

PERFORMANCE AUDIT

DEPARTMENT OF ADMINISTRATIVE SERVICES:
BUILDING MAINTENANCE

LEGISLATIVE PROGRAM REVIEW AND INVESTIGATIONS COMMITTEE

DECEMBER 1986

TABLE OF CONTENTS

EXECUTIVE SUMMARY..... 1

INTRODUCTION..... 11

BUILDING MAINTENANCE SYSTEM..... 13

 Resources..... 15

 Organizational Structure..... 22

 Custodial Work..... 25

 Repairs--Work Order System..... 28

 Repairs--Minor Capital Projects..... 37

BUILDING CONDITIONS..... 41

 Site Inspections..... 41

 Building Occupant Survey..... 43

FINDINGS AND RECOMMENDATIONS

 Management..... 46

 DAS Data Collection and Analysis..... 46

 Building Assessment..... 46

 Centralized Data Base..... 47

 Maintenance Costs..... 48

 Planning..... 49

 Contracted Building Management..... 51

 Operations..... 57

 Preventative Maintenance Program..... 57

 Custodial Operations..... 59

 Supervision..... 59

 Allocation of Staff..... 60

 Tenant Relations..... 61

 Statewide Monitoring..... 63

APPENDICES

A.	DAS Internal Study Recommendations.....	A-1
B.	Results of Building Occupant Survey.....	B-1
C.	Cost of Recommendations.....	C-1
D.	DAS Response to Recommendations.....	D-1

EXECUTIVE SUMMARY

During its ten-month performance audit of the Department of Administrative Services (DAS) building maintenance activities, the Legislative Program Review and Investigations Committee found that buildings under the care and supervision of the department were poorly maintained. Site visits to 15 DAS controlled buildings by committee staff showed that buildings were not properly cleaned and painted, and that facilities and equipment were often old and worn.

Surveys of DAS building occupants supported these findings. The majority of the surveyed occupants (over 60 percent) felt that building conditions either hindered their ability to do their work or created an unpleasant environment for workers and the general public. Over half of the survey respondents rated the upkeep of floors, walls, and ceilings in DAS controlled buildings as only fair to poor.

Interviews with Buildings and Grounds Division employees indicated that mechanical systems are not properly maintained in DAS controlled buildings. The committee staff was told that electrical systems in nearly all state owned buildings under DAS control are overloaded, and that equipment is not being properly maintained due to the lack of a comprehensive preventative maintenance program.

Finally, inspections recently conducted by the state fire marshall's office indicate that there are a number of fire code violations in DAS controlled buildings. While the full extent of these violations has not yet been determined, substantial changes may be required in some buildings.

The program review committee believes that a number of factors make it difficult for DAS to maintain these buildings. Many of the DAS controlled buildings are old with deferred maintenance problems. Thus, problems with building equipment and structure are more likely to occur.

In addition, some state agencies are located in buildings that were not originally designed to function as offices. This may result in inadequate storage space, ventilation, heating, and security.

The scattered locations of state facilities in the Hartford area also make building maintenance more difficult. The Department of Administrative Services is responsible for the care and supervision of 18 state-owned buildings, has custodial staff assigned to 17 buildings, does repair work in more than 30 buildings, and contracts with private firms for maintenance services (e.g., cleaning, trash removal, extermination, etc.) in at least 22 buildings.

Due to funding constraints, the Department of Administrative Services does not have complete control over its response to all of these factors.

However, in the committee's judgement, maintenance problems have been aggravated by the fact that the department has not effectively managed its maintenance responsibilities. There is no system to identify poor building conditions, develop plans to improve those conditions, and ensure that planned improvements are actually completed. As a result, accountability is limited, and there are few objective yardsticks for judging the performance of DAS employees.

Due to lack of planning, the department's maintenance activities are almost entirely reactive--the department responds to problems after they occur rather than anticipating problems and taking action to avoid them. Thus, the department has not developed a preventative maintenance system to repair buildings and equipment before they fail.

This lack of management information makes it difficult to determine the department's funding needs for building maintenance. Because the department lacks building assessments, plans outlining specifically what needs to be done to improve building conditions, and a preventative maintenance system to determine routine maintenance needs, there is no systematic way to calculate the appropriate funding level for repair work. In addition, the lack of standards for custodial staffing levels in combination with the lack of accountability for custodial work performed, makes it difficult to determine whether improved management, more staff, or both are needed to improve cleanliness in DAS controlled buildings.

The Department of Administrative Services recognizes the need for better building conditions and has taken several steps to improve its administration of maintenance services. In the last year, the department has reorganized its supervision of building superintendents, purchased a computer to automate the work order system, and, in July 1986, hired a director of maintenance control to evaluate and implement changes in maintenance operations. At this point, it is too early to determine the impact of these changes. However, the program review committee believes that further major changes will be needed in department procedures to substantially improve maintenance services.

The program review committee's recommendations are intended to bring about better building conditions by improving the management of maintenance activities and modernizing maintenance procedures. The committee proposes that the department utilize management skills of private sector companies to operate buildings whenever feasible. In addition, the committee proposes a number of recommendations to ensure that the department has adequate information on building conditions, and to ensure that this information is used to improve building conditions. Finally, the

program review committee believes that a preventative maintenance program must be implemented to ensure that equipment is properly maintained, to reduce emergency repairs, and to improve maintenance planning.

RECOMMENDATIONS

Management

1. The Department of Administrative Services shall by January 1, 1988, develop a centralized data base that incorporates for each building: the types and dates of completed inspections (e.g., State OSHA, energy management audits, building assessments, etc.); findings and recommendations resulting from building inspections; and actions taken to comply with these recommendations.

2. The Department of Administrative Services shall, by July 1, 1988, establish a cost accounting system that allocates all maintenance staff (custodial, repair, management), equipment, supplies, and contractual expenses to each building.

3. The Department of Administrative Services shall by January 1, 1988 develop and implement a five-year cyclical plan for evaluating and reporting on the structural integrity, mechanical systems, safety features, code compliance, and general appearance of each building under the department's care and supervision. The plan shall assure that each building is evaluated at least once during every cycle. The evaluations shall be performed by a team collectively having expertise and experience in engineering, code compliance, and building management.

4. The Department of Administrative Services shall use the information provided by formal building assessments, energy management audits, code compliance inspections, State OSHA inspections, staff evaluations of building needs, and any other pertinent reports, to develop a one- and five-year maintenance plan for each of the buildings under the department's control. These plans shall be comprehensive and include at least the following information:

- o a list of all repair and renovation projects needed to maintain each building;
- o a priority ranking for each project;
- o a cost estimate for each project; and
- o an estimate of completion time for each project.

These plans shall be annually updated and accompanied by a progress report on any maintenance projects not completed according to schedule.

5. Beginning September 1, 1988, and annually thereafter, the Department of Administrative Services shall submit to the governor and the general assembly a report that includes:

- o a summarized assessment of the structural integrity, mechanical systems, safety features, code compliance, and general appearance of each building evaluated during the preceding year;
- o the department's updated one- and five-year maintenance plans; and
- o the department's progress report on maintenance projects not completed on schedule.

Contracted Building Management

1. By July 1, 1990, the Project Oversight Committee shall develop and submit to the General Assembly a plan to retain private building management firms to maintain buildings under the control and supervision of the Department of Administrative Services. This proposed plan shall include:

- o a list of the buildings that should be maintained by private management firms;
- o a schedule for converting buildings from state to private management;
- o the resources needed to administer the private maintenance contracts;
- o a plan for addressing the needs of any state employees displaced by private management firms; and
- o the procedures for selecting building management firms.

2. The proposed plan shall be developed on the basis of knowledge gained from a two-year demonstration project begun by July 1, 1988. For this project, an experienced private building management firm shall be retained to manage the operations of a state owned office building(s) in the Hartford area. The selected building or group of adjacent buildings shall consist of at least 100,000 square feet of net rentable area. The responsibilities of the management firm shall include:

- o cleaning;
- o maintenance of the structure and mechanical systems within the building;
- o general repair work;

- o establishing and operating a preventative maintenance system;
- o monitoring energy usage;
- o security within and on the grounds of the building; and
- o planning, i.e., developing one- and five-year maintenance plans, a capital projects plan, and an energy conservation plan.

3. A special committee shall be established to oversee the demonstration project. The committee, to be known as the Project Oversight Committee, shall consist of the Secretary of the Office of Policy and Management, the Commissioner of the Department of Administrative Services, the Deputy Commissioner of the Bureau of Public Works, and two representatives from private industry who are currently responsible for buildings operated by private management firms. The private industry representatives shall be appointed by the leadership of the State House of Representatives and Senate.

4. The committee shall be responsible for drafting a request for proposal, submitting it to private building management firms, and selecting a firm from among the respondents.

5. At a minimum, all applicant firms shall be required to estimate yearly maintenance costs, provide resumes of maintenance managers to be assigned to the building, provide documentation of intent to comply with all the state's nondiscrimination requirements, and post a performance bond equivalent to the estimated yearly maintenance costs.

6. A Contract Administration Unit shall be established within the Department of Administrative Services but separate from the Bureau of Public Works. The duties of this unit shall include:

- o providing support services to the Project Oversight Committee; and
- o overseeing the private management firm to ensure that all contractual obligations are met and that the building is maintained according to contract specifications. This oversight shall include a monthly review of contractor expenditures, authorization of expenditures not covered in the contract, and unannounced building inspections.

7. The unit shall consist of at least one full-time employee with experience in building management. Additional staff time for reviewing contract expenditures and building condition shall be provided as determined necessary by the Project Oversight Committee.

8. The Project Oversight Committee shall develop and submit an implementation plan to the Government Administration and Elections Committee by January 1, 1988. This plan shall include a timetable for contractor selection, and the staffing needs of the Contract Administration Unit.

Preventative Maintenance Program

1. By July 1, 1987, the Department of Administrative Services shall develop a plan to implement a preventative maintenance program in all state-owned buildings under the care and supervision of the Department of Administrative Services. By July 1, 1991, this system shall be fully operational.

2. This plan shall establish a preventative maintenance system for all state-owned buildings controlled by DAS that includes:

- o an inventory of the equipment to be regularly serviced;
- o a list of the specific preventative maintenance work to be performed, and how frequently each task should be performed;
- o all unplanned maintenance activities requested;
- o standard completion times for both preventative and unscheduled maintenance activities; and
- o information on completed tasks (e.g., date of completion, hours actually devoted to task, actual and estimated cost of labor and materials, code identifying the employee(s) working on the job, etc.).

This system shall be used to monitor and report on the division's preventative and unscheduled maintenance activities. Management reports shall be generated at least once a month and shall include: a listing of activities not completed according to schedule or within the time standard; a comparison of actual and estimated labor and materials costs; and a comparison of actual and expected job completion times.

Custodial Operations

1. By April 1, 1987, the Department of Administrative Services shall develop a custodial supervision program that includes:

- o the establishment of a policy stating what should be cleaned in each building, how frequently these items should be cleaned, and the designation of individuals responsible for ensuring that the required custodial work is properly completed; and

- o a checklist identifying items and building areas that should be checked by custodial supervisors, the frequency of these checks, and a rating system to evaluate completed work.

2. The Department of Administrative Services shall annually evaluate the custodial staffing needs in all DAS controlled buildings. The department shall reallocate and/or request additional staff as necessary. This evaluation shall include:

- o a determination of the custodial tasks that should be completed in each building;
- o the staff hours required to complete those tasks; and
- o any special features of the buildings such as high traffic volume and types of activities occurring within the building.

Tenant Relations

1. Each agency occupying a building under the care and supervision of the Department of Administrative Services shall appoint one contact person to act as a liaison with the department on building maintenance issues. The Department of Administrative Services shall likewise appoint a contact person to act as liaison with tenant agencies. The liaisons shall be appointed by July 1, 1987.

2. The Department of Administrative Services shall annually survey agency liaisons regarding building conditions, upcoming agency projects that may require DAS maintenance work, and their satisfaction with the maintenance services provided by the department. The results of this survey should be used to plan future maintenance activities and to evaluate the services provided by maintenance workers.

3. The Department of Administrative Services shall annually call a meeting of agency liaisons to discuss maintenance needs and problems.

4. The Department of Administrative Services shall prepare a maintenance manual for each building under the care and control of the department. These manuals shall be written and distributed to the liaison of each occupant agency by July 1, 1988. These manuals shall include information on:

- o the authority and responsibilities of the Department of Administrative Services, occupant agency, and lessor (if applicable); and
- o building policies and procedures (e.g., cleaning, repair, security, safety, and emergency procedures).

Statewide Monitoring

1. The Department of Administrative Services shall by July 1, 1989, develop and implement a five-year cyclical plan for evaluating and reporting on the structural integrity, mechanical systems, safety features, code compliance, and general appearance of each state-owned building in excess of 2500 square feet. The plan shall assure that each building is evaluated at least once during every cycle. The evaluations shall be performed by a team collectively having expertise and experience in engineering, code compliance, and building management. The evaluation team shall prepare findings on building conditions and a prioritized list of the maintenance projects required to improve building conditions.
2. The Department of Administrative Services shall prepare and submit to the occupant agency a report summarizing the results of each building inspection. By September 1 of each fiscal year, the Department of Administrative Services shall submit to the Appropriations Committee of the General Assembly a summary of the results of all building inspections conducted during the previous state fiscal year.
3. The Department of Administrative Services shall establish a centralized data base of information on the condition of all state-owned buildings in excess of 2500 square feet that incorporates the findings and recommendations for each building resulting from building inspections, and the actions taken by the occupant agencies to comply with these recommendations.
4. All state agencies utilizing state-owned buildings in excess of 2500 square feet shall annually report to the Department of Administrative Services on the condition of their buildings and the maintenance practices used to maintain those buildings. The Department of Administrative Services shall be responsible for reporting on the buildings under the care and supervision of the department.
5. The Department of Administrative Services shall develop, disseminate, and analyze the results of the building maintenance survey. At a minimum, this survey shall provide information on:
 - o the maintenance plans of occupant agencies (e.g., projects planned for the current and upcoming fiscal year);
 - o the resources allocated to building maintenance by the occupant agency (e.g., the number of maintenance staff and their professional qualifications, and maintenance expenditures); and
 - o any actions taken by the occupant agency to comply with DAS building inspections.

6. The preceding inspection and reporting requirements as administered by the Department of Administrative Services shall not apply to buildings under the care and supervision of the General Assembly. The General Assembly shall independently comply with these building inspection requirements. The results of these inspections shall be reported to the Joint Committee on Legislative Management Committee.

INTRODUCTION

In May of 1986, the Legislative Program Review and Investigations Committee completed the first of two performance audits within the Bureau of Public Works. That audit focused on the bureau's role in the state's space acquisition process. The practices followed by the bureau's Buildings and Grounds Division in maintaining buildings under its control is the subject of this report.

The term maintenance as used in this report is defined as: actions taken to repair or prevent the deterioration of a building's structural and mechanical systems; cosmetic improvements or minor alterations to buildings; and general housekeeping of buildings. Thus, the scope of the study is limited to the Buildings and Grounds Division's performance in meeting its maintenance responsibilities.

Descriptions of the division's structure and operating procedures are based upon division practices as of August, 1986. These descriptions were obtained through extensive interviews of employees at all levels of the organization and a review of relevant files and documents within the agency. Standards for assessing the division's maintenance operations were developed after consultations with industry trade groups, private sector maintenance personnel, and maintenance departments in other states.

Several visits to large corporations in the Hartford area were undertaken to observe and discuss private sector maintenance practices. Additionally, a committee staff person went to Tennessee to learn about that state's use of private management firms for the maintenance of public buildings.

To evaluate maintenance effectiveness, committee staff conducted site inspections of 15 buildings under the control of the bureau. The heads of all state agencies were surveyed to determine their operations' interaction and satisfaction with the maintenance services the bureau provided. A questionnaire was sent to approximately 1,500 state employees seeking their opinion of physical conditions in their work environment.

BUILDING MAINTENANCE SYSTEM

The Department of Administrative Services (DAS) is required by statute to supervise the care and control of leased and state-owned buildings in the Hartford area with the exception of: institutions; and buildings under the control of the Legislative Management Committee, the chief court administrator, the Connecticut Marketing Authority, and the Department of Transportation. Thus, in state FY 86, the department supervised a total of approximately 2.3 million square feet of space. The majority of this space, about 1.4 million square feet, is located in 18 state-owned buildings, while the remaining 9 hundred thousand square feet of space is leased and located in approximately 42 buildings. The department's maintenance responsibilities vary depending on whether the state owns or leases the occupied space. In most cases, DAS is solely responsible for the maintenance of state-owned buildings in the Hartford area. However, in leased space, the lessor may be responsible for most or all of the maintenance activities.

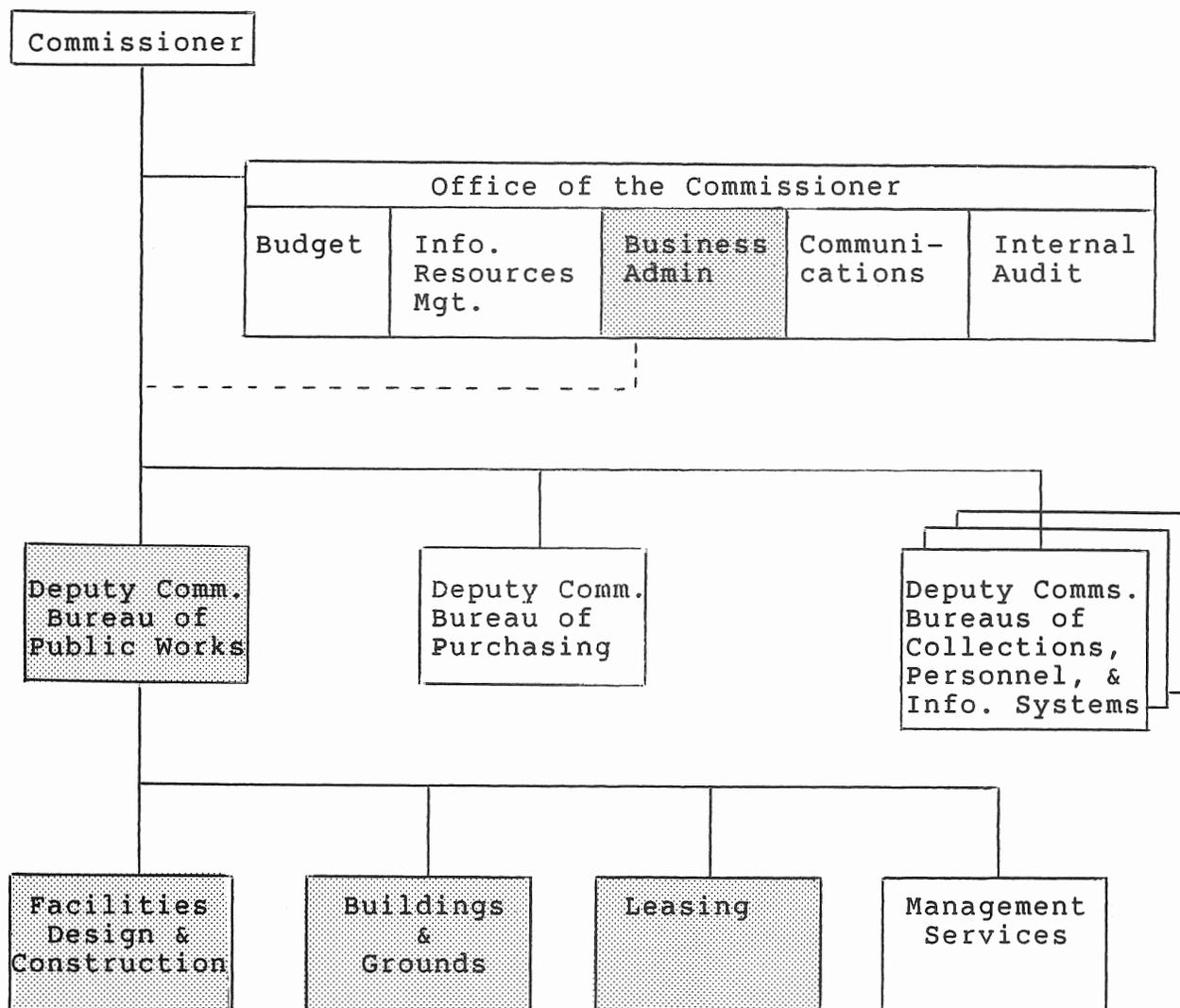
Maintenance of facilities outside the Hartford area is, in most cases, the responsibility of the occupying agency. However, even for buildings outside of Hartford, the Department of Administrative Services retains some responsibility for major maintenance projects. Specifically, the department is by statute in charge of all repairs and alterations that cost more than \$250,000 regardless of the building location.

