seven low-volume locations. In these locations, a single Fire/EMS company with a minimum staff of five could respond to both Fire and EMS calls. Staff would be cross-trained, and projected annual savings would exceed \$1.2 million. The city would then evaluate this experiment to determine whether it makes sense to continue, and/or to expand integration more broadly. Careful planning and negotiation, including negotiation with the state, are prerequisites to making this experiment work.

PUBLIC WORKS DEPARTMENT

The Public Works Department oversees the acquisition, design, construction and maintenance of the city's public infrastructure. It also provides refuse collection and disposal services, and maintains most of the city's automotive fleet. The Department has more than 1,300 authorized positions, and an annual operating budget of more than \$140 million, not including benefits. \$84 million of this budget is accounted for as "current expense," most of which support the H-Power waste to energy facility, operated under contract. Refuse Collection is the largest division, with 587 authorized positions, or 45 percent of the Department total.

Refuse Operations

Refuse collection operations are far less efficient than their potential. There are four main reasons:

- The city has not implemented wide scale automation of its collection vehicles, which enables the crew size to drop from three to one, and greatly reduces stress and potential injury for the remaining operator;
- The operators' Ukupau, or task system, has been designed to allow them to work an average of just three and a half hours per day;
- The Division has not been allocated sufficient staff for relief - as a result, an excessive number of hours are logged on overtime, at time and a half;
- The city continues to offer twice a week collection despite the fact that the second pick-up of the week collects substantially less trash.

Department managers have clearly been aware of the first two problems. In fact, they have been able to establish one experimental automated route which has demonstrated its efficiency (as it has in dozens of other cities). Little progress has been made toward capturing these opportunities on a broad scale, however, largely due to the lack of agreement with the UPW on a plan of action.

We recommend that the city move forward aggressively to capture these huge efficiencies. If it makes all the recommended changes - automating all routes amenable to automation, expecting a more reasonable day's work under Ukupau, switching to once a week collection for automated routes, and providing sufficient relief - annual savings of \$9.4 million are possible.

Given the magnitude of these potential savings, the city should take steps to capture the efficiencies more aggressively than simply through attrition. We are not suggesting that staff be laid off. Rather, if the changes were implemented immediately, a pool of several hundred refuse collection staff could be created to work on other, temporary projects for the city. These might include in-house resurfacing of streets, or improvement of park facilities. The city and UPW might agree on some other set of tasks that would be even more appropriate.

Land Acquisition

Staff in the Abstract Section of the Land Acquisition perform numerous title searches without the benefit of technology. They conduct their research from paper records at various state facilities. And yet, private title search companies have already invested in computerized databases of these same records, and will gladly provide title search services to the city for a fee. Our analysis of the internal

vs. contracted out costs reveals that it will be considerably less expensive for the city to contract out this research, under the coordination and review of city staff. Potential savings are approximately \$150,000.

Road Maintenance

In general, the Road Maintenance Division does an excellent job at planning and implementing a program to keep Honolulu's roads in relatively good condition. It is recommended that the Division explore further certain preventive maintenance techniques that may enable the useful life of Honolulu's roads to be extended even further.

PARKS AND RECREATION DEPARTMENT

The Parks and Recreation Department offers a broad array of cultural, recreational and leisure opportunities for citizens and visitors. Building on the island's foundation of natural beauty, it offers "passive" recreation at a large number of beaches, shoreline parks, and other parks, along with related water safety services; organized recreation and instruction programs; island-wide beautification projects; and special interest programs and activities at city golf courses, botanic gardens, and the zoo. The Department also serves the community through its recreation centers, which offer swimming, gyms, and spaces for gatherings. Altogether, the department maintains approximately 434 sites and nearly 6,000 acres of land.

The Department is authorized 1,161 full time permanent staff, and 339 temporary and contract positions. Its operating budget is approximately \$52 million, not counting benefits.

Programs, Fees, and Planning

The Department provides a broad array of programs under a variety of fee arrangements. Although Department managers are clearly very service oriented, and there are mechanisms for both Council and community input, the Department has not had occasion to perform a systematic, comprehensive strategic review of its program mix and fee structure. Moreover, there are signs that the current mix of fees may be less than optimal. It is recommended that the Department undertake a strategic review of its programs and fees that addresses:

- Community interests and needs;
- Satisfaction and participation in current programs;
- The mix of programs and fees offered by other providers;

- Priorities for service, and how these can be reflected in consistent fee policies.

Parks Maintenance and Recreation

The Department provides a high quality of maintenance service in its parks and other facilities. There is potential to maintain this high level of service while gaining greater productivity from its maintenance staff. In fact, detailed inspections of a set of sample parks suggest that staff may be operating under their capacity by as much as 30 percent.

Boosting productivity will require at least two steps: 1) increasing supervisory capacity to ensure a manageable span of control, and 2) using greater flexibility in assigning maintenance staff to multiple parks. We are confident that taking these two steps will enable the Department to achieve a near-term 10 percent increase in productivity, resulting in an annual savings of approximately \$600,000. Quality control can be further enhanced by enabling recreation staff to more formally rate the performance of maintenance staff at their parks.

Additional efficiencies may be possible by placing mowing crews on a task system. Of course, the task system would need to be calibrated to ensure that staff work a reasonably long day.

Maintenance Support Services and Facilities Development

The overall record of Maintenance Support Service's (MSS) responsiveness to parks' maintenance requests appears to be a decent one. There are signs of unevenness in service by area, however, and concerns that a portion of legitimate work requests may never get completed. These problems are exacerbated by poor performance reporting and communication between MSS and other divisions of the department. As a first step, MSS and the Parks Maintenance and Recreation Division should focus on developing a work management and reporting system that will enhance communication and accountability among all staff concerned with parks maintenance. This information can then be used to address problem areas as needed, or to reorder priorities. Beyond the basic work management system, the Department should also plan to implement a paperless work ordering system. This will speed communication of maintenance needs, and make it easier to keep the work management database up to date.

Another key maintenance problem has been the Department's inability to plan and implement budgeted major maintenance programs. We recommend that the Department make a priority of ensuring that budgeted monies for these "work programs" are spent on schedule, and suggest a number of options to address the problem.

The efficiency of MSS operations can be improved by restructuring the level of staff assigned to trades crews, and the flexibility with which they are deployed. Savings from these changes are projected to be approximately \$70,000.

PUBLIC TRANSIT AUTHORITY

The Honolulu Public Transit Authority (HPTA) is a semi-autonomous agency established through a recent charter amendment to oversee the city's transit operations, including TheBus, TheHandi-Van, and Private Enterprise Participation programs. The HPTA began full operation on January 1, 1992.

The HPTA administration has 27 authorized positions, and a budget of approximately \$1.7 million. The total HPTA budget, including funding to contractors, exceeds \$100 million.

Day to day operation of TheBus is managed by Oahu Transit Services (OTS), a private, non-profit company. OTS hires, trains, and schedules drivers; conducts labor relations; maintains the buses, and supervises bus operations. The city provides operational funding, buses, facilities, and other equipment and supplies to for OTS use. The HPTA provides general operational oversight and planning, and conducts marketing and community relations activities. The Department of Transportation Services, in conjunction with others, manages citywide transportation planning, and handles development of required plans and reports to the Federal Transit Administration. The City Council retains overall policy control through its control of bus fares and the HPTA budget.

Operations

By many measures, TheBus is already operating quite efficiently. The primary operational need is to expand system capacity to provide more adequate levels of service: there are many examples of overcrowding. The city therefore needs to consider the best way to provide a stable long term source of funding that can support such growth. The report explores several alternatives, and concludes that, at least, the Council should establish a target percentage of revenues to come from the rider fares, and to rely primarily on fares to fund system enhancement.

Organization and Governance

The creation of the HPTA generated some controversy, and we have been asked to consider its organization and governance. The report explores the advantages and disadvantages of the current structure and several alternatives.

It is clear that in its first two years of existence, the HPTA has attained a number of accomplishments in planning, analysis, operational improvement, and public participation. It has also helped to promote a much-needed fare increase.

We are not convinced, however, that the HPTA structure is necessary to make such accomplishments happen. Indeed, such accomplishments ought to be possible within a regular department structure. Moreover, the HPTA structure has contributed to a fragmentation of transportation planning, organizational friction with DTS, and slightly higher administrative costs.

Alternatives to consider include, on the one hand, a strengthening of the HPTA roles to include authority over fares and budgets; and, on the other hand, an elimination of the HPTA altogether. We view the first alternative as inappropriate for Honolulu. General fund revenues provide such a high proportion of the funding that Council, not an unelected authority, is the more rightful source of control. Moreover, Honolulu does not contain multiple jurisdictions that would make an inter-jurisdictional authority a necessity. We therefore conclude that the transit system would be best overseen within a regular department structure, such as DTS, and that the city should consider reverting to this arrangement over the long term. Of course, given the effort and resources that have gone into establishing the HPTA, it would be understandable if the city deferred action on this recommendation.

OTHER DEPARTMENTS AND ISSUES

Transportation Planning

In the wake of the demise of the Rapid Transit Project, the Department of Transportation Services has re-assigned some of its rapid transit development staff to perform transportation planning. The new unit is authorized 16 positions, and its roles are still being defined. Based on a reconnaissance-level analysis of plans for this group, we believe that excessive resources have been devoted to this function, particularly in light of possible overlaps in responsibility with other groups both within and outside of DTS. The size and role of the Transportation Planning Group should be reviewed in more detail, with the intention of streamlining this group and its functions.

Motor Vehicle Licensing

There are opportunities to reduce costs within motor vehicle licensing through changes in state laws that require unnecessarily frequent renewals for young drivers, and excessive written testing for drivers renewing their licenses. Applying technology to the written testing will also enhance efficiency.

Safety and Worker's Compensation

The city already has the elements of a sound program to address safety and worker's compensation issues. The primary potential for improvement in this area involves more creative operational approaches that can improve safety and reduce costs, and, most importantly, changes in the state legal framework which contribute to the high costs.

IMPLICATIONS

Implementing all the recommendations outlined in this report will enable the city to eventually achieve annual savings of more than \$23 million, and to discontinue 545 positions. At least as important, these savings can occur without diminishing the quality of services citizens receive, and, in many cases, will enhance the level of services provided.

It is not our intention or the city's that these recommendation result in layoffs. Rather, through managed attrition, the city can reap substantial savings while treating its workers equitably.

A summary of the recommendations' staffing and budget implications, as well as suggestions for implementation, are presented in chapter X. The chapter presents our recommendations as to priorities for additional attention and study. In our view, the city would be best served by focusing first on ways to achieve implementation of the major recommendations in this report, and then turning to the potential for improvement in other departments.

Full implementation of all this report's recommendations will take several years. What is critical to long term success is gaining broad agreement soon to move forward with these changes, and to begin the path of action.

II - INTRODUCTION

II - INTRODUCTION

This chapter discusses the objectives and scope of our management study, the study approach, and the arrangement of this report.

OBJECTIVES AND SCOPE

The primary purpose of the reconnaissance-level management study was to assess the potential for improvement among various city departments, to identify selected opportunities which can be acted upon immediately, and to identify priorities for more detailed analysis. Specific recommendations for action, where appropriate, have been developed.

This study was performed under the sponsorship of both the Honolulu City Council (as authorized in Resolution 93-126) and the City Administration. Throughout the project, staff from the Office of Council Services and the Budget Department provided assistance to study team members.

The primary purpose of the study was fulfilled through a set of specific objectives:

- Examine the need for City services in Honolulu now and in the foreseeable future
- Assess the extent to which the City departments have been able to meet the expectations set for them, and identify factors that limit their ability to do so
- Evaluate, at a reconnaissance level, the organization, administration, and operations of City departments
- Identify potential opportunities to improve the departments' organization, administration, and operations, with particular attention to improving service quality and reducing operating costs
- Highlight selected opportunities for improvement that may be acted upon immediately
- Determine what departments would benefit most from detailed evaluation, and develop a prioritized list of departments and issues for further study.

Technically, the study scope included all city departments (except Wastewater Management) as well as the Public Transit Authority. The study has been designed, however, to devote primary attention to departments with the largest staffs and budgets, including Police, Fire, Public Works, Parks and Recreation, and the Transit Authority.

STUDY APPROACH

A range of quantitative and qualitative analytical methods was used in conducting this study. Interviews were one key means of gathering information and testing ideas. Interviews were held with all key managers and staff at all levels within the primary City departments. Interested City Council members and union representatives were interviewed in order to gather a sense of their priorities and concerns. In all, more than 400 interviews were conducted during the study.

The study team also analyzed a range of organizational and operation documents and data, including budgets, staff reports, annual department reports, activity logs, staffing rosters and schedules, policies and procedures, manuals, and State laws. Among the specialized data reviewed in each department were crime statistics and patrol call volumes for the Police Department; call histories and station location data for the Fire Department; ridership statistics for the Transit Authority; refuse collection schedules and tonnage reports for the Public Works Department; and fee schedules and parkland inventories for the Parks and Recreation Department.

ARRANGEMENT OF THIS REPORT

This report is arranged in ten chapters, as follows:

- I - **Executive Summary** - outlines the major conclusions and recommendations of the study;
- II - **Introduction** - (this chapter);
- III - **Overview** - presents a general introduction to the Honolulu government;
- IV - **Police Department** - presents ways in which the Police Department can enhance its effectiveness and efficiency;
- V - **Fire Department and EMS** - examines the current organization and operation of the fire and EMS services on the island, and recommends ways in which they could both improve;

- VI - **Public Works Department** - discusses ways in which the Public Works Department can reduce its operating costs;
- VII - **Parks and Recreation Department** - reviews the organization and management of the Parks and Recreation Department and presents recommendations for improvement;
- VIII - **Public Transit** - evaluates the effectiveness of the Public Transit Authority and discusses options for improving its organization and operation;
- IX - **Other Departments and Issues** - discusses a variety of issues associated with other City and County departments, including issues in the Finance and Personnel Departments;
- X - **Implementation** - addresses the immediate steps that should be taken to take advantage of the report's recommendations, plus a framework to initiate and monitor implementation of specific recommendations. A prioritized list of issues and departments that would benefit most from further study is also included.

Each chapter addressing a specific department includes sections on the department's background, findings and recommendations for change, areas for further study, and a summary of staffing and budget implications.

III - OVERVIEW

III - OVERVIEW

This chapter briefly summarizes general background information on the City and County and its government structure. It also offers some general observations on the government's quality of management.

DESCRIPTION OF THE CITY AND COUNTY

The City and County of Honolulu includes the entire island of Oahu (approximately 604 square miles) and has an estimated resident population of 879,000. At any one time, visitors add to this resident population by tens of thousands. Marked by two substantial mountain ranges, most of the city's development is concentrated in downtown Honolulu (the "primary urban center"), and, to a lesser extent, in the Central Oahu and Koolau-poko areas.

GOVERNANCE

The city is governed by nine-member Council elected by district, and a Mayor who serves as chief executive officer. A Managing Director, appointed by the Mayor, serves as his principal administrative aide and directly supervises most of the city's major operating departments.

ORGANIZATION

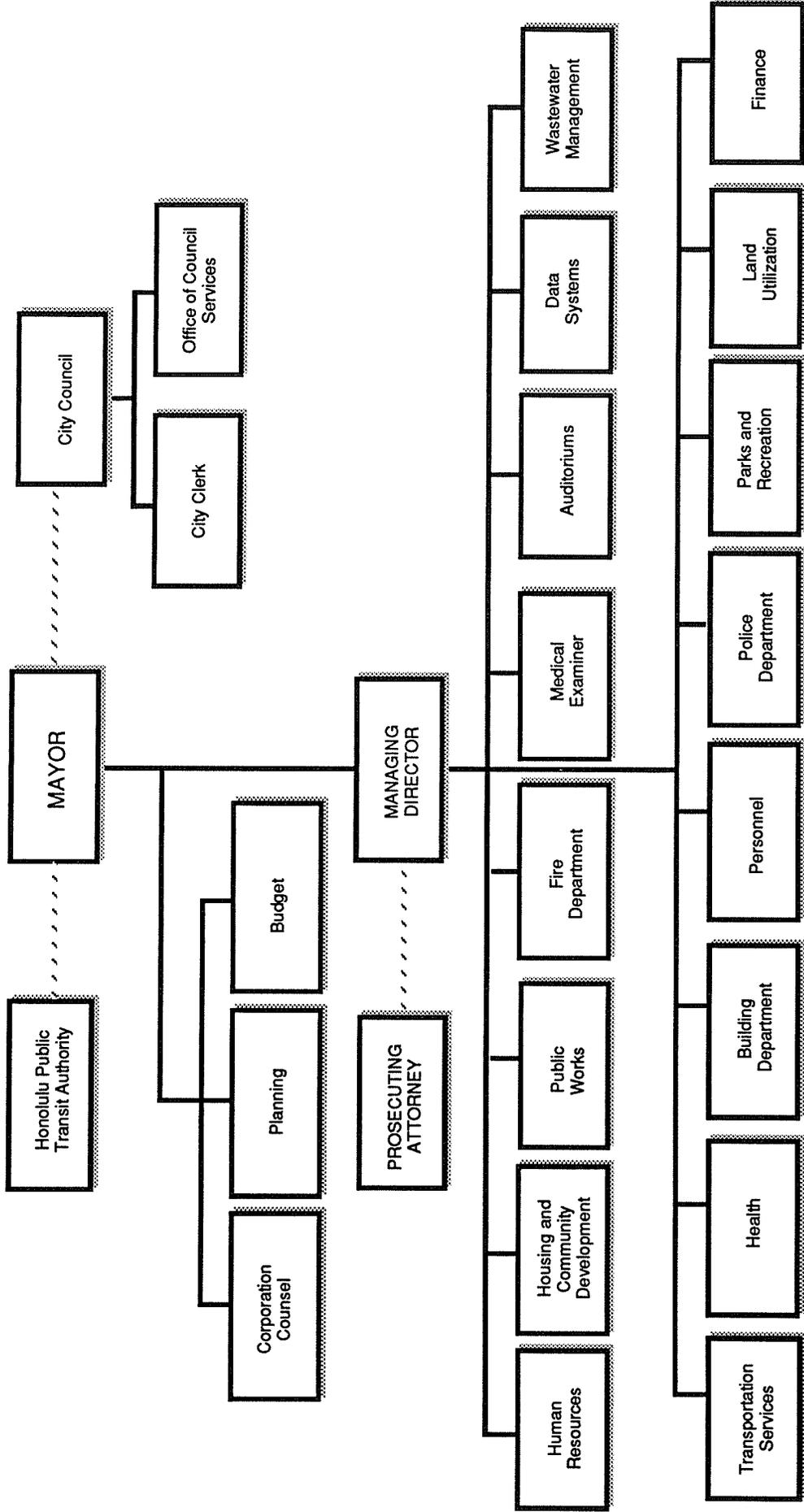
Exhibit III-1 presents the general organization of the city, showing the major operating departments. A number of other offices, agencies, boards, councils, and commissions are not included in this chart. The departments of Corporation Counsel, Planning, and Budget are supervised directly by the Mayor; the other major operating departments are supervised by the Managing Director. The Public Transit Authority, one of the city's semi-autonomous agencies, is also depicted on this chart. These responsibilities of these departments are summarized below.

Department of Auditoriums - serves the city by marketing, operating, and maintaining the Blaisdell Center and the Waikiki Shell for the benefit of the community. The facilities provide opportunities for profit and nonprofit organizations to stage concerts, exhibitions, sporting events, conventions, trade shows, fairs, receptions, and seminars.

Department of the Budget - is responsible for preparing and submitting the operating and capital program and budget, as well as reviewing the operating and capital budget program schedules of each executive agency.

City and County of Honolulu

Overall Organization of Departments



This chart does not include a number of agencies, councils, boards, and commissions that are affiliated with City Offices and Departments.

Building Department - administers and monitors planning, design, construction, and maintenance of buildings. It directs and enforces the building, electrical, plumbing, housing, and all other related codes and ordinances for all private and commercial construction. The Department also interprets and applies the policies of the Administration and the City Council on the overall use of city buildings. Finally, it is responsible for the maintenance, repair, and alterations of municipal buildings under its jurisdiction.

Personnel Department - is the central personnel staff agency for the city. Its primary purpose is to establish a comprehensive personnel management program based on merit principles and generally accepted methods governing the classification of positions and the employment, conduct, movement, and separation of public employees. The Director of Personnel represents the Mayor in the collective bargaining process.

Department of the Corporation Counsel - serves as the chief legal advisor and legal representative of all agencies, the Council, and all officers and employees in matters relating to their official powers and duties, and represents the city in all legal proceedings.

Department of Data Systems - provides computer support to all city agencies and advises the Mayor and the Managing Director on all data processing matters. Computer support includes project management, planning assistance, systems analysis and design, systems maintenance and development, office automation planning and installation, computer programming, computer operations, data entry, and computer training.

Department of Finance - is the central accounting agency for the city. It is responsible for the management and integrity of the city's revenue, disbursement activities, and financial records. It also manages the city's real property and monetary assets, maintains real property and equipment inventories, administers a centralized purchasing responsibility, and manages the city's risk management program. The Department also issues licenses for drivers, motor vehicles, trailers, wagons, bicycles, dogs, and businesses.

Fire Department - is the major fire protection and suppression agency for the island of Oahu. The Department is responsible for fire suppression, the city's fire inspection program, and providing education programs related to fire suppression and prevention.

Planning Department - prepares, maintains, and administers the General Plan and Development Plans, and reviews the Executive Operating Budget and Capital Improvement Programs and Budget for conformance to the General Plan and Development Plans. The Department advises the Mayor and City Council on matters concerning the planning program and addresses major urban issues that

affect the social, economic, and physical development of the city. The Department also provides administrative and technical support to the Planning Commission and Executive Planning Committees.

Department of Health - operates the city pre-hospital emergency medical care and emergency ambulance services; conducts health assessments for city employees and pre-employment physical examinations of potential city employees; conducts annual physical examinations on police officers, fire fighters, paramedics, and water safety officers; conducts biennial examinations for DOT certifications of heavy vehicle operation and crane and hoist clearances; evaluates certain Workers' Compensation cases and other examinations requested by department heads; represents the city in industrial injury cases; and serves as liaison with other health institutions.

Public Transit Authority - oversees Honolulu's public transit systems. A seven-member board governs the Authority. Five members are appointed by the Mayor and confirmed by the City Council. The directors of the Finance and Transportation Services Departments serve as the remaining two board members in an ex-officio capacity. This board appoints an Executive Director to oversee the agency's day-to-day operations of PTA staff and TheBus, the Handi-Van, and private enterprise participation program contractors.

Housing and Community Development - implements projects and programs utilizing the combined capabilities and resources of the city, state and federal governments to develop housing and achieve sound community development. The Department also researches, formulates, and executes experimental and demonstration housing projects to further development of low-to-moderate income housing.

Human Resources - develops and administers projects, programs, and plans of action for human resources and human service programs and acts as the local public officer for the purpose of implementing federally aided and state-aided human resources and human services programs.

Department of Land Utilization - prepares, maintains, administers, and enforces zoning, subdivision, and environmental protection ordinances, rules and regulations, amendments, and revisions; establishes review procedures of land utilization applications; hears and determines petitions for varying the application of the zoning ordinance; and generally oversees all functions of land use policy implementation.

Department of the Medical Examiner - investigates sudden, unexpected, violent, and suspicious deaths. The purpose of such an investigation is to discover, document, and preserve the medical, anatomic, or evidentiary findings that will allow the department to determine the cause and manner of death.

Parks and Recreation Department - offers residents recreation programs and provides parks as well as other sites for leisure activities such as Honolulu's beaches, the zoo, botanical gardens, and municipal golf courses.

Police Department - serves as the primary law enforcement agency for the island of Oahu. Its responsibilities include preservation of the public peace; protection of the rights of persons and property; prevention of crime; detection and arrest of criminals; enforcement and prevention of violations of state laws and city ordinances; and service of processes and notices in civil and criminal proceedings.

Public Works Department - is responsible maintaining infrastructure such as roads, bridges, highways, and drainage and flood control systems; provides refuse collection and operates disposal facilities, energy recovery operations, and recycling programs. The Department also acquires land, prepares construction plans and specifications, and inspects and maintains improvements. It also operates the city's automotive and equipment garage, and manages a large capital improvement program.

Department of Transportation Services - is responsible for the efficient, safe, and expeditious movement of traffic on city streets and roadways and for planning and coordinating public mass transportation systems and facilities.

Department of Wastewater Management - plans, designs, and constructs wastewater facilities; operates and maintains sewer lines, treatment plants, and pump stations; and chemically treats defective cesspools. The Department also operates and maintains the Wilson Tunnel facility and certain storm drain pump stations.

RESOURCES

The city's operating expenditures for fiscal 1994 are projected to be approximately \$994 million. Public safety (\$183 million), sanitation (\$168 million), and debt service (\$168 million) are the largest programmatic components of this total (the accounting allocations to public safety and sanitation do not reflect the costs of staff benefits, which are accounted for separately). There are more than 10,000 authorized positions. Operating revenues are expected to total \$1.1 billion. The largest components of these revenue are real property taxes (\$436 million) and sewer revenues (\$112 million).

QUALITY OF MANAGEMENT

The City's Management Is Very Professional And Service-Oriented

The consultants have studied more than 400 city and county governments throughout North America. Honolulu's managers are among the brightest, most professional, and most service-oriented we have seen. In general, managers have a clear understanding of the critical issues faced by their operations, and are focused on making improvements that will address these issues. Each department we have examined can cite numerous examples of new approaches and programs that have been put in place to improve service to the public, and, in some cases, to limit operating costs. Staff at all levels exhibit pride in their service to the community. Citywide, there is a clear commitment to thorough planning and budgeting.

The City Has Not Been Aggressive In Pursuing Labor Efficiencies

For a variety of reasons, the city has not been particularly aggressive in pursuing labor efficiencies. One example is the slow pace of automation of refuse collection, discussed later in this report. Despite the potential to reduce costs substantially while maintaining a high level of service, the city has not pushed particularly hard to implement this automation. There are many other examples of areas in which the city has been reluctant to pursue opportunities to meet its responsibilities with fewer employees.

The city's caution in pursuing labor efficiency appears to result from several factors. The state government has helped to establish a climate that has been described as strongly pro-labor, and it is the state who coordinates the city's labor negotiations and establishes laws and regulations on such matters as workers' compensation. Until recently, a buoyant economy has also made it relatively easy to focus on service expansion, and to avoid the often unpleasant task of restructuring to achieve efficiencies.

The fact that the Council and Administration have hired Towers Perrin to examine opportunities for efficiency is one signal that city leaders recognize that as economic circumstances have become less favorable, there is a greater need to address the city's cost structure in more fundamental ways. It is hoped that the city will find ways to engage the state's strong unions as strong partners in achieving efficiencies that will benefit all citizens over the long term.

IV - POLICE DEPARTMENT

IV - POLICE DEPARTMENT

The Honolulu Police Department is an effective law enforcement agency that is generally well-managed. Honolulu's crime rates are far below that of other major U.S. cities, and the Police Department can claim a share of the credit in maintaining this level of security on the island. Moreover, the Department's leadership should be complemented for aggressively promoting a number of programs to address community concerns more closely, to apply early intervention strategies, and to handle the call workload more efficiently.

The major opportunities for improvement within the Department involve adjusting patrol staff allocation to more closely match call workload, adjusting the mix of staff, including civilians, assigned to certain roles, and integrating the department's community policing philosophy carefully into daily patrol activities. There is also the potential to greatly enhance officer visibility and responsiveness through changes in the vehicle program. The reconnaissance has also identified a number of other potential opportunities for improvement that merit further attention.

Looking beyond the Police Department alone, we have identified a number of issues concerning the criminal justice system as a whole. Limitations in judicial and corrections capacity have pushed the system out of balance, and fail to make full use of the efforts of police and prosecutors in creating an effective deterrent. In addition, there are opportunities to substantially reduce officer stand-by pay for court appearances through closer cooperation with the Prosecuting Attorney and the Judiciary.

This chapter first presents general background on the Honolulu Police Department, followed by findings and recommendations for improvement. The chapter concludes with a discussion of areas meriting further study, and a summary of the staffing and budget implications of implementing the recommendations.

A - BACKGROUND

SCOPE OF SERVICES

The Honolulu Police Department (HPD) is the primary law enforcement agency on the island of Oahu. It is responsible for maintaining order, responding to calls for service, investigating crime, and conducting follow-up criminal investigations to assemble evidence for prosecution. The Department is also called upon to enforce traffic, narcotics, and other laws and ordinances, and to serve the community in a variety of other ways. The Department works closely with the Prosecuting Attorney and other elements of the criminal justice system.

LEVEL OF CRIME

The level of violent crime in Honolulu is quite low, and the level of property crime is moderate to low. The level of crime is best evaluated in terms of the crime rate. Exhibit IV-1 shows the crime rate on Honolulu for seven "Part I" crimes tracked nationally by the F.B.I. Over the last several years, the rate of violent Part I crimes per 100,000 population has been substantially lower than the national average, while property crime is about even with the national average. If one were to factor in Honolulu's large visitor population, the property crime rate would also be below the national average.

Among the 20 largest cities in the U.S., Honolulu is at or near the bottom in its rate of both violent and property crime. These low to moderate crime levels have remained relatively constant over the last decade.

ORGANIZATION AND RESOURCES

The HPD's organization and staffing is presented in exhibit IV-2. The Department is organized into six bureaus. The Central and Regional Patrol Bureaus provide the Department's primary patrol presence, and contain the largest numbers of officers. The two bureaus are presently coordinated by an Assistant Chief of Field Operations. The Investigative Bureau performs follow-up investigations of crime, primarily felonies, enforces narcotics laws, and operates special programs for juveniles. The Special Field Operations Bureau provides a variety of specialized functions, including traffic enforcement, canine, SWAT, and community relations. The Bureau also runs the Department's Central Receiving Unit, the primary holding facility for arrestees. The Support Services Bureau includes such support operations as Records and Identification, Vehicle Maintenance, and Communications (Dispatch). The Administrative Bureau includes Finance, Personnel, and Research units, as well as the training academy.

DEPLOYMENT AND SCHEDULING

The work hours of HPD officers vary, depending on their duties. Criminal investigators typically work day shifts, Monday through Friday, although a portion of the investigators are assigned night shifts and are available on call. Narcotics investigators work more flexible hours, based on the needs of their work. Patrol operations on the island are divided amongst seven "districts". Those districts are illustrated in exhibit IV-3. Most patrol officers within the seven patrol districts rotate every six to seven weeks through three regular shifts: a day shift from 6:30 a.m. to 3:15 p.m.; an evening shift from 2:30 p.m. to 11:15 p.m.; and an overnight shift from 10:30 p.m. to 7:15 a.m. 45 minutes of each of these shift is allowed for a break.

City and County of Honolulu

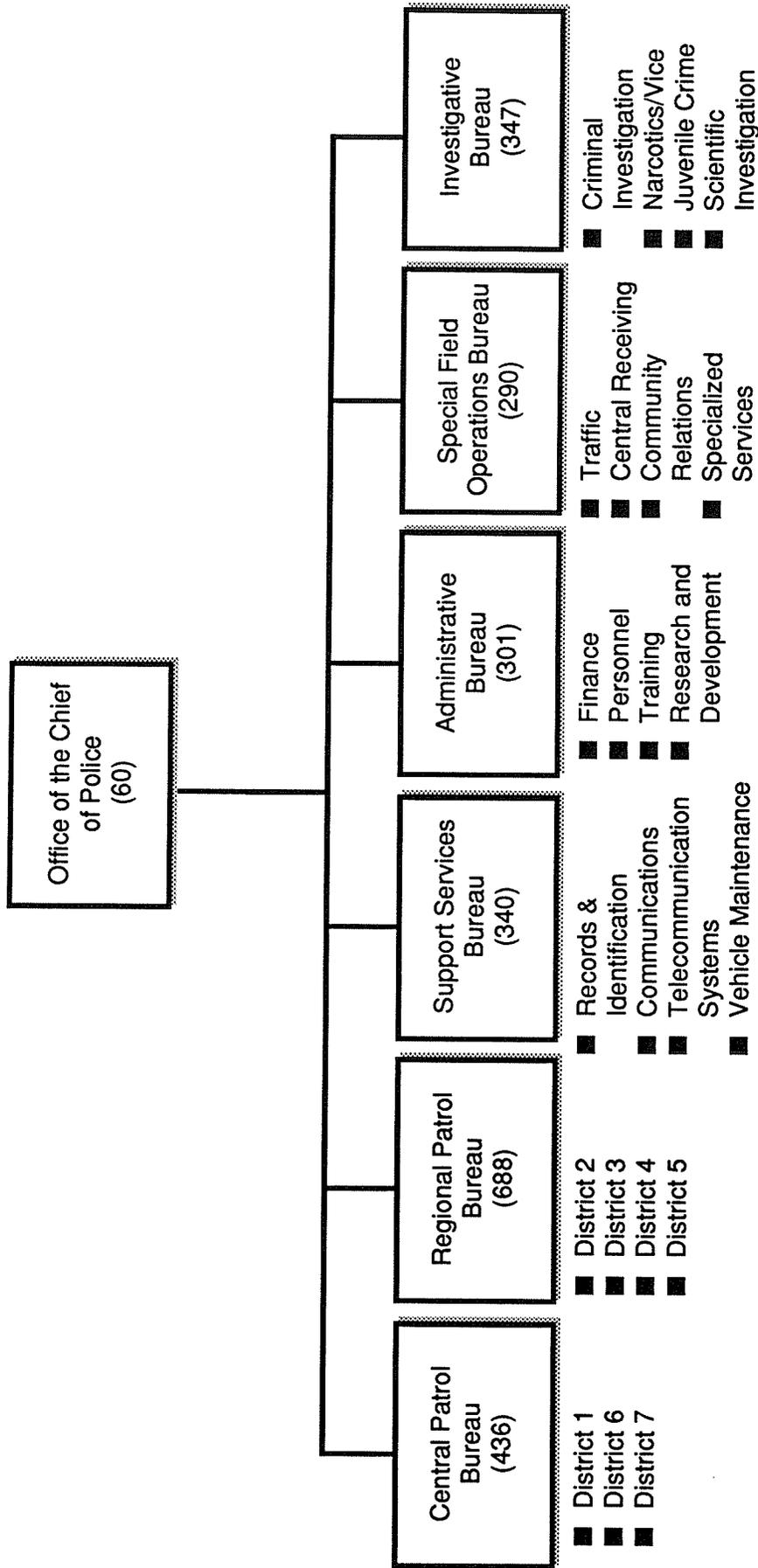
Crime Levels and Rates

Part I Offense	Honolulu Offenses 1990	Honolulu Offenses 1991	Honolulu Offenses 1992	Honolulu Rate Per 100,000 Population 1992	National Rate Per 100,000 Population 1992	Hawaii Rate Per 100,000 Population 1992
Homicide	34	29	31	4	9	4
Rape	278	275	326	38	43	38
Robbery	889	860	1,013	117	264	99
Assault	1,211	894	1,012	117	442	118
Burglary	9,785	9,905	9,106	1,053	1,168	1,121
Theft	35,514	36,019	38,563	4,459	3,103	4,357
Auto Theft	3,317	3,050	3,507	406	632	375
Total Part I	51,028	51,032	53,558	6,193	5,660	6,112

Source: Crime in Hawaii, 1992

City and County of Honolulu

Police Department - Current Organization



Total Authorized Positions: 2,462 (1,984 sworn, 478 civilian).

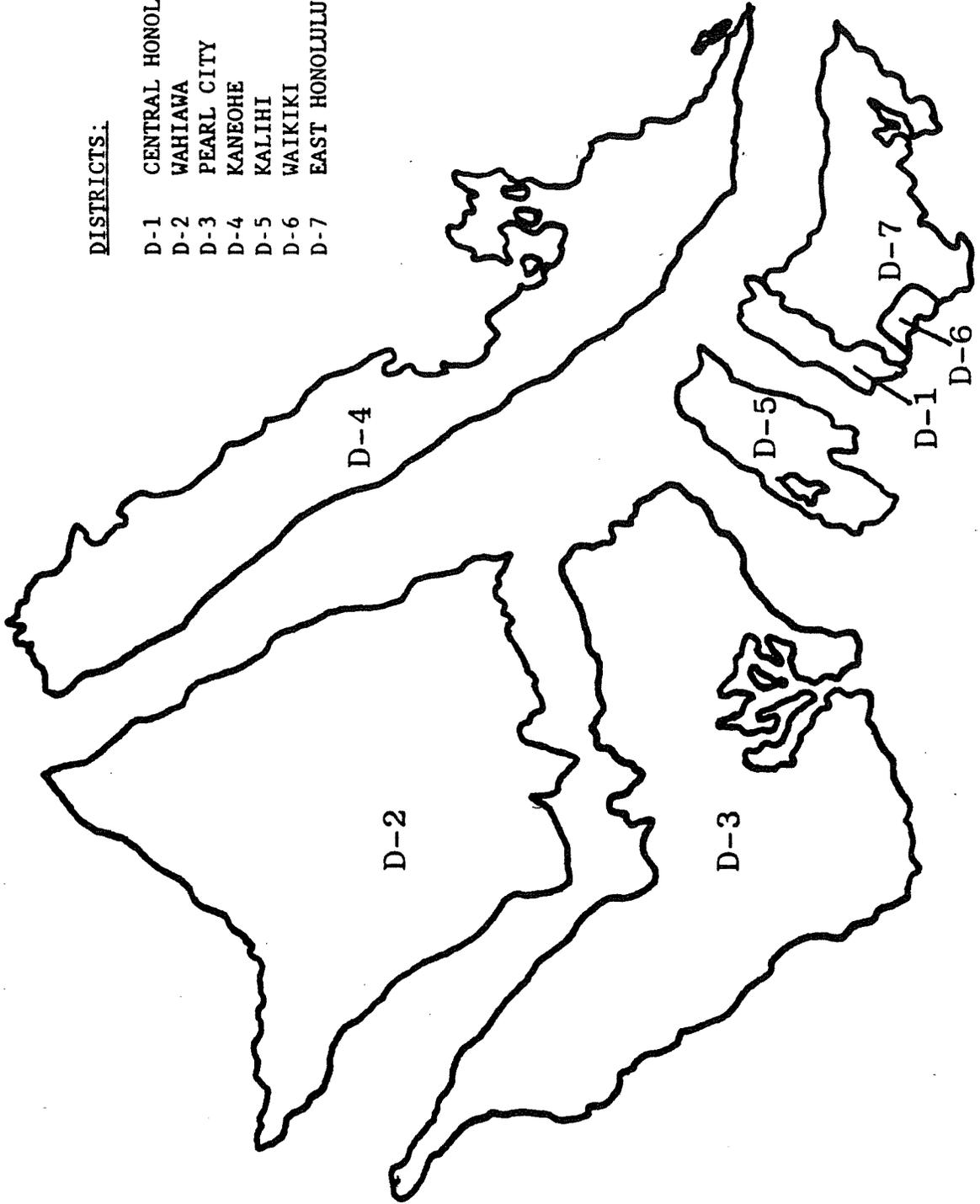
Note: This total does not include Police Commission staff. Total authorized positions are based on Police Department's organization chart as of July 1, 1993. The City and County of Honolulu's Budget indicates a slightly higher number of authorized positions (2,475 positions).

