



# **CONSTRUCTION CONTRACTS:**

Facilities Services needs to improve coordination  
with bureaus to reduce costs and delays

A REPORT FROM THE CITY AUDITOR  
January 2008



Office of the City Auditor  
Portland, Oregon





CITY OF  
**PORTLAND, OREGON**

OFFICE OF THE CITY AUDITOR  
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January 9, 2008

TO: Mayor Tom Potter  
Commissioner Sam Adams  
Commissioner Randy Leonard  
Commissioner Dan Saltzman  
Commissioner Erik Sten  
Ken Rust, Chief Administrative Officer

SUBJECT: *Audit - Construction Contracts: Facilities Services needs to improve coordination with the bureaus to reduce costs and delays (Report #348A)*

Attached is Report #348A containing the results of our audit of construction-related contracts managed by the Facilities Services Division. The Mayor and managers within the Office of Management and Finance have reviewed drafts of this report, and we have included their written responses at the back of this report.

As a follow-up to our audit, we ask that the Chief Administrative Officer prepare a status report in one year detailing steps taken to address our report's recommendations. The status report should be submitted to the Audit Services Division and be coordinated through the Mayor's Office.

We appreciate the cooperation and assistance we received from Facilities Services personnel as we conducted this audit.

  
GARY BLACKMER  
City Auditor

Audit Team: Drummond Kahn  
Doug Norman  
Beth Woodward

Attachment



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## CONSTRUCTION CONTRACTS:

Facilities Services needs to improve coordination with bureaus to reduce costs and delays

**Summary** To help ensure that construction projects are completed on time and within budget, it is important that projects are carefully planned and that expected results and costs are clearly established in written contracts. In our review of four projects managed by the City's Facilities Services Division, which oversees projects involving remodeling or construction of City buildings, we found a lack of pre-project planning that resulted in inadequately defined scopes of work and prolonged project designs. Some project decisions were made after the projects were designed and construction contracts were awarded. As a result, both design and construction contracts had to be changed, and the cost and time required to complete the projects grew significantly from original estimates.

On two projects, design contractors spent more time designing the projects **after** the construction bids were awarded than they did **before** the bidding process. On one project, which involved the remodeling of three fire stations, the design contract cost nearly twice the original amount. Also, design omissions and errors contributed to the 171 changes in the construction contract, and construction costs exceeded the original bid amount by 30 percent.

In addition, Facilities Services sometimes paid contractors for additional work at rates higher than allowed by contract. Moreover, Facilities Services allowed excess time to complete work, and the reasons for the contract changes in both design and construction contracts were not adequately documented by Facilities Services staff.

While some changes during construction are necessary and worthwhile, such as those needed to address unforeseen conditions, design changes are ideally made during the design phase. We were told by Facilities Services staff, however, that many changes occur during construction because client bureaus have difficulty knowing what they want or need before construction is underway. Client bureau staff we interviewed acknowledged that they added changes during construction, but they also stated that more project planning and scoping could have reduced the need for changes.

The practice of routinely making design decisions during construction is not cost effective for the City and may be unfair to contractors competing for City business. The extra work is not subject to competitive bidding, and it is possible that bidders familiar with the practice could have a competitive advantage over those who are not. Knowledgeable bidders could intentionally bid low, anticipating that subsequent contract changes would be granted with little negotiation. We will consider this as a potential audit topic in the future.

We believe that through better coordination with client bureaus and contractors, Facilities Services could improve pre-project planning, exercise more control over design and construction activities, and thereby complete construction projects in a more timely and cost effective manner. To accomplish this, we recommend that the Mayor direct Facilities Services to:

- Perform more pre-project planning with client bureaus to better define project scope of work and design contract deliverables
- Complete project design and obtain formal sign-off by client bureaus before advertising for construction bids
- Improve the clarity of contract provisions and strictly enforce those provisions, including the terms for paying contractors
- Improve the administration and documentation of contract changes on both design and construction contracts; include a formal sign-off by the client bureau for each change

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**Background**

Facilities Services has a FY 2007-08 capital improvement budget of \$21 million and plans and manages capital improvements needed to maintain about 3.5 million square feet of City-owned buildings. Most of the projects involve architectural and interior design and are requested and funded by other City bureaus. Facilities Services project managers represent the City as the “owner/agent” for each project assigned to them, from the conceptual stage to project completion. They coordinate with “client” bureaus to define the scope of work on each project, make discretionary design decisions, and address issues that arise during project design and construction.

Design and construction of most projects are performed by private firms hired by Facilities Services. Architectural and engineering services are typically obtained through Professional, Technical, and Expert Services (PTE) contracts for project drawings and specifications that are then incorporated into bid documents for construction. Construction companies are then hired to build the projects that have been designed under PTE contracts. PTE design contracts often continue during construction to provide construction oversight services on behalf of the City. Some changes during construction are appropriate, such as when unforeseen conditions need to be addressed.