The shaded areas in Figure 1 indicate those units within the Department of Administrative Services that are most heavily involved in the maintenance of DAS controlled buildings. The Bureau of Public Works (BPW), one of five bureaus that comprise the Department of Administrative Services, is the entity primarily responsible for implementing the department's maintenance responsibilities. As the figure illustrates, BPW is headed by a deputy commissioner and organized into four divisions.

The Buildings and Grounds Division is the unit directly responsible for maintaining facilities under the control of the Department of Administrative Services. In DAS controlled buildings this division is responsible for performing custodial and repair work that is financed from the department's general funds.

The Facilities Design and Construction Unit is involved in major building design, construction, and renovation projects throughout the state. In DAS controlled buildings, the unit supervises major capital projects, i.e., large repair/renovation projects that are financed through state bonds. In addition, the unit is responsible for performing energy management audits and asbestos inspections of DAS controlled buildings. If these inspections indicate that maintenance work is required, the responsibility to perform these repairs rests with either the

Figure 1. Bureau of Public Works Organization
(Effective 5/16/85).



Source: Department of Administrative Services.

Buildings and Grounds Division (for smaller projects financed through the General Fund), or the Facilities Design and Construction Unit (for larger projects generally financed with bonding money).

The Leasing Unit is also involved in activities that affect the maintenance of DAS controlled buildings. Leases negotiated by this unit define the maintenance responsibilities of DAS and the lessor. In addition, the Leasing Unit works with the lessors of state occupied space in the Hartford area to resolve maintenance problems.

A number of units outside of the Bureau of Public Works play a role in building maintenance. Some of these units provide maintenance support services such as: accounting, purchasing, personnel, budgeting, data processing, and public information. In addition, the Business Administration Unit within the Office of the Commissioner is responsible for building security in DAS controlled buildings.

Resources Analysis

Current budget. The Department of Administrative Services allocates funds to the Buildings and Grounds Division through its building maintenance program budget. In the state FY 87 budget, DAS requested approximately \$11 million for building maintenance, which accounted for 46 percent of the Bureau of Public Works budget request and 15 percent of the Department of Administrative Services total budget request.

The DAS budget request divides maintenance funds into three broad expense categories: personnel, contractual, and commodities. The largest of the three budget categories is contractual expenses accounting for \$6.43 million or 56 percent of the building maintenance funds requested. Included in this category are payments for cleaning, repair, and utility contractors.

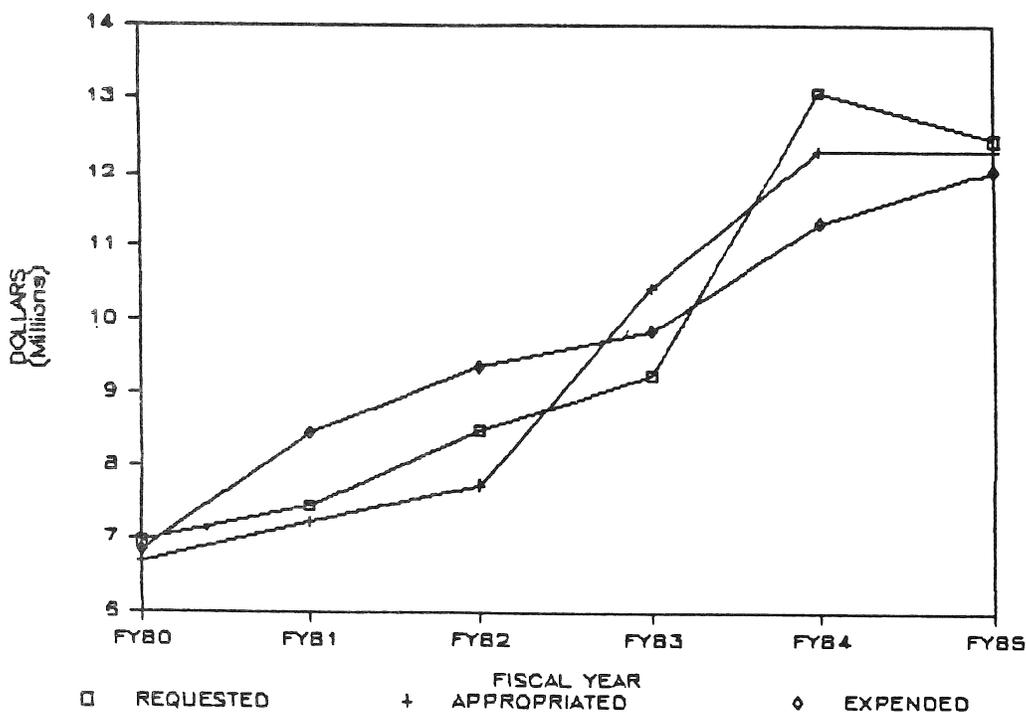
Personnel expenditures account for \$3.97 million or 35 percent of the building maintenance budget request. This figure includes all staff assigned to the payroll of buildings and grounds (i.e., custodial workers, craft workers, building superintendents, managers, and their support staffs).

Commodities expenditures are the smallest component of the building maintenance budget, accounting for only 9 percent (\$1.1 million) of the FY 87 budget request. This figure includes fuel, maintenance supply, and repair material costs.

Budget trends. As shown in Figure 2, the department's budget requests for maintenance funds increased from approximately \$7 million dollars in FY 80 to over \$12.4 million in FY 85. From FY 80 to FY 85, budget figures include funds to maintain courthouses throughout the state, but starting with FY 86, DAS responsibility

and funding for the courthouses was transferred to the Judicial Department. As a result, requested funds declined to \$9.3 million in FY 86. However, the department's budget request rose in FY 87 to \$11 million--an 18.9 percent increase over the FY 86 request.

Figure 2. Maintenance Budget.

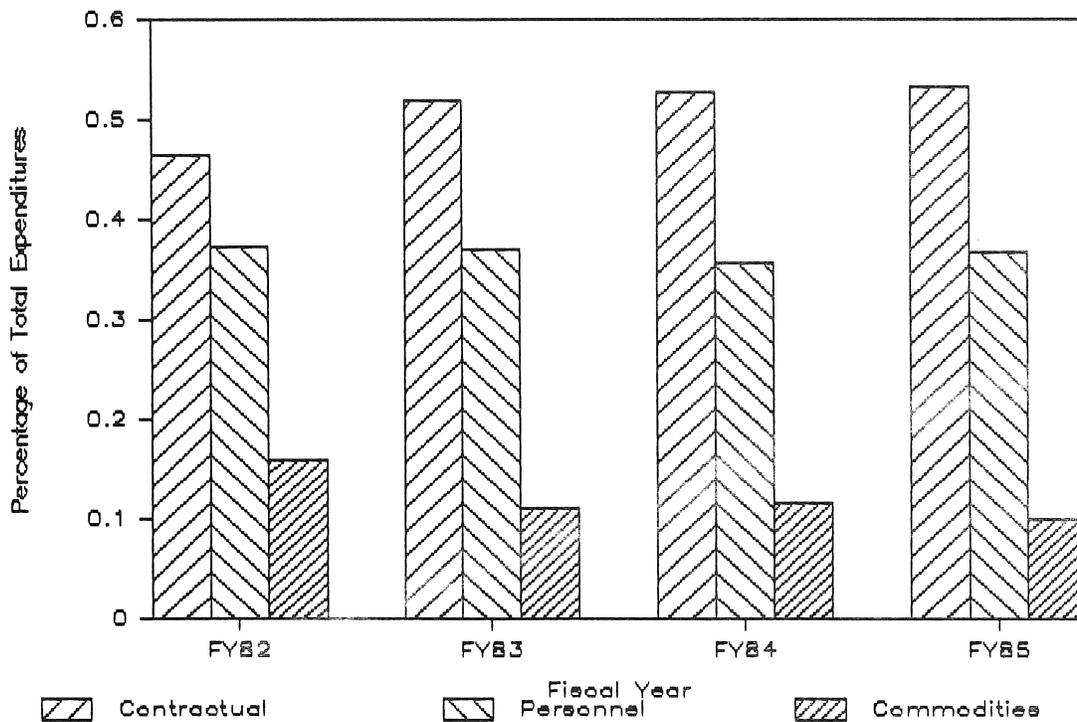


Source: Office of Fiscal Analysis Budget Data.

In each of the fiscal years from FY 80 through FY 86, the department has been appropriated at least 90 percent of its requested funding for building maintenance. A comparison of the total funds requested from FY 80 through FY 86 to the total funds appropriated shows that DAS was appropriated 98.8 percent of the funds requested for building maintenance during this seven year period. However, it should be noted that budget options are not included in the Office of Fiscal Analysis budget as requested funds. Thus, these figures do not show the department's funding requests in their entirety.

The allocation of expended funds between the three budgetary categories (i.e., personnel, contractual, and commodities) has fluctuated during the four-year period from FY 82 through FY 85. As shown in Figure 3, contractual expenses are becoming a larger part of the budget (increasing from 46.5 to 53.1 percent), while both personnel and commodities expenses have varied with the general trend toward a slight decline in the percentage of the budget allocated to these two categories.

Figure 3. Budget Categories.



Source: Office of Fiscal Analysis Budget Data.

When expenditures are compared to appropriated funds, two patterns of spending become apparent. (See Figure 4). For each of the three years from FY 80 through FY 82, building maintenance expenditures exceeded appropriations. During these three fiscal years, the department spent a total of \$2.97 million more than it was appropriated for building maintenance. However, for each the

Figure 4. Appropriations Less Expenditures.

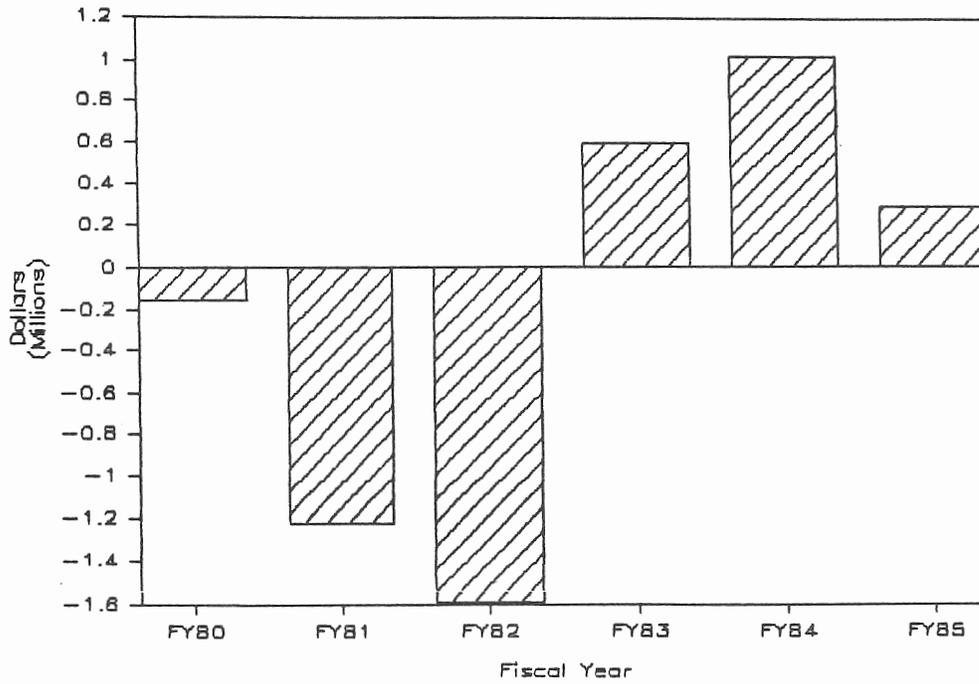
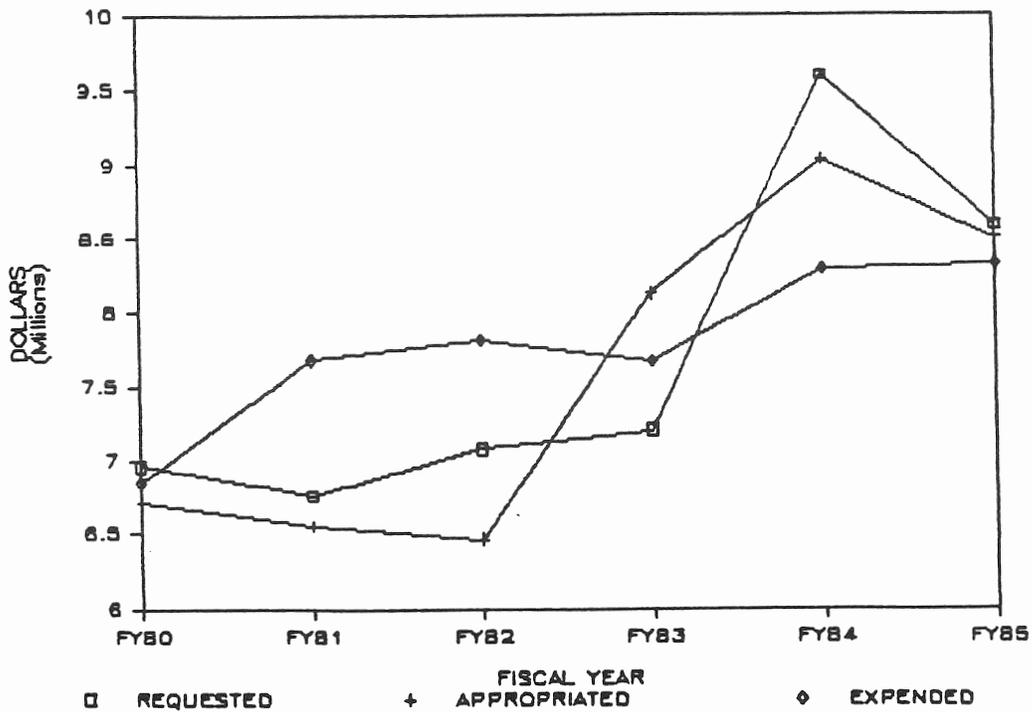


Figure 5. Budget Adjusted for Inflation.



following three fiscal years (from FY 83 through FY 85), building maintenance expenditures were lower than appropriations. From FY 83 through FY 85, the department lapsed a total of \$1.89 million appropriated for building maintenance. The largest portion of these funds (53.8 percent) was lapsed in FY 84 when appropriations exceeded expenditures by \$1.02 million.

When DAS budget data are adjusted for inflation, requested, appropriated, and expended funds all show an increase over this seven year period. (See Figure 5). From FY 80 to FY 85, requested funds increased by 23 percent, appropriated funds grew by 27 percent, and expenditures increased by 21 percent.

Current staffing. As of July 1, 1986, 204 permanent staff members were assigned to the Buildings and Grounds Division. Approximately 84 percent (173 staff members) of these employees worked on a full-time basis, while the remaining 16 percent (31 staff members) worked part-time. Assuming that the average part-time employee worked 20 hours per week, then the full-time equivalent of approximately 190 employees staffed the buildings and grounds unit.

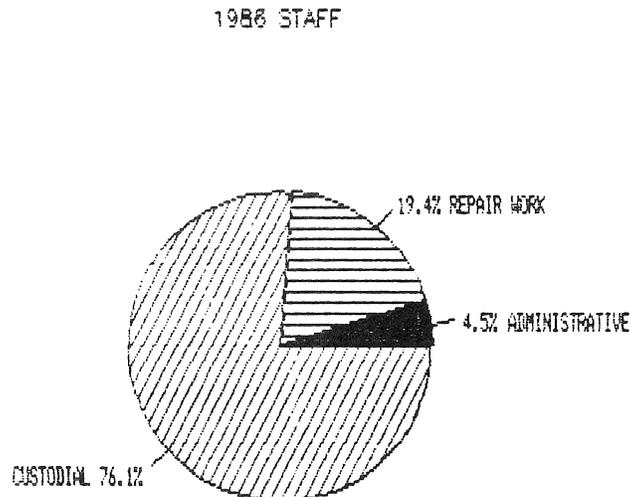
These employees can be classified into three categories according to the functions they perform:

- o administrative, i.e., they manage or provide support services for managers of the buildings and grounds unit;
- o custodial, i.e., they are maintainers, grounds crew workers, or building superintendents, who clean or supervise the cleaning and general upkeep of buildings and grounds; and
- o repair work, i.e., they are quality crafts people responsible for maintaining the systems (e.g., air conditioning, heating, plumbing, electrical) and the structure (e.g., carpenters, masons, painters) of the buildings.

Analysis shows that the majority of buildings and grounds staff members fall into the second category, with more than 76 percent of the employees involved in custodial work. (See Figure 6.) Approximately 19 percent of building maintenance employees are responsible for repair work, while the remaining 4.5 percent of the staff members administer the buildings and grounds unit.

Staffing trends. Since July 1, 1982, the total number of established full-time and part-time positions in the Buildings and Grounds Division has declined. (Courthouse maintenance staff are excluded from this analysis due to their transfer to the jurisdiction of the Judicial Department as of July 1, 1985.) In 1986, the buildings and grounds unit was allocated 212 established positions,

Figure 6. Staffing Categories.



Source: Office of Fiscal Analysis Budget Data.

13 percent fewer than the 244 positions allocated in 1982. (See Figure 7) The total number of staff members actually working for the buildings and grounds unit (i.e., filled full-time and part-time positions) does not show a clear trend, but has ranged from a low of 194 in 1983 and 1985, to a high of 204 in 1984 and 1986.

As shown in Figure 8, the mix of full-time and part-time employees has changed since 1984. The number of full-time employees declined in each of these three years from 192 in 1984 to 173 in 1986. At the same time, the number of part-time employees increased each year from 12 in 1984 to 31 in 1986. If each part-time employee is considered the equivalent of one-half of a full-time employee, the number of full-time employee equivalents has ranged from a low of 186 in 1983 to a high of 198 in 1984.

