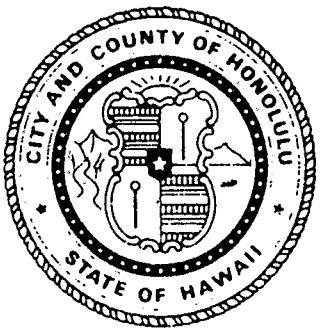

PERFORMANCE AUDIT

of the

Honolulu Police Department

Headquarters Project

FINAL REPORT

to the

Office of Council Services

City and County of Honolulu

August 1993

Coopers & Lybrand | NOT JUST KNOWLEDGE. KNOW HOW.SM

OFFICE OF COUNCIL SERVICES
City and County of Honolulu

PERFORMANCE AUDIT HIGHLIGHTS

August 1993

THE HONOLULU POLICE DEPARTMENT HEADQUARTERS PROJECT

Findings

Construction of a new headquarters building for the Honolulu Police Department was originally scheduled for completion in early 1991. However, after petroleum-contaminated soil was discovered during excavation, completion of the facility was delayed until 1992, and over $6 million in additional funds were required.

To assess how the project management, fiscal, and environmental issues were addressed, the City Council authorized a performance audit of the project and engaged the firm of Coopers & Lybrand to conduct the audit.

Coopers & Lybrand found that no one person or entity exercised adequate control over the project. Too much responsibility had been delegated by the Building Department, and not enough guidance given. When problems such as the soil contamination arose, many assumed action was being taken when actually little was being done.

Coopers & Lybrand also found that the Building Department had relied on a vague contract with the construction manager in believing the project was actively managed. In fact, the manager acted as little more than an administrator and site inspector. There were no deadlines for contractors to send in construction change orders. Late change orders contributed to cost increases and construction disputes.

It was also noted that the City's capital budget documents did not allow the actual costs for a project to be compared against the amount budgeted. Further, project costs and schedules were not revised once the seriousness of the contamination was discovered. With such information, the City could have taken corrective action earlier. Coopers & Lybrand concluded that decisions on the project were made without adequate information.

The Building Department believes that it did actively manage the project, and that the chain of command and the roles of its staff and consultants were clearly defined. It stated that their division chief served as overall project manager and provided continuity over the life of the project. It also maintains that costs were reforecast and schedules revised after the contamination and clean-up plan were

determined. If there was any confusion or delay in dealing with the contamination, that was attributed to the lack of State Department of Health rules at the time.

Recommendations and Response

Coopers & Lybrand recommended that a project manager be made responsible for construction projects from start to finish. That person should be in charge of cost control, schedule control, and project status reporting. Someone should oversee compliance with environmental laws and, if necessary, have the power to stop the project. For a project as large or complex as the police headquarters building, an outside consultant should be hired for this task.

Along with having a project manager with necessary expertise, it was recommended that the Building Department clearly define the roles and responsibilities of the parties involved. For example, the project manager should be responsible for project communications; coordinating City agencies, consultants, and contractors; controlling costs and schedules; and resolving day-to-day problems. The department should set time limits for contractors to submit change orders, and require unit price quotes for doing additional work. When major delays or changes do occur, the impact on costs and scheduling should be re-estimated.

Finally, it was recommended that: (1) the City budget for a large project should detail the amount for each of its major components; (2) costs to date and a forecast of total costs compared to appropriations should be periodically reported; and (3) audits should be done in the middle of construction to identify serious problems early.

The Building Department agreed to establish change order time limits. However, they felt that requiring contractors to provide unit costs would only produce excessively high price quotes and not affect the selection of bidders.

Regarding budgets, the Building Department maintained that ongoing costs against budget were being monitored. It believes interim audits would not have reduced the unforeseen delays and higher costs. The department also stated that the City budget document was never intended for cost accounting. That is done internally by the department.

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August 17, 1993

Dr. David T. E. Lum
Director, Office of Council Services
City and County of Honolulu
City Hall, Room 207
530 South King Street
Honolulu, HI 96813

Dear Dr. Lum:

Enclosed please find 120 copies of the Final Report of our Performance Audit of the Honolulu Police Department Headquarters Project. Prior to finalizing our report, we reviewed the comments made by the Building Department in their letter dated July 13, 1993, based on their understanding of our Preliminary Report. Based on their comments, we have added factual information in several places to the body of our report. We agree with the Building Department that this additional information will add clarity to the report.

However, we are still unable to agree with the conclusions suggested by the Building Department. Our detailed reasoning and supporting facts are included in the full report. In addition, we wish to highlight the following regarding our conclusions:

- Our first finding was that project management was fragmented. The Building Department concurs that they changed project managers several times during the first part of the project, at a time when critical contracts, procedures, and reporting relationships were being established. During this time, the Department relied on Mr. Harada for project continuity. Mr. Harada, through no fault of his own, was not available to the project on a full-time basis because of his other duties as Chief of the Public Buildings, Planning and Construction Division. We continue to recommend that a project of this size and complexity should have a full-time, continuous project manager. We found that this was not the case during certain critical times on this project; project manager turnover contributed to project problems.

- We found that the scope of work for the construction management firm was not adequately defined. We found this in part because the Building Department relied almost solely on the contract to define the scope of work for the construction management firm. In their response to our preliminary report, the Building Department continues to rely on the contract as their primary tool for scope definition. The Building Department has not

responded to our conclusion that major tasks were undefined, either in the contract or in their instructions to KFC. The Building Department also has not responded to the specific project requirements that we recommended. The contract is not enough to define the duties of a management firm over the approximately four year term of their assignment. The construction management firm themselves agrees that they were receiving only minimal guidance from the Building Department, and that they were expected to function more as a construction administrator than as a true construction manager.

- We note from their response that the Building Department continues to confuse the issues of project budget and project appropriations. The appropriation process gives various entities the legal right to spend City and County funds, and we understand that all money spent was properly appropriated. However, the project budget for the Headquarters Building and Parking Garage grew from approximately $69.9 million in FY 89 to approximately $95.0 million in FY 93. Many of the reasons for budget growth were agreed in advance and were project improvements. The fact remains that the budget grew significantly, regardless of the appropriations process.

- We found that management of Change Orders was not adequate. The Building Department gives a number of reasons why change order management is difficult. However, we note that these difficulties have been overcome by other public entities.

- We note that a number of the comments made by the Building Department do not take issue with our findings or our recommendations, but disagree with some of our supporting information, or are made to provide additional background. We have not responded to all of these comments.

We believe that this completes our work on this engagement. However, we are available to respond to questions as needed, and we will participate at a City Council meeting if necessary to discuss this report. If you have any questions, please call me at 415-957-3259.

Very truly yours,

Martin E. Gilmore

Director, Engineering &
Construction Consulting

PERFORMANCE AUDIT

Honolulu Police Department
Headquarters Project

FINAL REPORT
August 1993

EXECUTIVE SUMMARY

SECTION 1

EXECUTIVE SUMMARY

Coopers & Lybrand was retained by the Office of Council Services, City and County of Honolulu, to carry out a performance audit of the Honolulu Police Department Headquarters Project. Planning for this project began in 1987, construction began in 1989, and the building was finally occupied in 1992. The building was originally scheduled for completion in February, 1991. The delays in completion, largely caused by the discovery of contaminated soils on site after construction had begun, contributed to significant cost overruns on the project.

The objectives of the audit were:

- Determine the adequacy of the City's planning, design, and construction process for this project
- Assess project compliance with environmental regulations
- Evaluate the City's fiscal management procedures for this project
- Recommend improvements for future projects.

To meet these objectives, we:

- Reviewed key project documents, including contracts, correspondence, and project files
- Interviewed key project participants who were still available
- Examined state and federal environmental legislation and regulations, and changes to legislation and regulations, as they applied to this project
- Reviewed fiscal management procedures used on the project
- Compared project procedures used on this project with those used by others for projects that were completed on time and on budget
- Prepared findings that will allow the City Council and the Administration to understand what happened on this project

- Developed recommendations that will improve City operations on future design and construction projects.

Following is a summary of our major findings, and the recommendations that follow from these findings. The findings and recommendations are developed in more detail in Section 4, Findings and Recommendations.

We recommend that all of these recommendations be acted upon before the City and County of Honolulu performs any further design or construction for major capital projects. We particularly call your attention to Findings 1, 2, and 8. We believe that these findings concern controllable factors that had the greatest impact on this project. We believe that the recommendations that result from these findings will have the greatest impact on the success of future work.

FINDING NUMBER 1

Project management of the Honolulu Police Headquarters Project was fragmented. Fragmented project management led to inadequate project direction and control, which contributed to many of the problems on the project. Several City and State Departments were involved in the project, as well as outside consultants and contractors. It is typical of large projects to have many entities involved; however, it is essential that one entity direct the entire project. We found that no single entity exercised adequate control over the entire project; the entity that should have controlled the project was the Building Department. We found confusion about roles and responsibilities and about delegation of authority; we believe it was the Building Department's responsibility to clarify the roles and requirements of all involved entities, and to ensure that the City's requirements were met.

Recommendations

1) We recommend that a Project Manager (PM) be involved and responsible for projects from the start of planning and design through completion of construction. The Project Manager should be responsible for project communications and reporting, management of client groups such as City and County departments, management of architects and consultants, and management of construction contractors. The Project Manager should have overall responsibility for cost control, schedule control, and project status reporting, although much of the daily effort will be delegated to other professional groups on the project. Above all, the Project Manager will have the responsibility for managing the effective resolution of any problems and disputes that occur during the project.

2) We recommend that the City and County select criteria for "major projects" that will require the use of outside project managers. We cannot provide a description of "major projects" for the City because we do not have knowledge about the future plans for construction, or about the skills available within the City staff. However, typical considerations for classifying a project as major may include some combination of:

- First of a kind projects
- Large value
- Unique technology or construction approach
- Special schedule considerations
- Multiple project sponsors, for example the City and State.

3) We recommend that the City and County develop a job description and list of requirements that will guide the work of the project managers, whether they are drawn from City staff or outside. The job description will describe their responsibilities, and the limits on their authority. The list of requirements will define their management tasks such as overall project direction, value engineering and consideration of alternatives, forecasting, cost reporting, schedule status reporting, dispute resolution, project change control, and identification and reporting of significant impediments to successful project completion.

FINDING NUMBER TWO

The scope of work for the Construction Management firm (KFC Group) was not adequately defined. Lack of scope definition allowed the Building Department to think that KFC was assertively managing the project, while KFC was in fact acting as little more than an administrator and site inspector. The Building Department was relying almost solely on the contract to define KFC's requirements. Although the contract does provide an outline of the scope of work, it does not define project communications, reporting responsibilities, dispute resolution procedures, change order management, or other details of any Construction Manager's normal activities. Lack of definition allowed too many assumptions to be made by the Building Department and by KFC, and allowed necessary tasks to be postponed or ignored.

Recommendations

4) We recommend that the City and County Building Department develop written requirements, procedures, and controls that can be used to guide the work of outside Project or Construction Management firms. These

procedures will define some of the significant project operating requirements, and will be in addition to contract requirements. These procedures will ensure consistency of approach to complex projects, and will improve communications on projects. In addition, these procedures can be used as an effective measure of the performance of the Project or Construction Management firm.

5) We recommend that the City and County analyze Construction Management and Project Management contract forms that have been developed by industry groups, and use these more standard contract forms as a guide to modifying the City's existing construction management contract form. Industry groups that have developed widely used standard contract forms include the Construction Management Association of America (CMAA), Associated General Contractors (AGC), and the American Institute of Architects (AIA). These forms are generally accepted by the design and construction industry, and assist in communicating with architects, engineering firms and other consultants, and construction companies because they use standard terminology, and because they have more consistent divisions of labor.

6) We recommend that the construction manager be retained sooner than they were on this project. If a construction manager is going to be used, they should be in place well before the construction contracts go out for bid. They should manage the construction bid process, and should assist in design reviews and constructability reviews.

FINDING NUMBER 3

We found that the management of Change Orders on this project was not adequate. The Building Department has an existing procedure titled "Processing of Formal Construction Change Orders". However, this procedure is focused on internal processing within the Building Department, and does not adequately address the requirements that should be imposed on outside companies or consultants. In addition, we found that the construction contracts did not have any requirement for timely contractor submittal of change orders. This allowed contractors to delay submittals or ignore worksite changes until late in the project. The delay contributed to cost increases, and contributed to difficulties in resolving disputes.

Recommendations

7) We recommend that the Building Department revise and strengthen its Change Order Procedure. We further recommend that the revised procedure

include requirements for outside entities such as project architects, consultants, and the contractors. Also, we recommend that the Change Order procedure be attached to or referenced in contracts, thus becoming a contract requirement and binding on contractors, consultants, and architects.

8) We recommend that all construction contracts contain contract language that requires any contractor to submit Change Order requests within a certain period after the event that caused the change. Typical periods are one to four weeks after the event. It may be that in this short period of time, the contractor can not identify all cost and schedule impacts, but they should at least identify the change and probable impact.

9) We recommend that the City add requirements to construction bid documents so that the contractors submit unit costs for certain tasks, depending on the type of work. For example, a bid for excavation would include costs for removal of a cubic yard of soil. A bid for electrical work would include the cost for terminating cables of various sizes. Unit prices should not be obtained for all potential tasks in the scope of work, but obtaining these rates for types of work that are most likely to change will provide negotiating information to the City when changes occur. Similarly, the City should obtain the contractor's markups for change orders as part of the original bid. These should be binding, and will eliminate discussions if the change orders are submitted with a cost breakdown as part of the change order supporting information.

FINDING NUMBER 4

We found that the project cost was not re-estimated, nor was the project schedule revised, once the magnitude of the environmental contamination was discovered. If the project had been rescheduled and re-estimated, the City could have planned for schedule and cost changes, and minimized the impact on the project. In addition, the act of reforecasting would have caused the Building Department, the Construction Manager, and the contractors to develop specific plans for resolving the environmental problems at the site.

Recommendation

10) We recommend that the City and County adopt a procedure that requires a project cost and schedule reforecast once major impacts on project cost or schedule are discovered. This procedure should come into effect once construction has begun. For example, the City could set a requirement that any unforeseen circumstance that appears to cause a delay of one month or

more, or any circumstance that appears to cause a cost increase or decrease greater than 2%, will require the project sponsor (such as the Building Department), in conjunction with the Project or Construction Manager, to re-estimate the project.

FINDING NUMBER 5

We found that liability could not be clearly assigned to any of the contractors or consultants for cost overruns or for environmental issues on this project, based on the information available to us as post-construction performance auditor, and without having consulted legal counsel. As discussed in Section 4.3, we found that the Environmental Impact Statement was prepared in accordance with the requirements that were in existence at the time it was prepared. We found that the architect did not have responsibility for site supervision, and was acting only as an advisor to the Building Department when the contaminated soil was discovered. In their role as an advisor, they did retain an environmental subconsultant, Unitek. Unitek performed certain tasks as directed by the architect and the Building Department, but at no time had the overall responsibility for remediation. Unitek submitted plans for an overall site cleanup, but the plans were not approved by the City or the State Department of Health.

The Construction Manager, KFC, did have some site supervision responsibilities, but was specifically prohibited by contract from "advising on, or issuing directions relative to any aspect of construction means, methods, techniques, sequences, or procedures that are not specified in the contract documents" without written instructions from the City. We found no written instructions from the City directing KFC to advise about or direct the environmental remediation activities. As noted above in Finding Number 2, KFC should have been more active during the project, but this was not the expectation of the Building Department.

Finally, the contractors themselves were not responsible, since remediation was not in their scope of work, and they could not act on cleanup tasks without receiving direction from the City.

We found that the confusion and delay that occurred after the contaminated soil was discovered was the result of inadequate procedures and passive management on the part of the Building Department, coupled with a construction manager that was providing a level of service that was not adequate for the needs of the project. The delays were aggravated by an initial lack of response from the State Department of Health when they were first consulted about the issue (see Section 4.3).

FINDING NUMBER 6

We found that the Building Department does not have any procedures for reviewing and approving subconsultants retained by other consultants on projects. For example, Unitek was retained by Sam Chang & Associates for environmental assistance once soil contamination was discovered on the site. It was appropriate for Sam Chang & Associates to hire a subconsultant on an emergency basis. However, in this instance the subconsultant was retained for nine months without review or comparison against other consultants, while the problem grew well beyond the original scope for which they were hired. Nine months after they were first retained, they were evaluated against other environmental consultants, and replaced.

Recommendation

11) We recommend that the Building Department develop procedures that govern the hiring and retention of subconsultants on its projects. In a normal situation, the Building Department should approve the subconsultant prior to their use on a project. We further recommend that the contract duration be limited for any consultant that is retained on an emergency basis. After a reasonable period, depending on the work but not exceeding three months, the emergency subconsultant should be formally evaluated before they are allowed to continue.