City and County of Honolulu

Police Districts

DISTRICTS:

- D-1 CENTRAL HONOLULU
- D-2 WAHIAWA
- D-3 PEARL CITY
- D-4 KANEOHE
- D-5 KALIHI
- D-6 WAIKIKI
- D-7 EAST HONOLULU



A "snapshot" of the allocation of actual patrol staff among the seven districts is presented in exhibit IV-4. This "snapshot" was assembled from work rosters from early October, 1993, and offers a breakdown of officers assigned to regular patrol shifts, as well as officers assigned to special details such as Crime Reduction Units, Community Policing Teams, Misdemeanor Follow-up Divisions, Alternative Call Servicing (ACS) Program, and other special details (e.g., substations, beach patrol, and desk duties).

The contingent of approximately 620 regular patrol officers represents the Department's primary response to citizen-initiated calls for service. On any given day, the number actually on duty will be less due to absences for vacation, illness, training, and other reasons. Based on Department records, we have estimated that patrol officers are actually on patrol duty approximately 215 days per year. The resulting "relief factor" is 1.7 (365/215), meaning that 1.7 officers are needed to fill one patrol position 365 days per year. As a result, approximately 365 of the 620 regular patrol officers are typically on duty throughout any given day, or about 120 per shift. These "regular" officers are supplemented on the street by additional officers assigned to the special details.

Most field officers drive subsidized, unmarked personal cars while on duty. These cars are outfitted with a set of standard equipment including lights, siren, and radio. The subsidized cars do not have prisoner shields. Approximately 260 officers share 110 marked blue and white police cars equipped with prisoner shields.

WORKLOAD

There are many facets to the Department's workload. Among the key workload measures reported by the Department for 1992 are handling approximately 500,000 patrol calls of various kinds, pursuing approximately 38,000 cases requiring follow-up investigation; assisting at the scene of 29,000 motor vehicle accidents, and completing nearly 50,000 arrests. Through a detailed analysis of the department's patrol call workload statistics for 1993, we have also estimated that approximately 450,000 citizen-initiated calls for service are dispatched annually to uniformed officers in the patrol districts.

PERFORMANCE

Two common quantitative measures of police performance are the clearance, or solution rates of Part I crimes, and response times to calls for service. Exhibit IV-5 presents the HPD's Part I clearance rates for the last three years, compared with the national average. The exhibit shows that the HPD's performance has been solid, but somewhat lower than the national average overall. Clearance rates in five of the seven categories have consistently matched or exceeded the national averages,

PATROL STAFF ALLOCATION "SNAPSHOT"

October 1993

DISTRICT	SUMMARY				DETAIL Of Special Duty Allocations						
	Total Sworn Staff	Total Reg. Patrol Officers	Total Special Duty Officers	Total Sergeants & Command	Crime Reduction Unit	Community Policing Team	Alternative Call Servicing	Misdemeanor Follow-up Detail	Other Duty Officers		
1	155	81	35	39	14	5	*	8	8		
2	101	71	17	13	9	3	*	1	4		
3	199	124	29	46	9	3	*	3	14		
4	166	101	23	42	13	*	*	2	8		
5	149	87	25	37	11	7	*	3	4		
6	116	62	31	23	18	*	*	0	13		
7	136	93	19	24	3	4	*	2	10		
ACS			20				20				
TOTAL	1042	619	199	224	77	22	20	19	61		

* ACS staff drawn jointly from multiple patrol districts. Misdemeanor Follow-Up for districts 1,6, and 7 is performed jointly. District 6's Crime Reduction Unit also serves as a Community Policing Team. In District 4, Community Policing is handled by the regular patrol. Excludes airport patrol.

Source: District duty rosters from October, 1993; general accuracy was confirmed with field operations commanders.

City and County of Honolulu

Crime Clearance Rates

Part I Offense	Honolulu 1990	Honolulu 1991	Honolulu 1992	National Rate 1992
Homicide	91.2%	89.7%	67.7%	64.6%
Rape	66.2%	84.4%	66.6%	51.5%
Robbery	21.4%	27.8%	24.9%	24.0%
Assault	43.9%	45.2%	41.0%	56.2%
Burglary	11.6%	17.1%	11.7%	13.4%
Theft	17.8%	20.5%	16.4%	20.2%
Auto Theft	14.4%	17.8%	15.5%	13.8%
Weighted Average	17.4%	20.6%	16.5%	21.4%

Source: HPD Annual Reports; Crime In Hawaii, 1992

while the clearance rates for assaults and thefts have been somewhat below national averages.

Patrol response times to citizens' calls for service is not routinely reported by the Department. Using several different reports generated from the HPD's Computer-Aided Dispatch (CAD) system for a sample month, we have estimated the median response time to citizen initiated calls by district, as follows:

District 1, Central Honolulu: 8.9 minutes;

District 2, Wahiawa: 9.3 minutes;

District 3, Pearl City: 11.2 minutes;

District 4, Kaneohe: 10.8 minutes;

District 5, Kalihi: 9.0 minutes;

District 6, Waikiki: 7.3 minutes;

District 7, East Honolulu: 9.1 minutes;

Overall Department: 9.4 minutes.

These response times reflect all citizen-initiated calls, and do not count "on beat," or officer-initiated calls, for which the response time is zero. The response times include the total time from when a citizen's call is received in Communications, to when an officer arrives on the scene. As the numbers indicate, response time in the more dense urban districts is somewhat lower than in the other districts. Response times to high priority emergencies (e.g., crimes in progress) could not be estimated separately, but are believed to be several minutes quicker, on average. Given the island's size and demography, this is, overall, a respectable level of responsiveness.

In addition to measures of clearance rates and response times are a number of other quantitative and non-quantitative measures of police performance. For example, approximately 90 percent of the cases submitted by the Department to the Prosecuting Attorney were accepted for prosecution, a strong record. The department can also point with pride to a number of programs targeted at specific problems, such as traffic fatalities and truancy, that have resulted in quantified improvements. Beyond the numbers, the Department is clearly working diligently to respond to community concerns, from street prostitution in Waikiki to neighborhood environment in Kalihi, with signs of progress.

B - FINDINGS AND RECOMMENDATIONS

PATROL

Patrol Staff Are Allocated Evenly Throughout The Day

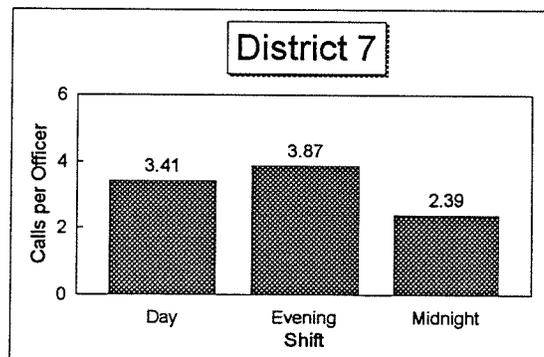
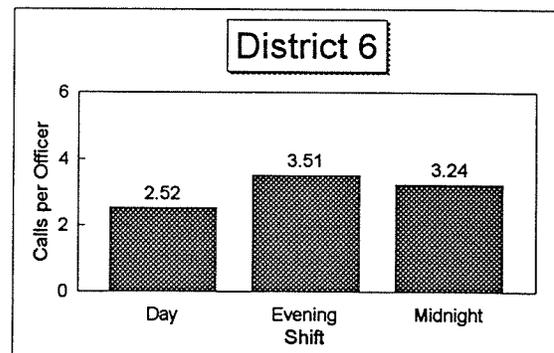
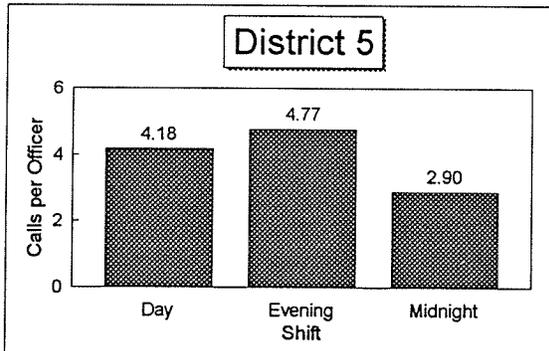
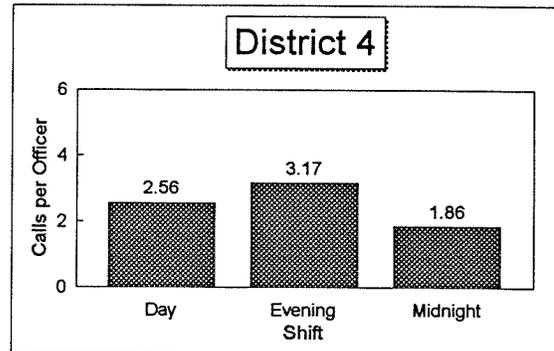
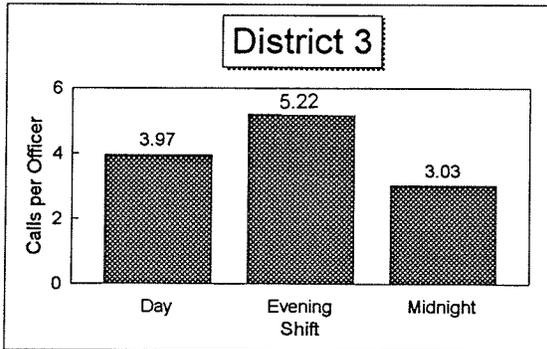
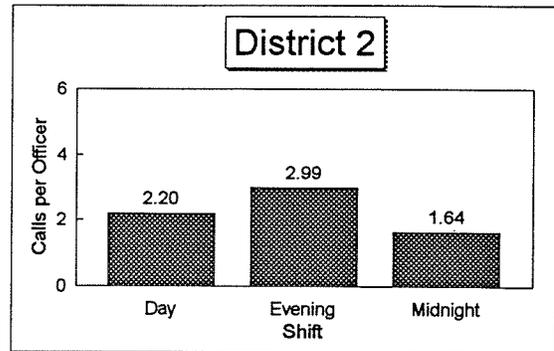
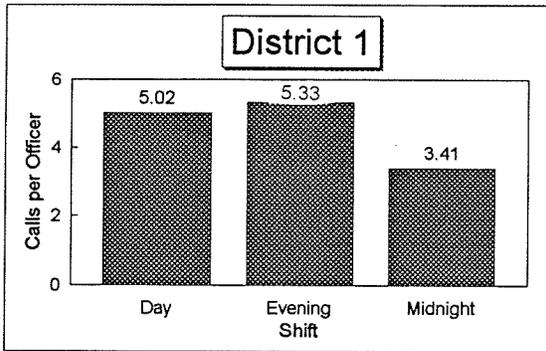
Evenly staffed watches rotate every six to seven weeks. Honolulu's shift rotation prevents officers from spending extended periods of time on any given shift. Most regular patrol officers rotate every six to seven weeks; the officers' contract stipulates that officers should not, in general, be required to spend more than two cycles (of six to seven weeks each) on any one shift. To ensure that the shift rotation does not result in constantly changing patterns of officer availability throughout the day, the three rotating watches have been staffed more or less evenly in each district. The primary exception to this pattern is District 6 (Waikiki), which uses members of a Fourth Watch to staff a late evening overlay shift. Staffed with new officers, the Fourth Watch provides Waikiki some flexibility in meeting its policing demands.

The pattern of calls for service is not even across the three shifts. In most districts, the pattern of citizen-initiated calls for service per shift is not even. Typically, the evening shift is busiest shift, the day shift second busiest, and the midnight shift third busiest overall. In District 2 (Wahiawa), for example, the evening shift receives nearly twice as many calls from citizens as the midnight shift. Because of this pattern, the resulting workload varies considerably for the individual officer in each shift. Exhibit IV-6 shows the estimated number of citizen-initiated calls per officer per shift in each of the seven districts. These statistics are derived from the Department's detailed call workload statistics, and the staffing "snapshot" of uniformed "regular patrol" officers presented in Exhibit IV-4. As Exhibit IV-6 shows, the number of calls per officer per shift varies considerably by shift within all the districts except District 6 (Waikiki) which has more even activity around the clock. As a result, there is the potential that at some times of the day there are not enough officers on duty to be sufficiently responsive, while at other times of the day there are more staff on duty than necessary.

The Allocation of Patrol Staff Among Districts Is Not Entirely Proportionate To Workload

The number of calls handled by officers in a typical shift varies across districts as well. As shown in Exhibit IV-7, the call workloads per uniformed officer per shift are considerably higher, on average, in Districts 1, 3, and 5, than they are in the other districts. In fact, the average of 4.59 calls per officer per shift in District 1 (downtown) is twice the average in District 2. This level of variation is cause for concern both from an equity standpoint among officers in the different districts,

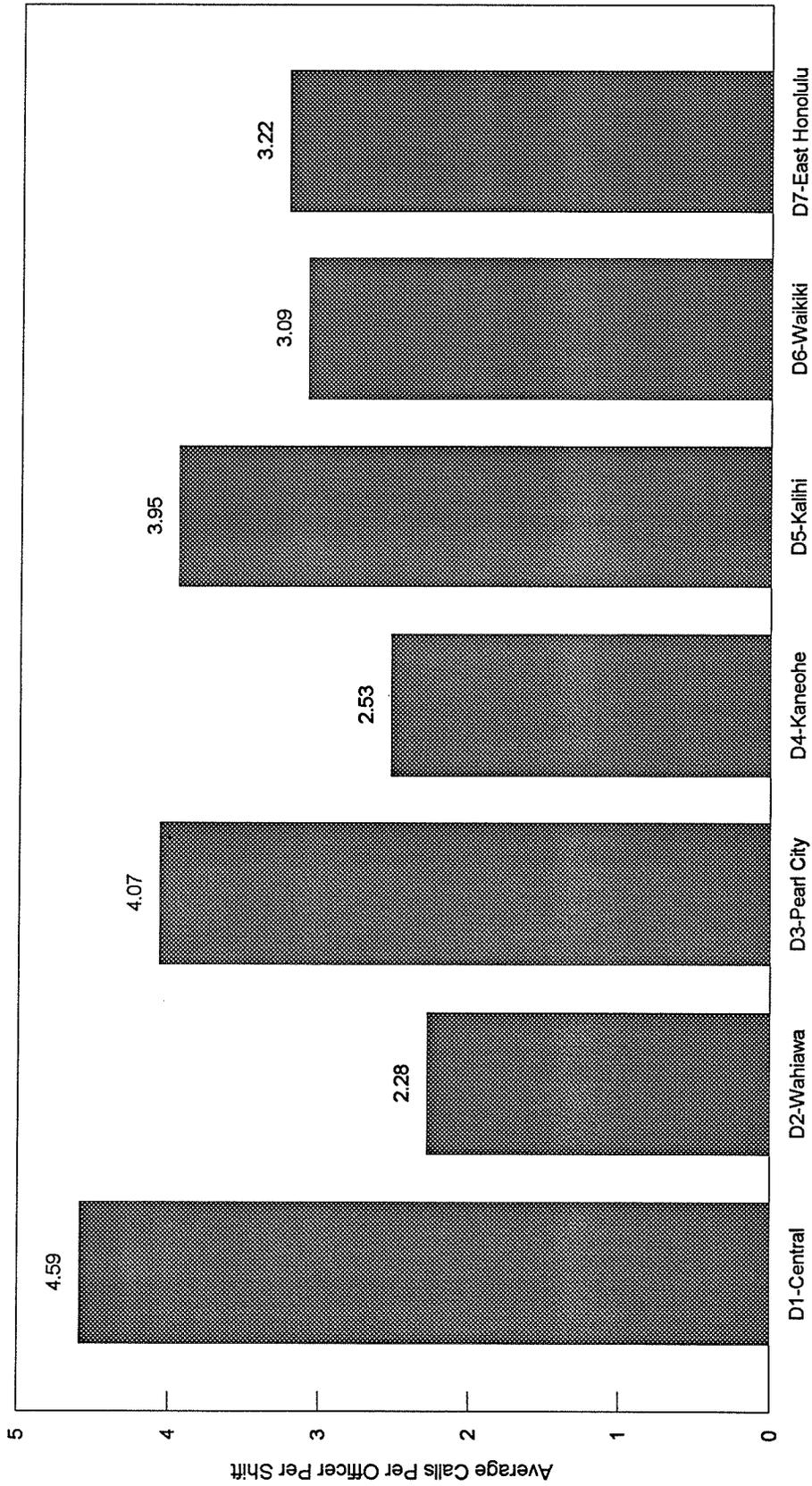
Calls Per Officer On Duty Per Shift: District 1 - District 7



Source: HPD call record sample for six months of 1993, purged of non-patrol calls; District staffing rosters for October, 1993

City and County of Honolulu

Comparison Of Average Calls Per Officer By District



Source: HPD call record sample for six months of 1993, purged of non-patrol calls; District staffing rosters for October, 1993

and also from an efficiency standpoint. While there may be some areas with too few officers to be sufficiently responsive, there are others that appear to have more than necessary. Moreover, the Department's overall average of 3.6 calls per officer shift is not particularly high.

Of course, we recognize that the ratio of citizen-initiated calls to the number of regular patrol officers on duty does not alone capture every nuance of the Department's patrol workload. There are some areas, such as Waikiki, where there is value in providing a measure of visibility beyond what the call workload alone would dictate. Less densely populated areas also have special concerns for travel time. Conversely, we understand that a "Downtown Task Force" in District 1 can supplement the regular patrol when needed. Understanding these factors, the variation in workload demonstrated in Exhibits IV-6 and IV-7 remains less than optimal, and the overall number of calls handled per officer is somewhat lower than expected.

Patrol Staff Should Be Allocated and Scheduled To More Closely Match Their Workload

The HPD should employ a more flexible approach to allocating patrol staff among shifts. Although many police departments have found that their officers like fixed shifts, and that fixed shifts make it easier to imbalance the number of staff around the clock, we recognize that Honolulu's police officers are quite used to the current system of rotating shifts. The HPD should therefore work within the parameters of the existing union agreement to achieve the flexibility necessary to achieve imbalanced staffing.

An approach that can work is a "borrow-back" system. Under this approach, staff would continue to be assigned evenly to a primary watch that rotates every six to seven weeks. Patrol managers would then look to staffing targets set according to the fluctuating workload, and draw from shifts with more staff than needed to assign officers to shifts with fewer staff than needed. Officers would take turns serving "on loan" out of their usual sequence. Because only a small number of staff would need to be loaned from one shift to another at any one time, the average officer would need to work a shift out of sequence no more than once a year. For example, suppose a district has 90 regular patrol officers, with 30 assigned to each watch, and that the target configuration is 30 on the day shift, 37 on the evening shift, and 23 on the evening shift. In this case, for every shift change (every 6 to 7 weeks), 7 officers would need to be borrowed from the midnight shift to meet the evening shift target. If officers took turns being "borrowed" every time they cycled through the midnight shift, then officers would be borrowed just once every four times their watch worked the midnight shift, or once every 12 shift changes (less than once a year). This arrangement would remain well within the letter and spirit of the union agreement, while achieving a more balanced and efficient patrol.

Patrol staff allocations should be adjusted to improve balance and efficiency. Using the borrow-back approach outlined above, District commanders should vary their staffing, as needed, to more evenly match staffing to workload. The recommended adjustment of staff compared with current allocations of regular patrol staff are shown in Exhibit IV-8. Some Districts and shifts would gain staff, while other Districts and shifts would work with fewer staff. Making these adjustments will enable the Department to achieve a more balanced workload throughout the day and across patrol districts (see Exhibit IV-9), maintain a high level of responsiveness to calls for service, and discontinue 30 patrol officer positions. In fact, according to our patrol queuing model, these reductions in staff can be made while ensuring that officers are available to respond quickly to virtually all incoming calls. This is true even without counting the additional response capacity of patrol sergeants and special units in the field. Moreover, the workload per officer per shift will remain no more than 4 calls, a very manageable load.

The recommended staff configuration in Exhibit IV-8 also makes some allowances for special circumstances. Districts 2 and 5 (Wahiawa and Kalihi) are expected to handle fewer calls per officer per shift in part because of their large territories, and in part because a relatively high number of calls in the first few hours of the midnight shift require a higher level of staff than otherwise needed in order to ensure sufficient responsiveness. District 6, Waikiki, has a much more even workload throughout the day than the other Districts, and has legitimate needs for greater visibility due to its role as a tourist center.

It should be noted that in District 1, where we recommend 12 patrol officers be added to the regular patrol, the Department has already deployed a substantial "Downtown Task Force" to supplement the regular patrol. The Task Force includes not only the plainclothes Crime Reduction Unit, but also a 17-member uniformed "Delta" crew, borrowed from throughout the Department, to staff walking beats. The Delta crew does not respond to routine calls for service, although it does reportedly respond to crimes in progress. We see no reason why twelve of the officers assigned to the Delta crew cannot be transferred to the regular patrol in District 1, where they could continue to provide visibility while assisting more directly in handling the regular call workload. This will adjust the net reduction of 30 patrol officer positions, cited above, to 42.

Making the changes in patrol officer staffing as outlined in Exhibit IV-8 will also require shifts in supervisory staffing. Overall, the Department assigns a span of control to patrol sergeants of between 5 and 6 police officers, a very manageable span that is at the lower end of what most large police departments expect. Assuming an adjustment in patrol sergeants that is proportional to the recommended changes in patrol officer staffing, two sergeants would be added to

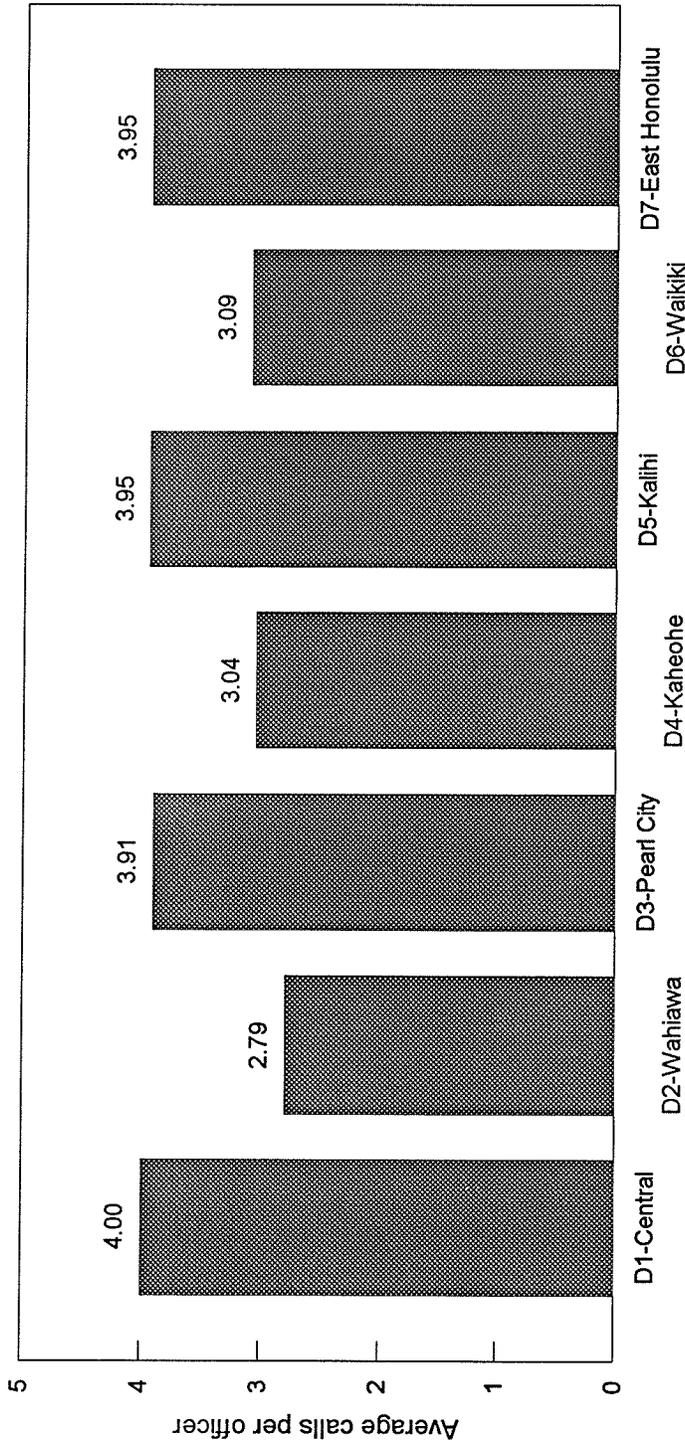
City and County of Honolulu

Current and Recommended Adjustment of Regular Patrol Staffing

	Shift	Current Reg. Patrol Staff*	Recommended Reg. Patrol Staff	Change
District 1 (Downtown)	Day	27	34	7
	Evening	27	36	9
	Midnight	27	23	-4
	Total	81	93	12
District 2 (Wahiawa)	Day	24	16	-8
	Evening	24	21	-3
	Midnight	23	21	-2
	Total	71	58	-13
District 3 (Pearl City)	Day	41	41	0
	Evening	42	54	12
	Midnight	41	34	-7
	Total	124	129	5
District 4 (Kaneohe)	Day	34	28	-6
	Evening	34	28	-6
	Midnight	33	28	-5
	Total	101	84	-17
District 5 (Kalihi)	Day	29	31	2
	Evening	29	35	6
	Midnight	29	21	-8
	Total	87	87	0
District 6 (Waikiki)	Day	21	21	0
	Evening	21	21	0
	Midnight	20	20	0
	Total	62	62	0
District 7 (East Honolulu)	Day	31	27	-4
	Evening	31	30	-1
	Midnight	31	19	-12
	Total	93	76	-17
Grand Total		619	589	-30

City and County of Honolulu

Average Calls per Officer by District - Recommended Staffing



District 1; two sergeants removed from District 2; 1 sergeant added to District 3; three sergeants removed from District 4, and three sergeants removed from District 7. Altogether, a net of five sergeant positions can be discontinued as a result.

Over the longer term, the Department should consider implementing an overlay shift in some districts. As in many cities, there are some Districts in Honolulu where there is a nightly peak of activity that lasts until one or two a.m., and then falls off sharply until about 6 or 7 a.m. (the pattern also depends on day of the week). As a result, the midnight shift will be relatively busy for the first two to three hours of the shift, and then not very busy at all for the remainder of the shift. Many Departments have found it easier to meet the late night peaks in demand by shifting some staff from midnight shifts to an overlay shift running, 6 or 7 p.m. to 2 or 3 a.m. In fact, as mentioned earlier, District 6 already uses its Fourth Watch in an overlay capacity. Once the HPD has made the basic changes outlined above (implementation of the borrow-back system), it should consider whether and where implementing an overlay shift can further improve the patrol's responsiveness.

The HPD's Successful Alternative Call Servicing (ACS) Program Can Be Made Even More Effective

The HPD recently expanded its Alternative Call Servicing (ACS) program island-wide. ACS handles a variety of citizens' calls over the telephone which do not require an officer on the scene. Typical calls handled in this manner include routine thefts for which there are no leads and the citizen simply wants to make a report. Citizens are given the option of having an officer dispatched to the scene, or to receive a return phone call from an ACS officer within approximately 15 minutes. In the months since ACS has begun serving the entire island, it has handled approximately 2,500 calls per month that otherwise would have been dispatched to field officers. Although ACS staffing has fluctuated somewhat in recent months, the unit is currently staffed with 2 sergeants and 20 police officers from all patrol districts, working 7 a.m. to 11 p.m., Monday through Friday.

The Department should be complimented on ACS's success. Similar programs in other police departments across the U.S. have removed substantial burdens from field patrols, enabling departments to improve responsiveness and control costs. The statistics indicate that Honolulu's program is already making a strong contribution: ACS officers handle an average of approximately 6.6 calls per shift worked, compared with 3.6 for field officers.

There is potential to make ACS even more effective. Although ACS is making a valuable contribution in alleviating the weekday call load on field officers, it is not operating on weekends. As a result, field officers working weekend shifts are handling more calls than necessary. Moreover, ACS need not add much staff to expand its coverage hours. Although the 6.6 calls per ACS officer per shift is

certainly a higher rate of productivity than a field officer, there is no reason why ACS officers cannot handle an average of 8-10 calls per shift. There is obviously no travel time involved, and the time required to handle a telephone case should rarely exceed 30 minutes. Thus, even at 10 calls per shift, an officer would be on the phone less than five hours. Moreover, queuing analysis suggests that at such a level of utilization, citizens could still be responded to within a reasonable period of time.

Another option for increasing ACS efficiency would be to incorporate civilians into its staff. Many other police departments have assigned civilian Community Service Officers to such roles, and they have served effectively, at lower cost than regular police officers.

ACS Work Schedules And Staffing Should Be Re-Arranged To Yield Greater Benefits

The Department should build on its successful ACS program by reassigning some of its existing staff to cover weekend hours, supplemented by two additional ACS staff. The Department will need to experiment to determine the pattern of ACS-appropriate calls that are received over the weekend before settling on the exact staffing and hours needed. As a baseline, we recommend that the department look to provide a minimum of seven staff during both shifts, seven days a week. This can be accomplished with a total of 24 staff assigned (not counting sergeants), or four more than currently assigned. Assuming the pattern of demand on weekends is similar to the weekday pattern, the unit can be expected to handle an additional 1,000 calls per month. This will raise the overall average number of calls per ACS officer per shift to just over 8 calls per shift, with room to grow.

At the same time, the Department should plan to change the mix of ACS staff to include civilian Community Service Officers as well as police officers. As an initial target, we recommend that the Department plan to continue to staff half of the 24 positions with sworn officers, and the other half with civilian CSO's.

Implementing these changes will allow the Department to achieve savings in two ways. Although adding four ACS officers alone would increase costs by approximately \$180,000, converting half of the 24 officers to civilian CSO's would provide offsetting savings of approximately \$96,000. More significantly, increasing the unit's capacity by 1,000 calls per month will remove from the field patrol the call workload of 15 patrol officers. Thus, the Department could discontinue 15 patrol officer positions at a savings of approximately \$45,000 each (in salary and benefits), while maintaining the current level of responsiveness in the field. Net savings from making all these changes would be an estimated \$591,000.

The Department's Vehicle Policies Limit Officer Visibility And Effectiveness

Currently, the department's primary marked vehicles are 110 "blue and white" sedans shared by 259 junior patrol officers. These marked vehicles are operated an average of 1.5 shifts per day when they are not out of service for repair. They are equipped with prisoner shields as well as police lights, siren, and radio, and are maintained by the HPD. Virtually all of the other, more senior officers with field responsibilities (approximately 1,245) use a personal car that is subsidized by the department. The base level of subsidy is approximately \$450 per month (most staff are at \$463, some staff are at \$425, based on rank). The subsidized cars are not equipped with prisoner shields, though they are equipped with lights, sirens, and radios. They are not maintained by the HPD; this is the officer's responsibility.

This arrangement has a few advantages. From the officer's perspective, there is the fringe benefit of funding a personal car completely or almost completely through the Department. From the Department's perspective, it can avoid the effort of purchasing and maintaining the subsidized cars. In addition, in the event of a major emergency, there is a large reserve of officers available with cars already equipped with radios, lights, and siren.

This arrangement also has a number of disadvantages. Because the subsidized cars lack prisoner shields, officers making arrests will most commonly call for a blue and white to transport the prisoner, even if this requires some waiting around. Asking officers to pay for maintenance from their subsidy does not provide an incentive to keep the car in proper condition for police work; indeed, some officers may choose to under-maintain their cars and simply keep the money. Finally, and perhaps most significantly, a police department that wants to project a presence in communities throughout the island is losing an opportunity to do so by relying so heavily on unmarked cars.

The Department Should Phase In A Take-Home Car Plan For All Field Officers Featuring Marked Vehicles

The Department should retain the existing benefits of a take-home car plan while adding the benefits of making these cars marked and fully equipped. The Department should do so in a way that does not penalize officers who now drive subsidized cars.

In the near future, the Department should provide take-home vehicles for all officers who have not been receiving subsidies by ordering approximately 150 marked blue and whites to round out the 110 now available. For non-subsidized officers, the city is already half-way to a take-home plan, since the current group of cars assigned to these officers is driven just 1.5 shifts per day, not 3 shifts per day under an intense use fleet plan. The cars

would be assigned individually, and the officers free to drive them on routine errands to and from work. As with the current blue and whites, the city would handle liability and collision. Discussions with the city Risk Management specialist suggest that total liability costs are unlikely to increase under this arrangement, since total miles driven on duty would not change. Maintenance would be handled by HPD on the officers' days off. The Department's planned maintenance facility can more than accommodate this increase.

Over time, the Department should phase out the car subsidies, and replace them with a marked, Department-provided take home car. Our analysis suggests that many officers with subsidized cars must supplement the car allowance to maintain their cars; thus, replacing the subsidy with a city-provided car would be to many officers' financial benefit. For the near term at least, the city should provide officers the option of moving off the subsidy to a city-provided take-home car. Eventually, the city should consider eliminating the subsidy program altogether.

The city should carefully evaluate the most cost-effective approaches to providing maintenance to these cars. A "make-buy" analysis will need to be performed to determine whether it is more cost effective to maintain the greatly expanded fleet of blue and whites in an expanded Department garage, or through the private sector, as the subsidized cars are handled today (this could involve volume contracts and discounts with major approved repair shops). Maintenance figures per blue and white car provided by the HPD indicate a current average annual maintenance cost of approximately \$4,200 per car, including labor and materials; other analyses performed by city analysts suggest an even higher annual average. Based on our experience, \$4,200 or more in annual maintenance cost for police cars driven 1.5 shifts per day seems quite high. Part of the high cost may be due to a poor record of accidents and vehicle care among the officers who share these vehicles. It is likely, however, that there are also opportunities to lower the average maintenance cost through contracting out major portions of the work, or through changes in the HPD's vehicle maintenance operation.

Converting to a marked take-home car plan is projected to increase operating costs only slightly. Total expenditures are difficult to estimate precisely due to the changing patterns of use, and their potential impacts on such factors as accident patterns, maintenance and salvage value. Exhibit IV-10 outlines some assumptions that can provide a good "ballpark" estimate. According to these calculations, the net effect of converting to the take-home, marked vehicle plan is roughly \$100,000; actual cash flows could vary depending on how whether the cars are leased or purchased, and how they are financed. The critical factor in mitigating the annual costs of supporting the increased fleet is the fact that maintenance costs, including collision repairs, are typically proportional to mileage, not the age of the vehicle. We have also assumed that liability costs will also be proportional to milage, not the number of cars in stock. Thus, a larger stock of

Estimated Costs Of Converting To A Take-Home Marked Vehicle Plan

Current Situation - Subsidized Group		Recommended Situation - All Take Home Blue and Whites	
Assumptions	Element	Assumption	Element
Number of cars	1245	Number of cars	1505
Annual Miles Driven	15,000	Annual Miles Driven	13870
Average Life, In Years	5	Average Life In Years	5
Annual subsidy per car	\$5,400	Liability insurance cost	\$1,441
Liability insurance cost	\$1,600	Maintenance cost	\$1,750
Maintenance Cost	--	Vehicle base cost	\$19,000
Vehicle base cost	--	Annual Capital Replacement	\$3,437
Annual Capital Replacement	--	Annual city cost/car for capital, maintenance, insurance	\$6,628
Annual city cost/car for capital, maintenance, insurance	\$7,000	Annual Total City Cost for capital, maintenance, insurance	\$9,975,140
Annual total city cost for capital, maintenance, insurance	\$8,715,000		
Current Situation - Shared Group of Blue and Whites		Net Annual Cost of Capital, Maintenance, and Insurance For Change To Recommended Plan	
Assumptions	Element	Comments	
Number of cars	110		
Annual Miles Driven	20,000		
Average Life In Years	4		
Annual subsidy per car	\$0		
Liability insurance cost	\$1,600	Self insured, top estimate	
Maintenance Cost	\$4,200	HPD data; covers collisions	
Vehicle base cost	\$19,000	Fully equipped, except radio	
Annual Capital Replacement	\$4,690	Assumes 10% salvage value	
Annual city cost/car for capital, maintenance, insurance	\$10,490	financed at 6.5%	
Annual total city cost for capital, maintenance, insurance	\$1,153,900		
Grand Total Annual Cost for capital, maintenance, insurance	\$9,868,900		\$106,240

cars driven the same number of overall miles will not result in an increase in annual maintenance or insurance costs. Indeed, for those officers switching from a shared to a take-home car, maintenance costs typically drop sharply due to officers' taking greater care of the vehicles, although we have not factored such a drop in our calculations. Moreover, the city's Risk Management specialist has suggested that the overall liability costs to the city could even drop under the recommended scenario by enabling the city to self-insure at lower cost.

Net benefits will be quite positive. For a projected \$100,000 increase in annual operating costs (the cost of two police officers), the HPD will receive a tremendous boost in visibility and operational flexibility. Moreover, even if our best assumptions on costs are off substantially and actual costs prove much higher - \$500,000, for example - the change would still be a sound investment, given the benefits.

The City Should Implement An Alarm Ordinance To Discourage False Alarms

In virtually every major police department in the U.S., including Honolulu, burglar alarms are among the leading categories of calls for service, and the vast majority of these (well over 95%) turn out to be false. Struggling with false burglar alarms is, to some extent, unavoidable. Many cities, have, however, taken steps to limit the number of false alarms, and the associated burden on the patrol. The primary means that most communities apply is an alarm ordinance that levies fines, sometimes escalating fines, against homeowners and/or alarm companies responsible for a certain number of false alarms above an annual threshold. Honolulu does not, to our knowledge, have such an ordinance, although representatives of the Department have met with alarm companies to discuss ways to cut down on the false alarms. The HPD should work with the Council to develop and implement an alarm ordinance.