Figure 7. Established Positions.

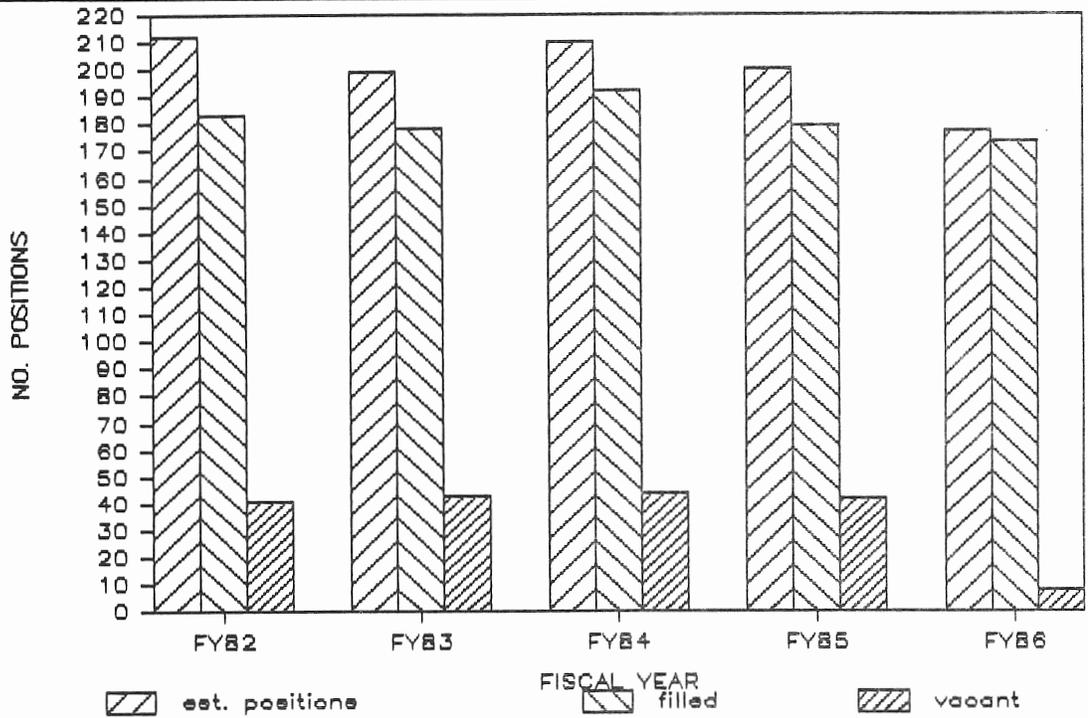
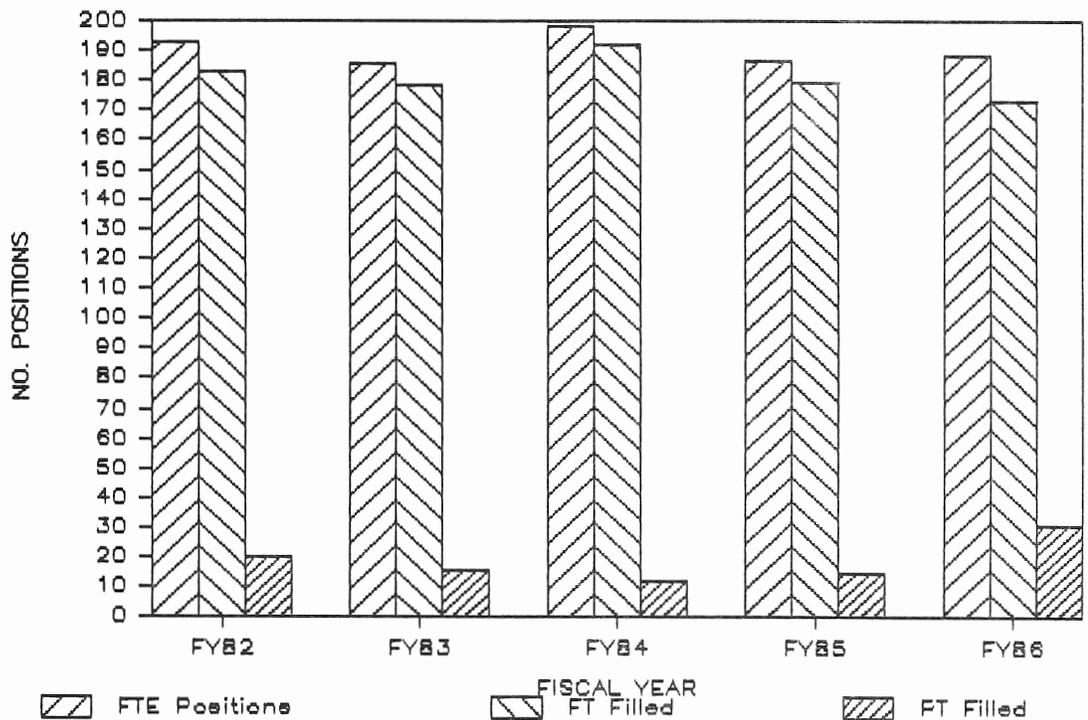


Figure 8. Filled Positions.



Organizational Structure

The Buildings and Grounds Division is managed by a director who is aided by a chief, two assistant chiefs, and a director of maintenance control. (See Figure 9) Below the upper management level, the division is divided into two functional groups. One group provides craft services including carpentry, electrical, painting, heating, plumbing, and air conditioning, while the other performs janitorial services.

Staff in the quality crafts group is separated into four units, each managed by a foreman. In the janitorial services group, three area superintendents are responsible for managing seven to eight buildings each. Custodial staff are assigned to clean or supervise work at most of these locations.

Figure 9 displays the Buildings and Grounds Division's management structure as defined in a 1985 internal study of the maintenance function by the Department of Administrative Services. It depicts a typical pyramid management format showing clear lines of communication up and down the organization.

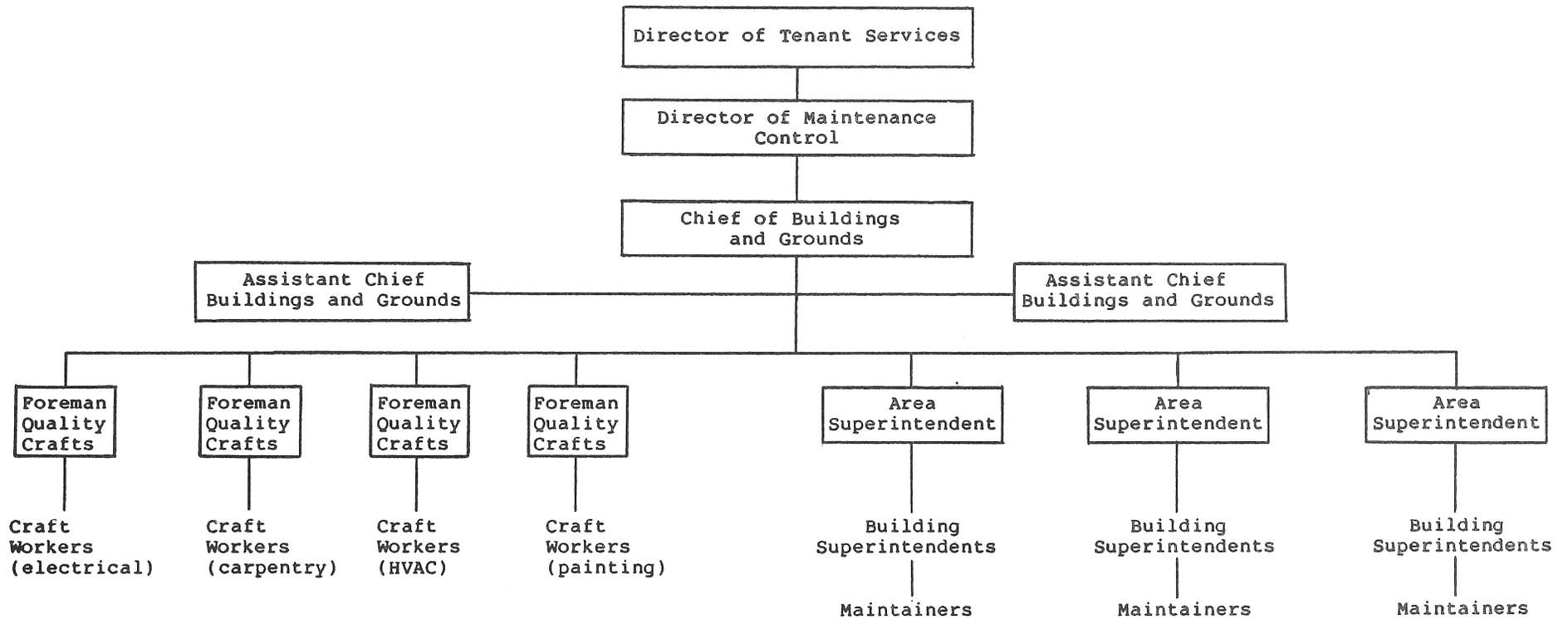
However, the committee found that, in practice, the responsibilities of division managers are not as clearly defined as indicated in Figure 9. As a result of interviews with buildings and grounds employees, the management structure depicted in Figure 10 was constructed. The most notable difference between the organization described by the department and the one constructed by the committee staff is the absence of clear channels of communication in the latter.

In the observed management structure (Figure 10), foremen and area superintendents, who collectively represent the division's middle managers, can receive direction from as many as five supervisors simultaneously (i.e., Directors of Tenant Services and Maintenance Control, Chief and two Assistant Chiefs of Buildings and Grounds). This diffusion of authority makes it difficult for these middle managers to engage in priority setting. As a result, jobs may be left unfinished as middle managers shift workers from job to job in response to the demands from a number of different superiors, all of whom have direct control over foremen and area superintendents.

In both organizational charts, the division's structure appears top heavy with three distinct layers of managers heading the division. (See Figures 9 and 10). The probable explanation for this configuration is that changes in the management structure have not kept pace with changes in the organization of the Bureau of Public Works.

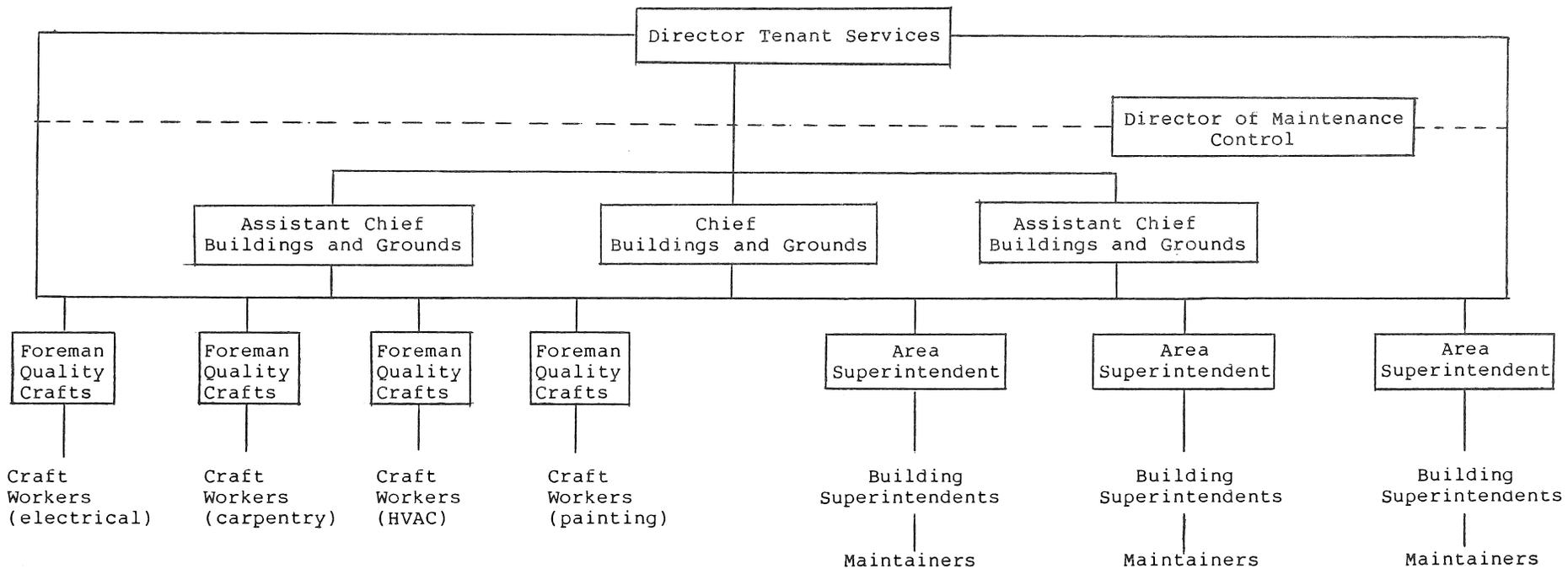
Figure 9. Stated Management Structure of the Buildings and Grounds Division.

23



Source: Legislative Program Review and Investigations Committee.

Figure 10. Observed Management Structure of the Buildings and Grounds Division.



24

Source: Legislative Program Review and Investigations Committee.

In the early 1980s, buildings and grounds was one of four sections in a larger division known as tenant services. During this time period, tenant services was responsible for leasing, building security, maintenance of buildings in the Hartford area, and court maintenance. Each section had its own administrative head reporting to the director of tenant services. In recent years, the leasing and building security sections have been transferred elsewhere in the bureau, and the court maintenance section has been removed from the Department of Administrative Services altogether. As a result, tenant services and buildings and grounds have in practical terms become the same entity. However, as Figure 9 shows, both the director of tenant services and the chief of buildings and grounds positions have remained.

The Director of Maintenance Control is a newly established position created as the result of a 1985 DAS study of the Buildings and Grounds Division. (See Appendix A for a discussion of the DAS study) The study found that the management of the division needed to be strengthened and recommended the establishment of a maintenance control center headed by a director. The director was hired in July 1985 and given the responsibility to assess and implement changes in the division's management.

Custodial Work

Facilities maintained by the Buildings and Grounds Division are generally cleaned in one of three ways:

- o by permanently assigning buildings and grounds custodial staff to the building;
- o by contracting with private firms; or
- o by using a combination of buildings and grounds and contracted staff.

To clean buildings under DAS control, the Buildings and Grounds Division employs three types of custodial workers: maintainers; building superintendents; and area superintendents. Maintainers are primarily responsible for cleaning buildings, landscaping, and supervising small crews of custodial workers. Maintainers are generally assigned to work exclusively in one building.

Superintendents are assigned to a specific building and are responsible for the overall condition of that building. Within their respective buildings, the superintendents' duties include:

- o supervising Bureau of Public Works cleaning crews;
- o monitoring the work of cleaning contractors (if applicable to the building);

- o supervising contractors servicing building equipment;
- o monitoring the building's mechanical systems;
- o handling custodial requests and/or complaints from building occupants; and
- o identifying and reporting problems requiring repair work to the area superintendent.

Area superintendents are not assigned to a particular building. Instead, they are responsible for seven to eight buildings and act as liaisons between the superintendents of those buildings and the managers in the Buildings and Grounds Division. For buildings under their control, the area superintendents' duties include:

- o receiving and reviewing all repair work requests from building superintendents;
- o resolving any problems that may occur between building superintendents and building occupants;
- o working with cleaning contractors to improve service when it is not satisfactory;
- o requisitioning custodial supplies; and
- o evaluating building superintendents.

The majority of the custodial staff members, almost 86 percent (114 full-time equivalents), work in state-owned buildings. The remaining 14 percent (19 full-time equivalents) of the custodial workers are assigned to leased buildings.

While most custodial employees are permanently assigned to a specific building, some may also have limited responsibilities in other buildings that have no assigned custodial workers. For example, a custodial worker at 30 Trinity Street is responsible for locking up the building at 44 Capitol Avenue at the end of the day. Similarly, the superintendent at 90 Washington Street is responsible for visiting three nearby leased buildings on a daily basis.

Private firms are hired by the Department of Administrative Services to clean most leased buildings, if cleaning is not the lessor's responsibility. In addition, private firms may be used in conjunction with a small staff of buildings and grounds employees to clean some buildings. According to Buildings and Grounds Division files, private custodial firms are currently working in a total of 19 buildings maintained by DAS.

Allocation of custodial staff. Program review committee analyzed the allocation of custodial workers in DAS maintained buildings to determine if workload varies from building to building. The square footage of each building where buildings and grounds employees are assigned was divided by the number of custodial workers assigned in order to calculate the average square footage per worker. For the purpose of this analysis, each part-time worker was considered as one-half of a full-time equivalent, square footage was taken from a buildings and grounds document entitled "Organizational Structure", and the staffing levels presented in the July 1, 1986, DAS Personnel Status Report were used.

As shown in Figure 11, square footage per person varied from a low of 6,649 at 30 Trinity Street to a high of 80,000 at 90 Washington Street. As expected, buildings with both private cleaning contractors and buildings and grounds custodial staff assigned showed the highest square footage per DAS employee. Because cleaning contracts generally specify functions to be performed rather than requiring a specific number of people to work in a building, square footage per person cannot be accurately calculated for these buildings. However, buildings cleaned exclusively by buildings and grounds employees also show a large variation in the ratio of square footage per person ranging from 6,649 to 11,735 square feet. When this ratio is compared to the level of usage of a building, as classified by buildings and grounds, there appears to be no relationship between the number of buildings and grounds employees assigned to clean the building, their workload, and the building's level of usage.

Supervision of cleaning. As noted earlier, both maintainers and building superintendents are responsible for supervising custodial work in the buildings where they are assigned. However, program review committee staff found that there is no established procedure to assign work to Bureau of Public Works custodial employees, or to evaluate the work done by these employees.

In interviews with building superintendents, committee staff learned that while those superintendents are supposed to oversee custodial workers every day, there is no standardized evaluation procedure to determine what cleaning tasks have been completed and how thoroughly the work has been done. As a result, each superintendent is left to develop his/her own supervisory rules and procedures.

When cleaning contractors work in a building with an assigned superintendent, the superintendent is required to do monthly evaluations of the contractor's work. However, there is no established daily inspection procedure. In most buildings without assigned buildings and grounds staff, there is no established procedure for inspecting the work of cleaning contractors. The Buildings and Grounds Division reviews the contractor's performance only if the occupying agency complains.

Figure 11. Allocation of Custodial Staff Workload.