Project managers in Facilities Services told us they work under many constraints, including time-consuming city contracting requirements, pressure to deliver projects quickly, and limited cost accounting information. They emphasized that Facilities Services is a service agency and that it has no standing to tell bureaus what to do or how much money they can spend. They also said permit inspections near the end of construction sometimes result in changes, even though permit authorities had a chance to review plans prior to construction.

Each project manager oversees several projects at the same time, with little technical or clerical assistance. They generally rely on design consultants for scope development and record-keeping during both design and construction. Facilities Services places a high priority on maintaining positive relationships among members of each project team, including client bureau representatives, design consultants, and construction contractors.

Finally, Facilities staff told us that “vertical” (building) projects are much different than “horizontal” projects such as roads and sewer and water lines. They said horizontal projects are dominated by a narrower range of mostly civil engineering expertise, whereas vertical projects are dominated by an architectural methodology that also involves a broad range of engineering, environmental, and other specialists.

**Objectives, Scope, and Methodology**

Our objective in conducting this audit was to determine if contracts managed by Facilities Services were executed successfully in several areas, including project cost and timeliness, payment of invoices, and administrative requirements such as insurance and bonding. To achieve this objective, we obtained lists of contracts managed by Facilities Services and selected, on a judgmental basis, four contracts to audit. In selecting contracts, we included both open and closed contracts, and some variation in the size of projects (i.e., contract dollar amount), project managers, and the number of formal contract changes.

We reviewed Facilities Services’ policies and procedures for managing design and construction contracts, and interviewed project managers, the Contracts Administrator, and other staff. We reviewed project documents, including requests for proposals (RFPs), signed contracts, contract addenda and amendments, meeting notes, invoice and payment documents, and construction records. Because PTE and construction contracts are intertwined, we performed a limited review of the corresponding construction contract for each PTE contract we audited. Similarly, we performed a limited review of the corresponding PTE contract that pertained to each construction contract we audited.

We based our findings and recommendations not only on our review of a limited sample of contracts, but also on our interviews with project managers and other Facilities Services staff in which they explained their routine practices and overall approach to project management. In addition, we interviewed staff from the client bureaus – Fire, Police, and Environmental Services – who had involvement in the projects we audited. We utilized their input in formulating recommendations.



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We reviewed relevant legal and regulatory requirements, including City Code 5.68 on PTE contracts, Bureau of Purchases' PTE and construction contracting manuals, City Code 5.34 on public improvements and construction services, and Oregon Revised Statutes Chapter 279 on public contracting. We also reviewed best practices reported by the U.S. Government Accountability Office, the Project Management Institute, Associated General Contractors of America, and Carnegie Mellon University's Project Management for Construction.

We were told in many of our interviews during this audit that the City's Sheltered Market Program – which promotes participation of minority- and women-owned businesses and emerging small businesses in City contracting – creates significant problems in City construction contracts and may not be functioning as intended. We did not review the Sheltered Market Program during this audit, but will give it consideration in our future audit planning.

This audit was included in the City Auditor's FY 2006-07 audit schedule. We conducted our work in accordance with generally accepted government auditing standards.

## **Audit Results**

We audited two PTE contracts and reviewed their corresponding construction contracts, and audited two construction contracts and reviewed their corresponding PTE contracts (see Figure 1). We found that all four construction projects experienced delays and increased costs because of inadequate planning, incomplete designs, and failure to adhere to contract provisions when compensating contractors for additional work. Specifically, we found that:

- Scopes of work in the design contracts failed to describe specific project purposes and contract deliverables, which in turn led to costly contract changes and delays in the completion of project design
- Construction documents were incomplete when they were advertised for bid. Many design changes were needed after construction was underway, resulting in higher costs and delays in construction work

- Contract payment provisions were applied inconsistently
- Facilities Services staff did not follow contract provisions for construction time limits, but instead frequently gave contractors additional time to complete the work
- Facilities Services staff did not do an adequate job of documenting the reasons for formal contract changes

**Figure 1 List of PTE/design and construction contracts audited and corresponding contracts reviewed**

Project	Audited Contract	Corresponding Contract
Fire stations 15, 24, & 43 remodel Client: Bureau of Fire & Rescue	<b>PTE Contr. #35694</b> Signed: 2005 Orig. amt: \$182,000	<b>Constr. Contr. #36540</b> Signed: 2006 Orig. amt: \$2,350,000
Fire stations 6 & 17 remodel Client: Bureau of Fire & Rescue	<b>PTE Contr. #35262</b> Signed: 2004 Orig. amt: \$103,762	<b>Constr. Contr. #35793</b> Signed: 2005 Orig. amt: \$953,310
Project	Corresponding Contract	Audited Contract
Justice Center Tenant Improvements Client: Bureau of Police	<b>PTE Contr. #34437</b> Task 3 Signed: 2005 Orig. amt: \$23,810	<b>Const. Contr. #36517</b> Signed: 2006 Orig. amt: \$869,000
Eastside Combined Sewer Overflow (CSO) Interior Improvements Client: Bureau of Environ. Services	<b>PTE Contr. #34790</b> Task 5 Signed: 2004 Orig. amt: \$6,250	<b>Const. Contr. #35629</b> Signed: 2004 Orig. amt: \$236,672

Source: Review of contracts in City Auditor's Office and the Facilities Services Division.