COMMUNITY POLICING AND INTERVENTION PROGRAMS

The Department Has Initiated A Number of Community Policing And Other Intervention Programs With Signs Of Success

In recent years, the Department has put in place a number of programs that emphasize crime prevention, early intervention, and expansion of communication between communities and their local police. In many instances, these programs involve police coordination of external resources.

Community-Oriented Policing activities are one example. These include the efforts of small Community Policing Teams within the patrol districts who have met with neighborhood and housing project leaders and groups, identified patterns of

crime, neighborhood decay, or "social disorder" that are of particular concern, and have helped to organize and broker responses such as improved lighting and barriers, graffiti paint-outs, reduction in public drunkenness and loitering, and creation of resident patrols. These efforts have been well-received by the public and, so far at least, appear to be a reasonable investment in making real improvements in the quality of life. The Department has been considering how best to build on this success.

Other intervention and education-oriented programs have been taking place within the Juvenile Crime Prevention (JCPD) and Community Relations Divisions. For example, JCPD has operated several programs to address domestic violence. In addition JCPD has offered a number of programs targeted to intervention with troubled youth; these include a Saturday morning counseling program (provided by external agencies) for youthful status offenders and their parents, as well as evening counseling by police for first time misdemeanants. Several of these programs have reportedly resulted in sharp drops in recidivism. Meanwhile the Community Relations Division offers such long-standing programs for youth such as DARE, PAL, and Explorers. Given this array of programs for youth, several leaders in the Department have proposed options for combining youth programs, and the matter has been under review by the Research and Development Division.

The Department Should Continue A Balanced Approach In Expanding Community Policing Programs Within Patrol Districts

To date, the Department has taken a balanced, manageable approach to Community Oriented Policing. Resources devoted exclusively to community policing have been modest, and expectations for performance have been reasonable. We recommend that the Department continue to proceed in a careful, balanced way in extending the philosophy into everyday patrol work.

At its best, community policing produces a more service-oriented and effective network of field officers, and real, targeted improvements in safety and quality of life. At the same time, the experience of many other departments shows that it can be easier to generate favorable press on community policing in the short-term than it is to demonstrate real declines in crime or increases in neighborhood safety over the long term. Moreover, asking regular patrol officers who respond to citizens' calls for service to stray too far from basic police work can result in backlash from the officers, and reductions in service.

In extending the community policing philosophy, the Department would be wise to remember several principles:

- Police activities should be related to reducing crime or enhancing citizens' sense of peace and security;

- Activities that require extensive, uninterrupted attention are best performed by staff dedicated exclusively to the task;
- For each community served, there needs to be a point of coordination in setting priorities and developing strategies that is not bound by shift rotation;
- Regular patrol officers can best contribute to the community policing effort by a) demonstrating a service attitude to the public; b) being observant about and reporting on patterns of crime and disorder that are amenable to proactive strategies; and c) serving as a broker to citizens of the full range of resources within the HPD;
- Community policing and "traditional" law enforcement are not in competition, but mutually reinforcing.

The Department Should Proceed With Plans To Integrate Programs Addressed To Youth

The Department's interest in consolidating programs for youth makes sense, particularly as it seeks to do more, and to call more upon external agencies to help. The Department should proceed with plans that would merge the youth oriented programs of JCPD and Community Relations, and, as part of the reorganization, should consider whether some savings may be possible from elimination of duplication among supervisors, or within programs. Moreover, the new unit should apply a standard approach to evaluating its programs to ensure that the community is achieving proper returns on these investments. DARE, for example, while very popular, has recently been criticized as ineffective in keeping children from using drugs, according to a major national study. This particular study has generated considerable controversy, and we are in no position to confirm its findings. The study does illustrate, however, that even popular programs do not necessarily work. The Department would be well-served by evaluating its programs regularly, and modifying approaches or shifting resources based on the results.

INVESTIGATIONS

Criminal Investigative Operations Appear To Be Generally Effective and Efficient

Sound case management approaches are in place. The Criminal Investigations Division (CID) practices most of the best management practices employed by successful investigative operations. Supervisors screen cases for solvability, and only cases with leads are assigned to detectives. Supervisors

monitor case progress through regular update meetings, and are assisted in case tracking with computers. Detectives have developed a constructive working relationship with the prosecutor's office, resulting in more than 90 percent of the cases submitted being accepted for prosecution.

Caseloads are appropriate. A review of cases assigned over a recent seven month period indicates that detective caseloads are within the parameters of effective and efficient investigative operations. For example, most property crime detectives handle more than 150 with leads cases per year, and violent crime detectives also handle full caseloads.

The CID need not employ detectives only at the PO-11 level. One area of clear potential for improved efficiency is the Department's current policy of relying almost exclusively on detectives at the PO-11 level - the same as a field sergeant - for its criminal investigations work. Many smart and energetic officers within the patrol officer ranks can become good investigators, as is the case in many other police departments. Indeed, other divisions within Investigations, such as Narcotics and Vice, already use police officers in investigative roles. Relying exclusively on higher ranking detectives unnecessarily increases costs; PO-11 officer's salaries are approximately \$7,000 higher than that of PO-7's. Moreover, the policy limits flexibility in making staff assignments; it is typically more difficult to place sergeant-level detective from CID in another branch of the Department than it is to place a patrol officer-level detective.

The Department Should Phase In A More Flexible Rank Structure Within Investigations

The Department should begin the process of phasing in a more flexible rank structure within the Criminal Investigations Division. At the same time, it should not disrupt the operation in a way that will hamper its effectiveness.

In the near term, it should begin filling detective vacancies with patrol officers at the PO-7 level, to achieve a mix of sergeant-level and patrol officer-level detectives. Over the longer term, it should consider whether to phase out the use of sergeant-level staff altogether as front-line investigators, and to use sergeants as part of the supervisory structure.

If, within the foreseeable future, the Department could shift the mix of detectives within CID to half PO-11 and half PO-7, the city would save approximately \$500,000 in salary and benefit costs.

The Department Should Move Cautiously In Decentralizing Certain Investigative Operations

The Department has been considering decentralizing the investigation of property crimes. At present, investigation of felony-level property crimes is performed by staff within the central CID assigned cases according to seven geographic zones. Although the focus of their cases tends to be within a particular patrol district, the detectives report centrally. In contrast, follow-up investigation of misdemeanor property crimes are handled by special details within the patrol districts. The advantage of the current system is that CID property crime detectives have ready access to each other to share information, and that their managers are particularly specialized in investigative techniques. The advantages of re-locating these units to report to patrol districts would be promoting greater interaction between detectives and patrol officers, and better linking the detectives with the concerns of the local community.

The Department should move cautiously if it decides to move ahead with decentralization. Effective investigations can occur under either organizational arrangement. If decentralization does proceed, however, the Department should take care to preserve opportunities for communication among property crime investigators island-wide, and to maintain workload and performance accountability systems that will ensure that the quality and productivity of their work remains high.

OTHER HPD OPERATIONS AND ISSUES

Stand-by Arrangements For Officer Court Appearances Incur Excessive Costs

Police officers are required to appear at a large number of court cases of all kinds, from murder to traffic violations. At present, a portion of these cases, primarily felonies, are scheduled in a way that leaves the exact date of the officer's appearance indefinite. In these cases, the Prosecuting Attorney has issued subpoenas compelling the officers' appearance as needed. This has resulted in a large HPD expense for stand-by pay. Under the police officers' contract, they are entitled to a minimum of two hours pay for each day they are on stand-by, unless they happen to already be assigned to the day shift. Over the course of the last fiscal year, the Department incurred approximately \$2 million in stand-by pay.

Several factors have contributed to this situation. Although we have not examined the Courts' scheduling practices in detail, some features designed to increase the utilization of judges and courtrooms have the effect of offering less certainty to case participants as to the timing of court activities. In turn, the Prosecuting Attorney's Office has felt it necessary to issue subpoenas to insure that

police officers will be available as needed, out of concern that officers' failure to appear will damage their cases. Once subpoenas are issued, they are not typically revoked, even though a case may undergo various delays. Under subpoena, the HPD has no choice but to incur stand-by pay.

These stand-by expenses are unnecessarily high. Many local criminal justice systems manage to arrange for officers to appear in court when needed without the need for routine subpoenas or standby pay. What is required to avoid these expenses is a reliable alternative for ensuring officers' appearance in court.

The Department Should Work With The Prosecuting Attorney To Reduce The Need For Stand-by Pay

The Prosecuting Attorney, The Police Department, and representatives of the judicial system have all expressed interest in reducing the need for standby pay. For the long term, the city should encourage a review of judicial scheduling practices to determine whether adjustments could be made to meet all participant's goals while reducing overall costs. In the near term, other steps can be taken by the HPD and the Prosecuting Attorney to substantially reduce stand-by pay. The HPD should invest in a court liaison unit to coordinate officers' appearances in court, and to provide a high level of certainty that officers will appear on reasonable notice, such as within 24 or even 48 hours. In return, the Prosecuting Attorney should discontinue the routine practice of issuing open-ended subpoenas, thus reducing the need for stand-by pay.

The HPD will need to do more investigation and planning to determine the exact configuration and operation of a court liaison unit. It is clear, however, that the unit needs to be led by an officer of sufficient stature - a captain, for example - that all staff within the Department will pay attention. In addition the unit needs to be supported by a computer database to facilitate tracking of court times, officer schedules, and contact numbers. As a very rough estimate, the HPD should plan to staff the unit with a captain, a sergeant, and two civilian support staff at a cost of approximately \$200,000, including salary and benefits, plus a modest investment in computer support, the equivalent of perhaps \$10,000 per year. The Department should then target a substantial reduction in stand-by pay. Under this scenario, if stand-by pay were reduced by just 50 percent, net annual savings would be \$790,000 per year.

The Department Should Continue To Explore Means To Limit Other Forms Of Premium Pay

Including stand-by pay, the HPD has expended more than \$16 million per year on premium pay, primarily overtime. Some overtime is not only unavoidable, but also a less costly approach to meeting unschedulable demands than hiring full time staff to be available for unschedulable demands. At the same time, \$16

million is a sizable portion of the Department's budget, and merits close scrutiny. The Department has made efforts to control these costs through policies in such areas as report writing to encourage officers to accomplish their work on straight time. This topic merits additional attention and study.

The Central Receiving Division Is Staffed Primarily With Police Officers

The Department's Central Receiving Division processes the majority of adults and juveniles arrested on Oahu. Individuals arrested in Districts 1, 6, and 7 are brought directly to Central Receiving for booking, and are held until released on bail (or under other arrangements) or until they are brought to court for arraignment. Those arrested in other Districts who cannot post bail or must be held overnight are also brought to Central Receiving. Arrestees are typically held no more than 48 hours. The HPD is responsible for transporting arrestees to court, where custody is typically turned over to the state. Over a recent sample week, an average of approximately 65 individuals per day were processed through Central Receiving.

The Division is staffed primarily with police officers. According to the Division's duty rosters from early November, 77 staff were assigned to the Central Receiving Unit. 75 of these were sworn police officers, while two were civilian cooks. This mix of staff is not optimal from an efficiency or a career development standpoint. Civilian detention officers paid at a lower rate could more than adequately handle the responsibilities of Central Receiving - such civilians already handle corrections duties for the state - and there are better uses for trained police officers.

The Department Should Restructure The Mix of Staff Assigned To Central Receiving

Ideally, the Police Department would get out of the "jail business" altogether. Detaining arrestees is not the primary business of the HPD, while the state's Department of Public Safety already runs several jail facilities, and could, in theory, handle the HPD's arrestees. Realistically, the state's jails are overflowing, and the Department of Public Safety has neither the capacity nor the mandate to handle the HPD's arrestees. For the time being, then, the HPD must operate a holding facility. Given this fact, it should seek to operate Central Receiving at lower cost, and with less involvement of sworn officers.

The HPD should alter the mix of staff in Central Receiving to one primarily composed of civilians. There are several ways of achieving this. The Department could simply hire civilian detention officers (a classification may need to be created). This would be the most direct method, but may raise concerns for attracting staff with limited prospects for advancement. This concern could possibly be addressed through linkages between service in Central Receiving and

eventual recruitment as a police officer. Alternatively, the HPD could contract with the Department of Public Safety to operate Central Receiving. This would require a measure of planning and coordination, but would provide a ready pool of trained civilian staff with broader opportunities for career advancement.

The Department should consider these options, and develop a plan to change the mix of staff. Substantial cost savings could be realized as a result. If all staff but the Major in charge were converted to civilian positions comparable to the current pay structure within the Department of Public Safety, we estimate that annual savings of approximately \$200,000 in salary and benefits will be realized.

The Department Should Explore The Use of Video Arraignments From Central Receiving

An experiment for conducting arraignments by video, linking the courts and the facilities of the state's Oahu Community Correctional Center, was undertaken during our study. Video arraignments have been operated successfully in a number of other cities throughout the U.S., and have the potential to alleviate the effort and expense involved in transporting prisoners from holding cells to the courts. The HPD should work with the courts to experiment with video arraignment from Central Receiving, and assess to what extent time and staff resources may be saved as a result.

CRIMINAL JUSTICE SYSTEM

There Are Signs That The Criminal Justice System Is Not Properly Aligned

Dealing effectively with crime requires that all elements of a criminal justice system - including police, prosecutors, courts, and corrections - are in balance and work effectively together. Working effectively together involves many things; most critical are clear communication, agreement on roles and operating practices, and consistent enforcement philosophies. Balance requires alignment of operating capacity: for example, the best efforts of "upstream" functions such as police and prosecutors will have minimal impact if the capacity of the "downstream" functions of courts and corrections are insufficient to ensure appropriate punishments for criminal actions.

Discussions with representatives from all four components of Honolulu's criminal justice system suggest that the system is not fully aligned, diminishing the community's response to crime. Although working relationships have room for improvement (see discussion of stand-by pay, above), they are generally constructive. There is a strong sense from all participants, however, that the capacity of different components is not in balance. In particular, the judiciary and the corrections components are viewed as capacity-constrained, and there is ample

evidence to support this. We have been told that it can take a year or more to resolve cases involving DUI, prostitution, and theft. Moreover, the Corrections Division of the Hawaii Department of Public Safety reports that its facilities are regularly filled to capacity, and that it releases many more prisoners under early release programs than it would if it were not capacity constrained. The Oahu Community Correctional Center, which serves as Oahu's jail, is under court order regarding its population. As a result, the overall level of crime deterrence, particularly for property crime, is less than it should be. Moreover, there is no concerted effort to ensure that repeat offenders for property crimes serve full terms in jail. As a result, HPD officers repeatedly express frustration with the presence of non-violent repeat offenders on the streets, despite their many arrests.

The City Should Work For Greater Alignment of The Criminal Justice System

The city should continue to work with the state to find cost-effective ways of bringing the components of the criminal justice system into greater alignment. The most obvious needs are for greater judicial and correctional capacity. In addressing this capacity problem, however, there are likely to be an array of options besides simply extrapolating present approaches and costs. Given the state's resource limitations, there will be a need to find creative, cost-effective options to expand judicial and correctional capacity.

At the same time, the city may also want to review the alignment of the police and prosecutorial functions to ensure that resources invested in enforcement and prosecution are consistent. In particular, the city may want to ensure that the current organization and staffing of the Prosecuting Attorney's Office is in balance with both police and the judiciary.

C - AREAS FOR FURTHER STUDY

Our reconnaissance-level analysis has focused on a set a major issues and opportunities. Some of these issues, discussed earlier in this chapter, merit additional attention and study. There are other aspects of the HPD's operations which we did not have the opportunity to examine in detail, but merit a closer assessment. These are summarized below:

- **Criminal Justice System.** As discussed earlier, the city should work with the state to explore ways to better align the criminal justice system. Included in this effort would be an examination of the operations of the Prosecuting Attorney's Office, and its relationship to the Police Department and the Courts.
- **Youth and Family Intervention.** As discussed earlier, the Department should continue to explore ways to better integrate the activities of the Juvenile and Community Relations Divisions with regard to programs addressing youth and family problems.
- **Overtime.** As discussed earlier, a detailed review of overtime expenses (beyond stand-by pay) and efforts to control these costs is warranted, given the size of the expenses involved.
- **Records.** The Department is in the midst of planning, with the Data Systems Department, a project to use image technology to convert police records to optical disc storage and retrieval. At the same time, the Department is also considering investing in Mobile Data Terminals for its police cars. Both projects represent good ideas that, separately, are likely to lead to substantial improvements in effectiveness and/or efficiency. There may, however, be potential to achieve even greater benefits by pursuing a more integrated approach to records (e.g., through laptop computers which eliminate the paper records altogether). This option deserves consideration.
- **Specialized Services.** Authorized 65 officers, this division handles dignitary protection, provides security for special events and SWAT capability, and provides such specialized services as canine, parks patrol, and helicopter response. We have not had the opportunity to review this division in detail. The city may, however, want to perform such a review to ensure that staff are appropriately utilized, and integrated as well as possible with the activities of other field operations.
- **Officers Assigned to Administrative Roles.** Within the police districts, and elsewhere in the Department, there are a number of officers assigned to administrative and clerical roles that could perhaps be performed by

civilians, and/or more efficiently. Further study would be needed to determine how these roles and assignments ought to be structured.

D - STAFFING AND BUDGET IMPLICATIONS

Implementing all the recommendations outlined in this chapter will enable the Department to discontinue a net of 54 positions and reap resulting annual savings of more than \$4.1 million. Given the Department's current patterns of attrition, recommendations to decrease the number of staff could well be implemented within the course of a year. Other recommendations to change the mix of staff in ACS and Central Receiving will take longer to accomplish.

The recommendation to move to a one-to-one car plan with all marked cars is projected to increase operating costs by just \$100,000. The actual costs may vary depending on such factors as accident and maintenance patterns, interest rates, and salvage values. Moreover, cash flow patterns will depend on how the cars are financed.

V - FIRE DEPARTMENT AND EMS

V - FIRE DEPARTMENT AND EMERGENCY MEDICAL SERVICES

This chapter discusses opportunities to improve the efficiency and effectiveness of fire protection and emergency medical services in Honolulu. Although fire protection is the sole province of the Fire Department, emergency medical services involve both the Fire Department, which provides "first responder" service, and the Emergency Medical Services Division of the Health Department, which provides advanced life support and transport service.

The chapter first explains some general concepts of fire protection, and the key determinants of efficiency in fire protection. It then presents background on the Fire Department's current fire protection operation, and then findings and recommendations as to how this operation may be improved.

Following this discussion of fire protection, the chapter turns to emergency medical services. Background on the current scope and organization of emergency medical services is presented, followed by findings and recommendations in this area. The chapter concludes with a summary of areas for further study, and a discussion of the staffing and budget implications of the chapter's recommendations.

A - FIRE PROTECTION CONCEPTS

In any city, the cost structure of the fire suppression force is determined largely by three factors: the number and location of fire stations, the number and type of vehicles deployed at each station, and the number of fire fighters assigned to each apparatus. Varying any one of these factors will significantly affect the cost of fire protection services.

The Primary Factor In Determining The Appropriate Number of Fire Stations Is The Maximum Acceptable Amount Of Time For An Engine To Travel To The Scene Of An Emergency

The number of fire stations should reflect a balance between the level of responsiveness expected by the community and the costs involved. Because 99 percent of all fires to which a typical fire department responds are extinguished by engines, engine response time is the most important measure of responsiveness. Although there is no absolute standard of an appropriate maximum engine response time, many urban communities find a maximum response time of four to five minutes more than adequate. What is clear is that the costs of fire suppression typically grow exponentially with reductions in the

response time goals. Thus, in most communities, it requires four times as many stations to provide a three-minute response maximum than to provide a six-minute response maximum. (This phenomenon is less severe in Honolulu, because of its unique geography)

Small increases in response time have only a marginal impact on public safety. It is important to recognize that engine response time - the number of minutes a vehicle takes in responding to an emergency once it is dispatched - is only a portion of the total amount of time that transpires between the start of a fire and the time a fire suppression vehicle arrives at the incident scene. Other components of total response time include the amount of time between the start of the fire and its detection, amount of time between detection and the reporting of the fire to the fire department, and amount of time the fire department takes to dispatch an apparatus after the fire has been reported. Because the detection and reporting components can often take far more time than the engine's response component, changes of a minute or two in engine response time may have a very small impact on the overall level of response to a fire.

Several Principles Should Be Considered When Determining Fire Station Location

To ensure that a given number of fire stations provides the greatest level of responsiveness, several general rules apply:

Distribute fire stations to avoid overlaps in primary coverage ("first due") areas for each engine. The area that an engine can reach within the maximum acceptable response time is its first due area. Although some overlap of the coverage areas of neighboring stations is inevitable, the amount of area that overlaps should be minimized. The volume of fires in any one area is typically very small, and the probability of simultaneous fires and EMS incidents occurring in the same area is not high. Therefore, overlap of first due areas is typically unnecessary.

Locate fire stations near access points to major thoroughfares. Fire suppression vehicles can travel quickly along major transportation arteries, and thus can expand their first due area.

Do not locate fire stations near geographic barriers. The scope of service provided by an individual fire station is greatest when it's coverage area spans 360 degrees. Locating stations near barriers such as water or mountains diminishes this productivity. Of course, Honolulu's geography - an island with many mountains - makes it difficult to achieve complete circles of coverage.

Equipment Deployment And Staffing Decisions Should Be Guided By Certain Principles

Fire fighting apparatus and their crews have different responsibilities at fire scenes. Engine crews are responsible for the initial attack on a fire and for pumping water. Ladder crews conduct rescue, ventilation, and salvage operations. They also bring additional personnel and equipment to the fire scene. Rescue vehicle crews assist as necessary and bring specialized equipment - such as extraction equipment - to the scene. In most cases, the primary function of ladder and rescue trucks is to transport additional personnel to the fire scene. The elevating mechanisms and other specialized equipment these apparatus carry are used relatively infrequently.

The number of personnel assigned to each apparatus is less important than the total number responding to a fire scene. A single apparatus crew never fights a working fire alone. The capacity to fight such a fire is determined by the total amount of resources at the fire scene. Additional personnel will virtually always be dispatched to an actual fire via other apparatus.

Two engines should never be located at a single station. Because the number of incidents in any station's first due area is extremely small, the probability of simultaneous incidents in a single area is remote. This makes it unnecessary to base two pumpers in the same station. It should be noted that even if the volume of calls warranted deploying two engines to protect a single area, it would still be inappropriate to locate them both at the same station. After all, to do so would not decrease the average response time to incidents in the area.

B - BACKGROUND: FIRE PROTECTION

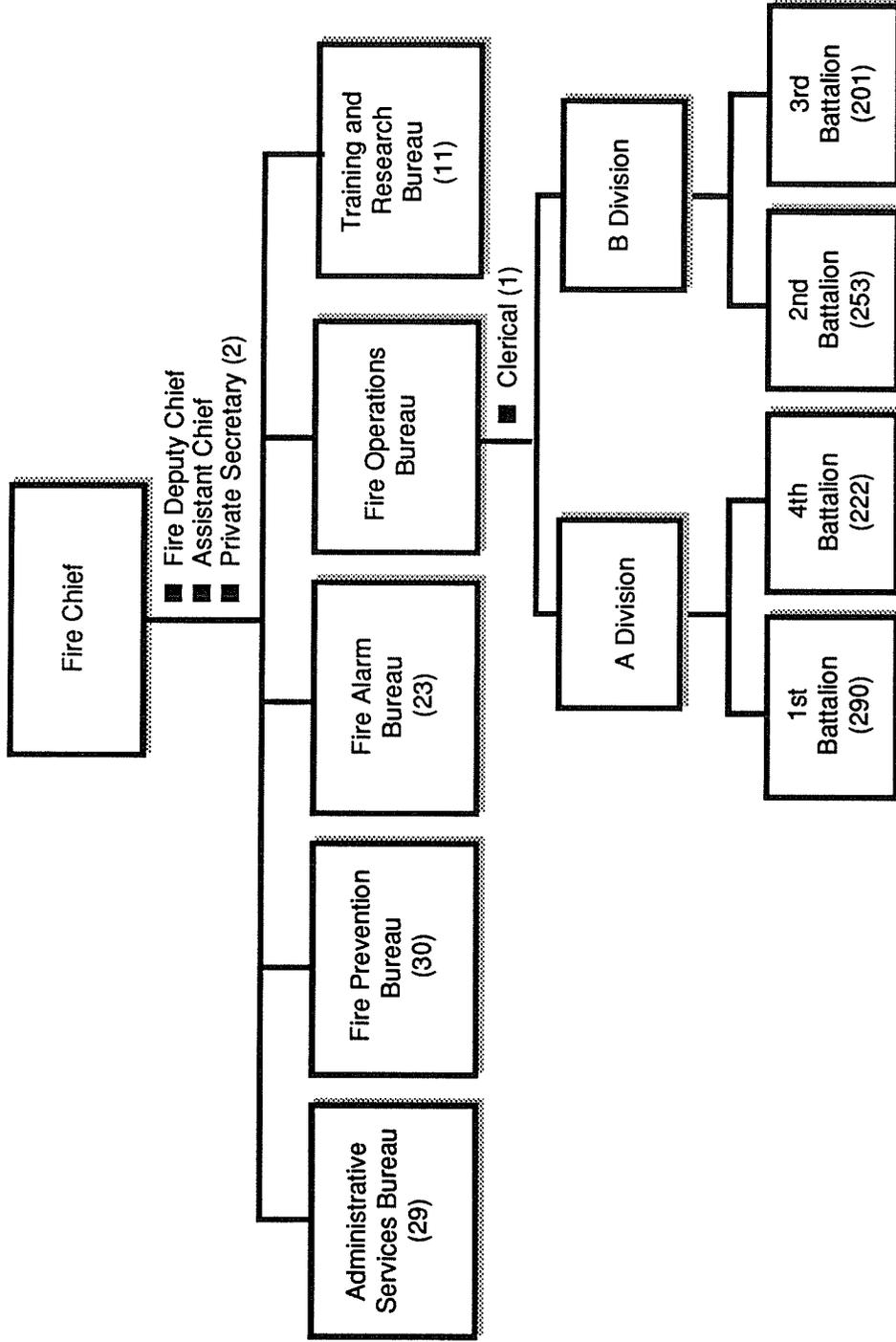
Organization

The Honolulu Fire Department (HFD) is the primary fire protection agency on the island of Oahu. The Department is responsible for Oahu's urban, suburban, and rural communities, as well as the island's agricultural and forest lands. Because no other municipal fire protection department exists on the island, the HFD has limited access to mutual aid in the event of large-scale emergencies. In fact, the primary source of mutual aid are federal fire protection forces, which protect the various military and other federal lands on the island. In the event of a major disaster, however, off-duty fire fighters can be called in to augment on-duty crews, and to man relief apparatus.

The Department, led by the Fire Chief, includes 1,065 employees (1031 uniformed employees and 34 civilians). As shown in Exhibit V-1, the Department is divided into six divisions, or bureaus. The vast majority of employees work in the Fire Operations bureau, which includes the bulk of front-line, fire suppression staff. Other bureaus include the Office of the Fire Chief, Administrative Services, Fire Alarm (Communications), Fire Prevention, and Training and Research.

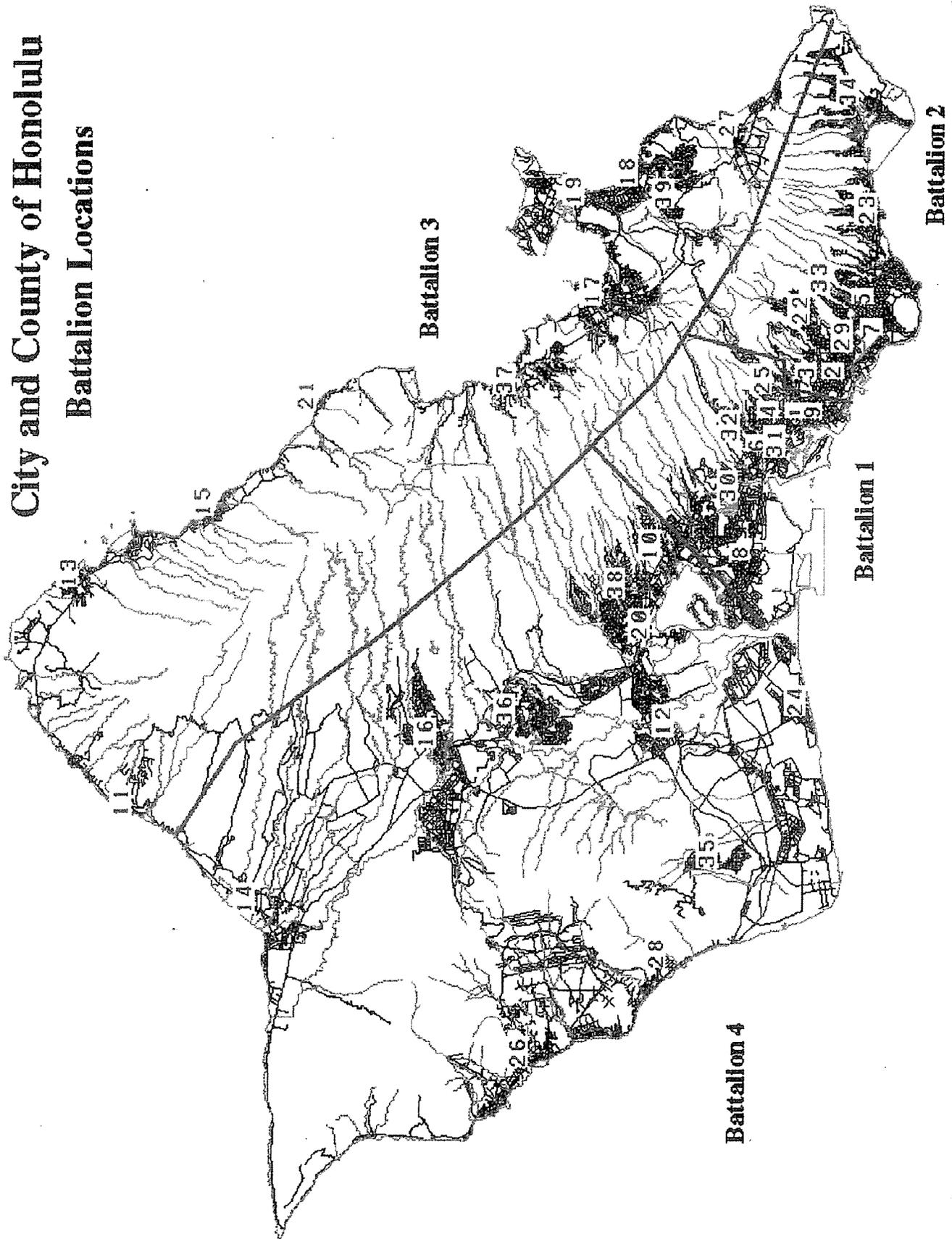
Operations in the Fire Alarm, Fire Prevention, and Research and Training Bureaus are each supervised by a Battalion Chief. Fire Operations is divided into two divisions, each under the direction of an Assistant Chief. The First and Fourth Battalions comprise the "A" Division, which roughly spans the Leeward side of the island as well as approximately half of the metropolitan Honolulu area. The Second and Third Battalions comprise the "B" Division, which runs from the northernmost point of the island down the windward side and includes the other half of the metropolitan area. Exhibit V-2 presents a map of the HFD's four fire fighting battalions. Within each battalion, there are three Battalion Chiefs assigned, one to lead each of the three shifts. Each shift is a 24-hour day, so that, on average, fire fighters work a 56-hour week, a common work week for fire fighters throughout the U.S.

City and County of Honolulu
Honolulu Fire Department
Current Organization



Total Authorized Positions (As of January, 1993): 1065

City and County of Honolulu Battalion Locations



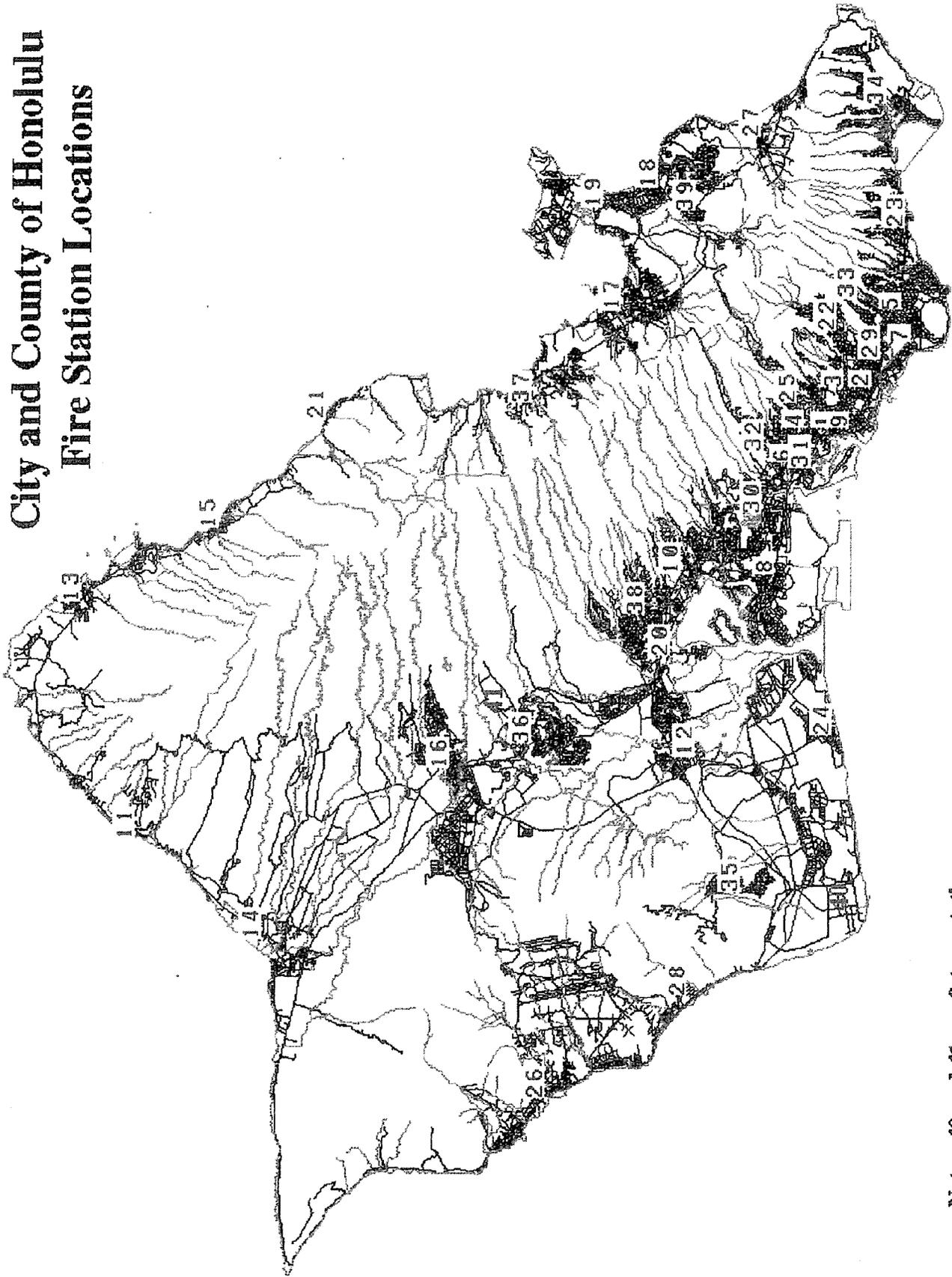
The HFD is currently implementing a reorganization plan that is making some changes to this basic structure. Two new battalions are to be established in the Fire Operations Bureau in order to reduce the Battalion Chiefs' span of control over fire stations. In addition, fire fighters currently serving as aides to Battalion Chiefs are to be reassigned to two new ladder apparatus (at station 26 in October 1993 and at station 5 in April 1994). Other aides not assigned to ladder companies will be placed in new positions in other bureaus. Twelve civilian staff will be hired in 1994 to perform the administrative tasks currently performed by the aides, as well as other duties.

The Fire Operations Bureau of the HFD currently operates 39 fire stations throughout the island. Exhibit V-3 presents a map of the island of Oahu depicting the locations of these 39 stations. As might be expected there is greater density of stations around the more heavily developed areas of metropolitan Honolulu. The other areas of the island are dotted with fire stations at fairly regular intervals, primarily along the coastline.

The HFD's long-range plan calls for the addition of two new stations in underserved areas in the next few years. The locations of these future stations are represented on Exhibit V-3. Station 40 is to be located in the southwest corner of the island near the Campbell Industrial Park, an area that has experienced significant commercial and industrial growth in the past few years. Construction on station 40 will begin in early 1994, and the HFD expects it to be operational by early 1995. Station 41, for which only preliminary design and engineering work has been done, is to be located near the center of the island in the Mililani district. Station 41 is planned to be operational by early 1996.

The HFD operates 39 fire fighting engines and 13 ladders. Exhibit V-4 details the deployment of these apparatus. Every operating fire station houses an engine. No station operates more than one engine. With the addition of two new ladders under the department's reorganization plan, the HFD also operates 13 ladders, as of April 1994 (there are 12 ladders in operation as of December, 1993). The current ladder configuration confines most of these apparatus to the urban areas of Honolulu, with a couple assigned to the far leeward side of the island and to the Kaneohe area north of Honolulu. In addition to these engines and ladders, the department staffs a number of other specialized apparatus, including a snorkel, which performs aerial duties, two rescue units, a hazardous materials (HazMat) unit, several tanker trucks to provide water in areas without piped water, a fireboat, and two helicopters.

