Final Report

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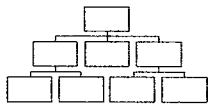
CITY OF PORTLAND
SPAN OF CONTROL STUDY



Prepared for the City of Portland Audit Services Division by
Public Knowledge, Inc. and The Kemp Consulting Group

ACKNOWLEDGMENTS

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Several organizations external to the City of Portland contributed as well. We are grateful for the assistance of the five cities, the two counties, and the State of Oregon departments that contributed comparative data. In particular, we appreciate the help of the Portland General Electric Company and the Standard Insurance Company, two private businesses that consented to interviews and provided important information. Their civic commitment to assist in this study is admirable.

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I. Introduction

At the request of the City Council, the City of Portland Audit Services Division directed this span of control study, performed under contract by Public Knowledge, Inc. and the Kemp Consulting Group. The principal objective was to identify opportunities to increase span of control ratios for managers and supervisors or to reduce the number of management layers in the City organization.

The study analyzes certain Citywide information, but focuses primarily on a selected sample of functional work groups which include 42 percent of the City's personnel. Certain major functions of the following offices and bureaus are included:

- Police
- Fire
- Transportation
- Parks
- Environmental Services
- Buildings
- Finance and Administration

"Span of control" is the number of subordinates reporting directly to one manager or supervisor. The "ratio of non-managers to managers" is the number of non-managers divided by the number of managers. "Layers of management" is the number of levels in the organization including the top executive (Mayor and Commissioners in Portland) down through the lowest level of supervision; the line worker level is not counted.

II. Literature Review

Several factors determine the optimal span of control; there is no single "best" number.

Historically, organizational theorists and practitioners searched for a single optimal structure and span of control. More recent research concludes that there is no simple, single number. The literature identifies several factors to consider in determining appropriate spans (for example, the nature of the work, the degree of coordination required, etc.); the optimal span for a group depends, in part, on these factors. There are important differences between the private and public sectors that may cause the public sector to have a more

hierarchical management structure.

The contemporary literature advocates broad spans and few layers.

Layer reduction (elimination of hierarchical levels) has been most noteworthy in the private sector. The layer reduction trend is supported by contemporary management theorists; certain experts recommend spans of control of 15, 25, or more, and no more than five layers of management.

The public sector's most visible efforts in this movement can be seen in a recommendation of the Clinton Administration's National Performance Review (NPR) which seeks to reduce layers in the federal government. The National Commission on State and Local Public Service has also recommended layer reduction, and certain cities have established goals for spans and layers.

The hierarchy reduction trend is complemented by two other trends: the decentralization of information technology and greater reliance on self-directed work teams. These trends mean that the role of middle managers is changing.

Two recent empirical studies provide useful comparative data. The Conference Board studied 105 units in 25 companies and found a median span of 7.8 and a median of five management layers. Larger units had more layers, and broader spans correlated with fewer layers. The second study, just completed by the King County (Washington) Auditor, found that King County has an average of five management layers (six organizational layers counting the line worker level), an average span of control of 5.6 subordinates, and a ratio of 4.5 non-managers per manager. The Auditor concluded that the ratios were lower and the number of layers was higher than recommended in the contemporary management literature.

The literature identifies several benefits of wider spans of control and flatter organizations; for example, better communication and decision making, improved motivation and morale, and cost savings. However, several cautions and caveats are described in the literature as well; for example, a recurring theme is that de-layering will not work unless decentralization and increased lower level autonomy are achieved.

Several authors advise that systematic analysis should precede span or layer adjustments. Tactics to help increase spans or reduce layers include training and team building, among others.

III. Findings

The City of Portland has narrower spans and more layers than the literature recommends.

The City of Portland has approximately five (5.0) non-managers per manager. This ratio varies widely among bureaus; it is lower for smaller bureaus. The average ratio of non-managers to managers for the sample groups in the study is approximately 5.4.

The average span of control for the City of Portland sample groups included in the study is 6.5 (span is calculated differently than the ratio of non-managers to managers, and is generally a slightly higher number). This span is notably lower than suggested in the literature. The average spans vary widely among the Portland study groups.

Several of Portland's offices and bureaus have six or more layers of management. The City has more layers than certain experts recommend, and has more layers than many private companies of comparable size.

The City compares more favorably to public organizations than to private companies.

Five other cities, two counties, the State of Oregon, and two private companies provided comparative data. These data enable comparisons of similar functions (for example, accounting, parks maintenance, police operations, etc.) across organizations. For several of the functions, Portland's ratios of non-managers to managers were as high as or higher than those of many of the other governments, but Portland's ratios were notably lower than those of the private companies (where comparable data are available). Portland also has more management layers than many of the comparison organizations.

IV. Conclusions

The City can achieve substantial benefits by reducing layers and broadening spans.

The City can eliminate at least one layer of management in many bureaus, and the spans of control of many middle managers and first-line supervisors can be broadened. The opportunities are highlighted by certain patterns in the organization; for example, there are clear "outlier" groups whose layers and spans differ greatly from the norms, and there are certain functions with multiple layers of middle management all having narrow average spans.

Conservatively estimated, there is a potential savings of about $0.5 million to $1.0 million annually from de-layering and span expansion in the study groups (which include 42 percent of the City employees).

Even if certain of the assumed changes could not be practically realized, the size of the opportunity remains significant. There would likely be significant additional savings for the other City groups not included in the study. According to the literature, the restructuring could also achieve other important benefits, such as improved communication and motivation.

The City should evaluate each situation on its own merits.

However, wider spans will not necessarily be desirable for all groups; the specific circumstances of each situation should be evaluated. Potential adverse consequences, such as workload impacts on the affected groups, can be avoided or mitigated if the restructuring is well managed. Top management commitment and a substantial investment in new approaches to management is needed.

There are several positive models to follow in the City organization itself -- particular groups have achieved wide spans, have de-layered, or have used self-directed teams to reduce hierarchy. The City of Charlotte, North Carolina, which implemented a "rightsizing" initiative, provides another useful model. The City should also look to the private sector for models and support.

V. Recommendations

The City Council should provide policy direction for the organization structure.

The City Council should:

- Determine whether the current number of layers of management and the average spans of control identified in this study are acceptable.
- Set organization structure goals.
- Take a position on the importance of employee involvement and self-directed teams.
- Designate a cross-bureau team to work on the implementation process.

The Office of Finance and Administration (OFA) should:

- Lead the cross-bureau team to establish organization structure guidelines consistent with the City's goals.
- Assure that he guidelines recognize situational differences that could cause structures to vary.
- Review the structure of each bureau, based on the guidelines, as part of the budget reviews scheduled to occur over the next two years.

- Lead the cross-bureau team to develop a proposal for how compensation will be determined for managers or supervisors who are reassigned because of restructuring.

Each office and bureau should:

- Develop a plan to address the City's organization structure goals and guidelines.
- Present their plans during the budget reviews scheduled for the next two years.
- Provide training to support employee involvement and self-directed work teams (if deemed appropriate by City policy).
- Fully implement changes to conform to the guidelines by July 1, 1996, at the latest.

The City Auditor should:

- Adopt and apply standards for organization structure.
- Report findings based on the standards, where structure is relevant to the scope of a particular audit.

I. INTRODUCTION

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A. Objectives

At the request of the City Council, the Audit Services Division directed this study of the City of Portland's span of control as part of ongoing efforts to strengthen management controls and the efficiency of City operations. The primary study objective was to identify opportunities for improving the spans of control of managers and supervisors. The study also assesses the number of management layers within the City. Specific objectives of the study included:

- Identify and describe span of control principles, practices, and standards in government and the private sector as found in current management literature.

- Identify current spans of control for the total City as well as span of control ratios and layers of management for a sample of City of Portland bureaus representing direct, support, and central services.

- Compare current City span of control ratios and the number of management layers to those of other organizations.

- Identify any opportunities to increase span of control ratios or reduce management layers in City programs/bureaus and estimate the related cost and service consequences of such changes.

B. Scope

The study included analysis of certain Citywide span of control information, but focused primarily on a selected sample of functional groups within the City organization. The selection of the functional groups for the more in-depth portion of the study applied the criteria listed below:

- Include programs from each of the City's major service areas:

  - Public Safety
  - Parks, Recreation, and Culture
  - Public Utilities
  - Community Development and Services

  - Transportation and Parking
  - Legislative, Administrative, and Support Services.

- Cover a diverse cross-section of functions (for example, operations, maintenance, and administrative groups).

- Include direct, central, and support services.

- Include functional areas with extrapolation potential (that is, ones similar to organizational units not included in the study).

- Select functional areas with available comparables in other public and private sector organizations.

As a result, the study reports on 24 functional groups within seven offices/bureaus. These 24 functional groups represent over forty percent of the total City employees and include 333 supervisory units.

The functional groups and number of full-time equivalent (FTE) employees selected from within these offices/bureaus are outlined in Exhibit I-1 on the following page. Appendix 1 includes detailed organization charts from each of these groups. Because of the high percentage of employees and the broad range of functions included, the selected groups are sufficiently representative to allow generalization of the sample findings to the City as a whole (although the bureaus included in the study are larger, on average, than those not included).

C. Methodology

The study applied several methods, as summarized briefly below. Additional information on the study methodology is presented in the appendices:

- *Review of management literature.* The purposes of this review were to identify span of control principles and practices and to identify existing standards or empirical data that might be applied to help evaluate the City of Portland findings. The literature review is described in more detail in Chapter II of this report.

Exhibit I-1

CITY OF PORTLAND
FUNCTIONAL GROUPS INCLUDED IN SPAN OF CONTROL STUDY

Bureau	Functional Groups Reviewed	FTE Included
Police	Operations Branch	
	Fiscal Services	
	Data Processing	
	Total in Sample:	**573**
Fire	Emergency Operations	
	Accounting Services	
	Information Services	
	Total in Sample:	**539**
Transportation	Street Maintenance Division	
	Street Cleaning (Maintenance Services Division)	
	Transportation Operations Division	
	Sanitary Systems Division	
	Finance Section (Finance Division)	
	Total in Sample:	**390**
Parks	Operations Division	
	Accounting (Administrative Services)	
	Information Services (Administrative Services)	
	Total in Sample:	**170**
Environmental Services	Maintenance Engineering (Sewerage System)	
	Wastewater Treatment	
	Accounting (Business Operations)	
	Information Services (Business Operations)	
	Total in Sample:	**191**
Buildings	Plan Review and Permits	
	Residential Inspection Services	
	Commerical Inspection Services	
	Budget and Finance (Administrative Services)	
	Total in Sample:	**138**
Office of Finance and Admin.	Accounting Division	
	Computer Services Division	
	Total in Sample:	**79**
	Subtotal:	**2,080**
	Total City Full-Time Equivalents (FTEs) [1]	**4,953**
	% FTE Covered	**42%**

NOTE [1]: From January-February 1994 personnel data; part-time positions are pro-rated to FTE; does not include the Portland Development Commission

- *Analysis of Citywide data.* The City's personnel information system includes classification information on each employee. With the assistance of the Bureau of Personnel Services, we analyzed these data to ascertain the ratio of non-managers to managers for each City bureau.

- *Review of organization charts.* Each bureau prepared organization charts for the 1994-95 budget process. The Bureau of Financial Planning provided these charts, which formed a starting point for the spans and layers analysis of the functional groups selected for in-depth study. The level of detail and accuracy of these charts varied, however, so further data collection was required.

- *Interviews of bureau personnel.* To refine the organization charts and to collect additional relevant information, we interviewed management personnel in each of the functional areas included in the study sample. A copy of the interview guide appears in Appendix 2.

- *Completion and analysis of questionnaires.* We developed a questionnaire to evaluate each functional unit in the sample in relation to several factors identified in the management literature as determinants of span variation. Various personnel within the participating bureaus provided their responses to this questionnaire. City budget and audit staff who had direct experience with organizational units included in the study also responded, to help validate the responses from the personnel internal to the study units. We reviewed the responses to identify situations where the existing spans of control might merit particular attention. The questionnaire and more detail on the approach appear in Appendix 3.

- *Compilation of database and statistical analyses.* We used the refined organization charts, interview information, and questionnaire responses to prepare a database for each supervisory unit included in the study. We developed various summary statistics for the organizational information, including computations of ratios of non-managers to managers, spans of control, and layers of management. A database listing is included as Appendix 4.

- *Collection and analysis of comparative information.* Five other cities of similar size to Portland, two Northwest counties, the State of Oregon, and two large local businesses participated in the study. The cities were selected because they have similar populations, service area densities, and costs of living to Portland, and are

frequently used in City of Portland comparisons. The other organizations were selected because of their geographic proximity, ready availability of data, and willingness to participate. The participating organizations provided personnel data and organization charts that enabled computation of certain statistics for functional areas comparable to the functional groups included in the study sample for Portland. The participants included:

- City of Charlotte, North Carolina
- City of Cincinnati, Ohio
- City and County of Denver, Colorado
- City of Kansas City, Missouri
- City of Seattle, Washington
- Multnomah County, Oregon
- King County, Washington
- The State of Oregon
- Portland General Electric Company
- Standard Insurance Company.

D. Key Definitions

It is important to define several terms that are used in this study, as described below:

- *Directors, managers, mezzanine mangers, supervisors, and lead workers.* For most of the key statistics used in the report, the study counts directors, managers, "mezzanine managers" (typically specialists who supervise two or fewer employees), and supervisors as "managers." That is, except in certain cases where we wish to highlight a distinction, we use the term "manager" to include both supervisors and management layers above supervisors. Management and supervisory positions were counted fully as managers even in those cases where a portion of duties may be non-managerial (for instance, if 15 percent of a manager's time was estimated for non-managerial activities, we still counted the position fully as a manager). Represented personnel in Police and Fire were counted as managers where they have supervisory responsibilities (for example, Police sergeants). The management line is drawn below supervisors. That is, lead workers and all other non-supervisory personnel are included in the counts of non-managers. We found relatively few lead workers in the City of Portland units we studied, and there were only a limited number of instances where the judgment call to classify a position as a

manager or a non-manager was difficult. The definitions applied in this study for these terms are shown in Appendix 5.

- *Personnel.* This term includes all workers in a particular organizational unit, whether they are managers or non-managers.

- *Full-time-equivalents (FTEs).* This is the number of full-time personnel, plus a proration of part-time personnel. For example, if a person works half-time, he or she is counted as one-half FTE. For the City of Portland, all full-time personnel were counted, whether they had either permanent or temporary status. Depending on the purposes of particular analyses in this report, part-time or seasonal FTEs were sometimes counted and sometimes not; the report seeks to make clear which approach was taken where this information is relevant.

- *Span of control.* This is the number of subordinates reporting directly to one manager or supervisor. Either management or non-management personnel may be included in the count of subordinates (some managers supervise other managers or supervisors). For example, if two supervisors and three non-management personnel report directly to a particular manager, that manager's span of control is five.

- *Ratio of non-managers to managers.* This is a simplified span of control measure, calculated as the number of non-managers in an organization unit divided by the number of managers and supervisors. The measure will typically be lower than the span of control ratio because managers or supervisors who also may be subordinates of other managers are not counted in the numerator. For example, in a unit with two supervisors and three non-management personnel reporting directly to a particular manager, there are three non-managers and three managers (unit manager plus two supervisors), yielding a ratio of one-to-one. This statistic is used in the study in order to provide a basis for comparisons among organizations where more detailed information necessary to determine true spans of control was not readily available.

- *Layers of management.* This is the number of management levels in an organization including the top executive down through the lowest level of supervision. In the City of Portland, we counted the Mayor or Commissioner in charge of a particular area as "layer one," the director reporting to the Mayor or Commissioner as "layer two," and so on down through the chain of command. For

the comparison organizations, we counted the chief executive as "layer one" -- for example, the mayor in a strong mayor form of government, the city manager in the city manager form, and the CEO in a corporation. We did not count the non-management level at the bottom of the chain in this statistic; only the management layers are counted. Thus, an organization with six levels, for example, has five layers of management. We found a lack of clarity in the literature on this point; some organizational analysts appear to include all levels when they count layers, and others appear to count just the layers of management. There also appears to be some inconsistency in how various analysts count the top executive layer. Therefore, one must be careful in comparing a particular organization to stated standards or norms for this statistic in order to assure that the comparison is "apples to apples."

- *Office or bureau.* These are the highest levels of organization within the City of Portland below the Mayor or Commissioner level. Most often this level is a bureau, but in some cases an aggregated "office" level contains multiple bureaus (the Office of Transportation and the Office of Fiscal Administration).

- *Functional group.* We use this term to apply to intermediate parts of the organization typically, but not always, less aggregated than a bureau. The functional group usually includes several supervisory units. The supervisory units included generally cohere because of closely related missions and functions. In the City of Portland, functional groups may be called divisions, branches, sections, or something else. The functional groups included in the organization sample for this study were identified above in Exhibit I-1. Examples include the accounting functions in various bureaus, the street cleaning function within transportation maintenance, etc.

- *Supervisory unit.* This is a group including a manager or supervisor and his or her direct subordinates. For example, the group of a manager with two supervisors and three non-management personnel reporting directly to him or her constitutes a supervisory unit. The personnel below the two supervisors that report directly to those supervisors are not part of this supervisory unit, but rather belong to the respective units headed by the two supervisors. Consequently, mid-level managers and supervisors belong to two supervisory units, the one they supervise or manage, and the one their direct bosses manage.

II. LITERATURE REVIEW

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A. Introduction

We conducted a literature search to identify span of control principles and practices, as well as relevant empirical studies and possible benchmarks. We pursued several avenues to identify relevant literature and studies, including:

- Library research for relevant books and periodical articles
- On-line database searches (Knowledge Index and limited Internet search)
- Contacts with relevant associations and experts
- Contacts with other city and public organizations.

Given time and budget constraints, the search was highly selective and not exhaustive. However, we believe that the reported findings fairly summarize the state of the current literature most relevant to our topic.

We synthesized the results of the literature search into the following categories:

- Organization Design Theory
- Current Trends
- Empirical Studies
- The Advantages and Consequences of Flattening Organizations
- Prescriptive Advice

The key findings related to each of these categories are summarized on the following pages. The summary is necessarily simplified to achieve brevity and communicate the main points. A bibliography is included at the end of the report.

B. Organization Design Theory

An organization structure is a means to an end.

Structure should help an organization achieve its objectives. Business historian Alfred Chandler appropriately emphasized that an organization's structure should follow its purpose and strategy (Hrebiniak and Joyce, 68). However, the tendency of many organizations is to allow their structures to evolve over time, rather than to systematically plan and adapt the structure to meet changing conditions (Bellis-Jones and Hand, 20). Business consultant Robert Tomasko has observed that, "Most organization structures better represent their companies' histories than their promise" (Tomasko, 1993, 17). One possible, and frequent, consequence of this unplanned evolution is that the organization's structure can become a barrier instead of a means to achieving high performance (Bellis-Jones and Hand, 20-21).

Historically, organizational theorists and practitioners searched for a single optimal structure and span of control.

One of the classic questions in organizational theory is "How many people can one individual manage?" Answers have varied. For example, Napolean felt that five direct reports was the most desirable span, while Clausewitz thought ten was most appropriate (Tomasko, 1990, 157). If there was a median or mid-range consensus among the single number advocates, six would probably be the representative number (see, for example, Tomasko, 1990, 158; Hrebiniak and Joyce, 147; King County Auditor, 6).

More recent research concludes that there is no simple, single number.

We found a general consensus in the recent literature that span of control analysis cannot be applied in a purely mechanical way. Leading theorists agree that the most appropriate span of control should be selected by evaluating and balancing the particular purposes and characteristics of an organizational unit. The appropriate span of control varies among organizations and even among departments and functions within a single organization.

The literature identifies several factors to consider in determining appropriate spans.

Among the span determining characteristics we found most commonly cited are those shown in Exhibit II-1 on the following page (Tomasko, 1990, 159-169; Hrebiniak and Joyce, 149; McClenahen, 34; Nelson, 53).

Exhibit II-1

FACTORS TO HELP DETERMINE APPROPRIATE SPANS OF CONTROL

Lower Spans		**Higher Spans**
Complex	Nature of the work	Not complex
Different	Similarity of activities performed	Similar
Not clear	Clarity of organizational objectives	Clear
Fuzzy	Degree of task certainty	Definite rules
High	Degree of risk in the work for the organization	Low
High	Degree of public scrutiny	Low
Weak	Supervisor's qualifications and experience	Strong
Heavy	Burden of non-supervisory duties	Light
High	Degree of coordination required	Low
None	Availability of staff assistance	Abundant
Weak	Qualifications and experience of subordinates	Strong
Dispersed	Geographic location of subordinates	Together
More Supervisors		**Fewer Supervisors**

There are important differences between the private and public sectors that may cause the public sector to have a more hierarchical management structure.

James Q. Wilson identifies several factors that cause public and private management to differ. Public managers are more process oriented because it is easier to hold them accountable for processes than it is for outcomes (for example, police chiefs rarely lose their jobs because the crime rate is up, but they can if someone is beaten up). Because there are potential external intervenors, equity may be more important than efficiency, and because of the degree of public scrutiny they receive, public managers are made risk averse. Standard procedures and rules are developed to reduce the risks of violating contextual goals. There is a tendency in the public sector to employ more managers to observe and enforce rules; discretionary authority tends to be pushed toward the top (Wilson, 131 ff.).

C. Current Trends

We noted three current management trends, in particular, that are relevant to this span of control study: (1) layer reduction; (2) decentralization of technology tools and information; and (3) greater reliance on self-directed work teams. Each of these trends involves a changing role for managers and supervisors and has span of control implications.

1. Layer reduction

Layer reduction (elimination of hierarchical levels) has been most noteworthy in the private sector.

While the phrase "flattening the organization" best characterizes this movement, other associated phrases include "downsizing" and "rightsizing." The impetus for the general trend is often cost cutting; however, desires to boost productivity and get closer to the customer have also fueled layer reduction (McClenahen, 31). Middle management has been the target in the majority of organizations undertaking layer reduction. Fewer middle managers have resulted in wider spans of control. Notable private sector examples of this trend include:

- General Electric made a sustained effort throughout the 1980s to reduce its hierarchy; this effort continues in the 1990s (Lawler, 62).

- General Motors has employed work teams to reduce hierarchy in several of its operations, including its Livonia, Michigan plant where the second level of supervision (general foreman) was

entirely eliminated and the number of first-level supervisors (foremen) was reduced by 40 percent (Peters, 360).

- Eastman Kodak Company reduced 13 levels of management to four levels (Hattrup and Kleiner, 28).

These three "big name" examples only scratch the surface of a private sector hierarchy reduction trend well documented in the business headlines of the past several years. Documented examples of layer reduction or span broadening are more scarce for the public sector, but some are available. For instance:

- The Naval Aviation Depot of the Marine Corps Air Station, Cherry Point, North Carolina, eliminated several layers of hierarchy in one of its departments. The Eastern Region of the U.S. Forest Service restructured eleven separate hierarchies into five teams (U.S. General Accounting Office, 31).

- The Correctional Service of Canada moved to a flatter organization, with managers who formerly controlled seven or eight subordinates now leading up to 24 (Thomas, 36).

The layer reduction/span widening trend is supported by contemporary management theorists.

The King County Auditor cites several authorities on reducing spans of control in its recent span of control study. The following highlights are quoted directly from the report ("Management Study: Span of Control," 6):

- Peter Drucker pointed out that a low span of control leads to the "deformation of management: levels upon levels." Mr. Drucker led the way for contemporary management authors who believe that higher spans of control and reduced hierarchical layers could lead to improved management and organizational performance.

- James O'Toole, a professor of corporate strategy at the University of Southern California (USC) who conducted a study on spans of control, concluded that American workers generally appeared to be over-supervised. Based on his observation, there was an average of one supervisor to ten non-supervisors.

- Edward Lawler, founder and director of the Center for Effective Organizations at USC and author of The Ultimate Advantage, states that organizations should never have a span of control of less than 15, and that they should usually be higher.

- Tom Peters, a popular business author, recommends that well-performing organizations should operate with a minimum of 25 workers for each supervisor.

"Downsizing" expert Robert Tomasko references the work of researcher Elliott Jacques, who maintains that at most seven hierarchical layers are sufficient. Tomasko himself advocates "horizontal" organizations with no more than four or five layers (Tomasko, 1993, 132-133). Tom Peters insists on five layers as the maximum (Peters, 430). It is not clear that each of these or other organization analysts are counting layers the same way (for example, whether the employee level is included, or just managerial levels).

The public sector's most visible efforts in this movement can be seen in the recommendations of the Clinton Administration's National Performance Review (NPR).

The National Performance Review's (NPR) initial round of proposals presented to Capitol Hill in October, 1993, recommended the reduction of 12 percent of the federal civilian employees, or 252,000 jobs, via a reduction in the layers of management (Shoop, 10). Vice President Gore stated a goal of increasing the ratio of line employees to managers or supervisors from seven-to-one to fifteen-to-one in the next five years (cited in King County Auditor, 8).

However, a memo from President Clinton to all agency heads in September, 1993, requested them to prepare streamlining plans, but only spoke of reducing the numbers of managers and supervisors in the executive branch civilian workforce. The memo did not explicitly mention the reduction in layers of management. Some public administration experts believe that unless the layers are eliminated along with the people, flexibility, accountability and creativity in government will remain elusive goals (Shoop, 10).

The National Performance Review has its critics. One commentator, Ronald Moe of the Congressional Research Service, noted that the report's asserted existing seven-to-one employee-to-supervisor ratio in the federal government is not factually supported, and questioned the value of this statistic given the variety of missions and functions in the federal service (Moe, 114).

Another blue ribbon commission has recommended layer reduction.

Last year the National Commission on State and Local Public Service (The "Winter Commission") issued a report, "Hard Truths/Tough Choices." One of the major recommendations is to:

> Flatten the bureaucracy by reducing the number of management layers between the top and bottom of

> agencies and thinning the ranks of managers who remain.... The commission believes that most agencies can cut their management layers significantly, without decline in efficiency. Just the opposite. The cuts should improve accountability and save money, while allowing most agencies to shift personnel to the front line (National Commission on State and Local Public Service, 51).

Certain cities have established goals for spans and layers.

The City of Charlotte, North Carolina has undertaken a "rightsizing" effort. In 1992, the City established a goal that each department would have a plan for reducing layers of management. Departments with more than 125 employees were to achieve five layers or less; 50 to 125 employees, three or less; and less than 50 employees, two layers or less (in counting layers in this context, Charlotte counted only management layers within a department; Charlotte did not count the city manager level above the department or the employee level; to assure comparability in data presented in subsequent chapters in this report, we counted the city manager layer where Charlotte information is shown). By March, 1993, 12 of 24 City departments had met the goal for their respective size category (City of Charlotte, 1992, 7; 1993, 78).

We also found that the City of Cincinnati, Ohio, Internal Audit Division has a standard relating to supervisory spans of control: "If a supervisory ratio falls outside the range of 1:4 to 1:8, is there some particular justification (e.g., complexity of operations, technical nature of work, repetitive tasks, etc.)?" (City of Cincinnati, 27).

The middle management reduction trend brings the value and role of the middle manager into question.

The downsizing trend does not mean that there is no role for the middle manager, but rather that the role is significantly changing. A Harvard business professor has stated, "Managerial work is undergoing such enormous and rapid change that many managers are re-inventing their profession as they go" (Rosabeth Moss Kantor, quoted in John Lorinc, 87).

2. Decentralization of technology tools and information

Information technology has been a key factor in the shifting of the role of middle managers.

Networks and workstations encourage decentralization and alter many managerial duties (Lorinc, 92). Subordinates can now directly receive and analyze information that they were formerly dependent on their supervisors or managers to transmit. One implication is that wider spans of control and flatter structures become possible. Certain

analysts believe that firms with strong information systems can do well with flat structures (Nelson, 56). Making the technology and information accessible to workers, not just to managers, supports participative management styles and further establishes new requirements for the role of supervisors and managers, as discussed below.

The decentralization of information supports worker involvement.

Technology may be applied either to increase management control over the activities of subordinates, or to strengthen subordinates' capabilities to act without extensive management direction or review (Zuboff, for a book length treatment of this theme). Decentralization and employee involvement entail ceding authority from higher managers to lower managers and workers (for public sector examples, see U.S. General Accounting Office, 30-33). Decentralized information access not only fosters greater participation within a given work unit, but facilitates cross-unit teamwork as well (Lorinc, 92).

3. Greater reliance on self-directed work teams

The emerging new managers do not fit the classic mold of the traditional supervisor in a hierarchical organization.

Traditionally, a manager's responsibilities have included his or her own workload and a supervisory workload, with the mix between the two varying based on the specifics of his or her situation (Dale, 77). The overall orientation was toward close control of the work of subordinates. In contrast, the following list highlights characteristics of the new type of manager (Janger, 9; Lorinc, 86-87):

- Managers who manage work rather than people, and are known as "product managers," "team leaders," and "project managers, "
- Managers who manage part-time, spending the rest of their time "producing" professionals
- Managers who supervise outside contractors and, thus, show up on the organization chart as managers without subordinates
- Managers who provide technical support to first-line supervisors
- Managers who delegate responsibility and recognize that they do not have to control everything
- Managers functioning as coaches rather than bosses
- Managers with added accountability who focus on managing the

operation according to the organization's goals and strategy.

As the traditional supervisory model changes and spans of control widen, team building becomes critical.

Not only the managers, but all employees, need to adjust to the notion that they share both authority and responsibility (McClenahen, 34). In self-directed teams, the employees themselves become responsible for making decisions on how the work will be accomplished. In teams each member is mutually responsible for accomplishing the shared objectives, whereas in normal work groups each member is responsible only for his or her own work (King County Auditor, 11).

Edward Lawler, an advocate of employee involvement, contends that:

> ...when individuals at the lowest level of the organization become involved in the business, they can do much of the work that is typically done by a supervisor, making the supervisor unnecessary and leading to superior performance of the work. Often employees can coordinate their own work better than supervisors can. And when they feel responsible for a whole and meaningful piece of work, employees are motivated to perform better and in more positive ways than if they are rewarded and punished by a supervisor. I am suggesting that with a flat hierarchy, business involvement can be substituted for rules and controls (Lawler, 61-62).

The inverse of this Lawler position (that flat hierarchy makes involvement possible) is stressed in a recent public sector monograph which concludes that "...increasing spans of control and reducing layers of management is achievable through self-management experimentation" (Martin). Flat hierarchy and high involvement or team approaches appear mutually supportive.

Relatively few organizations appear to have made the commitment to training that may be necessary to help make team management successful.

Team members may be given such responsibilities as work scheduling, quality control, and employee selection, which are typically performed by managers, supervisors, or specialists in traditional organizations (Lawler, 310). However, team members may need new skills to work in this new type of organization -- analytic and group process skills, for example. To the extent that there is dissent in the literature about the desirability of self-directed teams, it is partially because of skepticism that employee groups will be skilled at managing themselves and that management will fully support participative approaches (Smither, 40-44).

The skepticism may be well founded. For example, the Oregon Economic Development Department reports "...most [Oregon] employers are not implementing high performance work organization practices or investing in training employees to implement these practices... [only] between 3% and 17% of Oregon employers have implemented high performance work organization practices" (Oregon Economic Development Department, 14).

D. Empirical Studies

Two recent empirical studies provide useful comparative data.

We searched the literature not only for organization theory and trends related to management spans and layers, but also for empirical evidence to provide benchmarks or norms to apply as points of comparison to City of Portland data. We found only two recent comprehensive studies that appear directly useful: (1) "Measuring Managerial Layers and Spans," a research project directed by the Conference Board, an organization dedicated to improving the business enterprise system through a variety of forums and professionally managed research projects (Janger); and (2) a very recent project conducted by the King County (Washington) Auditor, "Management Study: Span of Control." We also found a 1980 journal article which reviewed the empirical literature on relationships between spans of control/management layers and performance; this article concluded that it was difficult to generalize from the prior research (Dalton, Tudor, et. al., 54-55). The Conference Board and King County studies are discussed briefly below.

1. Conference Board Study

The median span of control in the study organizations was 7.8, and the median number of managerial layers was five.

The Conference Board research project covered many organizations -- 105 units within 25 companies were included. The simple methodology used by the Conference Board involved the computation of an average span of control and a median number of management layers for the 105 units. These two statistics became the "benchmark" to compare the companies and organizational units and to enable the researchers to quickly identify units whose structures deviated from the "norm." Benchmarks are an easily understood tool for marking progress over time.

The Conference Board found no universally applicable norm:

> Using a simple benchmark ... assumes that there is a "normal" span or layer benchmark around which all kinds of organizational units cluster. But experienced executives almost universally doubt such a norm exists. Most believe there are many norms, each for different kinds of units. Others reject the whole idea of norms; they believe improvement is always possible. ... The Conference Board data challenges the notion of any simple, universally applicable norm. ... But the data does appear to support the validity of norms for numbers of layers based on unit size. Also, analysis suggests that unit size, numbers of layers, and average spans are closely related -- irrespective of staff/operating, industry, and cultural differences (Janger, 6).

In the Conference Board sample, the number of layers in a unit correlated closely with unit size.

The study found that the number of layers increased with increases in the number of employees within the unit. This correlation is outlined below:

Less than 500 employees - 80 percent have 3 to 5 layers
500 to 1,200 employees - 70 percent have 4 to 6 layers
1,200 to 4,500 employees - median of 6 layers
Greater than 4,500 employees - median of 7 layers

The researchers also found a relationship between layers and spans in larger units.

The correlation between the number of layers and the unit's average span of control is summarized below:

Average span greater than 7.8 - 80 percent have 5 to 7 layers
Average spans less than 7.8 - 68 percent have 7 to 8 layers

While no simple span benchmark applies to all kinds of units, the study did find a clustering around two or three "normal" spans, what statisticians refer to as bi- and tri-modal distributions. Clustering occurred around spans of 5-6, 10-12, and around the mid-20s.

The Conference Board interpreted the existence of multi-modal distributions as a suggestion that the span differences represented different approaches to organization and systems of management. Examination of specific units showed a clustering by industry. It was further suggested that, because these multi-modal distributions even appeared in the same company, these differing patterns may have a lot to do with the way individual managers manage (Janger, 6-7).

The Conference Board acknowledged deficiencies in the sample, but still believes that the findings clearly support the validity of constructing and using layer benchmarks based on unit size and, for units with more than 1,200 employees, on average spans of control. As a norm that managers can shoot at, benchmarks can be used in a program for promoting good structuring practice among managers. Even greater benefits could be achieved through analysis of the factors that lead to broader spans of control and using that understanding to manage the structure of units and whole companies on a strategic basis (Janger, 8).

2. King County Auditor's Study

The scope and methods of the King County study and this City of Portland study are very similar. The King County Auditor measured spans of control and layers of management for the County as a whole and for particular County units, applying definitions that are reconcilable to definitions used in this Portland study.

The King County Auditor found the County's structure inconsistent with current management literature.

