

GAO

Report to the Subcommittee on
Economic Development, Public
Buildings, and Emergency Management,
Committee on Transportation and
Infrastructure, House of Representatives

September 2003

KENNEDY CENTER

Improvements Needed to Strengthen the Management and Oversight of the Construction Process



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Highlights

Highlights of [GAO-03-823](#), a report to the Chairman and Ranking Minority Member, Subcommittee on Economic Development, Public Buildings, and Emergency Management, Committee on Transportation and Infrastructure, House of Representatives

Why GAO Did This Study

In the mid-1990s, John F. Kennedy Center for the Performing Arts (Kennedy Center) officials recognized a need for additional parking and better site access. As a precursor to a planned project to construct an 8-acre plaza and two additional buildings at the site, the Kennedy Center is currently in the process of constructing a garage expansion and site improvement project. GAO did this study because of congressional concerns over project delays and costs as well as challenges that the Kennedy Center faces as it pursues this major construction effort. GAO's objectives were to (1) compare the garage expansion and site improvement project's current costs, time frames, and scope with the estimates provided to congressional stakeholders in 1997 and 1998 and (2) identify what challenges the Kennedy Center faces in managing large construction projects.

What GAO Recommends

GAO recommends that the Kennedy Center

- develop comprehensive project management policies and procedures to guide the construction process,
- ensure development and use of timely data to oversee construction projects, and
- ensure that needs for human capital expertise are met.

In commenting on a draft of this report, Kennedy Center officials generally agreed with GAO's findings and recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-03-823.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Mark L. Goldstein, (202) 512-2834, or goldsteinm@gao.gov.

KENNEDY CENTER

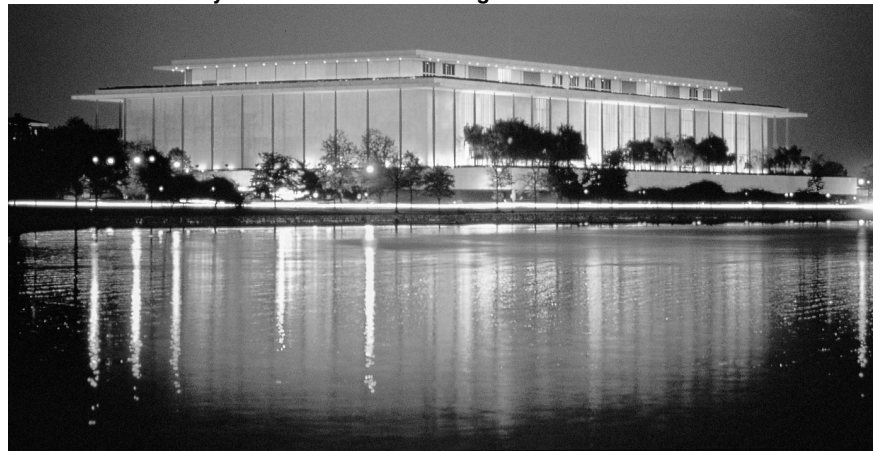
Improvements Needed to Strengthen the Management and Oversight of the Construction Process

What GAO Found

As of July 2003, Kennedy Center officials estimated that the garage expansion and site improvement project would cost \$88 million, the garage expansion will be completed in December 2003, the site improvements will be completed in summer 2004, and the project will include 525 parking spaces and various traffic flow improvements. These estimates vary substantially from estimates that Kennedy Center officials provided to congressional stakeholders in 1997 and 1998. At that time, Kennedy Center officials estimated that the project would cost \$28 million, would be completed by August 2000, and would include between 900 and 1,000 parking spaces. According to Kennedy Center officials, the initial estimates were preliminary in nature and were based on some unrealistic assumptions. They acknowledged that they should have done a better job of informing Congress of the preliminary nature of the estimates and the subsequent events in the project's planning and bidding phases that affected the costs, time frames, and scope. Kennedy Center officials said that they now hold monthly meetings with Congress about the status of ongoing projects.

The Kennedy Center faces certain challenges in managing large construction projects. Specifically, the Kennedy Center lacks (1) adequate policies and procedures to guide the planning and management of the construction process, (2) some timely construction data on schedules and costs for effectively overseeing construction projects and measuring results, and (3) key human capital resources and expertise that would be highly beneficial in managing the construction process. Kennedy Center officials are now working to address these challenges. Although making improvements in these areas is no guarantee of project success, these types of improvements would strengthen the construction program and reduce risk by providing greater effectiveness in managing and overseeing projects and measuring results.

The John F. Kennedy Center for the Performing Arts



Source: The John F. Kennedy Center for the Performing Arts.

