

June 2005

COURTHOUSE CONSTRUCTION

Information on Project Cost and Size Changes Would Help to Enhance Oversight



G A O

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Highlights of **GAO-05-673**, a report to congressional requesters

COURTHOUSE CONSTRUCTION

Information on Project Cost and Size Changes Would Help to Enhance Oversight

Why GAO Did This Study

The General Services Administration (GSA) and the federal judiciary are in the midst of a multibillion-dollar courthouse construction initiative aimed at addressing the housing needs of federal district courts and related agencies. From fiscal year 1993 through fiscal year 2005, Congress appropriated approximately \$4.5 billion for 78 courthouse construction projects.

GAO (1) compared estimated and actual costs for recently completed courthouse projects and determined what information GSA provided to Congress on changes to proposed courthouse projects, (2) identified factors that contributed to differences between the estimated and actual costs of seven projects selected for detailed review, and (3) identified strategies that were used to help control the costs of the seven selected projects.

What GAO Recommends

To improve the usefulness of the information on courthouse construction projects that GSA provides to Congress, GAO recommends that GSA, when requesting funding for those projects, identify and explain changes in estimated costs and building size from the information provided to Congress in prior project prospectuses or fact sheets. GSA concurred with our recommendation.

www.gao.gov/cgi-bin/getrpt?GAO-05-673.

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

What GAO Found

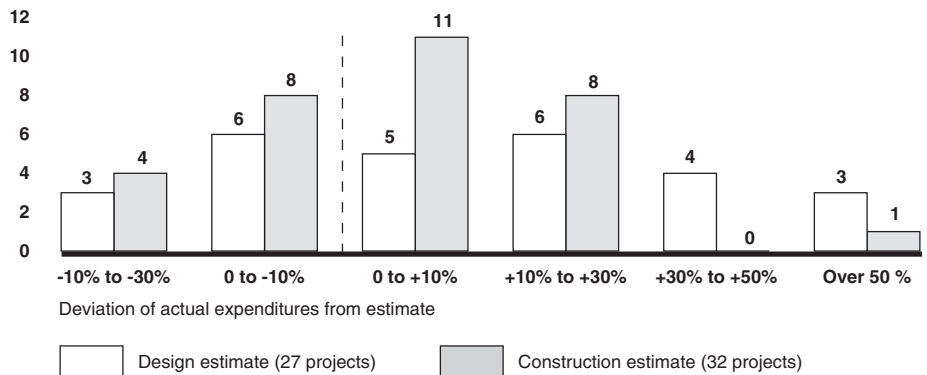
The actual costs of courthouse construction projects exceeded the estimated costs submitted to Congress at the design and construction phases by an average of 17 percent and 5 percent, respectively, and the reasons for the cost changes were not consistently explained. The actual costs were closer to the estimates provided at the construction phase, but as the figure shows, the actual cost still varied widely from the estimate for some projects. Both the estimated cost and the proposed building size often changed between the two funding requests. GSA did not always indicate that changes had occurred or explain the reasons for the changes. Including this information would be consistent with leading practices in capital decision making.

For the seven projects GAO reviewed in detail, most cost changes resulted from changes to the project's scope or from postponing the start of construction. For example, scope changes called for by security requirements and revisions to the U.S. Marshals Service's *Design Guide* increased the costs of some projects. Postponing the start of construction also increased costs because of inflation and changes in local market conditions. Factors that led to postponing construction included difficulties with site acquisition and GSA receiving funding later than anticipated.

GSA used several strategies to help reduce or control costs for the seven projects, including value engineering, modified contracting methods, and involving tenant agencies. Value engineering was used during design on all projects, and in some cases, resulted in the use of less expensive materials to finish the courthouse interiors, but in other cases resulted in changes that could increase the long-term cost of operating the buildings. Some project managers used modified contracting methods to control costs by reducing the time between the design and construction phases. Project managers also used a variety of approaches for involving tenant agencies in decisions about the building design and informing them about the progress of the project.

