



In Brief

Capital Projects Oversight Report Number A-09-08, January 22, 2010

Why We Did This Audit

We conducted an audit of the Smithsonian Institution's oversight of capital projects to determine whether financial reporting capabilities and scheduling and tracking systems were in place to detect emerging problems with the Institution's capital projects. We also set out to determine whether contingency funds were sufficient to cover unanticipated problems.

What We Recommended

We made no formal recommendations in this audit report.

In this audit, we found that the Office of Facilities Engineering and Operations (OFEO) has improved the oversight of capital projects during the last several years. Most significantly, OFEO and Smithsonian management meet regularly to monitor capital projects using "Quad" charts, which identify the key elements of a projects' progress such as budget-to-actual expenses, schedules, milestones, and contingency usage.

What We Found

We found that the Smithsonian is working toward improving its capital project financial reporting capabilities and reducing the risk of inaccurate financial reporting, but challenges remain. Currently, OFEO officials record project financial information in the Project Financial Information and Tracking System (PFITS), and must manually reconcile PFITS to the Smithsonian's Enterprise Resource Planning (ERP) software to ensure the accuracy of capital project financial reporting. This process is somewhat inefficient and presents a risk of misstating project costs in any financial statements or internal reports that rely on ERP as their source.

To eliminate the need to reconcile project information from parallel systems, the Smithsonian will implement an ERP project costing module, which should minimize the risks indicated above by eliminating the need for PFITS altogether. OFEO is working with the Office of the Chief Information Officer and the Office of the Comptroller to develop and implement this module during fiscal year 2010.

OFEO's Office of Planning and Project Management (OPPM) provides the planning and project management for the execution of the Institution's Capital Program. The Board of Regents' Facilities Committee and the Institution's Capital Planning Board both oversee the program. Contractors also provide schedules that show the progress of projects, as well as upcoming activities and milestones.

In addition, based upon our contingency fund analysis, estimated construction contingency funds overall were sufficient to cover unanticipated events and fell within the preferred range of 10-15 percent of the construction award amount.

For additional information or a copy of the full report, contact the Office of the Inspector General at (202) 633-7050 or visit <http://www.si.edu/oig>.



Smithsonian Institution

Office of the Inspector General

Date January 22, 2010

To Audit and Review Committee, Board of Regents
G. Wayne Clough, Secretary
Bruce Kendall, Director, Office of Facilities Engineering and Operations
Clair Gill, Deputy Director and Chief of Staff, Office of Facilities Engineering and Operations

cc Alison McNally, Under Secretary for Finance and Administration

From 
A. Sprightley Ryah, Inspector General

Subject Audit of Smithsonian Institution Capital Projects Oversight, Number A-09-08

This audit follows up on capital project oversight weaknesses we identified in prior audits. The objectives of this audit were to determine whether the Institution is effectively managing key risks for selected capital projects, which represent significant investments for the Institution. We assessed (1) the financial reporting capabilities available for controlling projects costs; (2) whether project schedule and tracking systems are in place to facilitate the detection of emerging problems that could delay the projects; and (3) whether contingency funds are sufficient to cover unanticipated problems, and whether project managers properly monitored and spent these funds.

In previous audits, we had noted that the Office of Facilities Engineering and Operations (OFEO) (1) needed a more efficient way to monitor its budget-to-actual expenses,¹ (2) limited its management and reporting of contingency usage,² and (3) did not reconcile project financial information to official accounting records in a timely manner.³

In this audit, we found that OFEO is effectively managing key risks for capital projects because it has improved the oversight of these projects during the last several years. Most significantly, OFEO and Smithsonian management meet regularly to monitor capital projects using “Quad” charts, which identify the key elements of a projects’ progress such as budget-to-actual expenses, schedules, milestones, and contingency usage. Accordingly, we make no recommendations in this report.

¹ *Project Management of the Steven F. Udvar-Hazy Center*, No. A-02-04, July 31, 2003.

² *Project Management Review, Patent Office Building Renovation Project*, performed by IBM Business Consulting Services (BCS), March 31, 2003.

³ *Project Management of the National Museum of the American Indian Mall Museum*, No. A-02-05, September 30, 2002.

BACKGROUND

Facilities Capital Program

The Smithsonian organizes capital projects into two categories: construction and revitalization. Construction includes new work and alterations of buildings, structures, or other real property. Revitalization consists of rehabilitation, renovation, replacement, capital repair, modernization, and upgrades to incorporate new building codes and standards. Capital project work also includes issuing requests for technical proposals, bid packages, construction administration, and management procedures.