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United States General Accounting Office
Washington, D.C. 20548

September 5, 2003

The Honorable Steven C. LaTourette
Chairman
The Honorable Eleanor Holmes Norton
Ranking Minority Member
Subcommittee on Economic Development, Public
Buildings, and Emergency Management
Committee on Transportation and Infrastructure
House of Representatives

This report responds to your request that we review certain aspects of the John F. Kennedy Center for the Performing Arts' (Kennedy Center) garage expansion and site improvement project. The Kennedy Center facility, which opened in 1971 in Washington, D.C., was established as both a national cultural arts center and a memorial to the 35th President. In 1994, responsibility for management of the Kennedy Center facility was transferred from the Department of the Interior to the Kennedy Center, which has a Board of Trustees and a management staff headed by the Kennedy Center President. In the mid-1990s, on the basis of a survey of patrons, Kennedy Center officials sought to provide additional parking and improve access to the Kennedy Center site. To address these needs, the Kennedy Center is currently constructing a garage expansion and site improvement project that will create 525 new parking spaces and, among other things, make improvements to the sidewalks, roads, and landscaping and to the marble walkways and exterior wall coverings. In addition, over the next 10 years, the Kennedy Center plans to pursue a major expansion that includes the following: an 8-acre plaza that is intended to improve pedestrian access and link the center to the surrounding area, two new buildings to house administrative offices and arts education programs, facilities for free outdoor performances, and exhibition space to educate the public about the history of performing arts in America.

As agreed with your offices, our objectives were to (1) compare the garage expansion and site improvement project's most recent costs, time frames for completion, and scope with the estimates provided to Congress in 1997 and 1998 and (2) determine what challenges, if any, the Kennedy Center faces in managing large construction projects. To do this work, we analyzed project documents; examined existing policies and procedures, the organization structure, and construction data systems; and interviewed Kennedy Center and U.S. Army Corps of Engineers officials.

Results in Brief

As of July 2003, Kennedy Center officials estimated that the garage expansion portion of the project would cost \$45 million, including revenue bond issuance costs and capitalized interest payments; be completed in December 2003; and include 525 parking spaces. These officials estimated that the site improvement portion of the project would cost \$43 million; be completed in the summer of 2004; and include various improvements to the sidewalks, roads, and landscaping at the Kennedy Center site. These estimates vary substantially from estimates that Kennedy Center officials provided to Congress in 1997 and 1998. At that time, Kennedy Center officials estimated that the garage expansion would cost \$25 million and include between 900 and 1,000 parking spaces, and that the site improvements would cost \$3 million and include construction of a new front-entry driveway. According to Kennedy Center officials, the initial garage expansion estimates were preliminary in nature and were based on some unrealistic assumptions related to comparable construction projects, failure to consider the need for year-round operations, and construction market conditions. In addition, Kennedy Center officials said that the final scope of the site improvements increased significantly from the early estimates because they decided to accelerate the scheduling of some planned repairs in hopes of expediting the work and reducing the number of contractors, thus simplifying project coordination efforts. These officials acknowledged that they should have done a better job of informing Congress of the preliminary nature of the estimates and the subsequent events in the planning and bidding phases of the project that affected the costs, time frames, and scope. Kennedy Center officials said they are now holding monthly meetings with congressional stakeholders regarding the status of Kennedy Center projects.

The Kennedy Center faces certain challenges in managing large construction projects. Specifically, the Kennedy Center lacks (1) adequate policies and procedures for guiding the planning and management of the construction process, (2) some timely construction data on schedules and costs for effectively overseeing construction projects and measuring results, and (3) key human capital resources and expertise that would be highly beneficial in managing the construction process. Although it was difficult to determine the extent to which these challenges have hindered the Kennedy Center's efforts on the garage expansion and site improvement project, having adequate policies and procedures, timely data, and qualified human capital would help to strengthen the Kennedy Center's construction program and reduce risks. Addressing these challenges will become increasingly important as the Kennedy Center undertakes the larger, more costly and complex plaza and buildings project. The critical importance of having quality guidance, data, and human capital was highlighted by the National Research Council in a 2000 report on federal organizations, such as the Kennedy Center, that contract out for construction management services to acquire and build facilities.¹ The council found that having adequate plans, policies, and procedures; timely and reliable data; and in-house staff with sufficient skills was necessary for effective management and oversight of all phases of a construction project. We are making recommendations to the Kennedy Center President and Board of Trustees that are aimed at improving the policies and procedures, data, and human capital efforts for the Kennedy Center's major construction projects.

In commenting on a draft of this report, the Kennedy Center generally agreed with our findings and recommendations. Kennedy Center officials stated that they found many of the recommendations helpful and that they have initiated efforts to address them. Further, these officials provided additional comments to clarify information regarding the project estimates, project management data, and human capital resources, which we have incorporated throughout the report. (See app. II for Kennedy Center comments.)

¹National Research Council, *Outsourcing Management Functions for the Acquisition of Federal Facilities* (Washington, D.C.: National Academy Press, 2000). The council is the working arm of the National Academy of Sciences and the National Academy of Engineering, and it carries out studies to advise the federal government.