Comparison of Actual and Estimated Courthouse Project Costs

Number of projects



Sources: GAO (analysis), GSA (data).

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Abbreviations

AOUSC	Administrative Office of the U.S. Courts
CCP	Center for Courthouse Programs
ESPC	Energy Savings and Performance Contracts
GSA	General Services Administration
OMB	Office of Management and Budget
USMS	U.S. Marshals Service

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United States Government Accountability Office
Washington, D.C. 20548

June 30, 2005

The Honorable James M. Inhofe
Chairman, Committee on Environment
and Public Works
United States Senate

The Honorable Christopher S. Bond
Chairman, Subcommittee on Transportation
and Infrastructure
Committee on Environment and
Public Works
United States Senate

The General Services Administration (GSA) and the federal judiciary are in the midst of a multibillion-dollar courthouse construction program aimed at addressing the housing needs of federal district courts and related agencies. From fiscal year 1993 through fiscal year 2005, Congress appropriated approximately \$4.5 billion for 78 courthouse construction projects.¹ The judiciary's current 5-year plan (covering fiscal years 2005 through 2009) identifies 57 new projects that are expected to cost \$3.8 billion.

In response to concerns that GSA's Inspector General and we have raised over the years, GSA and the judiciary have taken actions to manage and control courthouse construction costs. However, courthouse projects continue to be costly, and increasing rents and budgetary constraints have given the judiciary further incentive to control their costs. The judiciary pays rent to GSA for the use of the courthouses, which GSA owns, and the proportion of the judiciary's budget that goes to rent has increased as the judiciary's space requirements have grown. Additionally, in fiscal year 2004, the judiciary faced a budgetary shortfall that required it to cut its administrative costs and reduce staff by 6 percent. In September 2004, the judiciary announced a 2-year moratorium on new courthouse construction projects as part of an effort to address its increasing operating costs and budgetary constraints. During this time, among other things, the judiciary plans to review its space needs and standards in an effort to reduce the costs of its space. While some of the 57 projects in the current 5-year plan

¹The \$4.5 billion does not include all rescissions that affected the total funding available for the 78 projects.

and their costs may change as a result of the moratorium, the judiciary believes that it will continue to need additional space to accomplish its mission.

To assist the committees with their oversight of the courthouse construction program, you asked us to review courthouse construction project costs. As a result, we (1) compared estimated and actual costs for recently completed courthouse projects and determined what information GSA provided to Congress on changes to the proposed courthouse projects, (2) identified factors that contributed to differences between the estimated and actual costs of selected projects, and (3) identified strategies that were used to help control the costs of the selected projects. To do this work, we reviewed project documents submitted to Congress and obligations data from GSA's budget office for 38 projects completed since 1998. For each project, we compared the actual cost, including claims, with the estimated total project cost that GSA provided to Congress, typically when it requested funding for the project's design and construction. GSA generally requests funding in two phases—initially for the design of the project and then later for the project's construction—and provides Congress with an estimate of the project's total cost with each request. We then selected seven completed courthouses for a detailed review to identify factors that affected costs and the strategies used to help control them. The seven courthouses we reviewed were located in Albany, Georgia; Cleveland, Ohio; Denver, Colorado; Erie, Pennsylvania; Gulfport, Mississippi; Las Vegas, Nevada; and Seattle, Washington. We selected these courthouses to include a range of cost changes, sizes, and geographic locations. We visited the courthouses, reviewed relevant project files, and interviewed GSA project managers and others involved in the projects. We also discussed our work with judiciary officials, including Administrative Office of the U.S. Courts (AOUSC) officials and judges. We determined that the project cost data were reliable for the purposes of our review. We conducted our work from July 2004 through April 2005 in accordance with generally accepted government auditing standards (see app. I for more information on our scope and methodology).