ADDITIONAL FINDINGS

In addition to the findings listed above, we have other observations and findings that answer questions raised during the audit, but which have not led to recommendations:

- We found that, with the exception of the environmental remediation efforts, the Change Orders on the project were held to a reasonable percentage of the total construction cost. The major non-environmental Change Order was for the expanded crime lab, which was clearly an addition to the project scope. Please refer to the matrix in Section 4 titled Change Order Analysis, Construction Contracts.

- The scope of work and project schedule for the architect, Sam Chang Architect & Associates, Inc, was highly compressed at the beginning of the project. Specifically, master planning, needs assessment, Environmental Impact Statement preparation, and schematic design were done at the same time. On this project, this does not appear to have led to any problems; the architect performed professionally on each of these concurrent tasks.

However, these early project definition tasks are normally done in sequence. We suggest that the City and County, where possible, plan its projects with adequate planning time at the beginning of projects to avoid potential problems of inadequate planning.

- We did not develop any concerns regarding contractor selection. We found that the two construction contractors were selected via public bidding in accordance with the City's requirements.

FINDING NUMBER 7

We found that the question of project budget, construction budget and contract price, ongoing project cost, and cost overruns caused continuing concern and considerable confusion during the construction phase of the project. The major reasons for the confusion were that the budget and the basis for cost comparisons were not stated in a manner that can be used on a design and construction project, nor was the budget broken down in accordance with the actual project plan. The budget prepared by the City for its annual Capital Budget may be suitable for its intended purpose of annual budgeting and fiscal control, but it is not suitable for construction project management and control. It also contributed to the lack of clarity about the project budget because it did not have budgets for individual components such as the parking garage, so different entities and individuals were looking at different budget and cost numbers and drawing conclusions that in many cases were inaccurate.

Recommendations

12) We recommend that the City's annual Capital Program and Budget show appropriated amounts by year and by phase for each significant component of a major development. For the "Transportation Center and City Hall Annex Office Complex", the four major components (police building, transit terminal, office building, and parking structure) should have been shown. For the project as divided into time phases, the parking garage and the police headquarters should have been shown. This would have reduced confusion about budgeted amounts, and would have increased visibility into costs and control over project costs for the individual components.

13) For projects that have already begun, we recommend that the costs actually expended be reported through the previous year, and estimated for the current year. We recognize that the appropriations requests for any future fiscal year must be prepared during the current year, so end-of-year costs are not available. However, actual costs should be available from project

management through the month prior to the preparation of the Capital Program, if our recommendations listed below under Finding Number 8 are adopted, and the costs for the balance of the year should be able to be estimated with considerable accuracy once the project is underway.

FINDING NUMBER 8

We found that project accounting and cost control was not adequate. Project cost control includes both cost accounting for money spent, and cost forecasting for the duration of the project. A cost report should have been prepared by the project manager at the Building Department, or by the construction manager at KFC as part of KFC's monthly progress reports. We note that project cost reports, as a supplement to the City's annual budgets, would have given the City Council much greater insight into the status and problems on this project.

Recommendations

14) We recommend that the department managing the project, such as the Building Department, report actual costs by phase against total project budget as the project progresses. We recommend that all costs be reported at least quarterly, and that construction costs be reported against budget on a monthly basis for all major projects. Cost reports must include cost forecasting as well as costs incurred to date; the cost forecasting requirement is one of the activities that assists project management to identify and manage potential problems. Effective project management requires knowledge of cost trends against budget in time for appropriate action to be taken.

15) We recommend that future projects have costs reported by the sponsoring agency using total project cost rather than using only the construction cost. Total project cost includes land, design, management, consultants, equipment and furnishings, and other direct costs attributable to the project, as well as the construction cost itself. The City and County, in its annual Capital Improvement Program and Budget, appropriates money in each of these categories for projects. Costs and cost forecasts should be reported against each of these.

FINDING NUMBER 9

We found that no interim performance audits were conducted during this project, even when it became apparent that major unforeseen events had occurred and that the project was

going to be late and over budget. An interim performance audit, properly performed, would have uncovered many of the same findings as this report and would have allowed corrective action to be taken to minimize the impacts of change on this project. The post-construction audit contained in this report, while necessary, will provide information for future projects only, and did not provide the opportunity for corrective action on the Police Headquarters Project.

Recommendation

16) We recommend that the City and County perform an interim performance audit on major multi-year capital projects such as this one. An interim audit should be performed near the middle of the construction period, when the project has overcome any initial mobilization problems, and while there is still time for corrective action. The interim audit of a construction project should focus on cost control and forecasting, schedule control and forecasting, communication on the project, reporting to oversight bodies such as the City Council or the Mayor's office, and adherence to procedures such as Change Order management.

FINDING NUMBER 10

We found that the Environmental Impact Statement (EIS) prepared at the beginning of the project adequately addressed the environmental issues on the project, **in accordance with the environmental regulations in effect at the time the EIS was prepared.** Environmental Impact Statements generally follow the requirements originally prescribed by the National Environmental Policy Act (NEPA), passed in 1969, and subsequent related regulations. NEPA and the associated regulations, which resulted from the environmental issues prominent at that time, were primarily focused on new projects on greenfield sites, and the EIS requirements reflect that focus. They are primarily directed at assessing the impact of a finished facility on the environment. Hawaii Revised Statute 343 (HRS 343) and the associated rules contained in Chapter 200 of Title 11, Administrative Rules (Chapter 200) do not add any specific requirements to the NEPA requirements with regard to underground soils contamination or contamination from underground storage tanks, which became the problem on this project. Thus, we found that the requirements of HRS 343 and Chapter 200 were also satisfied by the EIS.

FINDING NUMBER 11

We found that a significant change in environmental regulations took place during the course of this project. The current regulations governing the response to underground

storage tank contamination were issued in draft form by the EPA in September, 1988, and became effective on December 22, 1988. These regulations were issued in response to the 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA). These regulations took effect after the EIS was finalized, since the draft EIS was issued in December, 1987, and the final EIS was issued in August, 1988.

FINDING NUMBER 12

We found that this project did not have any individual or entity that was clearly responsible for managing the environmental contamination once it was found. As a result, each participant could avoid action if they wished, or could wait for others to take action. Unfortunately, for a period of time, no one was willing or able to formulate an overall plan, or to take decisive action.

Recommendation

17) We recommend that every project have an identified individual who has responsibility for environmental compliance. The individual can be the Project Manager (see Recommendation Number 1) or someone to whom the Project Manager has delegated this responsibility. This individual must have the authority to stop the project if necessary to ensure that proper attention is paid to environmental contamination issues. While stopping a project is a drastic action, this power, similar to that of a safety inspector, is necessary in some cases to ensure proper focus when unforeseen environmental problems do occur. This individual will have other duties in addition to environmental compliance on job sites.

ADDITIONAL FINDINGS

In addition to these findings listed above, we have additional observations and findings that answer questions raised during the audit, but which have not led to recommendations:

- We found that the Environmental Impact Statement did address the existence of petroleum-based contaminants at the site. Specifically, the EIS noted the existence of underground fuel storage tanks, and noted that old, leaking tanks had been removed and replaced. The EIS also discussed ongoing petroleum-related operations at the site, and the operational mitigation efforts that were being undertaken by MTL as part of their routine procedures.

- We found that the City and County of Honolulu has already taken action to

ensure that similar problems will not occur in the future. Ordinance 92-134 was approved in December 1992, and mandates that all City departments shall prepare an inventory of City lands and complete environmental site characteristic assessments for each parcel that is likely to be contaminated. The environmental site characteristic assessments include the requirement for testing of soil and groundwater to determine the general extent of contamination or the use of hazardous materials. We believe that this will provide useful guidance for future work; however, we note that site conditions and environmental regulations can change. Even if all existing sites are characterized in 1993, additional testing may be needed when new construction takes place.

- We found that the consistency and adequacy of the environmental guidance provided to the City by the State Department of Health (DOH) varied significantly during this project. At the time the EIS was reviewed, the DOH did not have an Underground Storage Tank section, nor were they required to. As a result, the only comment that the DOH made about the EIS was in regard to noise.

  We found that the early guidance provided by the DOH was not adequate for this project. At the time the initial contamination was discovered in 1989, DOH had just formed the Underground Storage Tank division, staffed with two people. Their philosophy was to comment on plans submitted to them, but they would not approve or disapprove plans, nor would they suggest their own plan of action. We also noted that the earliest correspondence to the DOH was not answered.

  However, as the project progressed, the DOH in parallel developed their own knowledge of contamination from underground storage tanks, as well as developing considerable knowledge about this specific project. As a result, their guidance became increasingly better informed, more confident, and more useful. It appears that, if a similar contamination problem were found today, the DOH would provide more consistent guidance to the project principals. DOH is now able to provide more consistent guidance in part because they issued their "Technical Guidance Manual for Underground Storage Tank Closure" in September, 1992.

- We found that there were two different kinds of contaminated soil removed from the site. Once the existence of contamination was discovered, soil known to be contaminated was transported and disposed of in secure landfill, in accordance with Title 49, Code of Federal Regulations, governing transport and disposal of contaminated waste. This soil, identified at the site as

contaminated, can be found because it was shipped with a hazardous waste manifest and chain of custody forms that identify the nature of the waste, the generator, the transporter, and each person who receives the waste.

The second kind of "contaminated" soil was removed and disposed of before it was known to be contaminated. Since it was thought to be uncontaminated at the time of disposal, no regulations governed its transport or disposal. Therefore, there is no effective means to locate or characterize all of this material. We note that considerable effort has been expended by the City to characterize the site and to locate and test the soil removed from the site. Based on the site characterization, it was determined that the contaminated soil was found in a limited area of the site, adjacent to the underground storage tanks, their associated piping, and the fuel dispenser island. Thus, the bulk of the soil removed from the site was remote from these sources of petroleum, and there is no reason to believe that it is contaminated.

We reviewed test results for several of the disposal sites. Test results and material characterization submitted October 27, 1991, by Masa Fujioka & Associates shows that coralline material from Phase 1A disposed at Sand island was contaminated, and had Total Recoverable Petroleum Hydrocarbons (TRPH) as high as 3500 ppm, which exceeds the State DOH standard of 50 ppm. TRPH in excess of 50 ppm was found in 23 of 24 samples. Similarly, Total Petroleum Hydrocarbons - Diesel (TPH-Diesel) exceeded 50 ppm in 11 of 24 samples.

We reviewed other test results for coralline soils disposed of at Ft. Shafter, coralline soils disposed of at the Sand Island Waste Water Treatment Plant, and black sand material disposed of at the Ala Wai golf course. All of these tests showed uncontaminated soil.

Following their review of our preliminary report, the Building Department in their response stated that the soil at Sand Island that was found to contain petroleum hydrocarbons was not in fact contaminated because Hawaii DOH had deleted TRPH and TPH-Diesel from the list of "Potential Chemicals of Concern". We reviewed the table, and found that it includes cleanup criteria for specific chemicals such as benzene, but it does not include criteria for blended product such as diesel. We then discussed this table with the State DOH, who advised us that the Table 5.1 from their UST Technical Guidance Manual does not present all requirements for contamination.

The State DOH also has a standard for "Grossly Contaminated Soil" for soils contaminated with hydrocarbons. The criteria for determining grossly contaminated soil is contained in Table 5.3 of the State DOH UST Technical Guidance Manual. We have included Table 5.3 and the associated discussion

from the DOH manual in the following pages.

We conclude from this Table and from the associated sections of the DOH manual that the State DOH still retains a standard of 50 ppm for petroleum hydrocarbons in the diesel range. It appears to us that soils with higher concentrations, such as a portion of the soils disposed at Sand Island, will still require cleanup at Sand Island or disposal methods appropriate for contaminated soil.

INTRODUCTION AND BACKGROUND

SECTION 2

INTRODUCTION AND BACKGROUND

Introduction

Resolution No. 92-97, CD-1, (Appendix A) authorized the Presiding Officer of the Honolulu City Council to obtain the services of an auditor to conduct a performance audit of the planning, design, and construction process for and fiscal management of the Honolulu Police Department Headquarters Project. The resolution also required that the audit include a review of the project's compliance with Chapter 343, Hawaii Revised Statutes (Environmental Impact Statements), and regulations of the State Office of Environmental Quality Control.

Planning for the Honolulu Police Headquarters project began in 1987. Construction began in 1989, and shortly thereafter contaminated soil was discovered during excavation for the building foundations. The building was originally scheduled for completion in February, 1991, but was not completed until 1992. The delays in construction were a major contributor to cost overruns on the project. In addition to the cost and schedule impacts, some of the excavated soils were disposed of, and then discovered to be contaminated. Soils disposal, coupled with the discovery of contaminated soil after the project had started, led to concern that environmental regulations may have been overlooked or ignored.

Coopers & Lybrand was selected to perform the performance audit. This report contains our findings, conclusions regarding the work on this project, and recommendations to improve future project development and construction work performed by the City.

Objectives of the Performance Audit

The objectives of the audit were:

- Determine the adequacy of the City's planning, design, and construction process for this project
- Assess project compliance with environmental regulations
- Evaluate the City's Fiscal Management procedures for this project
- Recommend improvements for future projects

To meet these objectives, we:

- Reviewed key project documents, including contracts, correspondence, and project files
- Interviewed key project participants who were still available
- Examined state and federal environmental legislation and regulations, and changes to legislation and regulations, as they applied to this project
- Reviewed fiscal management procedures used on the project
- Compared project procedures used on this project with those used by others for projects that were completed on time and on budget
- Prepared findings that will allow the City Council and the Administration to understand what happened on this project
- Developed recommendations that will improve City operations on future design and construction projects.

Background

In 1987, the City and County of Honolulu formed a Task Force comprised of members of the Building Department, Department of Land Utilization, Public Works, Budget Department, Honolulu Police Department, Planning, Traffic, and the Managing Director, to manage the planning, design, and construction of a new police headquarters. The Task Force analyzed various facility alternatives including the addition/renovation of the existing Pawaa Annex facility, renovating other buildings, leasing or purchasing a suitable facility, and other sites. All alternatives were rejected in favor of a new building on the Alapai Bus Barn site located near the intersection of Beretania and Alapai streets, primarily due to a desire to consolidate City operations near the Civic Center area and to upgrade the HPD into a modern, state-of-the-art facility.

Historically, the Alapai Bus Barn site had been used for maintaining public transportation vehicles since 1900, when the Honolulu Rapid Transit & Land Company, Ltd. constructed their trolley barn, power house, and office building.

With the site selected, the Task Force advertised for, interviewed, and selected a planning/design consultant, Sam Chang Architect & Associates (SCAA), from Honolulu, in

association with HNTB, a large, national design firm. The desire by HPD to move into this new facility as quickly as possible accelerated the schedule for the entire project. This meant that the needs assessment, master plan, Environmental Impact Statement preparation, and conceptual design were performed simultaneously, instead of the more typical sequentially for large, complex projects.

Several project cost estimates and schedules for Phase I were prepared during the planning and design phase. The earliest estimate was for $27.4 million, with a 15 month schedule; this rough order of magnitude estimate was included in the Request for Proposals to architects issued in May 1987. Following conceptual design and design development, and following a significant increase in the size of the building, a definitive construction cost estimate of $46.4 million, with an 18 month schedule, was included in the bid documents issued to prospective general contractors in November 1988. This construction cost estimate was part of the overall project budget of $69,872,000 that was included in the FY 89 budget.

A great deal of confusion surrounded these estimates during the life of the project. The estimate that should be used to judge performance during construction of the police headquarters is the definitive construction cost estimate of $46.4 million that was developed from detailed design drawings and was used for construction bid comparisons. However, the estimate that should be used to judge the overall project performance is the FY 89 budget of $69,872,000. Additional confusion resulted because of comparisons between construction costs versus total project costs.

Four general contractor bids were received for the police building (Phase IA) in December 1988 with Pacific Construction Co. (in 1990, Pacific was acquired by another company and became Fletcher Pacific Construction) the low bidder at $43,930,000 and 700 calendar days schedule (estimated completion of February 1991). KFC, a construction management firm from Honolulu, was selected over several other companies in January, 1989 to act as the Construction Manager. KFC's primary duties were to conduct weekly meetings, inspection of the work, process shop drawings, and to provide administrative and management services during the construction process. The second major construction phase, the parking structure known as Phase IB, was competitively bid in January 1990 with Hawaiian Dredging Construction as the low bidder at $14,400,000 and 12 months schedule. Phase IB started in June, 1990 with a plan to complete in June, 1991 which also became the planned completion date for the police headquarters building.

Contamination was first discovered on October 20, 1989 while the last line of building footings (Ewa end) were being excavated. That same day, Unitek Environmental Consultants was engaged to take groundwater samples to determine the nature of the petroleum hydrocarbons. At first, diesel fuel was the main contaminant and Unitek

proposed to treat the contaminated groundwater using pads to soak up the contaminants. At this point, the problem was considered minor and localized. The awareness that a larger, major problem existed occurred after the subsequent discovery of contaminated soil in the former dispensing island area. Eventually, it was determined that the total contamination involved an approximate 4-5 acre groundwater area and 25,000 cubic yards of soil. However, the total extent of the contamination was determined in a piecemeal fashion over an approximately two year period.