City and County of Honolulu Fire Station Locations



Note: 40 and 41 are future stations

City and County of Honolulu

Fire Apparatus Deployment*

Station	Apparatus	Station	Apparatus	Station	Apparatus
1	Engine HazMat	13	Engine	27	Engine
2	Engine Ladder Rescue	14	Engine	28	Engine Tanker
3	Engine	15	Engine Tanker	29	Engine Ladder
4	Engine Ladder	16	Engine Tanker	30	Engine Ladder Tanker
5	Engine Ladder	17	Engine Ladder	31	Engine Ladder Rescue
6	Engine	18	Engine Ladder	32	Engine
7	Engine Ladder	19	Engine	33	Engine
8	Engine	20	Engine	34	Engine Ladder
9	Engine Snorkel	21	Engine	35	Engine
10	Engine	22	Engine	36	Engine
11	Engine	23	Engine	37	Engine
12	Engine Ladder Tanker	24	Engine	38	Engine Ladder
		25	Engine	39	Engine
		26	Engine Ladder Tanker		

<u>Totals</u>	
Engines:	39
Ladders:	13
Snorkel:	1
Rescue Unit:	2
Tanker Trucks:	6
HazMat Unit:	1

Note: This list does not include the aircraft and fireboat that the HFD operates

* Apparatus configuration as of April 1994

The HFD has assigned five or six fire staff to each engine and six or seven staff to each ladder. Historically, the Department's approach to engine and ladder staffing has been somewhat different throughout the island. In the more urban areas, the Department has assigned six staff to engines (one captain and five fire fighters) and seven staff to ladders (one captain and six fire fighters). In non-urban areas, the Department has assigned five staff to engines (one captain and four fire fighters), and six staff to ladders (one captain and five fire fighters). In all areas, it has been expected that routine absences due to illness, vacation, and other reasons will result in the actual number of staff on duty on an apparatus on any given day to be slightly less than the number assigned. Although the Department has not established a formal policy on the minimum staff it deems necessary to be on duty on engines and ladders, the current assignment pattern has, in practice, resulted in working minimums of five on an engine and six on ladder in urban areas, and four on an engine and five on a ladder in non-urban areas. Exhibit V-5 presents the Fire Operations Bureau's assigned staffing by company and station, as of January, 1993.

As part of the recent reorganization effort, the HFD is moving toward staffing fire companies equally, regardless of location. The "heavy" engine and ladder companies noted in Exhibit V-5 are being eliminated. The new policy will be to assign a total of five staff to all engines, assuring a minimum staff of four on duty, and to assign a total of six staff to all ladders to ensure a minimum of five staff on duty. This new policy is planned to be in effect as of April 1994.

The Department's response to fire incidents varies by location and type of fire. A clear policy governs the mix of apparatus to be dispatched in a given situation. For reports of structure fires, the Department will generally dispatch two engines and a ladder on the first alarm. In two "high-value" areas in Downtown Honolulu and Waikiki, the Department will dispatch three engines, two ladders, and a rescue truck to reports of structure fires. For non-structure fires, the dispatch policy is the same throughout the island. Brush, refuse, auto, and other fire calls are typically responded to with one engine, with discretion to send others as needed.

Workload

The HFD responds to approximately 11,000 calls of all kinds per year. In fiscal 1992 (the most recent year for which detailed data were available), the HFD responded to 11,383 calls -- about 31 per day. Some of these calls were responded to by just one company, while others were responded to by multiple companies. This call volume can be broken down into the following call types:

Fire Operations Staffing

Station/Company	Assigned Staffing (Captain-Fire Fighter)	Firefighter	Captain	Battalion Chief	Assistant Chief	Total
Division A						
1st Battalion						
B1		3		3	1	7
E1	1-5*	15	3			18
HazMat 1	1-4	12	3			15
E4	1-5*	15	3			18
L4	1-6*	18	3			21
E6	1-4/1-5*	14	3			17
E8	1-4	12	3			15
E9	1-5*	15	3			18
S9	1-5	15	3			18
E25	1-4	12	3			15
E30	1-5*	15	3			18
L30	1-5	15	3			18
E31	1-5*	15	3			18
L31	1-5/1-6*	17	3			20
R2	1-4	12	3			15
E32	1-4	12	3			15
Fireboat 1	1-5	15	3			18
Aircraft 1	2	6				6
4th Battalion						
B4		3		3		6
E10	1-4	12	3			15
E12	1-5*	15	3			18
L12	1-5	15	3			18
T12	1	3				3
E14	1-4	12	3			15
E16	1-4	12	3			15
T16	1	3				3
E20	1-4	12	3			15
E24	1-4	12	3			15
E26	1-4	12	3			15
T26	1	3				3
E28	1-4	12	3			15
T28	1	3				3
E35	1-4	12	3			15
E36	1-4	12	3			15
E38	1-4	12	3			15
L38	1-5	15	3			18

Assigned Staffing		Firefighter	Captain	Battalion Chief	Assistant Chief	Total
Station/Company	(Captain-Fire Fighters)					
B Division						
2nd Battalion						
B2		3		3	1	7
E2	1-5*	15	3			18
L2	1-6*	18	3			21
R1	1-4	12	3			15
E3	1-5*	15	3			18
E5	1-5*	15	3			18
E7	1-5*	15	3			18
L7	1-6*	18	3			21
E22	1-4	12	3			15
E23	1-4	12	3			15
E29	1-5*	15	3			18
L29	1-6*	18	3			21
E33	1-4	12	3			15
E34	1-4	12	3			15
L34	1-5	15	3			18
3rd Battalion						
B3		3		3		6
E11	1-4	12	3			15
E13	1-4	12	3			15
E15	1-4	12	3			15
T15	1	3				3
E17	1-4	12	3			15
L17	1-6*	18	3			21
E18	1-5*	15	3			18
L18	1-5	15	3			18
E19	1-4	12	3			15
E21	1-4	12	3			15
E27	1-4	12	3			15
E37	1-4	12	3			15
E39	1-4	12	3			15
TOTALS		787	165	12	2	966

* "Heavy" ladder or engine (one extra firefighter assigned); this allocation is currently being reconfigured to eliminate heavy companies, and to add ladders to stations 5 and 26

Source: Honolulu Fire Department Personnel Classification, January 1993

Fire Calls	
Structure:	416
Outside Structure:	48
Vehicle:	472
Brush:	1,035
Refuse:	949
Other:	<u>180</u>
Total Fire Calls:	3,100

Non-Fire Calls

EMS/Rescue:	4,368
Hazardous Material/ Condition:	648
Service Calls:	494
Relocations*:	1,080
False Calls:	776
Other :	<u>917</u>

Total Non-Fire Calls: 8,283

TOTAL CALLS: 11,383

* denotes one fire company relocating its apparatus to another station while the other company is on a call

About 27 percent of the total calls are fire-related. As the preceding table shows, 3,100 calls, or about 27 percent of the total call volume, were calls to fires (this does not include false and "good intent" alarms). Of the fire calls, just 13 percent, or 416 for the year, involved structure fires, or an average of just over 1 structure fire per day. As a result, an average engine company will be the primary responder to a legitimate fire call of any kind every four to five days, and the primary responder to a structure fire about once a month. Of course, only a portion of the structure or other fire calls develop into sustained working fires.

It is important to recognize that there is nothing wrong with the relative infrequency with which fire companies are required to respond to fires. In Honolulu as in other cities, fire fighters are paid at least as much for "readiness" to respond quickly to fire emergencies as they are for actually spending time fighting fires.

Moreover, as discussed below, they can provide valuable services beyond their basic fire fighting mission.

Approximately 73 percent of the Department's calls involve non-fire responses. The remaining calls reflect the additional responsibilities of Honolulu's fire companies. By far the most numerous are emergency medical and rescue calls, which include primarily "first responder" treatment of sick or injured people while waiting for an EMS ambulance, as well as specialized rescue services. These accounted for 38 percent of all calls for service during fiscal 1992, and provide a valuable component of the emergency medical response system. In addition, the department responds to hazardous materials incidents, and undertakes other miscellaneous service calls. Of course, a proportion of the total calls turn out to be either false alarms or non-incidents reported with "good intent."

A breakdown of these total calls by primary company responding is presented in Exhibit V-6. As the exhibit shows, there is considerable variation in the number of fire calls responded to by each apparatus. Even "high volume" companies, however, are the primary respondent to fewer than three incidents per day.

Budget

The HFD's budgeted expenditures for fiscal 1994 are approximately \$45 million. As with other departmental budgets, benefits costs (36.5 percent of salaries) are carried elsewhere in the city's budget. Over 80 percent of the Fire Department's budget is devoted to the Fire Operations bureau. Monies for the Fire Prevention bureau, the second most expensive division, account for approximately four percent of the total expenditures. Salaries alone account for approximately 81 percent of the total expenditures.

City and County of Honolulu

Call Volumes By Company
July 1, 1991 - June 30, 1992

Station	Apparatus	Total Calls	Station	Apparatus	Total Calls	Station	Apparatus	Total Calls
1	Engine	239	13	Engine	149	27	Engine	165
2	Engine Ladder	325 199	14	Engine	287	28	Engine	518
3	Engine	254	15	Engine	221	29	Engine Ladder	219 150
4	Engine Ladder	171 57	16	Engine	271	30	Engine Ladder	231 123
5	Engine Ladder	312 N/A	17	Engine Ladder	261 N/A	31	Engine Ladder	163 49
6	Engine	280	18	Engine Ladder	124 102	32	Engine	226
7	Engine Ladder	284 207	19	Engine	119	33	Engine	205
8	Engine	314	20	Engine	417	34	Engine Ladder	142 144
9	Engine Snorkel	163 28	21	Engine	141	35	Engine	308
10	Engine	337	22	Engine	112	36	Engine	325
11	Engine	225	23	Engine	165	37	Engine	218
12	Engine Ladder	453 184	24	Engine	340	38	Engine Ladder	265 126
			25	Engine	130	39	Engine	152
			26	Engine Ladder	801 N/A			

Source: HFD Call Volume Database

Note: Each incident is counted as only one "call"; data on back-up runs is not reported by the Department.

C - FINDINGS AND RECOMMENDATIONS: FIRE PROTECTION

STATION LOCATION AND APPARATUS DEPLOYMENT

The HFD Provides The Citizens Of Honolulu With A Generally High Level Of Fire Protection

To assess the level of fire protection responsiveness under current and alternative scenarios, Towers Perrin has employed a state-of-the-art computer modeling program tailored to Honolulu's geography and development patterns. (see footnote) Through using this tool, as well as through examining historical run data, it can be demonstrated that the HFD provides the citizens of Honolulu with a high level of fire protection responsiveness.

The technology we use creates response scenarios to determine the amount of time required for an apparatus to travel from its assigned fire station to the scene of an emergency. Once the analysis is complete, color-coded street maps illustrate what primary coverage areas are reachable by the assigned apparatus within the maximum targeted response time, based on travel speed assumptions.

Note: The fire response modeling tool employed is entitled "Flame," a product of the Bode Research Group of Wichita, Kansas. Flame works from base maps developed from U.S. Census data and updated with the most recent maps available. These maps are heavily detailed, and reflect such elements as actual intersection configurations, one-way streets, and natural barriers. Flame calculates the time required to travel from a fire station to any address on the island, given travel speed assumptions and the plotting of actual travel routes from point to point. By setting time parameters, Flame can also determine the coverage area for each fire fighting apparatus in every fire station. Once these coverage areas are plotted, one can quickly identify both areas of overlapping coverage as well as "gaps" in coverage.

Flame calculates travel times using realistic assumptions about vehicle driving patterns and actual landscape. For instance, the model only allows vehicles to turn at actual intersections, as opposed to two streets that have no access to each other. The model also recognizes one-way streets and restricted-access highways.

In addition, travel speeds are assigned to all road segments on the map. This process was developed by researching actual run data from over 50 communities in the United States and developing a formula to determine the most reasonable speed an emergency vehicle could travel on that street. The formula assesses a street's type (i.e., commercial, residential, freeway), the length and number of intersections on a street segment, and the topography of the roadway. Additional travel time is also included whenever a vehicle must turn. For the base model, travel times typically range from 25 to 55 miles per hour, depending on the segment of road.

In Honolulu's case, the consultants wanted to make particularly certain that travel speed assumptions for downtown Honolulu and Waikiki were realistic. For this reason, we built in an assumption of even slower travel speed than the base model for these areas: 20 miles per hour. When one considers the additional time allotted by the model to turn a vehicle at an intersection, the overall average travel speed used to model the downtown and Waikiki areas was actually somewhat less than 20 miles per hour.

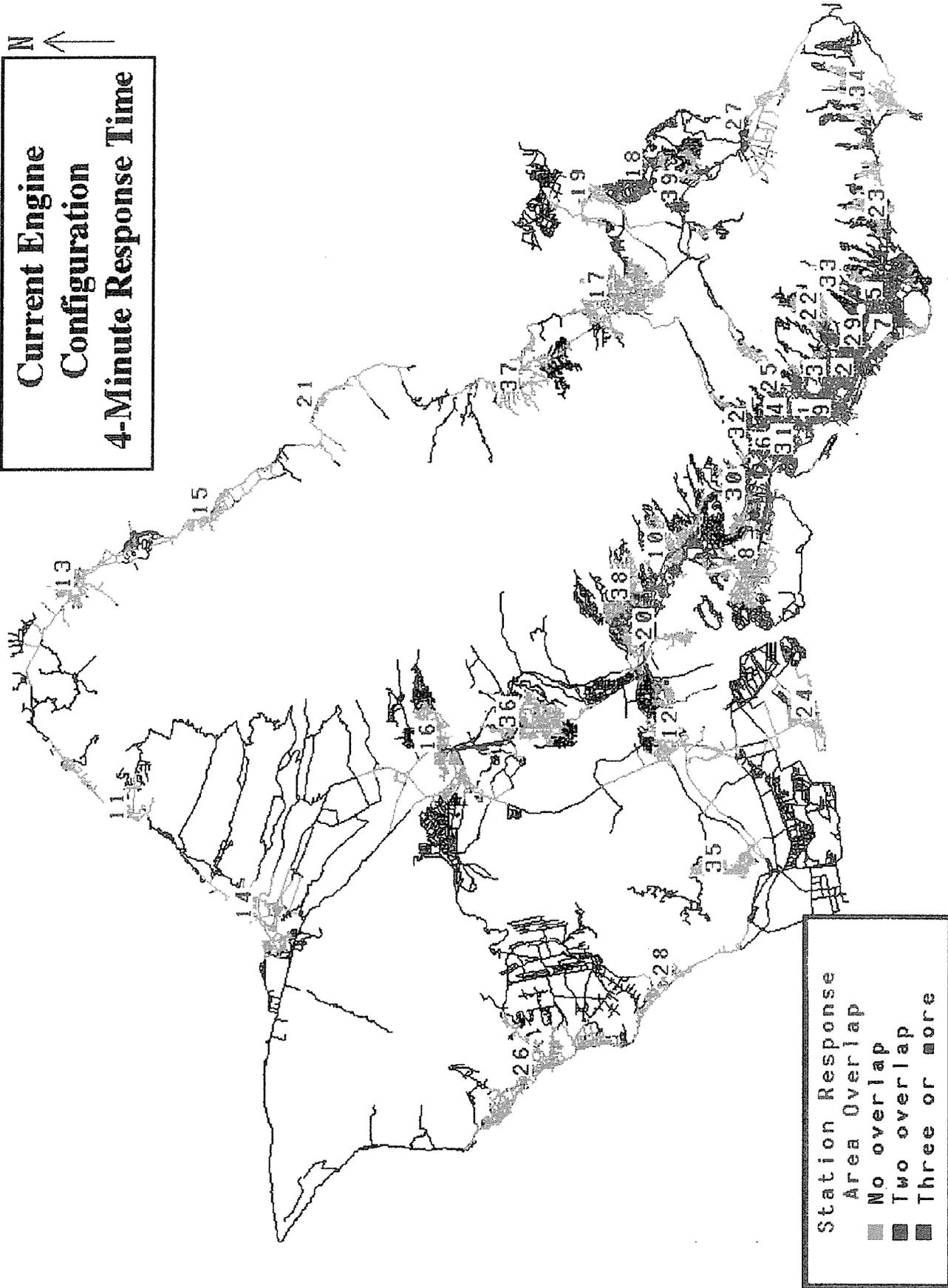
Based on our discussions with various city officials, our analysis has incorporated general goals of four minute response (travel time) for engine companies, and eight minute response for ladder (and snorkel) companies for the island as a whole. For the more developed areas, such as downtown Honolulu and Waikiki, we have applied an even higher standard of three minutes for engine companies and six minutes for ladder companies. The standard for ladders (and other aerial companies) is longer than that for engines because their fire fighting roles are typically as back-up to first due engine companies, providing aeration, rescue, and additional manpower as needed. Our findings as to the current level of coverage and responsiveness are as follows:

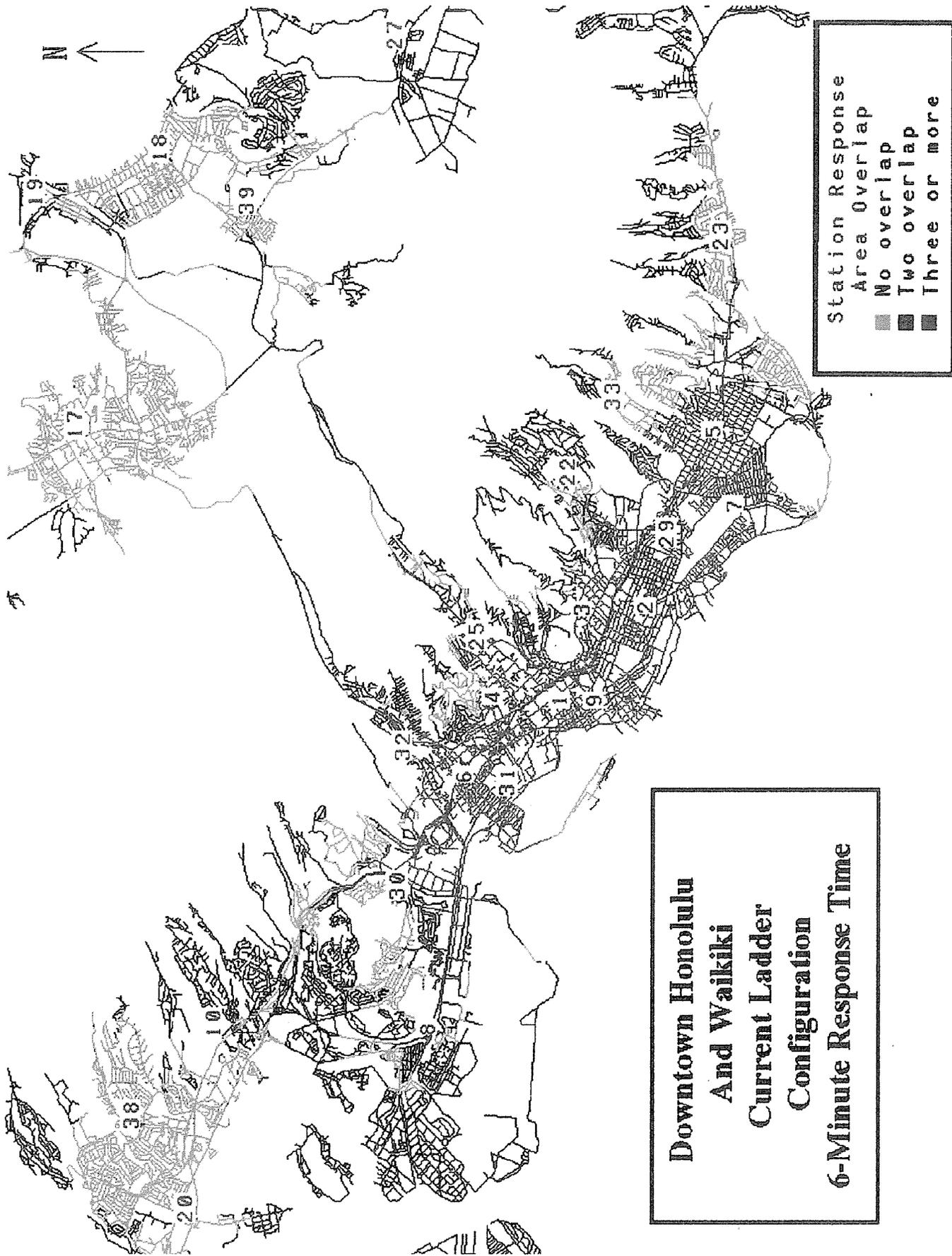
Most developed areas of the City and County of Honolulu can be reached by an engine in four minutes or less. As Exhibit V-7 illustrates, our model demonstrates that the majority of developed areas on the island are served by engines that can reach them in less than four minutes of travel time from the station, depicted on the exhibit in green, blue or red shading (Exhibit V-8 presents a similar assessment for ladders in urban Honolulu). Those areas that are not covered in four minutes or less (depicted on the exhibit in black) are primarily military installations (for which the HFD has no primary responsibility) or very rural areas.

In fact, actual run data from the HFD for fiscal year 1992 corroborates this information. In a sample of response statistics from various engine companies, the majority of companies responded to the majority of their calls in four minutes or less. After accounting for turn-out time within the fire station (the time from when the dispatch is received until the apparatus leaves the station), this record is quite consistent with a maximum travel standard of less than four minutes.

One area of the island does not have sufficient fire protection coverage by an engine within four minutes. Exhibit V-7 also highlights those areas where fire protection coverage is not available within four minutes. The Waikele/Crestview area, situated between fire stations 36, 12, and 20, is not served within four minutes from any of those stations.

As mentioned above, the HFD plans to open a new fire station not far from this area in the next few years. As discussed later, however, the location planned for the new station may not be the optimal one to cover the majority of the area in need.





Some Areas Of The City - Particularly In Downtown Honolulu and Waikiki - Can Be Reached By Multiple Engines Within Three Minutes

Focusing on downtown Honolulu and Waikiki, we have found that most of this area can be responded to by multiple engines in less than three minutes. In fact, much of this area is covered by three or four engines who can arrive in under three minutes.

The volume of calls in any one area of Honolulu is so low that it is not necessary for more than one engine to cover the same first due area. As discussed earlier, the total volume of all calls for service to the Fire Department is relatively low - an average of fewer than one call per station per day. Even when one considers that a fraction of all calls require multiple apparatus, the likelihood of a call coming in from an area while that area's first due engine is out on another call is extremely remote. As a result, it is unnecessary for the HFD to provide redundant coverage of a first due area.

A three minute engine response standard represents a very high level of fire protection. Compared the standards of many other communities who also have high-value downtown areas and numerous high-rise buildings, a standard of three-minute maximum travel time represents a very high level of responsiveness. Indeed, a three-minute maximum means that most incidents will be responded to in far less time, because most incidents will occur well within the three minute boundary. Moreover, as discussed earlier in this chapter, marginal improvements in engine response time may reflect only a small reduction in the total elapsed time from the onset of an incident through discovery, reporting, dispatch, and then arrival on the scene.

A substantial portion of the areas covered by the engines located at Stations 1, 4, and 31 are also covered by engines from other stations within three minutes. Exhibit V-9 illustrates the extent of fire engine overlap in the downtown and Waikiki areas of Honolulu. Note that near stations 1, 4, and 31 most of the streets are red - an indication that at least three engines could reach that area within three minutes traveling at an average speed of 20 mph. Although there are other areas in this section of Honolulu where two engines share some of the same first due area, the overlap of three or more engines is clearly the poorest use of HFD resources.

The HFD Should Discontinue Staffing The Engines Located At Stations 1, 4, and 31

The current coverage by engines in the downtown area is sufficient enough that the engines at stations 1, 4, and 31 could be discontinued without any perceptible reduction in protection for the area. Should the engines at stations 1, 4, and 31 be discontinued, the areas that were formerly in these stations' first due areas would remain within three minutes of stations that would still include an engine, namely stations 6, 9, and 25. Exhibit V-10 illustrates the recommended coverage configuration once the engines at stations 1, 4, and 31 are discontinued.

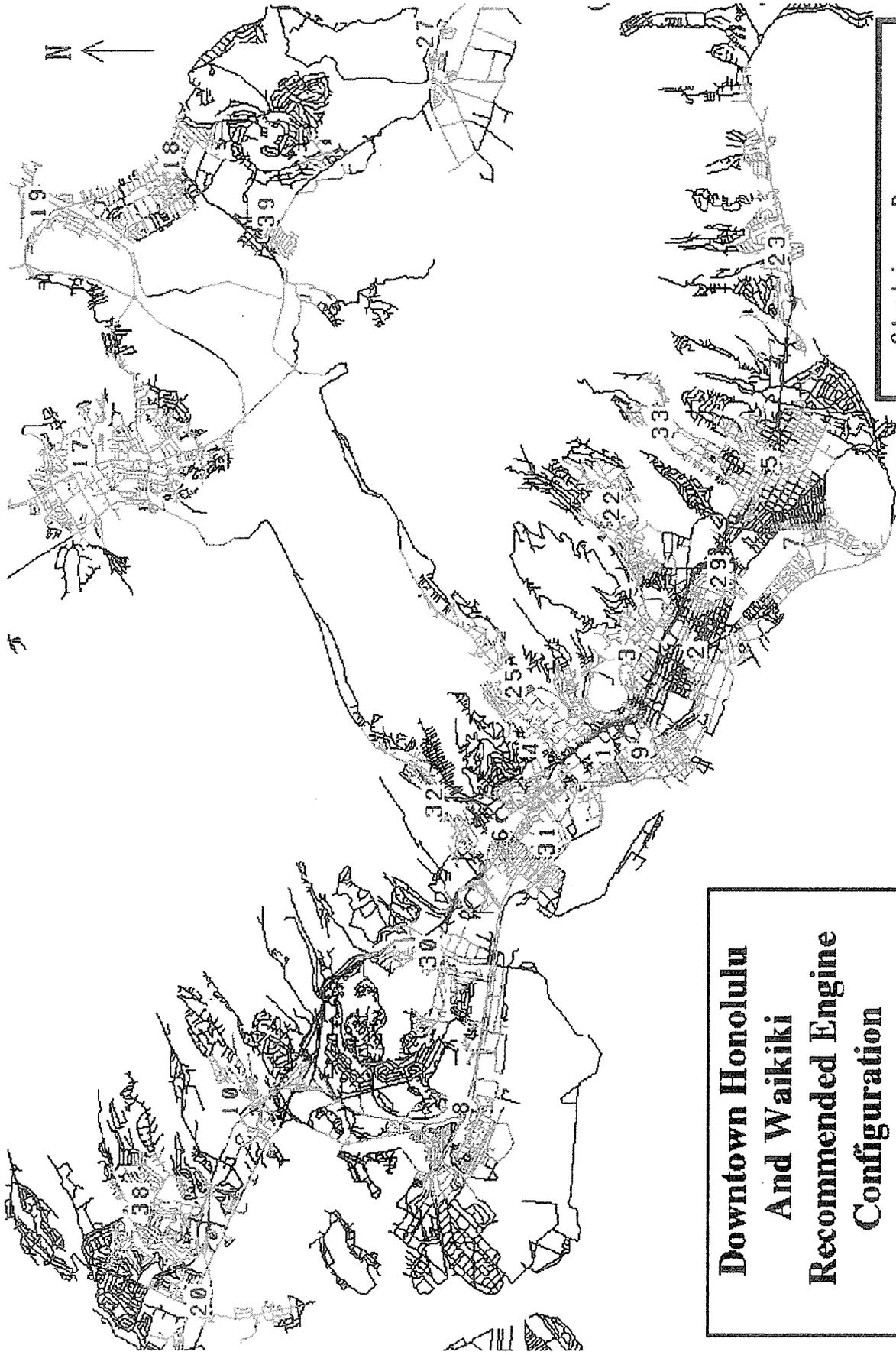
It is worth noting that under the recommended configuration of engine companies, all part of downtown Honolulu could still be reached by one or more engine companies within three minutes. In fact, the distances between stations 6, 9, and 25 are all less than 2.5 miles driving distance.

Although the HFD should discontinue staffing the engines at stations 1, 4, and 31, none of these stations should close. In addition to engines, all of these stations also include other fire apparatus that should remain where they are. Station 1 currently houses the Hazardous Materials unit, station 4 houses a ladder, and station 31 houses both a ladder and a rescue unit.

Discontinuing these engines would allow the HFD to reduce their staffing requirements by 45 positions (3 engines, 3 shifts, 5 fire fighters per engine per shift). This would constitute an annual savings of approximately \$1.85 million in salaries and benefits alone.

Portions Of Downtown Honolulu and Waikiki Are Covered By Multiple Aerials Which Can Reach Them In Less Than Six Minutes

As illustrated previously in Exhibit V-8, a substantial portion of the areas covered by the aerials (ladders and snorkel) at stations 2, 5 (deployment planned for April, 1994), 9, and 31 are also covered by ladders from other stations. In fact, using the six-minute response parameter - along with an average travel speed of 20 mph - our analysis of the ladder configuration in the downtown and Waikiki areas indicates that virtually all of the area is covered by at least three ladders within six minutes.



Station Response
Area Overlap

- No overlap
- Two overlap
- Three or more

**Downtown Honolulu
And Waikiki
Recommended Engine
Configuration
3-Minute Response Time**

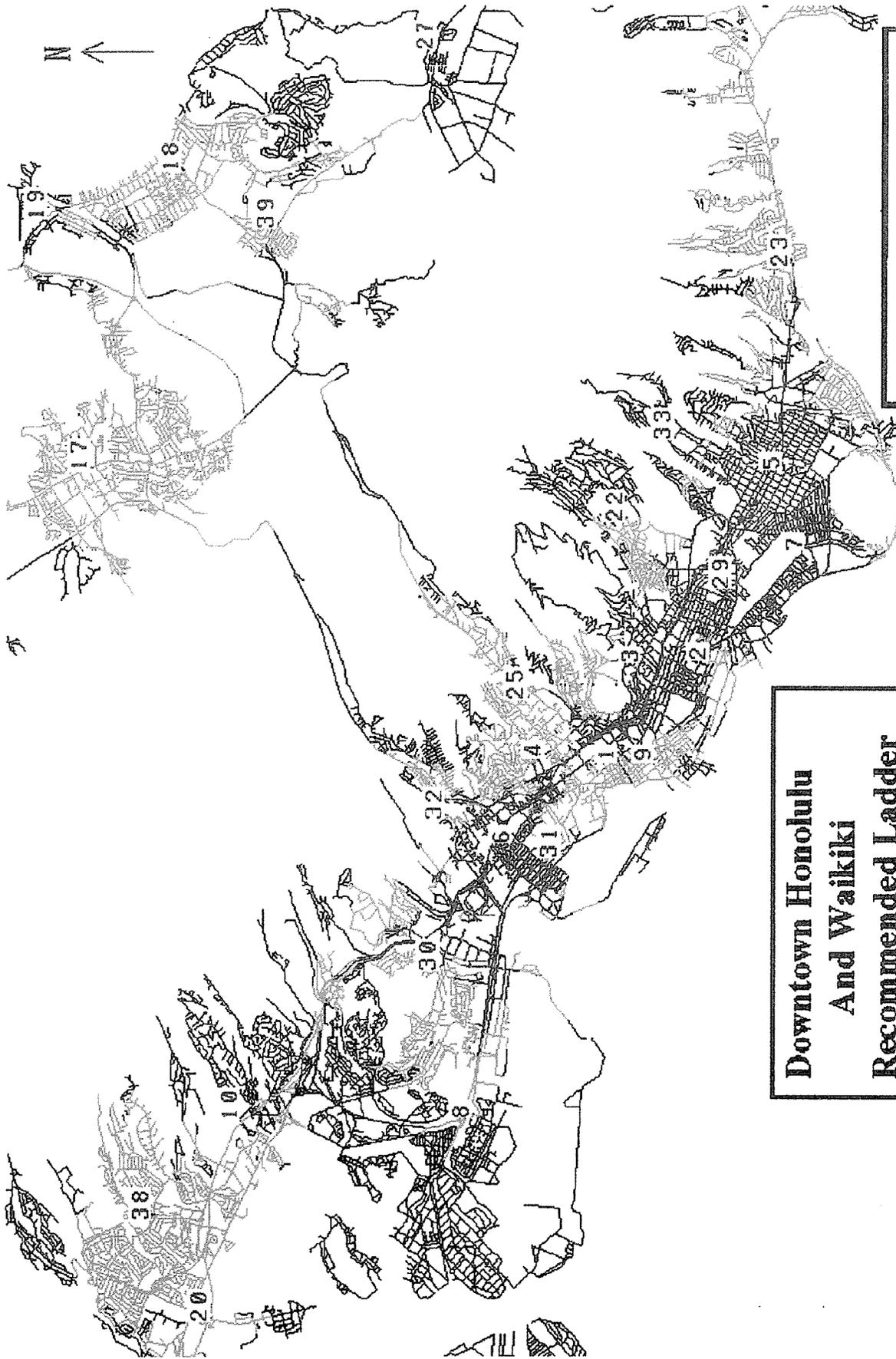
The HFD Should Discontinue Staffing Aerials (Ladders and Snorkel) Located At Stations 2, 9, And 31, And Should Move Ladder 5 To Station 23

The current coverage by ladders in the downtown and Waikiki areas of metropolitan Honolulu is sufficient enough that four ladders could be discontinued without any perceptible reduction in protection in those areas. The ladders at stations 2, 5, and 31 as well as the snorkel at station 9 should be discontinued because their primary areas of coverage are shared with at least two other ladders in every case. The other ladders that would still be deployed in the downtown and Waikiki areas would provide more than sufficient coverage for the discontinued ladders. As mentioned previously, the ladder currently planned for station 5 would provide better service and serve more uncovered area if it were moved to station 23.

Exhibit V-11 illustrates the recommended configuration of ladders in metropolitan Honolulu and illustrates the level of coverage that will remain in this area once these recommendations are implemented. Clearly, no area in metropolitan Honolulu will experience a perceptible reduction in service after the recommendations are implemented; all areas will still be covered by a ladder within six minutes, and many areas will still be covered by more than one ladder.

As with the recommendation on engine companies, no stations will have to be closed as a result of this recommendation. Stations 2, 5, and 9 will still house engines, and station 31 will still house a rescue unit.

Discontinuing a net of 3 ladders will allow the HFD to reduce its staffing requirements by 54 positions (3 stations, 3 shifts, 6 positions) which will result in an annual savings of approximately \$2.21 million. There would, however, be some capital construction necessary to accommodate a ladder at fire station 23. Although we have not analyzed these capital costs in detail, it seems clear that they would not exceed the \$2.0 million per station projected for totally new station construction within the current CIP. Amortized over 30 years at an interest rate of 6 percent, the improvements at station 23 would thus cost no more than \$145,000 per year (and likely much less). Therefore, after factoring in the capital costs of new construction, discontinuing three ladder companies and moving one other would still result in a net annual savings of at least \$1.78 million.



Station Response
Area Overlap

- No overlap
- Two overlap
- Three or more

**Downtown Honolulu
And Waikiki
Recommended Ladder
Configuration
6-Minute Response Time**

The HFD Should Move Ahead With Plans To Add Stations 40 and 41 In Underserved Areas, But Should Re-evaluate The Proposed Location For Station 41

The HFD has developed plans to construct and staff two new fire stations within the next several years. One station, number 40, would be located in the far southwestern corner of the island amidst an area that has recently experienced significant commercial and industrial growth. The other station, number 41, is currently scheduled to be located near the center of the island to the northeast of station 36.

The location selected for station 40 appears to be appropriate. The need exists for a new station there, and the location will provide excellent coverage for the area. The HFD's proposed location for station 41, however, does not appear to be as well-situated. As mentioned earlier, there is, indeed, a need for another engine in the general area north of Pearl Harbor along the H-2 highway, near Waikele and Crestview. The proposed location for new station 41 will not provide the necessary coverage for this area. In fact, station 41, at the currently proposed site, would be located farther away from the underserved area than station 36.

The HFD should re-evaluate its plans for the location of new station 41. Additional study should be completed to determine what other sites would be available for a new fire station and whether any of those sites is more centrally located amidst the underserved area, while still close enough to the development occurring near the current site selected for station 41. If a better site is identified, the HFD should then consider shifting its plans to this site, taking into account the financial and engineering investments that have already been devoted to the current site.

APPARATUS STAFFING

It Is Not Necessary To Staff More Than A Minimum of Four Fire Fighters On A Ladder

Even the Department's leanest ladder companies are staffed to provide a minimum of five fire fighters (including one captain) on duty. This staffing level is more than necessary. In fact, just two fire fighters are needed to erect a ladder, with additional ladder staff available for other kinds of support at a fire scene. Many fire departments in the U.S. and Canada manage quite successfully with a minimum ladder staff of four, or even three.

In considering staffing on ladders and other aerials, it is important to recognize that ladders are actually erected at fire scenes relatively infrequently (see Exhibit V-6). Indeed, last year, there was a total of just 416 structure fires, of which just a fraction required a ladder to be erected. As a result, most ladder company responses simply involve transporting staff to provide general fire fighting duties. Moreover, it is important to remember that the Department's dispatch guidelines call for three to six apparatus to be dispatched to the first alarm of any structure fire. In these situations, with one to two dozen fire fighters called immediately to the scene, it is unlikely that one or two extra ladder staff will make any difference in the Department's effectiveness on the scene.

The Department Should Reduce Its Minimum Ladder Staffing To Four

The Department should adopt a standard of four fire fighters as minimum staffing on ladders as well as engines. This will result in no perceptible loss of fire protection, while enabling the Department to discontinue 42 fire fighter positions - 1 position from 13 ladders and one snorkel over three shifts. Associated cost savings would be approximately \$1.72 million in salary and benefits. Assuming the Department implements our recommendation to discontinue a net of three ladder companies, the marginal impact of this recommendation would be a reduction of just 33 positions, and associated costs of \$1.35 million.

ORGANIZATION

The HFD Is In The Process Of Reorganizing The Department At Both Management and Operational Levels

The HFD has planned and is currently carrying out a reorganization plan that will affect both the managerial and operational levels of the Department. The Department plans to discontinue the position of Battalion Chief Aide and to discontinue the extra positions assigned to "heavy" ladders and engines in the heavily urban areas of downtown Honolulu and Waikiki. The staff currently working

in these positions will be reassigned to two new ladder companies (at stations 5 and 26) and to other bureaus in the Department. In addition, two new Battalions will be established to reduce the span of control for each Battalion Chief. At the same time, 12 new civilian staff positions will be added to assume the administrative responsibilities once carried out by the aides, as well as other duties.

The HFD Should Move Ahead With Its Reorganization Plans

Reassigning the aides and the extra fire fighters on "heavy" apparatus is a thoughtful and responsible step on the part of HFD leadership. The new positions assumed by these reassigned fire fighters will better serve the community and demonstrate an interest in operating the organization more cost-effectively. As discussed above, we recommend that the Department move even further in restructuring its apparatus staffing model, reducing the minimum on ladder trucks from five to four. In addition, we have recommended that the ladder planned for station 5 be placed instead in station 23 once capital improvements have been made. Otherwise, the reorganization plan seems generally well-conceived, and should be implemented.