Several King County findings may be used as comparison points, although differences in organizational missions and functions must be taken into account. King County has an average of five management layers (six organizational layers counting the line worker level) and the average span of control is 5.6 subordinates (counting lead workers as managers; the King County Auditor counted leads as managers because of the nature of the positions and because of the high number of leads in the County). The overall ratio of non-managers to managers (including supervisors) in the Executive Branch is 4.5 to one (King County Auditor, 16 and 19). The study recommended that the Council determine if the County's organizational structure is acceptable, and suggested ways to broaden spans and reduce layers.

E. The Advantages and Consequences of Flattening Organizations

The literature identifies several benefits of wider spans of control and flatter organizations.

A representative list of potential hierarchy reduction benefits includes (Nelson, 50-51):

- Faster, more accurate communication due to fewer layers through which the information must pass
- Faster decision making

- Greater clarification of accountability and responsibility given the simpler organization
- Greater cohesion, dialogue, and participation attributed to delegation and shorter distances between management and the workers
- Increased flexibility and responsiveness to a changing environment
- Improved morale and motivation of the managers and workers because a flatter organization tends to be more egalitarian
- Cost savings through the shrinking of the administrative overhead
- Improved compensation for the remaining high performers or for newly created positions if the savings from the layer reduction are applied in this way.

Important caveats must be attached to the benefits, however.

The widening of spans of control and reduction of layers should invoke changes in an organization's management systems and culture (McClenahen, 34). Yet often an organization pursues a "business as usual" attitude despite the fact that significant changes have been made to the management structure. A list of caveats and concerns appears below:

- *A recurring theme found in the literature is that de-layering will not work unless decentralization and increased lower-level autonomy are achieved.* A reduction in the numbers of management layers without decentralization of authority overloads top management with operational decisions, clogs the decision-making channels, and frustrates the organization's lower levels. Management simply must shift power down the hierarchy and stimulate independent decision making for a flatter organization to achieve the aforementioned benefits (Nelson, 54).

- *Changes in management layers and spans are best accompanied by an assessment of the organization's relevant work processes.* An illustration of this point is an organization that reduces levels and headcounts without altering the amount of paperwork required to make decisions and track performance. The people remaining in the organization may be overwhelmed by the amount of work and may decide on their own what to and what not to do (Sheridan,

20). An evaluation of an organizational unit's work processes may yield non-value added work which could be eliminated to ease the workload on the remaining staff (Rich and Bailey, 30-34). One consultant, having reviewed why most downsizings and restructurings fail, advises "start with the work" itself rather than the structure when initiating change (Tomasko, 1993, 23 ff.).

- *Elimination of layers and broader spans can be hard on those managers left in place.* Assuming no changes have been made in the workload, a trap some organizations fall into is failing to appropriately compensate the remaining staff for the additional workload. Similarly, some organizations fail to adjust the formal redefinition of job titles and job descriptions to fit the changed work (Nelson, 54). Even if such changes are made, the impacts on the manager may include harder work, career plateauing, and additional stress, particularly if the manager's style is very "hands on" (McClenahen, 35). De-layering can potentially leave a vacuum in the middle -- without mid-management, mid-level problems may be ignored, with top managers too busy and bottom employees without the necessary perspective (Tomasko, 1993, 128).

- *One potential risk is the loss of talented and experienced managers and workers.* "De-layering a large, integrated organization may denude it of the very competence it seeks. When adverse effects of this emerge, organizations have been known to panic and build up new posts, not necessarily in the best way, having lost the experience of those who had departed in the clearout" (Eccles, 106).

- *There are practical limits to spans of control.* Subordinates need "air time" with their manager or supervisor (McClenahen, 34). If spans are too broad, communication can break down. One observer notes the functional but fragile social networks that hierarchical layers and limited spans support (Fraser, 10-11). As stated by another writer, "Imperfect as it may be, the underlying logic of the span of control was sensible in pointing out the limits to the number of different activities which could competently be administered by one superior.... The need to continue to monitor quality, honesty, and consistency means that supervision cannot sensibly be relaxed very far -- even if the subordinates want to be empowered rather than to be given clearer direction, leadership, and example." The same author proposed that the flat organization is not a natural form for organizations and that there will be an

inclination for a "flattened" organization to re-inflate in the future (Eccles, 106-107).

F. Prescriptive Advice

Several of the writers reviewed presented advice to organizations considering changes in spans of control and management layers. There were generally two groups of recommendations: (1) how to undertake span and layer analyses; and (2) how to implement span and layer changes. Each group is briefly summarized below.

Systematic analysis should precede span or layer adjustments.

One pair of authors suggested that an organization structure is an enabling device, such as an information system, and should be subjected to the same kind of cost/benefit analysis that is applied to other important decisions (Bellis-Jones and Hand, 20). For instance, some companies include a span of control and layer review when new positions are proposed so that newly created positions are tested against span and layer criteria (Janger, 8).

Key questions in a systematic span and layer analysis would include the following, for example (Nelson, 56-57):

- What is hoped to be accomplished by reducing levels?
- What can the bottom absorb; that is, can lower levels handle additional responsibilities?
- What are the consequences for other parts of the organization and for its customers?
- How will management implement changes; for example, top-down approach versus employee involvement?
- What trade-offs will be involved in reducing management layers and broadening spans?
- Is the organization willing to make the commitment and required investments in training, time, changed management systems, and role redefinition?

There are several proven tactics to increase spans or reduce layers.

A partial list of enablers to help implement span expansion and/or layer reduction includes (Janger, 9):

- Training or replacing managers who cannot delegate
- Introducing supportive systems of management (for example, work scheduling, performance measurement, etc.) and new business philosophies
- Making organizational units more geographically contiguous
- Upgrading telecommunications systems and promoting their effective use
- Promoting team building
- Hiring more competent staff and setting up training programs
- Creating organizational units in which the work of subordinates is either more self-contained or coordinated by people other than the manager.

One piece of cautionary advice is that a traditional public sector method of adjusting management staffing, attrition, may not be a good approach to adjusting spans and layers. Consultant Paul Firstenberg notes that "...attrition produces openings on a random basis and without regard for strategic priorities" (Firstenberg, 46).

The City of Charlotte encouraged "rightsizing" by planning a one year moratorium on pay reductions for transferred positions. Charlotte also reviewed its job classification system for possible impacts on its "rightsizing" objectives. (City of Charlotte, 1992, 7).

In summary, the literature suggests that organizations should continually analyze their structures.

Both businesses and public agencies should recognize that what constitutes a sound organization today may change with shifting missions and improvements in the technologies of communication, planning, and control (Janger, 8). One author has stated that organizations in the 1990s will "practice the craft of 'continual tinkering.' They will implement ongoing programs to monitor their organizations -- comparing structure with strategy -- and periodically make adjustments to bolster competitiveness, to prevent the accumulation of useless 'fat,' and to ensure the ability to respond swiftly to demands from the marketplace" (Sheridan, 15).

III. FINDINGS

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A. Citywide Analysis

1. Ratio of Non-Managers to Managers

The City of Portland has about five (5.0) non-managers per manager.

Based on early 1994 personnel statistics, the City has 4,132 non-management personnel and 821 managers or supervisors, for a total of 4,953 full-time-equivalent positions (reflecting 5,911 personnel, including part-time positions). This translates to a ratio of 5.0 non-managers per manager. More information on the derivation of this ratio appears in Appendix 6.

The number of non-managers per manager varies widely among bureaus.

The non-managers per manager ratio varies among the offices and bureaus from a low of 1.0 to a high of approximately 8.7. Only three bureaus, representing 16 percent of the City's FTEs, have a ratio above seven. Eighteen of the 24 offices/bureaus, with approximately 74 percent of the City FTEs, have a ratio of less than six.

Exhibit III-1 on the following page, compares the non-managers per manager ratios among offices and bureaus within the City of Portland with 50 or more personnel. The majority of these offices and bureaus exceed the City average of 5.0 non-managers per manager. However, The Bureau of Fire, the Office of Finance and Administration, and General Services fall below the Citywide average.

Exhibit III-2 shows the non-managers per manager ratios for offices and bureaus with less than 50 personnel. All of these bureaus are below the Citywide average of 5.0 non-managers per manager.

Exhibit III-1
Non-managers to Managers Ratio for Bureaus with More than 50 Personnel

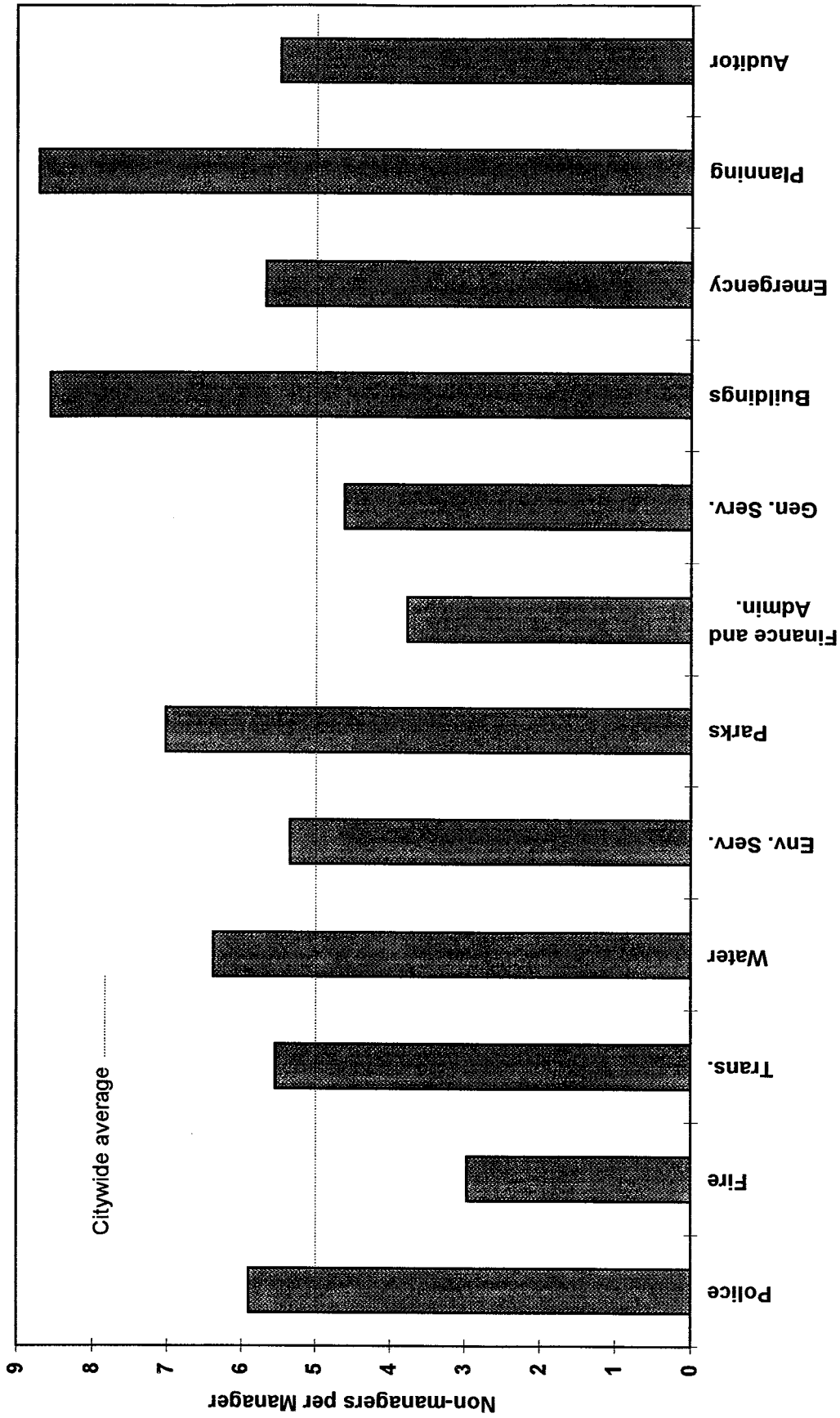
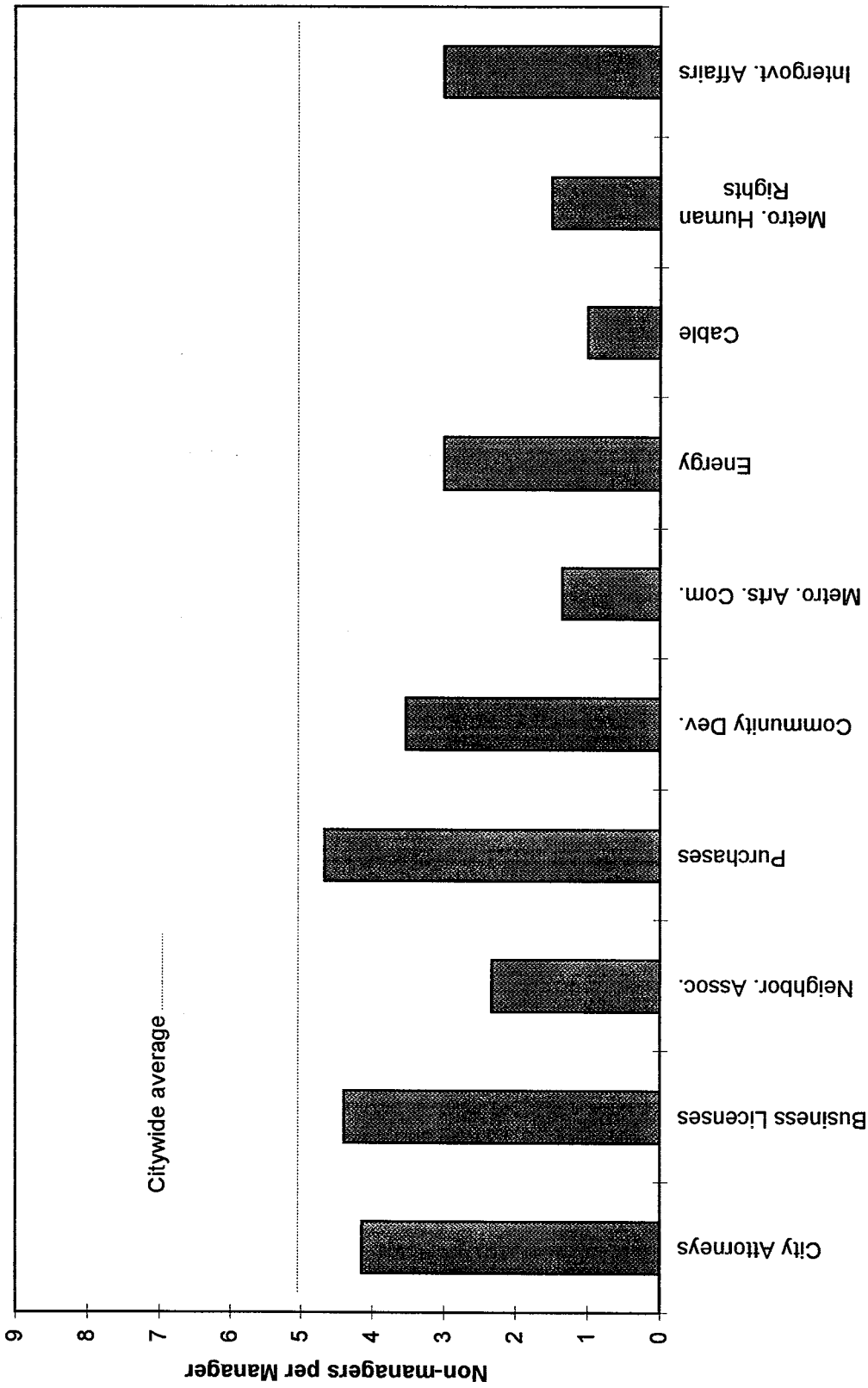


Exhibit III-2
Non-managers to Managers Ratio for Bureaus with Less than 50 Personnel



B. Internal Overview of Selected Functional Groups

1. Overall Analysis

The average span of control for the study groups is 6.5.

In addition to the Citywide analysis, the study included a more in-depth analysis of 24 selected functional groups within the City (see Exhibit I-1 in Chapter I). Because more detail was collected for these study groups, it was possible to develop span of control ratios for the groups that were included. The ratio of non-managers per manager discussed above is different than the span of control ratio because other managers, as well as non-managers, are included in the spans of many managers. Typically, the span of control is slightly higher than the ratio of non-managers to managers. For example, the ratio of non-managers to managers for the study groups is 5.4, compared to the study group average span of control of 6.5.

The average span of middle managers, in particular, is relatively low.

The average span for the directors of those offices and bureaus included in the study is 6.0. Middle managers have an average span of 5.4. The average span of the first-line supervisors in the study groups is 7.1. About half (53.3 percent) of the middle managers and about half (50.2 percent) of the supervisors have spans of four or fewer direct subordinates; the supervisors figure declines to about 18 percent if Fire Emergency Operations are excluded. Exhibit III-3 on the following page presents the average span for each type of manager by organization layer within the City.

A high percentage of management personnel are at the sixth and seventh layers.

Exhibit III-3 also summarizes the distribution of directors, managers, and supervisors in the study groups by layer of management. Most (68 percent) of the management personnel (directors, managers, and supervisors combined) are at the sixth and seventh layers of management. Among the first-line supervisors, over 83 percent are at layers six and seven.

The study group average span of control is notably lower than suggested in the literature.

As discussed in the preceding literature review chapter, contemporary management thinkers advocate broad spans of control. While respected analysts recognize that the appropriate span will differ based on circumstances, several prescribe general guidelines, such as:

- Ten is too low (O'Toole)
- Greater than 15 (Lawler)
- Minimum of 25 (Peters)

Exhibit III-3

Management Spans by Layer

Management Layer	DIRECTORS			MANAGERS			SUPERVISORS			TOTAL MANAGEMENT		
	No. of FTE	% Total FTE	Average Span	No. of FTE	% Total FTE	Average Span	No. of FTE	% Total FTE	Average Span	No. of FTE	% Total FTE	Average Span
Layer 2	7	100%	6.0	0	0%	---	0	0%	---	7	2%	6.0
Layer 3	0	0%	---	15	14%	4.6	0	0%	---	15	5%	4.6
Layer 4	0	0%	---	19	18%	6.0	19	9%	9.5	38	11%	7.8
Layer 5	0	0%	---	31	30%	6.0	18	8%	9.1	49	15%	7.1
Layer 6	0	0%	---	40	38%	4.9	122	55%	6.2	162	49%	5.9
Layer 7	0	0%	---	0	0%	---	62	28%	7.5	62	19%	7.5
Total	**7**	**100%**	**6.0**	**105**	**100%**	**5.4**	**221**	**100%**	**7.1**	**333**	**100%**	**6.5**

Even allowing an adjustment for the possibility that public sector constraints may contribute to narrower spans, there is a wide gap between the City's spans and those that many theorists and practitioners believe to be desirable.

Portland has more management layers than certain experts recommend.

Two of the organization experts cited in Chapter II, Tom Peters and Robert Tomasko, recommend no more than five layers. However, it is unclear whether they include the line worker level among the layers. The Portland statistics on organizational layers included in this chapter represent layers of management and, thus, do not include the line workers in the layer count.

The City also has more layers than many private companies of comparable size.

In its study of 105 units in 25 companies, the Conference Board (see Chapter II) found that in units with 500 to 1,200 employees, 70 percent had four to six management layers. Within the City of Portland, only the Police and Fire bureaus fit into this size category (see the following Exhibit III-4). Both bureaus exceed the private sector norm with seven management layers each.

For units with less than 500 employees, the Conference Board report stated that 80 percent of the organizational units had three to five layers of management. All of Portland's offices and bureaus, with the exception of Police and Fire, have less than 500 employees. Of the groups included in the study, only the Bureau of Buildings and centralized accounting and data processing functions within the Office of Finance and Administration have no more than five layers (see Exhibit III-4; although some functions in the other study bureaus may have five or fewer layers, in each there is at least one function with more than five).

2. Comparison of Functional Groups

The sample groups were organized into two categories for the purpose of further analysis: groups whose responsibilities are primarily operations and maintenance, and groups whose responsibilities are primarily administrative. A listing of the groups included in each category and selected organization statistics for each group are shown in Exhibit III-4.

Exhibit III-4

City of Portland

Summary Statistics for Selected Functional Groups

Functional Group		FTEs	Span of Control Ratio	Non-managers per Manager Ratio	Deepest Layer of First-Line Supervisors
Operations and Maintenance:					
Buildings	Residential Inspections	64	12.6	11.8	4
Tranportation	Street Maintenance	96	11.9	11.0	6
Tranportation	Sanitary Systems	121	10.9	10.0	6
Tranportation	Transportation Operations	121	10.9	10.0	6
Environmental Services	Wastewater Treatment	148	10.5	9.6	5
Buildings	Plan Review and Permits	37	8.9	8.1	4
Tranportation	Street Cleaning	45	8.8	8.0	6
Buildings	Commercial Inspections	34	8.3	7.5	4
Police	Operations	553	7.9	6.9	7
Parks	Operations	156	7.4	6.4	7
Environmental Services	Maintenance Engineering	22	4.2	3.4	6
Fire	Emergency Operations	527	4.0	3.1	7
Administrative:					
Environmental Services	Information Services	11	10.0	10.0	4
Environmental Services	Accounting	10	9.0	9.0	5
Parks	Accounting	10	9.0	9.0	4
Police	Data Processing	9	8.0	8.0	5
Office of Fin. and Admin.	Information Services	40	6.4	5.6	5
Office of Fin. and Admin.	Accounting	39	6.3	5.4	5
Fire	Information Services	7	6.0	6.0	4
Fire	Accounting	5	4.0	4.0	4
Police	Fiscal Services	11	3.3	2.7	6
Tranportation	Finance	7	3.0	2.5	6
Parks	Information Services	4	3.0	3.0	5
Buildings	Budget and Finance	3	2.0	2.0	4

Exhibit III-5 compares spans and layers for the operations and maintenance groups, and Exhibit III-6 provides the comparisons for the administrative groups. Findings from the Conference Board study (see Chapter II) were applied to divide each of these exhibit graphs into quadrants. The Conference Board reported five layers of management as the median among its study companies, and a median span of control of 7.8. Lines appear on the exhibit graphs to represent these medians.

The resulting four quadrants on the graphs in Exhibits III-5 and III-6 represent four categories of organizational structure:

- "Flat with broad span"
- "Tall with broad span"
- "Flat with narrow span"
- "Tall with narrow span"

These categories are not intended to convey absolute judgments -- for example, even the "broad" span groups have spans less than certain experts recommend -- but to illustrate relative differences among the City of Portland groups included in the study. The study groups cover all four categories. The categories provide a useful way to identify organization structure opportunities and models, as addressed in the conclusions chapter of this report (Chapter IV).

3. Span Determining Factors

In general, the span determining factors noted in the literature do not fully explain the span variation observed among the study groups.

Certain organization characteristics and work content factors can affect spans of control. This study attempted to develop a further understanding of span determining factors through a questionnaire. Interviewees in the participating bureaus, supplemented by budget analysts and Auditor's staff, responded with their judgments about selected characteristics of the study functional groups. The characteristics were those that the literature suggests should be considered in order to determine appropriate spans of control.

Exhibit III-5

Spans of Control and Management Layers
Operations and Maintenance Groups

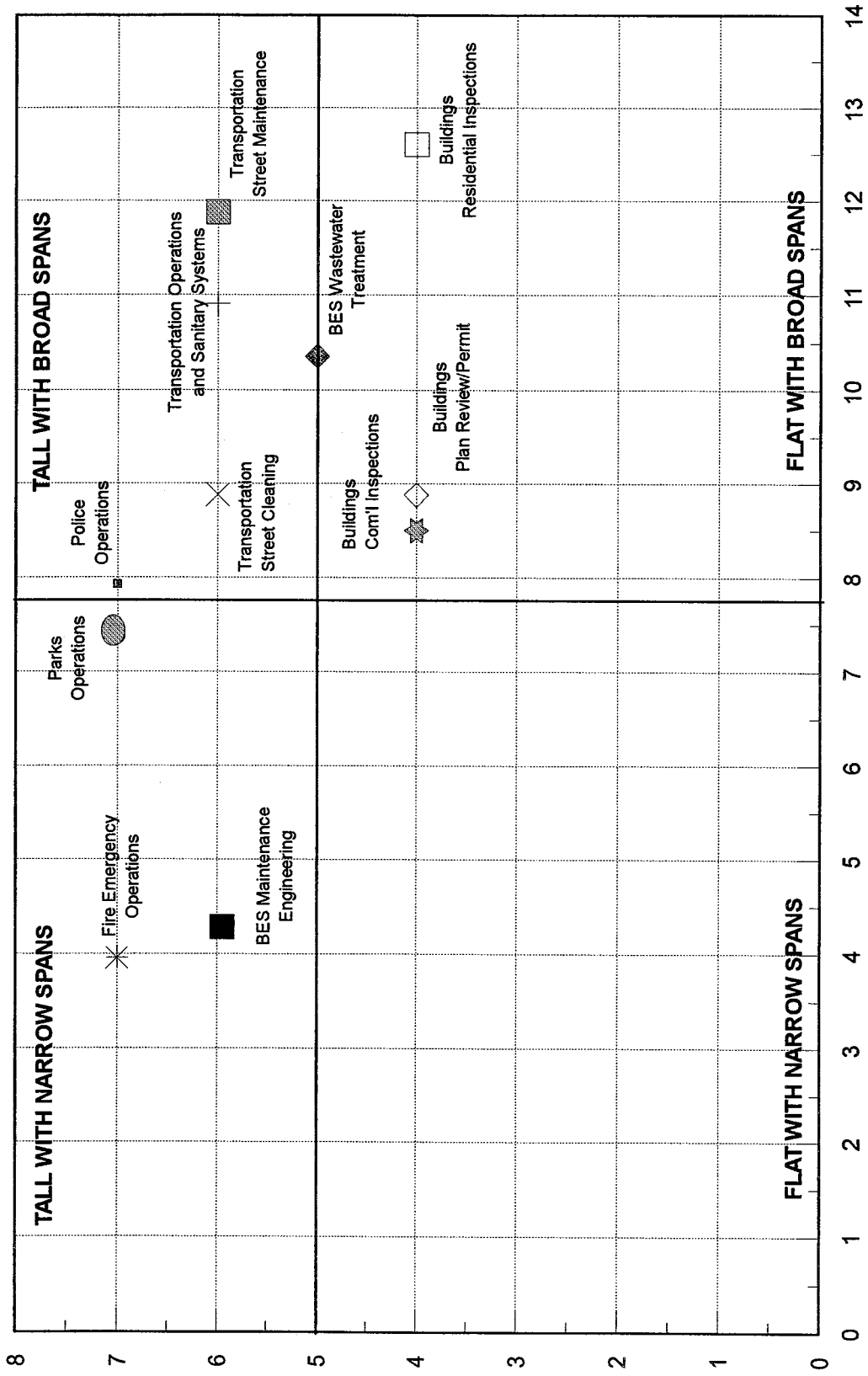
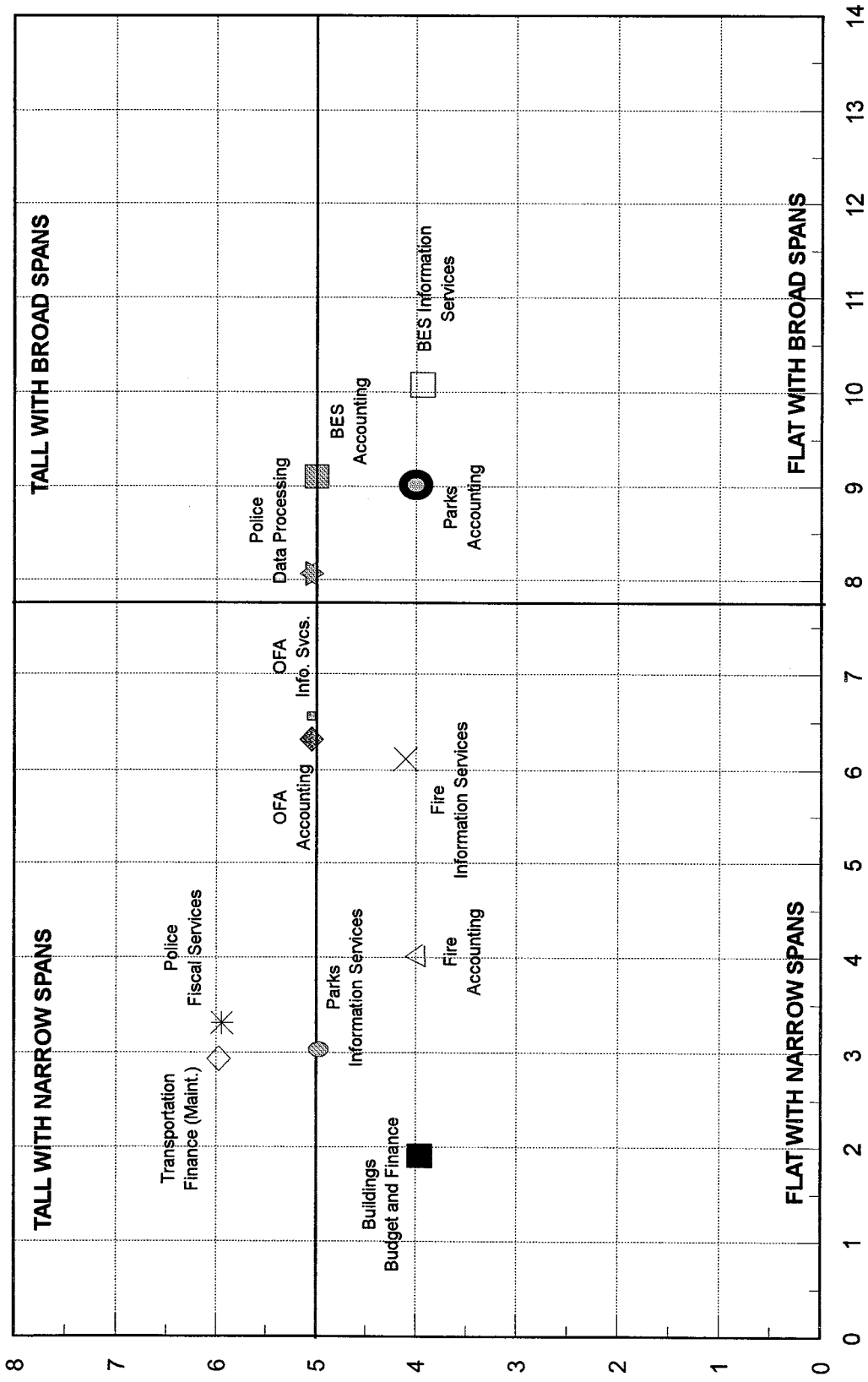


Exhibit III-6

Spans of Control and Management Layers
Administrative Groups



The questionnaire survey results reflect the subjective judgments of the respondents about such factors as the complexity of the work, the risk to the City associated with the work, and other attributes that could cause a particular functional unit to have either a higher or a lower span of control. The respondents rated the various factors on a scale of one to ten. Appendix 3 contains the questionnaire and an explanation of the methodology.

In comparison to the other groups, lower spans may be appropriate for Police, Fire, and Data Processing.

In general, the summary average response (with all factors weighted equally) for the study groups was in the range of four to six on the one-to-ten scale; there was not much variance. Only three functions were above this range: Police Operations, Fire Emergency Operations, and Data Processing (for both the central and decentralized units). Higher scores on the subjective scale suggest that narrower spans of control may be appropriate. The perceived risk for the City involved in the job was generally rated high for Police and Fire, for example. Data Processing received generally high ratings for the technical nature and complexity of the work.

Because the survey was highly subjective with a limited number of respondents, the results should not be given great weight. However, it seems fair to conclude that with the possible exception of Police, Fire, and Data Processing, there were no findings to suggest that the spans of control of the groups included in the study should be appreciably different from one another.

4. Special Circumstances

Special circumstances such as shift coverage, geographic coverage, seasonal workloads, training burdens, and the management of external relationships affect organization structure requirements.

Several of the study groups face special circumstances that may influence their layers of management and average spans of control. Several of these situations are summarized below.

- *Shift coverage.* Fire and Police personnel, for example, are on duty 24 hours a day, seven days a week. A supervisory structure must be in place at all times. Back-up is also necessary, in case an assigned supervisor becomes occupied in an emergency (therefore, Police Operations, for instance, attempts to have at least two supervisory personnel on duty at all times in all precincts). This requirement can contribute to lower spans of control.

- *Geographic coverage.* Many Fire, Police, and Parks managers and supervisors have assigned geographic areas to cover. There are

practical limits to the geographic boundaries that can be covered effectively. When operations are further decentralized, such as when new Police precincts are created, it further constrains the ability to broaden supervisory spans because economies of scale may be lost. That is, there is often a trade-off between the benefits of decentralization and the costs of requirements for additional management.

- *Seasonal workload variations.* Parks Operations, in particular, experiences wide seasonal swings in its workload, and employs a large number of summer part-time personnel to meet peak needs. Yet the number of management and supervisory personnel remains stable through the year. Consequently, the span of control of the affected work units also varies notably by season. The figures presented for Parks Operations in this report exclude the summer part-time personnel. The average span for the overall Parks Operations group that maintains the City parks is 7.4 in the off-season (the figure reflected in this report), but peaks at about 14 in the summer (estimated based on budget dollars for part-time personnel).

- *Training burdens.* Supervisors responsible for a large number of trainees logically cannot carry as wide a span as supervisors of more experienced personnel. Police has a large number of trainees (99 in early April, 1994). However, the Police trainees receive one-to-one supervision from assigned officers during the first two phases of their training, and therefore do not directly burden supervisory sergeants. In the third phase of training, the trainees are assigned to sergeants; 26 trainees were in the third phase when the study figures were compiled. If the third phase trainees had been counted in the study, the overall average span for Police Operations would increase from 7.9 (study figure) to about 8.3.

- *External relationships.* Management requirements for certain groups are affected by relationships with external organizations or individuals. For instance, some managers may be responsible for managing contractors, coordinating volunteers, or regulating private businesses. Certain Parks managers, for example, are responsible for relationships with volunteer groups. The time demands of these external relationships could affect the internal span of control that would be appropriate for particular managers or supervisors. Among the groups in the study, however, the external requirements did not appear to be a major factor that would significantly influence the average span of the overall agency.

C. External Comparisons of Functional Groups

Other cities, counties, and private companies provided information to compare to City of Portland statistics. These comparisons are highlighted below, by functional group. For this purpose, certain of the 24 Portland study groups are aggregated to higher levels. For example, various specialized transportation maintenance groups (Street Maintenance, Street Cleaning, Sanitary Systems, and Transportation Operations) are aggregated into a single transportation maintenance group. The comparison groups include:

1. Accounting
2. Data Processing
3. Building Inspections and Permits
4. Environmental Services - Sewerage Operations and Maintenance
5. Fire Emergency Operations
6. Parks Maintenance Operations
7. Police Operations
8. Transportation Maintenance

Overall: The City of Portland compares more favorably to the public sector than to the private sector.

The analysis compares the groups' ratios of non-managers to managers (a simplified measure of span of control) and their layers of management. Because the groups were selected to help assure general comparability in the functions performed, the factors determining appropriate spans of control should be approximately the same for the organizations included within each category. Brief narratives describing the comparative findings for each group appear below. Related exhibits are included at the end of this section. Appendix 7 provides more detailed data and a description of the methodology. Portland often compares favorably to the public sector organizations, but not to the private companies (where comparable data are available).