Background

The John F. Kennedy Center for the Performing Arts, which was established in 1964 as both a national cultural arts center and a memorial to the 35th President, opened in September 1971 as an independently administered bureau of the Smithsonian Institution. Shortly thereafter, in 1972, the Secretary of the Interior, through the National Park Service, assumed responsibility for maintenance and all other services related to the administration of the Kennedy Center facility. In 1994, legislation was enacted that transferred responsibility for operations and maintenance of the facility to the Kennedy Center Board of Trustees.² The 1994 legislation also required the Kennedy Center to develop and update annually a comprehensive building needs plan that details the condition of the Kennedy Center facility and planned renovations. The Kennedy Center receives annual appropriations to fund operations and maintenance as well as construction. For example, in fiscal year 2003, Congress appropriated \$16.2 million for the Kennedy Center's operations and maintenance and \$17.5 million for construction.³ The Kennedy Center has other sources of funds to finance capital improvements in addition to annual appropriations, such as charitable donations and the ability to borrow funds. The John F. Kennedy Center Act, as amended, provides that no changes may be made to the grounds of the Kennedy Center without the approval of Congress and the Secretary of the Interior. The John F. Kennedy Center Parking Improvement Act of 1997 gave the Kennedy Center approval to design and construct the parking garage expansion and site improvements.⁴

²The Kennedy Center Board of Trustees is composed of 36 general trustees who must be U.S. citizens and who are appointed by the President of the United States, 13 trustees designated ex-officio representatives of the executive branch and other government branches, and 10 congressional representative trustees. Each appointed trustee serves a term of 6 years.

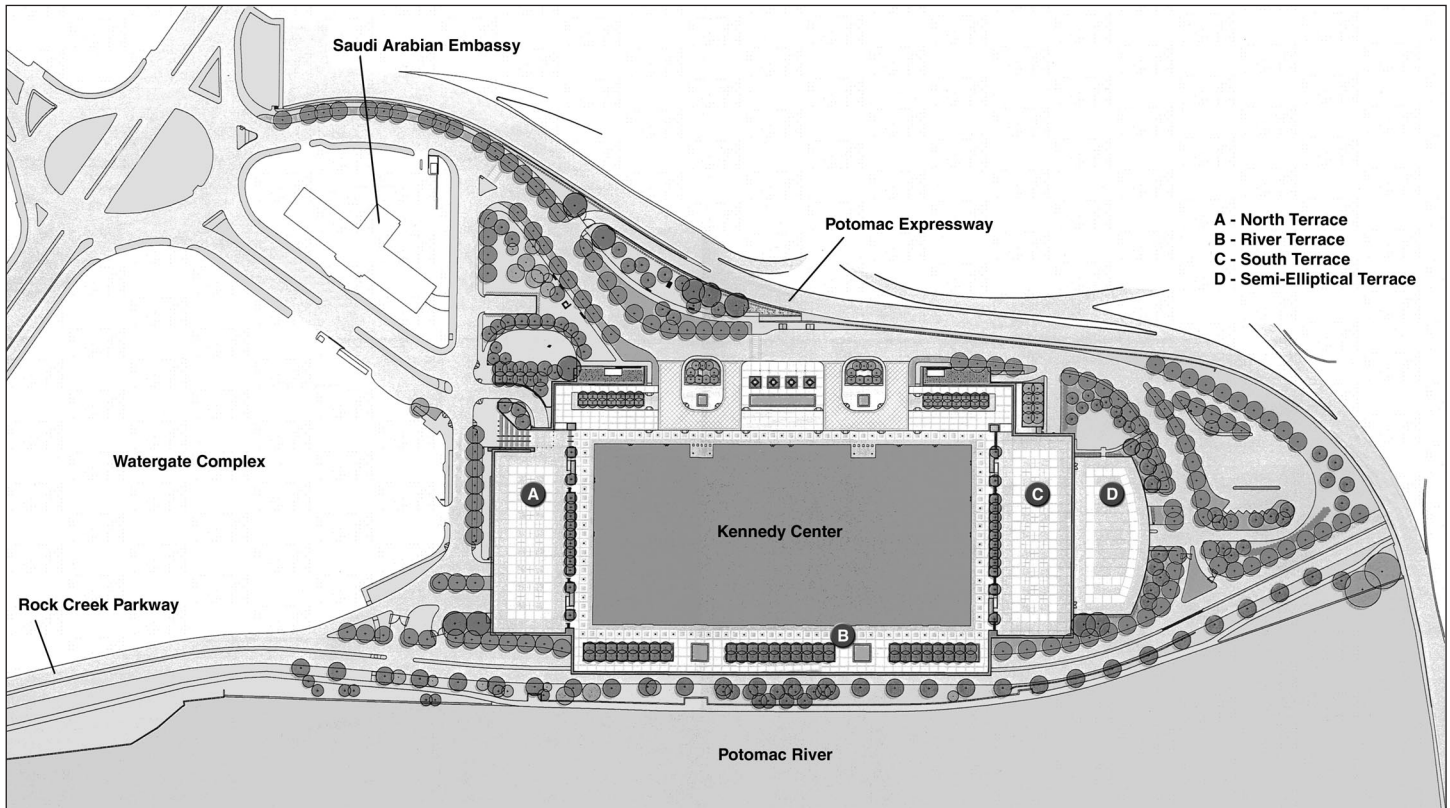
³P.L. 108-7, 117 Stat. 11, 267, 550-551 (2003).

⁴20 U.S.C. 76i(b).

The garage expansion is being funded through a loan from the District of Columbia, which issued revenue bonds to provide the related funding,⁵ and the site improvements are being funded through annual appropriations. To maintain a separation between the appropriated and nonappropriated funds, the Kennedy Center arranged for separate construction management and general contractors for the two parts of the project—the parking garage expansion and the site improvements. The Kennedy Center also maintains separate accounting for the garage expansion and the site improvements. To assist in the construction of the garage expansion, the Kennedy Center has hired a construction management firm. For the site improvements, the Kennedy Center is using construction-contracting services available to federal entities through a Corps of Engineers indefinite-delivery, indefinite-quantity contract. The Corps of Engineers is also providing limited management assistance to the project. Figure 1 shows the Kennedy Center building and adjacent area.