FIRE SUPPRESSION RELIEF

The HFD's Current Method To Provide Relief For Vacation, Illness, And Other Excused Absences Allocates More Staff Than Are Necessary

Currently, and under the proposed reorganization plan, each fire company is assigned one fire fighter above the minimum number necessary to be on duty at any one time. (Minimum staffing standards have not been formally articulated by the Department, but appear to be followed in practice) This extra position is intended to ensure adequate relief for absences due to illness, vacation, holidays, and other reasons. In effect, each company is self-relieving, although Battalion Chiefs are free to assign staff to provide relief for other companies as needed.

On the one hand, this system has several advantages. First, it is relatively easy to administer, because the number of special assignments to be made is relatively small. Second, it provides a very high degree of certainty that relief needs will be met. Third, it has helped to cushion the disruption caused when vacancies occur and remain unfilled. (This need has been particularly acute this year, as the Department has not filled a number of vacancies in authorized positions in order to hold down spending).

On the other hand, this level of security comes at a very high cost. In fact, an examination of staff leave records suggests that it supplies far more relief staff - and incurs far more costs - than necessary. Assigning five staff to an engine company to ensure a minimum staff of four on duty reflects a relief factor of 1.25

(five divided by four). Staffing a ladder company with six to ensure a staff of five represents a relief factor of 1.20. However, our analysis of staff leave records for 1992, confirmed with the Department's administrative staff, suggests an actual relief need of just 1.10, as illustrated below:

Regular 24-hour shifts assigned to a fire fighter (annually):	122.00
---	--------

Average number of 24-hours shifts absent because of:

Illness:	2.23
Injury:	0.88
Vacation:	6.28
Holiday:	1.30
Military:	0.20
Funeral:	0.05

Net number of shifts worked:	111.07
------------------------------	--------

Relief Factor (Shifts assigned/shifts on duty): 1.10

The gap between the 1.20 and 1.25 relief allowances in place and the 1.10 relief needed represents 94 more fire fighters on the staff than would otherwise be needed (not counting vacant positions that have accumulated). As a result, there are many days when more staff than the minimum necessary are on duty. Given the large costs involved in supporting these 94 extra positions, the current approach to providing relief is not justified.

The HFD Should Restructure Its Approach To Staffing For Relief and Turnover

The Department should take steps to scale back its relief staffing more closely in line with its demonstrated needs. There are several ways to achieve this goal. Many fire departments use relief pools to cover the companies' relief needs, with staff assigned daily by administrators to where they are needed. Given the potential cost savings involved, establishing a relief pool (or set of relief pools, for each battalion) in Honolulu would be a preferable option to the current approach.

An even better option would be to assign fire fighters semi-permanently to some individual companies, but with the expectation that these staff would be regularly assigned to provide relief to other companies within the battalion. This approach would give these fire fighters a base company to train with, and a base captain to be evaluated by, while providing the efficiency benefits of a pool system.

Moreover, although it will require some additional management attention from Battalion Chiefs to confirm daily assignments, it will require less management attention than a pool. In addition, given the reorganization plan being implemented, the span of control of Battalion Chiefs will be somewhat less, making it easier to manage a relief assignment system.

We therefore recommend that the Department pursue this second option - relief staff assigned semi-permanently to individual companies - and seek to cut back relief staffing so that just over half of engine, ladder, snorkel, and tanker companies have the extra fire fighter assigned. By reducing the number of these companies assigned a relief fire fighter on each shift from today's total of 59 to 33, the department could discontinue 78 fire fighter positions while continuing to provide a secure margin of relief (reducing the relief allowance by 78 positions leaves 16 positions of "slack" above the 1.10 need). Discontinuing 78 fire fighter positions would result in annual salary and benefit savings of \$3.20 million.

Assuming the recommendations outlined above to discontinue three engine and three aerial companies and to reduce the minimum staffing on ladder companies to four are implemented, the impact of this recommendation relief would be slightly less, since the base number of companies would be lower. In that case, the number of companies assigned a fire fighter semi-permanently would be 30 out of 53, and 69 positions would be discontinued. Resulting annual savings would be \$2.83 million.

The City should create a pool of trainee positions within the HFD to ensure that regular turnover does not impede front-line suppression staffing. To prevent routine turnover from diminishing the Department's capacity to staff its companies at minimum levels, the City should create a number of fire fighter positions to be used exclusively for new fire fighters in training. Based on historical turnover rates within the Department, and assuming that the recommended reductions outlined elsewhere in this chapter are implemented, the Department will need to recruit approximately 30 new fire fighters per year to maintain the recommended staffing level. Assuming two training cycles per year, the Department should establish 15 positions for fire fighters in training, at a cost of approximately \$540,000 per year in salary and benefits. Of course, the Department need not establish these positions while it is implementing the recommended reductions in staffing outlined in this chapter, which is likely to take several years.

The combined effect of restructuring the approach to relief staffing and creating a training pool will eventually save the city \$2.29 million per year in salary and benefits. A net of 54 positions would be discontinued.

FIRE PREVENTION

The Fire Prevention Bureau Should Develop More Formal Systems To Guide Its Inspections of High-Occupancy, High-Risk Buildings

The Fire Prevention Bureau is charged with conducting or overseeing inspections at least annually of a wide variety of facilities throughout Oahu to ensure fire safety. Most inspections of homes and smaller facilities are undertaken by fire suppression staff based in the stations throughout the island. The larger and more complex facilities, including hotels, restaurants, schools, hospitals, and department stores, are handled by both individual fire companies and a central corps of inspectors located in the Fire Prevention Bureau. In recent years, the Bureau has had difficulty in ensuring that all the mandated inspections occur, due to manpower limitations. As a result, the Bureau has had to prioritize among the many facilities under its jurisdiction, with some receiving regular annual inspections, and others not. The way in which these responsibilities have been prioritized, however, has not always been consistent, and the Bureau does not make use of a computer to set goals and track performance against goals. Often, a facility becomes a priority only after the Bureau has received a complaint regarding it. As a result, it is not clear that the Bureau's resources have been appropriately targeted to the facilities facing the greatest risk, or that it has been sufficiently accountable for its work.

The Department's recent reorganization plan has allocated six more positions to the Fire Prevention Bureau, which should provide sufficient resources to meet all inspection and other fire prevention needs of the island. The department should ensure that it makes full use of these resources by investing in a computer system to maintain an inventory of the largest and most important facilities to inspect, to plan and schedule the inspection of these facilities, and to track performance against these plans. The Administrative Services Bureau should work with the Data Systems Department to help the Fire Prevention Bureau define the specific technology required, to acquire and install the system, and to train staff to use it. Although we have not researched the exact cost or configuration of such a system, we are confident that a PC-based system costing less than \$5,000 will be quite adequate for the task.

OVERALL MANAGEMENT

The Department's Senior Management Should Employ More Quantitative Analysis In Planning and Performance Monitoring

The Fire Department's senior management is clearly dedicated to providing Honolulu's citizens with a high level of fire protection services, and with ensuring that the Department's staff is well-trained and equipped. In addition, its recent reorganization plan is evidence of its interest in seeking cost effective alternatives to current approaches. In several key areas, however, the Department's senior management would benefit from a greater capacity for, and reliance upon, quantitative analysis. Examples include:

Fire station location planning. In considering the number and location of fire stations, Department leaders have articulated some general standards of responsiveness, and have tracked patterns of development. They have not, however, made use of any technology-based tools to assess the adequacy of coverage areas in a systematic way. Although this report has outlined what we believe to be the optimal array of stations for the foreseeable future, the department's senior management would benefit from installing and utilizing a similar computer-based station location analysis system to plan for the longer term. In acquiring such a capability, the department should consider ways to build upon the capabilities that may already exist for geographical information system modeling within the Department of Land Utilization.

Responsiveness to calls for service. The Department does not routinely track, assess, or report response times to fire and other calls for service, or total run statistics by company. While these statistics are recorded manually, and some are entered into computers, they are not readily manipulable. As a result, senior management is not in a good position to monitor total responsiveness, or components of responsiveness such as dispatch, turn-out, and travel time, all of which would be helpful in holding staff accountable for performance, and could offer insights into ways to make the staff more effective.

Other examples of the potential for improved management information are discussed elsewhere in this chapter. These include the need for a working computerized system to plan and track fire prevention activities, discussed above.

The Fire Chief, through the efforts of the Assistant Chief for Administration and the Data Services Department, should ensure that the appropriate management information systems are developed. Over time, the expanded management information should be incorporated into reaching major planning decisions, and into day-to-day monitoring of Department effectiveness.

D - BACKGROUND: EMERGENCY MEDICAL SERVICES

Scope of Services

Emergency medical services (EMS) in the City and County of Honolulu are provided primarily by the EMS Division of the city's Health Department, under contract to the State of Hawaii. The EMS Division provides an advanced level of pre-hospital emergency medical care and emergency ambulance services to residents and visitors throughout the island. Supplementing this emergency response system is the Fire Department's first responder program. As discussed earlier in this chapter, the Fire Department responds to several thousand emergency medical calls each year to provide basic first aid, CPR, and other stabilizing treatment until an EMS ambulance arrives. Plans are in place to add automatic defibrillators to some fire apparatus within the coming year; these machines will increase the likelihood of reviving a patient in cardiac arrest.

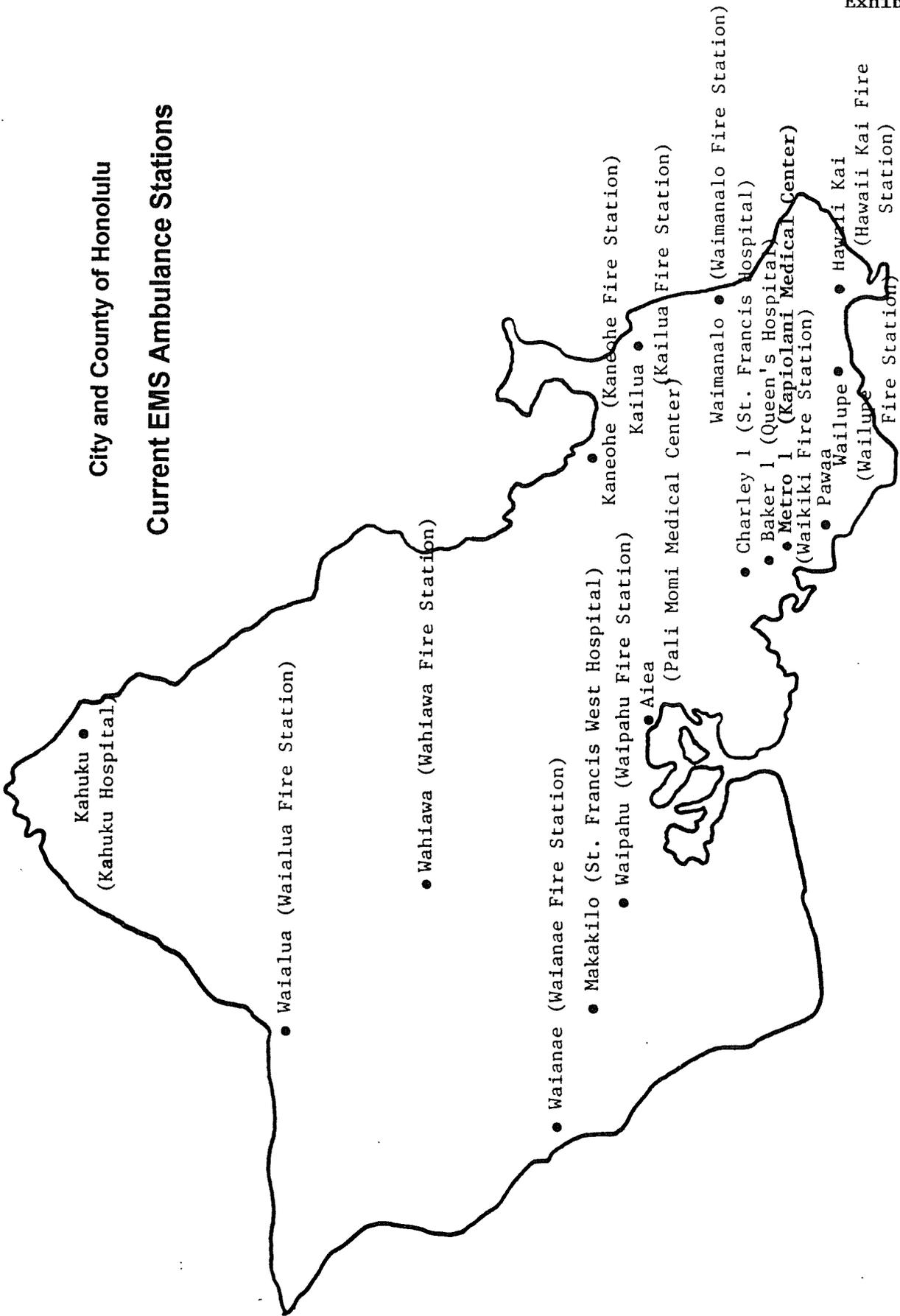
Ultimate responsibility for emergency medical services throughout Hawaii rests with the state. This responsibility is met in different ways on the different islands. On Oahu, the state has contracted with the City and County of Honolulu to provide the service. The terms of the contract are rather specific with regard to exactly what the city will provide (number of ambulances, areas of service, hours of operation, minimum staffing, training, etc.) as well as what the state will pay for (e.g., salaries, meals, equipment, and vehicles). Although the contract is for a fixed fee, that fee is the sum of an itemized list of expenditures the state agrees to cover in advance. No other expenses are covered by the contract. The state handles billing and collection.

Organization, Deployment, and Resources

The EMS Division currently operates 16 ambulances. Thirteen of these provide service 24 hours per day, while one operates 16 hours per day and two just 8 hours per day. The location of these ambulances is presented in Exhibit V-12; 10 of the ambulances are located at fire stations while the remaining 6 are based at other facilities. Fifteen of the units are advanced life support (ALS) units staffed with at least one Mobile Intensive Care Technician (MICT); the other, a Basic Life Support (BLS) unit, is staffed with two Emergency Medical Technicians (EMT's).

The EMS Division is authorized 212 positions, including one "on loan" from Public Works. The majority of these positions are MICTs (116 positions) and EMTs (77 positions). Other positions include administrative staff (5 positions), technicians (6 positions), and supervisory staff (8 positions). The budget of the EMS Division for fiscal year 1994 is approximately \$10.5 million (not including benefits), with these expenditures essentially reimbursed by the state.

City and County of Honolulu Current EMS Ambulance Stations



Beyond the Division of EMS, the Health Department's duties, staff, and budget are relatively limited compared with those of health departments in many other cities and counties. The Department's non-EMS duties consist primarily of managing health screenings and wellness programs for the city's employees. The department also serves the Police Department by arranging for blood tests for DUI suspects, and other types of laboratory tests for felony suspects. Beyond EMS, the department employs a staff of just 17 authorized positions, and has a budget of less than \$900,000 per year.

Workload

From July 1, 1992 through June 30, 1993, a total of 43,341 calls were received at the EMS's Dispatch Center - an average of 118.8 calls per day. Not all calls resulted in an ambulance being dispatched to the scene, because of multiple calls for the same emergency, inquiry calls, etc. The EMS Division's ambulances actually responded to 37,968 calls. This equates to an average 104 ambulance runs per day, or an average of approximately seven per ambulance per day. These numbers reflect an increase of approximately eight percent over the prior year's totals.

Performance

The state has established some general performance guidelines that it seeks to be met by the ambulances it subsidizes. Regarding response time, the state expects an average ambulance response time of between five and ten minutes in urban areas, and between ten and fifteen minutes in most rural areas. Honolulu's responsiveness has consistently fallen within these guidelines, with an overall average, according to a comprehensive audit completed in 1992, of approximately eight minutes (first responders within the Fire Department would, in general, arrive on the scene of serious incidents much more quickly). There is considerable variation within this average, however, with the busiest urban station averaging less than seven minutes response time, and several other stations averaging more than ten minutes. Moreover, averages can be deceiving. EMS operations should also be evaluated in terms of the maximum time it takes for a given percentage of all calls to be responded to. For example, the 1992 audit found that 90 percent of calls were responded to within 14 minutes. It should be noted that many cities around the country have come to expect a level of responsiveness considerably quicker than this.

Management Improvements

A number of management improvements have recently been implemented, or are planned. Recent changes include the installation of computer-aided dispatch within the Division's communications section, the installation of a new system to track and analyze call data; the strengthening of supervisor's roles in controlling overtime expenditures, and the designation of a senior supervisor to coordinate Division-wide quality control efforts. Given the existing level of responsiveness to emergency calls, Division management has also been working with the state to secure funds for expansion of its response capacity. In addition, management has also been planning to experiment with a 24-hour shift schedule in stations with lower calls volumes, which could free-up resources to help fund enhanced coverage. EMS management should be complimented for these efforts.

E - FINDINGS AND RECOMMENDATIONS: EMS

The State Tightly Governs The City's Emergency Medical Services

In addition to establishing general policies and criteria on such matters as staff training and medical procedures, the state also directs or approves virtually every key operational decision for Honolulu's EMS, including the number, location, and hours of service of ambulances, and the number, mix, and schedule of staff. While the State clearly seeks to work collaboratively with EMS leadership in developing these plans, there is no question that the state exercises ultimate control. As a result, EMS managers are less flexible than they might otherwise be to experiment with deployment and scheduling changes, and to make other changes in the service.

A second important feature of this state-controlled system is that it represents a subsidy by those in Honolulu on behalf of those on the neighbor islands. In general, it is far more expensive, per EMS call, to provide ambulance services to the less densely populated neighbor islands than it is to provide service in more densely populated Honolulu. The 1992 comprehensive audit of the EMS operation reported an average cost per call in Honolulu of \$250, a statewide average of \$400, and a maximum cost, on Kauai, of \$1,000 per call. Given the fact that a portion of total EMS costs in the state are funded through taxes, it seems clear that the Honolulu economy is subsidizing service on the other islands.

This arrangement is very awkward for the city. Citizens of Honolulu will invariably seek to hold the city accountable for the performance of its ambulances, regardless of the actual role of the state. City managers must negotiate with the state to make virtually any substantive operational change. And, given the

apparent need to operate more ambulances, the city has two choices: it can wait for the state to fund the expansion of service, or it can supplement the state appropriation with its own money. The latter option, however, sets a precedent that could be very difficult to contain.

The City Should Seek Greater Authority To Manage Its Own Operations

With a population of nearly 900,000, the City and County of Honolulu should be more than capable of managing, and being accountable for, its own EMS operation without detailed state oversight. Ideally, the state would get out of the EMS business altogether (which could result in substantial cost savings to the state), or at least grant an exemption for Honolulu to manage its own emergency medical affairs. This is not a question of the competence of state officials, but of the enhanced responsiveness and accountability that come with local control. Given the needs of the neighbor islands, however, it seems politically unlikely that the cross-subsidy inherent in the current EMS finance system will be dismantled. At the very least, then, the city should lobby for greater control over the money it receives for EMS purposes - namely, the freedom to take a lump sum and to allocate the money as it sees fit, within some very broad standards of training, service protocols, and performance.

Reconnaissance-Level Analysis Indicates That There May Be Opportunities For Substantial Savings If The Fire and Health Departments Combined Some Of Their Operations

The greatest potential for efficiency gains in integrating Fire and EMS operations involves the potential to combine Fire and EMS crews into a single crew with fewer people. Such consolidation is most easily accomplished in areas with very low call volume, where all staff can work a 24-hour shift, and there is minimal concern for the receipt of simultaneous calls.

An examination of the ambulance call volumes in Honolulu indicates that these volumes vary significantly from station to station. While some ambulances respond to almost 15 calls per 24 hour day, others - particularly those in the less populated areas of the island - typically respond to no more than 5 calls per 24-hour day.

In addition, the fire engine companies that correspond geographically (co-located or nearby) to those ambulance companies with the lowest call volumes also have relatively low call volumes. In fact, there are seven fire engine companies co-located or near these less busy ambulance companies that respond to less than one fire call per day. These seven sets of fire/ambulance companies each have a combined fire/emergency call volume that barely exceeds six calls per day, or an

average of one call every four hours. The following table summarizes the call volumes at the seven slowest fire engine and ambulance companies:

<u>Fire Station</u>	<u>Corresponding EMS Station</u>	<u>Currently Co-located?</u>	<u>Fire Calls per Day</u>	<u>EMS Calls per Day</u>	<u>Total</u>
Hawaii Kai (34)	Hawaii Kai (15)	Yes	0.39	2.36	2.75
Kahuku (13)	Kahuku (13)	Construction Scheduled	0.41	2.41	2.82
Waimanalo (27)	Waimanalo (9)	Yes	0.45	2.78	3.23
Waialua (14)	Waialua (6)	Yes	0.79	2.70	3.49
Kailua (18)	Kailua (3)	Yes	0.34	5.02	5.36
Kaneohe (17)	Kaneohe (4)	Under Construction	0.72	5.08	5.80
Wahiawa (16)	Wahiawa (12)	No	0.74	5.39	6.13

In these areas with such a low volume of EMS and fire calls, there is clearly potential to maintain a high level of service in both responsibilities while substantially reducing operating costs through cross-training employees to staff combined Fire/EMS companies. Although some departments across the country have had difficulty in integrating fire and EMS operations, others have demonstrated that cross-training and cross-functional apparatus staffing can work.

It should be noted that EMS management is already considering moving staff in some of the lower volume areas to a 24-hour shift, similar to that of fire fighters. The advantage to EMS staff would be the ability to work fewer days per month, while the Division would free up scarce resources because fewer employees are needed to staff an individual ambulance under a 56-hour per week schedule. Integrating fire and EMS companies would take this idea one step further, taking advantage not only of the 56-hour week, but also the efficiencies gained through dual Fire/EMS roles.

Looking beyond opportunities to consolidate crews in low-volume areas, there may other opportunities to improve operational effectiveness and efficiency through greater integration. These include cross-training staff island-wide to enhance first responder capability and to expand the capacity of relief staff, as well as the potential integration of fire and EMS dispatch to achieve operational efficiencies.

There Are Obstacles To Integrating Fire and EMS Services

Although there is clear potential to reduce operating costs and enhance services through greater integration of Fire and EMS operations, there are also a host of real obstacles to making integration work. Beyond the basic planning challenges involved, the city must also contend with:

Staff Culture and Attitudes. There are mixed attitudes among Fire and EMS staff as to how ready they would be to integrate their operations. The degree of reluctance is related to somewhat separate professional cultures, and a wariness as to whether each's professional values and quality of service will be maintained.

Training and quality control. Cross-training a large number of staff will present logistical challenges, and increase the need for a vigorous quality assurance program. In addition, the state has reportedly not demonstrated flexibility in permitting the city to shape the timing and scope of its training.

Union representation. Fire fighters and EMS staff are represented by different unions, and are governed by different contracts. Integration would clearly raise questions as to who would represent a cross-trained staff. Moreover, the city would need to resolve differences in pay and benefits, including different retirement arrangements.

State support. Any integration of Fire and EMS operations would require state approval in some form. Although there is precedent in Hawaii for an integrated Fire/EMS operation (on the big island of Hawaii), it is not clear what conditions the state might place on such a merger in Honolulu. Two factors are of particular concern in ensuring a successful integration. First, the state will need to support plans to greatly expand training programs. Second, the state will need to ensure the city that savings Honolulu gains through restructuring its EMS program can be retained by Honolulu - to enhance the scope of EMS service, and, possibly, to reap budget savings.

For The Near-Term, The City Should Experiment With Cross-Training And Joint Staffing In Selected Low-Volume Areas

Given the potential benefits of integration, as well as the practical obstacles that exist, we recommend that Honolulu experiment with providing integrated fire and EMS services in selected low volume areas. This will enable the city to capture the most obvious operational efficiencies, and to assess the broader feasibility of integrating operations, while limiting the experiment to a manageable scale.

Each of the seven Fire and EMS companies highlighted above should be combined. In the place of each pair of current fire and EMS companies would be a new company with a minimum staff of five cross-trained fire fighters/emergency medical staff (the crew could include a mix of staff trained at the MICT and EMT levels, to ensure availability for ALS response). Relief staff, to ensure a minimum of five staff on duty, could be provided through a pool or flexible allocation of staff assigned semi-permanently to selected crews. The company would work a 56-hour week in line with the current Fire Department schedule. Each fire/EMS company would be assigned two apparatus, an engine and an ambulance. This new company would be responsible for all fire and EMS calls in their coverage area.

The call volumes in these areas are so low that the chance of simultaneous calls would always be remote. To be prepared for this contingency, however, the company should typically respond to all fire calls with both the engine and the ambulance, so that if an EMS call comes in while the fire calls is being handled, the ambulance crew would potentially be free to respond immediately. For EMS calls, just the two staff on the ambulance need respond.

Given this broad outline, the Fire and Health Departments should begin detailed planning and negotiation with all concerned parties to make implementation of this experiment possible. A detailed business plan, addressing governance, staff assignments, training, funding, equipment, quality control, contracts, and a variety of standard operating procedures should be developed. The obstacles outlined above will need to be addressed, at least in sufficiently enough to support an experiment. Until the business plan is developed, it is difficult to make precise estimates of the net savings that will result from this experiment. Savings will depend in part, for example, on what proportion of fire fighters are trained as EMTs, and what proportion of EMTs and MICTs are trained as fire fighters. Savings will also depend on the extent of capital investment required. We can, however, make some reasonable estimates, as illustrated in Exhibit V-13.

Exhibit V-13 demonstrates that substantial savings are likely to result from the consolidation experiment. Assuming that the HFD adjusts its approach to relief staffing as recommended earlier in this chapter, the Health Department and the HFD would have to provide 164 positions to continue to staff the 7 engines and 7 ambulances as they currently do. The recommended staffing configuration - 5 staff, 3 shifts, 7 companies, plus relief - would require just 121 positions, or 43 fewer. The gross savings associated with the discontinuation of these positions would be more than \$1.6 million annually.

Estimated Cost Savings of Limited Consolidation

CURRENT STAFFING AT SEVEN FIRE AND EMS STATIONS			
EMS		Fire	
Ambulance Staff Per 24-hour Unit (Minimum)	6	Engine Staff Per Unit (Minimum)	12
Total 24-hour Units Consolidated	6	Total Units Consolidated	7
Ambulance Staff Per 16-hour Unit (Minimum)	4	Total Engine Staff (Minimum)	84
Total 16-hour Units Consolidated	1	Relief*	13
Total Ambulance Staff (Minimum)	40	Total Engine Staff	97
Relief	27		
Total Ambulance Staff	67		
Total Current Fire and EMS Staff Affected: 164			

PROPOSED STAFFING	
Staff per Unit	15
Units	7
Total Apparatus Staff (Minimum)	105
Relief	16
Total Staff Necessary	121

GROSS SAVINGS	
Total Current Staff	164
Total Staff Necessary	121
Difference	43
Average Fire Fighter/EMTs Salary and Benefits:	\$38,000
Gross Cost Savings	\$1,634,000

START-UP TRAINING COSTS	
Training Cost Per EMT	\$2,100
Training Cost Per MICT	\$7,686
Total Staff Necessary**	121
Half Receive EMT Training	\$127,050
Half Receive MICT Training	\$465,003
Total Start-Up Training Costs	\$592,053

RECURRING COSTS	
Pay Differential (\$3,500 in additional salaries and benefits per FF/EMT/MICT)	\$424,000

NET ANNUAL SAVINGS	
Gross Annual Savings	\$1,634,000
Annual Pay Differential	(\$424,000)
Net Annual Cost Savings***	\$1,210,000

* Assumes recommendation to tighten relief staffing has been implemented.

** Assumes "worst-case" fire training costs, that all staff are fire fighters to be trained as EMTs or MICTs. Actual hiring pattern is expected to reflect a mix of fire fighters and EMS staff.

*** Annual Savings in first three years will be offset by \$592,053 in start-up training costs.

These gross annual savings would be offset by a number of costs. These include initial investments in training as well as a recurring pay differential for cross-functional staff. Because it cannot be determined at this point precisely what mixture of current EMTs, MICTs, and fire fighters would be cross-trained to comprise the new teams, it also cannot be determined precisely what the training costs will be. To take the worst case, financially, we have assumed that all staff are fire fighters who must be trained as EMTs or MICTs. According to EMS training personnel, it costs \$2,100 to train an EMT and \$7,686 to train an MICT, in terms of tuition, fees, and materials. Thus, the initial investment to train 121 fire fighters to be EMTs and MICTs (one-half EMTs, one-half MICTs) would be approximately \$592,000, a fraction of the first year labor savings. Although, in theory, the city might also need to consider costs for the fire fighter's time in training, we are confident that if implementation begins on the other recommendations in this chapter, ample relief will be available at no extra cost while the training is occurring.

Regarding capital costs, the combined fire and EMS companies must obviously be co-located. As the table above indicated, six of the seven companies already operate or will soon operate out of the same facility. The seventh fire station has the capacity to house an ambulance, although it does not house one today. Thus, capital investment required to support integration would be minimal.

The pay differential for the cross-trained, cross-functional staff would be decided through negotiation. The change in costs will also be affected by the mix of EMS and Fire staff recruited into the new companies, and the relative salary structures of the two organizations. Assuming, for estimation purposes, an average pay differential of \$3,500 each (including marginal increases in benefits), the total annual pay differential would be approximately \$424,000.

Thus, the total projected initial investment in training of approximately \$592,000 plus the estimated pay differential of \$424,000 would be more than offset in the first year alone by the \$1.6 million in gross labor savings. Thereafter, net annual savings of approximately \$1.2 million would recur.

Should negotiations and planning fall short of expectations, the city should pursue alternatives to reduce costs and/or expand EMS service. At a minimum, the city should proceed with plans to institute a 56-hour week at selected low volume EMS stations. If the Division were to put 56-hour weeks in place at the six low-volume stations highlighted above that operate 24 hours per day, it could save at least 20 positions which could be redeployed to support an expansion of EMS service. Alternatively, the city could proceed with a smaller-scale experiment of consolidated fire and EMS companies at fewer than seven stations.

For the Long-Term, The City Should Consider A Full Merger Of The EMS Division and The Fire Department

The city should focus its near-term attention on launching the limited integration experiment described above. Once the experiment is under way, it should be evaluated to confirm the extent to which the joint effort has been capable of achieving acceptable standards of quality and projected cost savings. The extent to which Fire and EMS staff at all levels have demonstrated effectiveness in joint planning should also be considered. If this evaluation is generally positive, the city should then consider the costs and benefits of a complete merger. The outcome of this process is by no means certain, and the city may well decide to limit Fire/EMS integration to the scope outlined above, or to discontinue the experiment.

If a full merger is ultimately found to be warranted, the remaining operations of the Health Department should be folded into another department (or departments of the city government). Given the employee health focus of most of the Department's non-EMS staff, a merger of these functions into the Personnel Department would seem to make the most sense.

F - AREAS FOR FURTHER STUDY

A number of issues, including some discussed above, would merit from further attention and study. These issues are summarized below.

Fire Communications

The Fire Alarm Bureau serves as an important nerve center for the Fire Department. Although we have not had the opportunity to review the unit in detail we are concerned that: 1) the unit is staffed exclusively with trained fire fighters, and 2) the unit does not report much meaningful management information (see below) regarding either its workload, or that of the Department. There may be potential to reduce costs through civilianization, and to upgrade its technology to provide better operational data. Moreover, should the city choose to consider a full scale merger of the Fire and EMS departments, it will need to consider whether and how to merge the dispatch operations, and how its staff should be configured.

Fire Management Information

The Fire Department's management information system does not adequately support meaningful planning and accountability. Although some software has been purchased to track a variety of data on fire incidents and response, the Department has not yet been successful in generating useful reports, and it is not clear when such reporting might be operational. The most critical gaps involve data on the number and timing of total fire runs by each apparatus, response times of various apparatus to various incidents, activities undertaken at fire scenes, patterns of staff absences, and plans and productivity of fire prevention inspectors. The Department would benefit from the focused attention of the Data Systems Department, and perhaps others, in ensuring that these gaps are filled.

Detailed Business Plan For Fire/EMS Consolidation Experiment

As discussed earlier, the city needs to develop a detailed business plan to launch an experimental consolidation of Fire and EMS crews. Proper advance planning will greatly increase the likelihood of success.

G - STAFFING AND BUDGET IMPLICATIONS

If all the recommendations outlined in this chapter are implemented, the city will eventually be able to discontinue a total of 229 positions, and will reap annual savings of nearly \$8.8 million. Most of these dollars savings would accrue directly to the budgets of the Fire and Health departments; however, the portion of savings attributable to benefits would accrue to the city's separate benefits accounts. Some 186 of the positions are clearly tied to the Fire Department's budget. The remaining 43 positions would come from the consolidation of Fire and EMS companies; these savings can not yet be attributed specifically to Fire or EMS.

VI - PUBLIC WORKS DEPARTMENT

VI - PUBLIC WORKS DEPARTMENT

The Department of Public Works is led by able managers, and, in general, performs its tasks quite effectively. Indeed, the citizens of Honolulu receive a high level of service from the department, particularly in the road maintenance and refuse collection and disposal areas. There are, however, a number of opportunities to reduce operating costs substantially while maintaining this high level of service. The greatest opportunity is clearly in the refuse collection operation. This chapter outlines the nature and extent of the opportunities for savings, outlines options for achieving them, and highlights areas that would merit further study.

A - BACKGROUND

Scope of Responsibility

The Public Works Department oversees the acquisition, design, construction, and maintenance of the city's public infrastructure, including roads, bridges, and storm sewers. It also provides refuse collection and disposal services to the public, coordinates recycling activities, and provides automotive maintenance services for the city's vehicles (excluding Police, Fire, Board of Water Supply, and Parks and Recreation vehicles, which are maintained by these departments).

The refuse collection and disposal operation encompasses refuse collection services to residences, businesses, parks and other institutions, and the operation of a municipal incinerator, transfer stations, sanitary landfills, convenience stations, and the H-Power facility, a waste-to-energy plant.

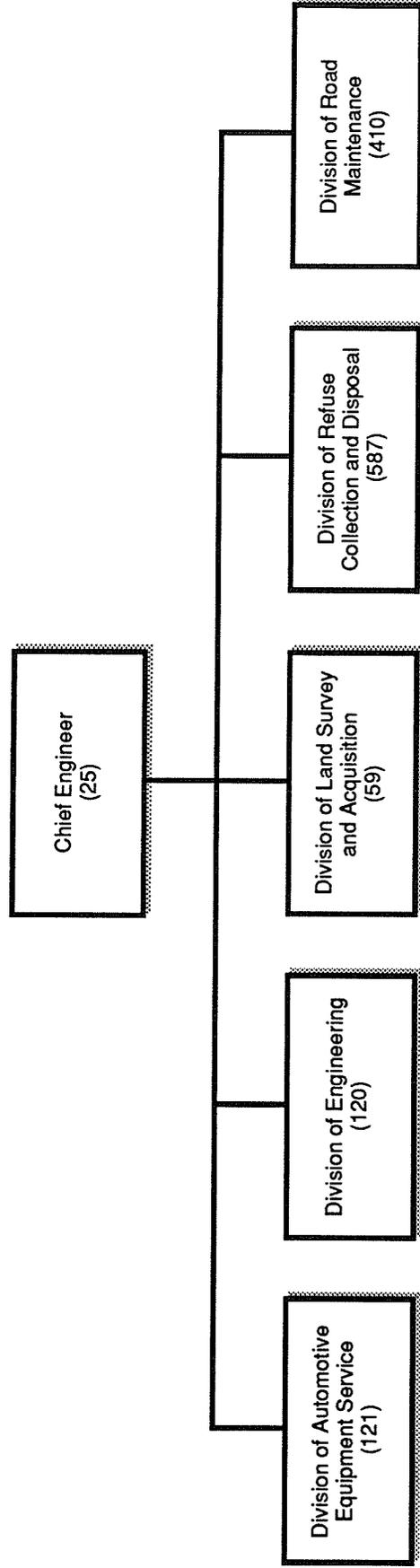
Organization and Resources

The department is led by a Chief Engineer, and is organized into five divisions, as depicted in Exhibit VI-1. The department's fiscal 1994 budget includes more than 1,320 authorized positions (full-time equivalents), and expenditures of more than \$140 million. Costs for the department's employee benefits are carried under a separate master account by the city.

Staff operate from a number of sites throughout the island. Road maintenance staff operate from seven baseyards - one in metropolitan Honolulu (the Honolulu Corporation Yard) and six rural yards throughout the island: Koolaupoko, Koolauloa, Waialua, Waianae, Wahiawa, and Ewa. Refuse collection operations are also staged from the Honolulu Corporation yard, from the Kailua yard, and from five of the rural yards shared with road maintenance. Automotive services are also provided from the Honolulu Corporation yard, and from two rural satellite sites shared with refuse and road maintenance.

City and County of Honolulu

Department of Public Works: Organizational and Staffing*



1,322 total authorized positions.

* Staffing numbers are full-time equivalents, as reported in 1993-94 budget, and modified by Department comments.

The vast majority of the staff and resources are contained within two divisions: Refuse Collection and Disposal, and Road Maintenance, which together comprise 75% of the department's staff and nearly 90% of the expenditures. The Division of Road Maintenance has 410 authorized positions, or 31% of the department total, and budgeted expenditures of \$25 million, or 18% of the department total. The Division of Refuse Collection and Disposal has 587 authorized positions, or nearly 45% of the department total, and has budgeted expenditures of some \$102 million, or nearly 72% of the department total.

The budgets for Refuse and Road Maintenance both include major non-salary components. The Refuse Collection and Disposal budget includes just \$17 million for salaries, and some \$84 million in "current expense," primarily to support the contractual operation and lease payments for the H-Power facility (The H-Power facility was sold to a private company several years ago, and is now being leased back by the city). Offsetting these expenditures are budgeted revenues associated with H-Power of approximately \$56 million. The Road Maintenance budget includes less than \$10 million for salaries, and more than \$15 million in current expense, primarily for contractual repair and maintenance.

Refuse Collection Operations

Refuse collection services are provided by approximately 420 staff. 206 of these staff operate from the Honolulu baseyard, serve metropolitan Honolulu, and are supervised directly by 11 refuse collection managers. 197 staff operate from rural yards, where they are supervised by 6 refuse collection managers and four road maintenance superintendents. There are 102 sets of routine collection routes, as shown in Exhibit VI -2. Most routes are served with twice a week curbside pick-up. Refuse collection takes place over six days, Monday through Saturday. The first pick-up for each set of routes occurs Monday, Tuesday, and Wednesday; the second set of pick-ups takes place on Thursday, Friday, and Saturday.