Another major contamination issue occurred in June 1990 when PCB's were discovered in the old concrete foundation of the Bus Barn. The management of this new issue led ultimately to a change in environmental consultants. Unitek proposed to transport the contaminated concrete rubble to a Mainland disposal site at a cost of $970,000. Dames & Moore presented a second option consisting of preliminary testing of the rubble using EPA approved procedures, on-site cleanup of the concrete using an EPA recommended cleaning fluid, and follow up testing to confirm the cleanup effectiveness. Based on the results, EPA allowed disposal of the concrete rubble at Kapaa landfill. The total cost of this procedure was $70,000.

Based on this initial success, Dames & Moore was asked to critique the entire contamination mitigation efforts to date. Dames & Moore recommended that contaminated soils be excavated and that free product recovery by skimming be conducted within the excavation. The exposure of the groundwater to air and sunlight would concurrently treat the groundwater. These recommendations were adopted. The contaminated soils were taken to Kalaheo landfill for bioremediation, free product was skimmed from the excavation, and groundwater within the excavation was cleaned up relatively quickly, enabling construction to proceed.

The remaining contaminated soil (approximately 25,000 cubic yards total) was spread out within bioremediation cells constructed at Kalaheo landfill, and the results of the pilot test and a bioremediation operations plan were submitted to DOH for approval. Because of the lengthy time period required to gain DOH approval, and because of the results for the control plot, MFA retested the soil prior to initiating bioremediation. The testing indicated that the soil had naturally bioremediated to below current DOH guidelines, and that further bioremediation work would not be necessary. The ability of the soil to be naturally bioremediated to below the DOH contamination guidelines is an indication that the original contamination, while important, was not severe.

The police building and parking structure (Phase I) was officially completed in September 1992 -18 months past the original completion date and approximately $20-30 million over budget (final costs are undetermined pending the outcome of contractor claims for additional payment).

WORK PERFORMED

SECTION 3

WORK PERFORMED

During the course of this performance audit, we performed a number of work steps in accordance with our proposal and in accordance with work steps that we have performed on other similar performance audits of design and construction projects. This section outlines the steps that we performed during this audit.

TASK 1 - Evaluation of Planning, Design & Construction

Based on our understanding of the audit objectives and our experience with similar project audits for public sector clients, we assessed:

- the adequacy of the City's planning process
- the management of the construction process
- the adequacy of the City's change order process.

TASK 1A - Planning Process

We believe that adequate planning is essential to the successful completion of construction projects. We have been assisting several public and private entities to define and plan their construction programs, so we are familiar with the process that leads to success. We applied this experience to our evaluation of the Honolulu Police Department Headquarters project.

Adequate planning includes a clear understanding of project goals, good definition of participant roles and well-established communication processes. Additional factors include consultation with facility users and the basis for considering and selecting major project options. To review these aspects of project planning, we:

- Developed a deeper understanding of the early project history through reviews of planning documents and budget submittals and key design development documents.
- Interviewed key managers at the Police Department and at the City. Interviews helped determine the extent of participation of various departments and the communication processes used between responsible entities.
- Supplemented our interviews by analyzing project and department organization charts, both existing and those that described the organizations in place during project planning.

- Examined bid documents, recommendations for selection, the contract and contract amendments for the architect and major consultants. Determined which people and organizations recommended and approved selection and confirmed the basis for selection.

- Determined whether existing City procedures applied to the selection process and whether they were followed.

- Assessed the creation of the facility plan from project initiation through review of options to design selection. Determined who had input and when. Reviewed the extent of participation by the Police Department and whether the input was timely and complete.

- Compared the timing of architect and consultant selection with the timing of facility planning. Reviewed whether consultants were selected at a time that allowed meaningful inputs into the planning process.

- Determined whether facility options were considered, whether options were reviewed by all involved departments and who approved selection.

- Determined whether alternatives to the traditional segmented process were considered in a meaningful way, and if so, why they were rejected.

We noted that there were three areas of serious concern regarding this project - cost overruns, schedule delays and environmental planning. During our review of project planning we focused on these areas:

- Cost growth and reasons, including a comparison of initial project budgets, interim budgets and cost reports, and the latest project cost status. For significant modifications, we determined who was responsible for initiation and approval.

- Schedule delays, whether due to environmental or other reasons, and whether these were due in any part to the planning process used on the project.

- Extent of planning for environmental issues and impacts, whether appropriate consultants were hired in a timely manner, and whether their input was adequately considered during the project definition.

TASK 1B - Construction Process

We followed a methodology similar to that described above when we examined the construction phase of the project. Areas of focus included:

- Contractor selection, from scope definition and bidder prequalification through recommendation and approval.
- Division of responsibility among the City, the Police Department, the architect and any consultants for contractor oversight.
- Required communication and reporting, including periodic updates to the project schedule, cost forecasts, timeliness with which problems were raised and resolved, and the reporting responsibilities of various entities.
- The contractor's responsibility for environmental issues.
- Significance of contractor contract amendments, their timing and methods of approval.

TASK 1C - Change Order Policies

We believe that the change order process should be straightforward on a project that is well planned and well managed, because the requirements for reporting, communications and approvals will be well defined. As we analyzed the change order process, we compared change management with overall project management. The result of this comparison was an understanding of the extent to which overall management issues contributed to problems with change orders.

Our change order process evaluation followed these steps:

- Obtained the Change Order Log and all change orders, whether approved or rejected
- For all material change orders, assessed the degree of definition and extent of supporting documentation as well as review their timeliness relative to the work covered or affected by the change order.
- Examined the approval process for timeliness, consistency and proper approval authority. Determined whether the positions that have approval authority are appropriate.

- Prepared a matrix that categorized all material change orders by initiating agency, and in addition displayed various impacts according to the initiating agency or contributing entity.

- Based on the matrix of change orders, we determined whether a significant number were caused by inexperience or by a failure to hire experienced consultants in a timely manner.

- Also based on our matrix comparison of change orders, we identified impacts from the planning process and other aspects of project management and control.

TASK 2 - Evaluation of Fiscal Management

We performed the following steps to determine the City's ability to:

- accurately estimate total project costs at project inception

- commit the City to project costs beyond the amount appropriated by the council

- ensure the provision of sufficient funds to complete projects initiated in prior years.

TASK 2A - Legislative Controls

This assessment was made to determine whether it would be appropriate to establish legislative fiscal controls in the construction process or if such controls would unreasonably delay construction or increase project costs.

During our performance of Task 1, we gained insight into the root causes of cost, schedule and environmental problems on the project. We also gained familiarity with existing City legislation and procedures. Based on these insights, we recommended improvements, and whether they should be legislative or procedural.

We understand the importance to the City Council and City Administration of accurate, comprehensive project cost estimates. These are important both at project inception and during project execution to allow adequate fiscal planning. We would expect some degree of legislative control of capital improvement projects, especially during project initiation and

funding authorization. We will reviewed whether existing legislation adequately controls project initiation.

We noted your awareness of the potential delays that could be caused by legislative fiscal controls during project execution. We examined this issue with your concerns in mind. Our recommendations in this area developed from our review of existing legislation and our determination of the causes of problems on the Police Headquarters project.

TASK 2B - Cost Overruns

We performed the following steps to assess and determine the extent and causes of the increase in the project's costs. The assessment included an evaluation of the various potential sources of cost increases including:

- change orders
- unforeseen events related to contamination and other environmental problems
- delays that should have been, but were not foreseen, as well as delays that could have been anticipated
- all other causes, such as poor cost estimation methods or lack of expertise, lack of familiarity with police construction or inefficient project scheduling.

Our project analysis described in Task 1 gave us the necessary insight to determine the extent and causes of project cost increases. The matrix that we prepared as part of Task 1C showed sources and causes of cost changes and provided the necessary support for recommendations for enhanced cost control

We would expect the City to hold some of its contractors liable for certain costs of change and we examined the prime contracts on this project to determine ways for the City to better protect itself from costs that should properly be the responsibility of others.

TASK 2C - Contact Administration

As part of our review during Task 1, we examined the prime contracts for this project, as well as the City's methods of administration. We compared the administrative methods used for project contracts with other related procedures such as fiscal processes. Similarly, we compared Contract administration with the requirements of the relevant Hawaii statutes.

TASK 3 - Compliance with Environmental Requirements

Our team performed the following steps to determine whether the City observed the applicable environmental laws and regulations and took the appropriate steps to dispose of contaminants discovered at the project site.

TASK 3A - Determine applicable environmental laws and regulations in effect when the project was being planned and the contract executed.

We researched relevant and applicable environmental laws and regulations in effect during the planning and execution of the contract. These laws and regulations included the following:

- DOT Title 49 CFR - Transporting Hazardous Materials
- RCRA Characteristics of Hazardous Waste
- EPA'S Publication SW 846 - Sample Preservation, Identification and Chain-of-Custody
- OSHA Title 29 CFR, Part 1910. 120 (health and safety protocol for persons working with potentially hazardous materials)
- State of Hawaii, Department of Health (DOH) , State of Cleanup Goals for Contaminated Soil and Groundwater
- State of Hawaii, Department of Health (DOH), Underground Storage Tank Section Guidance on USTs
- Chapter 343, HRS

Legislative sources were contacted to verify the effective dates for legislation including changes and revisions.

TASK 3B - Assess the compliance of the Environmental Assessment and Environmental Impact Statement with the requirements of Chapter 343, Hawaii Revised Statues and Title 11, Chapter 200, Hawaii Administrative Rules

Environmental documents were reviewed and compared with specific requirements of Chapter 343 , HRS. Additionally, the Office of Environmental quality Control was contacted to verify if applicable procedures and timing were followed.

TASK 3C - Evaluate the adequacy of the environmental impact statement in assessing and proposed mitigation measures for the anticipated environmental effects of the police headquarters project including the likelihood of encountering petroleum-based and other contaminants at the site due to previous transportation-related uses

Chapter 343 does not explicitly mention hazardous materials. However, such environmental issues are to be taken into consideration. This portion of work was oriented to determining the extent to which contaminated materials should have been known or anticipated and if these issues should have been addressed in environmental studies. This was accomplished by the review of project records, especially those of the environmental consultants. We identified relevant information on site conditions that was known and at what time in the course of the project. This data was used to assess if reasonable and appropriate procedures and conditions were followed in the evaluation of environmental conditions and impacts.

TASK 3D - Determine whether it would be appropriate for the City to establish a requirement for a preliminary environmental site survey and approval of compliance with the requirement as part of the planning phase for future City construction projects or for all construction projects in the City.

After reviewing available paperwork on actions taken and possible impacts from the police headquarters project, recommendations for requiring a preliminary environmental survey during the planning phase of City construction projects was formulated.

TASK 3E - Determine any changes made to applicable environmental laws and regulations during the course of the project

The current relevant and applicable laws and regulations outlined in Task 3A were compared to the same laws followed in the execution of the contract. Any changes, additions or deletions were noted and the timing compared with the process of the project work.

TASK 3F - Evaluate the steps taken by responsible officials to respond to any changes made to applicable environmental laws and regulations

In addition to noting if and how applicable environmental laws and regulations were followed in Task 3B, a "paper trail" outlining responsible official's actions towards the applicable environmental laws and regulations was reviewed. Also, personal interviews were used to supplement available paperwork.

TASK 3G - Assess the consistency and adequacy of the guidance provided the City by the State Department of health during the project and the response of the City to that guidance.

The "paper trail" of correspondence between the State and the City was reviewed and analyzed for timeliness, consistency and quality based on interpretation of applicable federal and state laws and regulations.

TASK 3H - Verify the extent of which contaminated soil removed from the project site can or cannot be found and estimate the threat posed to public health and safety by that soil. If all of the contaminated soil can not be found, explain why and identify ways to prevent similar occurrences in future City projects

Under Title 49 Code of Federal Regulations, a hazardous waste manifest and chain-of-custody form must accompany any transport of hazardous materials/waste. The chain of-custody form should identify each person that received the material or waste. The manifest identifies the exact nature of the waste, the amount and the EPA identification number of the generator and transporter. These documents were reviewed to identify where the contaminated soil was located last and where it might have gone. Also, the architect and contractors were interviewed. A very limited "risk evaluation" was conducted by reviewing existing studies to ascertain the threat posed to human health by relating available chemical data to human health by relating available chemical data to existing standards.

TASK 3I - Determine and evaluate the actions taken by the architect and his employees to dispose of contaminants

The timeliness and appropriateness of actions taken by the contractor were evident through written documents and personal interviews of key personnel pertaining to the disposal of the contaminated waste. We also evaluated this specific item to determine if this question should be asked of other consultants or the contractor.

TASK 3J - Provide recommendations to enable the City Administration to improve the planning and execution of future capital improvement projects that involve the potential for, or have evidence of contaminated soil or water. Particular emphasis shall be placed upon the issues listed above.

Based on research and evaluations performed in Tasks 3A through 3J, we developed specific recommendations to guide future City project procedures. These recommendations were stated in several categories, as appropriate.

FINDINGS AND RECOMMENDATIONS

SECTION 4
FINDINGS AND RECOMMENDATIONS

Following are our findings, and the supporting information that has led us to these findings and associated recommendations. We have categorized our findings in the following three areas, in accordance with the agreed scope of work:

- Planning, design, and construction
- Fiscal management
- Compliance with environmental requirements

4.1 Planning, Design, and Construction

FINDING NUMBER 1

Project management of the Honolulu Police Headquarters Project was fragmented. Fragmented project management led to inadequate project direction and control, which contributed to many of the problems on the project. Several City and State Departments were involved in the project, as well as outside consultants and contractors. It is typical of large projects to have many entities involved; however, it is essential that one entity direct the entire project. We found that no single entity exercised adequate control over the entire project; the entity that should have controlled the project was the Building Department. We found confusion about roles and responsibilities and about delegation of authority; we believe it was the Building Department's responsibility to clarify the roles and requirements of all involved entities, and to ensure that the City's requirements were met.

One-of-a-kind facilities such as the Honolulu Police Headquarters require an experienced manager to coordinate the entire design and construction process, as well as coordinating all the various participants. For planning and design of this project, a task force was assembled consisting of representatives of the Building Department, the Police Department, the Planning Department, other interested agencies, and the outside architect, Sam Chang & Associates. In addition, Sam Chang & Associates retained other subconsultants for assistance during programming and design. Later in the project, a construction management firm was hired. After the soils contamination was discovered, several environmental consultants and the State Department of Health were involved. Two major contractors were working on the site.

The Building Department was in charge of this large number of participants. They helped plan the project, they managed the project, and they were responsible for architect, consultant, and contractor selection. They chose to delegate some of the management responsibility to some of the consultant firms, and this delegation was proper, but they still

retained overall responsibility. We found that the Building Department delegated too much responsibility on this project, and that they delegated responsibility without providing adequate guidance or control. This system worked adequately when the project was running smoothly, but broke down when significant problems were uncovered. When problems such as the soils contamination were uncovered, lack of guidance and understanding allowed many of the project participants to assume that someone else was doing something when in fact little was being done. Project management did act immediately when the first contamination was discovered, and retained an environmental consultant the same day. However, project management did not maintain this initial rapid response during the remainder of the time that the contaminated soils were a problem.

James Harada, Chief of Public Building Planning and Construction, was the overall project manager and provided senior level continuity of management during the project. However, at the working level, there were several senior staff changes during the early part of the project. Takashi Higa was project coordinator during the planning and design stages. Mr. Higa retired from City service on December 31, 1988, although he was retained as a consultant until June, 1989. James Watari assumed the role of project manager after Mr. Higa's retirement, but Mr. Watari was promoted to another position in February, 1990. Frank Mishima, Supervising Building Construction Inspector, was assisting Mr. Watari, but he retired in December, 1990. Melvin Lee assumed the role of project manager in February, 1990, and has finished the project. However, at the time of Mr. Lee's assignment to the project manager role, the construction contracts had been in place for over a year, and the contaminated soil had been a problem for four months.

The major outside companies involved in project management were the architect and the construction management firm. However, we noted that the construction contracts were out for bid before the construction management firm was selected. This prevented the construction manager from exercising early input into the construction management process. For them to exercise significant control over the project, they should have been in place and participating in contract formation, bidding, prebid meetings, and contractor selection. They should also have had the opportunity to make recommendations regarding the contracting plan and other project procedures prior to obtaining bids for project construction. If the Construction Manager had significant requirements, the requirements could have been incorporated into the contract and made binding on the contractor. If this had been done adequately on this project, communications would have been clearer, and appropriate action would have been more likely when the soils contamination was uncovered.

At the critical time of contractor selection and mobilization, the architect was having its role reduced to that of an on-call advisor, while the Construction Manager was not yet on board and fully participating in the management of the project. This left the Building Department with the job of providing project continuity and guidance, but they did not do this. Lack of guidance, coupled with the timing of Construction Manager selection, contributed to the

passive nature of the Construction Manager during the critical time of project replanning and environmental remediation once the contaminated soil was discovered.