Building Address	Owned/ Leased	Usage	Square Foot.	Fill. Pos.	Sq. Ft./ Workers	Contracted Cleaner
30 TRINITY ST.	O	HD	66492	10.0	6649.2	NO
3580 MAIN ST.	L	HD	49000	6.0	8166.7	NO
1179 MAIN ST.	L	HD	33280	4.0	8320.0	NO
170 RIDGE ED FOR BLIND	O	MHD	34172	4.0	8543.0	NO
92 FARMINGTON AVE.	O	HD	80666	9.0	8962.9	NO
170 SIGOURNEY/DCYS	L	MHD	45000	5.0	9000.0	NO
60 STATE ST./DMV	O	HD	117000	12.5	9360.0	NO
990 PROSPECT/GOV	O	LD	18816	2.0	9408.0	NO
10 CLINTON/HEALTH	O	HD	84000	8.5	9882.4	NO
200 FOLLYBROOK/LABOR	O	HD	161708	16.0	10106.8	NO
STATE OFFICE	O	HD	293386	25.0	11735.4	NO
80 WASHINGTON/OPM	O	HD	31000	2.0	15500.0	YES
18-20 TRINITY ST.	O	HD	81296	3.0	27098.7	YES
1049 ASYLUM	L	HD	65660	2.0	32830.0	YES
110 BARTHOLOMEW	L	HD	90000	2.0	45000.0	YES
340 CAPITOL	O	HD	104196	2.0	52098.0	YES
90 WASHINGTON	L	HD	80000	1.0	80000.0	YES

KEY: HD = HIGH USAGE
 LD = LOW USAGE
 MHD = MEDIUM HIGH USAGE

Repairs

The Department of Administrative Services generally pays for repairs on DAS controlled buildings in one of three ways, through the use of: general funds allocated to the Buildings and Grounds Division (i.e., the work order system); minor capital funds (i.e., minor capital projects); or bonding funds (i.e., major capital projects). As previously discussed, major capital projects are supervised by the Design and Construction Unit and are not the responsibility of the Buildings and Grounds Division.

The Buildings and Grounds Division is responsible for performing repairs using both the work order system and minor capital funds. There is no precise way to distinguish between these two types of repair work. However, as a general rule, repairs done under the work order system are smaller in scope and less costly than projects financed through minor capital funds.

Work order procedures. The work order system is used to identify maintenance jobs that are in-progress or have been completed by the Buildings and Grounds Division. Maintenance work

done by both buildings and grounds staff and private firms on contract with DAS is included in the work order system. The basis of this system is the work order form, which includes a description of and a unique work order number for jobs undertaken by the Buildings and Grounds Division.

In analyzing how the work order system actually operates, program review committee staff found few written guidelines and controls within the Buildings and Grounds Division to assure that procedures are understood and rules are followed. As a result, the following description of the work order system is based primarily on interviews with buildings and grounds employees concerning their view of the system's operations. During these interviews, committee staff found that work order procedures can vary substantially from work order to work order. The following is a description of how the work order system is intended to operate for most maintenance work requests.

As shown in Figure 12, requests for maintenance work should be directed to the buildings and grounds business office for processing. Maintenance requests may come from DAS or Bureau of Public Works administrators, custodial staff (usually building superintendents), quality craftsmen, and agency staff occupying buildings under DAS control.

At this point, the maintenance request may be denied or written up as a work order. Maintenance requests may be denied if they are outside the purview of buildings and grounds responsibilities or if it is determined that buildings and grounds does not have the resources (staff time and/or materials) available to do the requested work. Generally, the Buildings and Grounds Division will not accept a maintenance work request if it is for a building that is not under DAS control, or if it concerns equipment that is owned by the requesting agency rather than DAS (e.g., window air conditioning, computers, etc.). However, if the agency is willing to pay DAS staff overtime to do the work, the Buildings and Grounds Division may accept the job and receive reimbursement through a service transfer.

If the maintenance request is accepted, a work order is typed by clerical staff in the business office. The work order includes the following data:

- o a work order number;
- o a description of the work requested;
- o the building involved;
- o the agency making the request;
- o the person making the request; and
- o the date when the work order was typed.

Figure 12. Work Order Flow Chart.

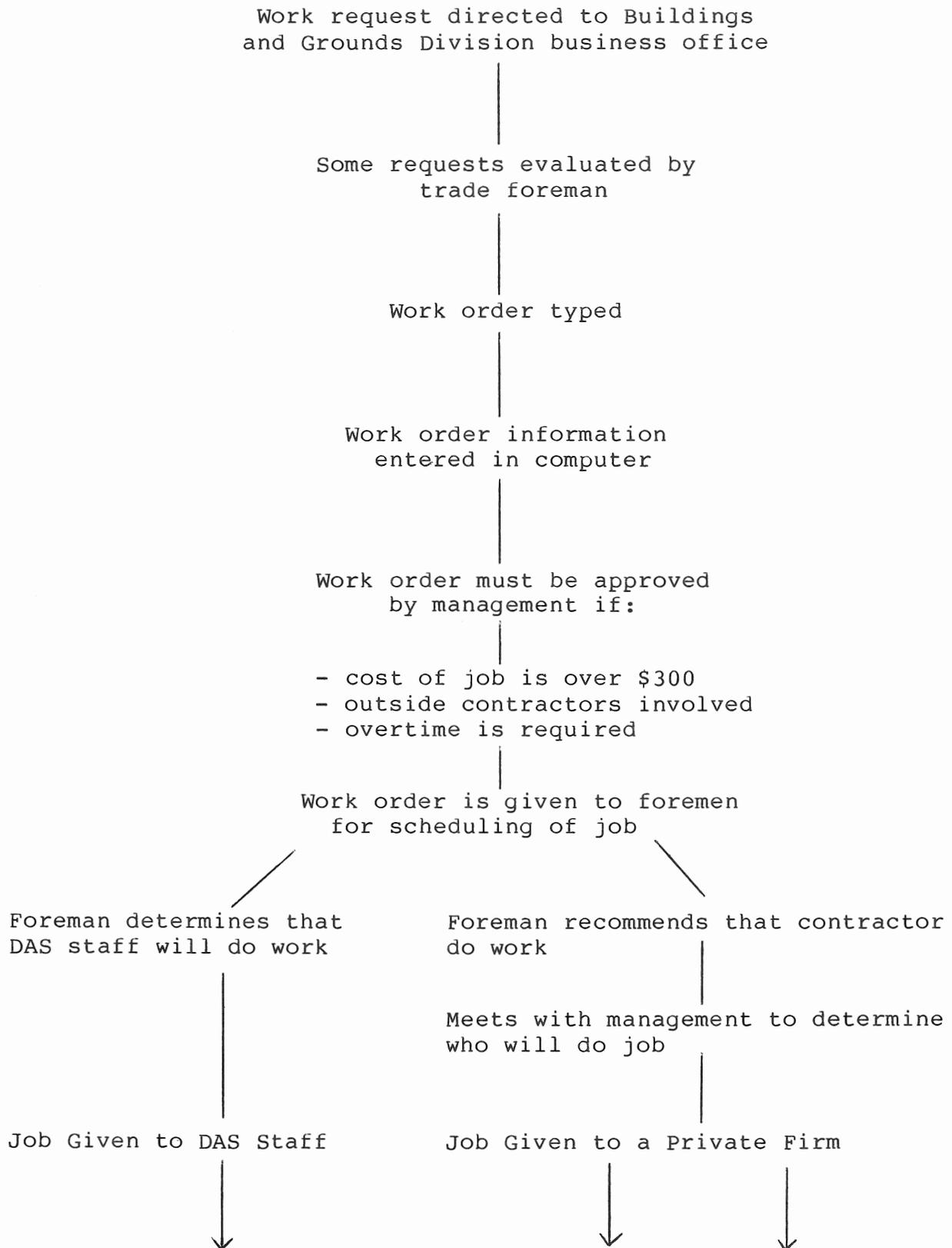
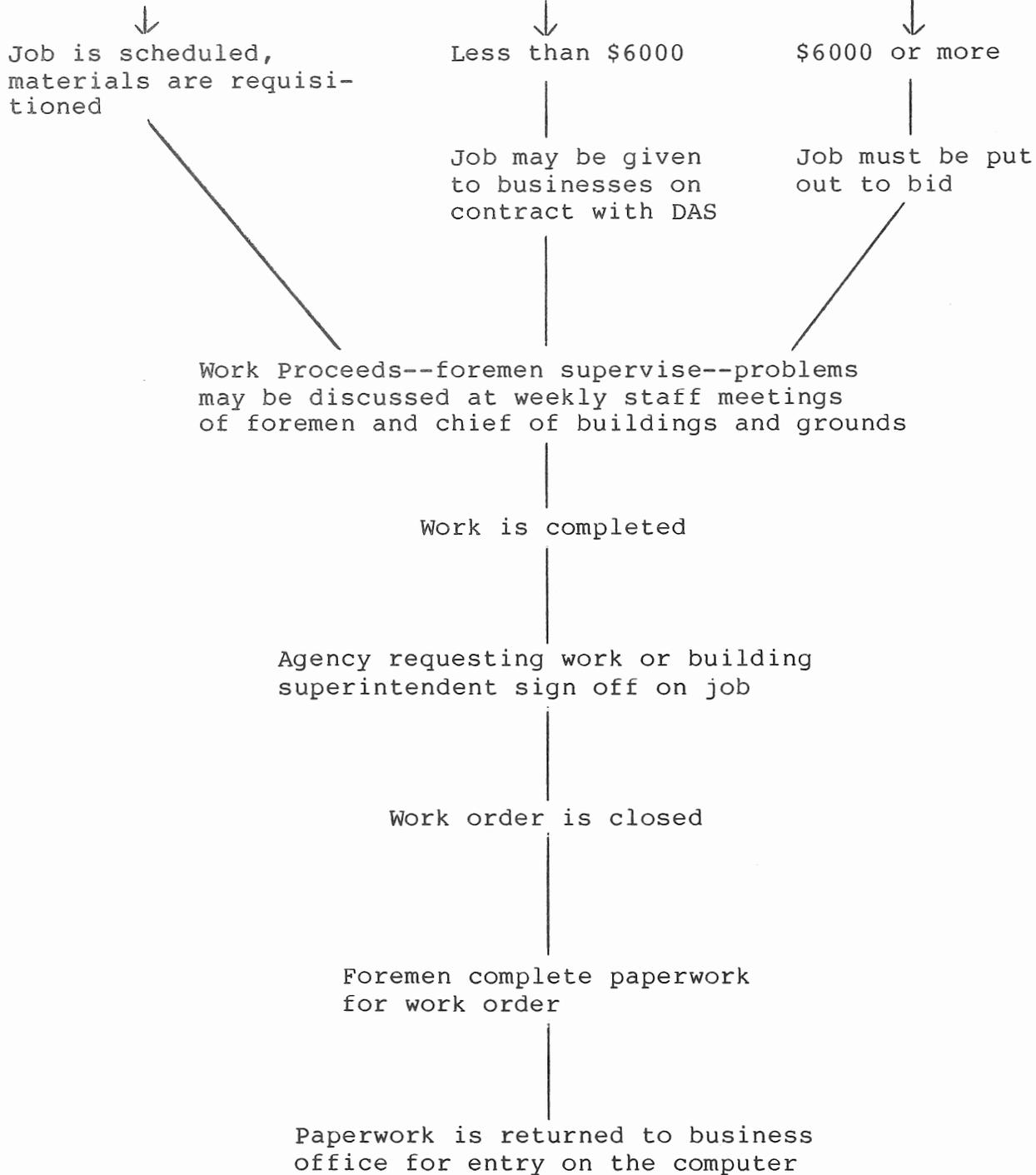


Figure 12.

(Continued)



Source: Legislative Program Review and Investigations Committee.

This information is then entered on a computer, and a paper copy of the work order is given to the foreman of the required trade.

At this point, the foreman is responsible for supervising activities to comply with the work order request. The foreman must estimate the cost of the request if the work is being paid for by another agency through a service transfer, or if he or she feels that the job will cost more than \$300. Before actually beginning work on the project, a foreman must get authorization from division managers if:

- o he/she estimates that the cost of materials will exceed \$300 (must be authorized by the buildings and grounds chief);
- o overtime is required (must be authorized by the business office and the director of tenant services); or
- o he/she recommends the use of a private firm to work on the job (must be authorized by the director of tenant services)

If a private firm is used to complete a work order, DAS must follow one of two procedures in selecting the contractor. When contracted work order costs are estimated to exceed \$6,000, the contractor must be selected through a competitive bidding process administered by DAS purchasing officials. However, if the estimated cost of the work order is less than \$6,000, buildings and grounds administrators may elect to use the services of private firms retained by DAS through annual labor contracts. These firms are selected to provide maintenance services to the Buildings and Grounds Division on an as-needed basis at a rate fixed by the contract.

Once the required authorizations are obtained, each trade foreman is responsible for scheduling work orders involving his/her staff and requisitioning the required materials. Foremen generally schedule work two weeks in advance. However, these schedules are reviewed by buildings and grounds managers and may be modified as a result of requests from Bureau of Public Works administrators.

Once work begins on a job, the foreman is responsible for supervising quality craftsmen and for solving any problems that may occur during the course of the job. Each week, the foremen meet with the chief of buildings and grounds to discuss problems and coordinate activities.

When a job is finished, the individual requesting the maintenance work must sign off on the job before the work order can be closed. Once the work order is closed, the foreman is responsible for completing the required paperwork (e.g.,

identifying the quality craftsmen working on the job and calculating the number of staff-hours used). This paperwork is then returned to the business office where the information is recorded in the computerized work order file.

Operation of the work order system. The work order system, as it currently functions, creates a number of problems for Bureau of Public Works managers. First, because there are no rules or procedures defining what should be included in a work order, a single job can be divided into a number of different work orders. For example, a leaking pipe behind a wall could result in four individual work orders: one work order for the carpenters to open a hole in the wall exposing the pipes; a second work order for the plumbers to repair the leaking pipe; a third work order for the carpenters to close the hole in the wall; and the final work order for the painters to re-paint the wall. Both interviews with buildings and grounds staff and the statistics presented above indicate that most jobs are, in fact, divided into separate work orders for each trade.

The result is that work is more difficult to coordinate when multiple trades are involved. For example, the carpenters may forget to write a work order and/or inform the painting foreman of the need to paint an area after carpentry work is finished. In addition, the time to complete a job may be prolonged if a foreman is not notified of the need to requisition materials and schedule staff time until after the previous foreman has completed his part of the job.

Multiple work orders for a single job may also distort statistics on the time required to process jobs and the percentage of jobs that are annually completed by buildings and grounds staff. In the above analysis, each work order was counted as a completed job with a processing time equivalent to the number of days from the typed date to the completion date. However, if jobs have been broken up into several work orders, the total processing time would be increased and the completion rate of jobs could be lower.

The potential for abuse of the contracting system is also greater when single jobs can be divided up into more than one work order. Using multiple work orders, a \$12,000 job that must be put out to bid, can become three \$4,000 jobs that are not put out to bid.

Statistics on the repair operations of the Buildings and Grounds Division are very limited. The division computerized its work order system in October 1984. Since that time, work order data have been entered on the computer when the work order is typed, and updated when work is concluded. However, this data base was designed primarily as a filing system and is used to reference individual jobs by work order number.

Data that could be used to evaluate the operations of the division have been excluded from the work order system. For example, building codes are not used to identify the location where work is being done. Instead, the name of the building is spelled out alphabetically--often using different abbreviations for the same location--thereby making it difficult to analyze maintenance operations on a building-by-building basis. The same procedure is used to enter information such as the person requesting the work, the agency involved, and the DAS quality craftsmen involved in the job.

Even if the data base was coded to allow for analysis, the memory of the computer currently in use is too small to perform some of the operations necessary to analyze the work order data base. In February 1986, DAS purchased a computer with the capacity to perform analytical operations on the work order data base. As of November 1986, this new computer was not being used to analyze the work order data base. However, the recently hired director of maintenance control has been involved in evaluating more advanced computerized work order systems for possible purchase by DAS.

Because the Buildings and Grounds Division cannot easily compile and analyze information from the work order system, the division lacks management information useful in planning, controlling, and evaluating building maintenance activities.

Planning is hampered by the fact that the Buildings and Grounds Division does not have repair information available on a building-by-building basis. There is no compiled history, other than what is in the memory of bureau employees, of what maintenance work has been done in each building. Nor is there any compilation of the ongoing work, and the maintenance work required in the future, for each of the buildings under DAS control.

Without the ability to analyze work order data, it is also more difficult for the division to ensure that work order procedures are followed. For example, if the work order system could easily identify all work orders that were performed by outside contractors, department managers could inspect these work orders to ensure that proper bidding procedures were followed.

The same lack of information also limits the department's ability to monitor the efficiency and effectiveness of trade employees. Because of the problems noted above, the work order system is not used to identify jobs that cost more than most jobs of a similar type, or required more materials and labor than originally estimated.

Analysis of work orders. Program review committee staff felt that an analysis of the computerized work order file was important to gain an understanding of:

- o how quickly the division responds to repair requests;
- o the type of repair work performed under the work order system; and
- o the distribution of repair work hours among DAS controlled buildings.

However, as previously discussed, the department's work order system could not provide this type of information. In an effort to obtain this information, program review committee staff transferred and re-coded the work order data onto the committee's computer system. The committee's data base consisted of 2,887 work orders, which is all of the work orders recorded on the DAS data base from January 1985 through March 1986.

Program review committee staff analyzed these completed work orders to determine the average processing time (i.e., the number of days from the time the work order was typed until its completion date). The division's data base includes completion dates for 1,074 of the 2,887 recorded work orders. This analysis shows that it took the Buildings and Grounds Division an average of 10 days to process work order requests.

Figure 13 shows the distribution of processing times for completed work orders. Approximately 66 percent of all work orders with a recorded processing time were completed within a week of the date the work order was typed, and just under 91 percent were completed within a month of the typing date.

Figure 13. Completion Time Per Work Order.

Completion Time	Number of Work Orders	Percent
Within One Week	705	65.6
1-2 Weeks	117	10.9
2-3 Weeks	53	4.9
3-4 Weeks	45	4.2
1-2 Months	66	6.1
2-3 Months	21	2.0
Over 3 Months	15	1.4

Program review staff also analyzed the number of staff hours spent on completed work orders. The data base includes staff hours for 1,316 of the 2,825 work orders. The time spent on these work orders ranged from 3 minutes to over 700 hours, with approximately 69 percent of all work orders requiring less than 7 hours (1 staff day) to complete. (See Figure 14.)

Figure 14. Hours Worked Per Completed Work Order.

Hours Worked	Number of Work Orders	Percent
Less than 1 hour	21	1.6
1 workday	892	67.8
1-2 workdays	175	13.3
2-3 workdays	64	4.9
3-5 workdays	60	4.6
1-4 work weeks	81	6.2
Over 1 work month	23	1.7

1 workday=7 hours
 1 workweek=35 hours

Figure 15 lists the number of hours devoted to 18 buildings under DAS control. When these numbers are compared to the square footage of the buildings, there is substantial variation in the number of work orders and hours per 100 square feet devoted to each building.

Figure 15. Comparison of Repair Activity by Building Size.

Building	Repair Work Hours Per 100 Square Feet	Owned or Leased
90 WASHINGTON	0.0	L
170 SIGOURNEY/DCYS	0.1	L
110 BARTHOLOMEW	0.2	L
1049 ASYLUM	0.3	L
10 CLINTON/HEALTH	0.3	O
1179 MAIN	0.3	L
44 CAPITOL/BANKING	0.4	L
309 BUCKINGHAM	0.4	O
200 FOLLYBROOK/LABOR	0.5	O
340 CAPITOL	1.0	O
92 FARMINGTON	1.1	O
990 PROSPECT	1.1	O
80 WASHINGTON	1.1	O
170 RIDGE ROAD	1.2	O
60 STATE ST.	1.4	O
30 TRINITY	1.4	O
18-20 TRINITY	2.6	O
STATE OFFICE BUILDING	2.8	O

As expected, leased buildings require less work per square foot because of lease provisions requiring the landlord to do most of the maintenance in these buildings. However, there is a wide range of hours per square foot spent on state-owned buildings. The largest ratio of repair time per square foot was allocated to the state office building. As shown in Figure 15, when the state office building ratio of work hours per 100 square feet is compared to that of other owned buildings, a number of structures received considerably less hours per square foot than the state office building.