Note: Additional project information is shown in Appendix A

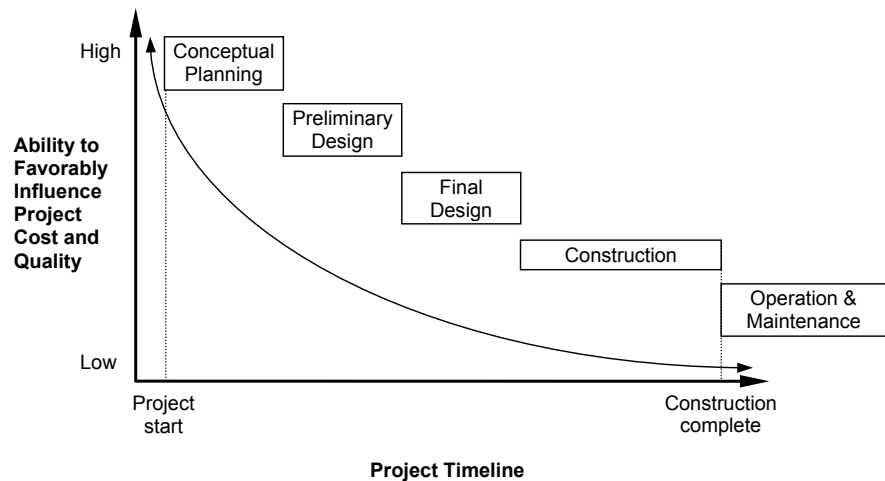
**Design contract scopes of work did not specify what to design**

Project managers are responsible for developing project scope, in consultation with client bureau staff, as well as project criteria, such

as performance and strength of materials. Clear scope definitions are needed to allow all project parties to work and communicate effectively based on a common understanding of the objectives and contractual obligations.

The Construction Industry Institute concluded that the greatest impact on cost occurs during the planning and design stages of a project. As illustrated in Figure 2, the ability to favorably influence project cost and quality diminishes as a project moves beyond planning into design and then construction. In addition, the Bureau of Purchases has provided guidance to City bureaus that explains that the scope of work in an RFP is “the most important part of the RFP and is used to describe the basic purpose of the project and any objectives in order to help the proposer understand the type and size of the project.” However, on the projects we audited, project managers did not prepare clear and complete contract scopes of work, and did too little to clarify bureau needs before establishing contracts with design consultants.

**Figure 2 Ability to affect project cost and quality over the project timeline**



Source: Construction Industry Institute, Publication 3-1, July 1986, and Oregon Public Contracting Guide to CM/CG Contracting, 2002

The scopes of work in the contracts we reviewed described the stages of design without defining specifically what should be designed. For example, the scope section of contract #35694 (Fire Stations 15, 24, and 43 Remodeling) stated, "Provide architectural, landscape architectural and engineering services as provided below." This was followed by six and a half pages of generic language used in most Facilities Services PTE contracts (which originated from an American Institute of Architects form that generically describes tasks such as administration, design phases, and estimating).

The ambiguity on the fire station remodeling project was evident in the RFP which described the scope as, "...services for the remodel of Fire Stations." The RFP's background section did describe the Seismic Rehabilitation Plan that led to remodeling fire stations throughout the City. While the 1998 Seismic Plan contained recommendations for improvement, these recommendations were not mentioned in the scope of work, no other details were provided, and the RFP was not referenced in the design contract.

The scope of work and RFP for contract #35262 (Fire Stations 6 and 17 Remodeling) were essentially the same as those for contract #35694. The scope of work did not describe project criteria or specific fire station needs, except indirectly by citing the Seismic Rehabilitation Plan as background. There were no clear objectives for those who prepared proposals to estimate design costs based on an equivalent understanding of needed work.

The PTE (design) contracts for the other two projects we reviewed were task orders on existing flexible services contracts #34437 (Justice Center Tenant Improvements) and #34790 (Eastside CSO Interior Improvements). The scope of work for each task order was prepared by the design contractor and each failed to adequately address at least one critical element of design.