Recommendations

1) We recommend that a Project Manager (PM) be involved and responsible for projects from the start of planning and design through completion of construction. The Project Manager should be responsible for project communications and reporting, management of client groups such as City and County departments, management of architects and consultants, and management of construction contractors. The Project Manager should have overall responsibility for cost control, schedule control, and project status reporting, although much of the daily effort will be delegated to other professional groups on the project. Above all, the Project Manager will have the responsibility for managing the effective resolution of any problems and disputes that occur during the project.

   For example, on this project, the project manager would have managed the definition and resolution of the contaminated soils problem. This person would have obtained consultants as needed, directed the studies of alternatives, obtained cost re-estimates and schedule re-estimates for the various alternatives, and recommended a course of action that minimized the impact of the changes. If this had been done on this project, the cost overruns and schedule delays would have been reduced because the problems would have been managed in a comprehensive manner.

   For routine projects, the Project Manager will be a City employee from the department most responsible for executing the project. For this project, the Project Manager would have come from the Building Department. However, for large, complex projects such as the Police Headquarters, the executing department may not have staff available with the necessary skills and experience. If the department does not have the necessary skills within, they should plan for and retain an outside individual or firm to manage the project.

   The Project Manager should be identified early in the project planning process, once planning approval is obtained and before the architect completes design development. Early selection of the project manager is essential for continuity of understanding and control throughout all phases of the project. Early selection of the Project Manager also allows the PM to refine the requirements for the contractors and consultants used during the project.

2) We recommend that the City and County select criteria for "major projects" that will require the use of outside project managers. We cannot provide a description of "major projects" for the City because we do not have knowledge about the future plans for construction, or about the skills available within the City staff. However, typical considerations for classifying a project as major may include some combination of:

- First of a kind projects
- Large value
- Unique technology or construction approach
- Special schedule considerations
- Multiple project sponsors, for example the City and State.

3) We recommend that the City and County develop a job description and list of requirements that will guide the work of the project managers, whether they are drawn from City staff or outside. The job description will describe their responsibilities, and the limits on their authority. The list of requirements will define their management tasks such as overall project direction, value engineering and consideration of alternatives, forecasting, cost reporting, schedule status reporting, dispute resolution, project change control, and identification and reporting of significant impediments to successful project completion.

FINDING NUMBER TWO

The scope of work for the Construction Management firm (KFC Group) was not adequately defined. Lack of scope definition allowed the Building Department to think that KFC was assertively managing the project, while KFC was in fact acting as little more than an administrator and site inspector. The Building Department was relying almost solely on the contract to define KFC's requirements. Although the contract does provide an outline of the scope of work, it does not define project communications, reporting responsibilities, dispute resolution procedures, change order management, or other details of any Construction Manager's normal activities. Lack of definition allowed too many assumptions to be made by the Building Department and by KFC, and allowed necessary tasks to be postponed or ignored.

Construction management, as an activity on construction projects, is a relatively recent development and is still evolving. Because of this evolution, each entity on a project may have different ideas about the meaning of the term and the responsibilities of the construction manager. The duties of a construction manager are not as clearly understood

as are, say, the duties of an architect. It thus becomes more important that these duties be defined by the project owner, prior to the start of the work.

KFC had a number of duties on this project, including review and interpretation of plans and specifications, construction scheduling, cost control, quality control, materials receiving, construction claims documentation, record-keeping, and final inspection of the work. These tasks are needed on a project, and are usually well understood by project participants. In addition to these tasks, however, there are other tasks that were either detailed poorly in this contract, or were not included at all. These neglected tasks included construction management and coordination, project reporting, cost and schedule forecasting, and management of project problems such as the contaminated soils.

The task of project coordination was included in KFC's contract. However, the words used are vague. For example, the contract requires that KFC "Act as the authorized representative of the City..." and that they "Provide administrative, management and related services as required to coordinate the work...". We found that KFC did not perform these tasks adequately. However, we also found that the Building Department did not communicate any specific requirements to KFC, nor did they appear to be unhappy with KFC's performance. In their role as construction manager and as the authorized representative of the City, we would have expected KFC to coordinate the studies and the remediation activities required to identify and remove the contaminated soils. KFC did not coordinate the project's response, and the environmental activities were directed for a long period of time by an environmental subconsultant that was ultimately removed from the project. The Building Department and KFC relied on the expertise of the environmental consultant. However, this expertise is technical, not managerial. Management judgement and action was still required from KFC and the City, and this action was slow in coming.

In their role providing administrative, management, and related services, we would have expected KFC to provide monthly reports and periodic forecasts as the project progressed. KFC did not provide monthly reports, even though these are standard on large construction projects. We did not find forecasts, trends, schedule updates, or other documentation that would have provided an indication that the project was being managed actively. We did not find documentation that indicated management with anticipation of future milestones, or with anticipation of the future effects of conditions such as the environmental contamination, once the contamination was found.

Although we believe that KFC did not provide adequate service, we believe that the overriding concern of the City of Honolulu and its Building Department should be to define their requirements and ensure that these are made clear to future construction or project managers. Service agreements such as the contract for construction management services for the Police Headquarters project do not work unless both parties understand the intent and the requirements of the work. The legal language of the services contract was not

adequate in this instance to define the requirements and expectations of the work.

Recommendations

4) We recommend that the City and County Building Department develop written requirements, procedures, and controls that can be used to guide the work of outside Project or Construction Management firms. These procedures will define some of the significant project operating requirements, and will be in addition to contract requirements. These procedures will ensure consistency of approach to complex projects, and will improve communications on projects. In addition, these procedures can be used as an effective measure of the performance of the Project or Construction Management firm.

   As a minimum, key procedures should include:

   - Monthly progress report requirements. Monthly reports will include a summary of work that has happened and costs that have been incurred. More importantly, monthly reports should also include cost and schedule forecasting, critical items and their resolution, unresolved critical items and the plan for reaching resolution, and other significant items affecting the future of the project.

   - Cost reporting and forecasting. Cost reporting should be in enough detail to isolate and control specific project activities, such as design, outside consultants, construction by contract, and City management. Cost forecasting should be done periodically to force the City and the project manager to think about and predict the project final cost. One result of forecasting on this project would have been better and earlier response to the cost increases that resulted from the environmental contamination.

   - Schedule reporting and forecasting. This project should have had a critical path schedule that showed all major activities of the two contractors on site, as well as showing key activities of other important participants in the project. The schedule should be updated monthly, and plans should be made to recover schedule or minimize the impact of problems such as the soils contamination.

   - Change management. The responsibilities of the construction manager for change negotiations and change order processing should be identified.

- Submittal processing. The requirement is included in the contract but the process is not. Process and timing should be identified and applied to the construction manager, and through the construction manager to the contractors and consultants.

- Site monitoring responsibilities. Similarly, the requirement is included in the contract but the process is not.

- Payment processing. The construction manager should be required to check for and certify such things as the quality and completeness of the work, in addition to verifying the math and other support of payment requests and invoices.

5) We recommend that the City and County analyze Construction Management and Project Management contract forms that have been developed by industry groups, and use these more standard contract forms as a guide to modifying the City's existing construction management contract form. Industry groups that have developed widely used standard contract forms include the Construction Management Association of America (CMAA), Associated General Contractors (AGC), and the American Institute of Architects (AIA). These forms are generally accepted by the design and construction industry, and assist in communicating with architects, engineering firms and other consultants, and construction companies because they use standard terminology, and because they have more consistent divisions of labor.

   For example, the AIA standard form contract between owner and construction manager requires that the CM "Revise and refine the approved estimate of Construction Cost, incorporate approved changes as they occur, and develop cash flow reports and forecasts as needed." The City can then add its requirements for such things as frequency of forecasts and cash flow reports. Similarly, the CMAA standard form contract between owner and construction manager requires that the construction manager prepare a Construction Management Plan, including the development of various alternatives for construction sequencing and management of the project, and make recommendations to the project owner.

6) We recommend that the construction manager be retained sooner than they were on this project. If a construction manager is going to be used, they should be in place well before the construction contracts go out for bid. They should manage the construction bid process, and should assist in design reviews and constructability reviews.

FINDING NUMBER 3

We found that the management of Change Orders on this project was not adequate. The Building Department has an existing procedure titled "Processing of Formal Construction Change Orders". However, this procedure is focused on internal processing within the Building Department, and does not adequately address the requirements that should be imposed on outside companies or consultants. In addition, we found that the construction contracts did not have any requirement for timely contractor submittal of change orders. This allowed contractors to delay submittals or ignore worksite changes until late in the project. The delay contributed to cost increases, and contributed to difficulties in resolving disputes.

On this project, the contractor submitted change order requests and change order information months after the fact. Late submittal tends to reduce the information available to resolve the cost and other impacts of the change, and tends to drive costs higher. Using limits on the time available to submit change requests is a widely used practice in the construction industry.

We also noted that the original bid documents did not include any requests for contractor's unit rates to be applied to potential Change Orders. The bid documents did not request that the contractors supply their percentage markups for potential change orders as part of their bid. Unit rates and change orders, if obtained as part of the contractor's original bid, can make it easier to negotiate and resolve change orders when changes occur.

Recommendations

7) We recommend that the Building Department revise and strengthen its Change Order Procedure. We further recommend that the revised procedure include requirements for outside entities such as project architects, consultants, and the contractors. Also, we recommend that the Change Order procedure be attached to or referenced in contracts, thus becoming a contract requirement and binding on contractors, consultants, and architects.

   The revised Change Order procedure should include the required Change Order format, minimum information requirements, the routing for approval, and the time limits for each step in the process. Responsibilities should be defined for the contractor, the architect, the Construction or Project Manager, and the City.

8) We recommend that all construction contracts contain contract language that requires any contractor to submit Change Order requests within a certain period after the event that caused the change. Typical periods are one to four

weeks after the event. It may be that in this short period of time, the contractor can not identify all cost and schedule impacts, but they should at least identify the change and probable impact.

9) We recommend that the City add requirements to construction bid documents so that the contractors submit unit costs for certain tasks, depending on the type of work. For example, a bid for excavation would include costs for removal of a cubic yard of soil. A bid for electrical work would include the cost for terminating cables of various sizes. Unit prices should not be obtained for all potential tasks in the scope of work, but obtaining these rates for types of work that are most likely to change will provide negotiating information to the City when changes occur. Similarly, the City should obtain the contractor's markups for change orders as part of the original bid. These should be binding, and will eliminate discussions if the change orders are submitted with a cost breakdown as part of the change order supporting information.

FINDING NUMBER 4

We found that the project cost was not re-estimated, nor was the project schedule revised, once the magnitude of the environmental contamination was discovered. If the project had been rescheduled and re-estimated, the City could have planned for schedule and cost changes, and minimized the impact on the project. In addition, the act of reforecasting would have caused the Building Department, the Construction Manager, and the contractors to develop specific plans for resolving the environmental problems at the site.

Recommendation

10) We recommend that the City and County adopt a procedure that requires a project cost and schedule reforecast once major impacts on project cost or schedule are discovered. This procedure should come into effect once construction has begun. For example, the City could set a requirement that any unforeseen circumstance that appears to cause a delay of one month or more, or any circumstance that appears to cause a cost increase or decrease greater than 2%, will require the project sponsor (such as the Building Department), in conjunction with the Project or Construction Manager, to re-estimate the project. We concur with the Building Department that any guidelines that are established should be flexible, due to the wide variety of potential project circumstances.

FINDING NUMBER 5

We found that liability could not be clearly assigned to any of the contractors or consultants for cost overruns or for environmental issues on this project, based on the information available to us as post-construction performance auditor, and without having consulted legal counsel. As discussed in Section 4.3, we found that the Environmental Impact Statement was prepared in accordance with the requirements that were in existence at the time it was prepared. We found that the architect did not have responsibility for site supervision, and was acting only as an advisor to the Building Department when the contaminated soil was discovered. In their role as an advisor, they did retain an environmental subconsultant, Unitek. Unitek performed certain tasks as directed by the architect and the Building Department, but at no time had the overall responsibility for remediation. Unitek submitted plans for an overall site cleanup, but the plans were not approved by the City or the State Department of Health.

The Construction Manager, KFC, did have some site supervision responsibilities, but was specifically prohibited by contract from "advising on, or issuing directions relative to any aspect of construction means, methods, techniques, sequences, or procedures that are not specified in the contract documents" without written instructions from the City. We found no written instructions from the City directing KFC to advise about or direct the environmental remediation activities. As noted above in Finding Number 2, KFC should have been more active during the project, but this was not the expectation of the Building Department.

Finally, the contractors themselves were not responsible, since remediation was not in their scope of work, and they could not act on cleanup tasks without receiving direction from the City.

We found that the confusion and delay that occurred after the contaminated soil was discovered was the result of inadequate procedures and passive management on the part of the Building Department, coupled with a construction manager that was providing a level of service that was not adequate for the needs of the project. The delays were aggravated by an initial lack of response from the State Department of Health when they were first consulted about the issue (see Section 4.3).

FINDING NUMBER 6

We found that the Building Department does not have any procedures for reviewing and approving subconsultants retained by other consultants on projects. For example, Unitek was retained by Sam Chang & Associates for environmental assistance once soil contamination was discovered on the site. It was appropriate for Sam Chang & Associates

to hire a subconsultant on an emergency basis. However, in this instance the subconsultant was retained for nine months without review or comparison against other consultants, while the problem grew well beyond the original scope for which they were hired. Nine months after they were first retained, they were evaluated against other environmental consultants, and replaced.

We understand that the Building Department relies on its architects and Project Managers to have the necessary expertise to recommend and retain expert subconsultants, and we have no objection to this reliance as a means to obtaining the needed expertise. However, as the representative of the City and County, the Building Department retains ultimate responsibility for its project, and must ensure itself that the subconsultants have been properly retained, and have the ability to do the jobs for which they have been retained.

Recommendation

11) We recommend that the Building Department develop procedures that govern the hiring and retention of subconsultants on its projects. In a normal situation, the Building Department should approve the subconsultant prior to their use on a project. We further recommend that the contract duration be limited for any consultant that is retained on an emergency basis. After a reasonable period, depending on the work but not exceeding three months, the emergency subconsultant should be formally evaluated before they are allowed to continue.

ADDITIONAL FINDINGS

In addition to the findings listed above, we have other observations and findings that answer questions raised during the audit, but which have not led to recommendations:

- We found that, with the exception of the environmental remediation efforts, the Change Orders on the project were held to a reasonable percentage of the total construction cost. The major non-environmental Change Order was for the expanded crime lab, which was clearly an addition to the project scope. Please refer to the attached matrix titled Change Order Analysis, Construction Contracts.

- The scope of work and project schedule for the architect, Sam Chang Architect & Associates, Inc, was highly compressed at the beginning of the project. Specifically, master planning, needs assessment, Environmental Impact Statement preparation, and schematic design were done at the same time. On this project, this does not appear to have led to any problems; the

architect performed professionally on each of these concurrent tasks. However, these early project definition tasks are normally done in sequence. We suggest that the City and County, where possible, plan its projects with adequate planning time at the beginning of projects to avoid potential problems of inadequate planning.

- We did not develop any concerns regarding contractor selection. We found that the two construction contractors were selected via public bidding in accordance with the City's requirements.

HONOLULU POLICE HEADQUARTERS
PERFORMANCE AUDIT

Change Order Analysis
Construction Contracts

Contractor: **Fletcher Pacific**
Base Bid: **$43,930,000**
Source of Data: **Change Order Payment Status - January 13, 1993**

SOURCE OF CHANGE	TOTAL PAID TO CONTRACTOR	% OF BASE BID	SIGNIFICANT ITEMS
Architect	$1,872,396	4.3%	Details, utility connections, specification enhancements
Contractor	$409,920	0.9%	Specification changes, equipment relocations
Client	$1,502,518	3.4%	Crime lab, additional security electronics
Contamination	$730,214	1.7%	
TOTAL	$4,515,048	10.3%	

Contractor: **Hawaiian Dredging**
Base Bid: **$14,565,000**
Source of Data: **Change Order Payment Status - December 8, 1992**

SOURCE OF CHANGE	TOTAL PAID TO CONTRACTOR	% OF BASE BID	SIGNIFICANT ITEMS
Architect	$61,891	0.4%	Column and footing mods
Contractor	$551,091	3.8%	Increased general requirements changed undeerground conditions
Client	$117,535	0.8%	Maintenance facility expansion
Contamination	$1,394,103	9.6%	
TOTAL	$2,124,620	14.6%	

4.2 Fiscal Management

FINDING NUMBER 7

We found that the question of project budget, construction budget and contract price, ongoing project cost, and cost overruns caused continuing concern and considerable confusion during the construction phase of the project. The major reasons for the confusion were that the budget and the basis for cost comparisons were not stated in a manner that can be used on a design and construction project, nor was the budget broken down in accordance with the actual project plan. The budget prepared by the City for its annual Capital Budget may be suitable for its intended purpose of annual budgeting and fiscal control, but it is not suitable for construction project management and control. It also contributed to the lack of clarity about the project budget because it did not have budgets for individual components such as the parking garage, so different entities and individuals were looking at different budget and cost numbers and drawing conclusions that in many cases were inaccurate.