1. Accounting

Accounting: Portland compares favorably to other cities, but not to the counties, the State, or the private companies.

Exhibit III-7 compares Portland's central accounting group (within the Office of Finance and Administration) to the central accounting groups of other organizations. These groups perform the general ledger accounting, payroll, accounts payable, and other related functions. None of the comparison organizations has more than Portland's five management layers. Portland's ratio of non-managers to managers is

higher than the other cities, but lower than the counties, State, and Portland General Electric (PGE). The PGE ratio is significantly higher.

2. Data Processing

Data Processing: Portland compares favorably to the cities, State, and counties, but not to the private companies.

Exhibit III-8 shows the central data processing comparison. The survey organizations include both applications development and system operations functions. The non-manager to manager ratio for Portland is higher than cities and counties, and none of the cities or counties have fewer layers. However, PGE again has a higher non-manager ratio and fewer layers, and Standard Insurance has a higher non-manager ratio.

3. Building Inspections and Permits

Buildings: Portland compares favorably to each of the government organizations.

Exhibit III-9 summarizes comparisons for the building inspections and permits functions. None of the comparison groups has fewer layers of management than Portland (which has only four), and Portland has the highest ratio of non-managers to managers among the governments. However, an analog group from the private sector -- a Standard Insurance underwriting and policy issue division, whose policy and contract review responsibilities and dealings with customers involve many tasks that are similar to the Buildings group -- has broader spans.

4. Environmental Services - Sewerage Operations and Maintenance

Sewerage Operations and Maintenance: Portland compares favorably to the other government groups.

Exhibit III-10 illustrates the survey findings for sewerage operations and maintenance, including both collection systems and treatment plants. Portland has fewer layers and a higher ratio of non-managers to managers than each of the three public sector comparison organizations. However, more detailed analysis of the Portland ratio shows that the Maintenance Engineering group of BES does not compare as favorably as the Wastewater Treatment group. Portland's non-manager to manager ratio is also significantly lower than that of maintenance functions in a private utility (PGE). Although the private utility's functions differ, there is enough similarity in tasks to make the comparison meaningful.

5. Fire Emergency Operations

Fire: While span ratios are similar among cities, Portland has more management layers.

The survey results for fire emergency operations (fire fighting) appear in Exhibit III-11. Portland has more management layers (seven) than the other cities, but its ratio of non-managers to managers is similar to most. While all of the cities have low span ratios, the City of Charlotte data are noteworthy. Charlotte has only five management layers (counting the city manager) and has the highest span ratio of the group. The fire department was one of the key agencies addressed in Charlotte's recent "rightsizing" initiative, and the number of layers was reduced from six to five.

6. Parks Maintenance Operations

Parks: Portland is in the mid-range of the survey groups.

Comparative data for parks maintenance are shown in Exhibit III-12. Portland's non-manager to manager ratio is in the middle, but all of the government agencies have fewer layers. The maintenance group (with somewhat different functions) from the private utility (PGE) has a notably higher ratio of non-managers to managers.

7. Police Operations

Police: Portland's non-manager ratios compare favorably to the others, but Portland has more management layers than some.

This group includes police patrol, traffic, and other functions typically distributed to precincts. County sheriff operations are included, and the county data have been adjusted to exclude certain functions (for example, process serving) that are not comparable to city police. Oregon State Police District I information is also included, although the patrol functions differ from those of municipalities. The survey results in Exhibit III-13 indicate that Portland has more management layers (seven) than some, but relatively more non-managers per manager in comparison to the other agencies.

8. Transportation Maintenance

Transportation Maintenance: Several organizations have higher non-manager ratios than Portland.

Exhibit III-14 shows a comparison of transportation maintenance information including primarily street maintenance and related functions. Several of these groups have ratios of non-managers to managers that are notably higher than Portland's. Portland's six layers is in the mid-range of the groups. The PGE data are for different types of maintenance functions, but many of the tasks are similar.

Exhibit III-7

Comparison of Centralized Accounting

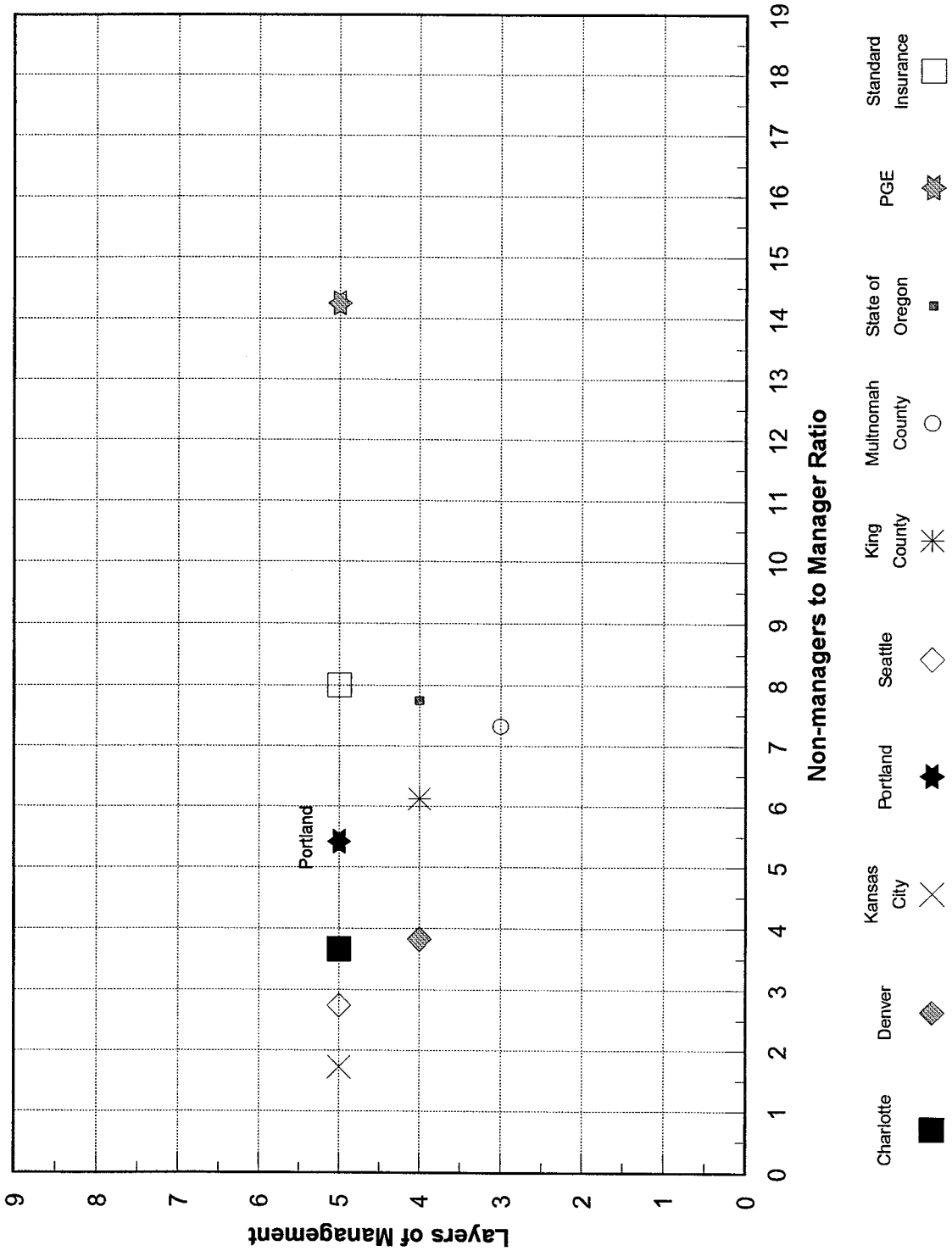


Exhibit III-8

Comparison of Centralized Data Processing

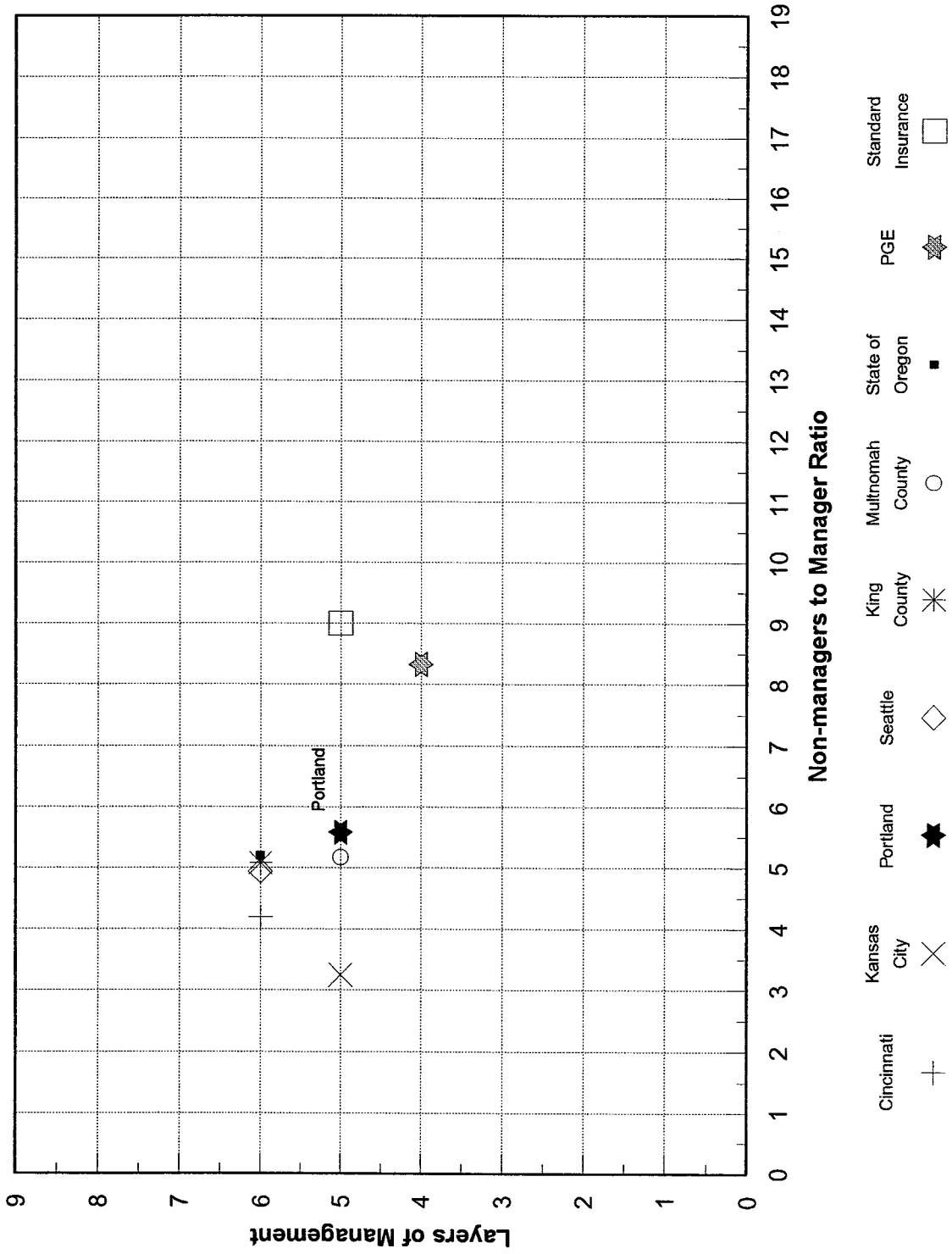


Exhibit III-9

Comparison of Buildings Function

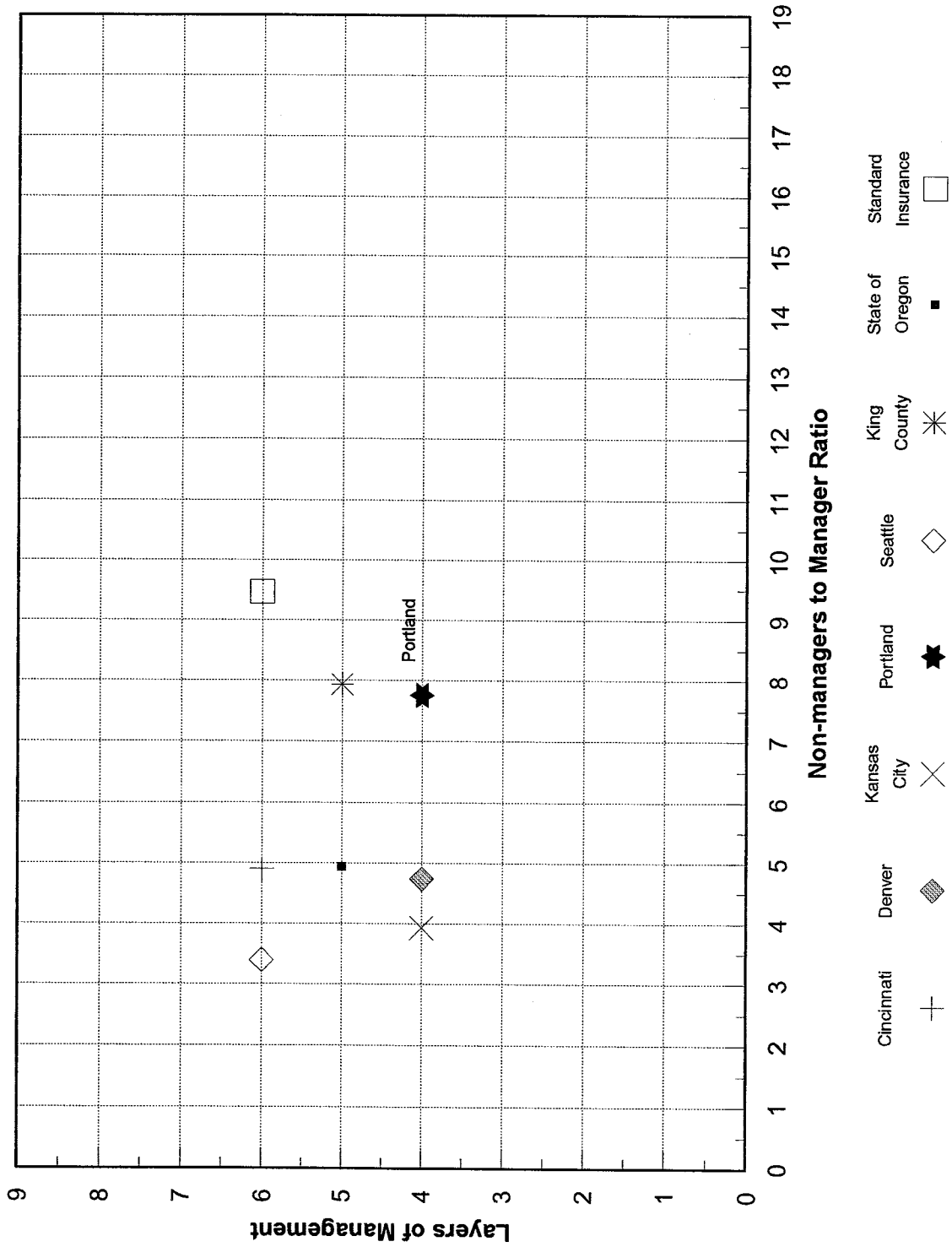


Exhibit III-10

Comparison of Sewerage Operations and Maintenance

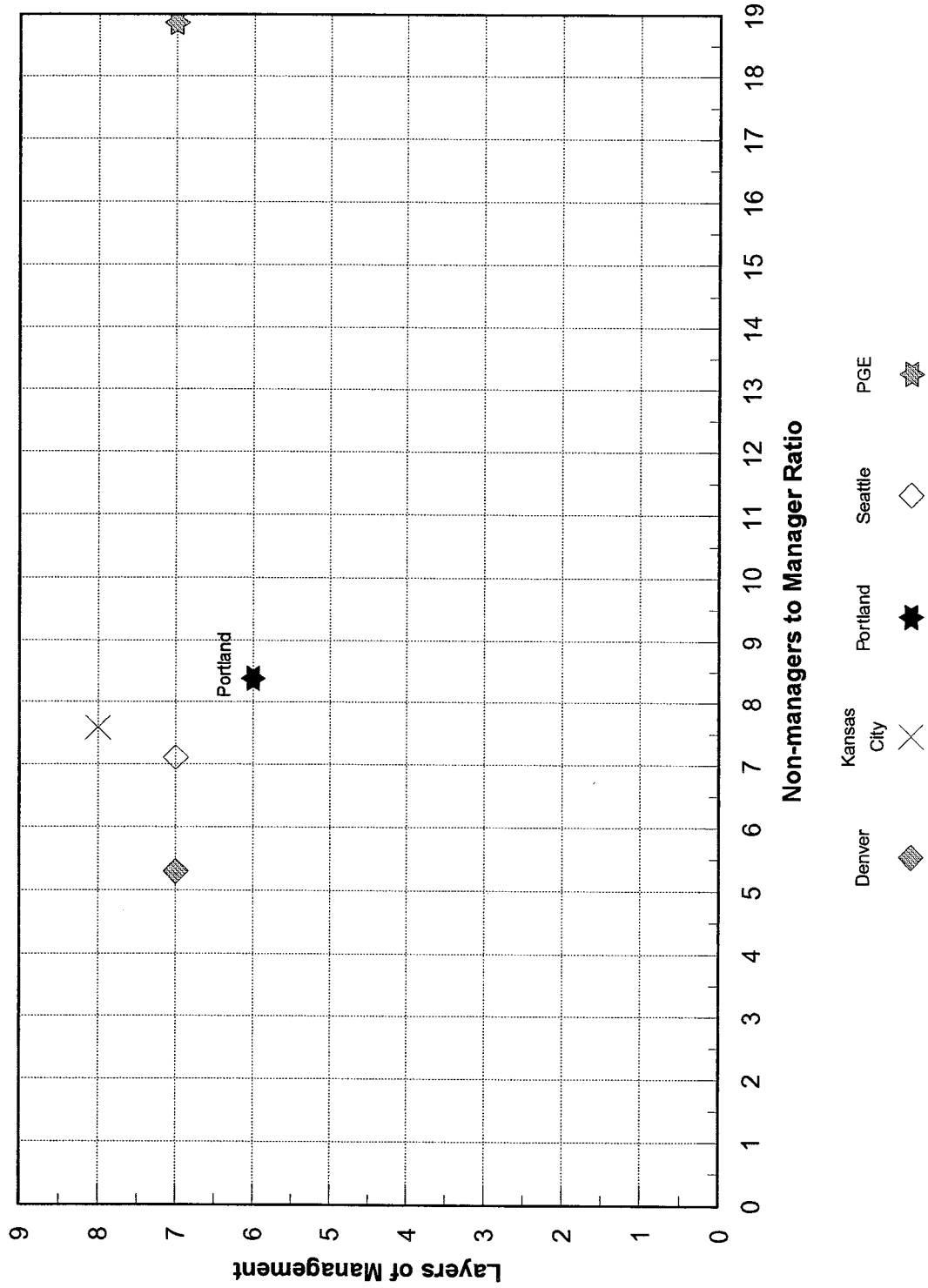


Exhibit III-11

Comparison of Fire Emergency Operations

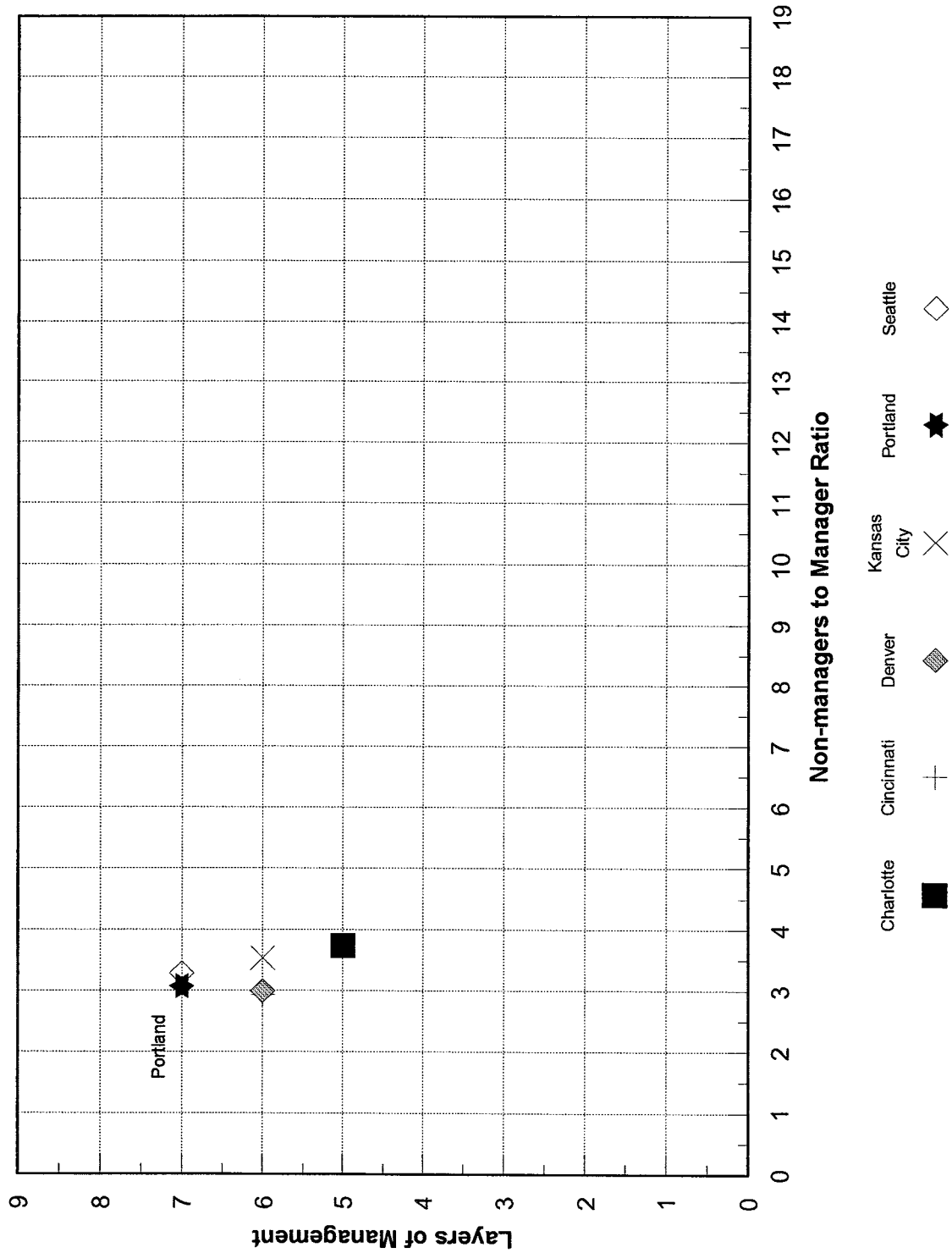


Exhibit III-12

Comparison of Parks Maintenance

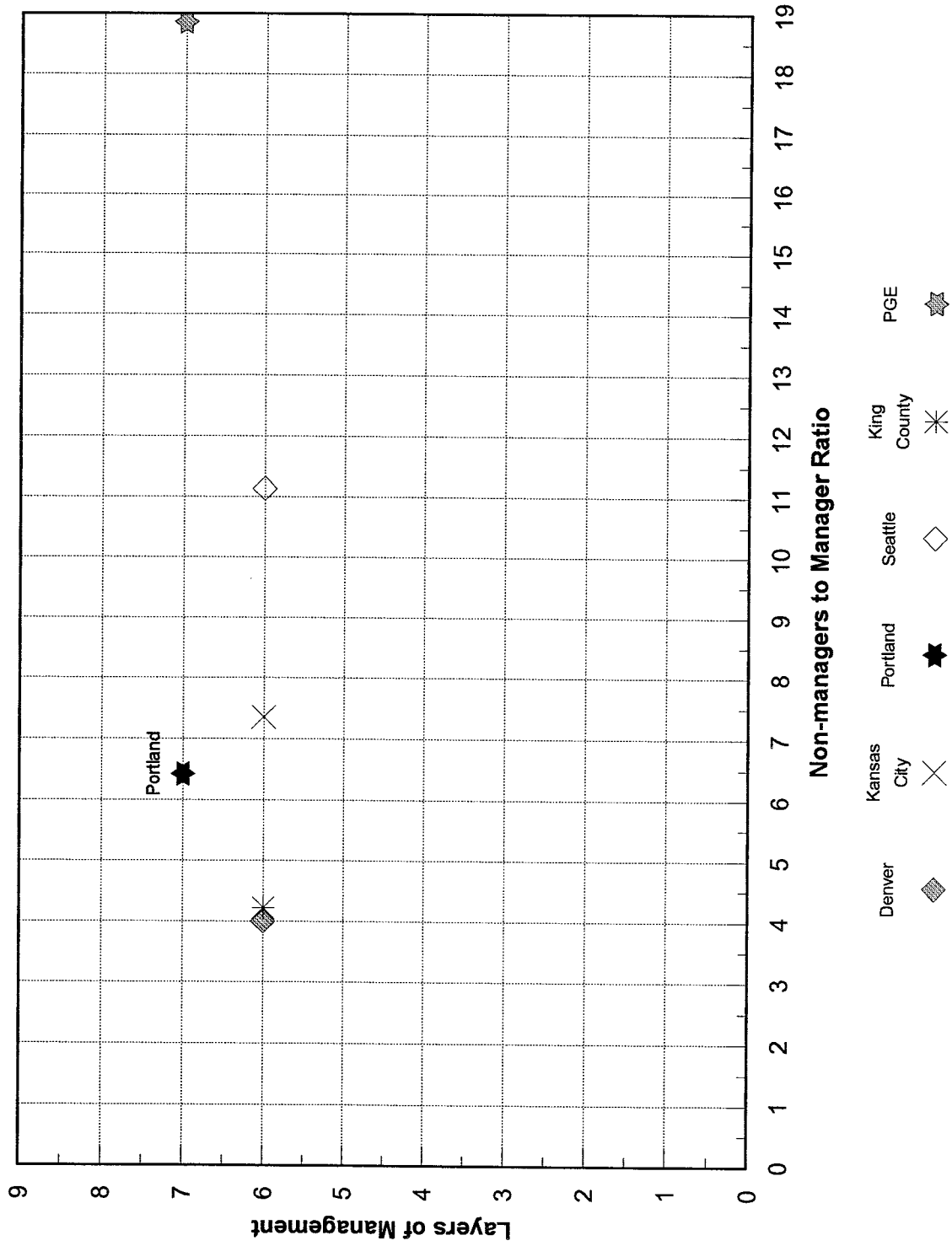


Exhibit III-13

Comparison of Police Operations

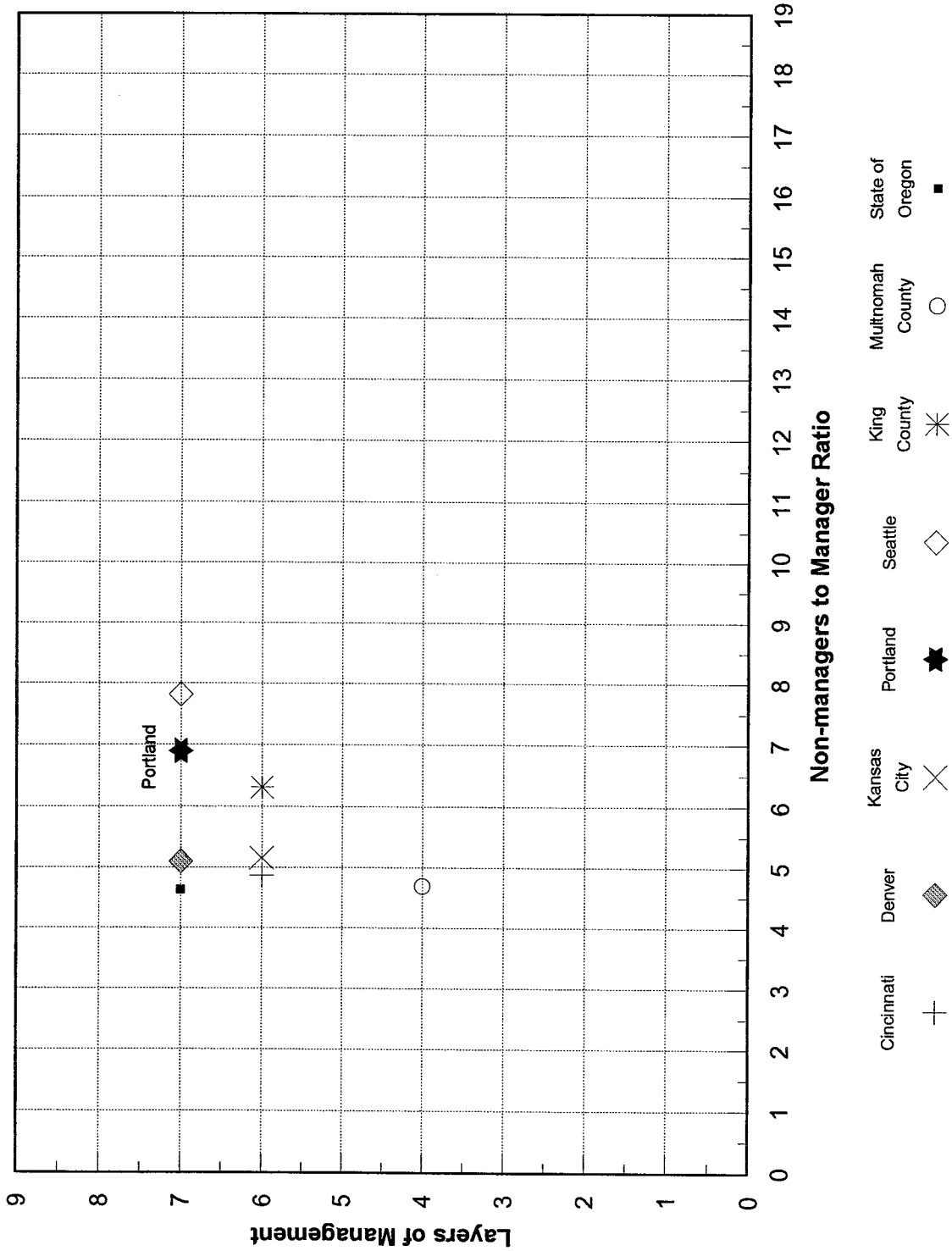
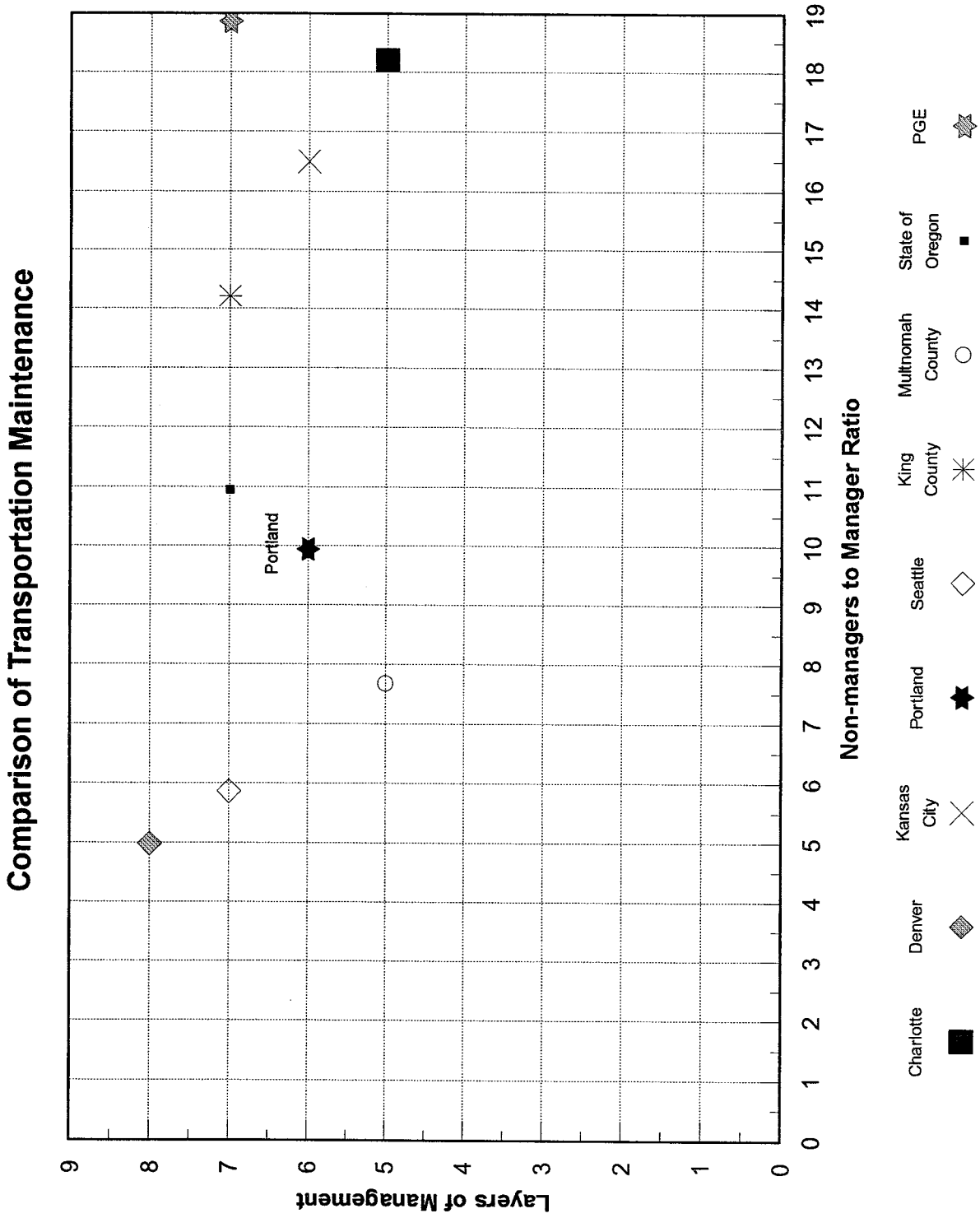


Exhibit III-14

Comparison of Transportation Maintenance



IV. CONCLUSIONS

IV. CONCLUSIONS

A. Opportunities

The City can eliminate at least one layer of management in many bureaus.

The City of Portland study groups have more layers of management than many of the other organizations surveyed, and the average span of control of Portland middle managers in many groups is narrow. Both the number of layers and the average spans of control for the City fall well short of the standards advocated by many experts. For example, if one middle management layer were eliminated in each of the following groups, the spans of the managers above the reduction layers would change as indicated in the table below:

	Current span of manager above reduced layer	Span of manager above after reduction
BES Maintenance Engineering	2	4
Fire Emergency Operations	4	8
Trans. Street Maintenance	7	10
Trans. Sanitary Systems	3	7
Trans. Street Cleaning	4	7
Trans. Operations	3	7
Parks Operations	4	8

While reducing layers, the City can appropriately increase the spans of middle managers.