Repairs--Minor Capital Projects

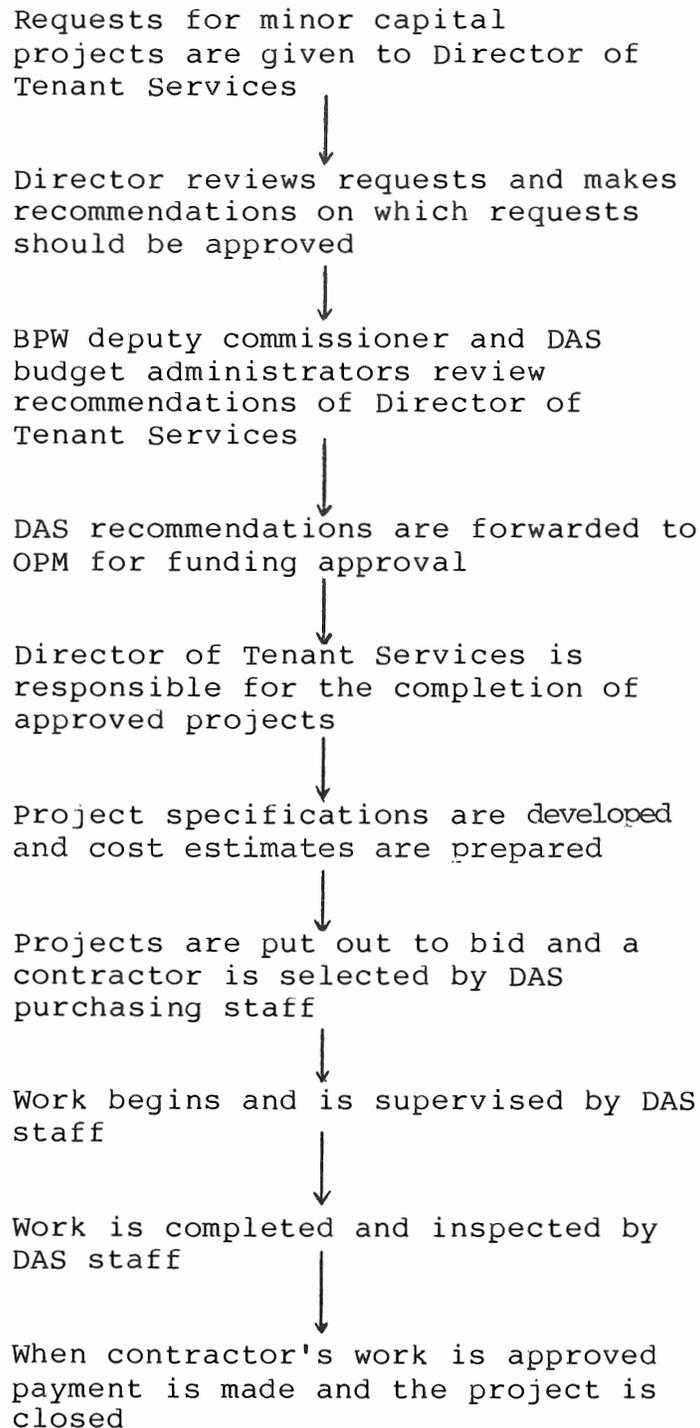
In addition to the budgeted funds available to the Buildings and Grounds Division for its maintenance projects, money from the minor capital projects fund may also be used to finance building repairs. This fund consists of general funds administered by the Office of Policy Management (OPM). Each year OPM earmarks a certain level of minor capital project funding for various state agencies including the Department of Administrative Services.

However, these earmarked funds are not automatically released to state agencies. Each funding request must be submitted to and evaluated by OPM before any funds are released to pay for the project. There is no precise definition of the type of project that is appropriate for minor capital project funding. In general, these projects should cost more than \$3,000 but less than a bonded capital project. As a result, the upper limit for minor capital projects is usually in the range of \$75,000 to \$100,000. The Office of Policy and Management may reject a project proposal if it feels that the project is an inappropriate use of minor capital project funds. If earmarked funds are not allocated by the close of the fiscal year, the money is returned to the General Fund.

For FY 85, approximately \$200,000 were earmarked for the Buildings and Grounds Division to use for maintenance of the buildings under its control. However, recent fire marshal reports on fire code violations are expected to require costly changes in some buildings under DAS control. As a result, minor capital project funds earmarked for buildings and grounds were increased to \$310,000 for FY 86.

Figure 16 illustrates the process through which the Buildings and Grounds Division initiates minor capital projects. The director of tenant services reviews all requests for buildings and grounds minor capital projects. These requests may come from agencies occupying DAS controlled buildings or from Bureau of Public Works staff. The director of tenant services determines whether these requests will be denied, done as a work order, or financed through minor capital project funds. Following this review, the director makes recommendations to DAS budget administrators concerning which requests should be funded through the minor capital projects fund. The deputy commissioner of the

Figure 16. Minor Capital Project Flow Chart.



Source: Legislative Program Review and Investigations Committee.

Bureau of Public Works, in consultation with budget administrators, determines which requests will be forwarded to OPM for approval.

If OPM provides funding for a project, staff in either the Design and Construction Division or the Buildings and Grounds Division develop project specifications and cost estimates. Because most minor capital projects are done by private firms, the job is then put out to bid by DAS purchasing personnel.

Once a contractor is selected and work begins on a project, buildings and grounds and/or design and construction staff monitor the contractor. In addition, one of the buildings and grounds assistant chiefs is charged with monitoring the progress of all ongoing capital projects. At the conclusion of the project, work is inspected and, if satisfactory, the project is closed and payment is made to the contractor.

The Buildings and Grounds Division does not compile regular reports on the minor capital projects requested, authorized, or completed. However, at the request of the program review committee, buildings and grounds staff provided the following information on minor capital projects currently in progress. (See Figure 17.)

Figure 17 shows that as of September 1986, there were 15 ongoing projects, with allocated funds for individual projects ranging from \$5,000 to \$45,000. Four of the 15 projects (27 percent) were at least 90 percent complete. In addition, temporary repairs had been completed on one building while further action is studied, and work on the governor's residence was in progress. However, in 9 of the projects (60 percent), repair work had not yet begun.

Approximately one-quarter of these 15 projects were approved in FY 83. Two of the four FY 83 projects were at least 90 percent complete as of September 1986, while the remaining 2 projects were under study.

Figure 17. Minor Capital Projects.

<u>Location</u>	<u>Year Approved</u>	<u>Title</u>	<u>Allocated Funding</u>	<u>Revised Estimate</u>	<u>Available Funds</u>	<u>Percentage Complete</u>
Labor	1983	Repair Internal Sidewalks	\$14,000	-	\$ 7,000	Under Study
M.V.D.	1983	Replace Sidewalk	\$10,000	-	\$10,000	Under Study
18-20 Trinity	1983	Window Repairs	\$15,000	-	\$53,172	95%
30 Trinity	1983	Window Repairs	\$12,000	Included In	\$53,172	90%
O.P.M.	1984	Renovate 80 Wash. St.	\$70,000	-	\$80,000	95%
309 Buckingham	1984	Heat Repairs	\$ 5,000	OK	\$11,000	Under Study
St. Off. Bldg.	1984	Front Walk Repairs	\$10,000	\$17,000	\$17,000	Contract Awarded
170 Ridge Rd.	1984	Reroofing Garage	\$ 5,000	-	\$ 5,000	Temp. Rep. Done
St. Off. Bldg.	1984	Coal Bin Renovations	\$30,000	OK	\$30,000	90%
18-20 Trinity	1985	Repair Roof-Transformer	\$20,000	Art Brown Design	\$20,000	Re-bidding
10 Clinton	1985	Fire Alarm Sys. Stockroom	\$ 5,000	-	\$ 5,000	Mats. Ordered
10 Clinton	1985	Security Fence	\$ 5,000	-	\$ 5,000	Contract Awarded
Governor Res.	1985	Repairs	\$25,000	-	\$25,000	On Going
80 Washington	1985	Two Boilers	\$30,000	\$39,700	\$30,000	Re-bidding
Mystic Ed. Ctr.	1985	Painting	\$45,000	\$45,000	\$45,000	Contract Awarded

Source: Buildings and Grounds Division.

BUILDING CONDITIONS

To analyze building conditions, the program review committee intended to review assessments of building conditions, and analyze the Department of Administrative Services' track record in improving any problems identified in these assessments. However, committee staff found that the department does not collect the information necessary to perform this analysis.

The department has not conducted thorough assessments of the condition of DAS controlled buildings, and there is no system to regularly evaluate and report on building conditions. While a number of reports contain information on selected aspects of building operations (e.g., energy management audits, State OSHA inspections, etc.), this information has not been extracted and integrated on a building by building basis.

Nor has the department developed an information system to compile data on what has actually been done to improve building conditions. There is no central source of information on the repair work requests and repair work completed in each DAS controlled building. In addition, when the committee requested information on the department's track record in implementing recommendations contained in building reports, the only reports for which DAS provided implementation data were asbestos inspection reports.

It should be noted that in response to recent inspections by the State Fire Marshall, the Department of Administrative Services is creating a computerized data base with information on the code violations in each building and the actions taken by DAS to remedy these violations. However, at the time of this performance audit, the code violations data had not been fully compiled.

Because data on building conditions either did not exist or were not organized into a useable format, the program review committee relied primarily on staff interviews with DAS employees, site visits to DAS controlled buildings, and a survey of building occupants to evaluate building conditions.

Site inspections. To evaluate maintenance effectiveness, committee staff conducted site inspections of 15 buildings. This sample included all 10 state-owned facilities where buildings and grounds staff are assigned and 5 leased buildings under the control of the Department of Administrative Services in the Hartford area.

The specific areas and items within buildings to be inspected were obtained from a listing compiled by the industry trade association, the Building Owners and Managers Association (BOMA). The list was modified to eliminate judgements beyond the technical expertise of the program review committee staff, such as the structural integrity of a building or the mechanical soundness of

its air conditioning system. The result was a checklist covering five categories (i.e., cleanliness, painting, operating condition, general appearance, and adequacy), seven building areas (i.e., entrances, stairways, elevators, rest rooms, office interiors, corridors, and exterior grounds) and nearly 100 items (e.g., floors, walls, ceilings, windows, sinks, etc.). The rating scales associated with each category were as follows:

CLEANLINESS

1. No visible dirt
2. Some visible dirt
3. Great deal of visible dirt

PAINTING

1. Looks newly painted
2. Some marks/peeling
3. Needs immediate repainting

OPERATING CONDITION

1. O.K.
2. Needs repair
3. Out-of-order

ADEQUACY

1. Fulfills function
2. Does not fulfill function

GENERAL APPEARANCE

1. New
2. Worn but useable
3. Needs replacement/major renovation

During site visits, the committee staff independently rated each listed item. After the inspection was completed, committee staff compared ratings and filled out a composite form. A consensus rating was reached through discussion for those items where the staff's independent ratings differed.

Analysis of results. Program review committee staff analyzed the inspection data on the basis of the type of activity rated (i.e., cleanliness, painting, etc.) and by the area of the building rated (i.e., entry, stairway, etc.). As shown in Figure 18, the effectiveness of buildings and grounds staff in each of the five categories evaluated varied substantially.

Maintenance was most effective in ensuring that the items rated were both operational and adequate to serve their purpose(s). Over 86 percent of the items evaluated in each of these two categories were assigned the highest rating (1). Thus, on the days that program review staff conducted site visits, most items were operational and adequate for meeting their function. It should be noted that the buildings' major systems (i.e., heating, air conditioning, plumbing, and wiring) were not rated by program review staff, nor were issues such as the adequacy of work space and parking areas addressed. Thus, these ratings apply primarily to materials supplied to occupants by buildings and grounds (i.e., bathroom supplies, and the operation of items such as toilets, sinks, lights, etc).

Figure 18. Program Review Building Analysis.

Item Rated	Percentage of Items Receiving Rating		
	(1) Best	(2)	(3) Worst
Cleanliness	15.9	66.8	17.4
Painting	17.8	44.2	38.0
General Appearance	13.8	75.2	11.0
Operating Condition	86.8	12.1	1.1
Adequacy	87.1	12.8	

Source: Legislative Program Review and Investigations Committee.

The Buildings and Grounds Division was far less effective in ensuring that buildings were clean, well painted, and that a good general appearance was maintained. As shown in Figure 19, the number of top ratings given in these categories ranged from only 13.8 percent for general appearance to 17.8 percent for painting. In the case of painting, over one-third (38 percent) of the items evaluated were rated in the lowest category and needed immediate repainting. Over 17 percent of the items evaluated for cleanliness were rated as "great deal of visible dirt" and the general appearance of approximately one in ten of the items was classified as poor enough to require immediate replacement.

Building occupant survey. In July 1986, program review committee staff surveyed 1,500 state agency employees concerning the maintenance of their workplace. The names of surveyed employees were randomly selected from the approximately 4,500 individuals listed in the Connecticut State Telephone Directory.

Survey analysis. Program review committee staff received, coded, and analyzed 603 building occupant surveys. Survey results were analyzed according to whether the respondent's building was maintained by DAS or by the agency actually occupying the facility. (See Appendix B for the results of this analysis.)

Survey respondents were asked to rate maintenance in general, and specific maintenance services such as repair work, custodial services, and the attitude of maintenance workers in their buildings. In DAS controlled buildings, 60 percent of the respondents felt that maintenance problems either reduced their agency's ability to get things done or created an unpleasant environment for agency workers and the general public.

When asked specifically about cleanliness, approximately 60 percent of the respondents rated their building's general cleanliness as fair or poor. The quality of custodial services was rated in seven categories on a scale ranging from excellent to poor. In four of these categories (dusting, cleaning walls, cleaning windows, and shampooing carpeting), more than 45 percent of the respondents felt that the quality of work was poor.

When asked about the attitudes of custodial workers, 93 percent of the respondents felt that custodial workers were reasonably or very cooperative. However, 33 percent of the respondents felt that DAS custodial workers were rarely or never busy. When asked the same question about the activity of private contractors, only 17 percent of the respondents felt that contracted workers in their buildings were rarely or never busy.

Building occupants were also asked to rate the heating, air conditioning, and plumbing systems in their buildings on the basis of how consistently they operated. While the majority of respondents rated their plumbing systems as good to excellent, most occupants were dissatisfied with the heating and air conditioning within their buildings. Approximately 73 percent of the respondents rated their heating systems as fair to poor, and 60 percent of those surveyed classified their building's air conditioning as fair to poor.

Approximately 64 percent of those surveyed had reported repair work problems, and 69 percent of those respondents felt that their repair work complaints had been dealt with in a timely manner. The complaints of 79 percent of the respondents had been resolved to their satisfaction. However, 10 percent of the respondents felt that their repair requests had never been resolved.

In general, the survey respondents located in buildings controlled by the occupant agency were more satisfied with maintenance than their counterparts in DAS controlled buildings. Only 31 percent of the respondents in agency controlled buildings felt that maintenance problems hindered them in their work or created an unpleasant environment. Approximately 37 percent of these respondents rated general cleanliness as fair to poor. None of the custodial services were rated as poor by more than 37 percent of the occupants. Only seven percent of the respondents felt that their custodial workers were rarely or never busy.

Heating and air conditioning were rated as fair to poor by 54 and 57 percent of the respondents respectively, and approximately 20 percent of the agency maintained building occupants felt that plumbing was either fair or poor. About 74 percent of these respondents had reported a repair problem, and 83 percent felt the problem had been resolved in a timely manner. Approximately eight percent of these respondents felt that their repair complaints had never been resolved.

FINDINGS AND RECOMMENDATIONS

The program review committee believes that a number of factors make it difficult for DAS to maintain buildings. Many of the DAS controlled buildings are old with deferred maintenance problems. Thus, problems with building equipment and structure are more likely to occur.

In addition, some state agencies are located in buildings that were not originally designed to function as offices. This may result in inadequate storage space, ventilation, heating, and security.

The scattered locations of state facilities in the Hartford area also make building maintenance more difficult. The Department of Administrative Services is responsible for the care and supervision of 18 state owned buildings, has custodial staff assigned to 17 buildings, does repair work in more than 30 buildings, and contracts with private firms for maintenance services (e.g., cleaning, trash removal, extermination, etc.) in at least 22 buildings.

Due to funding constraints, the Department of Administrative Services does not have complete control over its response to all of these factors.

However, in the committee's judgement, maintenance problems have been aggravated by the fact that the department has not effectively managed its maintenance responsibilities. There is no system to identify poor building conditions, develop plans to improve those conditions, and ensure that planned improvements are actually completed. As a result, accountability is limited, and there are few objective yardsticks for judging the performance of DAS employees.

Due to lack of planning, the department's maintenance activities are almost entirely reactive--the department responds to problems after they occur rather than anticipating problems and taking action to avoid them. Thus, the department has not developed a preventative maintenance system to repair buildings and equipment before they fail.

This lack of management information makes it difficult to determine the department's funding needs for building maintenance. Because the department lacks building assessments, plans outlining specifically what needs to be done to improve building conditions, and a preventative maintenance system to determine routine maintenance needs, there is no systematic way to calculate the appropriate funding level for repair work. In addition, the lack of standards for custodial staffing levels in combination with the lack of accountability for custodial work performed makes it difficult to determine whether improved management, more staff, or both are needed to improve cleanliness in DAS controlled buildings.

The Department of Administrative Services recognizes the need for better building conditions and has taken several steps to improve its administration of maintenance services. In the last year, the department has reorganized its supervision of building superintendents, purchased a computer to automate the work order system, and, in July 1986, hired a Director of Maintenance Control to evaluate and implement changes in maintenance operations. At this point, it is too early to determine the impact of these changes. However, the program review committee believes that further major changes will be needed in department procedures to substantially improve maintenance services.

The program review committee recommendations are intended to bring about better building conditions by improving the management of maintenance activities and modernizing maintenance procedures. The committee proposes that the department utilize management skills of private sector companies to operate buildings whenever feasible. In addition, the committee proposes a number of recommendations to ensure that the department has adequate information on building conditions, and to ensure that this information is used to improve building conditions. Finally, the program review committee believes that a preventative maintenance program must be implemented to ensure that equipment is properly maintained, to reduce emergency repairs, and to improve maintenance planning.

MANAGEMENT

The program review committee found that the Department of Administrative Services does not effectively manage the buildings it is responsible for maintaining. The department does not:

- o collect and analyze the information necessary to determine the condition and maintenance needs of its buildings;
- o have a formal process for planning the building maintenance activities of the Buildings and Grounds Division; or
- o have any systematic means to measure and monitor its performance of maintenance activities.

Department Data Collection and Analysis

Building assessment. There is no single, authoritative source of information on the condition of the structural, mechanical, and safety features of DAS controlled buildings. The closest approximation to an overall analysis occurred in 1984 when the Governor's Task Force on the Infrastructure requested information on the condition of buildings statewide. While DAS participated in this study, department staff members state that

time limitations, less than three months to complete the study, prevented the department from doing a detailed engineering inspection. Instead, building superintendents, together with staff from the department's planning unit, rated buildings based on their impressions and past experience. Thus, the reliability of the ratings of DAS buildings depended primarily on the memory and expertise of individual building superintendents and planning staff rather than engineering studies.