The City and County of Honolulu prepares each year its Executive Program and Budget, which includes a volume describing the Capital Program and Budget. The Police Headquarters project was carried as part of the Capital Program and Budget. We found that this project was carried as part of a larger development known as the "Transportation Center and City Hall Annex Office Complex". The total development was described in a brief paragraph that includes four major components, which were a transit terminal, the police building, a transportation office building, and the parking structure. The budget itself lumps all of the costs for the four components into one annual number, broken down only by phase, not by specific item such as the police building. Thus, the Capital Program does not show enough detail to identify appropriations for the police building.

The Executive Program and Budget does, however, show enough information to indicate the amount of growth in the overall project budget. We noted that the project budget for the police headquarters budget and the parking garage grew as follows:

FY 89	$69,872,000
FY 90	$75,814,000
FY 91	$79,364,000
FY 92	$87,099,000
FY 93	$95,049,000

These numbers are the sums of the previously appropriated and currently requested funds in each year. For later years, these totals include the money actually spent in earlier years, as well as the current appropriations and future requests. These totals include all of the

project phases: land, planning and engineering, construction, inspection, furnishings, and art. We noted in FY 89 that the $71,000,000 budget for the Phase 2 and 3 facilities, which include the transit terminal and the office building, had not been segregated from the budget for the police headquarters and the parking structure. For consistency with FY 90 and later years, we segregated the $69,872,000 for Phase 1 from the budget for future years.

Further analysis shows that the growth of the budget by individual project phase was as follows (all dollar amounts in 000's, with Phases 2 and 3 segregated from the FY 89 budget):

PROJECT PHASE	FY 89 BUDGET	FY 93 EXPENDED	CHANGE
Land	$ 9,900	$ 6,930	< $ 2,970 >
Plan/Engineer	$ 4,850	$ 6,017	$ 1,167
Construction	$ 51,800	$ 77,388	$ 25,588
Inspection	$ 1,000	$ 1,995	$ 995
Furnishings	$ 1,202	$ 2,719	$ 1,517
Art	$ 1,120	$ 0	< $ 1,120 >
TOTAL	$ 69,872	$ 95,049	$ 25,177

Many of the items that were added to the scope of work for this project between FY 89 and project completion were needed, and were agreed in advance. Other increases in expenditure were unforseen, such as the contaminated soil. The fact remains that the budget grew significantly, and that the cost reporting used by the City does not present this kind of information very clearly for design and construction projects. It is also true that the growth in budget was not well documented, and is difficult to follow through the project records and the City records.

The Building Department has stated that the project managers know what the costs are at any time during construction. We believe that project managers also have a responsibility to report these costs and the reasons for cost and budget changes to others. In the case of this project, the costs and cost changes should have been logged more clearly to allow explanation to those not involved in the project on a daily basis. We note that, following the submittal of our Preliminary Report, we again asked the Building Department for monthly project reports or other reports that could periodically document project cost status; these reports were not shown to us.

We also noted that the Capital Program and Budget does not show adequate information about costs incurred against the budgeted amounts. It shows the cost expended three years before the fiscal year being budgeted, and shows the amounts appropriated in the two previous years. For example, the FY 91 Budget, adopted at the peak of site activities for this project, shows the following:

PHASE	EXPENDED 1988	APPRN 1989	APPRN 1990	REQUEST 1991
Land	$ 1,000	$ 2,800	0	0
P & E	$ 3,850	$ 1,000	0	$ 160
Construction	$31,007	$17,473	$16,030	$ 1,115
Equipment	0	0	$ 1,625	$ 1,695
Inspection	$ 693	$ 366	$ 450	$ 100
TOTAL	$36,550	$21,639	$18,105	$ 3,070

Thus, the Budget amounts that are presented give no indication about the cost performance against previously appropriated money. There is no indication that there are two major ongoing projects, the police headquarters and the parking garage. In this example, there is no indication of actual expenditure for 1989, even though that fiscal year was finished at the time this budget was adopted. Finally, there is no indication of money spent in years prior to 1988, so there is no indication of total project cost.

We also found that the "Transportation Center and City Hall Annex Office Complex" was long ago broken into two schedule phases. Phase One included the Police Headquarters as Phase 1A and the parking structure as Phase 1B. However, it was not until FY 93 that the Capital Program and Budget recognized the two schedule phases and started showing appropriations as two distinct projects and time periods.

We concluded from this information that Capital Budget decisions for this project were made without adequate information about the cost of individual segments of the project, and were made without adequate comparison of the costs incurred to date against prior year budgets.

Recommendations

12) We recommend that the City's annual Capital Program and Budget show appropriated amounts by year and by phase for each significant component of a major development. For the "Transportation Center and City Hall Annex Office Complex", the four major components (police building, transit terminal, office building, and parking structure) should have been shown. For the project as divided into time phases, the parking garage and the police headquarters should have been shown. This would have reduced confusion about budgeted amounts, and would have increased visibility into costs and control over project costs for the individual components.

13) For projects that have already begun, we recommend that the costs actually expended be reported through the previous year, and estimated for the current year. We recognize that the appropriations requests for any future fiscal year must be prepared during the current year, so end-of-year costs are not available. However, actual costs should be available from project management through the month prior to the preparation of the Capital Program, if our recommendations listed below under Finding Number 8 are adopted, and the costs for the balance of the year should be able to be estimated with considerable accuracy once the project is underway.

In summary, if these two recommendations were adopted, the budget table shown on the previous page would look like:

PHASE	EXPEND BEFORE 1989	APPRN 1989	EXPEND 1989	APPRN 1990	EST EXPEND 1990	RE-QUEST 1991
Land						
P&E - Police HQ						
P&E - Parking						
Const - Police HQ						
Const - Parking						
Equip-HQ						
Equip-Pkg						
Insp - HQ						
Insp - Pkg						
TOTAL						

FINDING NUMBER 8

We found that project accounting and cost control was not adequate. Project cost control includes both cost accounting for money spent, and cost forecasting for the duration of the project. A cost report should have been prepared by the project manager at the Building Department, or by the construction manager at KFC as part of KFC's monthly progress reports. We note that project cost reports, as a supplement to the City's annual budgets, would have given the City Council much greater insight into the status and problems on this project.

The Building Department has stated that the project managers know what the costs are at any time during construction. We believe that project managers also have a responsibility to report these costs and the reasons for cost and budget changes to others. In the case of this project, the costs and cost changes should have been logged more clearly to allow

explanation to those not involved in the project on a daily basis. We note that, following the submittal of our Preliminary Report, we again asked the Building Department for monthly project reports or other reports that could periodically document project cost status; these reports were not shown to us.

One of the most important aspects of project management is agreement at the start of each project phase about objectives, including cost objectives. The confusion about budgets and costs indicates that this was not done on this project. Another major aspect of project management is periodic reporting about progress toward the project objectives, and we found that reporting costs incurred against budget and cost forecasting for the balance of the project were not done adequately on this project.

Recommendations

14) We recommend that the department managing the project, such as the Building Department, report actual costs by phase against total project budget as the project progresses. We recommend that all costs be reported at least quarterly, and that construction costs be reported against budget on a monthly basis for all major projects. Cost reports must include cost forecasting as well as costs incurred to date; the cost forecasting requirement is one of the activities that assists project management to identify and manage potential problems. Effective project management requires knowledge of cost trends against budget in time for appropriate action to be taken.

    Page 4 - 18 shows an example of a summary cost report issued every two months by the project manager as part of their bi-monthly progress reports. This summary is supported in more detail by additional reports for each line item shown on this summary. There are many styles of cost report, depending on the details of the project and the needs of the project manager and project owner. However, as a minimum, the cost report should show the approved budget, budget changes, contract values, approved change orders, pending change orders, forecast total costs, and costs spent to date.

15) We recommend that future projects have costs reported by the sponsoring agency using total project cost rather than using only the construction cost. Total project cost includes land, design, management, consultants, equipment and furnishings, and other direct costs attributable to the project, as well as the construction cost itself. The City and County, in its annual Capital Improvement Program and Budget, appropriates money in each of these categories for projects. Costs and cost forecasts should be reported against each of these.

FINDING NUMBER 9

We found that no interim performance audits were conducted during this project, even when it became apparent that major unforeseen events had occurred and that the project was going to be late and over budget. An interim performance audit, properly performed, would have uncovered many of the same findings as this report and would have allowed corrective action to be taken to minimize the impacts of change on this project. The post-construction audit contained in this report, while necessary, will provide information for future projects only, and did not provide the opportunity for corrective action on the Police Headquarters Project.

Recommendation

16) We recommend that the City and County perform an interim performance audit on major multi-year capital projects such as this one. An interim audit should be performed near the middle of the construction period, when the project has overcome any initial mobilization problems, and while there is still time for corrective action. The interim audit of a construction project should focus on cost control and forecasting, schedule control and forecasting, communication on the project, reporting to oversight bodies such as the City Council or the Mayor's office, and adherence to procedures such as Change Order management.

PROGRAM COST STATUS REPORT

	DESCRIPTION	APPROVED BUDGET (A)	BUDGET REVISIONS (B)	REVISED BUDGET (C=A+B)	ORIGINAL CONTRACTS (D)	APPROVED C.O. (E)	PEND C.O./ UNAWARDED COSTS (F)	FORECAST TOTAL COSTS (G=D+E+F)	VARIANCE FROM BUDGET (H=C-G)	TOTAL COMPLETE (I)	% COMPLETE (J)	BALANCE TO FINISH (K=G-I)
SCHOOLS	CABRILLO	3,515,355	0	3,515,355	999,150	28,446	2,487,759	3,515,355	0	848,438	24.1%	2,666,917
	EDISON	3,150,367	0	3,150,367	610,463	10,283	2,529,621	3,150,367	0	527,692	16.8%	2,622,675
	FRANKLIN	3,842,327	0	3,842,327	915,497	10,037	2,916,793	3,842,327	0	710,082	18.5%	3,132,245
	GRANT	3,729,363	0	3,729,363	1,105,971	47,087	2,576,305	3,729,363	0	1,058,016	28.4%	2,671,347
	MCKINLEY	3,454,184	0	3,454,184	654,425	9,220	2,790,539	3,454,184	0	492,232	14.3%	2,961,952
	ROGERS	3,220,338	0	3,220,338	841,560	16,653	2,362,125	3,220,338	0	758,819	23.6%	2,461,519
	ROOSEVELT	3,844,886	0	3,844,886	936,797	21,584	2,886,505	3,844,886	0	851,183	22.1%	2,993,703
	WEBSTER	2,461,272	0	2,461,272	572,292	8,001	1,880,979	2,461,272	0	526,226	21.4%	1,935,046
	ADAMS MIDDLE	8,676,495	0	8,676,495	1,014,539	37,391	7,624,565	8,676,495	0	1,060,655	12.2%	7,615,840
	LINCOLN MIDDLE	9,012,463	0	9,012,463	1,450,336	19,600	7,542,527	9,012,463	0	1,251,172	13.9%	7,761,291
	MALIBU HIGH	8,353,025	0	8,353,025	1,503,661	37,452	6,811,912	8,353,025	0	1,026,207	12.3%	7,326,818
	SANTA MONICA HIGH	24,926,436	0	24,926,436	2,643,099	85,058	22,198,279	24,926,436	0	1,672,975	6.7%	23,253,461
OTHER PROJECTS	NEW SCHOOL AT OCEAN PARK	7,450,000	0	7,450,000	174,715	0	7,275,285	7,450,000	0	158,117	2.1%	7,291,883
	MALIBU HIGH FACILITY REQMTS (DEV. FEES)	2,500,000	0	2,500,000	0	0	2,500,000	2,500,000	0	0	0.0%	2,500,000
	JOHN MUIR SCHOOL (CONTINUATION SCHOOL)	1,000,000	0	1,000,000	50,279	2,000	947,721	1,000,000	0	22,360	2.2%	977,640
	CHILD CARE RELOCATION ($21,989 FOR SMASH)	200,000	0	200,000	18,228	0	181,772	200,000	0	15,590	0.0%	184,410
	LINCOLN CHILD DEVELOPMENT	331,617	0	331,617	300,035	26,399	5,183	331,617	0	302,571	91.2%	29,046
	INTERIM HOUSING	950,000	0	950,000	0	0	950,000	950,000	0	0	0.0%	950,000
	SUBTOTAL	90,618,128	0	90,618,128	13,791,047	359,211	76,467,870	90,618,128	0	11,282,335	12.5%	79,335,793
ADMINISTRATION	PROJECT ADMINISTRATION	7,162,264	0	7,162,264	4,489,192	0	2,673,072	7,162,264	0	2,664,780	37.2%	4,497,484
	DISTRICT ADMINISTRATION	1,070,826	0	1,070,826	1,024,000	0	46,826	1,070,826	0	374,097	34.9%	696,729
	PROGRAM CONTINGENCY	246,993	0	246,993	0	0	246,993	246,993	0	0	0.0%	246,993
	SUBTOTAL	8,480,083	0	8,480,083	5,513,192	0	2,966,891	8,480,083	0	3,038,877	35.8%	5,441,206
ES PROJECT TOTAL		99,098,211	0	99,098,211	19,304,239	359,211	79,434,761	99,098,211	0	14,321,212	14.5%	84,776,999

4.3 Compliance with Environmental Requirements

FINDING NUMBER 10

We found that the Environmental Impact Statement (EIS) prepared at the beginning of the project adequately addressed the environmental issues on the project, **in accordance with the environmental regulations in effect at the time the EIS was prepared.** Environmental Impact Statements generally follow the requirements originally prescribed by the National Environmental Policy Act (NEPA), passed in 1969, and subsequent related regulations. NEPA and the associated regulations, which resulted from the environmental issues prominent at that time, were primarily focused on new projects on greenfield sites, and the EIS requirements reflect that focus. They are primarily directed at assessing the impact of a finished facility on the environment. Hawaii Revised Statute 343 (HRS 343) and the associated rules contained in Chapter 200 of Title 11, Administrative Rules (Chapter 200) do not add any specific requirements to the NEPA requirements with regard to underground soils contamination or contamination from underground storage tanks, which became the problem on this project. Thus, we found that the requirements of HRS 343 and Chapter 200 were also satisfied by the EIS.

We noted that HRS 343 does not explicitly mention hazardous materials, nor does it describe any specific requirements for the content of an EIS. HRS 343 requires that an EIS be prepared under certain circumstances to "disclose the environmental effects of a proposed action, effects of a proposed action on the economic and social welfare of the community and the State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects". HRS 343 also describes the methods for making implementation rules; the implementation rules are Chapter 200, Administrative Rules.

Title 11, Chapter 200, Administrative Rules, sets forth the requirements for the content of an EIS. Chapter 200 does not contain any specific requirements for the identification of the potential adverse impacts of petroleum products or other hazardous materials, nor does it contain any specific requirements for underground testing or affirmative testing of soils for contamination.

The draft EIS was reviewed by the responsible agencies, the Hawaii Department of Health (DOH) and the Board of Water Supply, prior to final issue. These agencies made no comments regarding inadequacies in the EIS in its treatment of potential underground soils contamination. At the time the EIS was reviewed, the DOH did not have an Underground Storage Tank division or any procedures for managing contamination from underground storage tanks. The DOH established its Underground Storage Tank division in 1989, and

issued its "Technical Guidance Manual for Underground Storage Tank Closure" in September, 1992.

FINDING NUMBER 11

We found that a significant change in environmental regulations took place during the course of this project. The current regulations governing the response to underground storage tank contamination were issued in draft form by the EPA in September, 1988, and became effective on December 22, 1988. These regulations were issued in response to the 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA). These regulations took effect after the EIS was finalized, since the draft EIS was issued in December, 1987, and the final EIS was issued in August, 1988.

We note that these new regulations were in effect when the contamination was discovered, even though they were not in effect when the EIS was prepared. However, the State Department of Health, which was charged with implementing the EPA's requirements, did not immediately respond to the EPA requirements. In response to the regulations issued by EPA, the DOH established its Underground Storage Tank division in 1989, but did not issue its "Technical Guidance Manual for Underground Storage Tank Closure" until September, 1992. Thus at the time the site contamination was discovered, the DOH was not yet in a position to give adequate guidance.

FINDING NUMBER 12

We found that this project did not have any individual or entity that was clearly responsible for managing the environmental contamination once it was found. As a result, each participant could avoid action if they wished, or could wait for others to take action. Unfortunately, for a period of time, no one was willing or able to formulate an overall plan, or to take decisive action. We note that the initial action of obtaining the first environmental consultant did occur on the first day that the contamination was found. Unfortunately, this decisive action was not followed by other decisive actions, such as the development of a management plan, or a site characterization plan.

Recommendation

17) We recommend that every project have an identified individual who has responsibility for environmental compliance. The individual can be the Project Manager (see Recommendation Number 1) or someone to whom the Project Manager has delegated this responsibility. This individual must have the authority to stop the project if necessary to ensure that proper attention

is paid to environmental contamination issues. While stopping a project is a drastic action, this power, similar to that of a safety inspector, is necessary in some cases to ensure proper focus when unforeseen environmental problems do occur. This individual will have other duties in addition to environmental compliance on job sites.