Vagueness in the scope of work and deliverables also made it difficult to determine whether or not additional work and fees later claimed by the design contractor were actually part of the original contract scope. For example, a contract change included the phrases, "modify space planning to fit existing footprint," "generate base drawings,"

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and “modify roof design” without further explanation. Two of these items were listed under the heading, “Adjust for scope update,” yet no specific update was cited or included. Project managers told us it is up to the design contractor to convince them that extra work and fees are justified.

**Delayed completion of project designs impacted the cost and timeliness of construction**

None of the designs for the projects we audited were complete at the time of advertising for construction bid. On two projects, design consultants spent more time designing the projects after construction bids had been awarded than they did before the bidding process. The cost of PTE contract #36540 (Fire Stations 15, 24, and 43 Remodeling) rose to nearly twice the original contract amount. Nearly half of the cost of the design task order for the Justice Center Tenant Improvements was incurred after the construction work was bid.

Addenda are a useful means for the City to clarify bid documents in response to bidders’ questions. Because project designs were incomplete, significant changes in bid documents were required during the construction bidding process to clarify and complete contract requirements through addenda. Although City policy allows staff to make significant changes to bid documents by addenda, the practice makes bidding more time consuming for contractors and results in piecemeal construction documents. In addition, project construction was delayed and construction costs increased because of the changes. For example, design omissions and errors on PTE contract #36540 (Fire Stations 15, 24, and 43) contributed to the 171 changes in the construction contract, and actual construction costs rose to 25 percent above the bid amount.

Construction cost increases ranged from 13 to 25 percent over bid amounts in the projects we audited, and design changes made after construction was underway contributed to these increases. Not all of the amounts over bid can be attributed to inadequate design scope and incomplete design. However, significant construction delays occurred on two projects because client bureaus decided to make significant changes in their needs and design preferences after

project designs were nearly complete and construction contracts had already been put out to bid. As shown in Figure 3, total costs of the four projects we reviewed increased by a combined \$1.2 million (+25 percent). We believe a significant portion of these costs could have been avoided through better planning and coordination with client bureaus, and more contract oversight.

**Figure 3 Increase in cost over original contract amounts**

Project	Contract No.	Original amount	Closing or current cost	Cost beyond original
Fire stations 15, 24, & 43	#35694	\$182,000	\$348,370	\$166,370 (+91%)
	#36540	\$2,350,000	\$2,936,651	\$589,651 (+25%)
Fire stations 6 & 17	#35262	\$103,762	\$110,262	\$6,500 (+6%)
	#35793	\$953,310	\$1,080,282	\$126,972 (+13%)
Justice Center Tenant Improv.	#34437, Task 3	\$23,810	\$69,645	\$42,835 (+180%)
	#36517	\$869,000	\$1,048,154	\$179,154 (+21%)
Eastside CSO Interior Improv.	#34790, Task 5	\$6,250	\$26,805	\$20,555 (+329%)*
	#35629	\$236,672	\$274,775	\$38,103 (+16%)
TOTAL		\$4,724,804	\$5,891,944	\$1,167,140 (+25%)

Source: City contracts and contract change documents.

\* The original amount on this project was for the first of two phases. The flex contract used for this design had a balance less than the amount needed for both phases (\$26,805) at the time the task order was issued. The maximum amount proposed for both phases was not exceeded.

Project managers told us that construction contract changes are accepted as a necessary part of construction because in architectural projects, especially remodeling projects, it is difficult for office space users (e.g. police and fire bureau staff) to visualize what they want at the start of a project. Users are more satisfied with the overall project when they can make changes as construction proceeds.

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Project managers also said client bureaus have expenditure authority to change design decisions at will. Client bureau staff, however, told us that more thorough planning and scoping prior to design could reduce the need for changes during construction. The Focused Review of Portland Facilities Services performed by FCS Group in 2006, found that Facilities Services “customers identified a need to better define roles and responsibilities and project scope between Facilities Services staff and Bureau points of contact and improve communications regarding the definition of needs and prioritization.”

We agree that the ability to make changes during construction is a necessary tool for addressing unforeseen conditions and errors. However, changes that could have been made during the design process generally cost more when made during construction. Moreover, extra costs incurred during construction represent expenditures made outside the competitive bidding process. Comprehensive and accurate design documents that lower overall construction costs can be achieved through an effective design review process. Project managers told us, however, that client bureaus often fail to perform thorough design review prior to construction. Client bureau staff expressed willingness to review designs, but said some staff need help to understand them.

#### **Inconsistent Application of Contractor Compensation Terms**

Provisions for contractor compensation in each of the PTE contracts we audited were at hourly rates not to exceed set maximums, and sometimes included a maximum for reimbursable expenses. Although the contracts listed hourly rates, they also specified that billing could be based on either hours worked or percent of work completed.

When work was billed at hourly rates, the rates sometimes differed from the rates established by contract. A Facilities Services supervisor told us that the contract hourly rates also applied to subconsultants, yet the two PTE contractors who used subconsultants extensively billed subconsultant labor as expenses. When available, the subconsultant rates were often higher than the contract labor rates.