The Smithsonian has delegated day-to-day capital project oversight responsibility to OFEO. Project Managers within OFEO's Office of Planning and Project Management (OPPM) serve as the central point of contact responsible for monitoring and coordinating capital projects for the museums, contractors, and other key project personnel.

Governance Recommendation

In June 2007, the Board of Regents' Governance Committee recommended that the Smithsonian conduct a review of the Institution's financial reporting systems and internal controls. To address this recommendation, the Institution contracted with a consultant to help identify internal control weaknesses and make suggestions for ways to remedy the weaknesses. Regarding capital projects, one of the gaps the consultant reported was that an enterprise resource planning (ERP) project costing module is not available. The Institution uses ERP to record its official financial data. The project costing module is expected to integrate financial and project information into a central system to support project management and project accounting. Lacking this module, OFEO maintains a separate Project Financial Information and Tracking System (PFITS) to track all projects. PFITS is a financial management system used to manage and monitor financial integration information. It captures information such as budgeted and expensed amounts, contract details, and milestones for each capital project.

RESULTS OF AUDIT

OPPM has made some improvements in the facilities capital program since our previous audits. In areas such as financial reporting, project schedule and tracking systems and contingency funds, the Institution is working to create a standardized system that aims to ensure transparency in oversight and accountability in project management.

Financial Reporting

Project Managers have procedures in place and reporting tools to help monitor the financial progress of capital projects. For example, in 2007 OFEO published the Facilities Project Management Handbook, which explains the responsibilities of the project manager and other key personnel within OFEO and the duties of OFEO personnel during each phase of the project. In addition, the project managers report on the financial progress of each project using monthly Quad charts for OFEO management review. These charts display a project's cost summary, funding plan and schedule, and indicate which financial aspects of a project are deviating from the plan. Quad charts are a valuable financial reporting tool that allow easy monitoring of budgeted versus actual expenses. Project managers populate the Quad charts using information from PFITS. In addition to serving as their data source, PFITS also provides detailed information on projects' commitments and obligations for use in monitoring project budget status.

The Smithsonian is Updating its Financial Reporting Capability for Capital Projects

We found that the Smithsonian is working toward improving its capital project financial reporting capabilities and reducing the risk of inaccurate financial reporting, but challenges remain. Currently, OFEO officials record project financial information in PFITS, and must manually reconcile PFITS to the Smithsonian's ERP software to ensure the accuracy of capital project financial reporting. This process is somewhat inefficient and presents a risk of misstating project costs in any financial statements or internal reports that rely on ERP as their source.

OFEO personnel must manually enter capital project data into both PFITS and the financial module of ERP because PFITS does not interface directly with ERP. We confirmed that OFEO routinely conducts reconciliations and aims to resolve the differences between the two systems in a timely manner. To test whether PFITS information reconciled to ERP, we selected a project and compared PFITS records to the ERP records. We found no material exceptions.

Manual entries into ERP have created a high-risk financial reporting issue for the Smithsonian. Independent auditors from KPMG also identified this deficiency in the fiscal year (FY) 2008 Smithsonian Financial Statement audit. KPMG recommended that the Smithsonian review processes for accounting of construction activities with the objective of reducing the manual activities.

To eliminate the need to reconcile project information from parallel systems, the Smithsonian will implement an ERP project costing module, which should minimize the risks indicated above by eliminating the need for PFITS altogether. OFEO is working with the Office of the Chief Information Officer and the Office of the Comptroller to develop and implement the ERP project costing module during fiscal year 2010. We will monitor the implementation of the ERP module.

Project Schedule and Tracking Systems

OPPM provides the planning and project management for the execution of the Institution's Capital Program. The Board of Regents' Facilities Committee and the Capital Planning Board oversee the program. Project Managers hold regular meetings with the contractor(s), key OFEO personnel, and museum personnel. Attendees discuss the progress of the project, any issues that have surfaced, and other information important for the timely completion of the project.

OPPM uses several schedules and tracking mechanisms to identify emerging problems that could delay projects. OFEO project management, using Quad charts, compares two distinct project cost estimates: (1) the Cost Engineering Division's (CED) Current Working Estimate (CWE), produced at the project's onset; and (2) the Project Manager's working estimate, which is continuously updated throughout the project's construction life. Contractors also provide schedules that show the progress of projects, as well as upcoming activities and milestones.