ADDITIONAL FINDINGS

In addition to these findings listed above, we have additional observations and findings that answer questions raised during the audit, but which have not led to recommendations:

- We found that the Environmental Impact Statement did address the existence of petroleum-based contaminants at the site. Specifically, the EIS noted the existence of underground fuel storage tanks, and noted that old, leaking tanks had been removed and replaced. The EIS also discussed ongoing petroleum-related operations at the site, and the operational mitigation efforts that were being undertaken by MTL as part of their routine procedures.

  As noted above, HRS 343 and Chapter 200, Administrative Rules, did not require the preparer of the EIS to go beyond noting the existence of the condition and the MTL operational mitigation efforts. Any effort on the part of the EIS preparer to go further would have required either speculation about the existence of contaminated soils, or soils testing to determine the existence of potential contamination. As discussed above, there was no requirement for soils testing prior to preparing the EIS. Also, there was no requirement in HRS 343 or in Chapter 200 for soils testing prior to starting construction.

- We found that the City and County of Honolulu has already taken action to ensure that similar problems will not occur in the future. Ordinance 92-134 was approved in December 1992, and mandates that all City departments shall prepare an inventory of City lands and complete environmental site characteristic assessments for each parcel that is likely to be contaminated. The environmental site characteristic assessments include the requirement for testing of soil and groundwater to determine the general extent of contamination or the use of hazardous materials. We believe that this will provide useful guidance for future work; however, we note that site conditions and environmental regulations can change. Even if all existing sites are characterized in 1993, additional testing may be needed when new construction takes place.

- We found that the consistency and adequacy of the environmental guidance provided to the City by the State Department of Health (DOH) varied significantly during this project. At the time the EIS was reviewed, the DOH did not have an Underground Storage Tank section, nor were they required to. As a result, the only comment that the DOH made about the EIS was in regard to noise.

  We found that the early guidance provided by the DOH was not adequate for this project. At the time the initial contamination was discovered in 1989, DOH had just formed the Underground Storage Tank division, staffed with two people. Their philosophy was to comment on plans submitted to them, but they would not approve or disapprove plans, nor would they suggest their own plan of action. We also noted that the earliest correspondence to the DOH was not answered. We specifically noted the following with regard to correspondence:

  - The Building Department sent a letter to DOH on December 27, 1989, informing them of groundwater contamination at the site, and informing them of actions taken. We did not find any response to this letter from DOH.

  - The Building Department sent a second letter to DOH on April 12, 1990, providing additional information on site contamination, and advising them that underground diesel and gasoline tanks were to be removed. Again, we found no response from DOH.

  - The Building Department sent a letter to DOH on May 21, 1990, requesting written guidance for disposal of soil containing petroleum hydrocarbons. This letter was answered, with a meeting held June 13 and with a letter dated July 6, 1990. We note that this letter from DOH was sent more than six months after the first letter from the Building Department.

  However, as the project progressed, the DOH in parallel developed their own knowledge of contamination from underground storage tanks, as well as developing considerable knowledge about this specific project. As a result, their guidance became increasingly better informed, more confident, and more useful. It appears that, if a similar contamination problem were found today, the DOH would provide more consistent guidance to the project principals. DOH is now able to provide more consistent guidance in part because they issued their "Technical Guidance Manual for Underground Storage Tank

Closure" in September, 1992.

- We found that there were two different kinds of contaminated soil removed from the site. Once the existence of contamination was discovered, soil known to be contaminated was transported and disposed of in secure landfill, in accordance with Title 49, Code of Federal Regulations, governing transport and disposal of contaminated waste. This soil, identified at the site as contaminated, can be found because it was shipped with a hazardous waste manifest and chain of custody forms that identify the nature of the waste, the generator, the transporter, and each person who receives the waste.

  The second kind of "contaminated" soil was removed and disposed of before it was known to be contaminated. Since it was thought to be uncontaminated at the time of disposal, no regulations governed its transport or disposal. Therefore, there is no effective means to locate or characterize all of this material. We note that considerable effort has been expended by the City to characterize the site and to locate and test the soil removed from the site. Based on the site characterization, it was determined that the contaminated soil was found in a limited area of the site, adjacent to the underground storage tanks, their associated piping, and the fuel dispenser island. Thus, the bulk of the soil removed from the site was remote from these sources of petroleum, and there is no reason to believe that it is contaminated.

  We reviewed test results for several of the disposal sites. Test results and material characterization submitted October 27, 1991, by Masa Fujioka & Associates shows that coralline material from Phase 1A disposed at Sand island was contaminated, and had Total Recoverable Petroleum Hydrocarbons (TRPH) as high as 3500 ppm, which exceeds the State DOH standard of 50 ppm. TRPH in excess of 50 ppm was found in 23 of 24 samples. Similarly, Total Petroleum Hydrocarbons - Diesel (TPH-Diesel) exceeded 50 ppm in 11 of 24 samples.

  We reviewed other test results for coralline soils disposed of at Ft. Shafter, coralline soils disposed of at the Sand Island Waste Water Treatment Plant, and black sand material disposed of at the Ala Wai golf course. All of these tests showed uncontaminated soil.

  Following their review of our preliminary report, the Building Department in their response stated that the soil at Sand Island that was found to contain petroleum hydrocarbons was not in fact contaminated because Hawaii DOH had deleted TRPH and TPH-Diesel from the list of "Potential Chemicals of Concern". We reviewed the table, and found that it includes cleanup criteria

for specific chemicals such as benzene, but it does not include criteria for blended product such as diesel. We then discussed this table with the State DOH, who advised us that the Table 5.1 from their UST Technical Guidance Manual does not present all requirements for contamination.

The State DOH also has a standard for "Grossly Contaminated Soil" for soils contaminated with hydrocarbons. The criteria for determining grossly contaminated soil is contained in Table 5.3 of the State DOH UST Technical Guidance Manual. We have included Table 5.3 and the associated discussion from the DOH manual in the following pages.

We conclude from this Table and from the associated sections of the DOH manual that the State DOH still retains a standard of 50 ppm for petroleum hydrocarbons in the diesel range. It appears to us that soils with higher concentrations, such as a portion of the soils disposed at Sand Island, will still require cleanup at Sand Island or disposal methods appropriate for contaminated soil.

5.3.1.1 Removal or Remediation of Grossly Contaminated Soil

As part of the initial response and abatement steps, DOH is recommending that owners and operators identify and remove or remediate "gross contamination" caused by releases from their USTs, to the extent that is practicable at a release site. The underlying reason for identifying and removing or remediating gross contamination early on in the release response process is to minimize potential exacerbation of the contamination caused by the release.

DOH realizes that the complete removal or remediation of grossly contaminated soil may not always be possible due to the presence of adjacent building foundations, structures, and subsurface structures at a release site. However, owners and operators should attempt to remove or remediate as much of the grossly contaminated soil as possible at their site.

Gross contamination at a UST release site can be present in the saturated zone (as free product on the water table) and in the unsaturated zone (as excessively contaminated soil). Gross contamination in the saturated zone exists if free product (i.e., non-aqueous phase liquid) is present. The recommendation for the removal of gross contamination in the saturated zone is fulfilled when free product, if present, is recovered to the extent practicable (see Section 5.3.1.2 on Removal of Free Product).

For the unsaturated zone, DOH is recommending that owners and operators use the criteria provided in Table 5.3 to identify "grossly contaminated" soil at a release site. In conjunction with this, DOH is recommending procedures to use in identifying grossly contaminated soil. These procedures are found in Appendix 5-C.

Table 5.3 General Criteria for Determining Grossly Contaminated Soil

TYPE OF PETROLEUM PRODUCTS STORED	CRITERIA TO USE FOR THE IDENTIFICATION OF GROSSLY CONTAMINATED SOIL
Gasoline-range compounds	When organic vapor measurements exceed 500 ppm
Diesel-range compounds	When organic vapor measurements exceed 50 ppm
Heavy Oils	When visual or olfactory evidence is present

Although DOH is recommending using the field measurement procedures provided for in Appendix 5-C, other appropriate field measurement methods can also be used for this purpose. For a more detailed discussion on the use of field measurement methods, please refer to Appendix 7-E, page 7-E-18.

After grossly contaminated soils have been identified, remediation of the soils in the unsaturated zone can be accomplished either by (1) *in situ* remediation methods, or (2) by excavating, removing, and applying *ex situ* methods to remediate the grossly contaminated soil (either onsite or offsite). To minimize the overall transfer of contamination all together (onsite or offsite), DOH encourages the use of remedial methods onsite whenever practicable and appropriate.

The removal/remediation of gross contamination does not necessarily mean that the remaining, or residual, soil or ground water is "clean"; nor is it to be construed that no further action is required in response to a release from a UST. (These remaining contaminants would have been qualitatively indicated to be below gross contamination levels but may not be below DOH's recommended cleanup criteria, or at protective risk-based levels.) All contaminated soil (both excavated and left in-place) and ground water must nevertheless be properly managed, remediated, and disposed of in a manner which complies

with all applicable Federal, State, and County laws, and protective of human health and the environment (see Section 6 on Waste Management).

5.3.1.2 Removal of Free Product

If free product is discovered on the water table at any time during release response activities, owners and operators must immediately take actions to remove free product to the maximum extent practicable. In meeting this requirement, owners and operators must:

1. Conduct free product removal in a manner that minimizes the spread of contamination into previously uncontaminated zones;

2. Use abatement of free product migration as a minimum objective for the design of the free product removal system;

3. Handle any flammable products in a safe and competent manner to prevent fires and explosions; and

4. Include information on all actions taken to remove free product in a Release Response Report, and submit the report to DOH within 45 days of release confirmation. If free product removal is conducted beyond the 45-day period, also include a description of additional free product removal activities in the Long Term Release Response Report. (Note: the recommended format provided in Appendix 5-B can be used for both Release Response Reports).

5.3.2 Proper Waste Management

While undertaking release response actions, owners and operators and their consultants/contractors must properly transport, remediate, store, and dispose of all wastes that may be generated as a result of their actions. All actions taken in the first 45 days to manage, remediate and/or dispose of generated wastes must be adequately

detailed in the appropriate sections of the Short Term Release Response Report (see Appendix 5-B). (For more information on waste management, please see Section 6.)

5.3.3 Site Cleanup

Owners and operators are required by the Federal UST regulations to begin cleanup of their site in an expeditious manner. All remediation activities must be performed in a manner that is protective of human health and the environment. In cases where abatement actions are taken to remediate contaminated soil and ground water during the first 45-day period, a detailed description of such activities should be included using the appropriate sections of the Short Term Release Response Report (see Appendix 5-B).

5.3.4 Site Assessment: Determination of Residual Contamination

A site assessment is particularly more important for smaller releases which can theoretically be cleaned up in the first 45 days. Before performing a site assessment (also called a site check), the owner and operator should try to clean up as much of the contaminated soil and ground water as possible within the first 45 days. (If the contamination is extensive, additional cleanup activities beyond 45 days is almost certain, and thus a quantitative site assessment at this point is not necessary or applicable.)

In cases where the site assessment indicates that the contaminant levels in the soil and ground water meet DOH's recommended cleanup criteria (and that all contaminated soil, water, free product, or other wastes have been properly managed, remediated and disposed of), then no further cleanup action is required for this type of release episode. Otherwise, owners and operators must continue

APPENDICES

CITY COUNCIL

CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII

No. 92-97

CD-1

RESOLUTION

AUTHORIZING THE PRESIDING OFFICER OF THE COUNCIL OF THE CITY AND COUNTY OF HONOLULU TO OBTAIN THE SERVICES OF AN AUDITOR TO CONDUCT AN INDEPENDENT, COMPREHENSIVE PERFORMANCE AUDIT OF THE PLANNING, DESIGN AND CONSTRUCTION PROCESS FOR AND FISCAL MANAGEMENT OF THE HONOLULU POLICE DEPARTMENT HEADQUARTERS PROJECT.

WHEREAS, in 1990, the City began construction of the new Honolulu Police Department headquarters at Alapai Street ("HPD headquarters") on the site of the old MTL bus barn; and

WHEREAS, during the planning and design process for the HPD headquarters, an adequate environmental impact review of the project site pursuant to Chapter 343, Hawaii Revised Statutes, was not conducted, with the result that the extent of soil contamination therein has never been completely determined and costly construction delays have been and continue to be the direct and foreseeable consequences of such professional omission; and

WHEREAS, in the process of constructing the facility, soil on the construction site was discovered to be contaminated with gasoline, diesel oil and other petroleum-based substances; and

WHEREAS, the contaminated soil was supposedly trucked to ten different sites on the island; and

WHEREAS, the Council has already agreed to an administration request for an additional $6.2 million in funding for the HPD headquarters to pay for change orders and costs for cleaning up the contaminated soil; and

WHEREAS, the headquarters project may very well cost significantly more, since the contractor for the headquarters, Fletcher Pacific, is reportedly making additional claims due to delays in the project; and

WHEREAS, in addition to these costs, there are questions about the level of contamination of the soil at the project site and at the remote sites where the soil was reportedly trucked; and

WHEREAS, there is a need to determine the procedures followed and measures taken during the HPD headquarters project to detect and dispose of contaminated soil and to control change orders and costs resulting from such detection and disposal; now, therefore,

RESOLUTION

BE IT RESOLVED by the Council of the City and County of Honolulu that, pursuant to Section 3-114 of the Revised Charter of Honolulu 1973, the Presiding Officer of the Council be authorized to obtain the services of an auditor at a cost not to exceed $50,000, to conduct an independent, comprehensive, performance audit of the planning, design and construction process for and fiscal management of the Honolulu Police Department headquarters project, including a review of the project's compliance with Chapter 343, Hawaii Revised Statutes, and pertinent rules and regulations of the State Office of Environmental Quality Control; and

BE IT FINALLY RESOLVED that the Clerk be directed to transmit copies of this Resolution to the Mayor and the Director and Building Superintendent of the Building Department.

INTRODUCED BY:

Rene Mansho

DATE OF INTRODUCTION:

April 3, 1992
Honolulu, Hawaii

Councilmembers

(@OCS/040792/rr)

CITY COUNCIL

CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

I hereby certify that the foregoing RESOLUTION was adopted by the COUNCIL OF THE CITY AND COUNTY OF HONOLULU on the date and by the vote indicated to the right.

ATTEST:

RAYMOND K. PUA
CITY CLERK

ARNOLD MORGADO, JR.
CHAIR AND PRESIDING OFFICER

ADOPTED MEETING HELD APR 15 1992	AYE	NO	AYE
DeSOTO			
DOO			
FELIX			
GILL			
HOLMES			
KIM			
MANSHO			
MIRIKITANI			

Reference:

Report No. BF-255

Resolution No. 92-97

APPENDIX B

MAJOR PROJECT PARTICIPANTS AND THEIR ROLES

Abbreviation	Name	Role
BD	Building Department of the City and County of Honolulu	Owner of the project having overall management responsibility for the project
Budget	Budget Department of the City and County of Honolulu	Responsible for budgets and cost requisitions preparation
D&M	Dames & Moore Engineers	Second environmental consultant involved from July 1990 - September 1990.
DOH	State Department of Health	Approval agency for environmental clean-up efforts.
FPC	Fletcher Pacific Construction	General contractor for the police station building portion of the project
HD	Hawaiian Dredging	General contractor for the parking structure portion of the project
HNTB	Howard Needles Tammen & Bergendoff	Sub-consultant architect during conceptual design under SCAA.
HPD	Honolulu Police Department	Tenant for the project.

Abbreviation	Name	Role
KFC	KFC Group (JV) - A joint venture between Yuji Kasamoto and Field Services Hawaii	Provide Construction Management services during the construction phase of the project
MFA	Masa Fujioka & Associates	Third environmental consultant involved from October, 1990 to Present (Masa Fujioka was the Project Manager for Dames & Moore and started his own firm in October, 1990).
MTL	Mass Transit and Land	Lessee of the bus maintenance facilities on the site that were evacuated in April, 1990
Parsons	Parsons Hawaii	Sub-consultant to SCAA responsible for the Environmental Impact Statement (EIS)
R&G	Ruth & Going, Inc.	Sub-consultant to SCAA responsible for the Needs Assessment.
SCAA	Sam Chang Architect & Associates	Prime architects for this project.
Unitek	Unitek Environmental Consultants	Initial environmental consultant involved from October, 1989 - September, 1990

APPENDIX C

CHRONOLOGY OF SIGNIFICANT EVENTS

March, 1987 — Underground storage tanks ("USTs") excavated in area planned for the motor court.

May, 1987 — City Task Force formulates a Request for Proposal (RFP) for planning and design services.