Although Facilities Services PTE contracts do not use the term lump sum<sup>1</sup>, they are treated as lump sum contracts by some consultants. For example, on contract #35262 (Fire Stations 6 and 17 Remodel), the contractor submitted most billings for its own employees' time based on hourly rates. However, the same contractor also billed 30 percent of the not-to-exceed amount when the design was nominally 30 percent complete, and 90 percent when design was nominally 90 percent complete. Yet about one month after receiving payment based on 90 percent complete, the contract amount was increased six percent, thus indicating the work had not actually been 90 percent complete. Mixing different methods for compensating a contractor on the same project raises questions about the accuracy of the payments, and puts the City at risk of paying inappropriate amounts to contractors.

The lack of clarity about whether or not PTE contracts are lump sum is important, because lump sum contracts require much more detail in describing the work, than do other types of contracts. Without adequate detail, contractors could bill for unearned hours.

The construction contracts for the projects we audited were all lump sum format, so when a change was needed during construction, contractors prepared a cost proposal for each change. Although the General Conditions section of every City contract specifies markup rates for profit and overhead, some contractors were paid higher markup rates than provided by contract, as well as additional mark-ups not specified in the contracts, such as bonding, insurance, liability insurance, and even "general conditions." Both the PTE consultants and Facilities Services project managers approved these extra mark-ups. A Facilities Services supervisor told us that sections in the General Conditions about markup need to be clarified.

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<sup>1</sup> For work under a lump sum contract, the owner pays the contractor a single lump sum amount for all work described in the contract, in payments according to the estimated percent of work completed at the time of payment. Alternatively, payment for work under a "not-to-exceed" contract for services would be at rates set in the contract, for hours as they are worked, and total payment may therefore be less than the not-to-exceed amount.



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### **Extra construction time allowed by the City may be unfair to unsuccessful bidders**

Each contract we audited included an amount for penalties, called “liquidated damages”, (e.g., \$600 per day) that a contractor would have to pay for “each and every day of delay” that construction was not completed by the deadline in the contract. However, Facilities Services staff granted as much as three times the contract-specified number of days for completing contracted work and changes initiated by the City, and the number of days granted was not clearly tied to contractors’ requests for more time in their cost proposals for changes. For construction of Fire Stations 6 & 17 (contract #35793, with a \$1155 per day penalty), for example, contractors were allowed 67 extra days, a 37 percent increase. On the Justice Center project (contract #36517, with a \$600 per day penalty), Facilities Services granted 241 extra days although the contractor had requested only 116 days for the added work.

Project managers told us that, in their experience, liquidated damages are seldom claimed when contractors miss contractual deadlines for completing work. We believe the practice of making bids contingent on time limitations that are sometimes not enforced may be unfair to companies competing for City business which are unfamiliar with the practice of generously granting extra time for completing work. Such companies would logically include costs for completing work within the time specified, while those familiar with the practice might bid lower, knowing they would be given ample additional time.

### **Design and construction contract changes not adequately documented**

It is important that formal contract changes be prepared in accordance with contract terms and City policy, and that the reasons for the changes, as well as any negotiations that preceded the changes, be properly documented. There should be a description of each specific change in the contracted work, where and why the departure from the original scope of work is occurring, and the compensation for any added work.

We found, however, that Facilities Services did not adequately document contract changes. In the contracts we reviewed, the City did not consistently provide justification for the changes or the specific fee adjustment for each change. Most formal change documents did not show who initiated the change or why the change was necessary.

Project managers told us that negotiations regarding the extent and cost of changes on construction projects are worked out in meetings with the contractor. However, we found that such meetings were not consistently documented. Meeting notes during both design and construction were often prepared by the design consultant. In our review, we found that these notes were infrequently prepared for most projects and were often cryptic and difficult to read.

### **Conclusions and recommendations**

Facilities Services contracted for the design of construction projects without delineating and documenting a clear understanding of project scope and objectives with client bureaus. Neither RFPs nor subsequent design contracts contained explicit scopes of work. As a result, project designs and design contracts had to be changed, which delayed the completion of designs and increased design costs. In turn, drawings and specifications were not ready for the construction bidding process; nevertheless, Facilities Services proceeded with construction bidding anyway. After construction contracts were awarded, the need for changes was recognized. In some cases, contractors were paid for the extra work at rates higher than established by contract. In addition, Facilities Services sometimes granted contractors additional time to complete the extra work without receiving corresponding requests from the contractors to increase contract time.