Refuse collection crews in the field are typically composed of one crew leader and two collectors. Since each of these workers is expected to work five days per week, but collection occurs over six days per week, there is a pool of staff available to relieve regular crew members when they are absent due to regularly scheduled days off, vacation, illness, or other reasons.

The vast majority of crews operate 20 cubic yard, rear-loading packer trucks. A small number of crews use different kinds of trucks to accommodate bulky items, to pick up highway trash, to collect from dumpsters, or to maneuver through particularly narrow areas. The capacity of these trucks in terms of weight is approximately 11,600 pounds. For the last two years, the department has also experimented with an automated, side-loading truck with an 22 cubic yard capacity

City and County of Honolulu

Current Refuse Collection Routes and Staffing

Types of Routes

Base Yard	Regular-Manual (3 Person Crew)	Regular Automated (1 Person Crew)	Container (2 Person Crew)	13 Cubic Yard (Narrow Roads) (3 Person Crew)	Bulky Trash (3 Person Crew)	Highway Routes (3 Person Crew)	Stake (Narrow Roads) (3 Person Crew)	Total Routes
Honolulu	37		1	3	2	3	1	47
Pearl City	20	1	1					22
Kapaa	16		1					17
Wahiawa	7							7
Waianae	4							4
Waialua	2							2
Laie	3							3
Total	89	1	3	3	2	3	1	102

Staffing

Base Yard	Collectors	Crew Leaders	Supervisors	Superintendents	Total Staff
Honolulu	139	67	9	2	217
Pearl City	55	19	2	1	77
Kapaa	46	21	2	1	70
Wahiawa	18	7			25
Waianae	11	4			15
Waialua	6	2			8
Laie	6	2			8
Total	281	122	13	4	420

which can be operated by just one worker. This type of truck has been used successfully by many cities on the mainland, and has worked effectively in Honolulu. It uses an automated arm to pick up and then load refuse from 96 gallon, covered containers which are rolled out to the curb.

Refuse collection staff work according to a task system, known as Ukupau. According to this system, once an assigned route has been completed, the crew is free to leave work. Any additional assignments (such as a second route) would be performed on overtime, even if the total time worked during the day is less than eight hours. The routes have been designed so that the weight of trash collected averages approximately 24,000 pounds per day during the first (and heavier) round of pick-ups on Mondays, Tuesdays and Wednesdays. As a result, crews typically work between 3 and 4 hours during the first round of collections (Monday, Tuesday, and Wednesday), and about three hours to accomplish the second round of collections (Thursday, Friday, and Saturday). The Ukupau standard of 24,000 pounds has remained constant for many years.

B - FINDINGS AND RECOMMENDATIONS

REFUSE OPERATIONS

Refuse Collection Operations Are Far More Costly Than Necessary

Despite the advantages of automated trucks, virtually all routes use manually loaded trucks. Automated sideloaders operated by one refuse worker are in use in numerous communities in the United States and have proved themselves to be vastly more efficient than traditional rearloaders operated by three workers. Indeed, Honolulu's experiments with a sideloader confirm the higher level of efficiency. Under this experimental program, about 4,000 pounds were collected per worker-hour on first collection days (or about 110 households per worker hour), as compared with about 2,000 pounds per worker-hour using the rearloader (or about 50 households per worker-hour). In addition to these obvious operational efficiencies, the automated trucks have the additional, substantial benefit, of sparing the operator heavy manual labor. This extra benefit reduces strain on the workers, and can substantially reduce the disruption and costs of absence due to injury. In fact, Honolulu's experiment with the automated truck shows substantially less time lost due to injury, and greater ease in working a full day (the operator works 8 hours of a nominal 10-hour day).

Yet, out of 102 sets of routes, 101 continue to use manually-loaded trucks, virtually all requiring three crew members. The department's management, to their credit, have instituted the single automated set of routes on a pilot basis. In addition, they have proposed to union leaders a six-year plan to phase in automation for the majority of routes. For a variety of reasons, however, there has been no decision or agreement to date to move forward with implementation of automated routes on a mass scale. As a result, the department employs some two hundred more staff than it would need to if it employed automation more broadly.

Refuse workers work relatively few hours per week. Task systems such as Ukupau are not uncommon in operations such as refuse collection, and have the potential to benefit both workers and management: workers are motivated to be more productive, and are rewarded by being allowed to work a somewhat shorter day. In Honolulu's refuse collection operation, however, this arrangement is out of balance. On average, refuse workers work approximately 3.5 hours per day. Even though Honolulu's refuse workers clearly work hard during the time they are at work, there is little justification for taxpayers to pay a full day's salary and benefits for 3.5 hours of work. Indeed, most other city workers, as well as most of the taxpaying public, must contribute considerably more time to their jobs than the refuse collection staff. As a result, the refuse collection operation employs substantially more staff than if collection staff worked a fuller day.

The cost per ton for the second collection of the week is much higher than that of the first collection. As is true in most cities with twice weekly collection, citizens of Honolulu place substantially less refuse out on the street for the second collection of the week, compared with the first collection. In fact, second collections average just two-thirds the volume of first collections. And yet, the costs to make the second collection are essentially the same because the same number of routes are run, and workers are paid for a full day, regardless of the time spent. As a result, the cost per ton of the second collection of the week is some 50 percent higher than that of the first collection. The higher unit cost and the lower volume of the second collection call into question the value citizens receive from twice-weekly collection, as compared with once-weekly collection.

There is a much higher use of overtime than necessary. Last year, the department spent approximately \$2.4 million on overtime salaries, or more than 25 percent of the amount for regular salaries (nearly \$300,000 in related benefits was also incurred). This is an extremely high proportion of overtime to regular salary, particularly when one considers that there should be virtually no overtime incurred for routes requiring more than 8 hours per day, since most routes are completed within 4 hours or less. In fact, the reason for most of this overtime appears to be a systematic under-allowance for relief. To ensure that a refuse collection position is filled over the six working days every week, there needs to be an extra pool of staff available to fill in for regularly scheduled days off, vacation, illness, injury, etc. Based on the department's leave records, we calculate that approximately 1.58 workers are required on the payroll to ensure consistent staffing of each crew position. In fact, the department employs just 1.34 workers for each crew position, representing a "relief gap" of some 73 positions. As a result, staff are routinely called in on overtime to fill in for absent workers, at time and a half pay. Virtually all of the overtime can be traced to this under-allowance for relief. As a result, the department incurs hundreds of thousands of dollars per year in unnecessary labor costs.

Refuse Collection Operations Should Be Restructured To Lower Costs While Maintaining High Quality

Automate the vast majority of collection routes, and structure these routes to require a fair day's work. According to department managers, approximately 75 of the 89 "regular" refuse collection routes are amenable to automation (some areas are not amenable to automation due to congestion and parking patterns). The department should therefore proceed as expeditiously as possible to convert to automated refuse collection service for these areas now served by manual crews. In doing so, the department should lengthen the routes to require a reasonable day's work under the Ukupau system. Based on the experience of the current automated truck pilot project, we suggest that the routes be calibrated to require an average of 6.5 hours of work per nominal 8 hour day, or about 8 hours on a nominal 10-hour day (a 5-day, 8-hour or a 4-day, 10-hour week

could work equally well). This standard is particularly reasonable given that operating the automated trucks requires relatively little physical exertion compared with work on manual routes.

The potential savings associated with this recommendation are presented in Exhibit VI-3. By lengthening the routes to a 6.5 hour average for first day collections (or 8 hours of a nominal 10-hour day), just 59 routes automated routes will be required to serve the area now covered by the 75 manual routes. Further savings result from reducing the crew size from three to one on the 59 automated routes, reducing the associated relief staff required to keep these crew positions filled, and reducing somewhat the number of supervisory positions needed. As shown in Exhibit VI-3, the net result is that 266 fewer staff will be needed (not counting the "relief gap", addressed below), and annual operating costs can be reduced by nearly \$7 million. Factored into this analysis are allowances for annual capital costs to cover the purchase of slightly more expensive trucks and to provide the 96 gallon containers necessary for automated collection to all households and other collection sites, as shown in Exhibit VI-4. It should be noted that the move to automation promises benefits to workers as well as to the city's finances: the automated trucks will require substantially less effort to operate, and will greatly reduce the likelihood of work-related injury.

Convert automated routes to once-weekly collection. Given the relatively high cost and lower volume of the second weekly collection, the city should seriously consider converting to once a week collection for most of its routes. Many cities in the United States provide once a week collection, including many with warm climates, and have found citizens to be well satisfied with this service. Moreover, the conversion to automated collection provides an ideal opportunity to make the change to once a week collection, since citizens will be provided with large, handy containers that make it much easier to store a week's worth of refuse cleanly and securely.

The additional financial benefits of converting to once a week collection for areas served by automated trucks are presented in Exhibit VI-5. By converting to once per week collection, the area now served by 75 sets of manual routes could be handled by just 37 sets of routes, spread over six days per week. As a result, some 37 additional collection positions can be phased out, and capital costs for purchasing and maintaining trucks could be further reduced. Looking at the conversion to automated routes in combination with a change to once per week collection for these routes, the net annual operating savings are projected to be nearly \$8.7 million.

In implementing such a change, the Department may well want to consider adjusting the number of days on which collection occurs, and the number of days worked by staff. For example, the Department could easily convert staff to a four-

Exhibit VI-3

City and County of Honolulu

**Staffing and Budget Implications of Converting
75 Refuse Collection Routes to Automation**

Routes Affected	Positions Discontinued				Total Compensation Savings
	Crew Leader	Collector	Supervisor	Total	
59 Routes Automated	-	186	3	189	\$5.7 million
16 Routes Eliminated	25	51	1	77	\$2.5 million
Total	25	237	4	266	\$8.2 million

Compensation Savings	Annualized Capital & Maintenance Increase	Net Annual Savings
\$8.2 million	(\$1.3 million)	\$6.9 million

Notes: Assumes automated crews work 6.5 hours of a nominal 8-hour day on the heavier (first) collection of the week, or approximately 8 hours of a nominal 10-hour day. Reductions assume a relief factor of 1.58. "Relief gap" not addressed (see Exhibit VI-6).

City and County of Honolulu

Refuse Collection
Equipment Costs for Automated Collection

Assumptions	
Truck Cost	Annualized acquisition cost - automated truck (a) Annualized acquisition cost - manual truck (a) Estimated life of trucks Annualized maintenance cost - automated truck Annualized maintenance cost - manual truck Marginal vehicle acquisition cost Marginal vehicle maintenance cost \$19,363 \$16,139 8 years \$3,753 \$1,339 \$3,224 \$2,414
Container Cost	Number of containers needed (b) Price of 96 gallon containers Total container cost Estimated life of container Annualized acquisition cost (c) 135,000 \$67 \$9,045,000 10 years \$1,258,202

- (a) Cost amortized at 6.5% interest over 8 years, purchase price of automated truck - \$117,898; manual truck - \$98,264.
- (b) Estimated at 75 routes x 600 homes x 3 days of collection + 135,000 containers.
- (c) Cost amortized at 6.5% interest, over 10 years.

Scenario	Number of Routes	Capital and Maintenance Costs			Total Annual Savings/(Costs)
		Annual Savings (Costs) per Vehicle		Annualized Container Cost	
		Vehicle	Maintenance		
Twice a week collection Automated routes - costs Eliminated routes - savings	59 16	(\$3,224) \$16,139	(\$2,414) \$1,339	(\$1,258,202)	(\$1,311,195)
Once a week collection Automated routes - costs Eliminated routes - savings	37 38	(\$3,224) \$16,139	(\$2,414) \$1,339	(\$1,258,202)	(\$802,644)

Increase in Net Annual Capital/Maintenance Costs	
Twice a week collection	\$1,311,196
Once a week collection	\$802,644

Exhibit VI-5

City and County of Honolulu

**Staffing and Budget Implications of Converting
75 Refuse Collection Routes to Automated Once Per Week Collection**

Routes Affected	Positions Discontinued				Total Compensation Savings
	Crew Leader	Collector	Supervisor	Total	
37 Routes Automated	-	117	2	119	\$3.6 million
38 Routes Eliminated	60	120	4	184	\$5.9 million
Total	60	237	6	303	\$9.5 million

Compensation Savings	Annualized Capital & Maintenance Increase	Net Annual Savings
\$9.5 million	(\$0.8 million)	\$8.7 million

Notes: Assumes automated crews work 6.5 hours of a nominal 8-hour day, or 8 hours of a nominal 10-hour day.

Automated routes spread over 6 days a week.

Reductions assume a relief factor of 1.58.

day week, with four nominal 10-hour days (staff would be expected to work about eight hours under Ukupau). This need not increase operating costs, and may be an attractive option to staff.

Ensure adequate relief to minimize overtime. While converting to automated collection on a once a week schedule will clearly permit many collection positions to be phased out, it is also important that an adequate allowance for relief be provided. This will help ensure the continued smooth operation of the collection operation, while eliminating unnecessary overtime costs. As outlined above, filling this "relief gap" will require adding back 73 positions to the operation. As shown in Exhibit VI-6, however, adding back these positions will actually result in a net savings to the city, since this will permit virtually all hours worked in the operation to be worked as straight time. Assuming that 90 percent of the current overtime can be eliminated as a result, we estimate that additional annual savings of more than \$700,000 will accrue to the city. Over time, the division should continue to monitor trends in employee absences to determine whether further adjustments to the relief allocation are necessary. It is anticipated, for example, that the shift to automated collection will result in fewer injuries, thus lessening the need for relief staffing over time.

Explore ways to make the remaining manual routes more efficient. Assuming that the areas now amenable to automated service are converted to full automation, 14 regular routes will remain. While these routes may not be amenable to full automation, the city should explore a number of options to make these routes more efficient. These options include:

- Converting to semi-automated trucks, with "flippers," that can be operated by two or even one crew member;
- Modifying the Ukupau standard to permit lengthening of the routes on a manual basis.

The City Should Decide On A Plan To Implement Changes In Refuse Collection As Quickly As Possible

Clearly, implementing the restructuring outlined above will take time determination on the part of city leaders, and a strong measure of cooperation between city management and union leaders. To date, there has been little visible progress in expanding the use of automated collection vehicles. Given the magnitude of the opportunity, however, we urge the city to seek ways to capture the benefits this opportunity as quickly as possible. The city needs to consider options, and then support a strategy, that will meet its commitment not to lay off permanent staff while reaping the benefits of new technology and scheduling approaches within a reasonable time frame. Specifically, we suggest that the city consider two kinds of options:

Exhibit VI-6

City and County of Honolulu

Closing the Relief Gap in Refuse Collection

	Collector	Crew Leader	Supervisor (a)	Total
Current Collection Staff	281	122	13	416
Recommended Reduction (Automated once a week collection)	237	60	6	303
Add-Back to Ensure Sufficient Relief	36	37	-	73
Net Recommended Collection Staff	80	99	7	186

(a) 4 Superintendent positions not included.

- **Phase in automated, once a week collection at a pace consistent with the near-term termination of "limited term" staff, and the managed attrition of other refuse collection staff.** With nearly 60 limited term collection staff presently employed, and a turnover rate of approximately five percent throughout the Public Works Department, the department could reach the goal of phasing out the 230 targeted positions within approximately four to six years, assuming an aggressive program of placing collection workers into other appropriate positions within the department. This is generally consistent with the "6 Year Plan" proposed by department managers.
- **Move immediately to automated, once a week collection in the designated areas, while using the "surplus" collection positions for needed projects throughout the city.** Under this scenario, the city would not wait to purchase the automated equipment gradually, as separations take place, but would convert immediately to automated, once a week collection as planned. The collection workers who are not needed on the collection crews could then be re-deployed to a variety of other city projects that could benefit from dedicated labor for a fixed period of time. Possible projects could include refurbishment of parks and road repair in place of private contractors. As an added incentive to the workers and their union, this plan could be structured to avoid the layoff of any "limited term" staff, who would be treated the same as permanent staff. Although the savings target would be realized over a longer period of time, this approach may be more likely to gain acceptance from both management and labor.

Whichever option is chosen, the city should move aggressively to reach agreement with all necessary parties, and begin implementation as soon as possible. At whatever pace the city proceeds with implementation, it should be stressed that the implementation plan needs to factor in an effort to close the "relief gap" in sync with staffing reductions from the other changes.

Highway Routes Should Be Re-examined

The Department currently mans three three-person crews to collect highway litter. These crews begin work as early as 4:00 to 5:00 am, to avoid working during heavy traffic hours. According to the Department's work logs, three crews work an average of approximately 2 hours per day, while receiving full-time pay. The Department should consider lengthening these routes, and eliminating at least one of the three-person crews. Alternatively, the Department should find additional work which could be assumed by the crews after their current routes are completed. Some savings are quite likely to result.

The City Should Consider The Potential Advantages of Funding Refuse Collection Through A User Fee

Some municipalities have found advantages in funding their refuse collection activities through user fees, and this idea merits close consideration in Honolulu. The greatest potential benefits would be, first, a clearer way of communicating to the public the costs associated with particular levels of service and operating approaches within refuse collection, and, second, a means to charge differently for differential levels of service (e.g, one container or two). Thus, a user fee system might provide additional public support for moving to a lower cost refuse collection operation, as well as offering an opportunity to vary the level of service based on individual or community preferences. The city needs to weigh these potential benefits against the administrative and political burdens of putting such a system in place.

LAND ACQUISITION

Title Research Does Not Take Advantage of Technology

Within the Land Acquisition Division, an Abstract Section performs title searches and related activities in support of the city's land acquisition activities. Based on workload data compiled through the first ten months of 1993, the section is projected to undertake a total of approximately 375 new and updated title searches, in addition to a small amount of additional research. Staffed with one supervisor and seven abstractor positions (one is vacant), the group conducts its work manually, with labor-intensive searches of hard copy records at various state offices.

This approach fails to make use of readily available automated databases. While the state has yet to automate its own property records, several private title companies have developed comprehensive automated databases from which they sell title searches to the general public. These automated searches can be accomplished much more efficiently than manual searches.

Most Land Acquisition Research Should Be Contracted Out At Substantially Lower Cost

Most of the work of the Abstract Section should be contracted out to a private title search company at lower cost, while maintaining a high level of accuracy. Based on our discussion with two private title companies with automated search capabilities, we project that annual savings of approximately \$150,000 per year are possible as a result. As shown in exhibit VI-7, title companies have quoted rates to us of \$150 per new report, and \$50 per updated report. Multiplying these rates by the projected volume of work for 1993, the department could accomplish virtually all its routine title searches at a cost of just over \$30,000, compared with a section

City and County of Honolulu

**Comparison of Contracted Title Search Costs
Versus In-House Costs**

Category	Estimated Annual Volume ¹	Contract Rate ²	Contract Cost	In-House Cost ³
New Searches	174	\$150	\$26,100	-
Updates	202	\$50	\$10,100	-
Total	376	-	\$36,200	\$183,000

Net Savings: \$146,800

- 1 - Based on projections from 10 months of 1993 workload.
- 2 - A negotiated rate based on volume could be lower.
- 3 - Assumes six of seven abstract positions devoted to routine title search; includes 1 current vacancy.

budget for abstracting staff (including salaries and benefits) of more than \$200,000. In fact, it seems likely that if a volume contract were competitively bid and then awarded to a single title company, the actual rates quoted the city could be somewhat lower. To manage this contract, and to perform miscellaneous tasks not appropriate for a title company, we recommend retaining the section supervisor and one abstractor position. Six abstractor positions, however, could be phased out.

In discussing this recommendation with Department staff, the issue of accuracy and the potential need for expensive title insurance was raised. We do not believe that relying on a private vendor should require the city to purchase title insurance any more frequently than it does today. Indeed, given the technology and specialization of the private firms available, the quality of the contracted out work could be even higher.

The City Should Explore The Costs and Benefits of More Sophisticated Survey Technology

Between the Land Acquisition and Engineering Divisions there are six three-person survey crews. At present, only a couple of these crews are equipped with fully automated "total stations," which have the potential to increase the efficiency and accuracy of these crews. The city should explore in more detail the costs and benefits of acquiring more total stations, and how the addition of this technology might enable savings or expanded capacity within the survey function. As part of this analysis, the city may want to consider how survey data can best be linked to a Geographical Information System.

ROAD MAINTENANCE

Road Maintenance Operations Appear To Be Generally Well-Managed

A review of the Division's work plans, pavement inventory, and work practices in the field all suggest that the Division's operations are generally well managed. Roads are typically resurfaced every 10 to 15 years (depending on usage), the current pavement inventory indicates that approximately 75 percent of the roads are in fair to good condition (this is supported by first-hand inspection), and the deployment of crews in the field appears to be appropriate to the tasks at hand. While we have not performed a detailed assessment of the mix of contracted vs. in-house projects, the division appears to take a sensible approach in allocating the work, with contractors handling work on the more major roads, and handling surges in demand.

The Division Should Continue To Explore Increasing Investments In Preventive Maintenance

In recent years, the division has not invested in certain forms of preventive maintenance - such as crack sealing or slurry sealing - that some other cities have found to be cost effective means of extending the life of roads, enabling them to lengthen the resurfacing cycle. Reportedly, the division is planning to conduct a slurry seal experiment in some limited areas. We encourage the division to explore this and other approaches to supplement the resurfacing program with preventive maintenance efforts.

C - AREAS FOR FURTHER STUDY

Vehicle and Equipment Purchasing Approaches

Operations and maintenance staff in Public Works and in some other departments have expressed repeated concerns that vehicle and equipment purchasing processes do not reflect sufficient consideration of operating reliability and maintenance costs. In Public Works, for example, the standard street sweeping equipment, an FMC brush truck, has experienced an average of more than 120 days of down time per year. In addition to associated annual maintenance costs of nearly \$8,000 per year, this high level of downtime frequently impairs day to day operations. Moreover, in our experience, we have found that vacuum trucks are often more effective, and less prone to breakdowns than the brush trucks used by the city. Similar examples of high maintenance costs and/or downtime have been brought to our attention in other operations of the city.

Given the limited scope of our study, we were not able to make a systematic review of purchasing approaches to determine exactly why such maintenance considerations are not factored more heavily in purchasing decisions, and what improvements can be made to the system. Given the crucial importance of reliable vehicles and equipment to so many operations of the city, however, we recommend that the city make a more detailed assessment of this issue.

D - STAFFING AND BUDGET IMPLICATIONS

If all the recommendations in this chapter are fully implemented, we project that the city can discontinue at least 236 positions, and reap net annual savings of more than \$9.5 million. Some other issues highlighted for further analysis could well lead to additional savings or productivity increases.

VII - PARKS AND RECREATION DEPARTMENT

VII - PARKS AND RECREATION DEPARTMENT

The Parks and Recreation Department helps citizens and visitors to Honolulu enjoy one of the most splendid natural settings in the world. The Department's management is energetic and service oriented, and staff at all levels take pride in the appearance of the parks, and in the range of recreation programs offered.

In general, the Department appears to do a very good job at providing a broad range of sites and programs for recreation, at keeping its grounds and facilities clean and attractive and at responding to community needs. The people of Honolulu have high standards for their parks and recreation, and, by and large, these standards appear to be met. There are opportunities to build on this success by undertaking more comprehensive strategic planning regarding the portfolio of programs and fees, and by adjusting certain maintenance management practices to achieve greater productivity. This chapter discusses these opportunities in some detail.

This chapter first presents general background on the Parks and Recreation Department, followed by findings and recommendations concerning various issues. This is followed a by a discussion of areas that would benefit from more detailed study, and a summary of the staffing and budget implications of the recommendations.

A - GENERAL BACKGROUND

SCOPE OF SERVICES

The Honolulu Parks and Recreation Department offers an exceptionally broad array of cultural, recreational, and leisure opportunities with the goal of improving the quality of life on Oahu. Building on the island's foundation of natural beauty, the Department offers "passive" recreation at a large number of beaches and other parks, along with related water safety services; organized recreation and instruction; island-wide beautification; and special-interest programs and activities at its golf courses, botanic gardens, and zoo. The Department also serves the community through its community-based recreation facilities offering swimming, gyms, and space for gatherings and special events, and through its coordination of various community-led cultural, sports, and recreation, activities. Altogether, the Department maintains 434 sites encompassing nearly 6,000 acres throughout the island.

ORGANIZATION AND RESOURCES

Organization

The Department's organization and staffing is outlined in Exhibit VII-1. The Director who is supported by the Executive Services, Management Services and Personnel Services Offices, oversees eight divisions: Facilities Development, Botanic Gardens, Zoo, Golf Courses, Park Maintenance and Recreation Services, Water Safety, Beautification, and Maintenance Support Services. The Director of Parks and Recreation is advised by the Board of Parks and Recreation on programs and facilities. A brief overview of each of these units is presented below:

Administrative service offices. These offices provide administrative and support services to the rest of the Parks and Recreation department. The Executive Services Office coordinates affairs with the rest of the Administration, the City Council and the State, and provides general management support to the Director. Personnel Services is responsible for the human resources function in the department, including training personnel, safety programs, and payroll activities. Management Services develops parks rules and regulations and performs budget management, property inventory, and specializes planning projects. The unit also monitor concession contracts and park permits.

Facilities Development. This Division oversees the planning, design, and construction of capital improvement and major maintenance projects. Included in these responsibilities are land acquisition activities.

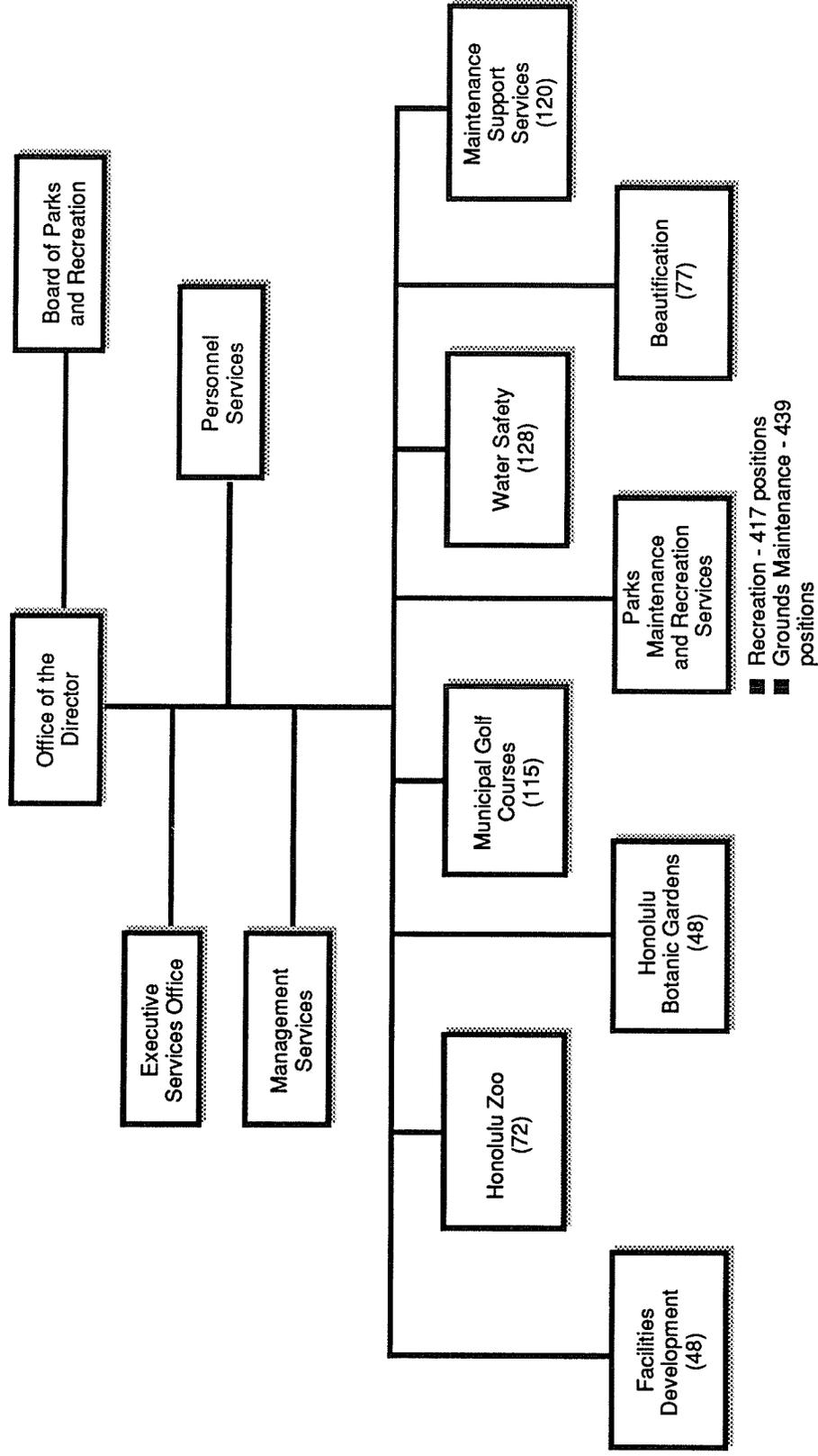
Botanic Gardens. Five gardens (Foster, Wahiawa , Koko Crater, Ho'omaluhia, and Lili'uokalani Botanic gardens) are operated by this Division. The Botanic Gardens maintains a large inventory of tropical plants and offers a variety of educational programs and tours.

Zoo. The Honolulu Zoo displays and maintains 134 animal exhibits. Along with caring for the animals in its collection, the Division also provides educational wildlife programs. In early spring, the Zoo plans to open Phase II of its new African Savanna section.

Golf Courses. This Division operates and maintains five popular golf courses to serve the public. The newest addition, West Loch Golf Course, was opened in 1990 to serve the growing Pearl City area.

Water Safety. This Division provides lifeguard services at 17 of the most popular beaches. It also promotes water safety education programs to tourists and residents of Oahu.

**City and County of Honolulu
Parks and Recreation Department
Current Organization**



Source: Executive Operating Budget, FY 1993. Includes all permanent, temporary, and contractual hires, rounded up to the nearest whole number.

Beautification. The Beautification Division maintains and provides trees for parks, roads, and other City departments. Trees and plants stored for city use are kept in nurseries and tree farms operated by Beautification.

Maintenance Support Services (MSS). The MSS Division provides repair services to the more than 400 sites maintained by the Department, and to all Department vehicles and equipment. The Trades branch, consisting carpentry, painting, masonry, welding, and plumbing units, supports the groundskeepers in maintaining parks and facilities. The Parks Grounds Improvement branch conducts scheduled island-wide spraying of fertilizer, insecticide, and herbicide, and the upkeep of sports fields. This group also maintains a heavy equipment pool consisting of bulldozers, cranes and loaders to assist the other MSS and parks groups. The third MSS unit, Automotive and Equipment Repair , repairs and services all Department of Parks and Recreation vehicles and equipment.

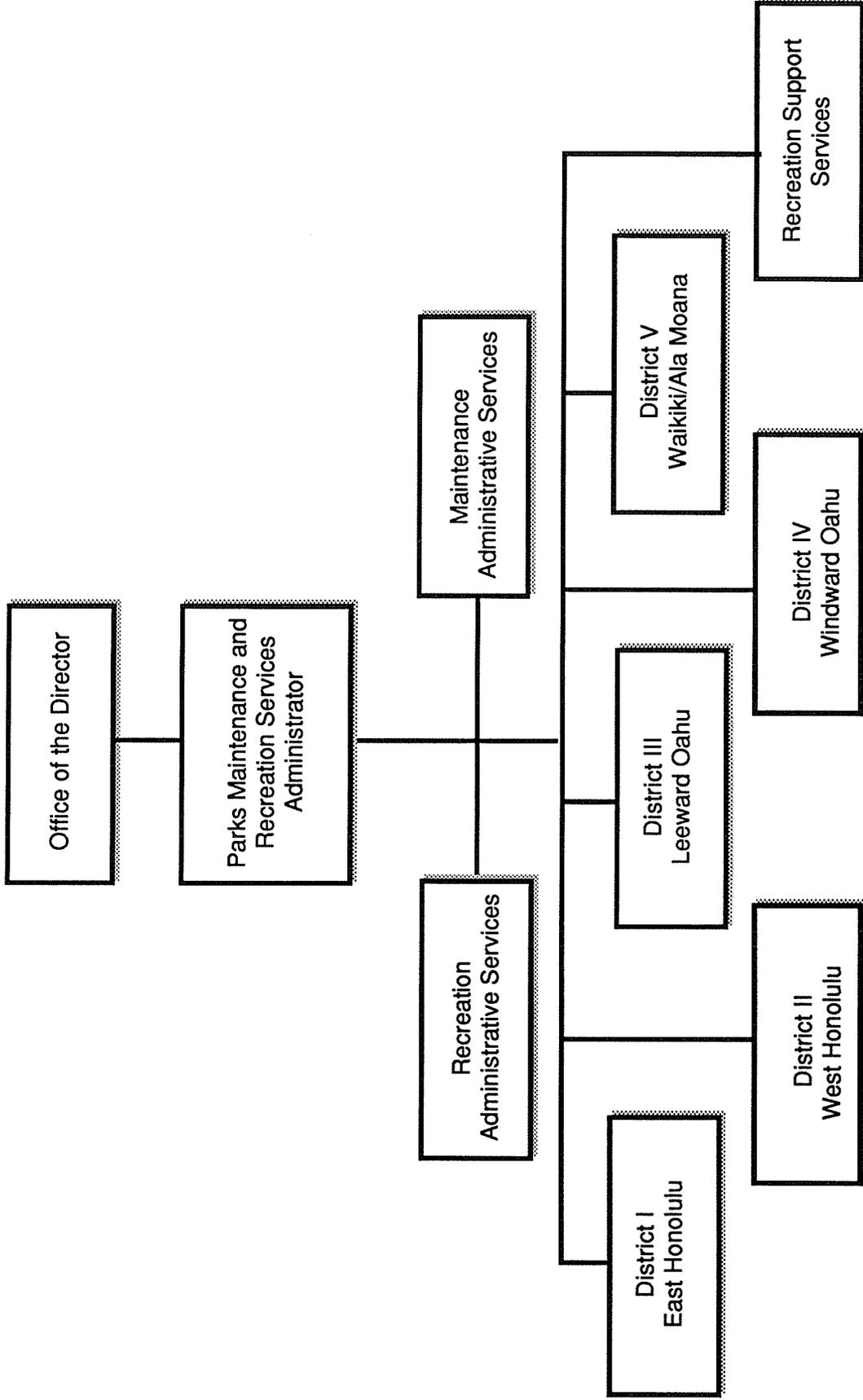
Parks Maintenance and Recreation Services. This Division provides organized recreation programs and general park maintenance functions to virtually all Department facilities through five geographic divisions. The organization of this division is presented in Exhibit VII-2, and a map of the districts is presented in Exhibit VII-3. Each of the five districts is headed by a superintendent, who in turn supervises separate recreation and maintenance sections. District-level maintenance operations are led by Parks Ground Maintenance Superintendents, while recreation activities are led by Recreation Director V's. Technical and administrative report to the districts is provided by several central support units reporting to the Division Administrator.

Resources

The Department is authorized a total of 1,161 full-time staff and 339 temporary and contract positions (FTE). Its operating budget for FY 1994 is approximately \$52.3 million, 60% of which is for salaries. This total does not include benefits costs, which are carried as part of a separate account by the city. Operationally, the largest share of the budget (46%) is devoted to organized recreation and grounds maintenance. The Department also collects approximately \$11 million in revenue annually, primarily from golf fees and concessions, other parks concessions, and zoo admissions.

City and County of Honolulu

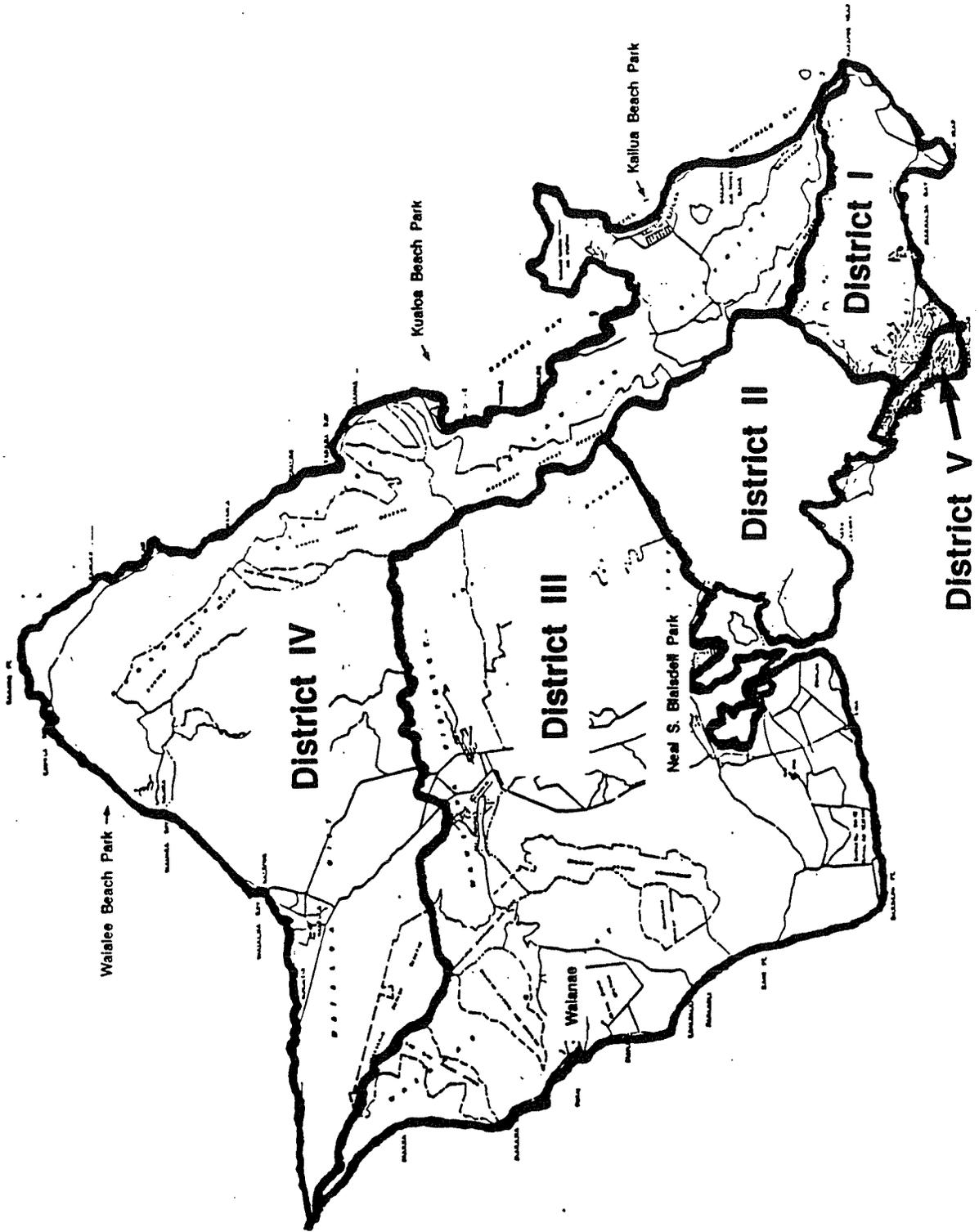
Park Maintenance and Recreation Services
Current Organization



Source: Department organization chart.