⁵On December 15, 1999, the District of Columbia issued \$34 million in District of Columbia revenue bonds and loaned the proceeds to the Kennedy Center for the purpose of constructing the garage expansion. The bonds are secured by parking revenues from the garage expansion. Payments of principal and interest on the bonds are insured by the Ambac Assurance Corporation.

Figure 1: The John F. Kennedy Center for the Performing Arts' Building and Site



Source: The John F. Kennedy Center for the Performing Arts (GAO added labels to identify key landmarks).

Note: The garage expansion and site improvement project provides additional parking beneath terraces A, C, and D and improves the sidewalks, roads, and landscaping at the Kennedy Center site. Terraces A, C, and D are new structures; terrace B was part of the original structure.

Garage Expansion and Site Improvement Project Estimates

As of July 2003, Kennedy Center officials estimated the cost of the garage expansion and site improvement project at \$88 million. This estimate includes \$43 million for the site improvements and \$45 million for the garage expansion, including revenue bond issuance costs and capitalized interest payments. The garage expansion is to include 525 new parking spaces. The site improvements are designed to improve vehicle and pedestrian access to the Kennedy Center and include repairs and changes to the sidewalks, roads, and landscaping surrounding the Kennedy Center site. Regarding the garage expansion, 104 spaces are open and operating, and the remainder will open in December 2003. Kennedy Center officials

estimated that the site improvements will be completed in the summer of 2004.

These current estimates reflect changes made after the 2001 contract award and include such things as an approximately 1-year increase in time frames and a \$3.3 million, or 15 percent, increase in the garage expansion costs since the time of award. These increases were primarily due to (1) changes to the project design required by the National Capital Planning Commission and the Commission of Fine Arts; (2) large amounts of snow and rain during the winter and spring of 2003 that caused project delays; and (3) unforeseen site conditions, such as deteriorated concrete and greater-than-expected amounts of soil contamination. Kennedy Center officials told us that the site contains petroleum and coal-tar contamination. Although the Kennedy Center performed a soil test before construction began, the extent of the contamination was greater than expected. The costs associated with removing this soil contamination account for over half of the 15 percent increase over the awarded base contract amounts.

The July 2003 estimates of the project's costs, time frames, and scope vary substantially from estimates that the Kennedy Center provided to Congress in 1997 and 1998. At that time, Kennedy Center officials estimated that the garage expansion would cost \$25 million and would include 900 to 1,000 parking spaces, and that the site improvements would cost \$3 million and include construction of a new front-entry driveway. Kennedy Center officials estimated that the project would be completed by August 2000. Table 1 summarizes the differences between the current and the 1997 and 1998 estimates of the project cost, scope, and schedule.

Table 1: Summary of the Kennedy Center’s Garage Expansion and Site Improvement Project’s Estimated Cost, Scope, and Schedule

	1997 and 1998 estimates	Current estimate
Garage expansion		
Cost	\$25 million	\$45 million
Scope	900 to 1,000 spaces	525 spaces
Schedule	August 2000	December 2003
Site improvements		
Cost	\$3 million	\$43 million
Scope	Construction of new front-entry driveway.	Multiple improvements to the surrounding sidewalks, roadways, and landscaping and to the marble exterior wall coverings and walkways.
Schedule	August 2000	Summer 2004

Source: The John F. Kennedy Center for the Performing Arts.

In addition, at the time that the Kennedy Center officials were planning the garage expansion and site improvement project, they were also planning to construct a large format movie theater at an additional cost of \$7 million to \$10 million. This portion of the project was later dropped due to cost considerations. It was anticipated that repayment of the loan from the District of Columbia would come, in part, from parking fees and movie theater revenue. Kennedy Center officials recognize that the reduction in planned parking spaces from approximately 1,000 to 525, as well as elimination of the movie theater revenue, will result in a reduced amount of revenue available for loan payments. However, they said they are confident that given planned increases in parking prices over the next 30 years, they will still be able to pay off the loan with revenue from the new parking spaces. A table of the Kennedy Center’s projected parking revenue is included in appendix I. Kennedy Center officials told us that they have reevaluated some planned capital projects, and that making these changes allowed them to expand the scope of the site improvements portion of the project. These officials said that they decided to (1) eliminate two projects involving the installation of a mezzanine in the Grand Foyer and windows in the building facade; (2) delay the construction of a curtain wall; and (3) construct planned repairs to elevators and an expansion of the sprinkler and fire suppression systems in phases, rather than simultaneously.

Furthermore, in commenting on a draft of this report, Kennedy Center officials noted that the scope of the site improvements has increased substantially since the 1997 estimate, and that the scope now includes repairs and improvements to pedestrian walkways, the underground building service tunnel, garage exhaust systems, and the marble walkways and exterior wall coverings. Table 2 shows the scope of the components of the current site improvements. Kennedy Center officials said that they were initially planning on making these repairs at a later date. However, by including them with the site improvements, they hoped to expedite the work, achieve a more uniform architectural design, and reduce the number of contractors involved, thereby simplify scheduling and coordination efforts. Kennedy Center officials said these scope changes account for \$38.6 million of the difference between the \$88 million actual cost and the \$28 million 1997 estimate.