June 2, 1987 — The original project schedule was established, and was contained in the RFP to architects:

Commence Planning	July 87
Complete Planning	Oct 87
Commence Design	Nov 87
Complete Design	Oct 88
Start Construction Ph. 1	Feb 89
Complete Construction Ph. 1	April 90

The original construction estimate was established, and was contained in the RFP:

Phase 1 (Police HQ and parking)	$27,400,000
(included $6,600,000 for 550 car parking garage)	
Phase II (Future)	$42,600,000
(included $8,400,00 for 500-700 car garage)	
Total estimated cost	$70,000,000

July 27, 1987 — Sam Chang Architect & Associates (SCAA) notified that they have been selected and begins planning process.

September 17, 1987 — SCAA signs an interim design contract for $2,500,000. Contract specified that SCAA had to carry a $1 million professional liability insurance policy (Errors and Omissions). It also required sub-consultants to carry the same amount of insurance.

September 25, 1987 — Parsons Hawaii is issued a contract for the development of the EIS.

January, 1988 — SCAA's contract is revised as follows:

Predesign	$ 236,982
EIS	70,018
Schematics	328,950
Design Development	438,600
Construction Documents	1,206,150
Bidding	109,650
Construction	109,650
Soils Investigation	49,500
Communication Consolidation Program	19,316
Expenses	106,000
Total	$2,901,495

January, 19, 1988 — Letter from Building Department indicates construction phasing and cost estimates:

1. Ph. 1A (Police HQ)	$42.9 mil.	1/89-6/90
2. Ph. 1B (Parking)	$11.1 mil.	11/89-6/90
3. Ph. II	$57.0 mil.	6/90-5/92

February, 1988 — Needs Assessment issued by Ruth & Going

August 12, 1988 — The Final Environmental Impact Statement prepared by Parsons Hawaii for the project is accepted.

November 1, 1988 — Advertisement for Phase 1A construction bids issued with the following information:

Anticipated Start	4/1/89
Anticipated Completion	9/26/90 (550 calendar days)
Estimated Cost	$46,400,000

December 2, 1988 — Construction Management (CM) Contract with KFC signed for $825,000, plus $75,000 reimbursables.

December 22, 1988 — Federal Underground Storage Tank ("UST") regulations become effective (40 CFR Parts 280, 281).

December 27, 1988

Fletcher Pacific Construction (FPC) is the low bidder from 4 received for the police building, at a bid of $43,930,000. Construction schedule is 700 calendar days showing a completion in Feb. 1991. The Building Department sets up a project reserve of $1,070,000 to handle unforeseen conditions.

February 24, 1989

A meeting was held to present the working procedures of the Building Department and KFC, with the following pertinent items:

1. Chain of command - Building Department
   a. Director - Muraoka
   b. Chief - Harada
   c. Construction - Watari
   d. Supervising Building Inspector - Mishima
   e. KFC - Construction Manager

   All questions from general contractor go to KFC, never to the City.

2. KFC receives shop drawings for approval by SCAA.

3. KFC will conduct weekly meetings. Purpose is to discuss procedures, progress, problems, QC, schedule, and communications.

March 1, 1989

Notice to proceed (start construction) issued to Fletcher Pacific

March 30, 1989

In a letter from Bruce Anderson, State DOH, to Mr. Whalen, Land Utilization, the following comments are noted:

1. The EIS does not address full impacts on air quality
2. Concern about noise from helicopters
3. UST's are subject to Federal requirements in Subtitle I of the Resource Conservation and Recovery Act. EPA rules published in Federal Register on 9/23/88 and went into effect 12/22/88. Corrective action is required for any release which may have occurred from the tanks or piping.

July to August, 1989

Coral excavated from Phase 1A-3 site and hauled to City's proposed corporation yard site at Sand Island.

August 1989

The foundation construction begins on Police Headquarters Building.

September, 1989	Coral excavated from Phase 1A-3 site and hauled to City's proposed corporation yard site at Sand Island and the Tower Construction Company site at Fort Shafter. Material may also have been used at other sites.
October 13, 1989	The EIS is officially approved by Mr. Whalen, Director of Land Utilization. The three page approval document states that it meets HRS 343 Rules.
October 20, 1989	Discovery of petroleum contamination during excavation of the last (furthest west) line of footings for the Police Headquarters building in Phase 1A-3. Unitek Environmental Consultants begins involvement via a telephone call.
November 16, 1989	FPC advised KFC that the new completion date is 5/31/91 due to MTL move out delay. Request that liquidated damages date be moved to 7/31/91.
November/December, 1989	Coral excavated from Phase 1A-3 and hauled to FPC jobsite in Kakaako.
December 18, 1989	Unitek prepares "Letter Report on Groundwater Contamination at the City and County of Honolulu Police Headquarters Site." Building Department transmits letter to State DOH on December 27, 1989.
February, 1990	Coral excavated from Phase 1A-4 and hauled to the city's proposed corporation yard site at Sand Island.
February, 1990	Melvin Lee assumes the position of Project Manager for the Building Department
February 12, 1990	SCAA issues revised drawings to accommodate the State's participation and to incorporate FBI requirements for the crime lab. Cost of change is estimated at $1 million.
March 9, 1990	SCAA signs an agreement with Unitek. Attachment 1 states that SCAA is acting on behalf of the City but the City agrees to indemnify SCAA for their actions.
April 4, 1990:	Unitek prepares "Environmental Assessment at New Police Headquarters, Alapai and Hotel Streets, Honolulu, Hawaii; Preliminary Site Investigation for Subsurface Contamination." Building Department transmits Unitek report to State DOH on

April 12

April/May, 1990 — Gas, diesel, and used oil USTs removed from Phase 1A-4 site.

May, 1990 — Construction begins on Phase 1B (parking structure) by Hawaiian Dredging Construction (HD).

May, 1990 — Coral excavated from Phase 1A-4 and hauled to the city's Corporation Yard site at Sand Island.

May, 1990 — Coral and sand mix excavated from Phase 1A-4 and hauled to the Pearl City yard of FPC.

May/June, 1990 — Coral excavated from Phase 1A-4 and hauled to the Kapaa landfill, then transported to the Kalaheo landfill biotreatment cells.

May/June, 1990 — Coral excavated from Phase 1A-3 and hauled to FPC's construction jobsite in Kakaako.

June 14, 1990 — KPMG audits FPC's contract and reports:

Original contract	$43,930,000
Approved change orders	9,262
	$43,939,262
Payment status (thru No. 15)	18,441,293
Less retainage	922,066

A letter from FPC to Muraoka states that job will be completed on time and no LD's will occur.

June 19, 1990 — A letter from FPC to Muraoka regarding contaminated soil cleanup thanks the City for their 6/6/90 letter authorizing FPC to proceed with clean-up work which was not in their contract. They will take instructions from Unitek through KFC. They also remarked that they had suggested earlier to hold a brainstorm session for alternative design or construction methods but had no response.

June 27, 1990 — Progress Meeting - Unitek stated that on-site bioremediation is now estimated at only 2 months. FPC complained about the time it takes to process change orders and recommended

	"provisional payments" on pending changes. KFC said they will look into it.
June 27, 1990	A letter from KFC to FPC regarding change orders states that no provisional payments on change orders will be made, it just takes a long time to process changes on government contracts. KFC further states that force accounts are OK but FPC must make sure that records are good and their change orders won't be disputed.
June, 1990	Notice to Proceed issued to HD for the Parking Structure. Construction schedule was planned for 12 months.
June/July 1990	Coral excavated from Phase 1A-4 and hauled to the city's proposed corporation yard site at Sand Island.
July, 1990	Coral excavated from Phase 1A-3 and hauled to FPC's construction jobsite in Kakaako.
July 6, 1990	A letter from DOH to Building Department regarding contaminated soil states that DOH Hawaii is designated as the implementing agency for rules on UST's.
July 25, 1990	A meeting with Unitek, SCAA, KFC, and BD to discuss underground contamination cleanup. The agenda shows the City having final approval (DOH was not present.)
July 26, 1990	A letter from Building Department to SCAA states that the City Council must be approached for additional funds. They will need to support Unitek's involvement since no other firms were considered.
July 27, 1990	A letter from Unitek to SCAA indicates that FPC can work in airborne benzene area by wearing respirators and taking training classes.
August 5, 1990	A change in Unitek's plan - they will now remove all contaminated material above groundwater level.
August 15, 1990	A letter from FPC to KFC attaches a Special Agreement concerning working in contaminated conditions and requests a change order.

August 20, 1990	A letter from FPC to KFC concerning past contract revisions threatens to stop work unless the City acknowledges changes and the fact that there will be added cost and time.
August 24, 1990	An "Environmental Assessment at New Police Headquarters . . .: Preliminary Site Investigation for Underground Storage Tank System Closure" issued by Unitek.
August 31, 1990	Unitek prepares a "Master Plan for Environmental Activities to be Performed at the New Police Headquarters Project Site and Vicinity."
September 24, 1990	A "Sampling and Analysis Plan for the New Police Headquarters Project" prepared by Unitek.
October 25, 1990	Brewer Environmental Services prepares "Report on Results of Soil Sampling and Laboratory Analysis for PCBs" for the police headquarters site.
December, 1990; January-March, 1991	Coral excavated from Phase 1A-4 and hauled to Kapaa and then to Kalaheo landfill biotreatment cells.
April, 1991	Coral excavated from Phase 1A-4 and hauled to Kapaa landfill and then to Kalaheo landfill biotreatment cells.
April, 1991	The State Department of Health issued draft guidelines for USTs.
April 24, 1991	Building Department submits to the State DOH a "Plan of Action for Site Characterization" prepared by Masa Fujioka & Associates ("MFA").
May, 1991	Coral excavated from Phase 1A-4 and hauled to Kapaa and then to Kalaheo landfill biotreatment cells.
May, 1991	Construction begins on Phase 1A-4 (motor court).
May 30, 1991	Building Department submits to State DOH: (1) an "off-Site Management Plan for Petroleum Contaminated Soils Excavated from the New Honolulu Police Headquarters Site;" and (2) a "Free Product Removal Report, Honolulu Police Headquarters."

July 5, 1991	MFA submits a "Sampling and Analysis Plan" for the coral excavated from the Phase 1A-3 and 1A-4 sites and stockpiled at Sand Island.
August 12, 1991	MFA submits reports on: (1) its laboratory test findings for coral excavated from Phase 1B of the Police Headquarters site (parking structure) and stockpiled at the Sand Island Waste Water Treatment Plant; and (2) results of laboratory tests of groundwater from Phase 1B.
August 19, 1991	Building Department notifies the State DOH of the planned pumping of groundwater from Phase 1B into the city's storm drain system.
September 25, 1991	MFA submits a report on the results of laboratory test findings for coral excavated from Phase 1A-3 of the Police Headquarters site (headquarters building) and used as fill at a Fort Shafter construction site.
October, 1991	The Building Department submits a MFA report to the State DOH on the results of laboratory test findings for black sand samples from the Police Headquarters site and stockpiled at the Ala Wai Golf Course.
October 10, 1991	State DOH okays the discharge of groundwater from Phase 1B into city's storm drain system, subject to monitoring of discharge.
October 27, 1991	MFA submits a report dated October 27, 1991, on the results of its testing and sampling of coralline material excavated from Phase 1A and transported to Sand Island.
October/December, 1991	Building Department submits weekly reports on test results for samples of groundwater discharge into city's storm drain system.
December 10, 1991	Building Department submits an interim site characterization report (prepared by MFA) to the State DOH.
December 13, 1991	MFA submits an outline of a planned clean-up of the project site.
March 10, 1992	Executive Capital Budget Appropriation Ordinance Amendment No. 2 enacted (Ordinance 92-18), which appropriates $6,235,000 to the project. The appropriation provides "additional

	construction funds for change proposals, and impact costs due to contamination remedial work."
September 3, 1992	MFA issues "Site Characterization Report - The New Honolulu Police Headquarters" concluding that the remediation efforts were successful and that no further remediation actions are necessary at this time.
September 6, 1992	HPD officially moves in to their new building.

APPENDIX D
INTERVIEW LIST

NAME	POSITION	DATE INTERVIEWED
Herb Muraoka	Director, Building Department, City and County of Honolulu	1/22/93
Jim Harada	Chief, Public Building Planning and Construction, Building Department - City and County of Honolulu	1/22/93
Melvin Lee	Project Manager, Building Department, City and County of Honolulu	1/22/93
Jeremy Harris	Managing Director, City and County of Honolulu	1/29/93
Paul Leong	Chief Budget Officer, City and County of Honolulu	1/25/93
Ben Dimond	Ass't Chief Fiscal and CIP Analyst, City and County of Honolulu	1/25/93
Masa Fujioka	Principal - MFA	12/30/92
David Daugherty	Project Manager - MFA	1/19/93
Eric Sadoyama	Environmental Health Specialist, Underground Storage Tank Section - DOH	1/19/93
Arlene Kabei	Manager, Solid & Hazardous Waste Branch - DOH	1/19/93
Sheila Mackenzie	Environmental Health Secialist - Underground Storage Tank Section - DOH	8/11/93
Eric Chase	Office Manager, Engineering Science Inc. (Division of Parsons Hawaii)	1/20/93
Louis Lopez	General Manager - Parsons Hawaii	1/20/93
Howard Kurio	Construction Manager - KFC	1/21/93

NAME	POSITION	DATE INTERVIEWED
Jim Dittmar	Principal - KFC	1/21/93
Yuji Kasamoto	Principal - KFC	1/21/93
Ken Beal	V.P. - Unitek	1/21/93
Tony Wilkins	V.P. - SCAA	1/21/93
Brent Camp	Project Manager - SCAA	1/21/93
Jim Ramirez	Senior V.P. and General Manager, Building - FPC	1/25/93
Pepe J D'Bayan	Senior V.P. Finance/CFO - FPC	1/25/93
Marc Scheulin	Project Engineer - FPC	1/25/93
Medwin Emoto	Project Superintendent - HD	1/26/93
Chester Hughes	Assistant Chief - HPD	1/26/93

APPENDIX E

City and County of Honolulu
Building Department Response
to
Preliminary Report

BUILDING DEPARTMENT
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

HERBERT K. MURAOKA
DIRECTOR AND BUILDING SUPERINTENDENT

WILLIAM F. REMULAR
DEPUTY

PB 93-689

July 13, 1993

Mr. David T.E. Lum, Director
Office of Council Services
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mr. Lum:

The Preliminary Report of the performance audit of the Honolulu Police Department Headquarters Project has been reviewed and this letter, as well as our answers to the report's findings, attached, constitute our response.

We had hoped that this report would be an accurate and thorough review of this complex construction project and that it would include detailed analysis and recommendations on improving performance on future projects.

Unfortunately, our expectations were not realized. We found that the Preliminary Report presented a cursory review of this major project and contained factual errors and misinterpretations.

We found that the report disregards the fact that there was complete and thorough continuity of management of the project by the Building Department under the capable direction of the Chief of the Public Buildings, Planning and Construction Division, Mr. James Harada.

We found that the report overlooks the active role of the Building Department in resolving the contamination problem in a time of transition regarding the applicable rules and regulations.

We found that the report omits a comparison of the total project cost to the total funds appropriated. Therefore, we have provided the information in Attachment A. The report interprets the project as over budget. A comparison of the project's cost to the funds appropriated shows the opposite. There appears to be a misunderstanding that any money spent over and above the construction estimate is a cost over-run where, in fact, the construction estimate never included and was never meant to include all of the other costs necessary to accomplish the project. These costs include land acquisition, planning and engineering, inspection, furnishings, etc.

We also found that the report includes some findings with which we disagree, but there are some recommendations which we will try to incorporate in future projects.

Our point-by-point response to the findings of the audit report follows.

Very truly yours,

HERBERT K. MURAOKA
Director and Building Superintendent

Attach.

APPROVED:

JEREMY HARRIS
Managing Director

City and County of Honolulu
Building Department
Response to:
PERFORMANCE AUDIT
of the
HONOLULU POLICE DEPARTMENT
PRELIMINARY REPORT

Audit Findings:

1. **Project management fragmented and led to inadequate direction and control.** No single entity exercised adequate control; confusion about roles and responsibilities, delegation of authority.

Response:

The conclusion that no single entity (the Building Department), controlled the project, and that there was confusion about roles and responsibilities is not supported by the facts.

James Harada, who was the Chief of the Public Buildings, Planning and Construction Division, was the overall project manager and provided continuity of management throughout the life of the project. Mr. Harada was involved with the project from the outset; in consultant selection, space needs assessment, master planning, environmental assessment, preparation of design documents, bidding, contractor selection and construction. Melvin Lee was named project manager and assumed that role on February 20, 1990. He was project manager for the remaining 2-1/2 years of the 3-1/2 year project period.

The role of the Building Department as the authority over the project was clearly established by: a) documentation of the chain of command as presented in the pre-construction conference and by, b) the Building Department's specific assignment of a project coordinator during the planning and design phases (Takashi Higa), a project manager during the construction phase (James Watari & Melvin Lee), and provision of continuity of management throughout (James Harada).