The above practices increased the costs of construction and could have affected the degree to which design proposals and construction bidding were competitive. We believe that through better coordination with client bureaus and contractors, Facilities Services could improve pre-project planning, exercise more control over design and construction activities, and thereby complete construction projects in a more timely and cost effective manner. To accomplish this, we recommend that the Mayor direct Facilities Services to:

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**1. Perform more pre-project planning with client bureaus to better define project scope of work and design contract deliverables, which can be utilized to develop RFPs and establish clear expectations in formal PTE contracts.**

Providing project-specific scopes of work allows design firms to propose their approaches and fees based on a clear understanding of the City's needs. As a result, design proposals (and later, construction bids) will be more competitive, and subsequent contracts will inform each party what it must do and the compensation that is due for each segment of work. A clearly defined scope of work also provides a basis for evaluating whether or not proposed design changes were part of the original scope of work.

**2. Complete project design and obtain formal sign-off by client bureaus before advertising for construction bids.**

Facilities Services should require PTE contractors to complete drawings and specifications before forwarding them to the Bureau of Purchases, which advertises for construction bids. Facilities Services should involve client bureaus in finalizing design details so any changes requested by bureaus would be less likely to cause increases in construction costs. Complete drawings and specifications could also help foster competitive bidding and could also generate more bids from construction firms.

**3. Improve the clarity of contract provisions and strictly enforce those provisions, including the terms for paying contractors.**

Contract provisions, including those controlling contractor payments and allowable items and markup rates, should be clear enough to allow all involved parties to interpret them in the same way. In addition, project managers should check numbers for accuracy, such as the dates for substantial completion shown on contract changes. Time extensions should be granted only according to contract provisions, in fairness to unsuccessful bidders. Bidders should be informed

up-front if it is known by the City that contractors may be allowed additional time to complete their work. For clarity, generic scope tasks that are unlikely to be followed should not be included in contracts.

**4. Improve administration and documentation of changes to both design and construction contracts; include a formal sign-off by the client bureau for each change.**

Facilities Services should follow City policy regarding the administration of formal contract changes. Changes in the scope of work (including additions) should include an explanation that "...identifies where the departure from the [original] contract is occurring..." (City manual for PTE contracting, page 17). In addition, each contract change should be accompanied by supporting documentation that explains the specific reason for the change, who requested it, and associated costs. Documentation should include signed agreement on these facts by the authorized client bureau staff member. Project managers should also more closely follow the Facilities Services policy on project record-keeping for meetings, e-mails, and written correspondence.

## APPENDIX A

### Summary of results of four audited contracts



**PTE CONTRACT #35694\*– Fire Stations 15, 24, & 43 Remodel**

(Related Construction Contract #36540\*)

Project Management: Facilities Services Division, Office of Management and Finance

Client bureau:	Portland Fire & Rescue
Payment structure:	Labor rates per hour with \$8,000 for reimbursables.
Original contract amount:	Not to exceed \$182,000
Contract changes:	\$166,370 (5 as of July 2007)
Contract amount as of June 2007:	\$348,370 – 91% increase
Time increase:	51%

Findings:

1. Project scope was generic in nature, lacking description of specific expectations for this project, except as earlier recommended to the City in the Seismic Rehabilitation Plan provided as background. Amendments proposed by consultant, referencing change in scope or listing “additional services,” are therefore difficult to evaluate because neither initial scope nor scope changes were sufficiently documented.
2. Design was not complete at the time of advertising for bids, requiring over 95 pages of additions and changes to plans and specifications by addenda. The primary design consultant spent more time drafting after the construction bid was awarded than it had before the bid was advertised. Design changes needed during construction contributed significantly to the 171 changes to the construction contract (grouped into 21 Change Orders) and 25% increase in construction cost. Construction contract changes included over \$80,000 paid for time extensions alone.
3. The consultant invoiced, and was paid, higher rates for some of its employees than allowed by contract. Subconsultant rates were typically not shown in invoices. Although about half the portion billed for labor was for subconsultants’ labor, they were invoiced as expenses.
4. During construction, the consultant was required to document meetings, submittals, and proposed change orders. Dates of some meetings were unclear. For several months in 2006, only hand written meeting notes were available, with no author identified.

\*These contracts were not closed at the time of review.

**PTE CONTRACT #35262** – Fire Stations 6 & 17 Remodel  
(Related Construction Contract #35793)

Project Management: Facilities Services Division, Office of Management and Finance  
Client bureau: Portland Fire & Rescue (PF&R)  
Payment structure: Labor rates per hour with expense reimbursement.  
Original contract amount: Not to exceed \$103,762  
Contract changes: \$6,500 (2)  
Final contract amount: \$110,262 – 6% increase  
Time increase: 0%

Findings:

1. Project scope was generic in nature, lacking description of specific expectations for this project, except as earlier recommended to the City in the Seismic Rehabilitation Plan provided as background.
2. Design was not complete at the time of advertising for bid, requiring over 110 pages of additions and changes to plans and specifications by addenda. Design changes needed after construction contributed to 55 changes to the construction contract (grouped into four change orders) and a 13% increase in construction cost. (Facilities Services reports most of the changes were requested by the Fire Bureau during construction).
3. Invoices do not show hourly rates for subconsultants; although 48% of the total contract amount was for subconsultants' labor, they were invoiced as lump sum "Fees Paid to Architect's Consultants." Although requested by auditor, no backup was provided for subconsultants' fees.
4. On change orders to the related construction contract, the contractor was allowed to add excessive markups: 3 to 8.5% for "liability insurance" in addition to about 2% for bonding, while also charging the allowable 10% for profit and overhead.
5. Project files are incomplete and disorganized. For example, the folder for construction progress meetings had no records after July 20, 2005, although construction continued through December 2005. In general, types of records were mixed within and between folders.



**CONSTRUCTION CONTRACT #36517\*** – Justice Center Tenant Improvements  
(Related PTE Contract #34437\* Task Order #3)

Project Management: Facilities Services Division, Office of Management and Finance  
Client bureau: Portland Police Bureau  
Payment structure: Lump Sum  
Original contract amount: \$869,000 (engineers' estimate \$722,000)  
Contract changes: \$179,154 (11 change orders, with 49 additions and 2 credits)  
Contract amount as of  
    July 2007: \$1,048,154 – 21% increase  
Time increase: 201%

Findings:

1. Construction was delayed primarily by changes requested by the Police Bureau. Design was not complete at the time of advertising for bid, requiring over 40 pages of additions and changes to plans and specifications by addenda. The primary design consultant spent over 40 percent of its total design and drafting time after the construction bids were submitted (and 48% of its total fees were after the bid was advertised). The contractor had to wait for redesign of a key laboratory, and claimed and was paid over \$30,000 for the 3-month delay alone.

Facilities Services used a flex contract that had a remaining balance of \$32,645 at the time the task order for designing this project was authorized, less than half of the total project design cost. The overall flex contract was increased 74% due only to this project.

2. Contractor was allowed to add excessive markup to amounts for change order requests, including 5% extra on labor for profit and overhead, an additional 2.4% on total for "general conditions," and a markup for insurance.
3. The initial 120 days of contract time allowed was increased to 361 days. The additional time granted was double the extra time requested by the contractor to complete work added by change orders.
4. Meetings were not consistently documented.

\*These contracts were not closed at the time of review.

**CONSTRUCTION CONTRACT #35629** – Eastside Combined Sewer Overflow (CSO)

Interior Improvements

(Related PTE Contract #34790 Task Order 5)

Project Management:	Facilities Services Division, Office of Management and Finance
Client bureau:	Bureau of Environmental Services
Payment structure:	Lump Sum
Original contract amount:	\$236,672 (engineers' estimate \$350,000)
Contract changes:	\$38,103 (2 change orders, with 21 items)
Final contract amount:	\$274,775 – 16% increase
Time increase:	16%

Findings:

1. Construction was delayed by design omissions and changes. Design was not complete at the time of advertising for bid, as indicated by change in data room within weeks after the bid date. As a result of poor coordination among the project manager, the Bureau of Technology Services (BTS), and the consultant, the plans did not allow sufficient space for equipment needed to provide internet service. Records show that significant redesign, over half of total PTE design cost, was required to accommodate this and other design changes during the first month of construction.

Facilities Services used a flex contract that had a remaining balance of \$17,380 at the time the task order for this project was authorized even though the PTE contractor selected estimated \$26,805 for two phases of design. (The initial task order amount was \$6,250.) The overall flex contract was increased 25% due only to this project.

2. Dates for required substantial completion shown on change orders, based on days of construction allowed from Notice to Proceed, are in error by two days. (According to project manager, contractor fills out form.)
3. Meeting notes, prepared by design consultant, are cryptic, sometimes lacking meeting attendees and negotiation for change orders. Contractor was made responsible for maintaining submittal log and log of proposed change orders.

# RESPONSES TO THE AUDIT





**Office of Mayor Tom Potter**  
City of Portland

December 21, 2007

Gary Blackmer, Auditor  
City of Portland  
1221 SW Fourth Avenue  
Portland, OR 97204

Dear Auditor Blackmer:

Thank you for the opportunity to review and comment on your audit entitled, "Construction Contracts: Facilities Services needs to improve coordination with bureaus to reduce costs and delays."

As the Commissioner-in-Charge of the Office of Management and Finance, I want to be sure that the City's construction contracting process is thorough, efficient, and cost-effective. Many of the recommendations that you make in this audit have merit, and I have asked the City's Chief Administrative Officer to implement those recommendations without delay.

After discussing this audit with the CAO and OMF staff, I believe that the bulk of the construction contracts handled by Facilities Services are managed according to industry best practice guidelines. OMF will work with your office to identify appropriate benchmarks and performance measures that can be used to objectively gauge the success of future projects. OMF will also ensure that it continues to coordinate with bureaus as much as possible during project planning and design, while also maintaining its primary role as a customer service bureau.