The average span of middle managers in the study groups was 5.4, and about 53 percent have a span of four or less. As the table above shows for the example groups, eliminating a layer in the middle would increase the spans of the middle managers above the reduced layer, but the resulting spans are not unreasonably high.

The spans of many first-line supervisors can be broadened.

The span of control of the City's first-line supervisors appropriately tend to be broader than those of mid-managers. However, the spans in certain groups are well below the norm of other groups in the study. About 50 percent of the first-line supervisors included in the study had a span of control of four or less, although with Fire Emergency Operations excluded, the percentage decreases to about 18 percent. In many cases there may be sound reasons for the low spans (for example, the need for close command and control in Fire Emergency Operations), but in others there appear to be no particular factors that should cause the span of control to be lower than other

groups.

Particular patterns in the organization present potential span expansion and layer reduction opportunities.

We found certain recurring patterns that merit scrutiny as potential opportunities for streamlining the organization. These pattern situations are summarized below using examples from among the study groups. *We are not necessarily concluding that span or layer adjustments should be made for each example cited; further evaluation of the specific situations would be required.* We identify the specific situations primarily to illustrate the general patterns of opportunity. The patterns include:

- *Outliers -- groups that are significantly different from the norm; their layers are greater or their spans are lower, or both.* Although the differences may be warranted, these areas deserve attention to assure that the structure is justified by the situation. Among the study groups, the BES Sewerage function and Fire Emergency Operations, for example, had both a high number of management layers and low spans of control compared to other functional groups in the City.

- *Large groups where many supervisors perform the same or very similar functions.* In these situations, even a small increase in the average span of control could produce significant net benefits. The most notable examples are Police sergeants and Fire lieutenants.

- *Hourglass or narrow column hierarchies.* "Hourglasses" are situations where there are narrow spans for managers in the middle of the hierarchy (graphically depicted, the top-to-bottom average spans may look like an hourglass). "Columns" are structures with narrow spans at most or all levels of management. These structures are opportunities for both span widening and layer reduction. Among the study groups, all of the Transportation Maintenance functions have narrow spans for the managers at the fourth or fifth layer of the organization (an hourglass). The BES Maintenance Engineering group organization is a narrow column, with low spans for the managers at each middle level.

- *Isolated functions that differ notably from those of the larger group where they are placed.* "Isolated functions" typically occur where an administrative group, such as data processing or accounting, is placed into a group with line operations or maintenance functions. Because the function may be decentralized, there may only be a small number of personnel assigned to it. But because the function is different from the

primary responsibilities of the organization in which it is embedded, the organization may perceive a need to assign a separate supervisor or supervisors, resulting in a low span for the group. Certain of the decentralized administrative groups included in this study have especially low spans: Parks Information Services, Transportation Accounting, and Police Fiscal.

- *Specialist supervisors directing two closely related functions with narrow spans.* Differences in functions, even where the functions are closely related, may sometimes cause an organization to segregate supervisory groups, even though the numbers of workers in the groups do not in themselves create a need for separate supervision. Administrative supervisors who direct primarily clerical functions are a special case of "specialist supervisors." An example occurs in the OFA Accounting Division Data Control group.

- *Assistant and deputy directors.* These situations may be a layer reduction opportunity. For example, Parks has a Deputy Director and Police has an Assistant Chief. The deputy and assistant positions in each of these agencies have line authority over most of the functions of the respective bureau. The extra layer could be justified because it may allow the bureau head to focus externally while the assistant or deputy manages internally, but the justification should be tested where these positions exist.

- *Transitional situations.* It is a good time to examine spans and layers when the organization is changing anyway. In the City of Portland, the following current or potential initiatives seem to present such opportunities, for example:

  - Expansion of the Police force, and the creation of new precincts
  - New BES Director and forthcoming review of the organization
  - New Fire Chief.

B. Potential Benefits and Costs

Realization of the span expansion and layer reduction opportunities reviewed above would generate important benefits for the City. First, actions to increase spans and eliminate layers save management and supervisory positions. The savings may be manifested as either budget reductions or redeployments of the positions.

To estimate the size of this potential opportunity, we constructed

hypothetical restructured organizations for each of the functional groups in the study. We reassigned management and supervisory positions in the respective groups to achieve fewer layers and wider spans. Our assumptions were guided by the principles and norms presented in the literature, but we were conservative. For example, we did not eliminate positions where there was a possible high risk that the reduction would adversely impact the workload or performance of line personnel (for instance, we assumed no reduction in the number of Police sergeants or Fire lieutenants).

The resulting span widths and number of layers in the hypothetical restructured organizations still fall well short of the ideals advocated in the literature and of the structures observed among certain business organizations included in this study. For example, in no case did we increase the average span of control for a manager above ten, and we left several groups with six layers.

Conservatively estimated, the savings would be about $0.5 million to $1.0 million annually, just for the groups included in the study.

We estimated a potential savings of about 9 to 19 managerial and supervisory FTEs from a modest restructuring of the 24 functional groups included in this study. The position savings equate to about $500,000 to $1,000,000 in salaries annually (not counting benefits). This figure would be higher, of course, if our assumptions had been more aggressive. Conversely, even if some of our assumptions could not be practically realized, the size of the opportunity remains significant.

There would likely be significant additional savings for other City groups as well.

These savings are projected just for the groups included in the study. Approximately 58 percent of the City employees work in groups not included. The average ratio of non-managers to managers in these groups was lower than the ratio for the groups that participated in the study. Consequently, it is probable that there would be many opportunities for span expansion or layer reduction among the non-study groups, similar to the opportunities observed among the study groups.

The restructuring could improve City performance.

In addition to the dollar or position savings, the second broad category of potential benefits includes gains in efficiency and effectiveness. Here we are guided by the management literature (reviewed in Chapter II); it suggests that when done correctly, reasonably increasing spans and reducing layers allows organizations to:

- Communicate and make decisions faster
- Better motivate personnel
- Respond more flexibly to change
- Achieve greater accountability.

However, wider spans will not necessarily be desirable for all groups; the specific circumstances of each situation should be evaluated.

There are potential costs associated with broader spans and fewer layers, as well. First, changes should be approached cautiously where spans or layers are at or near their practical limits, as determined by the factors relevant to the specific situation. Constraints applicable to certain groups were highlighted in Chapter III. For instance, there must be enough Police lieutenants and sergeants to assure that back-up coverage is available in each precinct 24 hours a day, seven days a week, for possible emergencies. Or, as another example, in some cases there may be a need for technical leadership (for instance, in data processing) that justifies a narrow span. In other instances a particular group may consist of inexperienced personnel or there may be other factors impairing group performance; here narrow spans may be justified. We are not necessarily concluding that in cases such as these that no restructuring would be beneficial, but only that in many cases caution and creativity will be required. Each situation should be assessed on its own merits.

Adverse consequences can be avoided or mitigated if the restructuring is well managed.

Second, even where warranted, span widening and de-layering must be well managed or there could be detrimental results. Concerns noted in the literature include, for example (see Chapter II):

- *Workload impacts on the affected groups.* Work processes may need to change along with the organizational change. The relevant work processes, as well as the organization structure, should be evaluated. There must be a clear plan for how both the managerial and non-managerial work of positions that are eliminated will be absorbed or streamlined, if necessary.

- *Loss of talented managers and supervisors.* Structural change may be desirable even where the managers or supervisors are strong performers. There need to be ways to effectively retain and redeploy these personnel.

- *Restructuring of the wrong places at the wrong times.* It could be a mistake to restructure passively through attrition, for instance; the attrition is unlikely to occur in exactly the right parts of the organization or at the right times.

Finally, and of critical importance, effective de-layering depends on a supportive organizational culture. Top management needs to accept and articulate how organizational streamlining supports the visions and goals of the respective bureaus, and to effectively communicate this message to employees.

Top management commitment and a substantial investment in new approaches to management is needed.

The literature further stresses that de-layering will not work unless authority is decentralized and lower level autonomy is increased. Many managers will be required to manage differently, possibly exercising less control over their subordinates than they have been accustomed to. Appropriate training programs -- for example, emphasizing development of self-managed teams -- are needed to facilitate the transition. Continued investments in decentralized information and communications technology can also be supportive.

C. Models

There are several positive models to follow in the City organization itself.

The City of Portland organization itself contains models to help achieve broader spans of control and fewer management layers. Internal models observed in the study include, for example:

- *Wide-span line operations and maintenance groups with few layers.* The Buildings groups in the study have only four layers of management and generally broader spans than most of the other study groups. The first-line supervisor span in the Combination Inspection Section within Residential Inspection Services is 33 (aided by lead workers). Another example is the Permit Center, where the span is 19.

- *Wide-span decentralized administrative groups.* Wide spans appear difficult to achieve in these groups because the decentralization of the functions often means that the number of personnel in the function is small. However, BES Accounting has a span of nine and BES Information Services has a span of ten. Although lower than private sector comparables, these spans are wider than those observed among the other administrative groups included in the study (including the City's centralized accounting and data processing functions).

- *De-layered groups.* The Office of Finance and Administration eliminated a layer of management when it eliminated the Director of Administrative Services position in 1993. The BES Wastewater Treatment group has eliminated two layers of management in the past three years.

- *Self-directed teams.* BES has piloted self-directed teams in Wastewater Treatment, and has an average span of over 13 for first-line supervisors in Wastewater Operations and over 16 for Wastewater Maintenance.

The City of Charlotte is a useful model.

Among the other public sector organizations included in the external survey, Charlotte provides the best comprehensive model for de-layering. Importantly, the Charlotte "rightsizing" effort was a planned initiative supported by top management. Clear goals and proposed approaches were outlined on a Citywide basis at the outset. The City of Charlotte also followed-up to evaluate progress.

The City should also look to the private sector for models and support.

Generally, however, the private sector provides the best models. Most of the span expansion and layer reduction examples described in the literature are business organizations (see Chapter II). Among the organizations surveyed for this study, the two private sector companies generally have fewer layers and broader spans than the government organizations (this is true for comparable functions, not considering groups such as police and fire where there are few good private sector comparables).

Local businesses have demonstrated a willingness in the past to provide management advice and assistance to the City. Guidance based on the private sector experience in reducing layers of management and increasing spans of control could prove helpful.

V. RECOMMENDATIONS

V. RECOMMENDATIONS

A. City Council Actions

The City Council should provide leadership on organizational restructuring.

The City Council should determine whether the current number of layers of management and the average spans of control identified in this study are acceptable. The Council should be guided by the principle that structures are means to ends, and not ends in themselves.

If the Council determines that de-layering and span expansion would promote the City's service efficiency and effectiveness goals (as suggested by the contemporary management literature), then the Council should set organization structure goals. The goals may be broad ones (for example, "The City will eliminate unnecessary layers of management").

The Council should also take a position on the importance of employee involvement and self-directed teams. Without increased autonomy for employees at lower levels, supported by appropriate training and assistance, restructuring is unlikely to be successful.

The Council should designate a cross-bureau team to work on the implementation process. The team should include representatives of various levels of management.

B. Office of Finance and Administration Actions

OFA should help transform broad organization structure policy into reality.

The Office of Finance and Administration (OFA) should lead the cross-bureau team to establish organization structure guidelines consistent with the City's goals. These guidelines should be quantitative and specific. For example, the City of Charlotte established specific targets for the maximum number of management layers for departments in specified size categories, and established an explicit timeline for the targets to be met.

The guidelines should recognize situational differences that could cause structures to vary. For example, larger bureaus are likely to require more layers. Other key factors that should be considered include the nature of the work (complexity, coordination required, etc.), constraints imposed by time (for example, shift coverage) and geography, and the strategic importance to the City of any major

initiatives applicable to the bureau. Based on information assessed in this study, Exhibit V-1 at the conclusion of this chapter presents preliminary guidelines for consideration.

OFA should review the structure of each bureau based on the guidelines as part of budget reviews scheduled to occur over the next two years. Bureaus whose proposed structures do not fit the guidelines should be required to present justification for the exceptions. The guidelines should apply to both existing and any new proposed management and supervisory positions.

OFA should lead the cross-bureau team to develop a proposal for how compensation will be determined for managers or supervisors who are reassigned because of restructuring. The City of Charlotte plan, for instance, proposed that positions transferred because of restructuring would not be subject to a pay reduction for one year. Pay issues are a critical potential barrier to restructuring, and must be addressed.

C. Office and Bureau Actions

Offices and bureaus should plan and implement specific changes to streamline their organizations.

Each office and bureau should develop a plan to address the City's organization structure goals and guidelines. The plan should be based on systematic analysis. Key questions to address are outlined in the "prescriptive advice" section of Chapter II. For example, the plans should state what is to be accomplished by reducing levels or adjusting spans, what the consequences will be for the organization and its customers, and how the change will be supported by training and other investments.

The offices and bureaus should present their plans during the budget reviews scheduled for the next two years. Where the plans are inconsistent with the City's goals and guidelines, the agencies should provide a rationale for the variance.

If deemed important in City policy, the plans of each office or bureau should specifically include training to support employee involvement and self-directed work teams. The literature indicates that development of autonomy for lower level personnel is a critical success factor.

The offices and bureaus should fully implement changes to conform to the guidelines by July 1, 1996, at the latest. Of course, where constructive changes can be accomplished before that date, they

should be encouraged.

D. City Auditor Actions

The same guidelines applied for budgeting may be applied for auditing.

The City Auditor should adopt and apply standards for organization structure. Exhibit V-1 provides a preliminary proposal for the standards. Where the organization structure is relevant to the scope of a particular audit, the Auditor should report findings based on the standards.

Exhibit V-1

Recommended Guidelines

Spans of Control and Layers of Management

LAYER GUIDELINES	**Public Safety:** o Goal of six or less layers of management **All Other Bureaus:** o Goal of three or less management layers for bureaus with less than 50 employees o Goal of four or less management layers for bureaus with 50 to 150 employees o Goal of five or less management layers for bureaus with greater than 150 employees
SPAN OF CONTROL GUIDELINES	**Public Safety:** o Goal of 3.5 to 4.0 average span for the Fire Bureau o Goal of 7.0 to 8.0 average span for the Police Bureau **All Other Bureaus:** o Provide justification for middle managers with spans less than five o First-line supervisors: - Provide justification for operations and maintenance supervisors with spans outside the range of ten to 20 - Provide justification for administrative supervisors with spans outside the range of six to 12

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BIBLIOGRAPHY

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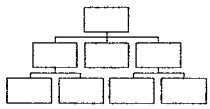
Appendices

June 15, 1994

CITY OF PORTLAND
SPAN OF CONTROL STUDY



Prepared for the City of Portland Audit Services Division by
Public Knowledge, Inc. and The Kemp Consulting Group

APPENDICES

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APPENDIX 1

Organization Charts

APPENDIX 1

ORGANIZATION CHARTS
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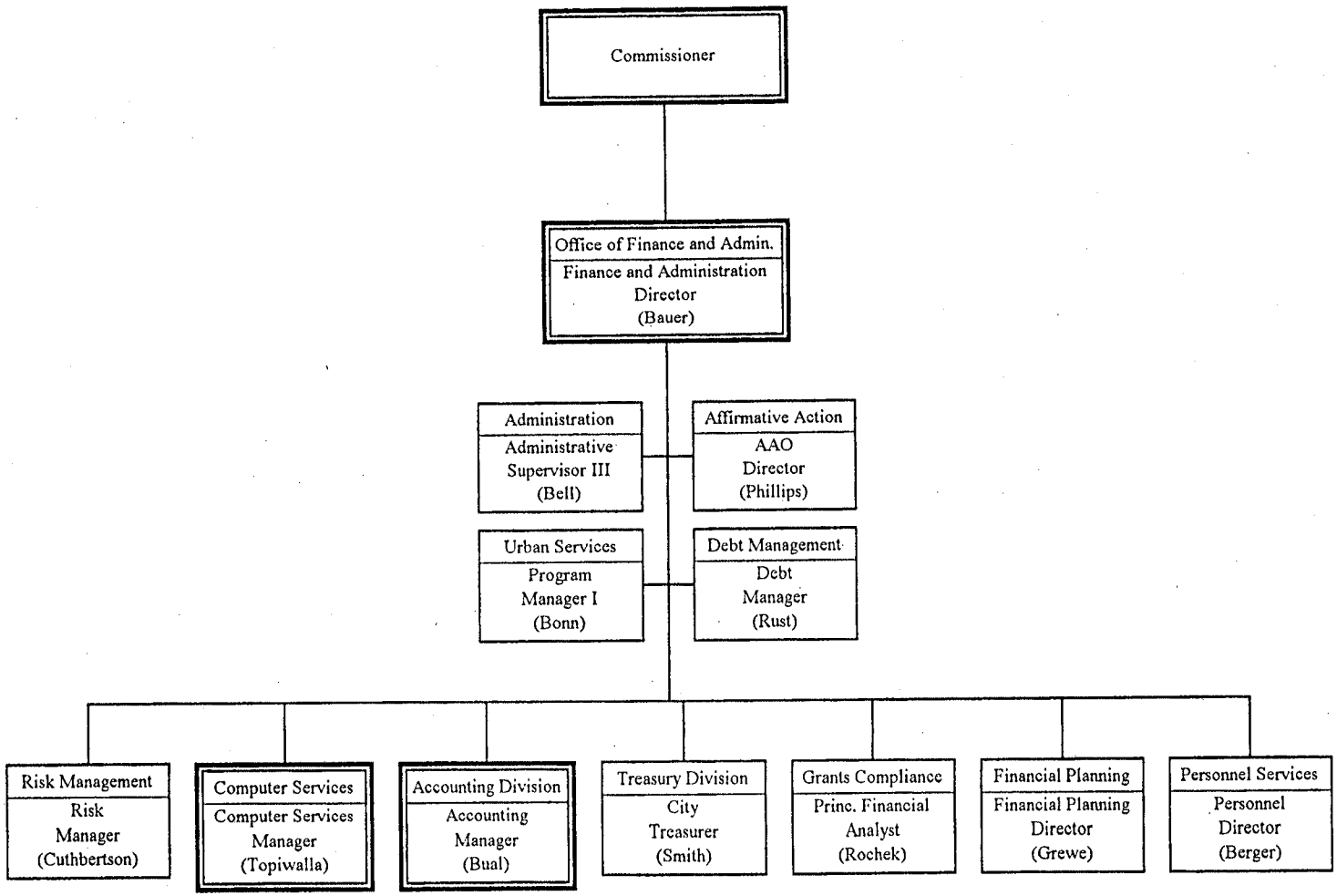
ORGANIZATION CHARTS

Office of Finance and Administration
Accounting Division

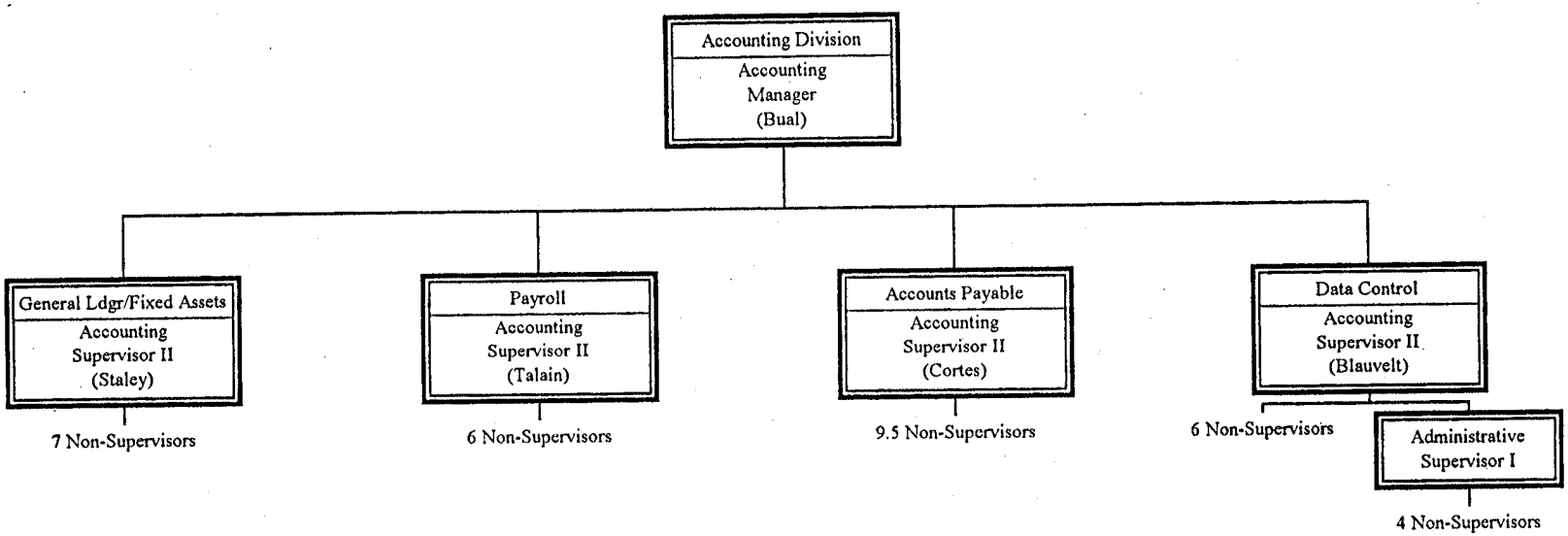
CITY OF PORTLAND
Office of Finance and Administration

Organization Chart
Levels 1 - 3



CITY OF PORTLAND
Office of Finance and Administration
Accounting Division

Organization Chart
Levels 3 - 6

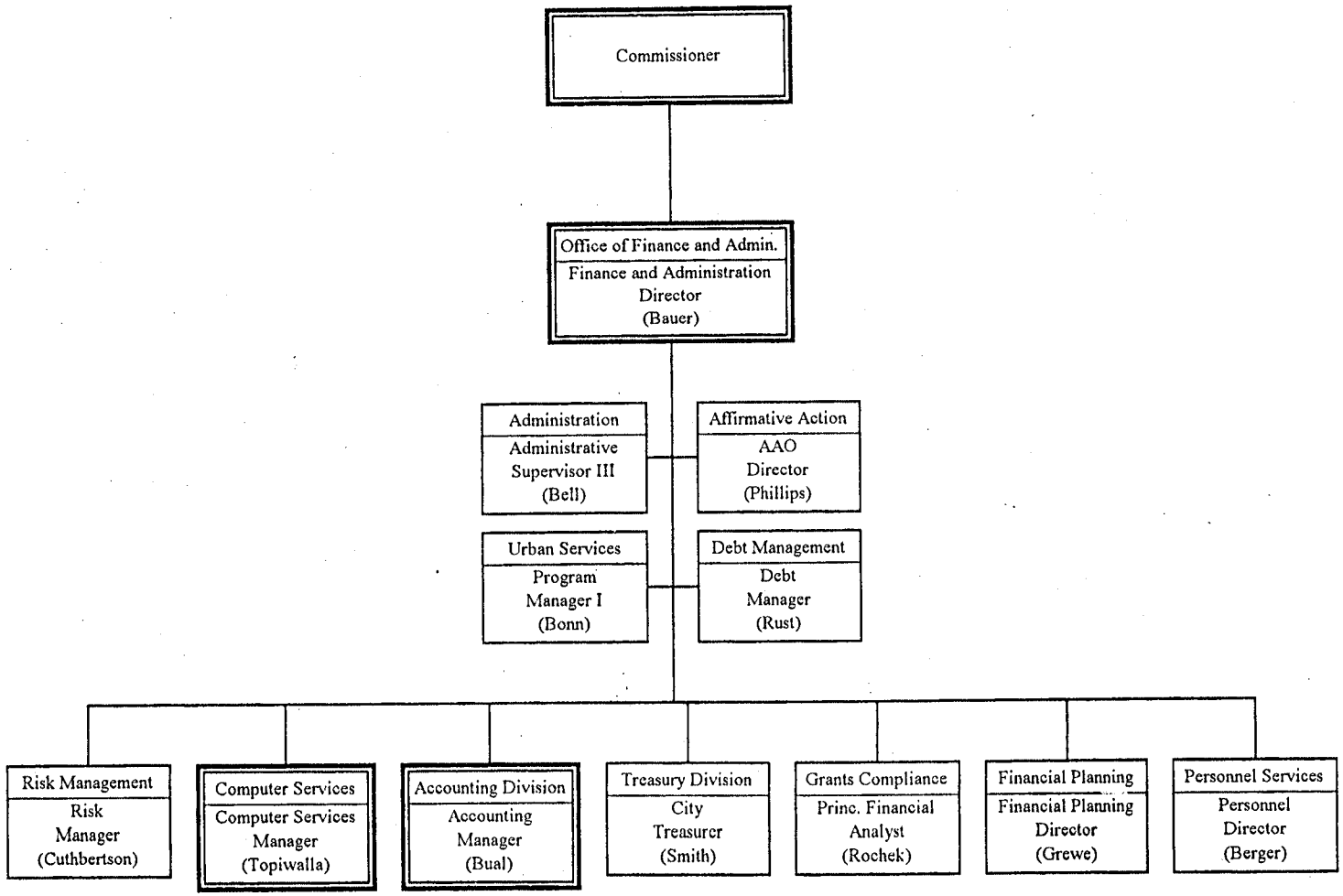


ORGANIZATION CHARTS

Office of Finance and Administration
Computer Services Division

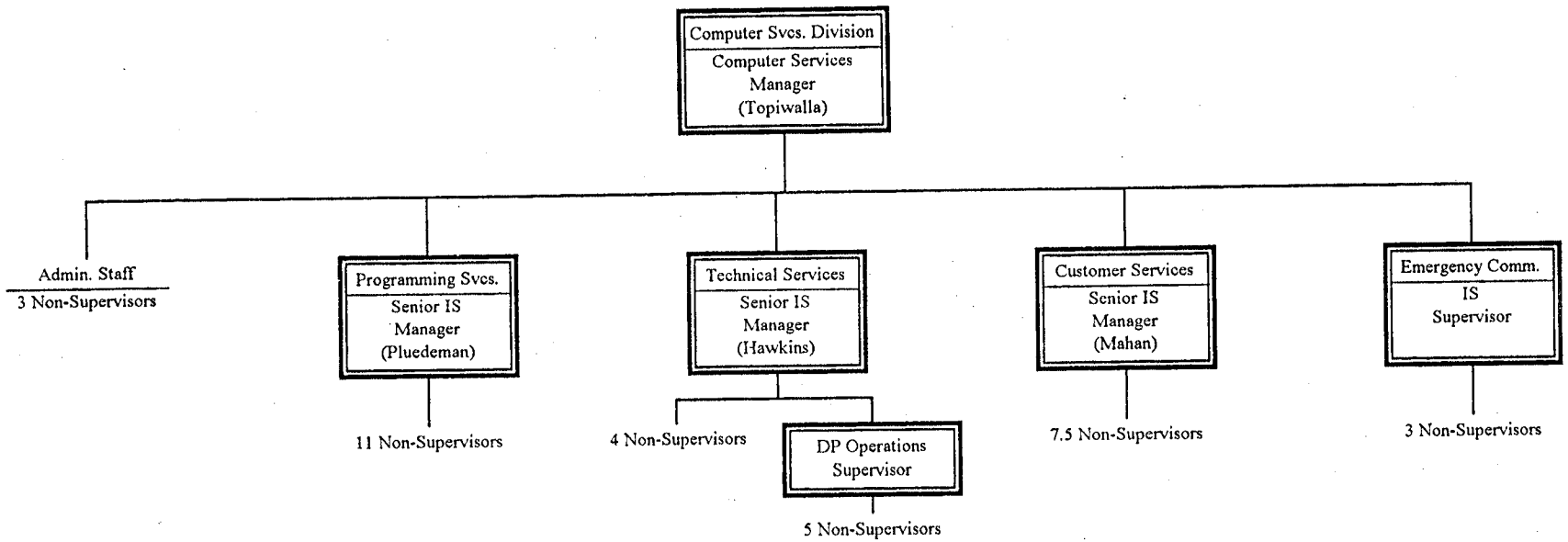
CITY OF PORTLAND
Office of Finance and Administration

Organization Chart
Levels 1 - 3



CITY OF PORTLAND
Office of Finance and Administration
Computer Services Division

Organization Chart
Levels 3 - 6

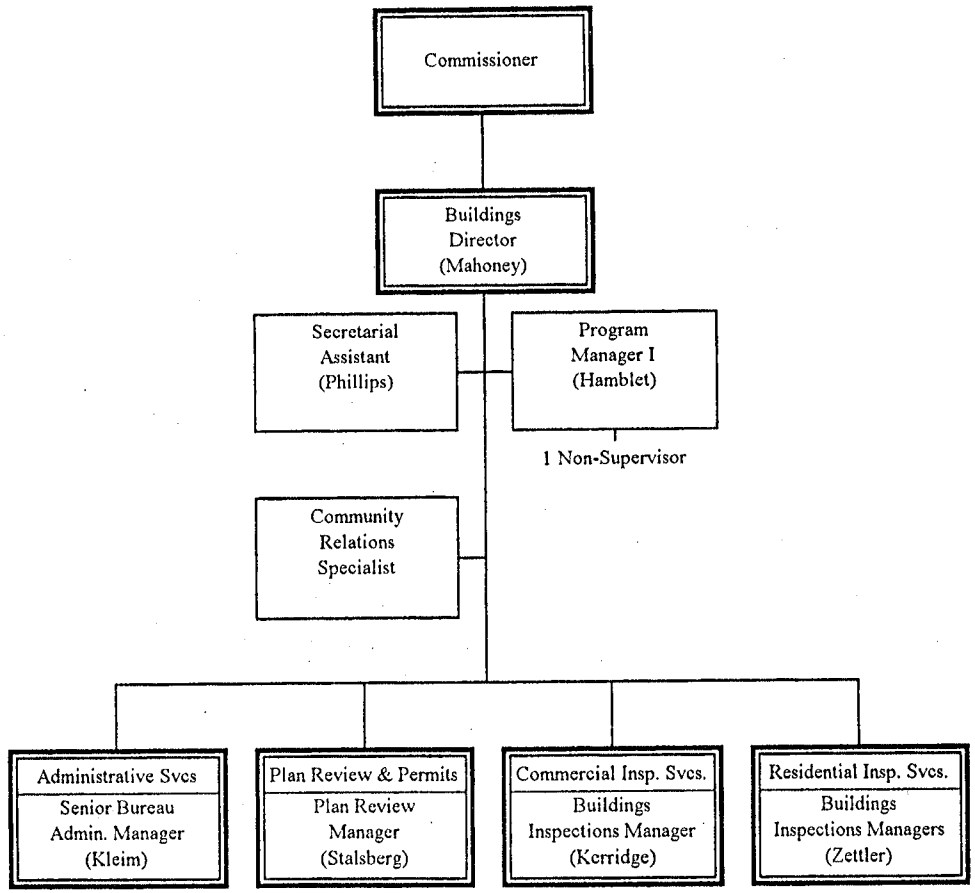


ORGANIZATION CHARTS

Bureau of Buildings
(Selected Functions)