Table 2: Project Scope of the Kennedy Center Site Improvements

Component	Description
Site improvements	These improvements involve a reconfiguration of the access roadway to reduce traffic congestion. The new design provides additional security, new drop-off points in front of the main entrances, additional garage entrances and exits, and direct access to the Potomac Expressway from the Kennedy Center site. Pedestrian access will also be improved by replacing the steep ramp with a monumental stairway and a fully accessible walkway. The site is being relandscaped to accommodate these changes.
Service tunnel, service drive, and loading dock	These repairs entail adding structural reinforcement to portions of the service tunnel roof to accommodate the new roadway above the plaza. In addition, mechanical work is required to reroute the supply and exhaust systems that currently service the entire building. Finally, the design includes a secured exit out of the service tunnel, thereby making the service tunnel suitable for high-level dignitary visits.
Existing garage repairs and mechanical systems	This component includes the repair and replacement of exhaust fans and underground ducts and the installation of carbon monoxide monitors tied into the existing garage exhaust system. It also includes new signage and new striping in the existing garage.
Plaza repairs	These repairs include replacing the marble around the exterior of the building with granite pavers, plumbing repairs, and replacing all of the drains and waterproofing.
West fascia	These repairs entail removing and replacing 63 marble panels, repairing the front planter, and installing a new safety rail.

Source: The John F. Kennedy Center for the Performing Arts.

Kennedy Center officials were unable to provide a detailed explanation of how they arrived at the preliminary 1997 and 1998 cost and schedule estimates because they had experienced high staff turnover since the estimates were developed, and records were either not available or not retained. Despite this fact, these officials said that it appeared that the estimates were based on some unrealistic assumptions. For example, they said the initial estimates

- were incorrectly based on construction costs of garages outside the District of Columbia, which was a poor comparison because they are less expensive to construct;
- did not adequately consider the need to keep the Kennedy Center open 365 days per year, which had an effect on construction phasing and coordination issues and subsequently on the estimated costs and time frames; and
- did not account for the unusually expensive, busy, and competitive construction market conditions during this period.

Furthermore, the project was delayed for approximately 2 years as Kennedy Center officials worked through multiple efforts to design and bid the project and reduce project costs. For example, as part of the National Capital Planning Commission and the Commission of Fine Arts project review process, the Kennedy Center was required to redesign some portions of the project to comply with their decisions regarding design elements, finishes, landscaping, and the elimination of planned valet parking on top of the semi-elliptical terrace.⁶ In addition, budget constraints led the Kennedy Center to undertake various efforts in an attempt to lower the project cost, such as (1) redesigning portions of the project, (2) performing value engineering to identify and eliminate unnecessary costs, and (3) rebidding the project after initial contractor bids far exceeded the Kennedy Center's expectations and it was unsuccessful in negotiating with the lowest bidder. Kennedy Center officials acknowledged that they should have better informed Congress of the preliminary nature of the 1997 and 1998 estimates and the subsequent

⁶In general, the National Capital Planning Commission and the Commission of Fine Arts review every federal development project in the National Capital Region and approve or deny the location and design of new construction; exterior additions and renovations; grading and landscaping; street and road extensions; and parking modifications at all federal buildings, museums, memorials, and monuments.

events in the planning and bidding phases of the project that affected the project's costs, time frames, and scope. As a result, these officials said that they now have monthly meetings with congressional stakeholders to discuss the status of ongoing construction projects.

Kennedy Center Faces Challenges in Managing Its Construction Program

In addition to problems associated with the planning and bidding phases of the project, we found that the Kennedy Center faces a number of challenges in managing large construction projects. The Kennedy Center lacks (1) adequate policies and procedures to guide the planning and management of the construction process, (2) some timely construction data on schedules and costs for effectively overseeing construction projects and measuring results, and (3) key human capital resources and expertise that would be highly beneficial in managing the construction process. More specifically:

- *Policies and procedures.* Although the Kennedy Center had some limited construction-related guidance, such as safety plans developed by the construction management contractor, it does not have formal, written project management policies and procedures to help guide and administer construction projects. A typical project management guide would include policies and procedures on the organization of the project, quality control and assurance standards, project execution procedures, and requirements for day-to-day administration of contracts, all of which would help to ensure overall project oversight. Other federal agencies that manage construction projects, such as the General Services Administration, the Department of State, and the Architect of the Capitol, use such guidance.
- *Timely construction data.* The Kennedy Center does not always receive timely construction data on schedules and costs. These data are necessary for monitoring construction costs and measuring results, such as estimated total project costs. For example, the Kennedy Center's construction manager told us that he provided cash flow reports only when requested, and that, at times, he provided the reports at a rate of once every 3 months, instead of on a monthly basis as required by the contract. In addition, the Kennedy Center decided to waive the submission of key timely written project management reports from the construction manager and to rely instead on weekly meetings. In commenting on a draft of this report, Kennedy Center officials said that they had received timely scheduling data on the garage project, on a weekly and monthly basis, at various meetings. However, these

meetings were no substitute for timely written reports, which are typically used in construction project management and would have provided additional detailed information on schedules and costs that could have been helpful in project oversight. Kennedy Center officials agree that they should have obtained monthly project management reports and are now doing so.