The Regents' Facilities Committee and the Institution's Capital Planning Board meet to discuss pertinent issues with capital projects. Collectively, these groups, using various tools, identify and communicate emerging problems in every phase of a capital project.

Contingency Funds

OFEO generally anticipates that unforeseen events will affect its capital projects. As such, project budgets may include contingency funds, which are allowances included in the project estimates to cover uncertainties during various project phases. The typical contingency falls between 10 and 15 percent of the estimated construction costs; however, the Project Manager may, using a risk-based assessment, increase or decrease the contingency during the project. Project Managers report contingency funds each month in the Quad chart, which allows management to monitor the project funding.

The Smithsonian Accurately Estimates its Contingency Fund Needs

Because of the nature of capital projects, and their various phases, it is difficult to predict precisely the amount of contingency funding necessary to complete a project. We analyzed a group of completed projects and compared the actual use of the contingency fund to the initial estimate for each. Of the 24 capital projects whose actual construction contingency costs varied from the initial estimate, collectively the variances were within ± 1.7 percent of the projects' cost. The total amount of contingency estimated for all of these projects was approximately \$6.17 million, while the amount of contingency funds actually spent was approximately \$6.11 million – a difference of roughly \$60,000. In Figure 1, we show the variance from the initial estimated contingency funds for each project we examined.

Figure 1. Accuracy of contingency funds for 24 FY2009 completed capital projects.

Project	Over-Estimated	Under-Estimated
1	312,000	
2		(134,498)
3		(14,456)
4	7,482	
5	11,283	
6	30,000	
7	32,256	
8	1,581	
9	2,532	
10		(28,759)
11		(321,638)
12	263,281	
13		(94,530)
14	4,454	
15		(16,089)
16	458	
17	16,921	
18	8,568	
19	45,000	
20	43,184	
21		(44,209)
22		(66,870)
23		(7,248)
24	4,020	
TOTAL	783,020	(728,297)

Based upon our analysis of completed projects, estimated construction contingency funds overall were sufficient to cover unanticipated events and fell within the preferred range of 10-15 percent of the construction award amount.

Financial Reporting Software Development Efficiencies

During the course of our audit, we noted that OFEO’s CED is developing an in-house cost tracking system. This system is expected to track project budgets and costs through all phases of a project, from idea to completion. The effort to develop the system is in addition to the efforts currently underway to develop the project costing module of the ERP. Based upon our conversations with Smithsonian managers, we learned that project officials are managing these two development initiatives without a sufficient degree of communications and coordination between the two. We learned that the cost tracking system would continue to depend on PFITS to access and obtain

project data; yet the implementation plan for the ERP project costing module explicitly calls for the elimination of PFITS. We are concerned that the ERP project costing module initiative could undermine the successful operation of the cost tracking system. Because we did not undertake a review of the development projects for both of these two systems, we could not determine why the two initiatives may be in conflict. However, we will refer the matter to the Chief Information Officer and follow up with her for any additional audit work that may be necessary.

MANAGEMENT COMMENTS

A draft of this report was provided to OFEO management for review. Since there were no formal recommendations in this report, OFEO management was not required, and chose not, to respond with comments.

APPENDIX A. SCOPE AND METHODOLOGY

We set out to determine whether the Smithsonian had (1) financial reporting capabilities available for controlling projects costs; (2) project schedule and tracking systems in place to facilitate the detection of emerging problems that could delay the projects; and (3) contingency funds sufficient to cover unanticipated problems and whether these funds were being properly monitored and spent. We interviewed management and staff from OPPM, the Design & Construction Management Division, CED, and Financial and Asset Management.

We used professional judgment to select our sample project: the Hirshhorn Museum and Sculpture Garden Repair Exterior Structure Leaks. In addition, we obtained and analyzed a listing of capital projects completed in FY 2009, focusing on the Institution's ability to manage its construction contingency funds.

We reviewed Smithsonian policies and procedures, industry best practices, and prior audits relating to our audit objectives.

We did not review the overall internal control structure of the OFEO capital program. We limited our review to those controls relating to financial reporting, scheduling and tracking, and contingency funds.

We conducted our work in Washington, D.C. from June to December 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence we obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

APPENDIX B. CONTRIBUTORS TO REPORT

The following individuals from the Smithsonian Office of the Inspector General contributed to this report:

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