City and County of Honolulu

Parks Maintenance and Recreation Districts



B - FINDINGS AND RECOMMENDATIONS

PROGRAMS, FEES, AND PLANNING

The Scope of The Department's Programs and Services Seems Generally Appropriate And Responsive To The Community

The Department's broad array of programs and facilities seems generally consistent with the Honolulu community's strong interest in recreation and culture. Major facilities such as the zoo, botanic gardens, and golf courses, as well as the multitude of beaches and other "passive recreation" parks serve obvious interests and needs. Organized recreation programs also appear to be responsive to a variety of community interests. Exhibit VII-4 presents a sample of these organized recreation programs as advertised for the spring of 1993. The Summer Fun program for youth, a major component of the recreation budget, also meets a clear need for families with working parents.

The Department Does Not Systematically Evaluate Its Programs

Although it can be said that the Department's programs and services generally meet community needs, the Department does relatively little systematic research and evaluation of its programs to ensure that programs meet quality objectives, and that the department's limited resources are targeted as well as possible to meet unique community needs. The Department has performed internal surveys of staff views and attitudes, and has solicited limited written input from the public. However, the Department does not regularly request or analyze written evaluations of its organized recreation programs, nor does it track statistics on participation by course that can be manipulated to gauge trends in interest. It has not conducted a written community survey to probe for service expectations and priorities in at least five years. Community surveys are particularly helpful in assessing needs that are not being met, since participation statistics already show evidence of interest in existing programs. Finally, it has not undertaken any "competitor" analysis to help define where its programs may duplicate those readily available elsewhere, and where gaps may exist that could be well-served by Department programs. Although the Department clearly does receive frequent input from elected officials and community leaders, it may not be seeing "the whole picture" in its efforts to serve the community as effectively as possible.

There Has Not Been A Systematic Approach To Developing Fee Policies

Fees for programs and the use of various Department facilities are set by city ordinance. A list of fees for major programs and facilities is presented in exhibit VII-5. Understandably, they reflect a set of political decisions that may or may not

City and County of Honolulu

Sample of Recreation Programs Provided

Adult/Senior Programs

Arts & Crafts	Hawaiiana	Music & Dance	Physical Fitness	Sports	Swim Activities	Miscellaneous
Arts and Crafts Ceramics Cooking Crochet Flower Arrangement Ikebana Knitting/yarn Painting, Acrylic/Oil Pottery Sewing Silk Screening	Crafts, Seed/Coconut/Shell Hula Lei Making Hawaiian Quilting Ukelele	Ballroom Dance Japanese-American Dance Japanese/Minya Dance Okinawan Dance Guitar Karaoke Paranku	Aerobics Step Aerobics Ki Physical Exercise/Fitness Tai Chi Walking for Health Weight Room Training	Boxing Martial Arts Tennis Volleyball	Aquarobics Lap Swim Learn to Swim Lifeguard Training Water Exercise Water Walking	Mah Jongg

Source: Sampling of recreation programs (from Spring '93 class schedule ad in newspaper)

Childrens' Programs

Arts & Crafts	Hawaiiana	Music & Dance	Physical Fitness	Sports	Swim Activities	Miscellaneous
Ceramics Arts and Crafts Cooking Origami Drawing & Painting, Carpentry	Hula Hawaiian Crafts	Belly dancing Street dancing Ukulele	Tumbling Aerobics	Basketball Archery Boxing Tennis Table Tennis Judo Volleyball	Swimming lessons	Tiny tots Teen club

Source: Sampling of programs from Spring '93 flyers from all five districts

City and County of Honolulu
Overview of Programs and Fees

Program	General Fee Policies	Rationale For Fees	Comments
Organized Recreation Programs	Children - free Senior citizens - free Adults - \$10 or \$15 per course	Children should enjoy broad access to programs Funds are provided through federal and state sources Adults should pay only for marginal instruction costs	Lack of revenue from childrens' programs limits program effectiveness No management or overhead cost recovered
Facilities	User fee - \$3/hour when attendant services are needed	Facilities rented only to non-profit organizations with limited ability to pay	Attendants hired to open or close facility for these groups cost more than \$6 per hour
Zoo	Children - free Adults - \$3 Annual pass - \$5 (botanical gardens included)	Ensure access for children Unique educational value for the public	Zoo had free admission until 1984 In 1989, fees were increased from \$1 to \$3

City and County of Honolulu
Overview of Programs and Fees

Program	General Fee Policies	Rationale For Fees	Comments
Botanical Gardens	Children - free Adults - \$1 (only Foster Garden charges) Annual pass - \$5 (zoo included)	Ensure access for children Unique educational value for the public	Of 5 botanical gardens, only Foster Garden charges a fee \$1 fee was introduced in 1978
Golf	Non-resident green fees: \$30/18 holes Resident green fees: \$8 - \$12/18 holes Motorized cart rental: \$12 Hand cart rental: \$1	Golf should be accessible and affordable for Honolulu residents	Private greens fees are approximately \$50/18 holes Ala Wai course receives 35,000 calls per day to reserve play Fees for non-residents and golf carts were raised in 1993

reflect a consistent philosophy, or the forces of supply and demand.

For example, there is a tremendous demand for golf at the city's public golf courses. The Ali Wai course alone reportedly receives more than 35,000 call attempts per day requesting playing times, with the vast majority of callers turned away. Yet, golf greens fees are set substantially below the "market" rate; as low as \$8 per 18 holes for residents, compared with \$50 or more at private courses. Moreover, although the golf fees do allow the city to meet its golf operating costs, there is no effort to recover capital costs. Given these economics, it is not clear why the city chooses to continue to subsidize golf so heavily.

As another example, the Summer Fun program is free, as are virtually all programs for children and senior citizens. It is quite understandable that the city would choose to heavily subsidize a program for children whose parents may lack the time or funds to provide constructive summer activities. Many staff, however, have been frustrated that the 100 percent subsidy limits the program from offering more options to students, with program quality suffering as a result. It is not clear whether a nominal fee would present any hardship to participants, although it would clearly enable the program to be more effective.

The Department Should Address Program Offerings and Fees More Systematically Through Strategic Planning

The city should encourage the Department to undertake a more comprehensive strategic evaluation of its programs, parks, and fees than it has in the recent past. This evaluation should include:

- A survey of the public to probe in detail for satisfaction, expectations, and needs in the area of recreation;
- An assessment of what non-city programs and resources are available to citizens throughout the island, and how the Parks and Recreation Department's offerings can best be positioned to avoid overlaps and fill gaps;
- A comprehensive evaluation of fee policies that seek to apply a clear, rational set of standards and priorities;
- An evaluation of cost-effective ways to improve the Department's promotional efforts.

These analyses should then inform an operating plan that targets programs and services even more effectively, and enhances the value of the city's investment in parks and recreation.

PARKS MAINTENANCE AND RECREATION

Maintenance Staff Are Assigned To Parks In Several Ways

Each of the five park districts employs a mix of maintenance staff, who are deployed in several primary ways:

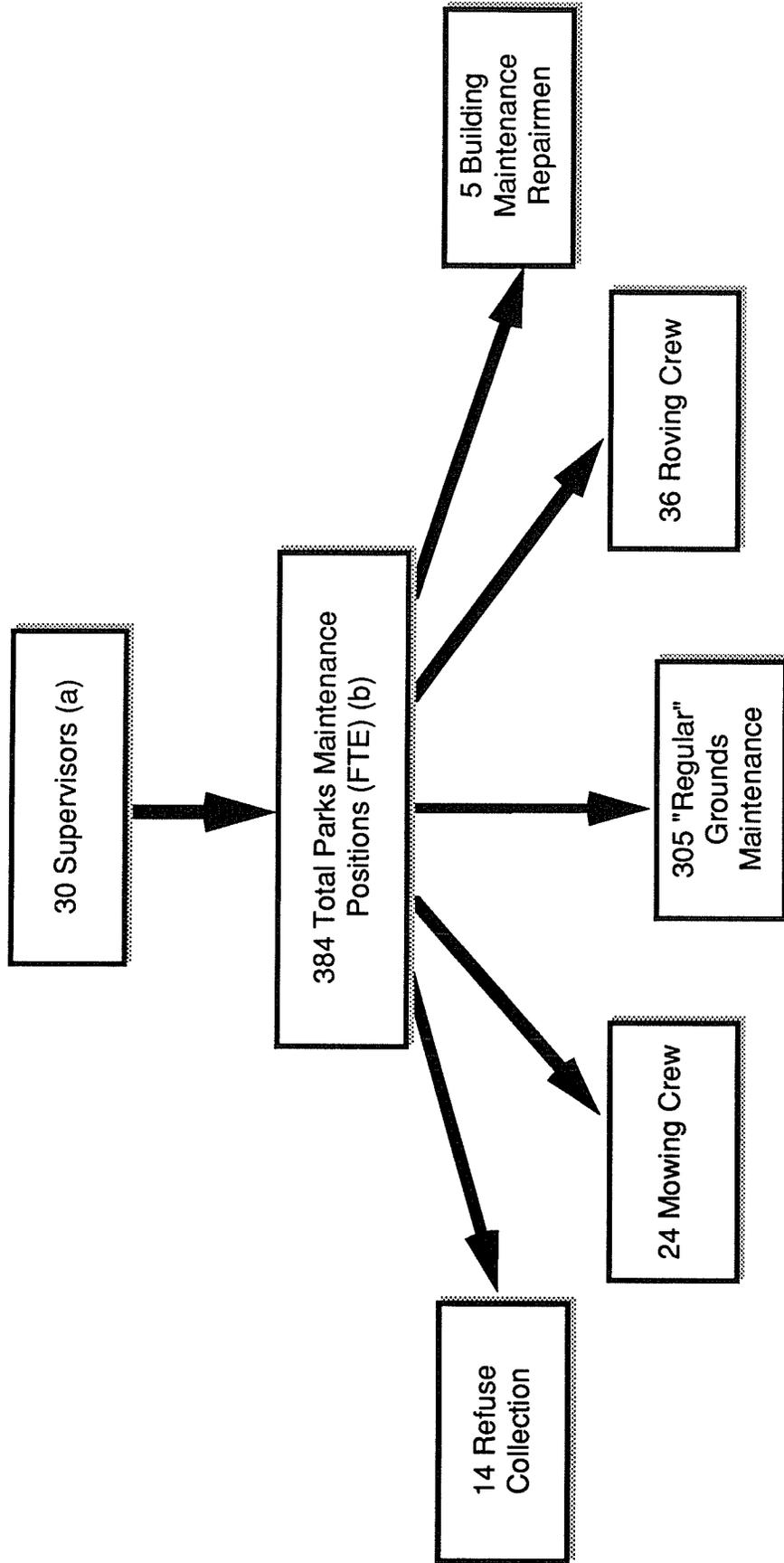
- The largest group of maintenance staff are groundskeepers assigned permanently to single parks where, they are responsible for the overall maintenance of the site. Their regular duties include cleaning bathrooms, cleaning other facilities that may exist; collecting and disposing of rubbish, raking, watering, and small scale trimming and mowing. A very small proportion of staff in this category split their time among two or three parks. "Pool Custodians" perform similar functions at sites with pools, including taking care of the pool itself.
- Roving crews of groundskeepers take care of multiple, smaller park sites. An individual crew might be responsible for six or more of these sites, which may be serviced less than once a day. In addition, staff from the roving crews serve as a relief pool to cover absences among the groundskeepers regularly assigned to individual park sites. Managers estimate that approximately one-half of the roving crews' time is spent on sites regularly assigned to them, while the other half is spent on relief work.
- Mowing crews concentrate on large-scale mowing, according to a regular schedule. Most large lawns in developed parks are mowed weekly.
- Each maintenance district also employs a smaller number of specialized staff. These include refuse collection staff, and building maintenance repairmen, who perform routine repairs that do not require a trades specialist, such as replacing sprinkler heads and patching leaks in roofs.

Overseeing these staff are two levels of supervisors: Parks Grounds Maintenance Supervisors, who have primary responsibility for staff in a unit or section, and Groundskeeping Supervisor I's, who assist in unit supervision. These staff report to the District Parks Grounds Maintenance Superintendent. A breakdown of the number of supervisor and maintenance staff within these various categories is presented in exhibit VII-6.

The number of groundskeepers assigned to individual parks is determined by a combination of general guidelines developed by the Department, and managerial judgment. Exhibit VII-7 shows the major categories of park sites, and the department's general guidelines on groundskeeper staffing. Our review of actual

City and County of Honolulu

Parks Grounds Maintenance Staffing



(a) Includes Parks Grounds Maintenance Supervisors, Groundskeeping Supervisors, and Mowing Crew Supervisors.

(b) Includes 332 Permanent full-time positions and 52 FTE of part-time positions.

Sources: Department Master Personnel list of permanent positions and roster of part-time positions.

City and County of Honolulu Parks Types and Staffing Guidelines

Type of Park	Number Of Parks	Staffing Guidelines
District Parks	24	3-5 Groundskeepers
Community Parks	44	1-2 Groundskeepers
Neighborhood Parks	75	0.5-1 Groundskeepers
Mini-Parks	26	0.5-1 Groundskeeper
Urban Parks/Squares	16	0.5-1 Groundskeepers
Regional Parks	9	Dependent on Usage
Beach/Shoreline Parks	56	Dependent on Usage

allocation practices suggests that the Department stays relatively close to these guidelines. The overall average number of acres per groundskeeper is approximately 9, with staff at beach/shoreline parks handling approximately 15 acres, and staff assigned to other parks typically handling about 7 acres. A differential between beach and non-beach parks is to be expected, given the different needs of the terrain, and the fact that specialized contractors are used to clean beaches.

The Quality Of Parks Maintenance Is Generally High

Honolulu residents and visitors expect a high standard of beauty and cleanliness from Honolulu's parks, as well they should. Oahu's natural beauty is a major reason that people choose to live and visit the island. Based on our visits (formal and informal) to dozens of park sites, we believe that the Department does provide an unparalleled level of beauty and cleanliness among municipal park systems, particularly given the high usage that many of the parks support. While there is always room for improvement, it is important to recognize that the Department already delivers a very high quality of service.

The Department Does Not Consistently Make Full use of Its Maintenance Staff

Work assignments do not demand full productivity. The consultants visited 11 parks to observe and/or discuss in detail the groundskeepers typical working day. At several of these parks, the consultant groundskeepers spent half a day observing groundskeepers at work, noting the time required for each task performed. All districts, and a mix of park categories, were included in this sample. What we found, in general, was that the all the work assigned could be completed by someone working moderately hard in far less than 8 hours, and closer to 4-5 hours.

In a typical park, the first priorities of the groundskeeper(s) at the start of the day are to clean the bathrooms and collect refuse in trash bags. The cleaning of one set of bathrooms--both men and women's sides--typically can be accomplished within fifteen to thirty minutes. In parks with facilities, sweeping the floors is also a priority handled in the morning. In all the parks visited by the consultant, these priority tasks were most commonly completed within one to two hours, and almost always completed within the first three hours of the morning. In fact, during the absence of the assigned groundskeepers, the roving crews can typically perform the essential tasks of cleaning the bathroom and collecting the trash in less than one hour.

The groundskeepers devote the remainder of the day (five to six hours) to other miscellaneous tasks such as policing the grounds for rubbish, watering,

raking leaves, mowing small strips of grass and around trees, trimming hedges, and edging the curbsides. Although these other tasks are also important, they need not be necessarily performed daily and are dependent on the judgment of the groundskeeper. In some instances, we observed groundskeepers raking and edging areas that already seemed quite neat and clean. In another instance, a park's regular groundskeeper had been absent for the last five days, and there was little evidence of deterioration. The roving crews had visited the park daily and cleaned the comfort station and collected the refuse within thirty minutes. The mowing crew had cut the grass as assigned. The absence of the regular groundskeeper to perform the miscellaneous tasks had little visible impact on the park's appearance. Based on our observations, therefore, the miscellaneous groundskeeping tasks certainly do not require the remaining five to six hours per day; they may require two hours or so. Taken altogether, these observations suggest that the groundskeeping staff is underutilized by 15 to 30 percent.

There is some unevenness in work assignments. There were some clear variations in workload among staff in the various parks we visited. While it appeared that most staff could handle their responsibilities in 4-5 hours, several other staff were allotted substantially more demanding sets of tasks. It is not entirely clear why these differences exist, but it may be the result of the relatively informal way in which work is allocated among staff.

A reluctance to assign multiple parks to staff appears to be partially responsible for the limited productivity. Other than the roving crews who handle a large number of small park sites, there are relatively few groundskeepers assigned to two or three parks. Most staff are assigned to single parks. There are some advantages to this approach. It is easier to manage, and it reinforces a sense of "ownership" among groundskeeping staff. At the same time, allocating staff primarily in whole numbers makes it more difficult to assign a full day's work to each groundskeeper, and makes it harder to assign work evenly among staff.

The Department Should Make Fuller Use of Its Maintenance Staff, and Balance Workload More Evenly

Allocations of responsibility to groundskeepers should be increased. Our assessment of a sample of parks suggests that groundskeepers' utilization is 15 to 30 percent below what is possible, assuming a moderate workload. We therefore recommend, conservatively, that the Division establish a target of increasing groundskeeper productivity by at least 10 to 15 percent over the next several years. This can be achieved by expanding the area and associated facilities that each groundskeeper is responsible for, on average, by 10-15 percent. Allowing for a modest projected increase in the scope of the overall park system over the next several years, we therefore recommend that the Department plan to discontinue 10 percent of the regular grounds maintenance positions (not including

mowing, roving, or other specialized crews), or a total of 30 FTE. Discontinuing these 30 positions will yield gross annual savings, in salary and benefits, of approximately \$780,000 while permitting the Division to maintain an extremely high level of service.

A larger proportion of groundskeepers should handle multiple parks.

One key to expanding the scope of responsibility of grounds maintenance staff is assigning a larger proportion of these staff to multiple parks. Currently, fewer than 15 of more than 300 regular grounds maintenance staff are assigned to more than one park. Division management should adjust this mix to ensure that staff working sites that can be adequately served in 4-5 hours or less are given additional sites to maintain.

To implement this concept, it may be necessary to provide transportation to staff working at multiple parks. If necessary, such an investment would be quite small compared with the savings resulting from the re-assignment of staff. As an extremely conservative estimate, we assume that up to 20 staff would need Department-provided vehicles at an annual cost of \$4,000/year each, or a total of \$80,000. Actual transportation costs, particularly if car-pooling or public transportation is employed, are likely to be much lower.

Workloads should be made more even. As part of the reconfiguration of work assignments, the Division should take a fresh look at the balance of workload among staff. Management should consider both quantifiable measures of acreage, facility size, and estimated usage, as well as their own experience in determining what staffing is required to complete the job.

Higher Productivity Expectations Should Be Supported Through Closer Supervision And Quality Control

The Division needs greater supervisory capacity. There are signs that the Division needs to enhance its supervisory capacity - through more resources and a greater focus on critical needs - to provide the necessary level of supervision. Additional investments in supervision will certainly prove worthwhile if, as a result, the Department can absorb the addition of new parkland while reducing its maintenance staff and still maintain a high standard of service.

It is difficult to generalize about proper supervisory ratios in park operations because the need for supervisory capacity is determined by a number of factors in addition to the number of staff supervised. These include the number of sites served, travel distances among the sites, and time required on matters other than personnel and quality control (e.g., review of work orders). In Honolulu, the existing overall ratio of supervisors to maintenance staff (include both "supervisor" titles) is approximately 1 to 17, counting part-time staff on an FTE basis, and 1 to

14 counting all staff employed. (There are some wide variations from this average within individual sections). In some cities, this ratio would provide more than adequate supervisory capacity. Given Honolulu's size, however, and the other duties assigned to supervisors this ratio does not appear to be adequate. We recommend, therefore, that the Department add three supervisory positions to parks maintenance, at a total cost of approximately \$110,000 in conjunction with the streamlining of the groundskeeping staff. Three positions represent an increase in supervisory capacity of more than 10 percent. This will provide an appropriate balance between supervisors and field workers, and ensure more productivity from the entire operation.

Besides adding supervisory resources, the Division needs to continue to strengthen the capabilities of its supervisors. Existing training programs should be expanded for these staff, with particular emphasis on quality control techniques, and disciplinary procedures.

Recreation staff should also be incorporated into the quality control process. At many sites, there are full time recreation and maintenance staff co-located. Recreation staff rely on maintenance staff to maintain the overall appearance of the site, and sometimes call on them for assistance with special tasks. As a result, recreation staff are in an excellent position to supplement the maintenance supervisors' evaluation of maintenance performance. Yet, today there are no formal links between recreation and maintenance staff at a site to provide such quality control. The Division should therefore institute a formal process by which recreation staff can submit annual evaluations of the quality of maintenance service received to each district's maintenance superintendent.

Listing the names of maintenance staff assigned to parks can also enhance quality control. The Department should consider posting signs or plaques in each park maintained with the names of the maintenance staff responsible for that park. Such a display might further develop the pride and sense of ownership staff already feel about the parks they maintain.

Mowing Crews Should Be Placed On A Task System, On An Experimental Basis

The work of the mowing crews is relatively predictable, except for the weather. It is defined in terms of specific areas of land that must be mowed according to a set schedule. The efficiency of such operations can often be improved through a task system: defining the work assigned solely in terms of the tasks, and letting staff leave early if the tasks are completed. In the best case, there are benefits to both management and staff: there is higher productivity because staff are more motivated to work efficiently, and staff are rewarded with a somewhat shorter working day. While it is obviously possible to mismanage such a system by setting

the work standards too low (see the discussion of Ukupau in refuse collection, in Chapter VI), a properly calibrated system can work smoothly. We recommend that the Division experiment with a task system for the mowing crews, and determine whether it demonstrates the potential for both costs savings and improved working conditions.

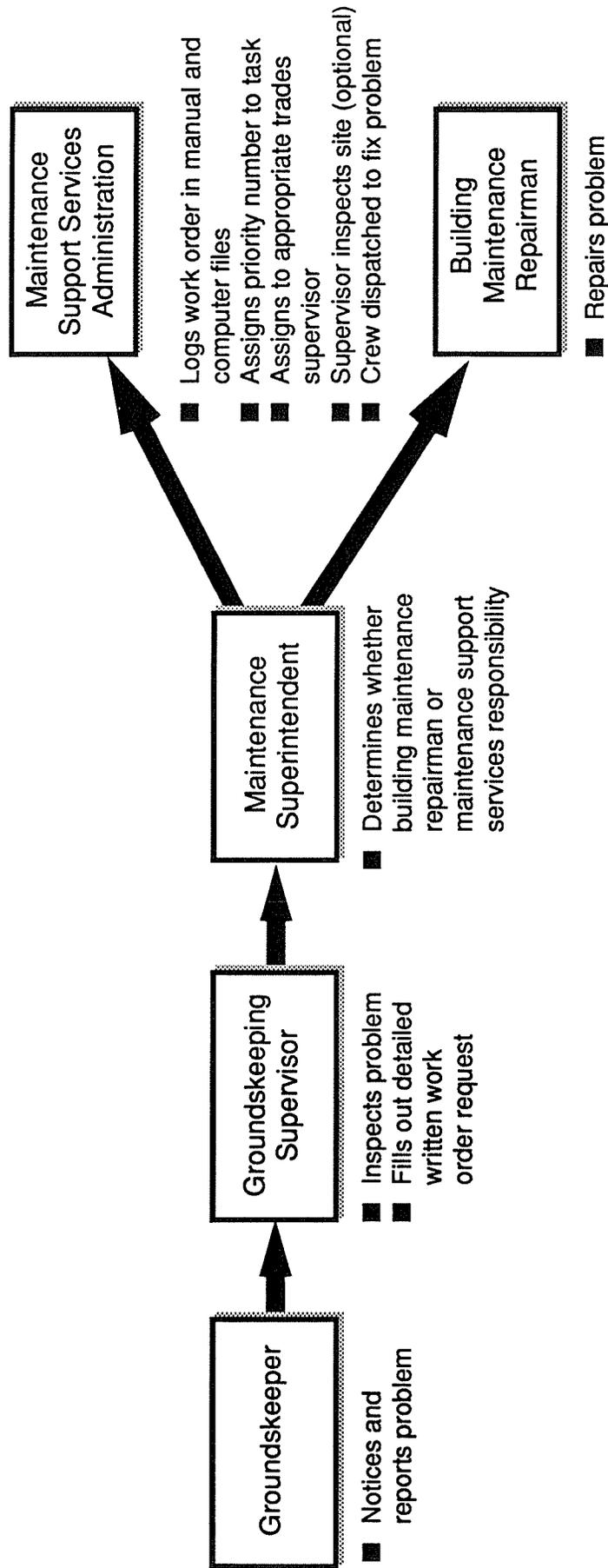
MAINTENANCE SUPPORT SERVICES AND FACILITIES DEVELOPMENT

MSS Responsiveness To Work Orders From Parks Districts Is Mixed

Parks recreation and maintenance staff generate a steady flow of maintenance requests. A small portion of the simpler jobs are handled within the five districts by buildings maintenance specialists. The vast majority of jobs are routed to MSS through a work order process depicted in Exhibit VII-8. During the last fiscal year, MSS received some 5,100 work orders from parks staff (not including automotive and equipment services). The largest portion, nearly one quarter, was for the plumbing crews who must deal with sprinklers and bathroom fixtures, among the most common problem areas in parks. Carpentry and painting also received more than 20 percent each, while welding and masonry received far fewer.

The record of responsiveness is mixed. Discussions with groundskeeping and recreation staff offer mixed opinions as to MSS's service. Most staff acknowledge that completed work is completed well; some staff, however, express concerns that MSS is slow in responding to work order requests, or that some requests are never completed. A survey of more than 200 individual work orders handled over the last two years, summarized in exhibit VII-9, suggests that the average work order is completed within approximately 30 days. Emergencies and other high priority items are attended to much more quickly, while lower priority items can take much longer. In fact, a number of the lowest priority items may never be adequately completed. These statistics suggest that MSS has, in fact, been reasonably responsive to most maintenance requests. These statistics also raise concerns. Two work orders of two districts are consistently handled a week quicker than the other three. This may be due to MSS's responsiveness, to the quality of the work orders prepared in the districts, or both. In addition, these statistics do not reflect the number of lower priority work orders that may never get completed. It is also of concern that it takes an average of at least seven days from the time a problem is noticed until the time it is received within MSS.

City and County of Honolulu Parks Work Order Request Process



City and County of Honolulu

Responsiveness of Maintenance Support Services*

Measure	Parks District					Overall Average
	I	II	III	IV	V	
Average days from opening of work order to receipt in Maintenance Support Services	-	-	-	-	-	7
Average days from Maintenance Support Services receipt of work order to completion	32	23	31	23	29	27

* Responsiveness estimated from a random sample of 207 work order records from 1992 and 1993, drawn equally from all districts.

Several Factors Limit MSS's Responsiveness To Its Clients

Limitations of recordkeeping, accountability, and communication systems impair total service quality. MSS does log work orders into a computer, and does track enter a variety of information regarding their completion, including costs. MSS has not, however, use its system to regularly report on work order status, or to report to groundskeeping or other Departmental staff data on responsiveness and backlogs. For example, there is no regular reporting of average days to handle work orders by district and priority. Moreover, MSS management does not express interest in being held accountable by these internal "customers." The lack of such reporting systems, and the lack of interest in accountability, contribute not only to perceptions of poor service in some cases, but also make it difficult for managers from the Parks Maintenance and Recreation and MSS divisions to come together to address service quality issues, and to agree on priorities. Some communication barriers may also be rooted within the parks districts. Some districts reportedly do a better job than others of filling out specific, accurate work orders than others. Vague or inaccurate work orders inevitably delay job completion.

The Department's inability to move forward with budgeted major maintenance programs limits MSS's effectiveness. Each year, "work program" monies are allocated for major maintenance projects such as roof replacements, play court resurfacing, and lighting reconstruction (approximately \$3 million). Once the monies are allocated, Facilities Development is responsible for design and specifications work, and then projects are turned over to MSS to oversee construction. These work programs are a critical component of the overall maintenance effort. Not only do they improve the appearance and functionality of various facilities, but they also limit the need for repeated work orders to deal with problem systems in need of replacement. Yet, in recent years, the Department has had difficulty in spending its annual work program allocation, due to bottlenecks in Facilities Development. According to Facilities Development management, that Division becomes so consumed with meeting its December CIP deadline, that it has difficulty completing its work program responsibilities by the June deadline. While this problem has been beyond the control of MSS, it has clearly impacted its workload and perceived performance.

The paper-based work order request system is a barrier to greater responsiveness. According to our audit of sample work orders, it takes seven days, on average, from the time a work order is initiated within the parks district until the time it is received and logged in MSS. These seven days represent about one fifth of the current elapsed time between work order initiation and completion, and offer a clear opportunity to improve the overall turnaround time.

A lack of staff does not appear to be a major obstacle. The lack of manipulable workload records has prevented us from performing a detailed analysis of workflows. MSS staff report, however, that their backlogs are decreasing. This suggests that there is not a shortage of trades staff.

The Department Should Take Steps To Ensure A High Quality of Maintenance Service

MSS should improve its communication of work status and performance data with other Divisions of the Department. The Department, with the support of Data Services, should upgrade its work management system to generate regular, reliable performance reports. On a monthly basis, parks district superintendents should be provided with a report that includes, at a minimum:

- A list of all work orders submitted for the year, by district, with the priority assigned, and their completion status;
- Average time from work order receipt to completion, by district;
- Costs incurred (labor and materials) by district.
- Work orders needing to be returned to districts for clarification.

On a quarterly basis, the Division should report, by trade, the total work orders received by priority, total work orders completed by priority, and starting and ending backlogs by priority. Any work orders handles by external contractors, with their associated costs, should also be reported.

These reports should help inform regular inter-Divisional discussion and planning. It is expected that the reports will give all concerned managers a clearer sense of the true levels of service, and a basis to re-arrange priorities as needed.

We have not estimated how much such a systems enhancement would cost, but do know that numerous work management systems are available in the marketplace at reasonable cost. To keep the system up to date, the Division may need to increase its administrative capacity. The Department should explore what is necessary, but even if a full time clerk is needed, (at a cost of roughly \$25,000 to \$30,000 per year), the cost would be well-justified.

The Department should invest in a computerized work order process. A natural enhancement to the improved work management system outlined above would be to link parks maintenance districts electronically with MSS's work management system. We understand that all district offices already have some computer capacity. The Department, with the support of Data Systems, should

investigate alternatives for establishing an electronic work ordering system. Ideally, the system would allow remote initiation of work orders from multiple sites within the parks districts, electronic routing of these work orders for approval within parks districts, electronic routing to MSS for assignment, and real time inquiry capability for district and MSS staff to confirm status. We expect that such a system would cut the estimated lag from initiation to receipt in MSS from seven days to at most three. Once again, we cannot offer an estimate on the costs for such a system, but we believe the necessary software could be purchased at a minimal cost.

The Department should take steps to ensure that work program projects are completed in a timely manner. Within the scope of this project, we have not been able to perform a detailed analysis of the Facility Development Division's staffing needs and allocation. It may be that its capacity for work programs is limited because there are not enough positions. It may be that its capacity for work programs is limited due to excessive attention to CIP projects, a sub-optimal mix of staff, or insufficient reliance on external vendors under open-ended contracts. What is clear is that the Division continues to have several vacancies among its architectural and engineering positions, that its CIP work is at a peak level for recent years, and that the work programs have lagged. Whatever the root causes, the Department needs to place a high priority on ensuring the capacity within Facilities development to put its full slate of work programs into action. The Division Administrator, under the guidance of the Director, should develop a plan for ensuring the completion of planned work programs. The elements of this plan could include such techniques as temporarily reassigning staff from other projects, expanding the use of external vendors, and re-doubling efforts to fill all vacancies.

Trades Crews Are Not Structured To Achieve Maximum Efficiency

Trades crews are typically composed of two highly-skilled trades workers, a lead trades person and a journeyman. This creates inefficiencies in two ways. First, there are many jobs which can be accomplished by just one worker. Yet two workers are typically sent to all jobs, regardless of their size. Second, even among those jobs requiring two workers, there is a high proportion of jobs for which only one of the workers needs to be highly-skilled, and for which a lower skilled "helper" would be quite adequate to assist. The compensation differential between a journeyman and a helper is approximately \$6,000 per year, including benefits.

Trades Crews Should Be Restructured

Trades crews should be restructured to achieve a more flexible, more efficient mix of staff. Over time, a portion of the journeyman positions should be converted to helpers. The Department can consider and decide what the appropriate portion is; we would suggest that converting 50% of the 24 journeyman positions to helper

positions would be an appropriate target. If, in fact, 50% of these positions were changed, total annual savings of \$70,000 would result. MSS should also apply greater flexibility in assigning staff to jobs, sending just one trades worker when just one is needed. To support this change, the Department may need to invest in several additional vehicles, but the investment would be more than repaid in productivity gains.

C - AREAS FOR FURTHER STUDY

Two areas, including one discussed above, would clearly merit further study the most:

Strategic planning. As outlined earlier in this chapter, the Department would benefit by expanding its current strategic planning efforts to more broadly address citizen's needs and expectations, relationships to other service providers, and the fee structure.

Parks district organization. Given the pattern of growth of the Parks Maintenance and Recreation Districts in recent years, many staff have expressed concern over their size, scope and balance. Staff have examined a number of options for restructuring the districts. Further examination is needed to settle on an organizational scheme for the future.

D - STAFFING AND BUDGET IMPLICATIONS

Implementing all the recommendations in this chapter will allow the city to eventually reduce the number of authorized positions by a net of 26 full-time equivalents, and to achieve annual savings of approximately \$700,000. Some positions, in grounds maintenance supervision and MSS clerical support, would be added, while a larger number of positions in grounds maintenance and beautification would be discontinued.

We have also suggested that several investments in technology be made, but have not been able to specify their costs. On an amortized basis, however, we would anticipate the costs to be minimal.

VIII - PUBLIC TRANSIT AUTHORITY

VIII - PUBLIC TRANSIT AUTHORITY

The citizens of Honolulu are served by an extensive bus system offering reliable service at very reasonable cost. Indeed, by a number of measures, TheBus is among the most efficient municipal bus systems in the country. The Honolulu Public Transit Authority (HPTA) and its contractors deserve credit for their performance, and for taking a number of steps to improve service quality.

Given this record of efficiency, the most obvious operational need is to add capacity; there are many routes which routinely experience overcrowding. Although a recent fare increase is expected to help fund expansion for the near term, there remain long-term concerns as to how to provide stable funding. This chapter addresses several funding options.

Fares and service levels are certainly more important to the average citizen than the organization and governance of the HPTA. The organization of the HPTA has, however, been a source of some controversy within the city government, and we have been asked to address this arrangement. This chapter outlines the advantages and disadvantages of the current arrangement and two alternatives, and recommends that the city consider eliminating the HPTA.

A - BACKGROUND

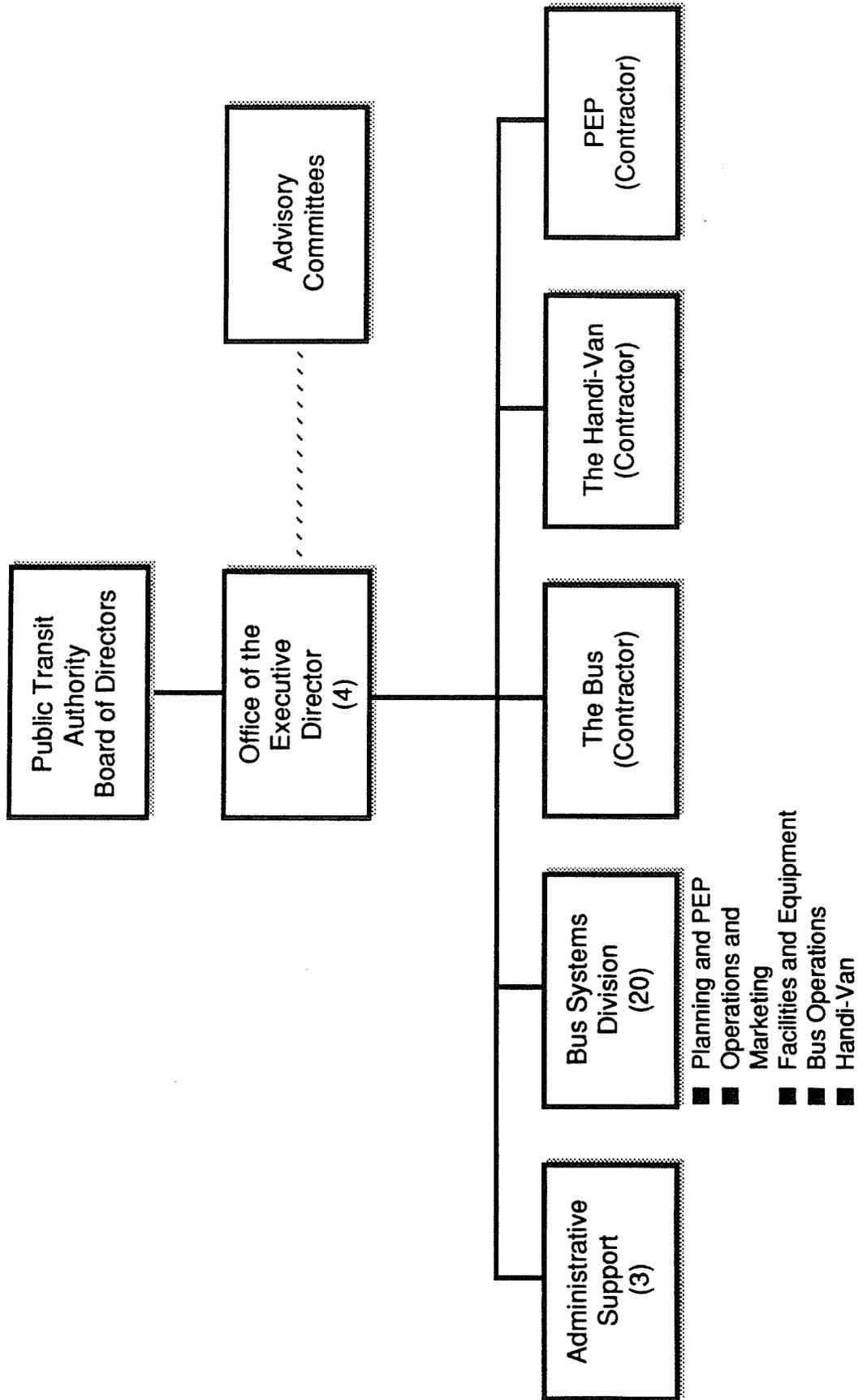
ORGANIZATION, ROLES, AND RESOURCES

The Honolulu Public Transit Authority (HPTA) is a semi-autonomous city agency established by a recent charter amendment. The HPTA, which began full operation on January 1, 1992, is charged with the administration and operation of TheBus and TheHandi-Van systems, as well as the Private Enterprise Participation (PEP) program. Prior to creation of the HPTA, the city's bus system was overseen by a bus division within the Department of Transportation Services.