Despite methodological problems, the infrastructure ratings did indicate problems in DAS controlled buildings. According to the report, over \$26 million worth of repairs were required in the 8 DAS controlled buildings that were evaluated. However, the department did not translate this information into a plan to correct maintenance deficiencies. As a result, the 1984 ratings are of limited use in identifying:

- o the specific problems in each building;
- o the actions required to correct those problems;
and
- o the department's track record in improving building conditions.

Centralized building data base. While the department has not done a complete assessment of its buildings, information on selected aspects of building operations is available from a variety of sources (See Table 1). However, DAS has not collected and organized this information on a building-by-building basis.

Table 1. Agencies Inspecting DAS Buildings.

<u>Agency</u>	<u>Inspection Unit</u>	<u>Area of Recommendations</u>
Labor Department	State OSHA	Safety code violations
Public Safety	Elevator Inspection	Elevator safety
Public Safety	Fire Marshall	Code violations
DAS	Energy Management	Energy conservation
DAS	Design & Construction (using private consulting firms)	Asbestos removal

It should be noted that the department is now beginning to computerize some information on building condition. Department personnel are currently working with the fire marshall's office to computerize recommendations from the recent code inspections. In addition, the Design and Construction Division is planning a statewide project to collect information on certain structural features (e.g., the age of building roofs) of buildings with over 2500 square feet of area.

However, without a system to collect and integrate all inspection recommendations into a single data base, much of the available data on building conditions remain scattered throughout a number of organizations both within and outside of the Department of Administrative Services (See Table 1). Thus, in its current form, this information cannot be effectively used to formulate a picture of individual buildings, their maintenance needs, and the actions that have already been taken to improve building conditions.

Maintenance costs. The program review committee also found that the department lacks management information on the cost of repairing the individual buildings under its control. While the total expenditures of the Buildings and Grounds Division to maintain buildings are known, the department cannot accurately allocate all of these expenditures on a building-by-building basis. Expenses that are currently allocated to individual buildings include: the cost of staff specifically assigned to a building (i.e., custodial staff); and the cost of equipment and supplies purchased under contract for a particular building.

However, actual expenses for repair work done by DAS tradesmen are not identified and allocated to each building. These expenses are not allocated despite the fact that there is substantial variation in the DAS staff time spent in repairing each building. As shown in the discussion of the work order system, the state office building received over three times as much maintenance work as some other state-owned buildings.

The program review committee believes that the division should allocate these repair costs in order to monitor its use of resources. This allocation would enable the division to:

- o identify and analyze trends in building expenditures, e.g., whether a building is becoming more costly to repair and why repair expenses are rising; and
- o to analyze its use of staff and budget resources, e.g., whether resources are directed to the buildings most in need of repair.

Planning

The Buildings and Grounds Division is responsible for a budget of approximately \$11 million, a staff of over 200, and more than 2 million square feet of state-occupied building area. Yet, the division has never developed a comprehensive plan that reviews and prioritizes each building's needs (e.g., requirements for staffing, repair work, upgrading mechanical systems, remodelling, painting, etc.), and then allocates resources in accordance with this analysis.

The program review committee found only one instance in which maintenance needs are prioritized and documented by the division--when funds are requested for minor capital projects. However, minor capital projects account for only 2-3 percent of the division's total resources.

Recommendations

The program review committee believes the Department of Administrative Services must establish a management system to regularly assess building conditions, centralize existing information on maintenance problems, annually plan maintenance activities, and monitor achievement of planned objectives. To establish such a system, the program review committee makes the following recommendations.

The Department of Administrative Services shall by January 1, 1988, develop a centralized data base that incorporates for each building: the types and dates of completed inspections (e.g., State OSHA, energy management audits, building assessments, etc.); findings and recommendations resulting from building inspections; and actions taken to comply with these recommendations.

The Department of Administrative Services shall, by July 1, 1988, establish a cost accounting system that allocates all maintenance staff (custodial, repair, management), equipment, supplies, and contractual expenses to each building.

The Department of Administrative Services shall by January 1, 1988, develop and implement a five year cyclical plan for evaluating and reporting on the structural integrity, mechanical systems, safety features, code compliance, and general appearance of each building under the department's care and supervision. The plan shall assure that each building is evaluated at least once during every cycle. The evaluations shall be performed by a team collectively having expertise and experience in engineering, code compliance, and building management.

The Department of Administrative Services shall use the information provided by formal building assessments, energy management audits, code compliance inspections, State OSHA inspections, staff evaluations of buildings needs, and any other

pertinent reports, to develop a one- and five-year maintenance plan for each of the buildings under the department's control. These plans shall be comprehensive and include at least the following information:

- o a list of all repair and renovation projects needed to maintain each building;
- o a priority ranking for each project;
- o a cost estimate for each project; and
- o an estimate of completion time for each project.

These plans shall be annually updated and accompanied by a progress report on any maintenance projects not completed according to schedule.

Beginning September 1, 1988, and annually thereafter, the Department of Administrative Services shall submit to the governor and the General Assembly a report that includes:

- o a summarized assessment of the structural integrity, mechanical systems, safety features, code compliance, and general appearance of each building evaluated during the preceding year;
- o the department's updated one- and five-year maintenance plans;
- o the department's progress report on maintenance projects not completed on schedule;

These recommendations would improve building conditions by establishing a management system to evaluate, plan, and implement maintenance projects. By performing building assessments on a five-year cycle, the department would, for the first time, have a comprehensive and reliable profile of each building and its maintenance problems. In its annual plans, the department would be required to integrate all of the data on building maintenance problems and establish specific activities to correct those problems. The annual updates to the plans would enable department managers and legislators to: determine how effective DAS is in solving maintenance problems; identify areas where the department is having difficulties in implementing its plans; and make changes in department operations or state statutes to facilitate implementation of maintenance plans.

Once an effective planning and management process is implemented, department administrators will be able to more effectively evaluate the activities of the Buildings and Grounds Division as a whole, and the performance of individual employees within the division. Annual planning would require the Buildings and Grounds Division to set a direction for its activities and

would enable DAS administrators to evaluate division priorities. Thus, for the first time, DAS administrators would have an accurate picture of where the Buildings and Grounds Division is, and where it is going, in its efforts to improve building conditions.

The planning process would also enable the division to allocate its management resources more effectively. As discussed in the briefing package, the responsibilities of division managers have not been clearly defined and often appear duplicative. A planning process could be used to translate division objectives into distinct, job-related objectives for all division managers and trade foremen.

Once specific maintenance objectives were established for the division and its employees, performance could be evaluated on the basis of the achievement of these objectives. Currently, there are no established standards to evaluate the performance of the division as a whole, and few yardsticks by which to evaluate the work of individual employees.

In addition, the planning process would provide the information needed to develop and support budgetary requests for maintenance services. Regular building assessments in combination with annual and five-year plans would enable the department to: identify repair projects needed to maintain buildings; assign priorities to these projects; schedule projects over a five-year period; and request funding for these projects in the appropriate year.

Contracted Building Management

In the judgement of the program review committee, state buildings under the care and control of the Department of Administrative Services are not being properly maintained. As discussed in the report's introduction, this evaluation is based on site visits by committee staff, interviews of maintenance workers, surveys of building occupants, the findings of the Governor's Infrastructure Task Force Report, and building code inspections. These sources indicate that DAS controlled buildings are in need of painting, cleaning, preventative maintenance, and in some cases, major repairs. In addition, since 1980, both the General Assembly and the Judicial Department have withdrawn their buildings from the care and supervision of the Department of Administrative Services.

The program review committee believes that the failure of the Department of Administrative Services to collect and analyze basic information on the condition of its buildings has greatly contributed to maintenance problems in DAS controlled buildings. Specifically, the department does not: have an accurate building-based cost accounting system; regularly and systematically assess the structural, mechanical, and general appearance of its buildings; develop annual maintenance plans; or

have an effective system to allocate, supervise and evaluate custodial employees.

In light of these findings, the program review committee believes the best and quickest way for the department to improve its management of the maintenance function is to contract with private building management firms for maintenance services whenever feasible.

Contracting for management of maintenance services would provide the department with skills that are currently not available from within DAS. Private management firms offer the following benefits:

- o experience in effective building management;
- o expertise in cost accounting, building assessment, collection and analysis of management information, and employee supervision;
- o experience in establishing and operating preventative maintenance programs; and
- o ease of building administration--a single individual, the building manager appointed by the private firm, is responsible for solving maintenance problems and ensuring that the building is maintained in accordance with state standards.

In addition, a private firm can act more quickly than a state agency in establishing new positions, filling vacant positions, and firing employees who are not performing up to standard. Private firms also have more flexibility than state agencies in adjusting pay and promotion levels to retain highly qualified employees.

Contracting for building management has worked effectively in private industry, and some state governments have also begun to hire private building management firms. In a survey of maintenance practices in other states, the program review committee learned that the State of Tennessee has successfully used private firms to manage selected office buildings since 1982.

In the fall of 1986, the State of Tennessee utilized both state employees and private firms to manage state office buildings. Approximately 2 million square feet were managed by private firms and another 1.6 million square feet were maintained by state employees.

As a result of this involvement with private contractors, Tennessee has established a process to select and oversee the performance of private management firms. To select the

contractor, Tennessee sends a request for proposal to building management firms. Interested firms then respond with a proposal that includes information on the qualifications of the firm and its employees, the firm's approach to maintaining the building (e.g., the firm's standards and procedures for maintenance activities), and a list of itemized, guaranteed costs for maintenance operations (e.g., cleaning, general maintenance, administrative costs). These guaranteed costs include only the management firm's actual expenses for maintenance personnel and materials--no profit margin is included in the proposed maintenance costs. The private firm's entire profit for operating the building is specified in a separate line item of the contract and identified as the management fee.

These proposals are then evaluated; the best proposal is selected and a contract is written that incorporates the guaranteed cost and performance standards established in the firm's proposal. The proposals are evaluated on the basis of a number of factors including: the firm's past experience in providing building management services; the qualifications of the individuals involved in building management; the firm's approach to building maintenance; and the cost to provide those services. The firm judged to offer the best and lowest priced maintenance proposal is then selected and a contract is developed in accordance with the provisions of the firm's management proposal.

Once selected, the management firm submits its receipts for the maintenance services provided (i.e., personnel and material costs) and is reimbursed for the actual cost of these services. If actual costs exceed the guaranteed costs in the management firm's contract, the private firm must pay for those cost overruns. If actual costs are lower than guaranteed costs, the state is required to pay only the actual, rather than the higher guaranteed, costs to maintain the building. Thus, the management firm makes no profit on the personnel and material expenses identified in the contract.

The program review committee had intended to compare the relative costs to operate privately contracted and state staffed buildings. However, a number of factors make such cost comparisons difficult:

- o precise operating costs for state staffed buildings in Connecticut and Tennessee are not available due to the lack of accurate cost accounting systems; and
- o if accurate operating costs were available, it would be difficult to compare building costs due to variations in building condition and the quality of work done within each building.

Thus, the following cost comparisons should be viewed as general indicators rather than exact measures of actual costs. As

shown in Table 2, available data indicate that the cost per square foot for private building management is comparable to maintenance costs for state managed buildings. Table 2 shows the cost per square foot for five state owned office buildings in Tennessee.

Table 2. Cost Comparison of Private and Public Sector Management.

Building	Management	Cost Per Square Foot	
		FY 85 (\$)	FY 86 (\$)
TENNESSEE			
Average for 2 Buildings	Contract	3.68	3.90
Average for 3 Buildings	State	3.84	3.76
Average for 5 Buildings	Both	3.76	3.83
CONNECTICUT			
Average for 16 DAS Buildings	State	6.35	6.45
Average for Private Sector Bldgs. in Hartford Area	Private	5.93 *	Not Available

* Calendar Year

Sources: State of Tennessee Program Budget Statement
Connecticut Department of Administrative Services
BOMA Experience Exchange Report

Recommendations

Therefore, to improve the management of DAS controlled buildings, the program review committee makes the following recommendations.

By July 1, 1990, the Project Oversight Committee shall develop and submit to the General Assembly, a plan to retain private building management firms to maintain buildings under the control and supervision of the Department of Administrative Services. This proposed plan shall include:

- o a list of the buildings that should be maintained by private management firms;
- o a schedule for converting buildings from state to private management;
- o the resources needed to administer the private maintenance contracts;

- o a plan for addressing the needs of any state employees displaced by private management firms; and
- o the procedures for selecting building management firms.

The proposed plan shall be developed on the basis of knowledge gained from a two-year demonstration project begun by July 1, 1988. For this project, an experienced private building management firm shall be retained to manage the operations of a state owned office building(s) in the Hartford area. The selected building or group of adjacent buildings shall consist of at least 100,000 square feet of net rentable area. The responsibilities of the management firm shall include:

- o cleaning;
- o maintenance of the structure and mechanical systems within the building;
- o general repair work;
- o establishing and operating a preventative maintenance system;
- o monitoring energy usage;
- o security within and on the grounds of the building; and
- o planning, i.e., developing one year and five year maintenance plans, a capital projects plan, and an energy conservation plan.

A special committee shall be established to oversee the demonstration project. The committee, to be known as the Project Oversight Committee, shall consist of the Secretary of the Office of Policy and Management, the Commissioner of the Department of Administrative Services, the Deputy Commissioner of the Bureau of Works, and two representatives from private industry who are currently responsible for buildings operated by private management firms. The private industry representatives shall be appointed by the leadership of the State House of Representatives and Senate.

The committee shall be responsible for drafting a request for proposal, submitting it to private building management firms, and selecting a firm from among the respondents.

At a minimum, all applicant firms shall be required to estimate yearly maintenance costs, provide resumes of maintenance managers to be assigned to the building, provide documentation of intent to comply with all of the state's nondiscrimination requirements, and post a performance bond equivalent to the estimated yearly maintenance costs.

A Contract Administration Unit shall be established within the Department of Administrative Services but separate from the Bureau of Public Works. The duties of this unit shall include:

- o providing support services to the Project Oversight Committee; and
- o overseeing the private management firm to ensure that all contractual obligations are met and that the building is maintained according to contract specifications. This oversight shall include a monthly review of contractor expenditures, authorization of expenditures not covered in the contract, and unannounced building inspections.

The unit shall consist of at least one full-time employee with experience in building management. Additional staff time for reviewing contract expenditures and building condition shall be provided as determined necessary by the Project Oversight Committee.

The Project Oversight Committee shall develop and submit an implementation plan to the Government Administration and Elections Committee by January 1, 1988. This plan shall include a timetable for contractor selection, and the staffing needs of the Contract Administration Unit.

These recommendations establish a system to: determine which DAS controlled buildings should be managed by private firms; select the most qualified firms to manage these buildings; oversee the performance of the selected firms; and plan for the needs of those employees displaced by private management firms.

It is recommended that the state initially participate in management contracting on a small scale in a two year demonstration project. This project would provide information on how the state can most effectively interact with private management firms, the conditions under which management firms could best be utilized, and the most effective procedures for administering management contracts. On the basis of this information, the Project Oversight Committee would establish a plan identifying the buildings where management contracting is desirable and the resources required to administer those contracts.

In order to improve building conditions, the private firms retained by the state must have the ability to effectively and efficiently manage building maintenance activities. Thus, the committee's recommendations include a number of provisions to ensure that well qualified building management firms are selected. These provisions address the type of information and financial guarantees that must be provided by applicant firms, and the procedures used to select management firms.

Applicant firms would be required to demonstrate that they have expertise in building management. The recommendations

require that the selected firm have past experience in building management, and that all applicant firms provide information on the qualifications of their maintenance personnel. In addition, firms must post a performance bond to indicate their ability and commitment to providing effective building management services.

A request for proposal (RFP) rather than a low bid process would be used to select the management contractor for the demonstration project. This method of contractor selection offers several benefits. First, it provides flexibility in evaluating management proposals. Management contractor's experience, areas of expertise, maintenance plans, and costs can vary greatly from proposal to proposal. The RFP process allows the evaluators to weight each of these factors and determine which proposal offers the best mix of quality and cost effective services. Second, the RFP process recommended by the committee ensures that these factors are evaluated by individuals who are familiar with, and have expertise in, the area of building maintenance.

However, some members of the program review committee expressed concern about the possibility for abuse of the RFP process in selecting management contractors. Thus, it is recommended that the Project Oversight Committee evaluate contractor selection procedures and that the plan submitted to the legislature in 1990 outline the best procedure to follow in selecting building management contractors.

OPERATIONS

Preventative Maintenance Program

The Buildings and Grounds Division has not developed a systematic preventative maintenance program for the buildings under the care and supervision of the Department of Administrative Services. Limited preventative maintenance is done on elevators, boilers, and heating systems. However, there is no structured program that identifies: the equipment to be included in the program; the type and frequency of service work to be done; and the preventative maintenance work that has actually been completed.

Without a preventative maintenance program, much of the division's work is reactive--responding to equipment breakdowns rather than performing the preventative maintenance required to avoid them. The need for immediate responses to equipment failures makes it difficult for division managers to plan staffing needs and to keep the necessary repair materials on hand.

To observe a preventative maintenance program in operation, program review committee staff conducted a site visit to the Hartford offices of the Aetna Life & Casualty Company. In the past year, Aetna has installed a computerized preventative maintenance program. This program monitors both preventative

maintenance and unplanned maintenance (i.e., repairs resulting from equipment failures or occupant requests).

The computer program produces two types of data--job scheduling information and management information. The job scheduling information consists of monthly schedules of all preventative maintenance work that should be completed in the following 30 days.

The management information provided by the computer includes a list of all jobs not completed in the expected time frame, a comparison between expected and actual time to complete individual tasks, and a list of the type and cost of all preventative and unplanned maintenance activities performed on a specific piece of equipment or by a specific individual. Aetna then uses this information to determine:

- o if all preventative maintenance work is being completed;
- o if work is completed in a timely manner (i.e., efficiency of maintenance staff);
- o how much time/money is devoted to maintaining a specific piece of equipment or building; and
- o how well specific pieces of equipment are performing based on preventative and unplanned maintenance activities.

Recommendations

The program review committee believes that a system with similar capabilities should be used by the Buildings and Grounds Division to establish a preventative maintenance program. Thus, in order to better building conditions and improve accountability of the Buildings and Grounds Division, the program review committee makes the following recommendations.

By July 1, 1988, the Department of Administrative Services shall develop a plan to implement a preventative maintenance program in all state owned buildings under the care and supervision of the Department of Administrative Services. By July 1, 1991, this system shall be fully operational.

This plan shall establish a preventative maintenance system for all state owned buildings controlled by DAS that includes:

- o an inventory of the equipment to be regularly serviced;
- o a list of the specific preventative maintenance work to be performed, and how frequently each task should be performed;

- o all unplanned maintenance activities requested;
- o standard completion times for both preventative and unscheduled maintenance activities; and
- o information on completed tasks (e.g., date of completion, hours actually devoted to task, actual and estimated cost of labor and materials, code identifying the employee(s) working on the job, etc.)