Thank you again for the chance to comment on this audit. I am confident that OMF will strive to maintain an efficient, cost effective contracting process that meets the business needs of City bureaus.

Sincerely,

Tom Potter  
Mayor





**CITY OF PORTLAND**  
OFFICE OF MANAGEMENT AND FINANCE

**Tom Potter, Mayor**  
**Kenneth L. Rust, Chief Administrative Officer**  
1120 SW Fifth Ave., Suite 1250  
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**MEMORANDUM**

**To:** Gary Blackmer, City Auditor  
**From:** Kenneth L. Rust, Chief Administrative Officer *KLR*  
**Date:** December 21, 2007  
**Subject:** Response to Final Facilities Audit

Thank you for the opportunity to comment on your recently completed audit of the Facilities Services Division construction contracts. The Office of Management and Finance is always interested in ways that we can better perform our services in support of our customers. Through a series of focused reviews, customer surveys and our customer service formalized efforts, we seek to continuously improve our service delivery.

I am pleased to report that we concur with many of your recommendations, some of which we have already implemented. Primarily, we will engage in more coordination with City bureaus during the planning and design stages of their projects. In addition, Facilities Services will:

1. Establish a procedure for more thorough review of contract documents prior to advertising for bid.
2. Work with the City Attorney to clarify General Condition wording on construction change order mark-ups.
3. Clarify consultant billing issues and conduct more thorough review of billing for compliance with contract requirements.
4. Improve filing protocols and enforce proper project file management by construction project managers.
5. Clarify how and the reasons for which construction contract changes are coded and documented.
6. Add clearer language to Requests for Proposals regarding deliverables under each phase of work.

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*An Equal Opportunity Employer*

*To help ensure equal access to programs, services and activities, the Office of Management & Finance will reasonably modify policies/procedures and provide auxiliary aids/services to persons with disabilities upon request.*

I also would like to provide some clarifying comments regarding the final report.

### **Facilities Contract Management**

The audit reviewed four construction contracts that were selected based on a number of criteria. We understand that the contracts are not intended to be representative of all the Facilities construction contracts; however, the audit makes a number of recommendations that are intended to apply to all of our projects. Our experience is that the bulk of the construction contracts managed by Facilities do not suffer from the specific problems that plagued the four projects that were reviewed. For example, since 2001 the four current Facilities Services project managers have completed over \$24 million in construction renovation projects with an average, including all outliers, of 3.3 change orders per project and an average 13% cost increase, out of an expected 15% increase for renovation projects.

### **Industry Best Practices**

OMF Facilities Services believes that the results of its construction contracting process are within industry best practice guidelines. For instance, the California State excellence in governing website notes that in a typical renovation project, change orders may be expected as follows (as a percentage of construction costs):

- Owner-Initiated Changes: 3-5%
- Unforeseen Conditions: 3-30%
- Regulatory Changes: Less than 1%
- Design Errors or Omissions: 4-8% for renovations.

While the audit refers generally to best practice guidelines, it does not include specific benchmarks against which Facilities Services contracts can be compared. It would help OMF if the audit identified the benchmarks that the Auditor used in its findings so that OMF can assess all of its contracts against those benchmarks and develop performance measures if indeed we are not meeting industry standards.

### **Client Focus**

As noted in the audit, many of the change orders that Facilities processes are customer-initiated. Given that the primary fiduciary responsibility lies with the client bureau, it would demonstrate poor customer service if we refused to process the change orders being requested by the bureau that is paying for and will use the space and/or tenant improvements. While Facilities will engage in more coordination with City bureaus in the project planning and design phase, we will always be faced with client-initiated change orders during the course of the project.

OMF is constantly striving to improve our performance, and we look forward to working with you to develop objective performance benchmarks and other improvements in our construction contracting process.





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*Construction Contracts: Facilities Services needs to improve coordination with bureaus to reduce costs and delays*

Report #348A, January 2008

Audit Team Members: Doug Norman  
Beth Woodward

This report is intended to promote the best possible management of public resources. This and other audit reports produced by the Audit Services Division are available for viewing on the web at: [www.portlandonline.com/auditor/auditservices](http://www.portlandonline.com/auditor/auditservices). Printed copies can be obtained by contacting the Audit Services Division.

Gary Blackmer, City Auditor  
Drummond Kahn, Director of Audit Services

**Other recent audit reports:**

*City of Portland Service Efforts and Accomplishments: 2006-07, Seventeenth Annual Report on City Government Performance (#340, December 2007)*

*Downtown Parking Meters: Meters and pay stations working, but certain transactions can be challenging (#352A, October 2007)*

*City Computers: Computers found with difficulty, tracking systems need to be improved (#350, October 2007)*