- *Human capital resources and expertise.* Kennedy Center officials lack key human capital resources and expertise that would be highly beneficial in managing the construction process. For example, the Kennedy Center experienced significant turnover in both in-house staff and contractor personnel during the design stages of the project, which has contributed to reduced institutional knowledge of the project and has increased the time necessary to finalize design decisions. In addition, two key management positions were left vacant for an extended period. The project executive position became vacant in September 2001. The person in this position is responsible for directing and managing all capital repair and construction projects. Kennedy Center officials had decided not to fill the project executive position, but instead to have the executive vice president assume those duties. However, Kennedy Center officials said that given the complexities and scale of the upcoming plaza and buildings project, they now plan to fill this position and have the person report to the executive vice president. Also, the contracting officer position became vacant in the summer of 2002, and Kennedy Center officials told us that because of difficulties in finding a qualified candidate, they did not fill this position until March 2003. The President of the Kennedy Center told us he recognized that the Kennedy Center continues to lack adequate staff or expertise to manage its upcoming plaza and buildings project, and he detailed plans to address these shortcomings. In commenting on a draft of this report, Kennedy Center officials noted that they are in the process of filling the positions of director of capital projects and project manager, have engaged an architect and developer firm, and now feel that they do have sufficient staff and expertise.

These construction management challenges are not new to the Kennedy Center. In September 1995, a Kennedy Center consultant reported that there were no clear lines of responsibility within the existing facility management structure, and that job descriptions were not clearly defined.⁷ In addition, the consultant's report also noted the following: "An organized system should be developed for managing information concerning the facility operations to be used to monitor performance against established standards." Regarding human capital, we reported in 1993 that the Kennedy Center lacked a federal contracting officer, architects, engineers, or other professional occupations associated with capital projects.⁸ We concluded that the Kennedy Center did not have sufficient capability to effectively manage large-capital construction projects. In commenting on a draft of this report, Kennedy Center officials told us that since 1993, they have added a contracting department of five full-time positions and an entire project management department consisting of nine employees—six full-time Kennedy Center employees, including four project managers and two support personnel, plus three contract employees. In addition, these officials said that full job descriptions have been developed for all positions.

Although it is difficult to determine the extent to which these challenges have hindered the Kennedy Center's efforts on the garage expansion and site improvement project to date, having adequate policies and procedures, timely construction data, and additional qualified human capital—even though the Kennedy Center has enhanced its facility management staff since our earlier reports—would help to strengthen the construction program and reduce risk. Addressing these challenges will become increasingly important as the Kennedy Center undertakes the larger, more costly, and more complex plaza and buildings project. The critical importance of having quality guidance, data, and human capital was highlighted by the National Research Council's 2000 report on federal organizations, such as the Kennedy Center, that contract out for construction management services to acquire and build facilities. The council found that, among other things, these organizations should have (1) plans, policies, and procedures to define project goals and develop

⁷Wiss, Janney, Elstner Associates, Inc., Trammell Crow Company, and Environmental Systems Design, Inc., *Facility Management Assessment, Phase I* (Washington, D.C.: September 1995).

⁸U.S. General Accounting Office, *Kennedy Center: Information on the Capital Improvement Program*, [GAO/GGD-93-46](#) (Washington, D.C.: Feb. 9, 1993).

strategies and methods for achieving those goals; (2) detailed data to monitor progress and assess risks; and (3) in-house staff with sufficient management, financial, and technical skills necessary for effective oversight of all phases of the project. Effective policies and procedures would provide a road map for project managers on how best to estimate project costs, administer the contract, and define the roles and responsibilities of project staff. Timely data would allow project managers to effectively oversee project status and measure results to gauge effectiveness. Qualified human capital and expertise would improve efforts to control project costs, time frames, and scope. Kennedy Center officials acknowledged the importance of focusing on these areas. In commenting on a draft of this report, these officials said that they have initiated efforts to improve these areas of concern, including (1) contacting the Federal Facilities Council for assistance with updating and improving construction management policies and procedures, (2) requesting monthly written project management reports, and (3) hiring additional in-house and contractor staff to assist in the upcoming plaza and buildings project.

Conclusions

Changes in costs, time frames, and scope are not unusual in large construction projects. However, in the case of the Kennedy Center garage expansion and site improvement project, early estimates proved to be especially problematic and were based on unrealistic assumptions. Furthermore, if the Kennedy Center continues to operate without adequate construction policies and procedures, timely schedule and cost data, and qualified human capital, the success of its future plaza and buildings project will be at risk. Although making improvements in these areas is no guarantee of project success, such improvements would strengthen the construction program and reduce risk by providing greater effectiveness in managing and overseeing future projects and measuring results.

Recommendations

To help improve the Kennedy Center's ability to manage and oversee its construction program, we recommend that the President of the Kennedy Center, in conjunction with the Chairman of the Board of Trustees,

- develop comprehensive project management policies and procedures to guide the planning and execution of the construction process,
- ensure development and use of timely data to oversee construction projects and measure results, and

-
- ensure that the needs for human capital expertise are met.