This system shall be used to monitor and report on the division's preventative and unscheduled maintenance activities. Management reports shall be generated at least once a month and shall include: a listing of activities not completed according to schedule or within the time standard; a comparison of actual and estimated labor and materials costs; and a comparison of actual and expected job completion times.

It should be noted that, as of mid-October, Buildings and Grounds Division managers were investigating a number of computerized preventative maintenance programs. However, the capabilities of computerized maintenance programs to provide management information varies greatly. In addition, it appears that the implementation of a preventative maintenance program has not always been a high priority within the department. While the establishment of such a program has been a management incentive plan goal for buildings and grounds managers since 1983, no program has yet been implemented. Thus, the program review committee has recommended that the preventative maintenance program be used to provide and analyze data on the division's operations, and that the program be operational by a specific date.

Custodial Operations

Supervision. As noted in the discussion of building condition, program review committee staff found that much of the building area in DAS controlled buildings was not well cleaned. The program review committee believes that this is partly the result of a lack of supervision of cleaning staff. The Buildings and Grounds Division has not established a system to monitor the custodial work in DAS controlled buildings. There is no policy setting standards for cleanliness and daily inspections of custodial work to ensure that these standards are met. Without such standards, it is difficult to hold custodial workers and building superintendents accountable for the cleanliness of their buildings.

While the division does incorporate standards for frequency of cleaning in its contracts with private custodial firms, there is no mechanism to use these standards to evaluate the custodial work of either private custodial firms or DAS staff. In

interviews with committee staff, building superintendents stated that they checked the custodial work in their buildings on a daily basis and used their own judgement to evaluate the quality of custodial work. However, the observations of committee staff indicate that the areas checked by buildings superintendents, the thoroughness of these checks, and the standards used to judge what is actually clean, vary greatly from superintendent to superintendent. In addition, since there are no records of these evaluations, it is difficult to determine how well individual employees are performing and on what basis their work is evaluated.

Allocation of staff. Under current operating procedures, it is difficult to determine exactly how many custodial employees are needed to keep a given building clean. Because there is no policy stating what should be done in each building and how long custodial activities should take to complete, staffing needs cannot be rationally determined. However, it does appear that the current allocation of staff is inappropriate. The square footage per custodial employee varies from approximately 6,650 to over 11,735 in buildings cleaned exclusively by DAS staff.

The Buildings and Grounds Division has developed building usage ratings that could be used as an indicator of how many cleaning employees are needed in each building. However, when asked how these usage ratings were determined, division managers could not identify any methodology used to measure usage level. Even if these usage ratings are accepted as accurate, it appears that the department has not used them to allocate staff. When staffing levels are compared to the level of building usage, there appears to be no relationship between the number of buildings and grounds employees assigned to clean a building, their workload, and the building's level of usage.

Recommendations

The program review committee makes the following recommendations to improve the Department of Administrative Services' custodial operations.

By April 1, 1987, the Department of Administrative Services shall develop a custodial supervision program that includes:

- o the establishment of a policy stating what should be cleaned in each building, how frequently these items should be cleaned, and the designation of individuals who should be responsible for ensuring that the required custodial work is properly completed; and
- o a checklist identifying items and building areas that should be checked by custodial supervisors, the frequency of these checks, and a rating system to evaluate completed work.

The Department of Administrative Services shall annually evaluate the custodial staffing needs in all DAS controlled buildings. The department shall reallocate and/or request additional staff as necessary. This evaluation shall include:

- o a determination of the custodial tasks that should be completed in each building;
- o the staff hours required to complete those tasks; and
- o any special features of the buildings such as high traffic volume and types of activities occurring within the building.

TENANT RELATIONS

The Department of Administrative Services has not established a system to communicate its policies to, and get regular feedback from, the tenants of department controlled buildings. The department does not provide tenants with a manual outlining policies and procedures related to their buildings, nor has DAS worked with occupant agencies to establish a single point of contact, i.e., a maintenance liaison, to act as spokesman on maintenance issues.

In the absence of a policy and procedures manual, the department relies primarily on word of mouth and memos from DAS managers to the directors of occupant agencies to communicate building procedures. Thus, tenants in DAS controlled buildings do not have a central source of information on:

- o the Department of Administrative Services' authority and responsibilities in their buildings (e.g., a policy statement of the types of maintenance work funded by the department, the department's jurisdiction in enforcing safety and other requirements, etc);
- o the authority and responsibilities of the occupying agencies (e.g., the type of maintenance work that must be funded by the occupant agency, the type of alterations that can be made by the agency, etc.); and
- o building policies and procedures (e.g., custodial, repair work, energy conservation, security, safety, and emergency procedures).

In discussions with staff from a private building management firm, program review committee staff learned that, in addition to building manuals, the firm used tenant liaisons to communicate

with occupants on maintenance issues. Each tenant company is required to designate a single employee to act as liaison on maintenance concerns. Each company liaison is responsible for receiving all custodial/repair requests from their company's employees and relaying these requests to the building management firm. The management firm can, in turn, use these liaisons as a means to communicate its policies to building occupants.

The program review committee found that this system has several benefits--it provides a simple and effective means to communicate with the management firm's many tenant companies, and it reduces the number of request and complaint calls coming from each company. Rather than receiving multiple complaints from employees of a single company, the company liaison receives all of the complaints and makes a single call to the building manager. In addition, disputes over issues such as temperature regulation in the office area can often be settled by the company liaison rather than the building manager.

The program review committee believes that the appointment of agency liaisons would enable DAS to get better feedback on building conditions. The department could regularly meet with and survey these liaisons to get the tenants' perspective on maintenance problems and the effectiveness of custodial employees assigned to their respective buildings. In addition, liaisons could assist the Buildings and Grounds Division in planning its maintenance activities by providing the division with advance notification of any projects for which the agency may require maintenance assistance (e.g., installation of computer systems, changing the configuration of office space).

Recommendations

Therefore, to provide tenant agencies with more information on building policies, and to provide DAS with better feedback on maintenance problems, the program review committee makes the following recommendations.

Each agency occupying a building under the care and supervision of the Department of Administrative Services shall appoint one contact person to act as a liaison with the department on building maintenance issues. The Department of Administrative Services shall likewise appoint a contact person to act as liaison with tenant agencies. The liaisons shall be appointed by July 1, 1987.

The Department of Administrative Services shall annually survey agency liaisons regarding building conditions, upcoming agency projects that may require DAS maintenance work, and their satisfaction with the maintenance services provided by the department. The results of this survey should be used to plan future maintenance activities and to evaluate the services provided by maintenance workers.

The Department of Administrative Services shall annually call a meeting of agency liaisons to discuss maintenance needs and problems.

The Department of Administrative Services shall prepare a maintenance manual for each building under the care and control of the department. These manuals shall be written and distributed to the liaison of each occupant agency by July 1, 1988. These manuals shall include information on:

- o the authority and responsibilities of the Department of Administrative Services, occupant agency, and lessor (if applicable); and
- o building policies and procedures (e.g., cleaning, repair, security, safety, and emergency procedures).

STATEWIDE MONITORING OF BUILDING CONDITION

The maintenance problems identified in the preceding discussion are not limited to buildings directly under the care and supervision of the Department of Administrative Services. Surveys conducted for the 1984 Governor's Task Force on Infrastructure indicated that over 75 percent of the approximately 37 million square feet owned by the state was in fair, poor, or irreparable condition. The report estimated that it would cost over \$406.2 million to repair or replace these facilities.

Despite the fact that there are major maintenance problems in state owned facilities, there is very little specific information available on the condition of these buildings. Data are not easily accessible because of the large number of state owned buildings (over 3600 in 1984), the scattered locations of these buildings; and the fact that no single agency is responsible for collecting and analyzing data on building conditions.

The Department of Administrative Services now has limited responsibilities for collecting information on state owned facilities. State statute requires the Department of Administrative Services to keep an inventory of all state owned or leased facilities. (C.G.S. Sec. 4-126.) However, the department is not required to include information on building conditions in this inventory.

The Design and Construction Section of the Bureau of Public Works is planning a statewide project to collect information on certain structural features (e.g., the age of building roofs) of buildings with over 2500 square feet of area. However, as the system is currently envisioned, it will not include regular building inspections to gather or update the information in the data base.

In a survey of maintenance practices of other states, the program review committee learned that the Maryland Department of General Services has established a program to regularly inspect and evaluate the condition of state owned buildings.

The Department of General Services annually surveys occupant agencies concerning their maintenance operations, and using a team of engineers, regularly inspects and evaluates the structure, mechanical systems, safety features, and general appearance of state owned facilities. The team's findings are then published and distributed to the agency and the state legislature.

The program review committee believes that a similar evaluation program would be useful to Connecticut policy-makers in planning and allocating funds for maintenance projects. Therefore, the program review committee makes the following recommendations.

Recommendations

The Department of Administrative Services shall by July 1, 1989, develop and implement a five year cyclical plan for evaluating and reporting on the structural integrity, mechanical systems, safety features, code compliance, and general appearance of each state owned building in excess of 2500 square feet. The plan shall assure that each building is evaluated at least once during every cycle. The evaluations shall be performed by a team collectively having expertise and experience in engineering, code compliance, and building management. The evaluation team shall prepare findings on building conditions and a prioritized list of the maintenance projects required to improve building conditions.

The Department of Administrative Services shall prepare and submit to the occupant agency a report summarizing the results of each building inspection. By September 1 of each fiscal year, the Department of Administrative Services shall submit to the Appropriations Committee of the General Assembly a summary of the results of all building inspections conducted during the previous state fiscal year.

The Department of Administrative Services shall establish a centralized data base of information on the condition of all state owned buildings that incorporates the findings and recommendations for each building resulting from building inspections, and the actions taken by the occupant agencies to comply with these recommendations.

All state agencies utilizing state owned buildings in excess of 2500 square feet shall annually report to the Department of Administrative Services on the condition of their buildings and the maintenance practices used to maintain those buildings. The Department of Administrative Services shall be responsible for reporting on the buildings under the care and supervision of the department.

The Department of Administrative Services shall develop, disseminate, and analyze the results of the building maintenance survey. At a minimum, this survey shall provide information on:

- o the maintenance plans of occupant agencies (e.g., projects planned for the current and up-coming fiscal year);
- o the resources allocated to building maintenance by the occupant agency (e.g., the number of maintenance staff and their professional qualifications, and maintenance expenditures); and
- o any actions taken by the occupant agency to comply with DAS building inspections.

The preceding inspection and reporting requirements as administered by the Department of Administrative Services shall not apply to buildings under the care and supervision of the General Assembly. The General Assembly shall independently comply with these building inspection requirements. The results of these inspections shall be reported to the Legislative Management Committee.

APPENDICES

APPENDIX A

DAS RESPONSE TO MAINTENANCE PROBLEMS

In December 1985, the Department of Administrative Services conducted a four-month review of repair work operations in the Buildings and Grounds Division. As a result of this review, a report was issued citing weaknesses in several areas of the system's management and operations. Among the problems detailed in the DAS report were a lack of:

- o planning in scheduling jobs and ordering materials;
- o management information for planning and determining appropriate staffing levels;
- o coordination of repair work activities;
- o controls (e.g., work is not monitored on a daily basis); and
- o a system for communication with building occupants regarding repair work requests.

To correct these problems, the DAS report made four recommendations concerning the organization and procedures of the Buildings and Grounds Division. (See the following pages.) These recommendations are interrelated and their implementation relies on the creation of a position for a Director of Maintenance Control. In August 1986, this position was filled, and the Director of Maintenance Control has been given the responsibility to evaluate Buildings and Grounds Division operations, to recommend changes to improve operations, and to implement the recommendations of the DAS report.

DAS STUDY RECOMMENDATIONS

The recommendations are listed in a suggested order of priority:

1. Establish a Maintenance Control Center in Tenant Services to be the focal point for operations and accomplish the following on an ongoing basis:
 - . make consistent and accurate estimates of manpower, material, etc. and monitor same
 - . schedule and coordinate crafts
 - . establish planned work priorities based on objective standards
 - . spot emergencies or potential emergencies in order to reduce the need for, and impact of, emergency management intervention
 - . provide customer agency liaison
 - . improve cost control through analysis of work orders, inventory, etc.
 - . expedite procurement activities with the DAS Business Office and Bureau of Purchases
 - . enforce departmental and Statewide procurement regulations
 - . develop and revise work standards
 - . develop written Standard Operating Procedures, monitor their use and coordinate staff training
 - . reduce paperwork performed in the craft shops
 - . improve work controls by preparing reports necessary to check work-in-progress as well as to check time and material estimates against completed work orders by contract and in-house personnel
 - . provide a customer service desk and emergency telephone number (with a message recording device that can relay messages to key managers and supervisors).

The Maintenance Control Center should be headed by a Maintenance Control Director. This individual should have general foreman experience and must be able to provide on-site evaluation of services, be adaptable, and be skilled in planning, scheduling and systems applications in a Public Works environment. This individual will require the assistance of a project "estimator" as well as a dedicated "financial clerk". The attached flow chart "Proposed Work Order Process" and the "Proposed Organization Chart" (Exhibits VI and VII) illustrate the proposed integration of this new unit into Tenant Services. This number one recommendation is essential to successful implementation of all subsequent recommendations dealing with systems, procedures, overtime, procurement, etc.

2. Within the context of the Maintenance Control Center, the following alterations to systems and procedures should be implemented on an on-going basis:
 - . work orders should be evaluated for manpower and resource requirements when they are received by the new estimator with the crafts' foremen. The need for specialized contract manpower services or off prime shift work should also be determined and approved during this initial analysis
 - . the data base record should be modified to include estimates of resource requirements
 - . in the short run IRM should consider an improved data base package such as PC Focus to prepare management data in conjunction with use of the project scheduling board. In the long run a larger automated Preventive Maintenance/Work Order Central System should be acquired and integrated with those of the new Bureau of Public Works Administration and Planning Unit
 - . new work order management reports should be developed including a) weekly status of outstanding jobs by craft by age b) monthly comparison of estimated job time and cost with actual job time and cost, etc.
 - . completed work orders should be logged in the system within 48 hours of completion so that the data base is as accurate as possible for weekly reports
 - . prioritization system should be established (see Exhibit VIII for an industrial example)
3. Within the context of an expanded customer service liaison function, determination of what is the "landlord's responsibility" (subject to the terms of individual leases if applicable) and what is agency personal equipment must be decided. A written policy with copies available for customer agencies should be developed. If OPM provides the funds in the DAS budget there will be no further funding problems. If not, agencies should be made to reimburse DAS/Public Works and the written policy should reflect same.
4. Computer installations should be performed by outside contractors in accordance with contract provisions and State procurement regulations. This should permit the existing craft workers to perform all other work with little or no overtime. Technical equipment acquired by agencies should be maintained by them. If special technical equipment (i.e. laboratory air exhaust systems) are provided in the State owned facilities, a written DAS policy determining maintenance responsibility should be developed and provided customer agencies.

The new Public Works Administration and Planning Unit should pass on any advance information on planned computer installations and Capital and Minor Capital projects to Tenant Services' in order to ensure on-going planning and on-going coordination between vendor provided contract services and craft work budgeted responsibilities.

Survey of Building Occupants

(Data shown as percentage of respondents)

1. What agency do you work for? _____

2. What is the address of the building where you work?

 (Street) (Town)

3. Have you worked at this address for 1 year or more?

98 yes
2 no

4. How would you rate the general cleanliness of your building over the past year?

4 excellent
37 good
37 fair
22 poor

5. How would you rate the quality of the following custodial services over the past year?

Service	Excellent	Good	Fair	Poor
Vacuuming	5	38	32	25
Dusting	2	19	30	49
Cleaning Floors	8	35	36	21
Cleaning Walls	3	21	30	47
Cleaning Bathrooms	10	38	31	21
Cleaning Windows	2	17	25	56
Shampooing Carpeting	2	13	22	64

6. Over the past three years the general cleanliness of your building has:

26 improved
46 remained the same
16 deteriorated
10 the quality of up-keep has fluctuated too much to categorize
2 don't know

7. Please check all of the following items which you feel describe maintenance (both cleaning and repair work) in your building.

- 12 You are unaware of any maintenance problems in your building.
- 41 There are some minor maintenance problems in your building but they do not have a significant effect on the building, its occupants, or the general public.
- 17 Maintenance problems reduce your or your agency's ability to get things done.
- 43 Maintenance problems create an unpleasant environment for building occupants and/or the general public using the building.

8. If there were a problem requiring custodial work, who would you report the problem to?

- 58 building superintendent
- 12 custodial workers within the building
- 4 administrators in the central office of DAS
- 29 your supervisor
- 4 don't know where to report problems
- 4 other

9. Have you ever reported a custodial problem?

- 75 yes
- 25 no

10. If yes, have your custodial complaints generally been resolved to your satisfaction?

- 71 yes
- 29 no

11. If no to #10, on average, how long did it take to resolve your custodial complaints?

- 8 less than 2 weeks
- 6 2-4 weeks
- 7 more than a month
- 15 problems were never resolved

12. How would you rate the attitude of custodial workers when responding to requests for assistance?

- 35 very cooperative
- 58 reasonably cooperative
- 7 uncooperative

13. If DAS is responsible for maintaining your building, how would you rate the custodial workers assigned to your building? Please rate DAS employees permanently assigned to your building and workers from outside firms separately. If both DAS and contracted workers are assigned to your building, rate both.

	DAS Staff	Contracted Workers
always busy	<u>7</u>	<u>13</u>
generally busy	<u>61</u>	<u>71</u>
rarely busy	<u>27</u>	<u>15</u>
never busy	<u>6</u>	<u>2</u>

14. How would you rate the up-keep of the following interior areas of your building over the past year?

Building Area	Excellent	Good	Fair	Poor
Painting	12	44	27	17
Lighting	15	52	22	11
Flooring	7	37	35	22
Walls	5	37	37	20
Ceilings	6	38	32	23

15. How would you rate the up-keep of the following exterior areas of your building over the past year?

Building Area	Excellent	Good	Fair	Poor
Exterior Walls	13	51	21	15
Landscaping	20	43	21	16
Parking Area	9	33	29	29
Snow Removal	9	40	32	19
Trash Removal	11	60	20	9

16. Over the past three years the quality of your building's up-keep (as categorized in questions 14 and 15) has:

<u>28</u>	improved
<u>49</u>	remained the same
<u>12</u>	deteriorated
<u>9</u>	the quality of up-keep has fluctuated too much to categorize
<u>2</u>	don't know

17. In terms of consistently maintaining a comfortable temperature for building occupants, how would you rate your building's heating system?

<u>3</u>	excellent
<u>24</u>	good
<u>32</u>	fair
<u>41</u>	poor

18. In terms of consistently maintaining a comfortable temperature for building occupants, how would you rate your building's air conditioning system?

<u>6</u>	excellent
<u>26</u>	good
<u>27</u>	fair
<u>33</u>	poor
<u>9</u>	building is not air conditioned

19. How would you rate your building's plumbing system (i.e., consistency of operation, water temperature control, water pressure, etc.)?