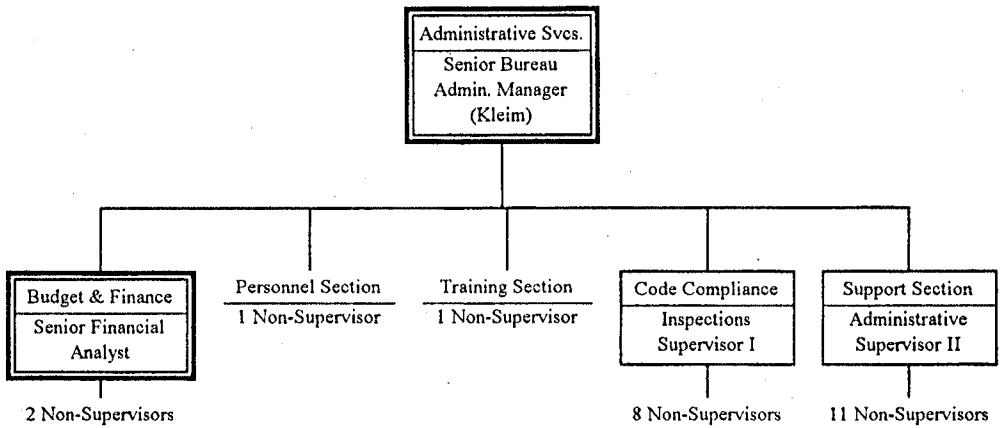
CITY OF PORTLAND
Bureau of Buildings

Organization Chart
Levels 1 - 3



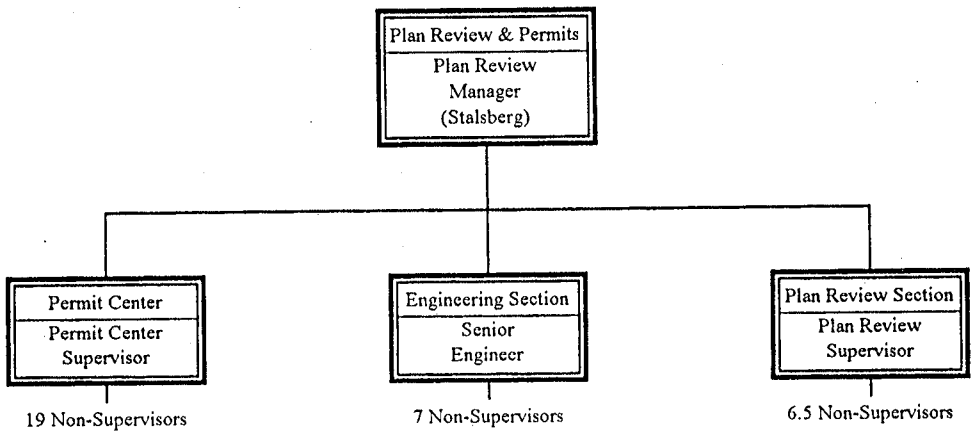
CITY OF PORTLAND
Bureau of Buildings

Organization Chart
Levels 3 - 5



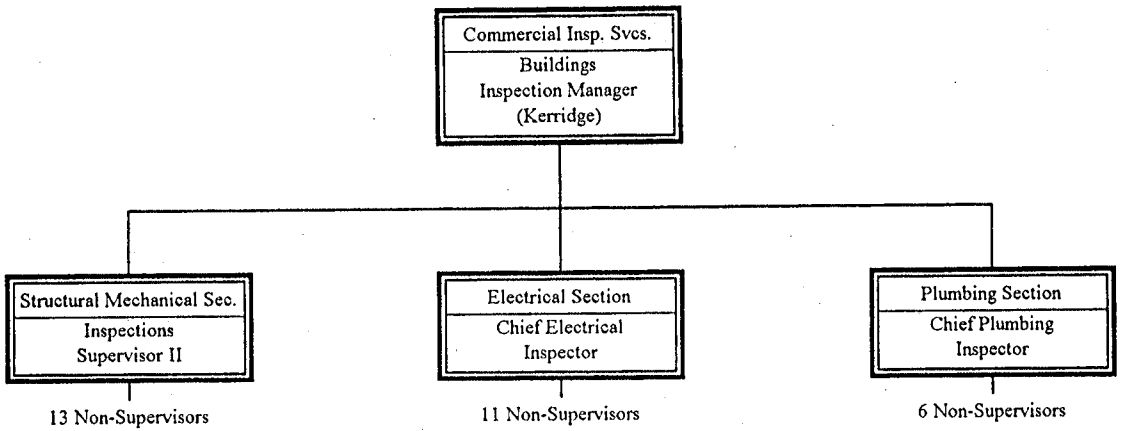
CITY OF PORTLAND
Bureau of Buildings

Organization Chart
Levels 3 - 5



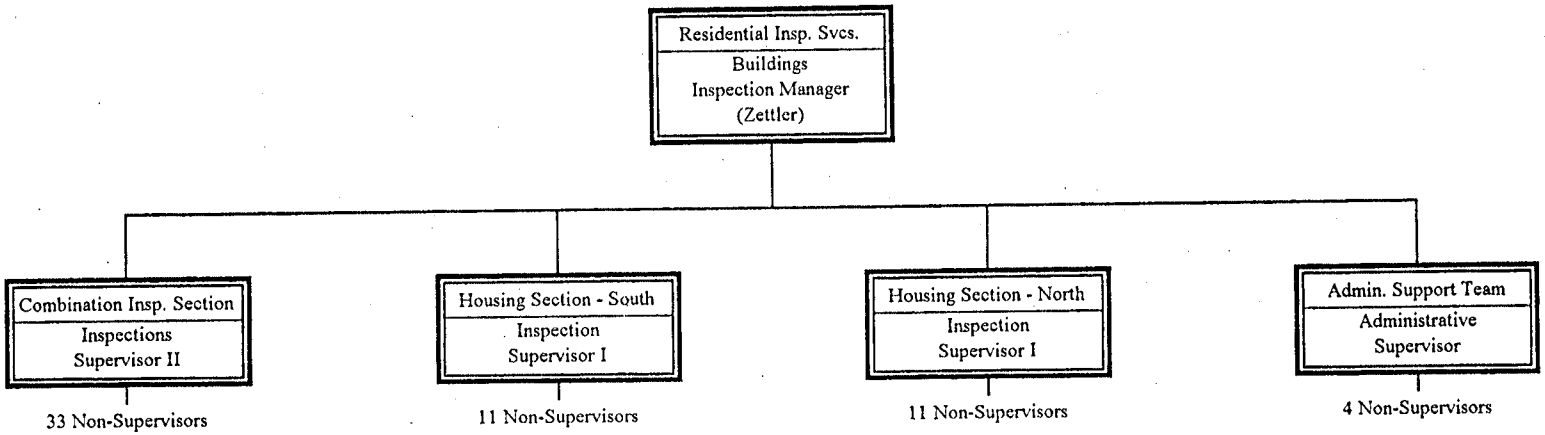
CITY OF PORTLAND
Bureau of Buildings

Organization Chart
Levels 3 - 5



CITY OF PORTLAND
Bureau of Buildings

Organization Chart
Levels 3 - 5

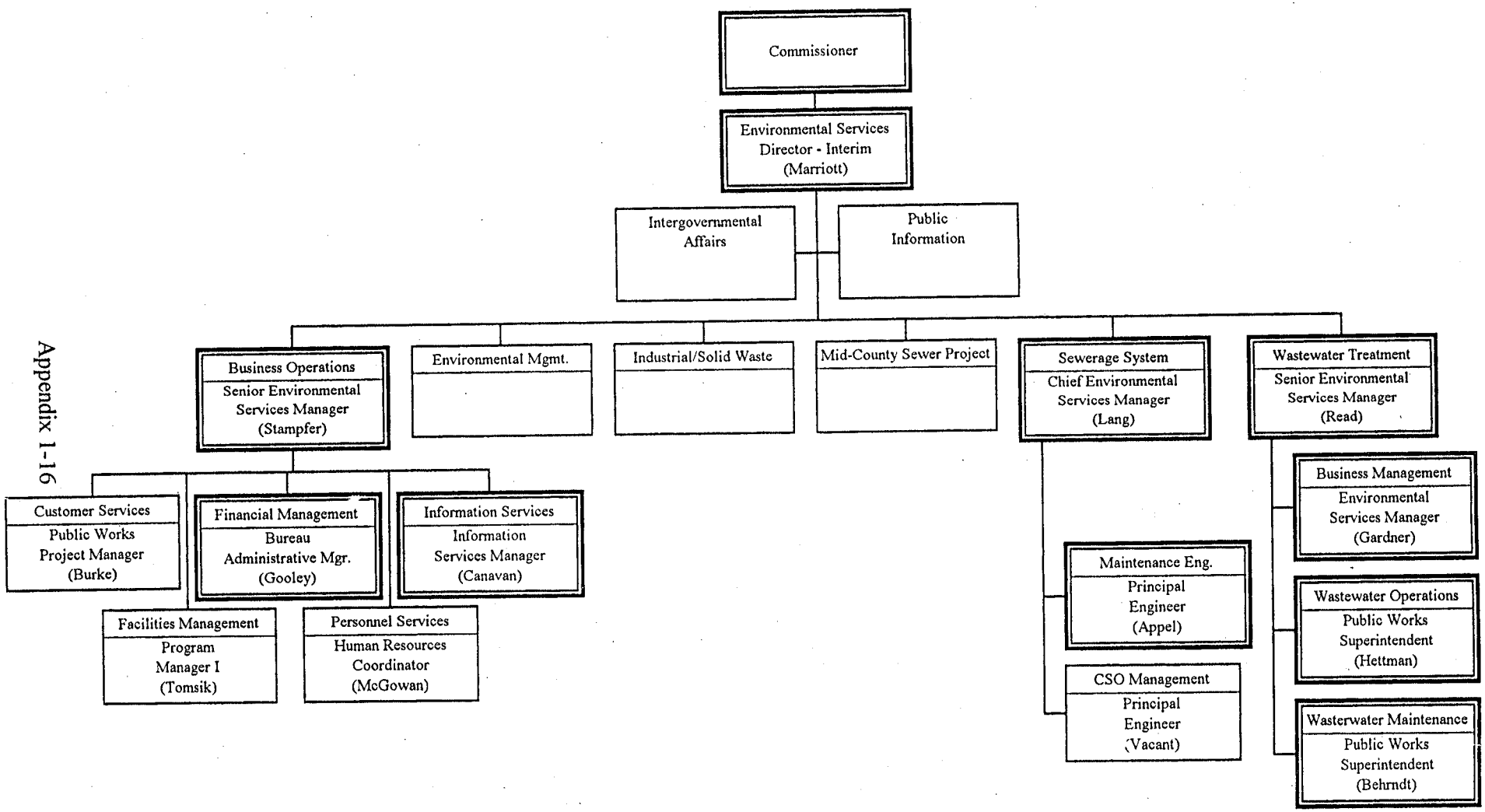


ORGANIZATION CHARTS

Bureau of Environmental Services
(Selected Functions)

CITY OF PORTLAND
Bureau of Environmental Services

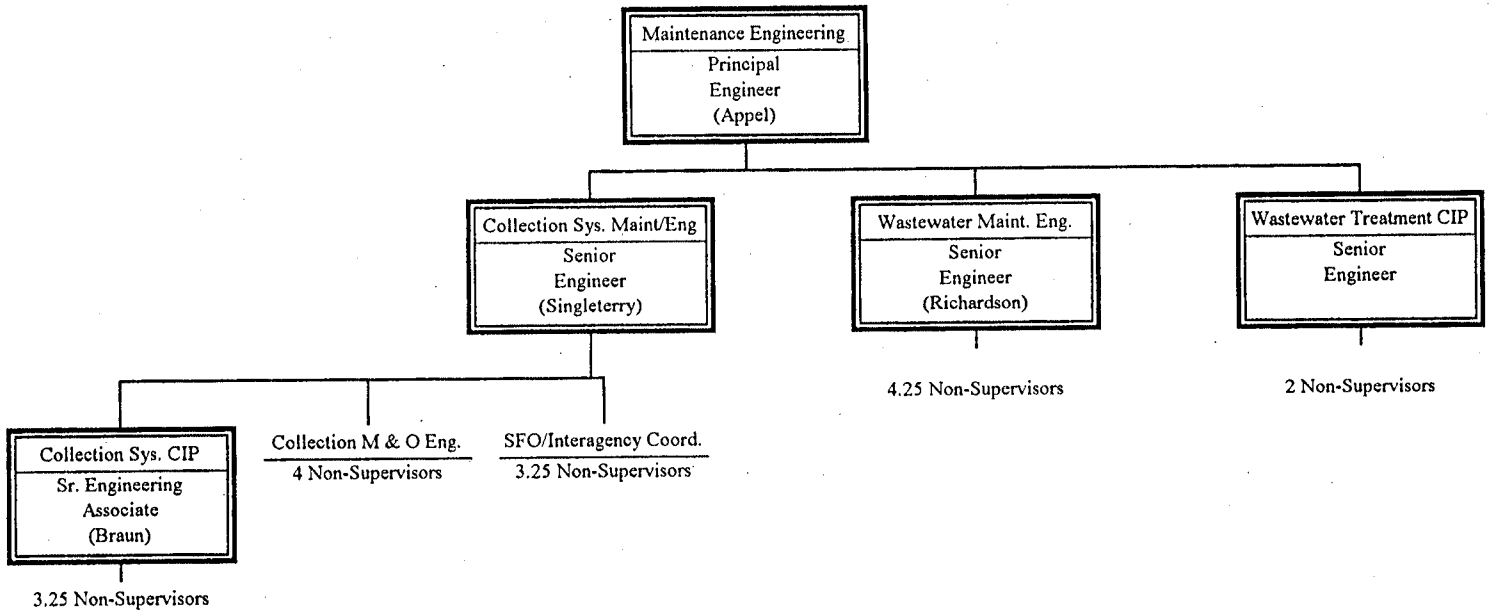
Organization Chart
Levels 1 - 4



BES1.opx

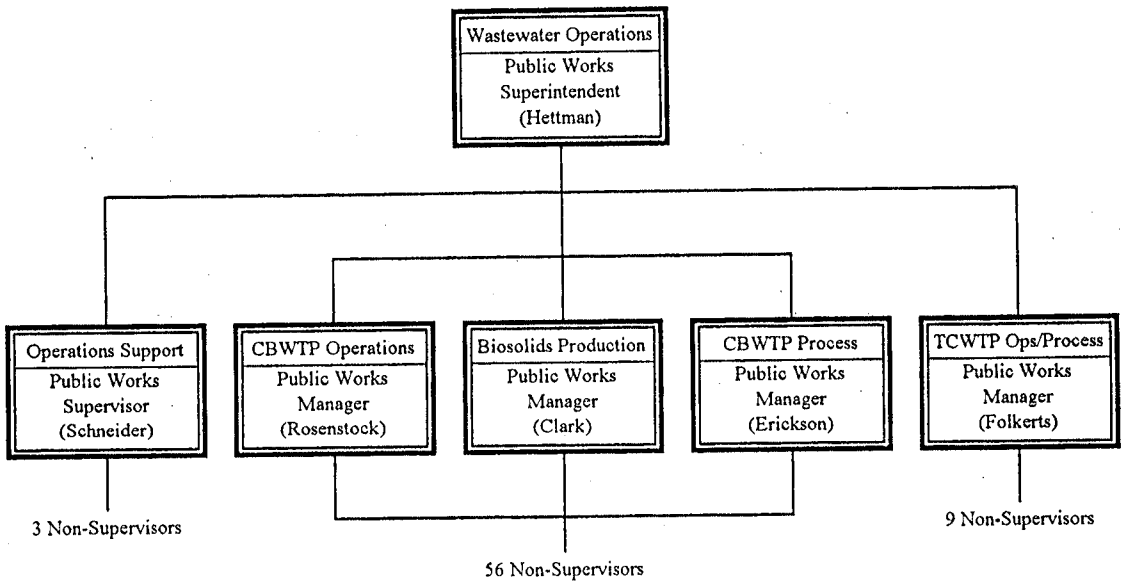
CITY OF PORTLAND
Bureau of Environmental Services

Organization Chart
Levels 4 - 7



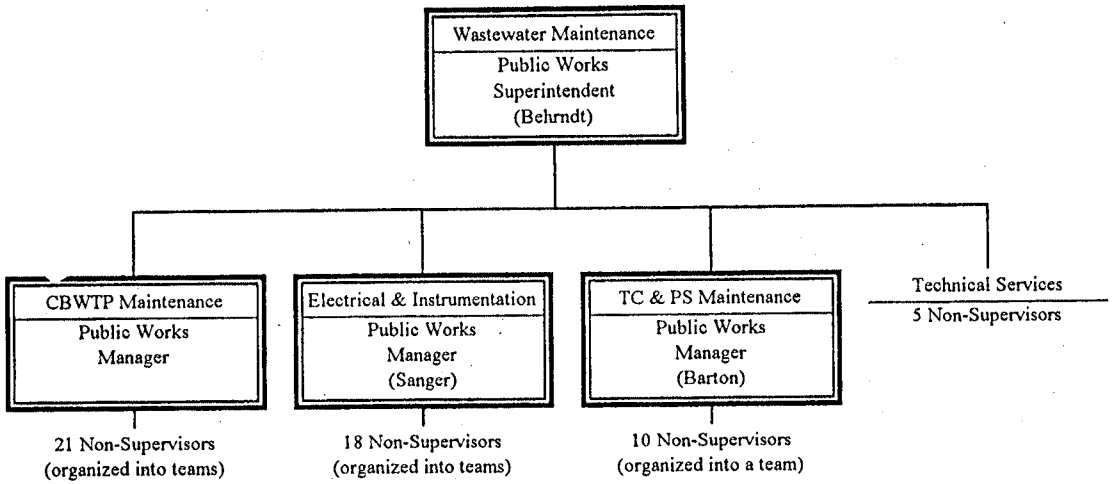
CITY OF PORTLAND
Bureau of Environmental Services

Organization Chart
Levels 4 - 6



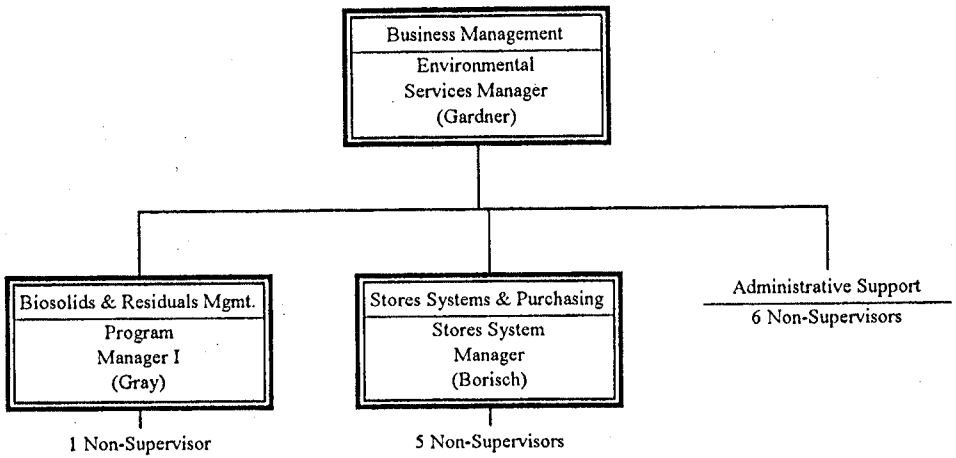
CITY OF PORTLAND
Bureau of Environmental Services

Organization Chart
Levels 4 - 6



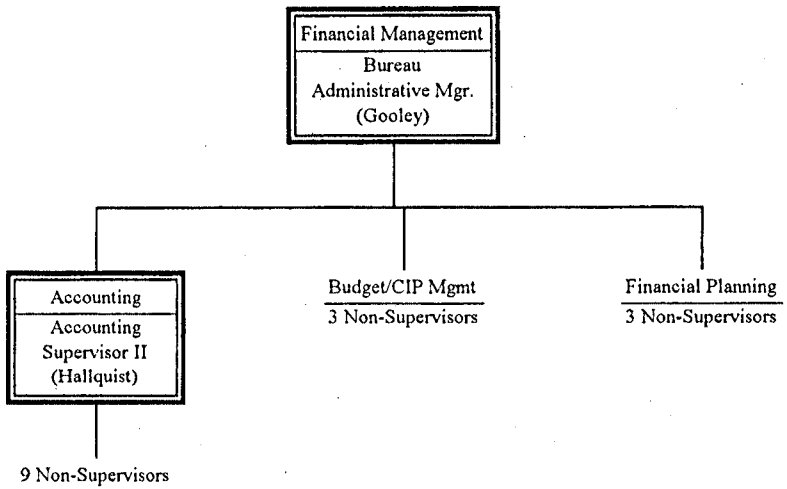
CITY OF PORTLAND
Bureau of Environmental Services

Organization Chart
Levels 4 - 6



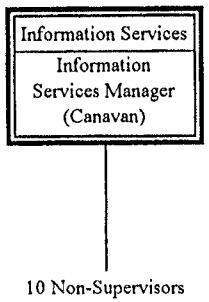
CITY OF PORTLAND
Bureau of Environmental Services

Organization Chart
Levels 4 - 6



CITY OF PORTLAND
Bureau of Environmental Services

Organization Chart
Levels 4 - 5

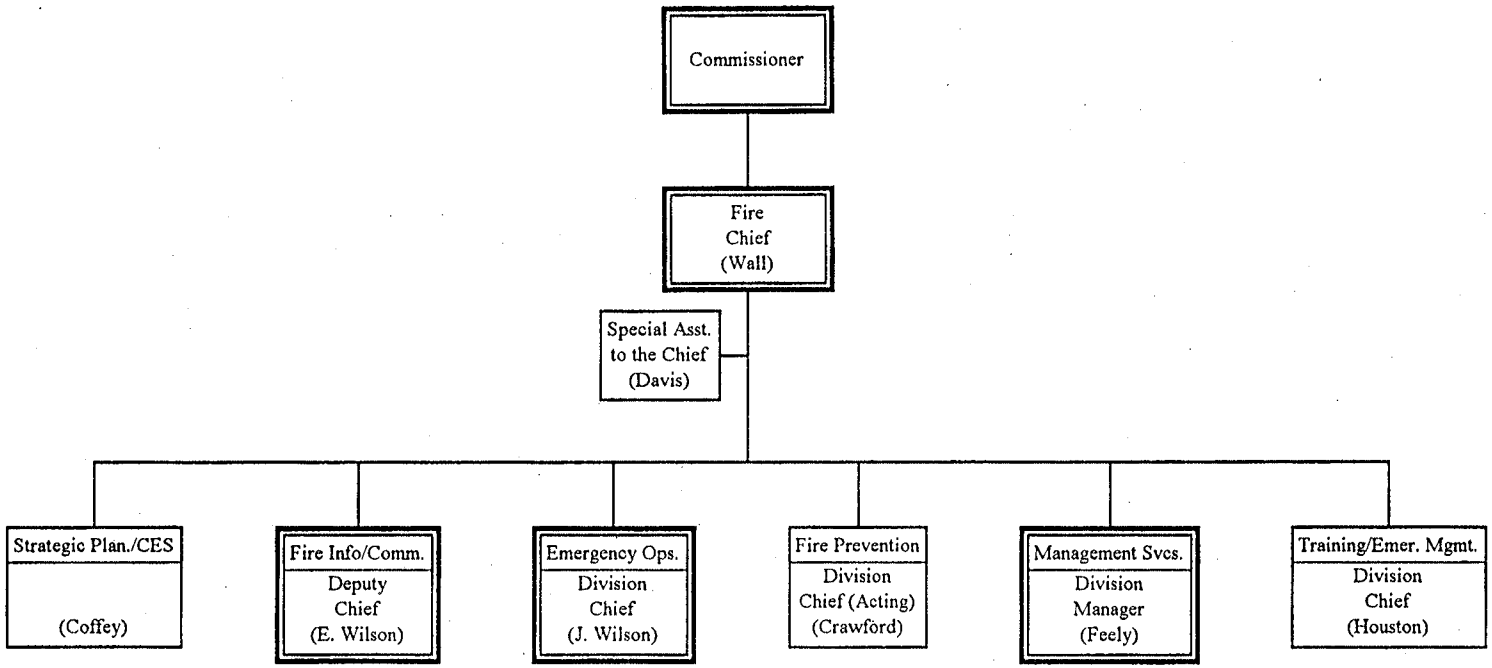


ORGANIZATION CHARTS

Bureau of Fire
(Selected Functions)

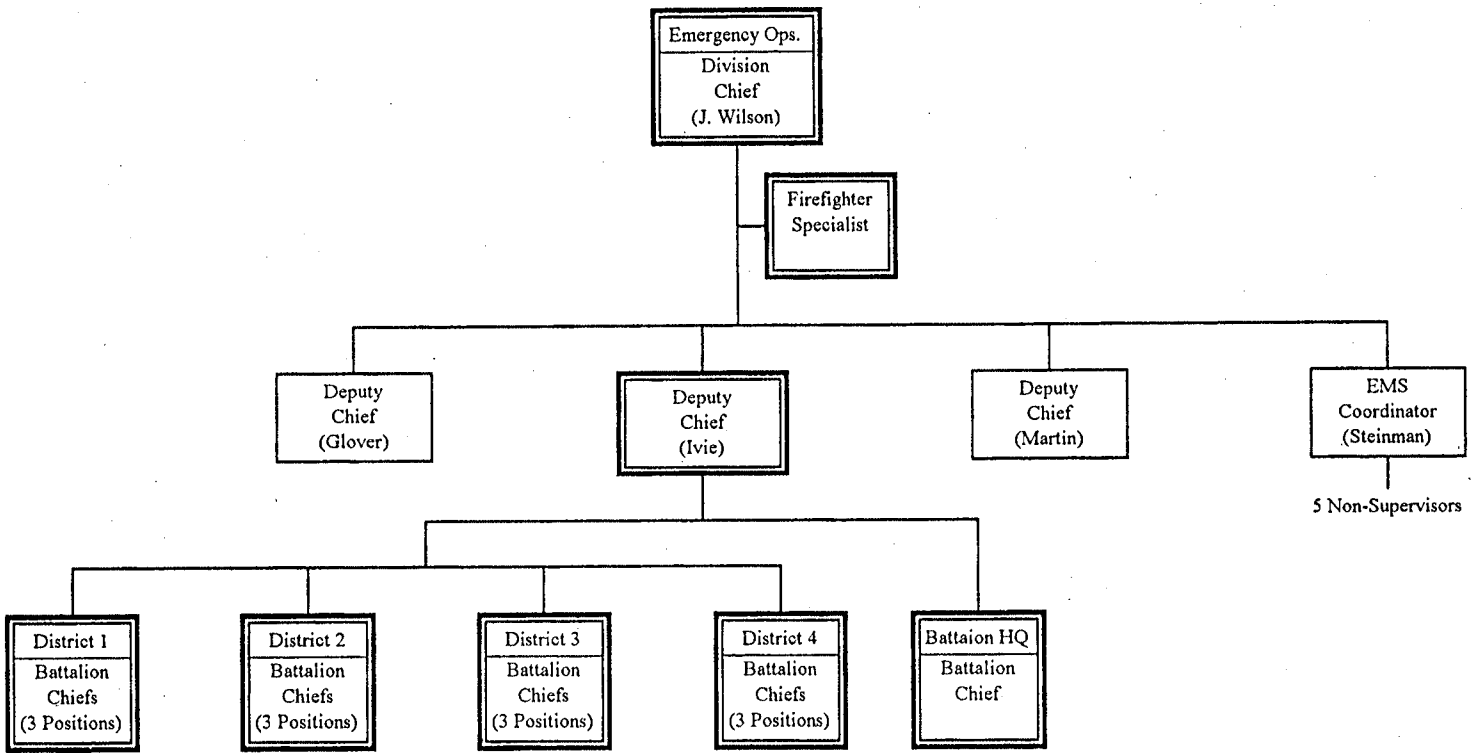
CITY OF PORTLAND
Bureau of Fire

Organization Chart
Levels 1 - 3



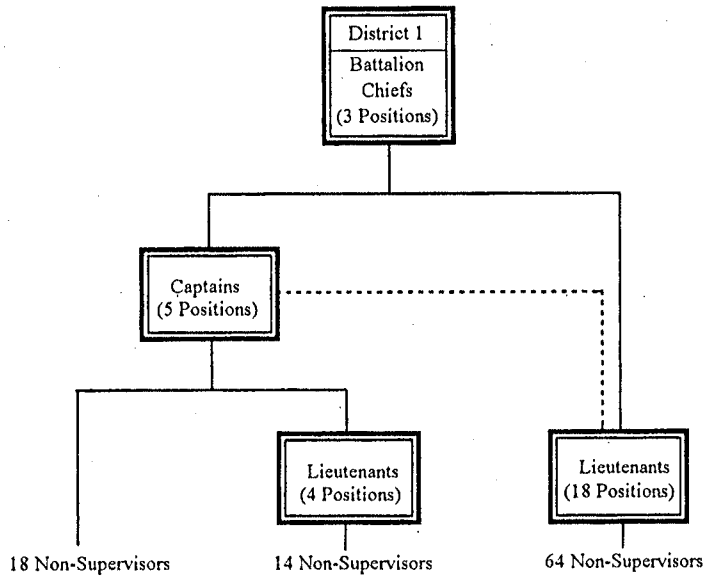
CITY OF PORTLAND
Bureau of Fire

Organization Chart
Levels 3 - 5



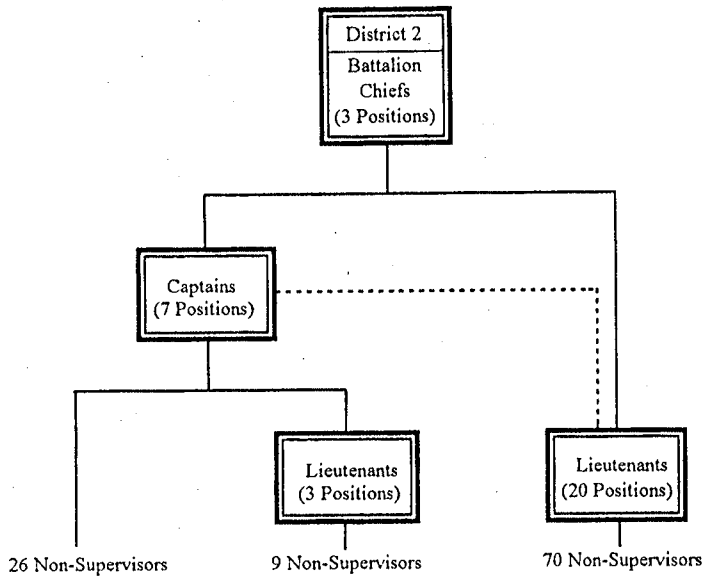
CITY OF PORTLAND
Bureau of Fire

Organization Chart
Levels 5 - 8



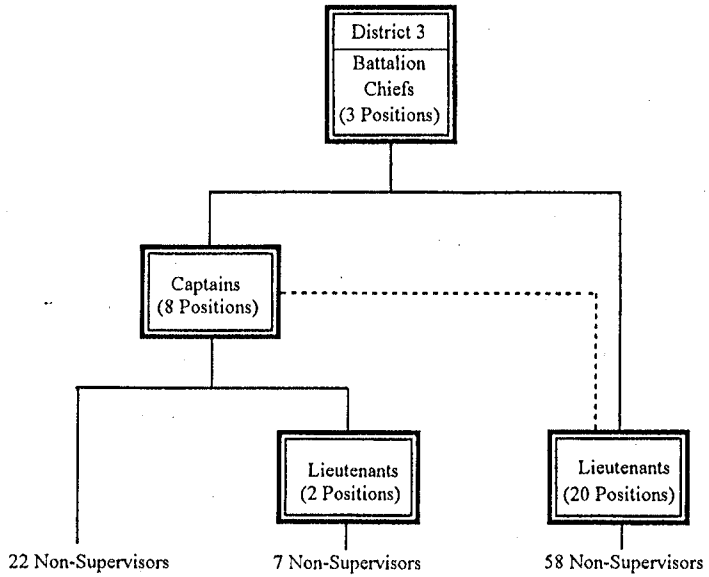
CITY OF PORTLAND
Bureau of Fire

Organization Chart
Levels 5 - 8



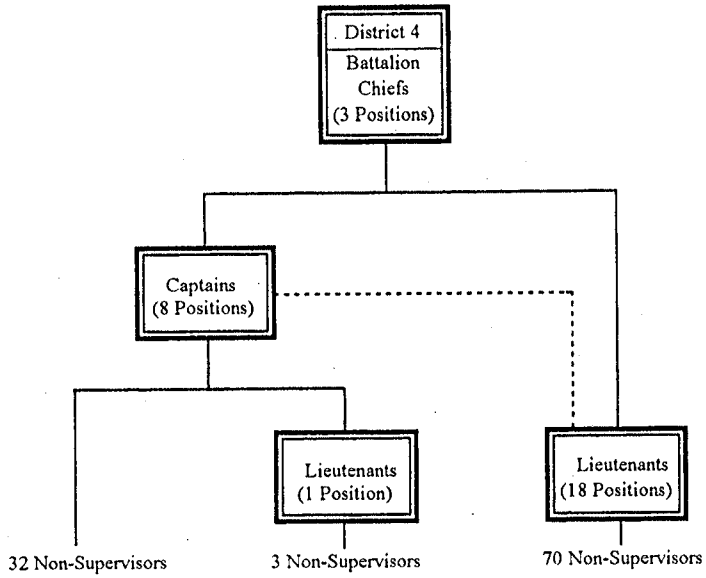
CITY OF PORTLAND
Bureau of Fire

Organization Chart
Levels 5 - 8



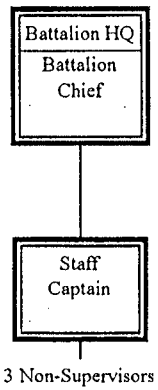
CITY OF PORTLAND
Bureau of Fire

Organization Chart
Levels 5 - 8



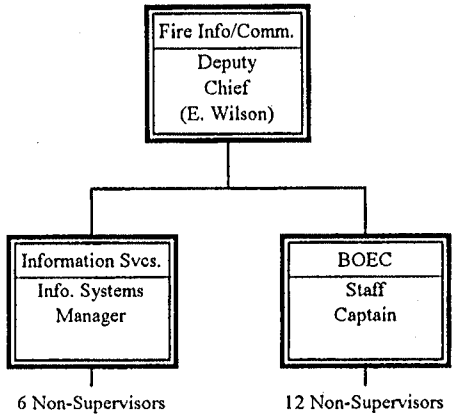
CITY OF PORTLAND
Bureau of Fire

Organization Chart
Levels 5 - 7



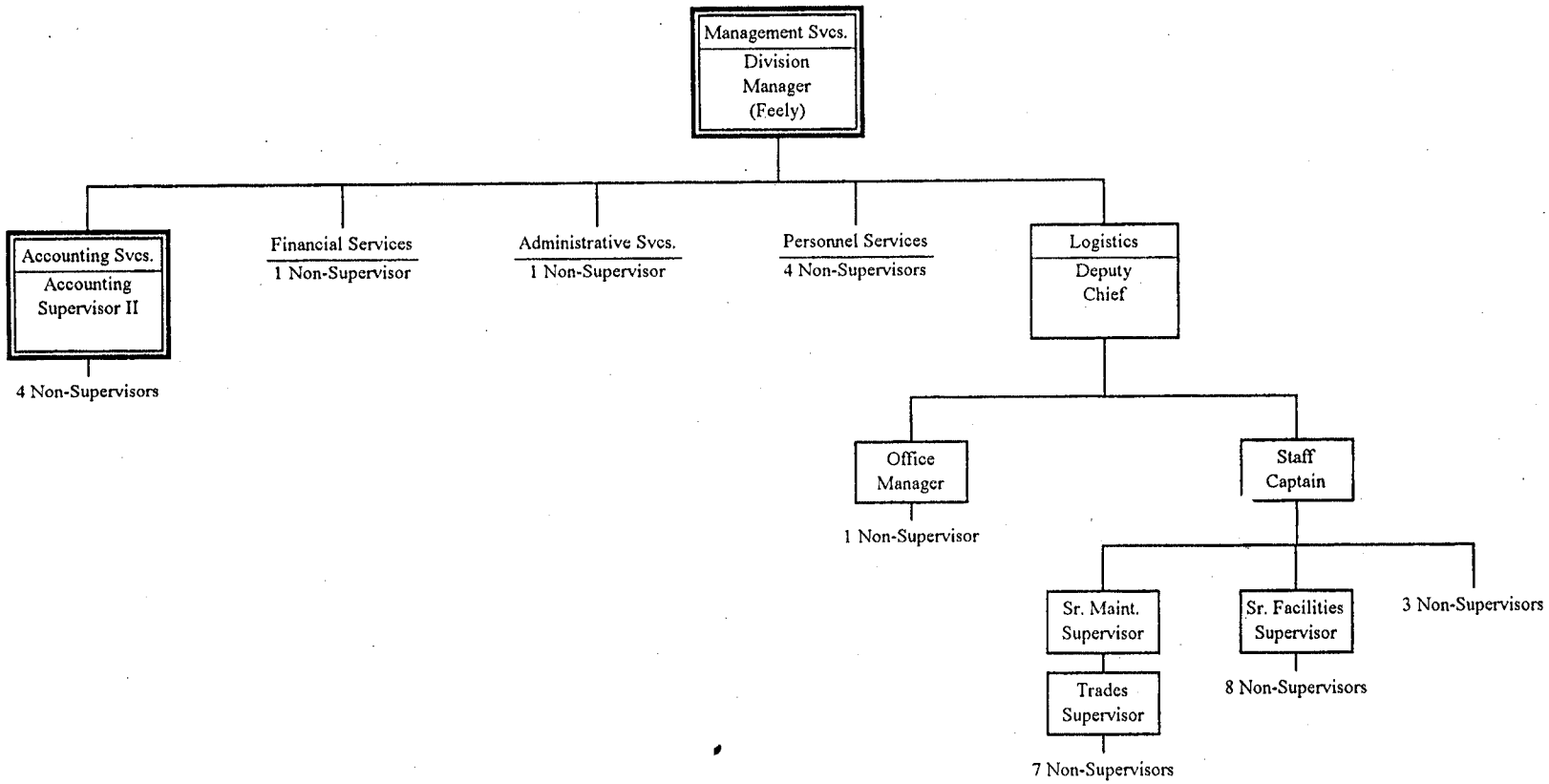
CITY OF PORTLAND
Bureau of Fire

Organization Chart
Levels 3 - 5



CITY OF PORTLAND
Bureau of Fire

Organization Chart
Levels 3 - 7

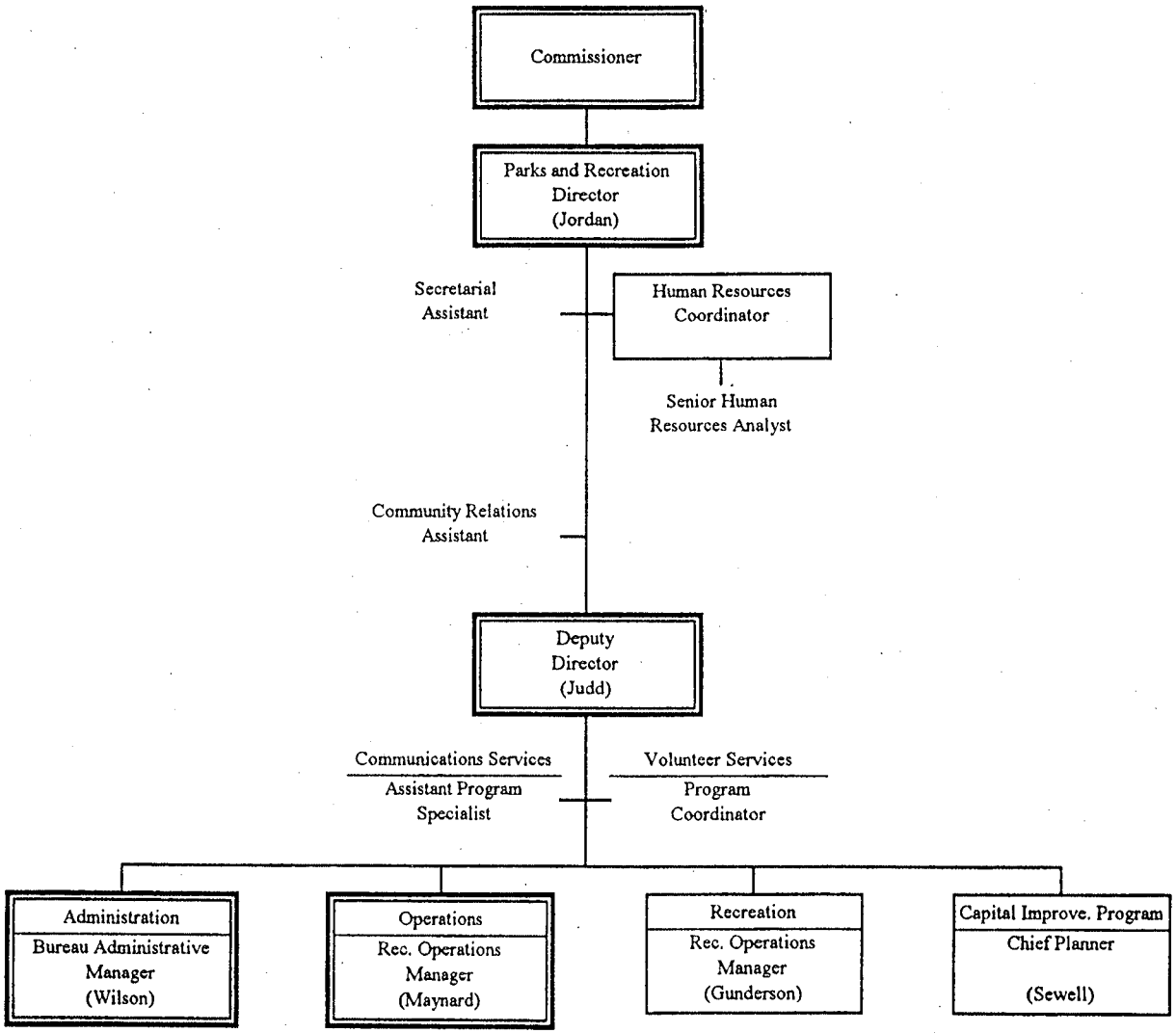


ORGANIZATION CHARTS

Bureau of Parks and Recreation
(Selected Functions)