There was a clear chain of command as provided by the Building Department at the pre-construction conference on February 24, 1989 and reflected in the audit's own chronology (page c-3). This was presented by the construction management firm (KFC) to the prime contractors, consultants, utilities and City agencies involved on the project. The authority of KFC as the Building Department's authorized representative was explicitly stated. The stated purpose of the pre-construction conference was "to present the working procedures of the Building Department and the construction manager and pertinent items related to the construction of the project to the contractor and his subcontractors so as to avoid any future misunderstandings."

It is true that the construction management consultant (KFC Group) was not selected until after the bid opening date of December 20, 1988. However, KFC Group was under contract as of December 30, 1988 and during the two -month period preceding the pre-construction conference, thoroughly familiarized themselves with the project scope of work as well as the City's procedure for processing construction documents and their contractual responsibilities. Both the construction contract (Fletcher Pacific's) and KFC's contract were executed on December 30, 1988 and at no time was there any gap during the mobilization period of the project where management was lacking.

The architect, Sam Chang Architect & Associates (SCA) provided basic services during the design, bidding, contractor selection and construction periods. These basic services were no different than those called out in the AIA documents.

The only confusion about roles and responsibilities that may have arisen on the project would have been attributed to the lack of existing State rules and regulations regarding the handling of petroleum contamination. We do not believe this matter can be faulted to anyone since the underground storage tank leakage contamination problem was just being realized in Hawaii at the time.

For the audit report to conclude that lack of guidance by the Building Department or earlier input and, therefore, more significant control over the project by the construction management firm would have resulted in more appropriate action when the soils contamination was uncovered, ignores the primary cause that guidance was lacking from the State, which was the entity with authority over the matter. No amount of early input by the construction management firm or guidance by the Building Department would have changed this fact. This example does not show inadequate project management on the part of the Building Department, nor does it substantiate the premise that project management was fragmented.

2. **Scope of work for construction management firm (KFC) not adequately defined.** Building Department was relying solely on the contract to define KFC's requirements. Lack of definition allowed too many assumptions and necessary tasks to be postponed or ignored. KFC did not provide adequate service, but the Building Department didn't define and clarify the requirements.

Response:

The Building Department examined construction management contracts for State and federal projects as well as AIA Document B801 in drafting the contract for KFC Group. The draft of the contract was thoroughly reviewed by KFC Group and discussed with the Building Department prior to KFC Group's submittal of a fee proposal. City requirements and procedures were discussed with KFC Group during the fee negotiation and contract processing period of August 31, 1988 through December 30, 1988.

The contract for KFC Group clearly defined their scope of services. A review of the 13-page Special Provisions of the services contract reveals that it covers in detail: construction support services and coordination, review and interpretation of plans and specifications, construction scheduling, concurrent operations, cost control, quality control, materials and equipment receiving, construction changes and

claims, records, inspection reports, labor provisions, final completion, testing and inspection, limitations of authority, overtime, services to be performed by the City, work performance, etc. This is more than an outline.

We disagree that KFC Group did not provide administrative, management and related services as required to coordinate the work adequately. The auditor cites the contamination issue as an example in which KFC did not coordinate the project's response with respect to remediation activities. KFC, as well as the City, properly relied upon the expertise of the environmental consultants. As the designated, authorized representative of the Officer-in-Charge (Building Department), KFC took the necessary action on environmental clean-up according to professional advice and in consultation with the Building Department. As an example, KFC did halt the Phase 1-B progress when notified by the environmental consultant of the presence of PCB in the concrete.

In accordance with the contract terms, KFC did submit weekly reports, minutes of weekly meetings with the prime contractors, subcontractors, consultants and City personnel, progress photos, and laboratory test reports. Project cost forecasts and status of change proposals and shop drawings were submitted regularly to the City. KFC also monitored the critical path of the approved progress schedule and had the contractor update the schedule whenever required, such as when events extended the completion date.

3. **Management of Change Orders on the project was not adequate.** CO procedure is focused on Building Department internal process and no requirements imposed on contractor, especially for timely submittal of COs. This contributed to delays and cost increases.

Response:

It is true that the Building Department's document titled "Processing of Formal Construction Change Orders" is focused on internal processing

of change orders within the department. It also describes the process involved prior to the execution of any change order.

The requirements imposed upon the contractor for change order procedures are contained in the Revised General Provisions of the Construction Contract, Section 5.2 Modifications, and 6.11 Decisions of the Officer-in-Charge, and Section 7.3 Force Account.

Contractors have traditionally been slow in submitting quotations for proposed change orders. Even when deadlines were included in correspondence to the contractors, quotations were not received on time. If they were on time, they might be incomplete, with an explanation that the balance of quotations would be submitted when all cost data became available. In instances when the proposed changes were absolutely necessary for the successful accomplishment of the project, the contractors were directed to proceed with the change order work on a force account basis until such time as an equitable price could be mutually agreed upon. This is in accordance with the Revised General Provisions of Construction Contract and is to avoid or mitigate adverse impacts to the contractor's operations.

The construction contract did not include unit rates for any work activities because this was a lump sum bid type of contract. The inclusion of unit rates would not be beneficial in most cases as the unit rate would generally be high and still would not affect the outcome of the bidding and the selection of the successful bidder. As quantities of work activities generally become greater upon issuance of change orders, bidders would tend to inflate unit costs in their proposals and thereby obtain higher change order prices.

The Building Department will prepare a change order processing procedure for future construction management consultants. Also, in all future construction contracts, a time limit for the submittal of quotations, cost breakdowns and potential impacts will be included and required for proposed change orders.

4. **Project cost was not re-estimated nor project schedule revised once the magnitude of the contamination was discovered.** Reforecasting would have helped develop specific plans for resolving the contamination problems at the site.

Response:

Contrary to what is stated in the audit report, the Building Department did re-estimate the project cost as a result of the contamination on the site. The clean up of the site was being conducted while construction was in progress and the extent of the contamination was known only when excavation was finally completed. The re-estimation was done when extent of the contamination and the clean-up plan had been determined. The Building Department submitted supplemental funding requests based on the project re-estimation. Also, the project schedule was revised at that time. KFC received a revised project schedule from the contractor.

Any guidelines that the City establishes for reforecasting a project should remain flexible as project circumstances may impose different requirements.

5. **Liability for cost over runs or for environmental issues could not be clearly assigned to any of the contractors or consultants.** KFC should have been more actively advising and directing remediation activities, but this was not the expectation of the building Department. Contractors could not act on clean up tasks without receiving direction from the city. The confusion and delay that occurred after the contamination was discovered resulted from inadequate procedures and passive management on the part of the Building Department.

Response:

As previously stated, there was an absence of guidance from the State Department of Health which did not yet have any rules, regulations or guidelines for the problem. However, this did not prevent the Building Department from taking decisive action in the unique situation, based upon

the advice of the environmental consultant. Any confusion and delay that may have occurred should be attributed to the lack of guiding rules and regulations, not the result of inadequate procedures and passive management on the part of the Building Department.

KFC was prohibited by contract from "advising on, or issue directions relative to any aspect of construction means, methods, techniques, sequences, or procedures that were not specified in the contract documents" unless specific written instructions are issued by the City. This is to avoid filing of interference impact claims by contractors and this limitation of authority provision is modeled after the AIA B-801 document.

6. **Building Department does not have any procedures for reviewing and approving subconsultants retained by other consultants on projects.** The building Department must ensure that subconsultants have been properly retained and have the ability to do the job. Unitek was retained by SCA for nine months without review or comparison against other consultants while the problem grew well beyond the original scope for which they were hired.

Response:

The Building Department has a written procedure for the selection of a prime consultant which could be applied to the selection of a subconsultant. However, It has been the policy of the Building Department to allow a prime consultant to select its subconsultants to avoid disrupting the rapport, trust and teamwork that a consulting team has developed working harmoniously and successfully on past projects. The subconsultants, including emergency subconsultants should be retained for the duration of a project to ensure familiarity and continuity of work. The Building Department should make a request for a change only if and when a subconsultant fails to do its job professionally, competently and satisfactorily.

In the case of the selection of Unitek as an environmental consultant to SCA, the verbal concurrence of the Building Department was sought and obtained by SCA. Unitek was recognized as a foremost environmental consultant and contractor for environmental clean up projects locally.

Unitek was retained SCA in October, 1989, but the extent of the contamination problem did not surface until mid-June of 1990. The high cost of Unitek's recommended approach to the clean-up prompted the Building Department to instruct SCA to get a second opinion from another environmental consultant in early August,1990.

7. **There was concern and confusion during the construction phase of the project caused by questions about the project budget, construction budget, contract price and cost over runs.** The Capital Program Budget is not suitable for construction project control. Different entities and individuals were looking at different budget and cost numbers and drawing conclusions that were in many cases inaccurate.

Response:

The City's Capital Budget Program was never intended to be a cost accounting document. Cost accounting is done at the department level with the assistance of their respective fiscal services section. For the Police Headquarters project, cost data sheets were prepared by the Building Department and the Central Fiscal Section kept a running total of expenditures for each fiscal year's appropriation. This data was available and could have been provided to the City Council on request.

A project description is included for the funding being requested so there is no confusion regarding the budgeted amounts. When funding line items are too specific for any project, the requested amounts are on the high side to avoid having to go through phase transfers via supplementary appropriation process. This would not only be time consuming but disruptive to construction progress.

8. **Project accounting and cost control was not adequate.** A cost report should have been prepared as part of monthly progress report by either the project manager or the construction manager. Reporting costs incurred against budget and cost forecasting for the balance of the project were not adequately done on this project. Cost reports as a supplement to the city annual budgets would have given the City Council greater insight into the status of the project.

Response:

It is erroneous for the auditors to imply that project managers were not aware of project costs at any given time during construction. The project manager and the department were aware at all times of the progress of the project, the cost and the project's budget. Funding for all phases of the project was done with the knowledge and approval of the City Council since work could not proceed without funding.

City agencies do prepare status reports for all projects that are in progress. While they may not be in a form recommended by the auditor, they clearly are an indication that departments are monitoring their projects. These reports will be made available to the City Council in the future.

9. **No performance audits were conducted during the project even when it became apparent that major unforseen events had occurred and that the project was going to be late and over budget.** Interim audit would have allowed corrective action to be taken to minimize the impacts of change on the project.

City's Response:

Interim audits can be beneficial in possibly streamlining operations, but we do not believe that the total project cost or the project completion date could have been improved upon by an interim audit of the Honolulu Police Headquarters project. The circumstances and activities which resulted in increased project costs and extended completion date would

still have occurred and would not have been prevented by an interim audit. These factors included the major operational design changes of the crime lab, security control additional work and the added light vehicle maintenance facility and the contamination clean up.

10. **EIS prepared at the beginning of the project adequately addressed environmental issues in accordance with regulations in effect at the time it was prepared.** The requirements of HRS 343 and Chapter 200 were satisfied by the EIS.

Response:

The audit reports correctly, that the City was in compliance with environmental requirements on the project.

11. **A significant change in environmental regulations took place during the course of the project.** RCRA amendments regulating USTs took effect after the EIS was finalized.

Response:

The fact that the DOH was not yet in a position to give adequate guidance is recognized by the audit report. The City should be credited for taking action in accordance with EPA regulations regardless of the fact that there were no State rules, regulations or guidelines in effect.

12. **The project did not have any individual or entity that was clearly responsible for managing the environmental contamination once it was found.** Each participant could avoid action if they wished. No one was willing or able to formulate an overall plan or to take decisive action.

Response:

The audit recycles its worn contention that there was no individual or entity clearly responsible for management. This was no more true for the environmental management than it was for project and construction management.

The Building Department was in control of the environmental management. It arranged meetings with the State Department of Health, determined the necessity for a second opinion, approved the consultant's plan for clean up activities, obtained emergency bids for the clean up work, found the site for the bioremediation work and had KFC direct clean-up activities by other contractors following the second environmental consultant's recommendations.

The statement that no one was willing or able to formulate an overall plan or take decisive action is flatly untrue. The auditors cannot draw this conclusion when the environmental consultant arrived on the site the very same day that contamination was first discovered.

ADDITIONAL FINDINGS:

• **There were two different kinds of contaminated soil removed from the site:** known contaminated, identified, handled and disposed properly, and second kind of "contaminated" soil removed and disposed of before it was known to be contaminated.

Response

There is more evidence to indicate that most of this soil is unlikely to be contaminated because of the location and dates of it's excavation from the site. Although the soil at Sand Island was tested and found to contain petroleum hydrocarbon, it was no longer considered to be contaminated under new criteria established by DOH which deleted TRPH and TPH-diesel from its list of Potential Chemicals of Concern.

The report incorporates erroneous references to the supposed location of soil hauled from the project as shown in the Chronology of Significant Events, Appendix C. We investigated as thoroughly as possible through the contractor, the distribution of all of the soil from the site and provided the information to the City Council during its inquiry regarding the site contamination. The audit report contains the wrong information regarding the supposed location of soils. Please see the "HPH Disposition of Soil" chart.

CHRONOLOGY OF SIGNIFICANT EVENTS

Corrections are necessary as noted in "Comments to Appendix C, Chronology of Significant Events", attached.

PROJECT RECAP
(Updated July 9, 1993)

ATTACHMENT A

			AMOUNTS (in million $) Construction Estimates from Design Drawings	Actual Construction Cost
I	Police building (as outlined in the detailed Design drawing Phase IA)		46.40	43.93
II	Parking Structure (as outlined in detailed Design drawing Phase IB)		15.90	14.56
III	Other items not included in detail design drawings			
	Land acquisition			6.93
	Planning and engineering			4.01
	Inspection			1.57
	Furnishings			2.72
	Light Vehicle Maintenance			1.20
	Communication cabling			2.37
	Crime Lab Enhancement			0.94
	Enhanced Security System			0.72
	Miscellaneous Changes + Utilities			6.29
	Contamination:			
	P & E	2.01		
	Construction	7.37		
	Inspection	0.43		9.81
	TOTAL PROJECT COST			95.05

Recap of Appropriations versus Expenditures by Catagories

CATEGORY		APPROPRIATION	EXPENDITURE
LAND		$3,800,000.00	$6,929,757.00
P & E		5,490,000.00	6,017,020.49
CONST	*	79,745,000.00	77,388,466.63
INSP		2,029,000.00	1,995,000.00
FURN		3,555,000.00	2,718,993.58
ART		480,000.00	0.00
TOTAL		$95,099,000.00	$95,049,237.70

(*) Includes $2.0 mill. transferred from Project Adjustment Account.

Soil is Covered

HPH DISPOSITION OF SOIL

	CORAL (1) TESTED TO HAVE HYDROCARBONS OVER STATE GUIDELINES	CORAL (1)	BLACKSAND	LOCATION
PHASE IA-3	8480			SAND ISLAND CORP YD
		380		FT SHAFTER
		7420		(2)
		1980		KAKAAKO JOBSITE
		100		KAPAA LANDFILL
			18000	FLETCHER PACIFIC KAKAAKO SITE
PHASE IA-4		3304		(3)
		220		FLETCHER PACIFIC YD
	12495			SAND ISLAND CORP YARD
	9856			KALAHEO BIOREMEDIATION SITE
			8700	FLETCHER PACIFIC KAKAAKO SITE
PHASE IB		12000		SAND ISLAND WWM SITE
	14526			KALAHEO BIOREMEDIATION SITE
			18000	ALA WAI GOLF COURSE
			3000	TROPICAL LANDSCAPE
TOTAL	45357	25404	47700	

(1) LOOSE VOLUME ESTIMATED BY TRUCK LOADS. IN-PLACE VOLUME 60 TO 70% OF LOOSE VOLUME.
(2) ORIGINALLY NOTIFIED BY CONTRACTOR TO HAVE BEEN TAKEN TO NANAKULI LANDFILL. LANDFILL OPERATOR HAS DENIED ANY MATERIAL TAKEN THERE. CONTRACTOR IS VERIFYING.
(3) ORIGINALLY NOTIFIED BY CONTRACTOR TO HAVE BEEN TAKEN TO KAHUA NURSERY LANDFILL. OWNER HAS STATED HE WAS NOT IN BUSINESS AT THAT TIME. CONTRACTOR IS VERIFYING.

II. COMMENTS TO APPENDIX C, CHRONOLOGY OF SIGNIFICANT EVENTS

1.	November 1, 1988	Anticipated completion date should be 9/26/90 not 9/26/89
2.	December 2, 1988	CM contract with KFC was dated December 30, 1988, and the amount was $825,000 plus $75,000 reimbursables.
3.	February 24, 1989	Shop drawings were submitted to KFC but approved by SCAA.
4.	Various dates	Any statement that excavated coral was hauled to Kahua Nursery, Nanakuli Landfill, Makakilo and Oahu Sugar Plantation is unconfirmed.
5.	June, 1989	No coral was excavated from Phase 1A-4 in June 1989. The site was still occupied by MTL.
6.	September, 1989	Tower Construction is the name of the construction company.

III. COMMENTS TO APPENDIX D, INTERVIEW LIST

1. Howard Kurio of KFC was the Construction Manager, not the Project Manager.

2. The Project Superintendent for Hawaiian Dredging was Medwin Emoto.