<u>11</u>	excellent
<u>57</u>	good
<u>23</u>	fair
<u>10</u>	poor

20. If there were a problem requiring repair work, who would you report the problem to?

<u>57</u>	building superintendent
<u>9</u>	custodial workers within the building
<u>4</u>	administrators in the central office of DAS
<u>30</u>	your supervisor
<u>4</u>	don't know where to report problems
<u>5</u>	other

21. Have you ever reported a problem requiring repair work?

<u>64</u>	yes
<u>36</u>	no

22. If yes, have your repair work complaints generally been resolved in a timely manner?

<u>69</u>	yes
<u>31</u>	no

22a. If no, on average, how long did it take to resolve your repair complaints?

respondents = (40) 8 less than 2 weeks
 (30) 6 2-4 weeks
 (18) 4 1-3 months
 (18) 4 more than 3 months
 (49) 10 problems were never resolved

23. Have your repair work complaints generally been resolved to your satisfaction?

79 yes
21 no

24. On average, how often does your building have fire drills?

32 never
38 once a year
17 2-4 times a year
2 more than 4 times a year
10 don't know
2 less than once a year

25. Do you feel that current security measures (e.g., security guard, Sonitrol, etc.) are effective in protecting the building and its material contents from theft or tampering?

28 yes
50 no
22 don't know

26. Do you feel that current security measures (e.g., security guards, Sonitrol, etc.) in your building are effective in protecting people within the building?

34 yes
46 no
20 don't know

27. To the best of your knowledge, over the past two years, how many of the following have occurred in your building?

Activity	None	1-2	3-5	Over 5	Don't know
Break-ins	22	25	8	5	40
Thefts	10	22	20	18	30
Attacks on individuals	41	10	1	1	47

Agency Buildings

Survey of Building Occupants

(Data shown as percentage of respondents)

1. What agency do you work for? _____

2. What is the address of the building where you work?

(Street)

(Town)

3. Have you worked at this address for 1 year or more?

93 yes
7 no

4. How would you rate the general cleanliness of your building over the past year?

23 excellent
40 good
28 fair
9 poor

5. How would you rate the quality of the following custodial services over the past year?

Service	Excellent	Good	Fair	Poor
Vacuuming	24	41	19	16
Dusting	19	31	26	24
Cleaning Floors	23	37	24	16
Cleaning Walls	16	30	18	37
Cleaning Bathrooms	22	37	22	20
Cleaning Windows	19	33	23	26
Shampooing Carpeting	17	25	30	28

6. Over the past three years the general cleanliness of your building has:

17 improved
58 remained the same
12 deteriorated
3 the quality of up-keep has fluctuated too much to categorize
9 don't know

7. Please check all of the following items which you feel describe maintenance (both cleaning and repair work) in your building.

- 20 You are unaware of any maintenance problems in your building.
- 47 There are some minor maintenance problems in your building but they do not have a significant effect on the building, its occupants, or the general public.
- 9 Maintenance problems reduce your or your agency's ability to get things done.
- 22 Maintenance problems create an unpleasant environment for building occupants and/or the general public using the building.

8. If there were a problem requiring custodial work, who would you report the problem to?

- 42 building superintendent
- 18 custodial workers within the building
- 2 administrators in the central office of DAS
- 25 your supervisor
- 4 don't know where to report problems
- 10 other

9. Have you ever reported a custodial problem?

- 79 yes
- 21 no

10. If yes, have your custodial complaints generally been resolved to your satisfaction?

- 75 yes
- 25 no

11. If no to #10, on average, how long did it take to resolve your custodial complaints?

- 12 less than 2 weeks
- 2 2-4 weeks
- 5 more than a month
- 13 problems were never resolved

12. How would you rate the attitude of custodial workers when responding to requests for assistance?

- 60 very cooperative
- 34 reasonably cooperative
- 6 uncooperative

13. If DAS is responsible for maintaining your building, how would you rate the custodial workers assigned to your building? Please rate DAS employees permanently assigned to your building and workers from outside firms separately. If both DAS and contracted workers are assigned to your building, rate both.

	DAS Staff	Contracted Workers
always busy	_____	<u>29</u>
generally busy	_____	<u>63</u>
rarely busy	_____	<u>7</u>
never busy	_____	_____

14. How would you rate the up-keep of the following interior areas of your building over the past year?

Building Area	Excellent	Good	Fair	Poor
Painting	22	43	24	12
Lighting	31	47	18	4
Flooring	27	37	28	8
Walls	18	44	29	9
Ceilings	21	43	26	11

15. How would you rate the up-keep of the following exterior areas of your building over the past year?

Building Area	Excellent	Good	Fair	Poor
Exterior Walls	33	56	11	0
Landscaping	38	48	11	3
Parking Area	35	44	12	8
Snow Removal	37	42	16	6
Trash Removal	39	51	9	1

16. Over the past three years the quality of your building's up-keep (as categorized in questions 14 and 15) has:

- 17 improved
- 64 remained the same
- 5 deteriorated
- 3 the quality of up-keep has fluctuated too much to categorize
- 11 don't know

17. In terms of consistently maintaining a comfortable temperature for building occupants, how would you rate your building's heating system?

<u>3</u>	excellent
<u>42</u>	good
<u>33</u>	fair
<u>21</u>	poor

18. In terms of consistently maintaining a comfortable temperature for building occupants, how would you rate your building's air conditioning system?

<u>6</u>	excellent
<u>38</u>	good
<u>23</u>	fair
<u>25</u>	poor
<u>8</u>	building is not air conditioned

19. How would you rate your building's plumbing system (i.e., consistency of operation, water temperature control, water pressure, etc.)?

<u>25</u>	excellent
<u>57</u>	good
<u>15</u>	fair
<u>4</u>	poor

20. If there were a problem requiring repair work, who would you report the problem to?

<u>46</u>	building superintendent
<u>12</u>	custodial workers within the building
<u>2</u>	administrators in the central office of DAS
<u>23</u>	your supervisor
<u>3</u>	don't know where to report problems
<u>12</u>	other

21. Have you ever reported a problem requiring repair work?

<u>74</u>	yes
<u>26</u>	no

22. If yes, have your repair work complaints generally been resolved in a timely manner?

<u>83</u>	yes
<u>17</u>	no

22a. If no, on average, how long did it take to resolve your repair complaints?

respondents = (13) 10 less than 2 weeks
 (3) 2 2-4 weeks
 (3) 2 1-3 months
 (4) 3 more than 3 months
 (8) 6 problems were never resolved

23. Have your repair work complaints generally been resolved to your satisfaction?

86 yes
14 no

24. On average, how often does your building have fire drills?

36 never
19 once a year
24 2-4 times a year
7 more than 4 times a year
13 don't know

25. Do you feel that current security measures (e.g., security guard, Sonitrol, etc.) are effective in protecting the building and its material contents from theft or tampering?

59 yes
27 no
14 don't know

26. Do you feel that current security measures (e.g., security guards, Sonitrol, etc.) in your building are effective in protecting people within the building?

64 yes
24 no
13 don't know

27. To the best of your knowledge, over the past two years, how many of the following have occurred in your building?

Activity	None	1-2	3-5	Over 5	Don't know
Break-ins	44	17	4	3	32
Thefts	24	30	15	6	25
Attacks on individuals	61	7	4	0	29

APPENDIX C

Cost of Building Maintenance Recommendations

Management

Five-year inspection of DAS controlled buildings

Number of DAS buildings:	18
Square footage:	1,460,832
Space inspected annually (sq. ft.)	292,166
Cost of inspection (per 110,000 sq. ft.)	\$2500

{Not counted in total costs/included in \$6700
cost of statewide monitoring recommendation}

Contracted Building Management

Contract administration staff
(1987-1990)

Salary of 1 administrator: \$35,000

Current custodial employees \$225,000 - \$300,000
(Not counted in total costs/could be shifted to replace contractors
in other bldgs.)

Preventative Maintenance Program

Computer software: \$30,000
(Work scheduling and management
information)

Statewide Monitoring

Five-year inspection of state owned buildings

Approx. total square feet:	40,000,000
Space inspected annually: (sq. ft.)	8,000,000
Number of inspectors: (5.3 million sq. ft. per inspector)	2
Support staff: (1 admin. assist.)	1

Total staff costs \$90,000

Total Cost of Recommendations: \$155,000



STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

APPENDIX - D

December 23, 1986

Michael Nauer, Staff Director
Program Review and Investigations Committee
State Capitol
Hartford, Connecticut 06106

Dear Mr. Nauer:

Thank you for the opportunity to comment on the Program Review and Investigations Committee's staff report on building maintenance practices of the DAS-Bureau of Public Works.

Attached is the Bureau's detailed analysis and reply, which stands on its own.

For my part, I consider your report, IMPORTANT, NEEDED and SUPPORTIVE of our efforts. The infrastructure program, of which building maintenance is a basic activity, is, has been and always will be in desperate need of a CONSTITUENCY. It requires CONTINUAL SUPPORT, ATTENTION and AWARENESS on all fronts. This conforms to my many statements before committees of the General Assembly.

I, therefore, recommend that the Committee schedule regular reviews of this activity and other related infrastructure issues. There needs to be a particularly concentrated focus by the Legislature on facilities infrastructure. As it is now, legislative responsibilities for capital projects and operation and maintenance are split among committees of the General Assembly.

Your staff has observed a tremendous systems capability being developed in the Public Works Management Services Unit, in the Information Resource Management Unit of the DAS Commissioner's Office, as well as in the Buildings and Grounds Division, as reported. All this has come about within the past two years in conjunction with the Governor's infrastructure effort. (It is interesting to note that DOT has been computerized for more than 20 years.)

Phone: 566-7528
State Office Building • Hartford, Connecticut 06106
An Equal Opportunity Employer

While your report points out positive moves made in recent years and the problems of old buildings under our supervision, for which I thank you, I would like to provide a broader frame of reference to evaluate what your staff observed. THIS BROADER PERSPECTIVE GENERALLY CAUSES FIDGETS BECAUSE A POLITICAL SYSTEM DISLIKES BEING REMINDED THAT MANY HANDS HAVE BEEN ON THE KNIFE -- those of the Legislature, executive budget makers, as well as Public Works personnel.

For example, consider the following three facts:

1. The general neglect of the State's infrastructure over the years cannot be corrected in one year, two years, five or ten. Most people now seem to understand this.
2. However, most people, including analysts, do not relate infrastructure decay with the neglect of the human infrastructure required to plan and do the work. In other words, the neglect has not been confined to the facilities themselves. There was minimal concern for the people assigned to building care and maintenance, and a lack of proper support for them, i.e., tools, supplies, systems and training. As an overall Statewide budget priority, infrastructure requirements have been at the bottom of the heap, until recently. One should not, therefore, expect wholesale change overnight.
3. Also, there has been an historic lack of attention to code compliance. This certainly has been turned around during this administration. The accumulation of code violations over the years is a fact. These problems will be overcome only as the personal services, equipment and project requirements are addressed together through the budget process. It must be understood that to deal with the infrastructure decay of our roads and bridges, a special revenue source was earmarked and a dedicated fund created. There is no such clear accountability for the facilities infrastructure.

In closing, I want to thank you and your staff for the assist.

Sincerely,



Elisha C. Freedman
Commissioner

ECF/b

Attachment



STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES
BUREAU OF PUBLIC WORKS

Donald Cassin
Deputy Commissioner

TO: Elisha C. Freedman, Commissioner
Department of Administrative Services

FROM: Donald Cassin, Deputy Commissioner
Bureau of Public Works *Donald Cassin*

DATE: December 22, 1986

SUBJECT: Legislative Program Review and Investigations Committee Report
Concerning DAS Building Maintenance Practices

Attached for your review and consideration is a brief report prepared by the Bureau of Public Works responding to the Legislative Program Review and Investigations Committee's Report concerning DAS building maintenance practices. Rather than respond on a point-by-point basis to the Committee's report, our review of that report is structured so as to give a clear overview of the program DAS has put in place to deal with many of the organizational and management issues listed in the Committee's report. Many of the same issues have been raised in as previous reports prepared by DAS and most notably, the Governor's Task Force on Infrastructure. The Committee's findings and recommendations reinforce those previous studies and program described in our response.

If you have any questions, I am prepared to meet with you at your convenience to review this report.

DC/s

DEPARTMENT OF ADMINISTRATIVE SERVICES
RESPONSE TO
THE LEGISLATIVE PROGRAM REVIEW
AND
INVESTIGATIONS COMMITTEE REPORT
ON
DAS - BUILDING MAINTENANCE PRACTICES

INTRODUCTION

The purpose of this report is to respond to the Program Review and Investigations Committee Report on the Department of Administrative Services Building Maintenance Practices and a number of other issues that are directly and indirectly related to building maintenance. In reviewing the responsibilities and operations of the Department of Administrative Services as they relate to the maintenance of State-owned or leased facilities in the Hartford area, the Committee raised a number of issues previously discussed in the Governor's Task Force on Infrastructure Report and the Deloitte, Haskins and Sells Study prepared for the Finance, Revenue and Bonding Committee of the General Assembly. In this regard, a number of the points and recommendations made by the Committee are not new. In many instances, legislative and administrative actions have been taken or are underway that respond to the issues raised by the Committee and these actions are reviewed in this report.

Background Information

The Program Review and Investigations Committee accurately describes in its report the types of buildings which the Department of Administrative Services are largely responsible for. They are older buildings, inefficient and in most instances overcrowded. Most of the State-owned buildings operated by DAS were not built by the State, but instead were purchased and adapted to State requirements. As such, these are facilities that are more difficult to operate and manage.

Notwithstanding limitations of many of the DAS buildings, the Committee has focused on deficiencies in the manner in which DAS manages and operates those facilities. It pointed out the lack of comprehensive information systems and the appearance of an organizational structure that makes it difficult to establish clear lines of authority and accountability. These issues have been raised in several internal as well as external analyses. In response, DAS has established a systematic program for improving the manner in which it manages and operates its facilities. Outlined below is a brief summary of the program and actions taken to date:

1. The Buildings and Grounds Division within the Bureau of Public Works was reorganized to strengthen the maintenance control function. A Director of Maintenance Control position was established and filled. The Buildings and Grounds Division has also been reorganized to provide more direct and clearer lines of authority and accountability. These changes are less than a year old and it is difficult to assess the results at this time. There is no question that there is stronger management within that Division today than has been the case over the past several years.

The Committee suggested in its report that there is confusion on the new organizational structure of the Division. A certain amount of confusion regarding lines of communication and authority is not uncommon when a large organization such as BPW/Buildings and Grounds undertakes major organizational structure changes. We expect that as the new structure is more fully implemented and there is familiarity with it, any confusion that now exists will be diminished.

2. At the same time the Department instituted organizational structure changes within the Buildings and Grounds Division, work began to provide that Division and the entire Department with better management data. Substantial effort and investment has been made in computer-based technologies. This is a need which was clearly pointed out in the Governor's Task Force on Infrastructure Report. At this point, the Department has a computerized Capital Budget and Five-Year Facilities Planning System that has been utilized for the past two years. A system for tracking the status of State leases has been designed and is partially implemented. The efforts to automate and establish needed Management Systems are moving forward and by the end of FY '87-'88 the Department will have in place a comprehensive Project Management System as well as a Building Management System that will include items such as work orders, supply inventory, preventative maintenance programs, accounting and financial/budget control.

Given the need for a wide range of data for both operations staff as well as managers and analysts, it is important that such systems be structured so as to provide needed data at various levels within the organization. As such, the Department has been very careful to review needs of different levels within the organization of the Department and to insure that the hardware and software is available throughout the Agency.

3. Another critical component of the DAS Program is to develop comprehensive data concerning the quality and condition of facilities and that this data is incorporated into the computer based systems previously described. The General Assembly adopted a budget option submitted by the Department in FY '85-'86 as part of the Governor's Infrastructure Program to provide the staff necessary to survey facilities. With the adoption of that budget option, the Department has been able to hire additional technical staff. A comprehensive Building Quality Survey instrument has been developed and tested, and detailed surveys of the DAS facilities are now underway. These surveys will result in compilation of data relating to energy, asbestos, fire safety and building quality in one document that will result in a priority listing of projects to be funded from the State's Asbestos/Infrastructure bond funds. They will also provide a basis for for future Capital Budget Requests.

The Department has also developed and implemented a comprehensive program of surveying and monitoring the condition of leased facilities and landlord compliance with lease conditions. This complements efforts to develop the computer based systems to monitor leases.

4. The last major component of the DAS program is the development of new State office buildings in the Capitol Center area that will relieve overcrowding in existing buildings and allow them to be renovated and

upgraded to meet current codes and standards for modern, efficient office space. At the present time, the State leases more than 700,000 sq. ft. of office space in the Hartford area for central agency functions. In a report prepared by the Department of Administrative Services in December of 1985, a program was recommended to reduce the State's dependence on leased space by building new State office facilities. The cost savings to the State resulting from the ownership of facilities rather than leasing are substantial and the Governor and the General Assembly have endorsed the program and funded the initial phases of it. Included in this program is the development of a District Service Center in the facilities at 340 Capitol Avenue. This Service Center will contain warehouse and distribution space as well as the much needed Buildings and Grounds Support Service facilities which include shops, supply areas and a maintenance control center. The facilities currently devoted to these functions are inadequate to serve the numbers and types of buildings that are the responsibility of the Department.

Program Review and Investigations Committee's Recommendations

The Department of Administrative Services concurs with many of the findings in the Committee's report. They have been well documented over the past several years and substantial strides have been made to respond to the needs involved. Outlined below are comments concerning the specific recommendations of the Committee as presented in its report.

Management:

DAS concurs with the recommendations regarding management but would caution the Committee as to the work effort required to develop a comprehensive data base relating to the condition and quality of State facilities. This is a time consuming and very technically oriented activity which the Department believes will require substantial staff enhancements if it is to be accomplished in the time frame and manner as suggested in the recommendations.

Contracted Building Management:

The recommendations concerning contracted building management suggest that DAS has a bias against this approach. This is not the case and, in fact, when one looks at the number of contracts which the Department has for the maintenance and operation of various facilities that are the responsibility of DAS, it is clear that the Department is trying to establish a balanced program of State and privately contracted building operations and maintenance. The Committee has suggested that the entire management of a facility be contracted by the Department. This is an approach which we believe deserves consideration but only after the necessary management systems are in place so that realistic comparisons regarding costs and benefits associated with State management versus contract management can be assessed.

Preventative Maintenance Program, Custodial Questions and Tenant Services:

DAS concurs with the recommendations concerning the Preventative Maintenance Program, Custodial Operations and Tenant Relations and points out that a number of the recommendations made by the Committee are, in fact, similar to those made by the Governor's Task Force on Infrastructure and several of them have already been implemented.

Statewide Monitoring:

Finally, with regard to Statewide monitoring activities of all State agencies who have responsibilities for the operations and maintenance of facilities, there is clearly a need for a clearing house for this type of data. The Committee makes the case that DAS should be that clearing house. While we do not argue against that recommendation, we raise a note of caution as to the staffing and support services that will be necessary to implement such a program as suggested. Issues relating to uniformity of data, the development of common definitions, report mechanisms, data entry, systems for manipulating the data and generating the reports recommended by the Committee have to be addressed and resolved. The three positions recommended by the Committee would not be adequate in our judgment to do this job well; particularly, when the Committee has not recommended any funds to set up the reporting and data processing systems necessary to successfully run a clearing house type of operation.