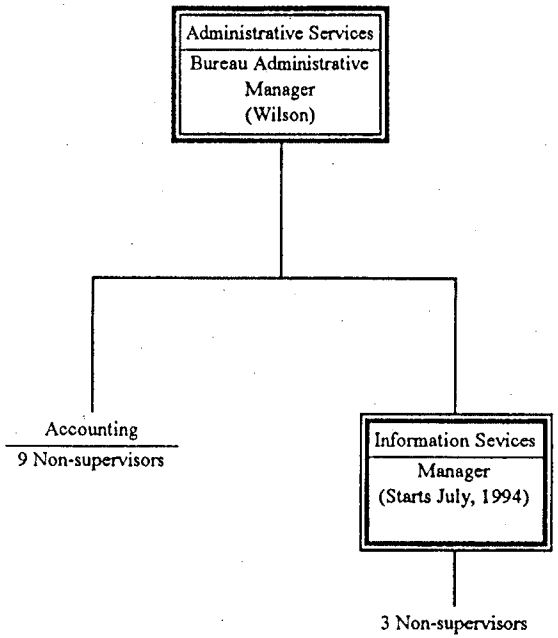
CITY OF PORTLAND
Bureau of Parks and Recreation

Organization Chart
Levels 1 - 4



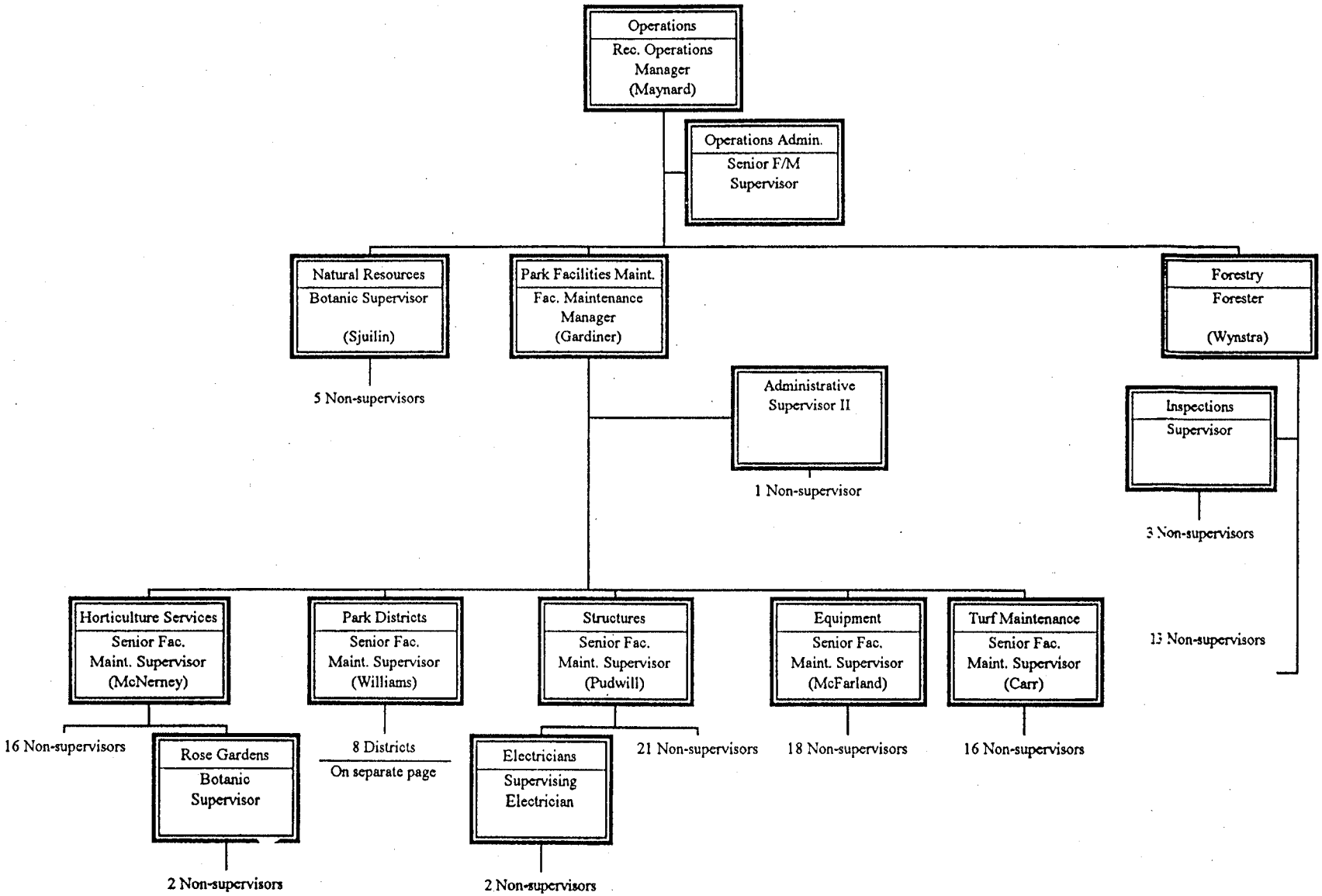
CITY OF PORTLAND
Bureau of Parks and Recreation

Organization Chart
Levels 4 - 6



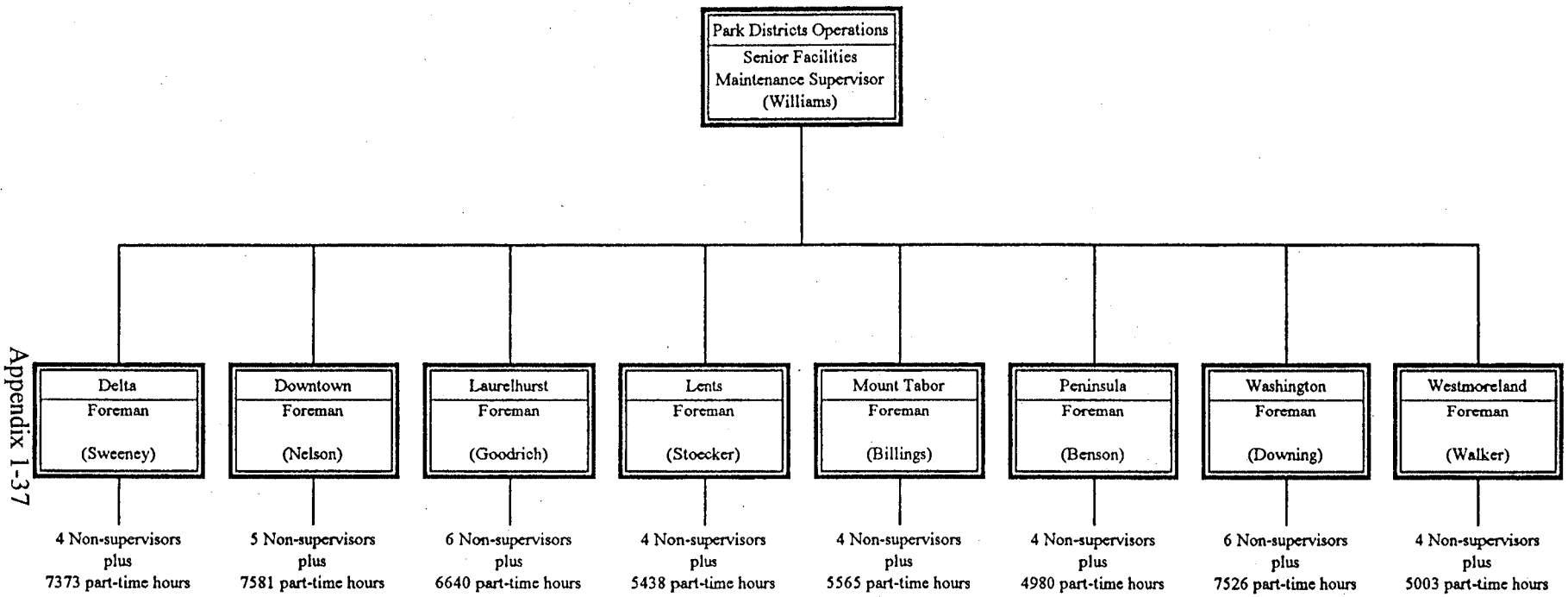
CITY OF PORTLAND
Bureau of Parks and Recreation

Organization Chart
Levels 4 - 8



CITY OF PORTLAND
Bureau of Parks and Recreation

Organization Chart
Levels 6 - 8

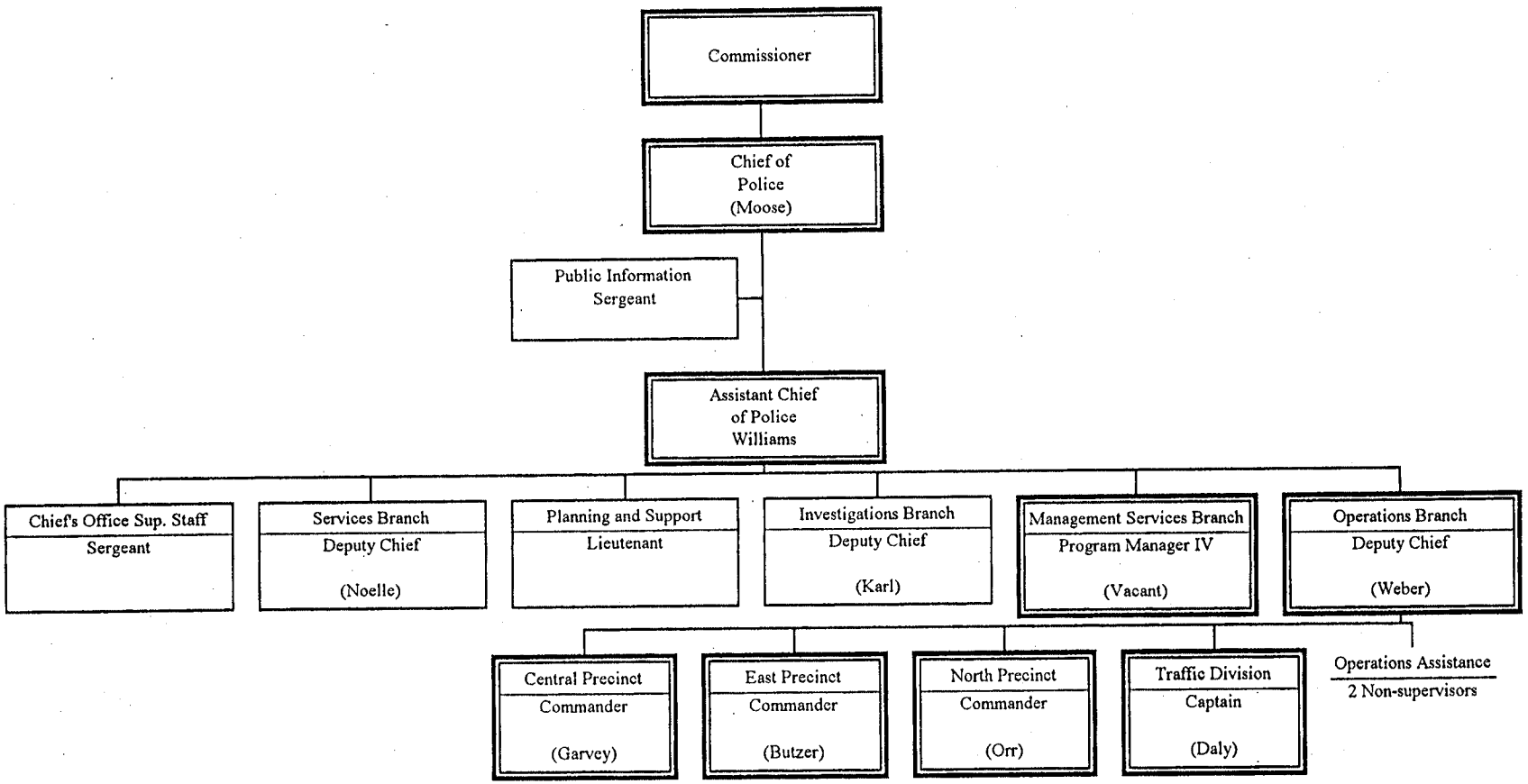


ORGANIZATION CHARTS

Bureau of Police
(Selected Functions)

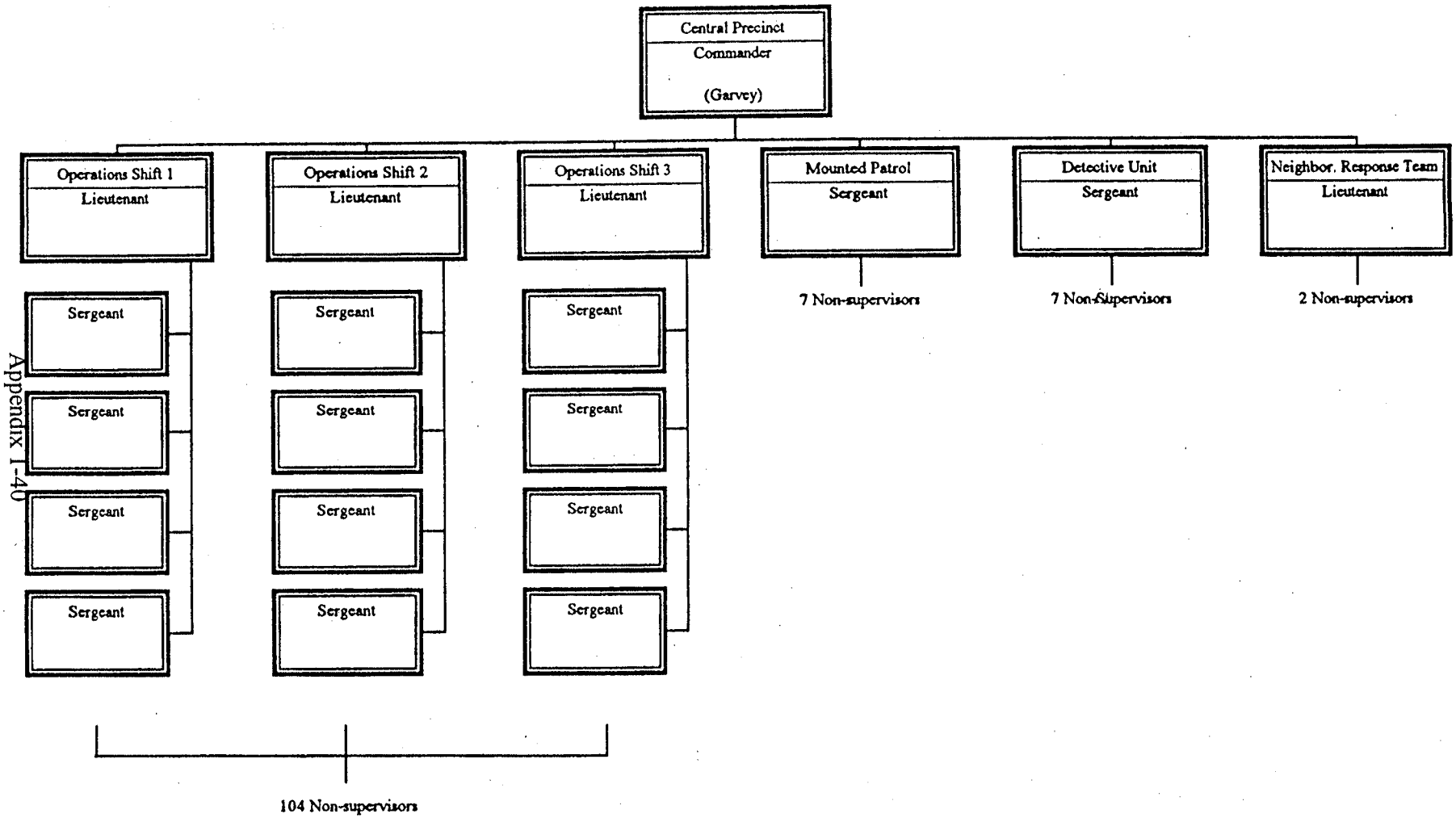
CITY OF PORTLAND
Bureau of Police

Organization Chart
Levels 1 - 5



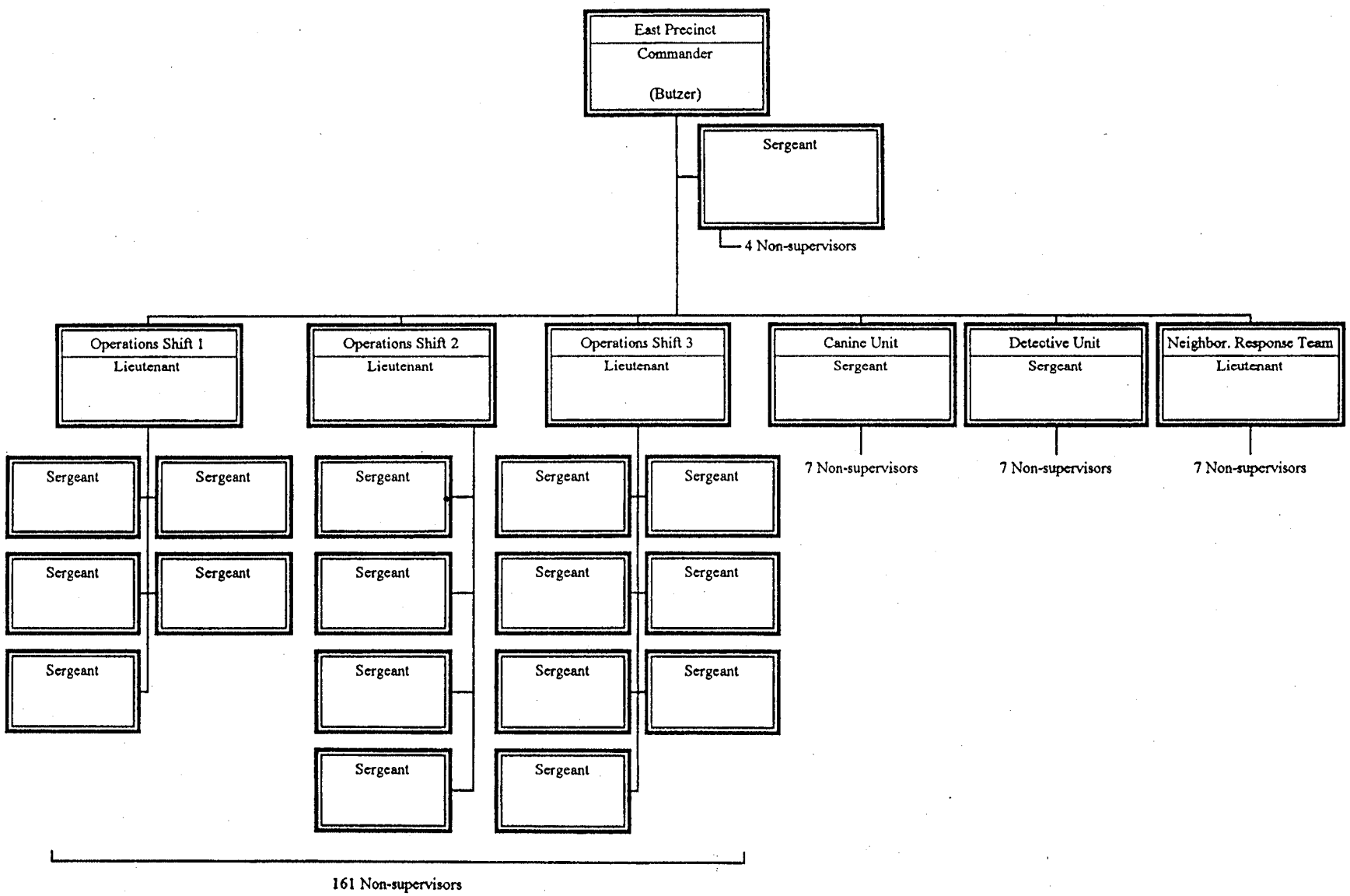
CITY OF PORTLAND
Bureau of Police

Organization Chart
Levels 5 - 8



CITY OF PORTLAND
Bureau of Police

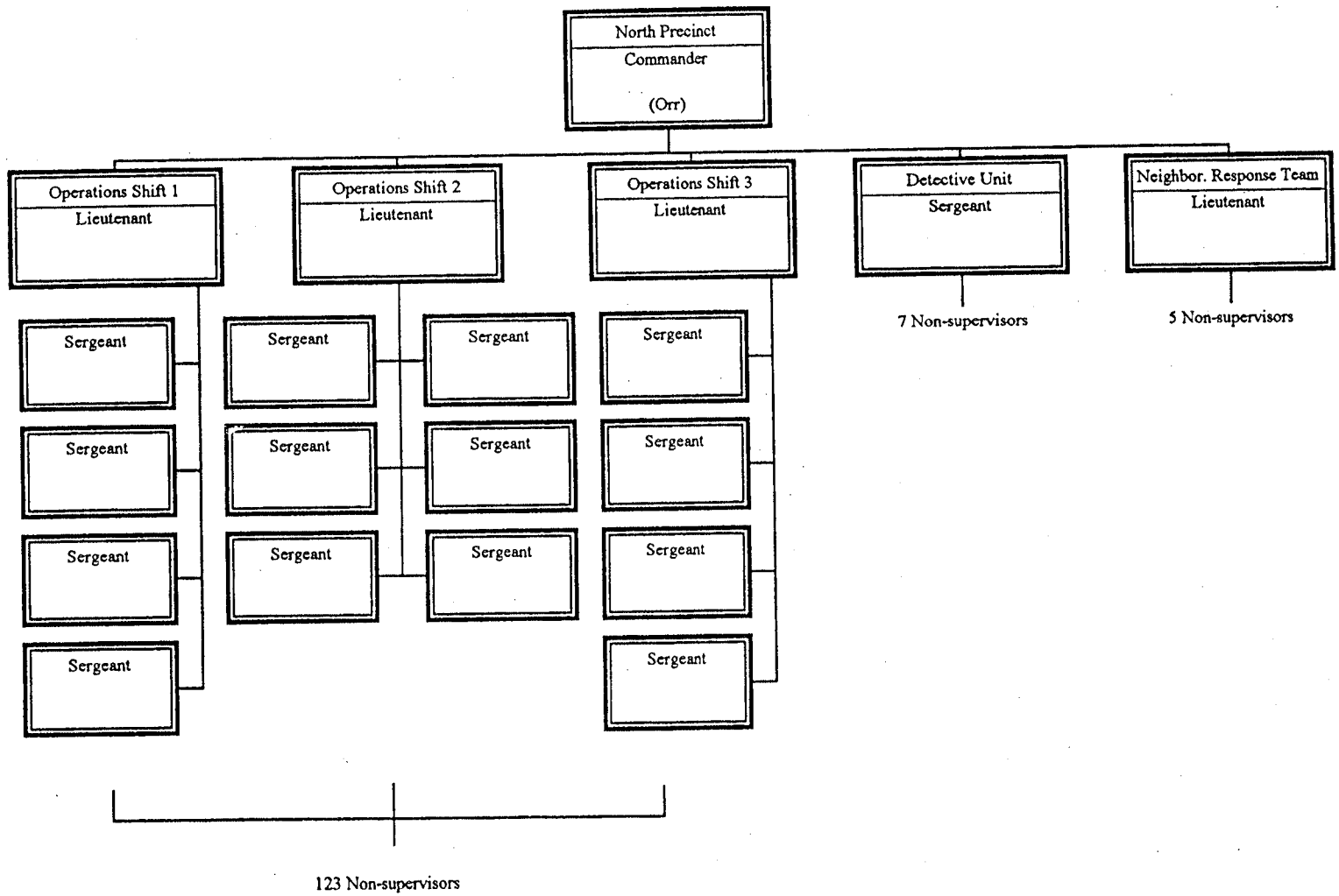
Organization Chart
Levels 5 - 8



POL3.opx

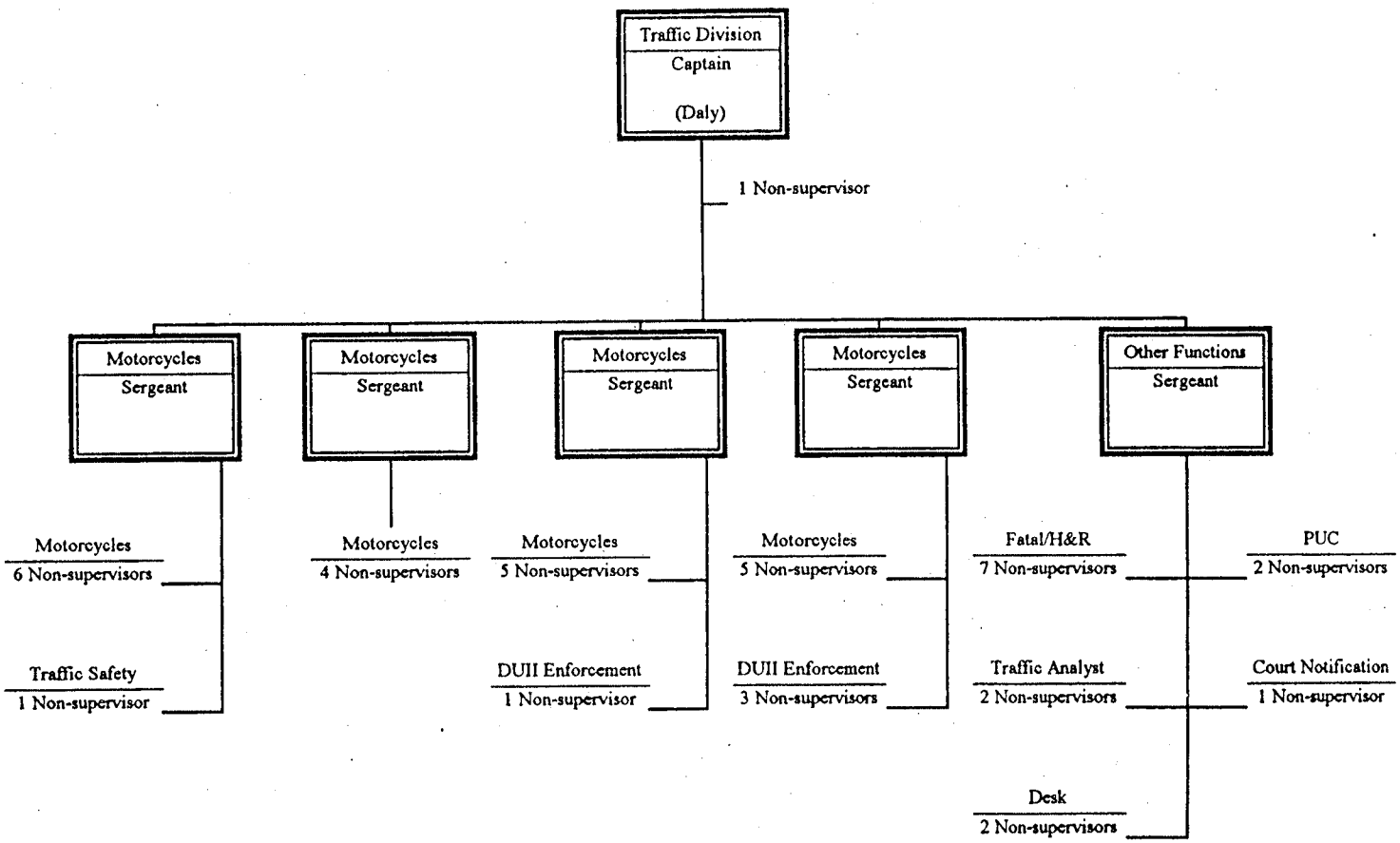
CITY OF PORTLAND
Bureau of Police

Organization Chart
Levels 5 - 8



CITY OF PORTLAND
Bureau of Police

Organization Chart
Levels 5 - 7



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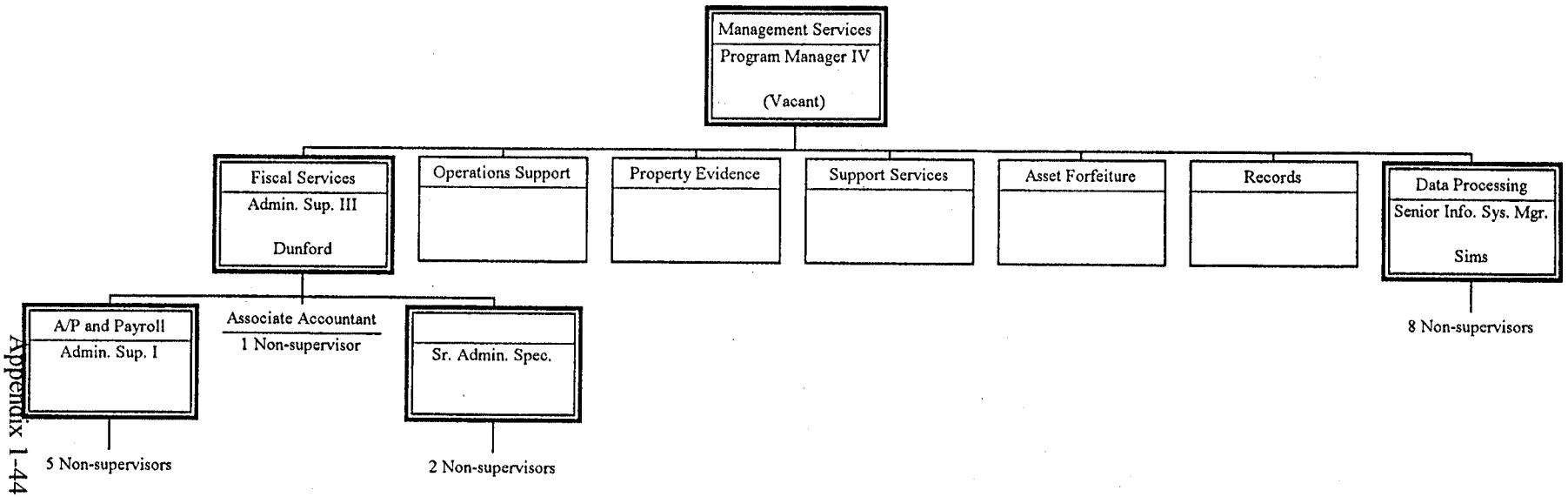
CITY OF PORTLAND
Bureau of Police