The HPTA is governed by a seven-member Board. Five members are appointed by the Mayor and confirmed by Council; the Directors of Finance and Transportation Services serve ex-officio. The Board hires an Executive Director, who manages the authority's operations. The organization and staffing of the HPTA is presented in Exhibit VIII-1.

City and County of Honolulu

Public Transit Authority - Current Organization



Total Authorized Positions: 27

Operation of TheBus is provided under contract by Oahu Transit Services, (OTS), a private not-for-profit corporation. The city provides OTS with all funding, buses, facilities, equipment, and materials necessary to operate the system (the city retains ownership of these items). OTS hires and schedules drivers, negotiates the labor contract, maintains the buses, and supervises bus operations. The HPTA oversees the system's route structure, performs planning and oversight, and conducts marketing and community relations activities.

TheHandi-Van is operated under contact by Mayflower Contract Services (MCS). The PEP program contracts with private bus companies to supplement TheBus with special routes.

Although the HPTA is responsible for the administration and operation of transit services, there are limits to its power. The City Council continues to set overall policy direction, and retains control over fares and the HPTA budget. In addition, the Department of Transportation Services, in conjunction with the Oahu Metropolitan Planning Organization, has continued to prepare a variety of plans and reports required by the Federal Transit Authority, including the Short Range Transit Plan and other documents essential for grant funds.

FINANCES AND THEBUS OPERATIONS

The HPTA's total budget exceeds \$100 million. Just \$1.7 million is devoted to administration within the agency (additional, related expenses to help administer the agency's programs are incurred within DTS). Nearly \$9 million is devoted to the handicapped bus program, nearly \$2 million for the PEP program, and more than \$90 million for TheBus. Fares from TheBus are projected to provide approximately 25 percent of this total.

The bus fleet totals 495 buses, with a peak of 411 buses scheduled to be in the field at any one time. There are 65 fixed routes. Existing plans call for an increase in the fleet to 525 buses for fiscal 1995, with additional increases in subsequent years. Annual ridership is approximately 80 million passengers.

Bus fares were recently raised, for the first time in many years. The adult cash fare is now 85 cents.

B - FINDINGS AND RECOMMENDATIONS

OPERATIONS

The Public Transit System Is Quite Efficient

By many measures, the public transit system, and TheBus in particular, are quite efficient. Average passenger loads per bus-hour are quite high, and costs per passenger-mile are relatively low. The efficiency of the system is driven in large part by the great need for the service, and the relatively low fare, which produce a high level of ridership. OTS's operational approaches also result in efficiency. In particular, the scheduling of drivers on split shifts matches these resources to peaks in demand, lowering costs substantially. While there may be opportunities to further improve efficiency in such areas as bus maintenance (the large number of different models within the fleet increases maintenance costs), the system has already achieved a high level of efficiency.

There Is A Need To Expand System Capacity

Although high passenger loads can generate high revenues, passengers loads that are too high can mean inadequate service. The HPTA has found that on many routes, an unacceptable portion of passengers cannot find a seat. In some instances, full buses cannot allow passengers to board at all. Public feedback has consistently reinforced this concern. There is a need, therefore, to expand capacity to ensure a more adequate level of service.

The City Should Establish A More Secure Funding Mechanism To Support System Expansion

The critical question is how to pay for expansion over the long term. Whatever approach is taken, the city should look for ways to provide greater stability in matching revenues to service demands.

One option is to simply increase the general fund contribution beyond "current service" levels. This may be a politically expedient approach, but, in times of fiscal limitations, could be difficult to sustain.

Another option is to provide a dedicated revenue stream from a new levy of some sort. This would build greater stability into the financing system, and make it easier for transit managers to plan for long term improvements. Of course, the public may or may not support such a levy if it is viewed as "new taxes."

A third option is to fund service expansion through fare increases. Historically, the 25 percent cost recovery from the farebox has been quite low by industry standards. The city recently instituted a fare increase, the first in many years. As of this writing, it remains to be seen how the fare increase will affect ridership. While some riders may be less inclined to ride the bus at the higher fare, it seems likely that most will continue their riding patterns. In fact, it is conceivable that some potential riders may be more inclined to ride if they could be more confident of getting a seat.

The reaction to the fare increase will be an important gauge of the value riders place on the service, and a bellwether for potential future increases. In our view, fare revenues ought to be an important component of the funding for system expansion. The problem is that fare increases can be politically unpopular, whether or not ridership levels are affected. The city could, however, deflect some of the political criticism that recurs each time a fare increase is warranted in several ways. Assuming no additional authority is accorded the HPTA, the Council might simply develop a set of policy guidelines that tie projected fare revenues to a target percentage of expected operating costs. Once the policy is established, fare revenues would be indexed, with the exact mix of fares determined each time an increase in revenue is called for.

ORGANIZATION AND GOVERNANCE

The HPTA, As Currently Defined, Provides Limited Benefits As A Separate Agency

The HPTA can point to a number of accomplishments since its inception. In addition to its generally competent administration of its transit contracts, the HPTA can point to a number of accomplishments in its nearly two years of existence. These include:

- Completion of a Comprehensive Operations Analysis to develop a quantitative basis for assessing alternative plans and system changes;
- Development of a plan to restructure certain routes to improve service on the island's leeward side;
- Frequent public meetings to solicit input on service quality and other operational issues;
- Selection of a consultant to perform an assessment of bus facilities and fleet mix;
- Approval of a fare increase by the City Council;

- Improvements in the reliability and efficiency of HandiVan service;
- Increased ridership of TheBus.

The HPTA staff have clearly been working diligently to improve the transit system for all riders.

The HPTA structure itself provides limited benefits. Although the accomplishments cited above may have been made somewhat easier under the HPTA's quasi-independent structure, we see no reasons why they could not also have been accomplished under a more traditional city department structure. Indeed, the staff who have accomplished these objectives are largely the same staff who used to work in DTS. In fact, the benefits of the current HPTA structure as compared with the prior oversight of the transit system within DTS consist primarily of:

- Greater certainty that resources allocated for transit system administration will be spent on this purpose, and not borrowed for other projects;
- Creation of a more visible platform on which to debate transit issues and alternatives;
- Greater freedom from Administrative oversight of day to day decisions, and (in theory) less potential for "bureaucracy" to delay action.

Although these benefits are positive, they reflect the rather limited role that has been carved out for the HPTA. Indeed, the HPTA has not been delegated ultimate financial control of the system, and has not been created to address certain challenges faced by public transit authorities in other communities, such as multi-jurisdictional coordination. In reality, the HPTA's largest responsibilities remain contract administration and oversight, which do not offer a compelling rationale for a quasi-independent agency. Moreover, the creation of the current HPTA structure has involved certain costs and problems. These include:

- Slightly increased operating costs;
- Greater fragmentation of transportation planning;
- Operational friction between the HPTA and DTS.

On balance, the benefits of the new structure are limited.

There Are Advantages And Disadvantages To Alternative Organizational Arrangements

Given the limited benefits produced by the current HPTA structure, the city should re-examine the advantages and disadvantages of several alternatives compared with the current arrangement. Specifically, the city could look to expand the responsibilities of the HPTA to include comprehensive planning and financial control of the system, or it could eliminate the HPTA and fold its existing responsibilities back into DTS. The advantages and disadvantages of these options, along with the current arrangement, are summarized in Exhibit VIII-2.

The expanded version of the HPTA would much more greatly insulate transit decisions from short-term political pressures, and might make it easier to develop a consistent, long-term transit plan. At the same time, the City Council would be transferring a substantial amount of power to an un-elected Board that is not as directly accountable to the public to govern a system that will likely continue to be supported primarily through general funds.

Eliminating the HPTA and folding its responsibilities back into DTS would save a small portion of the agency's budget (\$200,000 to \$300,000), and, more importantly, would enhance the coordination and accountability for transit planning. At the same time, such a change would create some disruption in the momentum of improvement that has been recently established, and would create some public relations difficulties in the wake of the recent referendum and effort to create the HPTA. In addition, some uncertainty may be created regarding the bus drivers' union's recognition by the NLRB. Although preliminary discussion with the NLRB suggest that there are likely to be ways to preserve the union's standing with NLRB even if HPTA were to be folded back into the city government, changes in HPTA structure could lead to protracted, unproductive, resolution of the issue.

The City Should Consider Eliminating the PTA

Given these alternatives, and their advantages and disadvantages, our conclusion is that a consolidated approach to transportation within DTS is the best long-term option. What is paramount in this judgment is the fundamental legitimacy of Council financial control, given the source of funds for the system. As a result, we view an expanded HPTA as clearly inappropriate, and view the current HPTA structure as problematic.

This said, the city should make its own decisions regarding the future of the HPTA. It may decide to give the current arrangement more time to resolve its coordination difficulties. No doubt, it will need to consider the reality that the HPTA has only recently been created, and that radical changes in the near future may be politically untenable. Moreover, it will need to seriously examine the

City and County of Honolulu Alternative Approaches To Transit System Administration

ALTERNATIVE	ADVANTAGES	DISADVANTAGES
<ul style="list-style-type: none"> ● HPTA With Limited Authority (current) 	<ul style="list-style-type: none"> ● Gain independent platform for transit discussion ● Resources sure to be devoted to existing transit system ● Fewer "bureaucratic obstacles to action 	<ul style="list-style-type: none"> ● Fragmentation of transit planning ● Organizational friction ● Slightly higher operating costs
<ul style="list-style-type: none"> ● HPTA With Expanded Authority <ul style="list-style-type: none"> ○ Full financial and planning control ○ Possible dedicated funding source 	<ul style="list-style-type: none"> ● More integrated transit planning ● Potential for more stability in long-term funding 	<ul style="list-style-type: none"> ● Removal of critical funding responsibility from elected Council ● Harder to balance overall budget priorities if transit budget is removed from the pool
<ul style="list-style-type: none"> ● Fold HPTA Operations Into DTS 	<ul style="list-style-type: none"> ● Clearer coordination and accountability for transit planning ● Slight reduction in operating costs 	<ul style="list-style-type: none"> ● Short-term disruption ● Potential loss of bus system focus ● Uncertainty over labor/NLRB status

implications of change in HPTA structure for union representation and recognition before making any final decisions.

C - STAFFING AND BUDGET IMPLICATIONS

The recommendation in this chapter cannot be used to plan specific changes in staffing and budget levels because we have recommended that the city carefully weigh a number of factors before making any changes. Potential savings, however, do exist.

Should the city opt to peg fare revenues to a percentage of bus operating costs, it seems likely that general fund expenditures will be lower than they otherwise would have been. Similarly, if the city decides to eliminate the HPTA, and fold its responsibilities back into the Department of Transportation Services, savings of \$200,000 to \$300,000 in administrative costs are likely to result. Given the HPTA's budget of more than \$100 million, these potential savings are unlikely to be a determining factor in the decision on the agency's future.

IX - OTHER DEPARTMENT AND ISSUES

IX - OTHER DEPARTMENTS AND ISSUES

This chapter discusses several issues that we have identified, or have been asked to address, in departments beyond the five selected for focus in our reconnaissance. They involve transportation planning; coordination of road work; motor vehicle licensing approaches; and worker's compensation costs.

A - FINDINGS AND RECOMMENDATIONS

DEPARTMENT OF TRANSPORTATION SERVICES (DTS)

The City Should Look For Opportunities To Streamline Its Transportation Planning and Program Coordination Activities

In the wake of the demise of the Honolulu Rapid Transit Project, the DTS has downsized its rapid transit development staff from approximately 32 positions, and created a 16-person Transportation Planning Division composed primarily of former members of the rapid transit staff. Recently, many of these staff (as well as several others still on the payroll) have been devoted to the city's effort to address financial claims surrounding the termination of the rapid transit project. It is not clear how long these claims-related activities will continue. DTS's plan, however, calls for the Transportation Planning Division to perform such activities as general transportation planning (including preparation of FTA-required plans and documents); environmental planning, including the oversight of environmental impact statements that may need to be prepared in conjunction with transit projects; grants management; facilities engineering related to the construction of transportation infrastructure; and transportation engineering, including certain traffic engineering functions.

Based on a reconnaissance level assessment, the commitment of 16 positions to these functions appears to be excessive. To be fair, DTS is still dealing with the aftermath of the rapid transit project, and can be expected to need some time to sort out organizational needs and roles. However, the commitment of 16 staff to these functions clearly reflects a belief that there needs to be a substantial expansion in the level of transportation planning activity, an assumption that is not necessarily shared by all concerned parties. Moreover, there appear to be potential duplications of resources between the Transportation Planning Division and several other groups, including the Program Coordination Division of DTS, the Traffic Engineering Division of DTS, and the Engineering Division of Public Works.

The city should re-examine the structure and role of the Transportation Planning Division. Such an assessment should consider the level of resources committed and the definition of roles among this division and the other units of DTS and Public Works cited above. We believe that a more streamlined approach is possible, achieving the city's planning goals at a lower operating cost.

COORDINATION OF ROAD WORK

There Is Little More That Can Be Done To Minimize Disruptive Road Work

Traffic congestion resulting from construction and repair projects is a source of ongoing frustration to residents and visitors alike. Road work is undertaken most frequently by the city's own road maintenance crews (in-house and contracted); utility companies; the Board of Water Supply; and by independent private contractors. The city has asked us to consider whether there may be ways to minimize this disruption. Unfortunately, there do not appear to be any practical cost effective solutions beyond what the city already does.

Currently, the Department of Transportation Services issues street usage permits for those performing work within the city's right-of-way. This permitting process ensures that the work is being performed for a legitimate purpose by legitimate entities. What would be required to address the existing disruption would be some way of mandating an overall schedule of road work to minimize the frequency of blockages, and/or mandates to perform road work on off hours. Realistically, neither of these types of mandates is practical or reasonable. The city could not possibly hope to mandate a schedule to the various parties performing the work, even it could manage the logistics; such a schedule would incur major cost increases for these parties, including the city, and would result in frequent delays in project completion.

MOTOR VEHICLE LICENSING

The City Should Lobby The State For Changes In The Licensing Framework

Approximately 125 staff within the Motor Vehicles and Licensing Division of Finance are involved in issuing new and renewal driver's licenses. The costs of this operation are increased by a state driver's licensing system that requires more frequent renewal and testing than most other states. In particular, the state requires those under 24 to renew their licenses every two years, instead of every four years as most adults do. In addition, the state requires those renewing their licenses to take and pass a written test each time. The rationale for these policies is not clear;

it would seem that once a driver is duly licensed, their driving record can speak for itself in validating eligibility for renewal. Moreover, only a handful of other states make a similar demand. The city should lobby the state to change these state policies. Less frequent renewal applications and written tests may permit some reduction in staff.

Technology Should Be Utilized For Licensing Exams

Written tests for driver's licenses are currently taken and scored by hand. Many states use inexpensive computers for such testing, which can speed up the grading and administration of scores. Although we have not performed a detailed cost/benefit analysis of implementing the technology in Honolulu, computerized testing would clearly save time and may enable some reduction in staff. The city should investigate alternative testing systems, and select one that will provide the service most cost effectively.

SAFETY AND WORKER'S COMPENSATION

The City Should Lobby The State For Changes In Worker's Compensation Laws

Worker's compensation costs are a big expense item. During fiscal year 1993, the city incurred nearly \$13 million in direct worker's compensation costs. Employees of the Police, Fire, Parks and Recreation, and Public Works Departments incurred nearly 90 percent of this total. Although the annual number of claims has remained relatively steady in recent years, costs per claim have risen due to a variety of factors. Of course, beyond these direct costs, the city's departments incur the disruption resulting from injuries and absences, and workers suffer as well.

The city already has a number of programs in place to manage these costs. Although we have not evaluated the city's safety and worker's compensation programs in detail, it is clear that the city has established the basic systems necessary to control these costs. The Personnel Department provides analysis and technical support on safety issues to operating departments, who in turn have designated safety officers. Although the level of attention to safety programs within departments undoubtedly fluctuates, an accounting change several years ago (which requires departments to fund the salaries for replacement workers from their own budgets) provides some extra incentive to control the number of injuries. Committees review vehicle accidents, and seek to identify patterns of causation which can be addressed. Moreover, Personnel has instituted an active claims management program which tracks the cost of worker's compensation claims, and seeks ways to minimize net costs to the city.

The city can continue to take steps on its own to limit injuries and resulting worker's compensation costs. There may be room to improve department's safety programs, and the level of communication to workers about safety issues. What may have an even greater impact, however, are changes in equipment, vehicles, and work approaches that enhance safety. In some cases, these approaches may also be more efficient. For example, automation of refuse collection vehicles will greatly reduce the number of worker's compensation claims within refuse collection while also permitting substantial reductions in operating costs. Moving officers who now share marked vehicles in the police department to individual, take-home cars is likely to reduce accidents and injuries in the HPD. The city should continue to look for other cost-effective measures to enhance safety through such approaches.

The biggest improvements in worker's compensation costs will come through state action. The greatest long-term impact on worker's compensation costs in Honolulu would require changes in state law. Hawaii's worker's compensation law is reportedly among the most generous (to workers) in the country. Employers must show "substantial" evidence to the contrary to disprove a claim, and the financial benefits to workers offer limited incentives to return to work. The state system has been assessed and debated for some time. If the city is serious about containing these costs, it should lobby the state for changes in the law to achieve greater balance.

RISK MANAGEMENT AND CONSTRUCTION

The City Appears To Address Risk Management Considerations In Its Construction Planning

A complete risk management program should address the city's construction of facilities. Public facilities that are constructed with safety considerations in mind will tend to minimize accidents, and the city's exposure to lawsuits and claims.

As part of our reconnaissance review, we have been asked to look at city activities designed to minimize risk in the construction of public facilities. While we have not reviewed such activities in detail, discussions with the city's risk manager, and with engineering staff within the Public Works and Parks and Recreation Departments all suggest that the city has begun to place increased attention on safety considerations in its construction planning, and that risk management considerations have become a more routine element in the review of facility designs than it has been in the past.

At the same time, there appears to be potential to further strengthen attention to risk management considerations in construction planning. As discussed in the

chapter on Parks and Recreation, for example, the facilities engineering group has had difficulty in filling all its authorized positions, which, in turn, has made it difficult for the group to complete all its assignments in a timely manner. Filling these vacancies, as recommended, should enable that group to be more vigilant in considering safety factors. Similarly, the city's risk manager has minimal staff support, and has not had the capacity to focus heavy attention on losses related to facility design. Some expansion of this capacity may be warranted to provide greater attention to problem areas.

B - STAFFING AND BUDGET IMPLICATIONS

None of the recommendations in this chapter can yet be tied to specific staffing and budget implications. We are confident, however, that further review of transportation planning staffing and roles can yield savings, as can changes in motor vehicle licensing approaches. Changes in state law regarding worker's compensation costs also have the potential to provide substantial savings, or at least a slowdown in the growth rate, in Honolulu's worker's compensation expense.

X - IMPLEMENTATION

X - IMPLEMENTATION

This chapter summarizes the implications of this report's findings and recommendations, outlines next steps that should be taken to set implementation in motion, and offers guidance on structuring the implementation process. We also suggest priorities for further assistance and study.

IMPLICATIONS

The findings and recommendations of this report have focused on opportunities for improvement within four major operating departments of the city and the PTA. We have developed more than 40 specific recommendations for action. A summary of these recommendations and their staffing and budget implications is presented in Exhibit X-1. Most of these recommendations will lead to reductions in the city's operating expense without reducing the quality of services delivered to the citizens of Honolulu. Many of the recommendations also address ways to enhance the quality of services to the public. It is hoped that implementation of these recommendations will lead to a tangible improvement in the value the citizens of Honolulu receive from their government.

By design, our project has focused on change. It should be understood that our recommendations build upon a foundation of solid management that already exists in Honolulu.

The staffing and budget implications of the total package are that 545 positions can be discontinued, and annual operating expenses decreased by more than \$23 million. Despite the magnitude of these potential savings, it should be understood by all that the city has no intention of achieving these savings through layoffs of permanent staff. Rather, once the city decides to move ahead, staffing reductions would be achieved through attrition.

Of course, there are different ways of managing attrition, and the city should be pro-active in ensuring that the attrition process works towards achieving the report's goals. For example, in refuse collection we have indicated that more than two hundred positions will not be needed on collection vehicles once automation is implemented. Rather than gradually phasing in automation at the pace of attrition, we have suggested moving immediately to automation, and using the excess staff temporarily for some other productive purpose, such as in-house resurfacing crews or special projects in parks. There may be similar opportunities for productive reassignment of staff in other areas facing reductions while attrition is taking place.

Even with an aggressive commitment to implementation, it should be recognized that the city cannot attain the full benefits of all the recommendations

CITY AND COUNTY OF HONOLULU

SUMMARY OF RECOMMENDATIONS AND IMPLICATIONS

Recommendation	Net Staffing Reduction/ (Increase)	Estimated Annual Cost Savings/ (Expense)	Comments
POLICE DEPARTMENT			
Patrol staff should be allocated and scheduled to more closely match their workload	47	\$2,155,000	Additional savings may be possible if overlay shifts are implemented
Re-arrange ACS work schedules and staffing	11	\$591,000	Provides 7-day coverage
Phase in a take-home marked car plan for all field officers	--	(\$100,000)	Project negligible increase in operating costs
Implement alarm ordinance to discourage false alarms	--	*	Potential for significant savings through reduced call volume
Phase in a more flexible rank structure within Investigations	--	\$500,000	Also improves flexibility in staff assignment
Work with Prosecuting Attorney to reduce the need for stand-by pay	(4)	\$790,000	Rough estimate; potential savings are very large
Restructure the mix of staff assigned to Central Receiving	--	\$200,000	
Explore the use of video arraignment from Central Receiving	--	*	If experiment is successful, could lead to modest staff savings
Work for greater alignment of the criminal justice system	--	--	Potential to substantially improve crime deterrence
TOTAL POLICE DEPARTMENT	54	\$4,136,000	
FIRE DEPARTMENT AND EMS			
Discontinue staffing engines at stations 1, 4, and 31	45	\$1,850,000	Eliminates engine coverage overlaps
Discontinue staffing aerials at stations 2, 9, and 31	54	\$2,210,000	Eliminates aerial coverage overlaps
Move ladder 5 to station 23	--	(\$145,000)	Fills gaps in ladder coverage
Reduce minimum ladder staffing from five to four	33	\$1,350,000	
Reduce relief positions and create trainee positions	54	\$2,290,000	Preserves substantial cushion to ensure minimum staffing is met
Fire Prevention Bureau should develop more formal systems to guide its inspections of high-occupancy, high-risk buildings	--	*	Modest costs for systems improvements; not estimated
Senior management should employ more quantitative analysis in planning and performance monitoring	--	--	
City should seek greater authority to manage its own EMS operations	--	--	
Combine seven Fire and EMS companies	43	\$1,210,000	\$1.2 million in savings projected after initial training investment; planning and negotiation are prerequisites
TOTAL FIRE AND EMS	229	\$8,765,000	

CITY AND COUNTY OF HONOLULU

SUMMARY OF RECOMMENDATIONS AND IMPLICATIONS

Recommendation	Net Staffing Reduction/ (Increase)	Estimated Annual Cost Savings/ (Expense)	Comments
PUBLIC WORKS			
Automate collection routes/convert automated routes to once-weekly collection	303	\$8,700,000	
Ensure adequate relief to minimize overtime	(73)	\$700,000	Add-back necessary to minimize overtime and ensure all daily positions are filled
Explore ways to make the remaining manual routes more efficient	--	*	Potential additional savings
Consider funding refuse collection through a user fee	--	--	
Contract out land acquisition research	6	\$147,000	
Explore the costs and benefits of more sophisticated survey technology	--	*	Potential savings over longer term
TOTAL PUBLIC WORKS	236	\$9,547,000	
PARKS AND RECREATION			
Address program offerings and fees more systematically through strategic planning	--	*	Potential for large revenue increase if fee structure is altered
Restructure allocations of responsibility to groundskeepers	30	\$700,000	Includes generous allowance for transportation
Increase groundskeeping supervisory capacity	(3)	(\$110,000)	
Incorporate recreation staff into the quality control process	--	--	
Place mowing crews on task system	--	*	Further analysis after implementation may yield some savings
MSS should improve its communication of work status and performance data with other divisions of the Department	(1)	(\$30,000)	Potential cost of \$30,000 to hire one full-time clerk
Invest in a computerized work order process	--	*	Anticipate modest costs when amortized
Ensure that work program projects are completed in a timely manner	--	*	May involve some costs beyond budget
Restructure trades crews	--	\$70,000	
TOTAL PARKS AND RECREATION	26	\$630,000	

CITY AND COUNTY OF HONOLULU

SUMMARY OF RECOMMENDATIONS AND IMPLICATIONS

Recommendation	Net Staffing Reduction/ (Increase)	Estimated Annual Cost Savings/ (Expense)	Comments
PUBLIC TRANSIT AUTHORITY			
Consider linking fare revenues to a percentage of total operating costs	--	*	Could help finance service improvements without general fund monies
Consider eliminating the PTA	--	*	Some savings are possible in management and administration
TOTAL PUBLIC TRANSIT AUTHORITY	0	\$0	Any savings would be accrued only after careful review
OTHER DEPARTMENTS AND ISSUES			
Planning functions within DTS should be further consolidated	--	*	Requires further examination; substantial savings are likely
The City should lobby for changes in the State motor vehicle licensing framework	--	*	Modest savings are possible
Invest in automation for driver's license examinations	--	*	Modest savings are possible
The City should lobby the State to make adjustments to Worker's Compensation laws	--	*	Substantial savings are possible if changes are ever made
TOTAL OTHER DEPARTMENTS AND ISSUES	0	\$0	
GRAND TOTAL	545	\$23,078,000	

within this report immediately, or even within the next fiscal year. Indeed, some items will require further assessment, planning, and negotiation before they can be implemented. Most of the recommendations, however, can begin to be implemented within months.

NEXT STEPS AND ACTION PLAN

Once this final report is received, Council should endorse its recommendations in principle, and refer the report to the Administration. The Administration, in turn, should develop an implementation plan that specifies what recommendations will be implemented, by whom, over what time frame, and what the budget implications are planned to be. In fact, we understand that the Administration has already reflected planned implementation of at least some of this report's recommendations in its preliminary budget for fiscal 1995. The Administration should use our suggested Plan of Action, Exhibit X-2, and the Summary of Recommendations, Exhibit X-1, as starting points, and note areas where it differs from this agenda. The Council and Administration should then agree to the specific implementation plan, and use it as a guide for monitoring progress.

KEYS TO STRUCTURING IMPLEMENTATION

We have been asked to offer suggestions as to how to begin implementation as expeditiously as possible. Some city leaders have expressed particular concern as to how to move forward with recommendations requiring a large capital investment to achieve long term savings at a time when the city's cash flows are constrained.

In fact, in reviewing the recommendations, one finds that there are three primary types of challenges to be worked through in moving forward. The first type of challenge is simply a managerial challenge. Department managers need to understand and support the recommendation, and be committed to devoting the attention and planning necessary to make implementation happen. Most of the recommendations face primarily this managerial challenge, and we are confident that, with the support of the city's leaders, managers will be successful in putting implementation in motion within the next fiscal year. The second type of challenge is a need for capital investment. Here, the city may need to "spend money to make money." Only several of the recommendations require any substantial capital, but they represent some important items. The third type of challenge involves the need for negotiation and support from groups outside the city administration,

City and County of Honolulu

Plan of Action

RECOMMENDATION	PRIMARY RESPONSIBILITY
<p>POLICE DEPARTMENT</p>	
<p>Patrol staff should be allocated and scheduled to more closely match their workload</p>	<p>Patrol Assistant Chiefs</p>
<p>Re-arrange ACS work schedules and staffing</p>	<p>Patrol Assistant Chiefs</p>
<p>Phase in a take-home marked car plan for all field officers</p>	<p>Police Chief</p>
<p>Implement alarm ordinance to discourage false alarms</p>	<p>City Council, Police Chief</p>
<p>Phase in a more flexible rank structure within Investigations</p>	<p>Police Chief</p>
<p>Work with Prosecuting Attorney to reduce the need for stand-by pay</p>	<p>Police Chief, Prosecuting Attorney</p>
<p>Restructure the mix of staff assigned to Central Receiving</p>	<p>Police Chief</p>
<p>Explore the use of video arraignments from Central Receiving</p>	<p>Assistant Chief for Special Field Operations, State Judiciary</p>
<p>Work for greater alignment of the criminal justice system</p>	<p>City Council, Managing Director, Police Chief, Prosecuting Attorney</p>
<p>FIRE DEPARTMENT AND EMS</p>	
<p>Discontinue staffing engines at stations 1, 4, and 31</p>	<p>Fire Chief</p>
<p>Discontinue staffing aerials at stations 2, 9, and 31</p>	<p>Fire Chief</p>
<p>Move ladder 5 to station 23</p>	<p>Fire Chief</p>

City and County of Honolulu

Plan of Action

RECOMMENDATION	PRIMARY RESPONSIBILITY
Reduce minimum ladder staffing from five to four	Fire Chief
Reduce relief positions and create trainee positions	Fire Chief
Fire Prevention Bureau should develop more formal systems to guide its inspections of high-occupancy, high-risk buildings	Fire Chief
Senior management should employ more quantitative analysis in planning and performance monitoring	Assistant Chief for Administration
City should seek greater authority to manage its own EMS operations	Managing Director, EMS Director
Combine seven Fire and EMS companies	Managing Director, Fire Chief, EMS Director
PUBLIC WORKS	
Automate collection routes/convert automated routes to once-weekly collection	Managing Director, Public Works Director
Ensure adequate relief to minimize overtime	Public Works Director, Refuse Division Chief
Explore ways to make the remaining manual routes more efficient	Public Works Director, Refuse Division Chief
Consider funding refuse collection through a user fee	City Council, Public Works Director
Contract out land acquisition research	Public Works Director, Land Acquisition Chief

City and County of Honolulu

Plan of Action

RECOMMENDATION	PRIMARY RESPONSIBILITY
Explore the costs and benefits of more sophisticated survey technology	Engineering Division Chief
PARKS AND RECREATION	
Address program offerings and fees more systematically through strategic planning	Parks Director
Restructure allocations of responsibility to groundskeepers	Chief of Parks and Grounds Maintenance
Increase groundskeeping supervisory capacity	Chief of Parks and Grounds Maintenance
Incorporate recreation staff into the quality control process	Chief of Parks and Grounds Maintenance
Place mowing crews on task system	Chief of Parks and Grounds Maintenance
MSS should improve its communication of work status and performance data with other divisions of the Department	Parks Director, MSS Chief
Invest in a computerized work order process	Parks Director, MSS Chief
Ensure that work program projects are completed in a timely manner	Parks Director, Facilities Development Chief
Restructure trades crews	MSS Chief

City and County of Honolulu

Plan of Action

RECOMMENDATION	PRIMARY RESPONSIBILITY
<p>PUBLIC TRANSIT AUTHORITY</p> <p>Consider linking fare revenues to a percentage of total operating costs</p> <p>Consider eliminating the PTA</p> <p>OTHER DEPARTMENTS AND ISSUES</p> <p>Planning functions within DTS should be further consolidated</p> <p>The City should lobby for changes in the State motor vehicle licensing framework</p> <p>Invest in automation for driver's license examinations</p> <p>The City should lobby the State to make adjustments to Worker's Compensation laws</p>	<p>City Council</p> <p>City Council, Managing Director</p> <p>Managing Director, DTS Director</p> <p>Managing Director, Finance Director</p> <p>Finance Director</p> <p>Managing Director, Personnel Director</p>

including labor unions and the state. There are only several items where such negotiations are likely to be a major challenge, but, again, these items are important ones. We believe that if the City Administration and Council can stand united behind the recommendations, such negotiations will be much more successful.

Within specific departments, we can offer some more specific ideas as to how these challenges may be addressed for some of the major recommendations:

Police

The major recommendations to restructure the deployment and scheduling of the patrol staff and the ACS unit can be accomplished relatively easily and quickly by Department management, with appropriate planning and communication with those involved. As discussed earlier in the report, the recommended changes should not alter the letter or spirit of the union contract.

Changes in the mix of staff used in Investigations and Central Receiving will require somewhat longer to complete, but also can begin within the next fiscal year, with the staff composition of each changing gradually. Similarly, new procedures necessary to reduce stand-by pay can also begin within months. This set of changes will require investments in technology and a new coordinating unit within the Department, but the expected gains within the first year will more than compensate for this investment.

Moving towards a plan of marked, take-home patrol cars for all field officers will require some investment in capital. However, the program could be phased-in in a way that minimizes this investment. As discussed earlier in the report, implementation of the program should begin with the pool of officers who do not currently receive subsidies. Leasing of the additional vehicles needed to support this group should be investigated as a way to minimize capital investment during the transition.

Fire and EMS

In Fire, the major recommendations to restructure engine and ladder companies, to reduce the minimum staffing on ladders, and to restructure staffing for relief and turnover needs can all begin relatively quickly through management action. In fact, the only capital investment involved would be to ensure that a single station can be fitted to accommodate a re-located ladder company. The pace of implementation will likely be dictated through the pace of attrition.

Pursuing integration of Fire and EMS will clearly be more complex. Planning and negotiation will be required among the two departments, the state, and the

involved unions. The planning and negotiation will need to be concluded before implementation of any experiments that involve combined crews can commence.

Public Works

Changes in refuse collection, including the expansion of automated collection, will require both labor negotiations and capital investment. The potential financial returns to the city, however, are enormous. Negotiations are most likely to be successful if both the Administration and Council stand firmly behind the need to move forward rapidly with automation. The changes may be somewhat more palatable to union members if the city can guarantee no layoffs, perhaps extending this assurance to limited-term as well as permanent employees.

Regarding capital investment, the city has already been spending some funds every year to replace the current models of collection vehicles as they wear out. These funds can obviously be redirected towards automated collection vehicles. The city can generate cash flow to support additional investment within the next fiscal year by freezing hiring of new refuse workers to replace those who leave, by lengthening existing manual routes, and by shifting workers not needed to support automated or lengthened manual routes to reduce the overtime expense. These changes alone are likely to generate between \$1 and \$1.5 million for capital investment through the course of a year. Of course, given the potential benefits of automation in freeing up staff from their current routes, the city could choose to supplement these funds with additional monies.

On the cost side, the city is likely to be able to reduce the level of its cash outlays over the next several fiscal years by leasing the automated trucks, and perhaps the containers as well. If leasing for both items is arranged, the city may be able to meet its annual capital cost beginning with the first year of implementation. In subsequent years, savings would begin to accrue until the full level of projected annual savings is eventually reached.

Parks and Recreation

In Parks and Recreation, the major recommendation to re-deploy park maintenance staff may require a minimal investment in vehicles or other transportation. Even if all the vehicles needed were purchased outright, savings in the first year would still be positive. Once again, however, leasing is likely to be a more attractive option if cash is constrained.

Recommendations to improve planning and communication will also require very limited investments in the context of the department's overall budget.

PRIORITIES FOR FURTHER ASSISTANCE AND STUDY

One of the objectives of this reconnaissance study has been to identify areas that would benefit from further study. Chapters IV through VIII of this report list a number of areas meriting further attention and study within the five departments that were the focus of this review. In considering priorities for further study, we have also considered a) what other city departments would merit from a focused review, and b) what implementation challenges raised by this report's recommendations suggest a need for our assistance.

In considering these needs, we have concluded that implementation assistance in several critical areas should be the highest priority, because it will do the most to enable the city to achieve substantial savings and improvements the most quickly. Examples of such critical areas include implementation of refuse collection automation and detailed planning for partial Fire and EMS integration. Examination of other departments, and further analysis of issues raised in this report, should be of secondary priority. A prioritized list of all these items is presented in Exhibit X-3.

City and County of Honolulu

PRIORITIES FOR FURTHER ASSISTANCE AND STUDY

FIRST PRIORITIES	
OPPORTUNITY	COMMENTS
Refuse automation: Implementation assistance Experimental Fire/EMS integration: Implementation assistance Parks and Recreation strategic planning: Implementation assistance Align criminal justice system: Facilitate/implementation assistance Police overtime: Explore in more detail	Major savings potential; need to reach agreement with UPW Major savings potential; complex coordination required Opportunity to improve service and rationalize fees Opportunity to bolster deterrence; need for cost effective approaches Substantial expenses involved
SECOND PRIORITIES	
OPPORTUNITY	COMMENTS
Department of Transportation Services review Building Department review Data Systems Department review Land Utilization Department review	Major operating department; potential for improvement already identified in the planning function Mid-sized department with heavy operations focus Critical service provider to operating departments; signs of strain in supporting new applications Critical service provider to the public; heavy process focus