Kennedy Center Comments

We provided a draft copy of this report to the Chairman of the Kennedy Center Board of Trustees and the President of the Kennedy Center. On June 20, 2003, the Kennedy Center President provided us with written comments on behalf of the trustees and staff (see app. II). Kennedy Center officials generally agreed with our findings and recommendations. They said that they found the recommendations helpful, and that they have initiated efforts to address them. Further, these officials provided additional comments to clarify information regarding the project estimates, project management data, and human capital resources, which we have incorporated throughout the report as appropriate.

Objectives, Scope, and Methodology

To meet our first objective of comparing the garage expansion and site improvement project's most recent estimates on costs, time frames for completion, and scope with estimates previously provided to Congress in 1997 and 1998, we analyzed Kennedy Center construction project documents, such as contracts, estimates, and plans. To gain a better understanding of the construction project, we accompanied a Kennedy Center official on a tour of the construction site during which the official pointed out the major components and features of the project. In addition, we interviewed officials with the Kennedy Center, the construction management contractor, the architectural firm involved with the project, and the U.S. Army Corps of Engineers. To meet our second objective of determining what challenges, if any, the Kennedy Center faces in managing large construction projects, we examined the Kennedy Center construction process, including existing policies and procedures, organization structure, and construction data systems. For background information, we reviewed applicable statutes relating to the Kennedy Center and considered previous GAO work and industry construction management practices.

We did our work between January and July 2003 in accordance with generally accepted government auditing standards.

As agreed with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after its issue date. At that time, we will send copies of this report to the appropriate congressional committees, the Chairman of the Kennedy

Center Board of Trustees, and the President of the Kennedy Center. We will make copies available to others on request. In addition, this report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staff have any questions, please contact me on (202) 512-2834 or at goldsteinm@gao.gov. Major contributors to this report were Casey L. Brown, Terrell Dorn, and Thomas G. Keightley.

A handwritten signature in black ink, appearing to read 'Mark L. Goldstein', with a long horizontal flourish extending to the right.

Mark L. Goldstein
Acting Director, Physical Infrastructure Issues

Kennedy Center's Projected Revenue from Parking Spaces Constructed in the Garage Expansion

Fiscal year	Parking rate per space	Number of parking spaces	Projected capacity factor	Annual revenue	Debt service (principal plus interest)	Excess (deficit)
2004	\$15	525	0.8	\$2,299,500	\$3,830,124	(\$1,530,624)
2005	15	525	1.1	3,161,813	2,345,932	815,881
2006	16	525	1.1	3,372,600	2,347,134	1,025,466
2007	16	525	1.1	3,372,600	810,765	2,561,835
2008	17	525	1.1	3,583,388	2,327,825	1,255,563
2009	17	525	1.1	3,583,388	3,906,706	(323,319)
2010	18	525	1.1	3,794,175	2,353,108	1,441,067
2011	18	525	1.1	3,794,175	2,354,248	1,439,927
2012	19	525	1.1	4,004,963	706,533	3,298,430
2013	19	525	1.1	4,004,963	2,333,685	1,671,278
2014	20	525	1.3	4,982,250	2,333,633	2,648,617
2015	20	525	1.3	4,982,250	4,060,521	921,729
2016	21	525	1.3	5,231,363	2,362,280	2,869,083
2017	22	525	1.3	5,480,475	2,367,424	3,113,051
2018	22	525	1.3	5,480,475	539,607	4,940,868
2019	23	525	1.3	5,729,588	2,335,932	3,393,656
2020	24	525	1.3	5,978,700	2,332,691	3,646,009
2021	24	525	1.3	5,978,700	4,275,310	1,703,390
2022	25	525	1.3	6,227,813	2,376,286	3,851,527
2023	26	525	1.3	6,476,925	2,379,500	4,097,425
2024	27	525	1.3	6,726,038	311,664	6,414,374
2025	28	525	1.3	6,975,150	2,337,920	4,637,230
2026	29	525	1.3	7,224,263	4,513,050	2,711,213
2027	30	525	1.3	7,473,375	2,395,916	5,077,459
2028	30	525	1.3	7,473,375	2,394,620	5,078,755
2029	31	525	1.3	7,722,488	58,953	7,663,535
2030	32	525	1.3	7,971,600	2,343,953	5,627,647
Total				\$143,086,388	\$63,035,320	\$80,051,068

Source: The John F. Kennedy Center for the Performing Arts.

Note: The information in this appendix was provided by the John F. Kennedy Center for the Performing Arts and does not contain any GAO analysis.

Agency Comments from the John F. Kennedy Center for the Performing Arts

The John F. Kennedy Center for the Performing Arts

June 20, 2003

WASHINGTON, D.C. 20566-0001
202 416-8010
FAX 202 416-8018

Mr. Mark L. Goldstein
Acting Director, Physical Infrastructure Issues
United States General Accounting Office

Dear Mr. Goldstein:

On behalf of the Trustees and staff of the John F. Kennedy Center for the Performing Arts, I want to thank you and your team from the General Accounting Office for forwarding the draft report, "Kennedy Center: Improvements Needed to Strengthen Management and Oversight of the Construction Process." This document will assist us in our continuing efforts to improve all aspects of Kennedy Center management.