Organization Chart
Levels 4 - 7

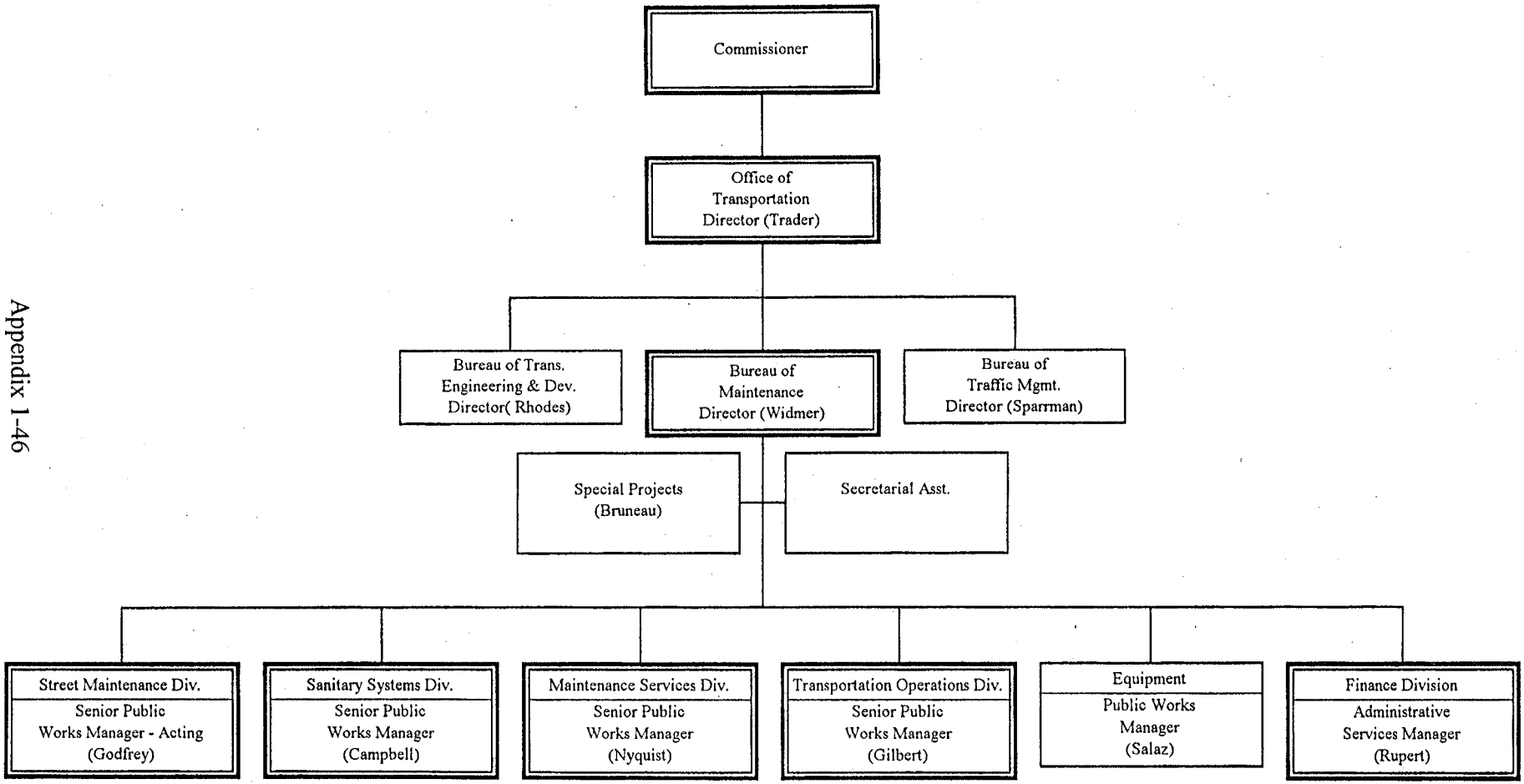


ORGANIZATION CHARTS

Office of Transportation
(Selected Functions)

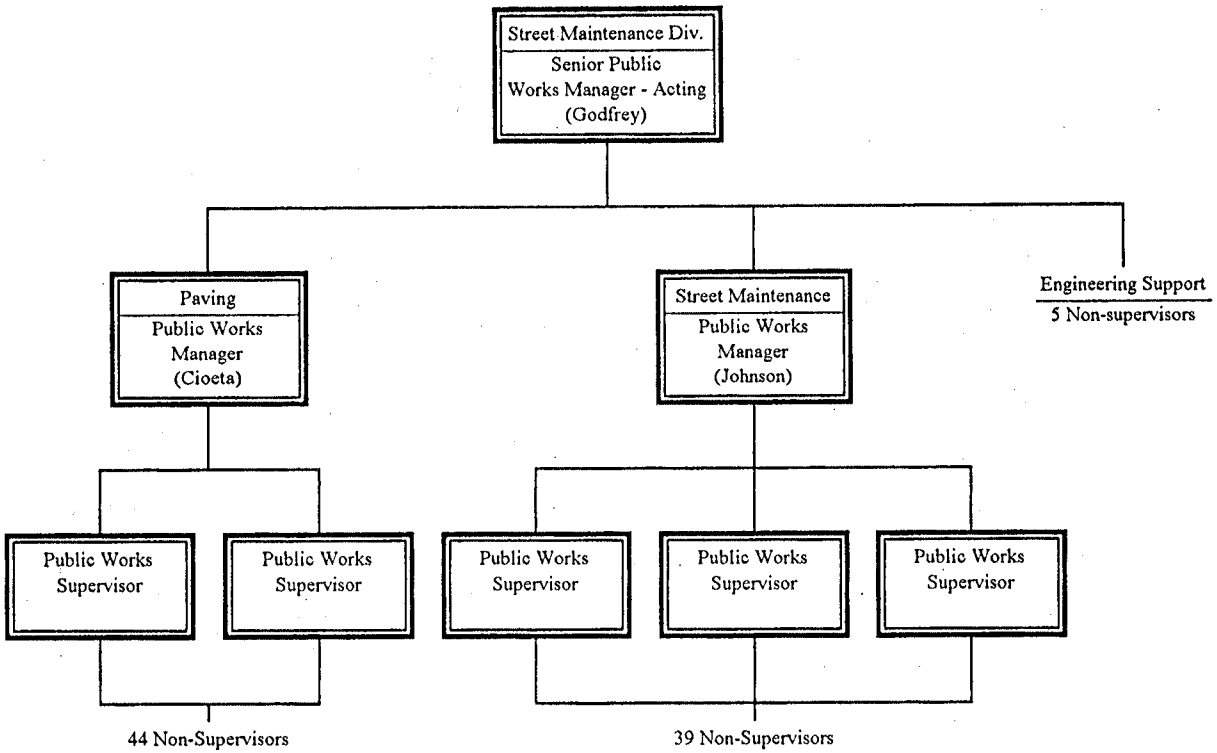
CITY OF PORTLAND
Office of Transportation

Organization Chart
Levels 1 - 4



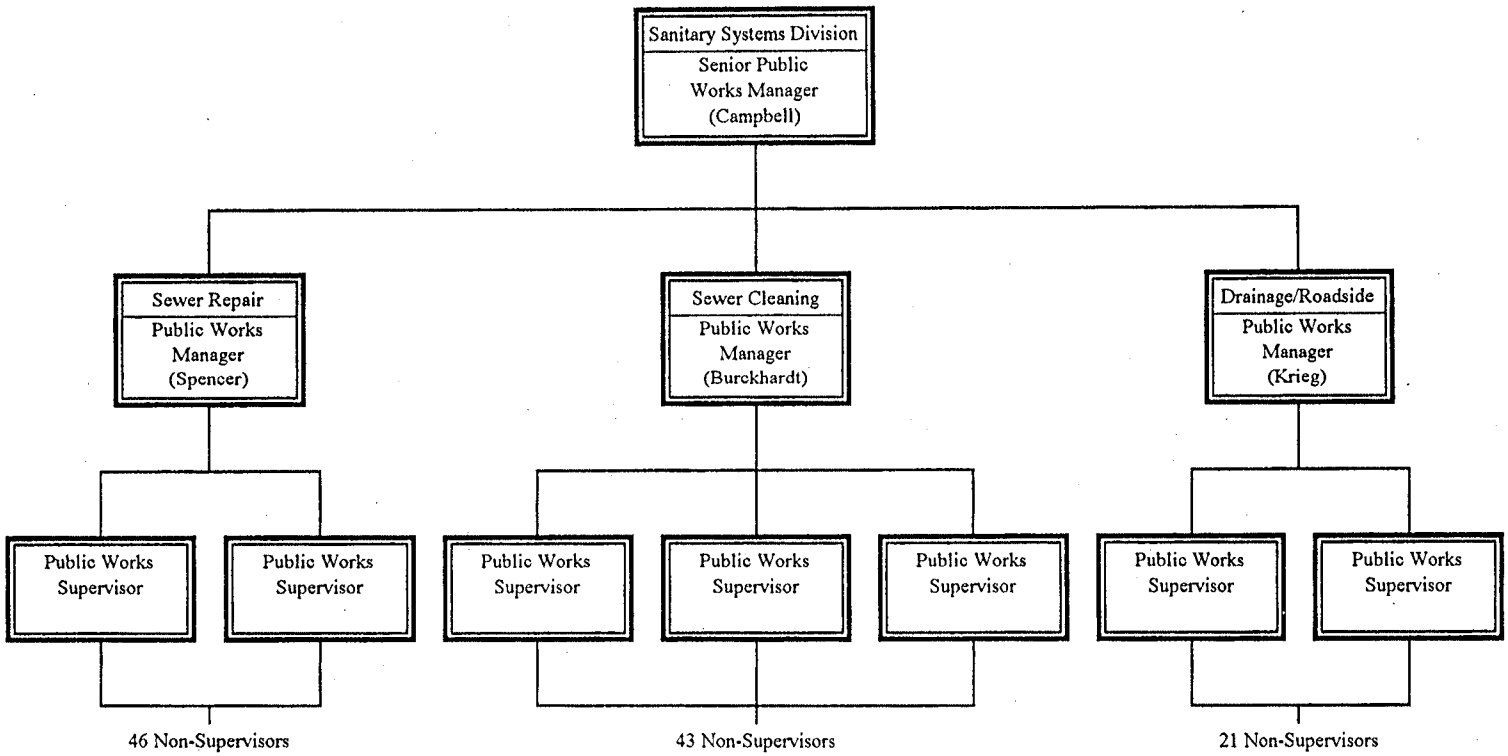
CITY OF PORTLAND
Office of Transportation

Organization Chart
Levels 4 - 7



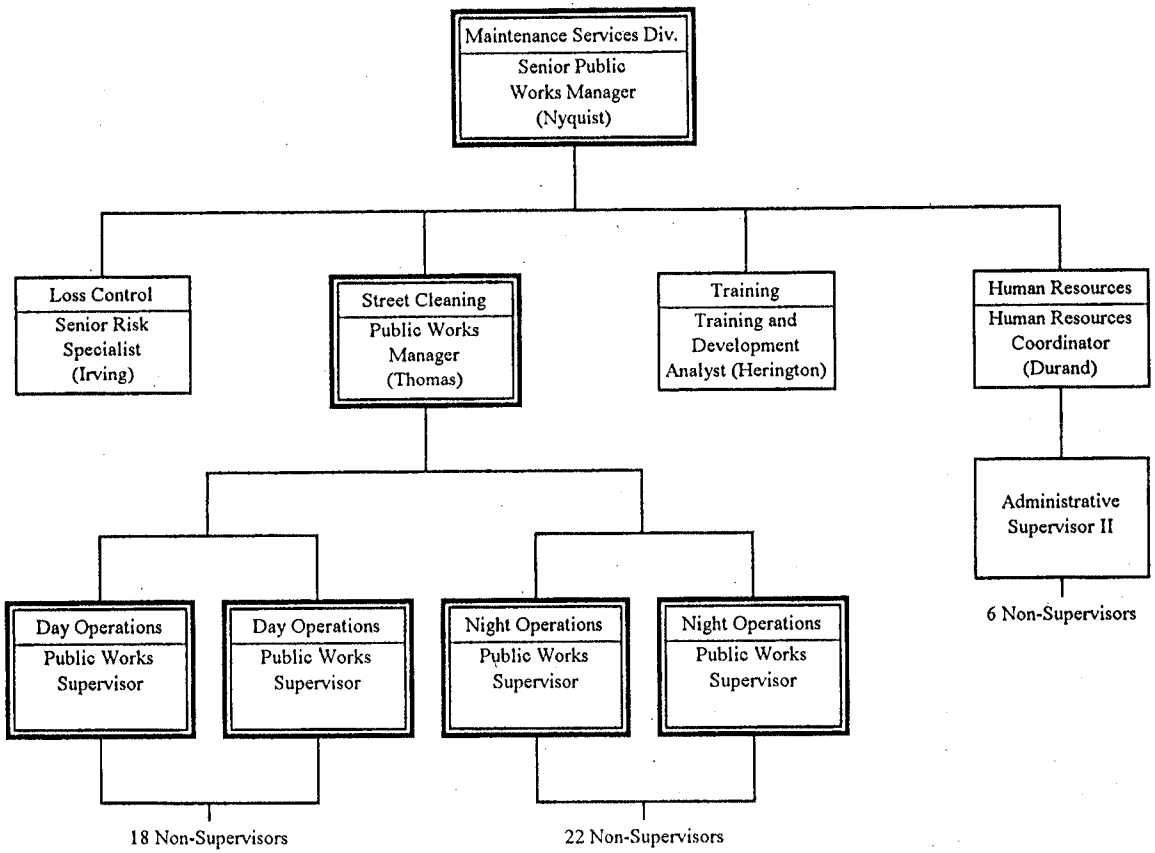
CITY OF PORTLAND
Office of Transportation

Organization Chart
Levels 4 - 7



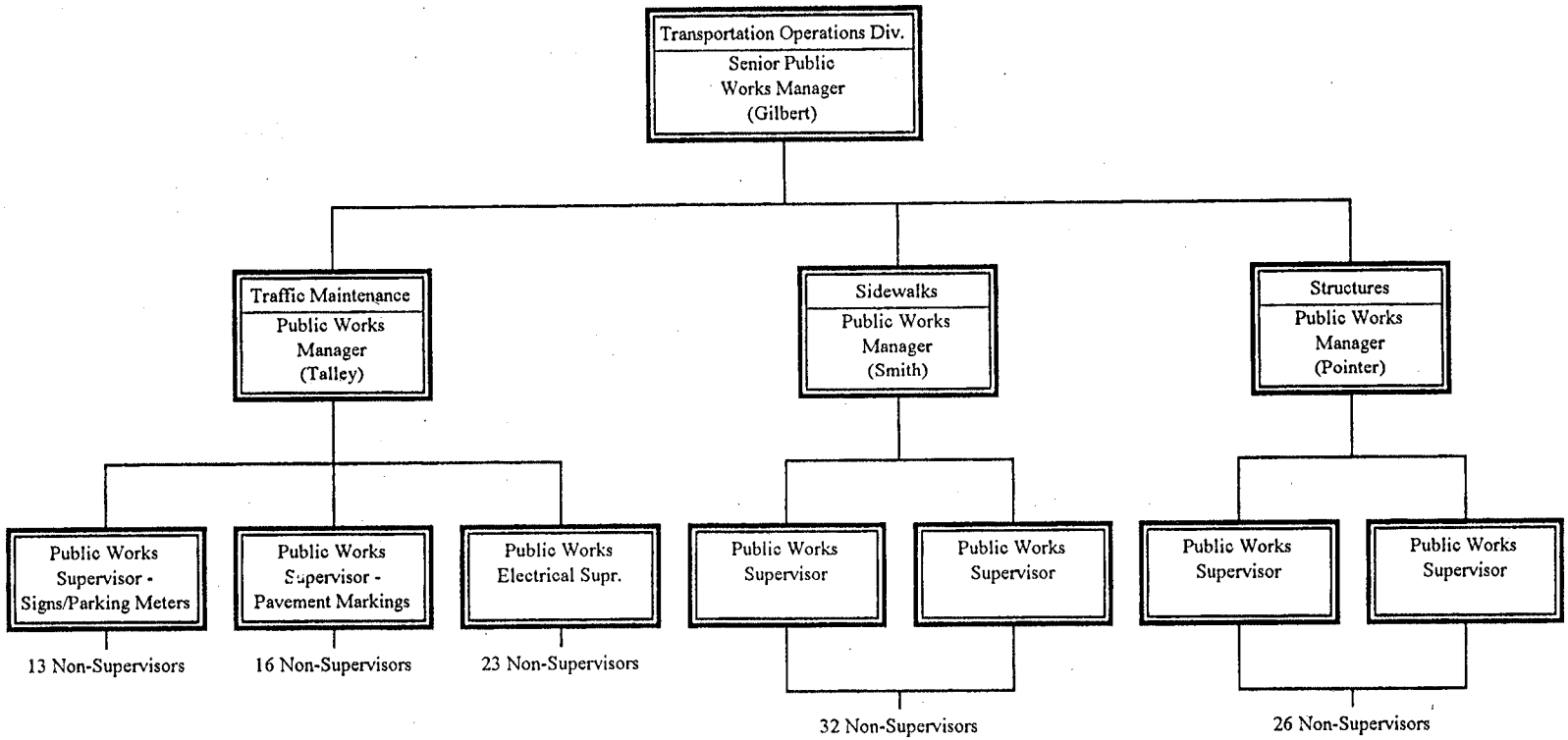
CITY OF PORTLAND
Office of Transportation

Organization Chart
Levels 4 - 7



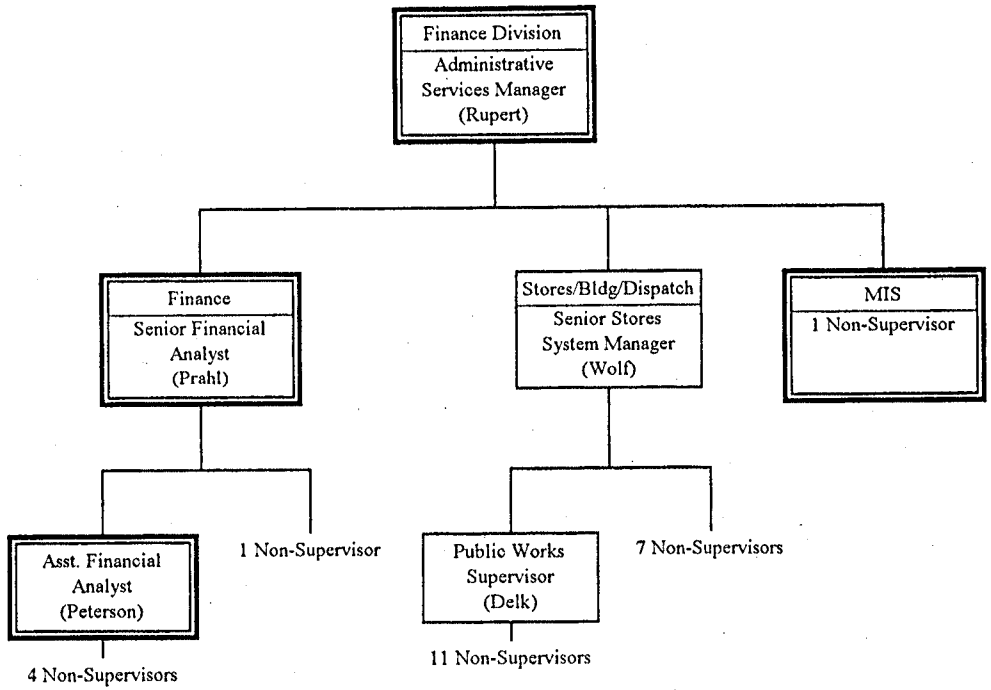
CITY OF PORTLAND
Office of Transportation

Organization Chart
Levels 4 - 7



CITY OF PORTLAND
Office of Transportation

Organization Chart
Levels 4 - 7



APPENDIX 2

APPENDIX 2

Bureau Interview Guide

APPENDIX 2

CITY OF PORTLAND
SPAN OF CONTROL STUDY
BUREAU INTERVIEW GUIDE

- In a brief paragraph, describe the functions performed by each of the work groups selected for the study. (For the purpose of increasing the compatibility of the information obtained from comparable functions in other organizations.)

- In one or two sentences, differentiate the functions of each supervisory unit within each work group.

- Using the existing organization chart(s) as a discussion document, review the organizational structure of the areas in the study and construct a detailed organization chart that clearly delineates the layers of management, spans of control, and lines of authority.

- Classify each position on the organization chart as a "director", "manager", "mezzanine manager", "supervisor", "lead worker", or "non-supervisor/manager" (see the attached definitions). Annotate the classification on the organization chart.

- Understand any positions currently vacant. (For the purpose of computing the spans with and without vacant positions.) Record both the number of authorized positions and the number currently filled for each organizational unit on the organization chart.

- Are there any unusual arrangements, such as job sharing, which we should understand? How many part-time positions are there within each of the work areas included in the study? Appropriately annotate these positions or arrangements on the organization chart and compute the FTEs associated with each supervisory unit.

- Do any managers or supervisors perform only part-time as a manager or supervisor, and part-time as a line worker? If so, describe these arrangements as specifically as possible.

- How does seasonality affect or change the organization chart for each supervisory unit? On the organization chart, annotate the number of positions in each supervisory unit for both peak and off-peak seasons.

- Are any people on the organization chart contractors? Do any managers or supervisors supervise contractors not shown on the organization chart? Annotate this information on the organization chart.

- Have there been any changes in the layers of management or spans of control within the last year? If so, what are they? Similarly, are there any planned changes in the coming year and, if so, what are they? Be as specific as possible in documenting these changes.

- What is the interviewee's general sense of the existing spans of control and layers of management, i.e. are they about right or too high or too low, and for what reasons. Document his or her opinion.

- What are the factors within this work unit that would account for the span of control within the bureau/work area to be different than other areas within the City? Document the interviewee's opinions.

- Has there been any training or development program within the past two years, or is any currently planned, with the objective of developing team skills among workers in this area, to enable new forms of supervision? Document the response as specifically as possible (type of program, who will participate, number of hours, etc.)

- Have the bureau interviewee complete the span of control factors questionnaire (see attached questionnaire) for each supervisory unit included in the work unit. Also have the budget analyst assigned to this bureau complete the questionnaire for each supervisory unit.

- Obtain the existing position/job descriptions for each type of manager, supervisor, or lead worker identified on organization chart in relevant work areas. (These could help to resolve issues on how certain positions are defined for the purposes of the study.)

- Who else within this bureau/organization unit should be contact for additional information? (Revise question for more specificity as needed.)

- For the purpose of collecting comparable data from "best practices" organizations, have the interviewee recommend at least three public or private sector organizations that perform similar functions to this work area that he or she considers "best practice" organizations; document why the interviewee believes these organizations are "best practice" organizations.

  NOTE: A "best practice" organization may be defined as one recognized by its peers or professionals in the field as a high performance organization in such areas as efficiency, effectiveness, customer service, etc.

- What else does the interviewee believe we should know about this work unit in order to make informed judgments in our study? Be as specific as possible.

APPENDIX 3

APPENDIX 3

Span of Control Factors Questionnaire

APPENDIX 3

CITY OF PORTLAND
SPAN OF CONTROL STUDY
Span of Control Factors Questionnaire

The attached questionnaire was developed to evaluate each functional group in the sample in relation to several factors identified in the management literature as determinants of span variation. Various personnel within the participating bureaus provided their responses to this questionnaire. City budget and audit staff who had direct experience with organizational units included in the study also responded to help validate the responses from the personnel internal to the study units. The respondents rated the various factors on a scale of one to ten.

While the survey results reflect the subjective judgments of the respondents, the questionnaire is a useful tool to help identify situations in which the existing spans of control might merit particular attention.

CITY OF PORTLAND
SPAN OF CONTROL STUDY
Span of Control Factors Questionnaire

Bureau Name: _____ Date: _____
Organizational Unit: _____
Supervisory Unit: _____
Completed by: _____ Phone: _____
Position: _____

INSTRUCTIONS: Circle the point on the scale that best represents the nature of the work in this organizational unit. (1 = very strong agreement with the left-hand statement; 10 = very strong agreement with the right-hand statement; points in between represent less or strong agreement with one statement or the other; 5.5 = neutral)

1) Nature of programs

Major programs are well established with clearly understood goals.									Major programs are new or have rapidly evolving mission and goals.
Scale: 1	2	3	4	5	6	7	8	9	10

2) External oversight

Unit's programs and operations are well established; minimal public scrutiny.									Unit's programs and operations are controversial, regularly scrutinized by the public or the press.
Scale: 1	2	3	4	5	6	7	8	9	10

3) Similarity of functions being supervised

Functions performed within this unit are uniform; there are no differences.									Many diverse functions are performed within this unit.
Scale: 1	2	3	4	5	6	7	8	9	10

4) Complexity of functions

Operations performed within this unit are routine; little new problem solving is required.									Operations performed within this unit are very complex; extensive problem solving is required.
Scale: 1	2	3	4	5	6	7	8	9	10

CITY OF PORTLAND
SPAN OF CONTROL STUDY
Span of Control Factors Questionnaire
(Continued)

5) Coordination required

Minimum coordination with other work units (inside or outside of the bureau) is required.

Extensive coordination with other work units (inside or outside of the bureau) is essential and time consuming.

Scale: 1 2 3 4 5 6 7 8 9 10

6) Training required

New workers assigned to this unit generally master their duties quickly (three months or less).

Extensive training is required once new workers are assigned to this unit; it may take several years for them to master their duties.

Scale: 1 2 3 4 5 6 7 8 9 10

7) Staff assistance

Supervisor of this unit receives extensive staff assistance to facilitate more supervisory time.

Supervisory of this unit has no staff assistance at all with his or her supervisory duties.

Scale: 1 2 3 4 5 6 7 8 9 10

8) Dispersion

Supervisor of this unit is physically located near all of his or her subordinates.

Subordinates are physically dispersed, requiring greater communication efforts.

Scale: 1 2 3 4 5 6 7 8 9 10

9) Employee turnover

Employee turnover in this unit is very low (5% or less annually).

Employee turnover in this unit is very high (50% or more annually).

Scale: 1 2 3 4 5 6 7 8 9 10

CITY OF PORTLAND
SPAN OF CONTROL STUDY
Span of Control Factors Questionnaire
(Continued)

10) ***Experience/qualifications of incumbent supervisor***

Supervisor of this unit has been in position more than five years and has considerable supervisory training.

Supervisor of this unit has been a supervisor less than one year and has haa little or not supervisory training.

Scale: 1 2 3 4 5 6 7 8 9 10

11) ***Risk***

The risk to the City and its citizens in terms of dollars or public safety are low if this unit does not perform well.

The risks to the City and its citizens in terms of dollars or public safety are high if this unit does not perform well.

Scale: 1 2 3 4 5 6 7 8 9 10

APPENDIX 4

APPENDIX 4

Span of Control Database

APPENDIX 4

SPAN OF CONTROL DATABASE
Key

Layer = Management Layer

Type:

D = Director
M = Manager
S = Supervisor

Auth. FTE = Number of Authorized Full-time Equivalents Reporting to this Manager or Supervisor

NS = Number of Non-supervisory Personnel within this Manager or Supervisor's Span

CITY OF PORTLAND
SPAN OF CONTROL STUDY
Database of Managers and Supervisors included in Study

Office	Bureau	Division	Section	Unit	Position Name	Layer	Type	Auth. FTE	NS
Trans					Director	2	D	3	0
Trans	Transp -Maint.				Bur. of Maintenance Dir.	3	M	8	2
Trans	Transp -Maint.	Street Maintenance			Sr. Public Works Manager	4	M	7	5
Trans	Transp -Maint.	Street Maintenance	Paving		Public Works Manager	5	M	2	0
Trans	Transp -Maint.	Street Maintenance	Paving	Crew 1	Public Works Supervisor	6	S	22	22
Trans	Transp -Maint.	Street Maintenance	Paving	Crew 2	Public Works Supervisor	6	S	22	22
Trans	Transp -Maint.	Street Maintenance	Street Maint.		Public Works Manager	5	M	3	0
Trans	Transp -Maint.	Street Maintenance	Street Maint.	Crew 1	Public Works Supervisor	6	S	13	13
Trans	Transp -Maint.	Street Maintenance	Street Maint.	Crew 2	Public Works Supervisor	6	S	13	13
Trans	Transp -Maint.	Street Maintenance	Street Maint.	Crew 3	Public Works Supervisor	6	S	13	13
Trans	Transp -Maint.	Sanitary Systems			Sr. Public Works Manager	4	M	3	0
Trans	Transp -Maint.	Sanitary Systems	Sewer Repair		Public Works Manager	5	M	2	0
Trans	Transp -Maint.	Sanitary Systems	Sewer Repair	Crew 1	Public Works Supervisor	6	S	23	23
Trans	Transp -Maint.	Sanitary Systems	Sewer Repair	Crew 2	Public Works Supervisor	6	S	23	23
Trans	Transp -Maint.	Sanitary Systems	Sewer Cleaning		Public Works Manager	5	M	3	0
Trans	Transp -Maint.	Sanitary Systems	Sewer Cleaning	Crew 1	Public Works Supervisor	6	S	14	14
Trans	Transp -Maint.	Sanitary Systems	Sewer Cleaning	Crew 2	Public Works Supervisor	6	S	14	14
Trans	Transp -Maint.	Sanitary Systems	Sewer Cleaning	Crew 3	Public Works Supervisor	6	S	15	15
Trans	Transp -Maint.	Sanitary Systems	Drain./Roadside Maint.		Public Works Manager	5	M	2	0
Trans	Transp -Maint.	Sanitary Systems	Drain./Roadside Maint.	Crew 1	Public Works Supervisor	6	S	10	10
Trans	Transp -Maint.	Sanitary Systems	Drain./Roadside Maint.	Crew 2	Public Works Supervisor	6	S	11	11
Trans	Transp -Maint.	Maintenance Services			Sr. Public Works Manager	4	M	4	2
Trans	Transp -Maint.	Maintenance Services	Street Cleaning		Public Works Manager	5	M	4	0
Trans	Transp -Maint.	Maintenance Services	Day Operations	Crew 1	Public Works Supervisor	6	S	9	9
Trans	Transp -Maint.	Maintenance Services	Day Operations	Crew 2	Public Works Supervisor	6	S	9	9
Trans	Transp -Maint.	Maintenance Services	Night Operations	Crew 1	Public Works Supervisor	6	S	11	11
Trans	Transp -Maint.	Maintenance Services	Night Operations	Crew 2	Public Works Supervisor	6	S	11	11
Trans	Transp -Maint.	Transportation Operations			Sr. Public Works Manager	4	M	3	0
Trans	Transp -Maint.	Transportation Operations	Traffic Maintenance		Public Works Manager	5	M	3	0
Trans	Transp -Maint.	Transportation Operations	Traffic Maintenance	Traffic Crew 1	Public Works Supervisor	6	S	13	13
Trans	Transp -Maint.	Transportation Operations	Traffic Maintenance	Traffic Crew 2	Public Works Supervisor	6	S	16	16
Trans	Transp -Maint.	Transportation Operations	Traffic Maintenance	Electrical Crew	PW Electrical Supervisor	6	S	23	23
Trans	Transp -Maint.	Transportation Operations	Sidewalks		Public Works Manager	5	M	2	0
Trans	Transp -Maint.	Transportation Operations	Sidewalks	Crew 1	Public Works Supervisor	6	S	16	16
Trans	Transp -Maint.	Transportation Operations	Sidewalks	Crew 2	Public Works Supervisor	6	S	16	16
Trans	Transp -Maint.	Transportation Operations	Structures		Public Works Manager	5	M	2	0
Trans	Transp -Maint.	Transportation Operations	Structures	Crew 1	Public Works Supervisor	6	S	13	13
Trans	Transp -Maint.	Transportation Operations	Structures	Crew 2	Public Works Supervisor	6	S	13	13
Trans	Transp -Maint.	Finance			Admin. Services Mgr.	4	M	3	1
Trans	Transp -Maint.	Finance	Finance		Senior Financial Analyst	5	M	2	1

Appendix 4-3

CITY OF PORTLAND
SPAN OF CONTROL STUDY
Database of Managers and Supervisors included in Study

Office	Bureau	Division	Section	Unit	Position Name	Layer	Type	Auth. FTE	NS
Trans	Transp -Maint.	Finance	Finance	Accounting	Asst. Financial Analyst	6	S	4	4
OFA	Finance & Admin.				Finance & Admin. Dir.	2	D	11	0
OFA	Finance & Admin.	Accounting Division			Accounting Manager	3	M	4	0
OFA	Finance & Admin.	Accounting Division	General Ledger		Accounting Supervisor II	4	S	7	7
OFA	Finance & Admin.	Accounting Division	Payroll		Accounting Supervisor II	4	S	6	6
OFA	Finance & Admin.	Accounting Division	Accounts Payable		Accounting Supervisor II	4	S	9.5	9.5
OFA	Finance & Admin.	Accounting Division	Data Control		Accounting Supervisor II	4	M	7	6
OFA	Finance & Admin.	Accounting Division	Data Control	Data Entry	Administrative Supervisor I	5	S	4	4
OFA	Finance & Admin.	Computer Svcs. Division			Computer Svcs. Manager	3	M	7	3
OFA	Finance & Admin.	Computer Svcs. Division	Programming Services		Senior IS Manager	4	M	11	11
OFA	Finance & Admin.	Computer Svcs. Division	Technical Services		Senior IS Manager	4	M	5	4
OFA	Finance & Admin.	Computer Svcs. Division	Technical Services	DP Operations	DP Operations Supervisor	5	S	5	5
OFA	Finance & Admin.	Computer Svcs. Division	Customer Service		Senior IS Manager	4	M	7.5	7.5
OFA	Finance & Admin.	Computer Svcs. Division	Emergency Comm.		IS Supervisor	4	S	3	3
	Buildings				Buildings Director	2	D	7	2
	Buildings	Administrative Services			Sr. Bureau Admin. Mgr.	3	M	5	2
	Buildings	Administrative Services	Budget and Finance		Senior Financial Analyst	4	S	2	2
	Buildings	Plan Review and Permits			Plan Review Manager	3	M	3	0
	Buildings	Plan Review and Permits	Permit Center		Permit Center Supervisor	4	S	19	19
	Buildings	Plan Review and Permits	Engineering Section		Senior Engineer	4	S	7	7
	Buildings	Plan Review and Permits	Plan Review Section		Plan Review Supervisor	4	S	6.5	6.5
	Buildings	Commerical Inspections			Buildings Inspections Mgr.	3	M	3	0
	Buildings	Commerical Inspections	Structural Mechanical		Inspections Supervisor II	4	S	13	13
	Buildings	Commerical Inspections	Electrical Section		Chief Electrical Inspector	4	S	11	11
	Buildings	Commerical Inspections	Plumbing Section		Chief Plumbing Inspector	4	S	6	6
	Buildings	Residential Inspections			Buildings Inspections Mgr.	3	M	4	0
	Buildings	Residential Inspections	Combination Insp.		Inspections Supervisor II	4	S	33	33
	Buildings	Residential Inspections	Housing Section-South		Inspections Supervisor I	4	S	11	11
	Buildings	Residential Inspections	Housing Section-North		Inspections Supervisor I	4	S	11	11
	Buildings	Residential Inspections	Admin. Support		Administrative Supervisor	4	S	4	4
	BES				Environmental Svcs. Dir.	2	D	8	2
	BES	Sewerage System			Chief Env. Svcs. Mgr.	3	M	2	0
	BES	Sewerage System	Maintenance Eng.		Principal Engineer	4	M	3	0
	BES	Sewerage System	Maintenance Eng.	Coll. Sys. M/E	Senior Engineer	5	M	8.25	7.25
	BES	Sewerage System	Maintenance Eng.	Coll. Sys. M/E	Sr. Engineering Assoc.	6	S	3.25	3.25
	BES	Sewerage System	Maintenance Eng.	WW Maint. Eng.	Senior Engineer	5	S	4.25	4.25
	BES	Sewerage System	Maintenance Eng.	WW CIP	Senior Engineer	5	S	2	2
	BES	Wastewater Treatment			Sr. Environmental Sv. Mgr	3	M	3	0
	BES	Wastewater Treatment	Wastewater Ops.		Public Works Superintend.	4	M	5	0
	BES	Wastewater Treatment	Wastewater Ops.	Ops. Support	Public Works Supervisor	5	S	3	3

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CITY OF PORTLAND
SPAN OF CONTROL STUDY
Database of Managers and Supervisors included in Study