We found many of the observations and recommendations helpful and have already initiated substantial efforts to address these points. In particular, we have already contacted the Federal Facilities Council to ask for assistance with updating and strengthening our construction management policies and procedures guide. We have also identified and solicited the management reports you have recommended we receive from our construction manager. And, finally, we have either hired or initiated the hiring process for the personnel you recommended we engage to strengthen our construction management with particular focus on the upcoming Plaza Project.

While we found the report illuminating, there are several key areas addressed by the report we wish to clarify.

1. The comparison of the actual construction costs for the garage expansion and the site work versus the original Congressional testimony of 1997 suggests that the project as conceived in 1996 and the one actually implemented were one and the same. In fact, the site work actually implemented is substantially more complex and far-reaching than the simple road re-design contemplated in the original testimony. During the design development phase of the project, it was decided to expand the scope of work for the site improvements to improve security and health and safety for our 3,000,000 annual visitors and our staff and to speed traffic flow. These additional project elements include:
 - improving pedestrian access by replacing the steep ramp with a monumental stairway and a fully accessible walkway
 - making structural modifications and repairs to the service tunnel to reinforce the tunnel to accommodate the new roadway above the plaza and adding a secured exit at the south end of the service tunnel to make it a secure and useable means of entrance to the building by the secret service for high-level dignitary visits

Appendix II
Agency Comments from the John F. Kennedy
Center for the Performing Arts

- making repairs to the existing garage and its mechanical systems to repair and replace exhaust fans and underground ducts and install carbon monoxide monitors tied into the existing garage exhaust system
- making extensive repairs to the plaza, including the replacement of the marble walking surface with granite pavers, plumbing repair and replacement of all drains and waterproofing
- removing and replacing 63 marble panels on the west fascia and installing a safety rail on the west terrace

These enhancements account for \$38.6 million of the difference between the \$87 million actual cost and the \$28 million testified to in 1997. In addition, the original testimony did not include capitalized financing costs currently estimated at \$7.5 million.

Once construction started, the garage expansion has proceeded on schedule, with the exception of some delays due to a particularly harsh and wet winter and spring and significant amounts of contaminated soil discovered during construction.

The number of additional spaces estimated during the initial design of the garage expansion included the use of the surface of the terraces (Figure 1, areas A, C, and D in the report) as parking area, providing 359 exterior spaces. The use of the terraces for this purpose was eliminated at the request of the Commission of Fine Arts. The design does continue to provide us with the ability to add car stackers in the north and south additions, which could add 150 additional parking spaces.

It should also be noted that over the term of the bonds the income anticipated from the 525 additional parking spaces will generate a significant positive cash flow after all construction costs are paid, including principal and interest due on the bonds.

2. With respect to project information, we always received timely scheduling data on the garage project, weekly and monthly. At the beginning of the project, cash flow projections did not change from month to month and therefore did not call for monthly updates. Once change orders were initiated due to unforeseen soil conditions and poor weather, changes in cash flow projections were received regularly. While the monthly project management reports should have been solicited, and are now being received regularly, the weekly progress meetings provided detailed information on scheduling and pending problems which could result in change orders in a more timely manner.
3. The two new buildings included in the anticipated Plaza Project are summarized as housing 'administrative offices and arts education programs.' I think it is important that all those who read this report understand that the project will also include an outdoor facility for free public performances, substantial rehearsal

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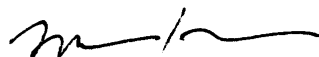
facilities that will be open to the public, and major exhibitions that allow members of the public to learn about the history of the performing arts in America and to participate in the arts by conducting an orchestra, designing sets and costumes and performing other 'backstage' tasks. The new Kennedy Center campus will give visitors an arts experience available no other place in the world.

4. I am correctly cited with reference to my May 7, 2003 letter to the GAO recognizing that the Kennedy Center lacks adequate staff or expertise to manage the Plaza Project. Omitted from this report, however, were my plans, delineated in my letter, to address this shortcoming. In fact, we are currently in the process of filling the position of Director of Capital Projects. In addition, we have followed a plan suggested by the United States Department of Transportation for the staffing of the Plaza Project and have already engaged an architect after an extensive search process, engaged in a panel process and hired a developer firm that will provide comprehensive project management services as the Kennedy Center's Owner's Representative, and have initiated interviews for the position of Project Manager, an in-house expert who will serve as an in-house liaison between Center staff and the project team. I am now satisfied that we do have the staff and expertise in place to complement the team assembled by the Department of Transportation.

As a point of information, since the consultant study of 1995 and the GAO study of 1993, both cited in the report, the Kennedy Center has added a contracting department of five full time positions and an entire project management department consisting of a total of six full time employees, including four project managers and two support personnel, plus three contract employees. Full job descriptions have been developed for all positions. In addition to overseeing the garage expansion and site work, this department has successfully managed the refurbishment of the Grand Foyer, including the installation of interactive exhibits, the renovation of the Opera House, the redesign of a gift shop, the installation of a new Fire Alarm system, the abatement of asbestos and several other smaller projects in the past three years.

Once again, we appreciate the time, effort and thoughtfulness of the GAO team that completed this project and look forward to using the recommendations provided to assist with the Kennedy Center's construction management process.

Sincerely,



Michael M. Kaiser
President

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