Office	Bureau	Division	Section	Unit	Position Name	Layer	Type	Auth. FTE	NS
	BES	Wastewater Treatment	Wastewater Ops.	CBWTP Ops.	Public Works Manager	5	S	19	19
	BES	Wastewater Treatment	Wastewater Ops.	Biosolids Prodn	Public Works Manager	5	S	19	19
	BES	Wastewater Treatment	Wastewater Ops.	CBWTP Proc.	Public Works Manager	5	S	18	18
	BES	Wastewater Treatment	Wastewater Ops.	TCWTP	Public Works Manager	5	S	9	9
	BES	Wastewater Treatment	Wastewater Maint.		Public Works Superintend.	4	M	8	5
	BES	Wastewater Treatment	Wastewater Maint.	CBWTP Maint	Public Works Manager	5	S	21	21
	BES	Wastewater Treatment	Wastewater Maint.	Elec. & Instr.	Public Works Manager	5	S	18	18
	BES	Wastewater Treatment	Wastewater Maint.	TC & PS	Public Works Manager	5	S	10	10
	BES	Wastewater Treatment	Business Management		Environmental Svcs. Mgr.	4	M	8	6
	BES	Wastewater Treatment	Business Management	Biosolids	Program Manager I	5	S	1	1
	BES	Wastewater Treatment	Business Management	Stores & Purch	Stores System Manager	5	S	5	5
	BES	Business Operations			Sr. Environmental Svc. Mgr.	3	M	3	0
	BES	Business Operations	Financial Mgmt.		Bureau Admin. Mgr.	4	M	7	6
	BES	Business Operations	Financial Mgmt.	Accounting	Acctg. Supr. II	5	S	9	9
	BES	Business Operations	Information Svcs.		Information Svcs. Mgr.	4	S	10	10
	Police				Chief of Police	2	D	2	0
	Police				Assistant Chief of Police	3	M	6	0
	Police	Operations Branch			Deputy Chief	4	M	6	2
	Police	Management Services			Program Manager IV	4	M	7	0
	Police	Management Services	Fiscal Services		Admin. Supervisor II	5	M	3	1
	Police	Management Services	Fiscal Services	AP/Payroll	Admin. Supervisor I	6	S	5	5
	Police	Management Services	Fiscal Services	Accounting	Senior Admin. Specialist	6	S	2	2
	Police	Management Services	Data Processing		Sr. Info. Sys. Manager	5	S	8	8
	Police	Operations Branch	North Precinct		Precinct Commander	5	M	5	0
	Police	Operations Branch	North Precinct	Shift 1	Lieutenant	6	M	4	0
	Police	Operations Branch	North Precinct	Shift 1	Sergeant	7	S	8	8
	Police	Operations Branch	North Precinct	Shift 1	Sergeant	7	S	8	8
	Police	Operations Branch	North Precinct	Shift 1	Sergeant	7	S	8	8
	Police	Operations Branch	North Precinct	Shift 1	Sergeant	7	S	9	9
	Police	Operations Branch	North Precinct	Shift 2	Lieutenant	6	M	6	0
	Police	Operations Branch	North Precinct	Shift 2	Sergeant	7	S	9	9
	Police	Operations Branch	North Precinct	Shift 2	Sergeant	7	S	9	9
	Police	Operations Branch	North Precinct	Shift 2	Sergeant	7	S	9	9
	Police	Operations Branch	North Precinct	Shift 2	Sergeant	7	S	9	9
	Police	Operations Branch	North Precinct	Shift 2	Sergeant	7	S	9	9
	Police	Operations Branch	North Precinct	Shift 2	Sergeant	7	S	9	9
	Police	Operations Branch	North Precinct	Shift 3	Lieutenant	6	M	4	0
	Police	Operations Branch	North Precinct	Shift 3	Sergeant	7	S	9	9
	Police	Operations Branch	North Precinct	Shift 3	Sergeant	7	S	9	9
	Police	Operations Branch	North Precinct	Shift 3	Sergeant	7	S	9	9

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CITY OF PORTLAND
SPAN OF CONTROL STUDY
Database of Managers and Supervisors included in Study

Office	Bureau	Division	Section	Unit	Position Name	Layer	Type	Auth. FTE	NS
	Police	Operations Branch	North Precinct	Shift 3	Sergeant	7	S	9	9
	Police	Operations Branch	North Precinct	Detective	Sergeant	6	S	7	7
	Police	Operations Branch	North Precinct	Neigh. Response	Lieutenant	6	S	5	5
	Police	Operations Branch	Central Precinct		Precinct Commander	5	M	6	0
	Police	Operations Branch	Central Precinct	Shift 1	Lieutenant	6	M	4	0
	Police	Operations Branch	Central Precinct	Shift 1	Sergeant	7	S	8	8
	Police	Operations Branch	Central Precinct	Shift 1	Sergeant	7	S	8	8
	Police	Operations Branch	Central Precinct	Shift 1	Sergeant	7	S	9	9
	Police	Operations Branch	Central Precinct	Shift 1	Sergeant	7	S	9	9
	Police	Operations Branch	Central Precinct	Shift 2	Lieutenant	6	M	4	0
	Police	Operations Branch	Central Precinct	Shift 2	Sergeant	7	S	8	8
	Police	Operations Branch	Central Precinct	Shift 2	Sergeant	7	S	8	8
	Police	Operations Branch	Central Precinct	Shift 2	Sergeant	7	S	9	9
	Police	Operations Branch	Central Precinct	Shift 2	Sergeant	7	S	9	9
	Police	Operations Branch	Central Precinct	Shift 3	Lieutenant	6	M	4	0
	Police	Operations Branch	Central Precinct	Shift 3	Sergeant	7	S	9	9
	Police	Operations Branch	Central Precinct	Shift 3	Sergeant	7	S	9	9
	Police	Operations Branch	Central Precinct	Shift 3	Sergeant	7	S	9	9
	Police	Operations Branch	Central Precinct	Shift 3	Sergeant	7	S	9	9
	Police	Operations Branch	Central Precinct	Mounted Patrol	Sergeant	6	S	7	7
	Police	Operations Branch	Central Precinct	Detective	Sergeant	6	S	7	7
	Police	Operations Branch	Central Precinct	Neigh. Response	Lieutenant	6	S	2	2
	Police	Operations Branch	East Precinct		East Precinct Commander	5	M	7	0
	Police	Operations Branch	East Precinct		Admin. Sergeant	6	S	4	4
	Police	Operations Branch	East Precinct	Shift 1	Lieutenant	6	M	5	0
	Police	Operations Branch	East Precinct	Shift 1	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 1	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 1	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 1	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 1	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 2	Lieutenant	6	M	4	0
	Police	Operations Branch	East Precinct	Shift 2	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 2	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 2	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 2	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 3	Lieutenant	6	M	7	0
	Police	Operations Branch	East Precinct	Shift 3	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 3	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 3	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 3	Sergeant	7	S	10	10

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CITY OF PORTLAND
SPAN OF CONTROL STUDY
Database of Managers and Supervisors included in Study

Office	Bureau	Division	Section	Unit	Position Name	Layer	Type	Auth. FTE	NS
	Police	Operations Branch	East Precinct	Shift 3	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 3	Sergeant	7	S	10	10
	Police	Operations Branch	East Precinct	Shift 3	Sergeant	7	S	11	11
	Police	Operations Branch	East Precinct	Canine Unit	Sergeant	6	S	7	7
	Police	Operations Branch	East Precinct	Detective	Sergeant	6	S	7	7
	Police	Operations Branch	East Precinct	Neigh. Resonse	Lieutenant	6	S	7	7
	Police	Operations Branch	Traffic		Captain	5	M	6	1
	Police	Operations Branch	Traffic	Motorcycles	Sergeant	6	S	7	7
	Police	Operations Branch	Traffic	Motorcycles	Sergeant	6	S	4	4
	Police	Operations Branch	Traffic	Motorcycles	Sergeant	6	S	6	6
	Police	Operations Branch	Traffic	Motorcycles	Sergeant	6	S	8	8
	Police	Operations Branch	Traffic	Other Functions	Sergeant	6	S	14	14
	Parks and Rec.				Director	2	D	4	1
	Parks and Rec.				Deputy Director	3	M	6	0
	Parks and Rec.	Admin. Services			Bureau Admin. Manager	4	M	10	9
	Parks and Rec.	Admin. Services	Information Services		Info. Services Manager	5	S	3	3
	Parks and Rec.	Operations			Operations Manager	4	M	4	0
	Parks and Rec.	Operations	Park Facilities Maint.		Facilities Maint. Manager	5	M	6	0
	Parks and Rec.	Operations	Park Facilities Maint.	Administrative	Admin. Supervisor II	6	S	1	1
	Parks and Rec.	Operations	Park Facilities Maint.	Hort. Services	Sr. Facilities Maint. Sup.	6	M	17	16
	Parks and Rec.	Operations	Park Facilities Maint.	Hort. Services	Rose Garden Supervisor	7	S	2	2
	Parks and Rec.	Operations	Park Facilities Maint.	Park Districts	Sr. Facilities Maint. Sup.	6	M	8	0
	Parks and Rec.	Operations	Park Facilities Maint.	Park Districts	Foreman - Delta	7	S	4	4
	Parks and Rec.	Operations	Park Facilities Maint.	Park Districts	Foreman - Downtown	7	S	5	5
	Parks and Rec.	Operations	Park Facilities Maint.	Park Districts	Foreman - Laurelhurst	7	S	6	6
	Parks and Rec.	Operations	Park Facilities Maint.	Park Districts	Foreman - Lents	7	S	4	4
	Parks and Rec.	Operations	Park Facilities Maint.	Park Districts	Foreman - Mount Tabor	7	S	4	4
	Parks and Rec.	Operations	Park Facilities Maint.	Park Districts	Foreman - Peninsula	7	S	4	4
	Parks and Rec.	Operations	Park Facilities Maint.	Park Districts	Foreman - Washington	7	S	6	6
	Parks and Rec.	Operations	Park Facilities Maint.	Park Districts	Foreman - Westmoreland	7	S	4	4
	Parks and Rec.	Operations	Park Facilities Maint.	Structures	Sr. Facilities Maint. Sup.	6	M	22	21
	Parks and Rec.	Operations	Park Facilities Maint.	Structures	Supervising Electrician	7	S	2	2
	Parks and Rec.	Operations	Park Facilities Maint.	Equipment	Sr. Facilities Maint. Sup.	6	S	18	18
	Parks and Rec.	Operations	Park Facilities Maint.	Turf Maintenance	Sr. Facilities Maint. Sup.	6	S	16	16
	Parks and Rec.	Operations	Natural Resources		Botanic Supervisor	5	S	5	5
	Parks and Rec.	Operations	Forestry		Forester	5	M	14	13
	Parks and Rec.	Operations	Forestry	Inspections	Supervisor	6	S	3	3
	Fire				Fire Chief	2	D	7	2
	Fire	Emergency Operations			Division Chief	3	M	5	1
	Fire	Emergency Operations	Operations		Deputy Chief	4	M	5	0

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CITY OF PORTLAND
SPAN OF CONTROL STUDY
Database of Managers and Supervisors Included in Study

Office	Bureau	Division	Section	Unit	Position Name	Layer	Type	Auth. FTE	NS
	Fire	Emergency Operations	Operations	District 1	Battalion Chief	5	M	8	0
	Fire	Emergency Operations	Operations	District 1	Battalion Chief	5	M	8	0
	Fire	Emergency Operations	Operations	District 1	Battalion Chief	5	M	7	0
	Fire	Emergency Operations	Operations	District 1	Captain	6	M	5	4
	Fire	Emergency Operations	Operations	District 1	Captain	6	M	5	4
	Fire	Emergency Operations	Operations	District 1	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 1	Captain	6	M	4	3
	Fire	Emergency Operations	Operations	District 1	Captain	6	M	4	3
	Fire	Emergency Operations	Operations	District 1	Lieutenant	7	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	7	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	7	S	3	3
	Fire	Emergency Operations	Operations	District 1	Lieutenant	7	S	3	3
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 1	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 2	Battalion Chief	5	M	9	0
	Fire	Emergency Operations	Operations	District 2	Battalion Chief	5	M	9	0
	Fire	Emergency Operations	Operations	District 2	Battalion Chief	5	M	9	0
	Fire	Emergency Operations	Operations	District 2	Captain	6	M	5	4
	Fire	Emergency Operations	Operations	District 2	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 2	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 2	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 2	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 2	Captain	6	M	4	3
	Fire	Emergency Operations	Operations	District 2	Captain	6	M	4	3

CITY OF PORTLAND
SPAN OF CONTROL STUDY
Database of Managers and Supervisors Included in Study

Office	Bureau	Division	Section	Unit	Position Name	Layer	Type	Auth. FTE	NS
	Fire	Emergency Operations	Operations	District 2	Lieutenant	7	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	7	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	7	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 2	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Battalion Chief	5	M	10	0
	Fire	Emergency Operations	Operations	District 3	Battalion Chief	5	M	9	0
	Fire	Emergency Operations	Operations	District 3	Battalion Chief	5	M	9	0
	Fire	Emergency Operations	Operations	District 3	Captain	6	M	3	3
	Fire	Emergency Operations	Operations	District 3	Captain	6	M	3	3
	Fire	Emergency Operations	Operations	District 3	Captain	6	M	3	3
	Fire	Emergency Operations	Operations	District 3	Captain	6	M	3	3
	Fire	Emergency Operations	Operations	District 3	Captain	6	M	3	3
	Fire	Emergency Operations	Operations	District 3	Captain	6	M	3	3
	Fire	Emergency Operations	Operations	District 3	Captain	6	M	3	2
	Fire	Emergency Operations	Operations	District 3	Captain	6	M	3	2
	Fire	Emergency Operations	Operations	District 3	Lieutenant	7	S	4	4
	Fire	Emergency Operations	Operations	District 3	Lieutenant	7	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3

CITY OF PORTLAND
SPAN OF CONTROL STUDY
Database of Managers and Supervisors included in Study

Office	Bureau	Division	Section	Unit	Position Name	Layer	Type	Auth. FTE	NS
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	2	2
	Fire	Emergency Operations	Operations	District 3	Lieutenant	6	S	2	2
	Fire	Emergency Operations	Operations	District 4	Battalion Chief	5	M	9	0
	Fire	Emergency Operations	Operations	District 4	Battalion Chief	5	M	9	0
	Fire	Emergency Operations	Operations	District 4	Battalion Chief	5	M	8	0
	Fire	Emergency Operations	Operations	District 4	Captain	6	M	5	4
	Fire	Emergency Operations	Operations	District 4	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 4	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 4	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 4	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 4	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 4	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 4	Captain	6	M	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	7	S	3	3
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4

CITY OF PORTLAND
SPAN OF CONTROL STUDY
Database of Managers and Supervisors included in Study

Office	Bureau	Division	Section	Unit	Position Name	Layer	Type	Auth. FTE	NS
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	4	4
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	District 4	Lieutenant	6	S	3	3
	Fire	Emergency Operations	Operations	Battalion HQ	Battalion Chief	5	M	1	0
	Fire	Emergency Operations	Operations	Battalion HQ	Captain	6	S	3	3
	Fire	Fire Info/Communications			Division Chief	3	M	2	0
	Fire	Fire Info/Communications	BOEC		Captain	4	S	12	12
	Fire	Fire Info/Communications	Informations Services		Info. Systems Mgr.	4	S	6	6
	Fire	Management Services			Division Manager	3	M	8	6
	Fire	Management Services	Accounting Services		Acctg. Supr. II	4	S	4	4

Appendix 4-11

APPENDIX 5

APPENDIX 5

Management Level Definitions

APPENDIX 5

MANAGEMENT LEVEL DEFINITIONS

Mayor/Commissioner

Chief executives of individual City departments. In the City of Portland, the Mayor and four Commissioners have executive level authority over bureaus assigned to them.

Director/Chief

"Authoritatively defines, regulates, or determines the activities of subordinate organizational units to achieve predetermined objectives. A manager of managers." (Hay Group) Defined as the layer of managers reporting directly to the chief executive (excluding "mezzanine managers"). In the City of Portland, directors are the managers reporting directly to the Commissioners.

Mezzanine Manager

Intermediate level of management such as advisors, specialists, coordinators, and quasi-line managers who support a director or manager, but do not themselves manage more than two direct subordinates.

Manager

"Plans, organizes, and controls dissimilar functions to achieve coordinated objectives by leading subordinates without giving detailed supervision. A manager of supervisors." (Hay Group) Includes all layers between directors and supervisors (excluding "mezzanine managers").

Supervisor

Allocates work assignments, instructs subordinates in the work they will perform (either directly or by enforcement of well-established rules), evaluates work based on results, and works with subordinates to improve performance. May also serve as a technical expert and in a trouble-shooting role. While this is the lowest layer of manager responsible for formally evaluating the performance of subordinates, these managers may not do formal evaluations, yet still be a supervisor. These individuals generally have the authority to hire and fire subordinates.

Lead Worker

In addition to regular duties, may perform some functions similar to a supervisor such as assigning work, instructing, and checking other work, but is not responsible for formally evaluating the performance of subordinates. However, in classifying the position, the lack of responsibility for formal evaluation cannot be the only distinction between this and supervisor; there must be other distinctions as well. NOTE: Lead workers are not considered a management layer in this study.

APPENDIX 6

APPENDIX 6

Methodology for Citywide Analysis

APPENDIX 6

METHODOLOGY FOR CITYWIDE ANALYSIS

The ratio of non-managers to managers for the total city and bureaus within the City was computed using information provided by the Bureau of Personnel Services. Payroll databases for the January 26 and February 23, 1994, periods were applied. The methodology for computing the ratio follows:

BASIC EQUATION:

Ratio = Total Non-supervisory Personnel / Number of Managers and Supervisors

NUMBER OF MANAGERS AND SUPERVISORS:

- The Bureau of Personnel Services classified all personnel for each bureau, excluding the Police and Fire bureaus, according to whether they were managers (including supervisors) or non-managers.
- Bureau of Police managers and supervisors include all personnel from sergeants up to the Chief of Police.
- Bureau of Fire managers and supervisors include all personnel from lieutenants up to the Fire Chief.

TOTAL NON-SUPERVISORY PERSONNEL:

- Total FTE, including management personnel, includes the total employees with PSTAT codes less than 73 and the prorated number of FTEs included in PSTAT codes greater than 72. The part-time employees with PSTAT codes greater than 72 were prorated using a 20 percent assumption factor; the majority of these employees are employed in the Bureau of Parks and Recreation. Certain payroll data indicated that 20 percent was a reasonable approximation of the average percent of time worked by part-time personnel.
- Total non-supervisory personnel was determined by subtracting the total number of management personnel from the total FTE count.

RESULT:

Ratio = [(Total FTE) - (Management personnel)] / (Management personnel)

= [4953 - 821] / 821

= 5.0 non-managers per manager

CITY OF PORTLAND
SPAN OF CONTROL STUDY
Ratio of Non-managers per Manager

A Authorization Unit	B Total Employees PSTAT < 73	C Total Employees PSTAT > 72	D Non-Rep Supervisors/ Managers	E Represented Supervisor/ Manager	F Total Sup./ Managers (D + E)	G Total FTE Estimate (B + [.20 *C])	H Total Non-Sup/Manager (G - F)	I Ratio (H /F)
TOTAL CITY [1]	**4,714**	**1,197**	**522**	**299**	**821**	**4,953**	**4,132**	**5.03**
BUREAUS WITH MORE THAN 50 PERSONNEL:								
Police (100)	1,164	13	26	143	169	1,167	998	5.90
Fire (124)	710	5	23	156	179	711	532	2.97
Transportation (159)	699	37	108	0	108	706	598	5.54
Water (180) [2]	483	20	66	0	66	487	421	6.38
Environmental Svcs (145) [3]	410	12	65	0	65	412	347	5.34
Parks (130) [4]	323	1,071	67	0	67	537	470	7.02
Fiscal Administration (307)	166	5	35	0	35	167	132	3.77
General Services (346) [5]	162	4	29	0	29	163	134	4.61
Building (520)	160	13	17	0	17	163	146	8.56
Emergency (620)	127	0	19	0	19	127	108	5.68
Planning (510)	68	0	7	0	7	68	61	8.71
Auditor (336)	51	4	8	0	8	52	44	5.48
BUREAUS WITH LESS THAN 50 PERSONNEL:								
City Attorneys (312)	36	0	7	0	7	36	29	4.14
Business Licenses (316)	32	2	6	0	6	32	26	4.40
Neighborhood Associations (342)	20	0	6	0	6	20	14	2.33
Purchases (319)	17	0	3	0	3	17	14	4.67
Community (540)	13	3	3	0	3	14	11	3.53
Metropolitan Arts Comm. (375)	9	2	4	0	4	9	5	1.35
Energy Office (302)	8	0	2	0	2	8	6	3.00
Cable Communications (300)	6	0	3	0	3	6	3	1.00
Metropolitan Human Rights (341)	5	0	2	0	2	5	3	1.50
Intergovernmental Affairs (303)	4	0	1	0	1	4	3	3.00

NOTE [1]: The "Total City" numbers do not equal the sum of the bureaus below due to the exclusion of the Office of the Mayor and the Commissioners' offices.
NOTE [2]: Water includes Hydro (637)
NOTE [3]: Environmental Services includes Refuse Disposal (155)
NOTE [4]: Parks includes PIR Operating (608) and Golf (617)
NOTE [5]: General Services includes Print/Distribution (354), Communication Services (360), S/A Electronics (446), Fleet (562), and Portland Building (732)

APPENDIX 7

APPENDIX 7

External Comparisons of Functional Groups

APPENDIX 7

EXTERNAL COMPARISONS OF FUNCTIONAL GROUPS

One aspect of the study included the comparison of the City of Portland to other public and private sector organizations. Five other cities of similar size to Portland, two Northwest counties, the State of Oregon and two large local businesses participated in the study. These organizations provided personnel data and organization charts that enabled computation of certain statistics for functional areas comparable to the functional groups included in the study sample for Portland. This information allowed for the comparison of Portland's number of management layers and its ratio of non-managers to managers to these other organizations.

The five cities participating in the study included:

- City of Charlotte, North Carolina
- City of Cincinnati, Ohio
- City and County of Denver, Colorado
- City of Kansas City, Missouri
- City of Seattle, Washington

These cities were selected because they are part of a group of cities that the City of Portland frequently looks to for comparisons. A sixth city, Sacramento, declined to participate. Each of the cities received a letter describing the span of control study, the management level definitions, and a description of the functions included in the study. In response, the cities provided organizational information and organization charts for some or all of the functional groups included in the study. Additionally, various personnel within each city participated in follow-up telephone discussions to clarify the information.

The two counties participating in the study included King County, Washington, and Multnomah County, Oregon. These counties were selected because their data were readily available. The King County Auditor recently released a report on its span of control study of all departments within the Executive and Judicial Branches of the county. Organization charts from the study provided the comparison information for the City of Portland study.[1] Additionally, Multnomah County had recently analyzed its non-managers to manager ratios, and a County personnel analyst provided certain detailed data to assist this study.

The State of Oregon has studied span of control and management layers for the last two or three years. Various departments within the State contributed to the study, providing organization charts and participating in follow-up telephone discussions.

The two private sector organizations included in the study are Portland General Electric (PGE) and Standard Insurance. These companies were selected because of their leadership in the Portland community and their willingness to participate. Although comparisons could not be made for all functional groups, both companies provided organization data for the centralized accounting and data processing functions. Additionally, PGE's information on distribution line crews provided a meaningful comparison of various front-line maintenance functions within the City of Portland. Standard Insurance's Group Underwriting and Policy Issue Department was used as a general comparable to the Bureau of Buildings as they both review policies and contracts and deal with the public.

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[1] The King County Auditor counted all lead workers as supervisors. Where King County data appear in the tables in this appendix, certain lead workers are classified as managers, and other as non-managers. The classification was chosen in each case to best assure fair comparisons to the City of Portland data.

Summaries of the comparative data are provided in the following matrices. The number of managers shown in the tables includes only those in the specified functional groups, and not managers at organization levels above the specified groups. However, the reported number of management layers includes both layers above the functional group and those within the group itself.

CITY OF PORTLAND
SPAN OF CONTROL STUDY
External Comparison of Non-managers to Managers Ratio

Comparable Organization	Accounting				
	No. of Managers	No. of Non-managers	Non-managers to Managers	No. of Mgmt Layers	Notes
CITIES:					
Charlotte	9	33	3.67	5	(1),(5)
Cincinnati					
Denver	6	23	3.83	4	(1),(6)
Kansas City	11	19	1.73	5	(1),(5)
Portland	***6***	***32.5***	***5.42***	***5***	(1),(7)
Seattle	8	22	2.75	5	(1),(8)
OTHER:					
King County	6	36.8	6.13	4	(2),(9)
Multnomah County	3	22	7.33	3	(1),(10)
State of Oregon	4	31	7.75	4	(3),(11)
PGE	4	57	14.25	5	(1),(12)
Standard Insurance	3	24	8.00	5	(4),(13)

NOTES:

Organizational areas included:

(1) Centralized accounting only.
(2) Centralized accounting only. The ratio would decline to 4.35 if leads were counted as supervisors.
(3) Accounting Division of the Department of Administrative Services.
(4) Accounting group in Corporate Financial Services; excludes tax and audit functions.

First layer of management:

(5) City Manager
(6) Auditor
(7) Commissioner
(8) Mayor
(9) County Executive
(10) County Board Chair
(11) Governor
(12) President
(13) CEO

CITY OF PORTLAND
SPAN OF CONTROL STUDY
External Comparison of Non-managers to Managers Ratio

Comparable Organization	Data Processing				
	No. of Managers	No. of Non-managers	Non-managers to Managers	No. of Mgmt Layers	Notes
CITIES:					
Charlotte					
Cincinnati	31	130	4.19	6	(1), (5)
Denver					
Kansas City	16	52	3.25	5	(1), (5)
Portland	*6*	*33.5*	*5.58*	*5*	(1), (6)
Seattle	17	84	4.94	6	(2), (7)
OTHER:					
King County	13	66	5.08	6	(3), (8)
Multnomah County	11	57	5.18	5	(1), (9)
State of Oregon	10	52	5.20	6	(1), (10)
PGE	12	100	8.33	4	(1), (11)
Standard Insurance	12	108	9.00	5	(4), (12)

NOTES:

Organizational areas included:

(1) Centralized data processing only.
(2) Excluding training function.
(3) Includes Development Services, Computer Services (exclusive of print shop and graphic arts units), Network and Support Section, and Micro-Computer Support Section. The ratio would decline to 3.65 if leads were counted as supervisors.
(4) Systems and Programming, Technical Services and Computer Operations (excludes records and purchasing).

First layer of management:

(5) City Manager
(6) Commissioner
(7) Mayor
(8) County Executive
(9) County Board Chair
(10) Governor
(11) President
(12) CEO

CITY OF PORTLAND
SPAN OF CONTROL STUDY
External Comparison of Non-managers to Managers Ratio

Comparable Organization	Building				
	No. of Managers	No. of Non-managers	Non-managers to Managers	No. of Mgmt Layers	Notes
CITIES:					
Charlotte					
Cincinnati	20	98	4.90	6	(1), (5)
Denver	19	90	4.74	4	(1), (6)
Kansas City	15	59	3.93	4	(1), (5)
Portland	*19*	*147.5*	*7.76*	*4*	*(1), (7)*
Seattle	40	136	3.40	6	(1), (6)
OTHER:					
King County	9	71.5	7.94	5	(2), (8)
Multnomah County					
State of Oregon	16	79	4.94	5	(3), (9)
PGE					
Standard Insurance	13	123	9.46	6	(4), (10)

NOTES:

Functional areas included:

(1) Functions generally include Residential and Commercial Inspection, Plan Review and Permit, and Administration.

(2) Excludes Fire Marshal and related personnel. The ratio would decline to 4.75 if leads were counted as supervisors.

(3) Includes functions similar to Portland Bureau of Buildings, i.e. Field Operations (inspections) and Statewide Services (plan review, code).

(4) Group Underwriting and Policy Issue Dept. used as a general comparable to Bureau of Buildings as they both review policies and contracts and deal with the public.

First layer of management:

(5) City manager counted as first layer.

(6) Mayor counted as first layer.

(7) Commissioner counted as first layer.

(8) County Executive counted as first layer.

(9) Governor counted as first layer.

(10) CEO

CITY OF PORTLAND
SPAN OF CONTROL STUDY
External Comparison of Non-managers to Managers Ratio

Comparable Organization	Bureau of Environmental Services (1)				
	No. of Managers	No. of Non-managers	Non-managers to Managers	No. of Mgmt Layers	Notes
CITIES:					
Charlotte					
Cincinnati					
Denver	44	233	5.30	7	(2), (7)
Kansas City	32	243	7.59	8	(3), (8)
Portland	***18***	***150.75***	***8.38***	***6***	***(4), (9)***
Seattle	9	64	7.11	7	(5), (7)
OTHER:					
King County					
Multnomah County					
State of Oregon					
PGE	21	396	18.86	7	(6), (10)
Standard Insurance					

NOTES:

(1) Selected functions only.

Organizational areas included:

(2) Includes Engineering and Operations within Wastewater Management Division.

(3) Includes Wastewater Treatment Division and Sewer Maintenance (within Line Maintenance Division).

(4) Includes Maintenance Engineering (within Sewerage System) and Wastewater Treatment (Waterwater Operations, Wastewater Maintenance, and Business Management). The exclusion of Business Management would increase ratio to 9.25.

(5) Includes Field Operations section of Maintenance Operations (within Drainage & Wastewater Utility).

(6) Distribution line crews used as general comparables.

First layer of management:

(7) Mayor

(8) City Manager

(9) Commissioner

(10) President

CITY OF PORTLAND
SPAN OF CONTROL STUDY
External Comparison of Non-managers to Managers Ratio

Comparable Organization	Fire Operations				
	No. of Managers	No. of Non-managers	Non-managers to Managers	No. of Mgmt Layers	Notes
CITIES:					
Charlotte	154	576	3.74	5	(1), (3)
Cincinnati	182	534	2.93	6	(1), (3)
Denver	205	612	2.99	6	(1), (4)
Kansas City	184	652	3.54	6	(2), (3)
Portland	***129***	***396***	***3.07***	***7***	***(1), (5)***
Seattle	210	688	3.28	7	(1), (4)
OTHER:					
King County					
Multnomah County					
State of Oregon					
PGE					
Standard Insurance					

NOTES:

Organizational areas included:

(1) Fire Operations only

(2) Total Fire Bureau

First layer of management:

(3) City Manager

(4) Mayor

(5) Commissioner

CITY OF PORTLAND
SPAN OF CONTROL STUDY
External Comparison of Non-managers to Managers Ratio

Comparable Organization	Parks and Recreation				
	No. of Managers	No. of Non-managers	Non-managers to Managers	No. of Mgmt Layers	Notes
CITIES:					
Charlotte					
Cincinnati					
Denver	46	184	4.00	6	(1), (7)
Kansas City	28	206	7.36	6	(2), (8)
Portland	*21*	*135*	*6.43*	*7*	*(3), (9)*
Seattle	28	311.84	11.14	6	(4), (7)
OTHER:					
King County	27	113.87	4.22	6	(5), (10)
Multnomah County					
State of Oregon					
PGE	21	396	18.86	7	(6), (11)
Standard Insurance					

NOTES:

Organizational areas included:

(1) Includes Parks Division, i.e. Maintenance, Building Infrastructure, Forestry, Mountain Parks. Ratio would increase with the inclusion of seasonal workers.

(2) Includes Total Parks and Recreation Division, exclusive of the recreation function.

(3) Primary function is Parks Facilities Maintenance, but also includes Forestry and Natural Resources.

(4) Includes Park Resources (South, Central, and North Divisions), Horticulture (Citywide Division), and Building Maintenance/Public Works (Facilities Maintenance and Development Division).

(5) Includes Parks Maintenance section of Parks Division. For comparability purposes, some leads were counted as supervisors; if all leads were counted as supervisors, the ratio would decline to 3.54.

(6) Distribution line crews used as general comparables.

First layer of management:

(7) Mayor

(8) City Manager

(9) Commissioner

(10) County Executive

(11) President

CITY OF PORTLAND
SPAN OF CONTROL STUDY
External Comparison of Non-managers to Managers Ratio

Comparable Organization	Bureau of Police				
	No. of Managers	No. of Non-managers	Non-managers to Managers	No. of Mgmt Layers	Notes
CITIES:					
Charlotte					
Cincinnati	108	526	4.87	6	(1), (5)
Denver	128	653	5.10	7	(1), (6)
Kansas City	138	712	5.16	6	(1), (5)
Portland	*70*	*483*	*6.90*	*7*	(1), (7)
Seattle	109	852	7.82	7	(1), (6)
OTHER:					
King County	67	423	6.31	6	(2), (8)
Multnomah County	23	108	4.70	4	(3), (9)
State of Oregon	27	125	4.63	7	(4), 10)
PGE					
Standard Insurance					

NOTES:

Organizational areas included:

(1) Police Operations only

(2) Field Operations in Sheriff's Department (counts Master Police Officers as leads and excludes volunteers) If Master Police Officers were counted as supervisors, ratio would decline to 3.90.

(3) Sheriff's Enforcement Branch

(4) District I Operations

First layer of management:

(5) City Manager

(6) Mayor

(7) Commissioner

(8) County Executive

(9) Sheriff (elected official)

(10) Governor

CITY OF PORTLAND
SPAN OF CONTROL STUDY
External Comparison of Non-managers to Managers Ratio

Comparable Organization	Office of Transportation (Maintenance Functions)				
	No. of Managers	No. of Non-managers	Non-managers to Managers	No. of Mgmt Layers	Notes
CITIES:					
Charlotte	15	273	18.20	5	(1), (10)
Cincinnati					
Denver	44	219	4.98	8	(2), (11)
Kansas City	12	198	16.50	6	(3), (10)
Portland	*35*	*348*	*9.94*	*6*	*(4), (12)*
Seattle	50	293.5	5.87	7	(5), (11)
OTHER:					
King County	19	270	14.21	7	(6), (13)
Multnomah County	22	169	7.68	5	(7), (14)
State of Oregon	20	219	10.95	7	(8), (15)
PGE	21	396	18.86	7	(9), (16)
Standard Insurance					

NOTES:

Organizational areas included:

(1) Includes Street Maintenance and Transportation Operations
(2) Includes Street Maintenance and Traffic Operations (street signage, street painting, signals).
(3) Includes Street Maintenance (street cleaning is part of this division), Traffic Signals, and Street Signs.
(4) Includes Street Maintenance, Transportation Operations, Street Cleaning (part of Maintenance Services Division), and Sanitary Systems. When Sanitary Systems is excluded from ratio, the ratio drops only slightly to 9.92.
(5) Includes Street Maintenance, Traffic Operations, and Roadway Structures.
(6) Includes Division Maintenance, Traffic Operations, and Special Operations units. The ratio would decline to 4.90 if leads were counted as supervisors.
(7) Includes entire Transportation Department.
(8) Includes District 2 Maintenance Units.
(9) Distribution line crews used as general comparables.

First layer of management:

(10) City Manager
(11) Mayor
(12) Commissioner
(13) County Executive
(14) County Board Chair
(15) Governor/Transportation Commission
(16) President