Results in Brief

The actual costs of courthouse construction projects exceeded the estimated costs submitted to Congress at the design and construction phases by an average of 17 percent and 5 percent, respectively, and the reasons for the cost changes were not consistently explained in GSA's documents. Specifically, the actual costs for courthouse construction projects completed since fiscal year 1998 ranged from 23 percent below to

115 percent above the first cost estimates provided to Congress.² The actual costs were closer to the estimates provided at the second key point, when funds were requested for construction, than they were to the design phase estimates, but the actual costs still ranged from 25 percent below to 52 percent above the construction phase estimates.³ Both the estimated project cost and the proposed building size, described in the prospectus or fact sheet submitted to Congress with the request for construction funding, often differed from the information contained in earlier design phase documents. However, GSA did not always indicate that changes had occurred or explain the reasons for the changes. As a result, changes to the courthouse projects that could have increased costs might not have been apparent to congressional decision makers.

For the seven projects we reviewed in detail, most cost changes resulted from changes in the scope of the project or from postponing the start of construction. We found that changes to the scope of these projects often resulted in cost changes. For example, changes called for by security requirements and revisions to the U.S. Marshals Service's *Design Guide* increased the costs of some projects. We also found that postponing the start of construction increased the likelihood of cost increases due to inflation and changes in local market conditions. Factors that led to postponing construction included difficulties with site acquisition and GSA receiving funding later than anticipated. We did not find that departures from the *U.S. Courts Design Guide (Design Guide)*, which sets standards for courthouse construction, were a major factor in project cost increases.

For the seven projects we reviewed in detail, GSA used several strategies to help reduce or control costs, such as value engineering (a process to identify potential cost-saving changes), modified contracting methods, and a variety of approaches for involving and communicating with tenant agencies. GSA used value engineering during the design of all seven projects to help control costs. Many of the value engineering changes resulted in the use of less expensive materials to finish the interior of the courthouses. Some other changes, such as the removal of a window washing platform, could increase the future operating costs of the buildings. Some project managers used modified contracting methods in an

²This range is for the 27 projects that GSA provided a total project cost estimate to Congress at the project design phase.

³This range is for the 32 projects that GSA provided a total project cost estimate to Congress with the construction funding request.

effort to control costs by reducing the time between the design and construction phases. This strategy reduced the risk that changes in tenants' requirements and inflation could increase costs. In keeping with capital project leading practices, GSA project managers also used a variety of communication tools to involve project stakeholders in decisions about the building design and keep them informed about the progress of the project. For example, each project manager had a full-size model of a district courtroom built before construction began to solicit judges' and other stakeholders' comments and input. Changes to the design and layout of the courtrooms were made at this point, thereby helping to control costs by minimizing changes during construction.

We are recommending that GSA clearly identify and explain changes in estimated project costs and building size to improve the usefulness of project information that GSA provides to Congress. GSA commented on a draft of this report and concurred with our findings and recommendation. GSA and AOUSC also provided technical clarifications, which we have incorporated in this report as appropriate.

Background

The judiciary and GSA are responsible for managing the multibillion-dollar federal courthouse construction program, which is designed to address the judiciary's long-term facility needs. AOUSC, the judiciary's administrative agency, works with the nation's 94 judicial districts to identify and prioritize needs for new and expanded courthouses. Since fiscal year 1996, AOUSC has used a 5-year plan to prioritize new courthouse construction projects, taking into account a court's need for space, security concerns, growth in judicial appointments, and operational inefficiencies that may exist. The *Design Guide* specifies the judiciary's criteria for designing new court facilities and sets the space and design standards for courthouse construction. First published in 1991, the *Design Guide* has been revised several times to address budgetary considerations, technological advancements, and other issues.

GSA has been using AOUSC's 5-year plan since fiscal year 1996 to develop requests for both new courthouses and expanded court facilities. GSA also prepares feasibility studies to assess various courthouse construction alternatives and serves as the central point of contact with the judiciary and other stakeholders throughout the construction process. For courthouses that are selected for construction, GSA prepares detailed

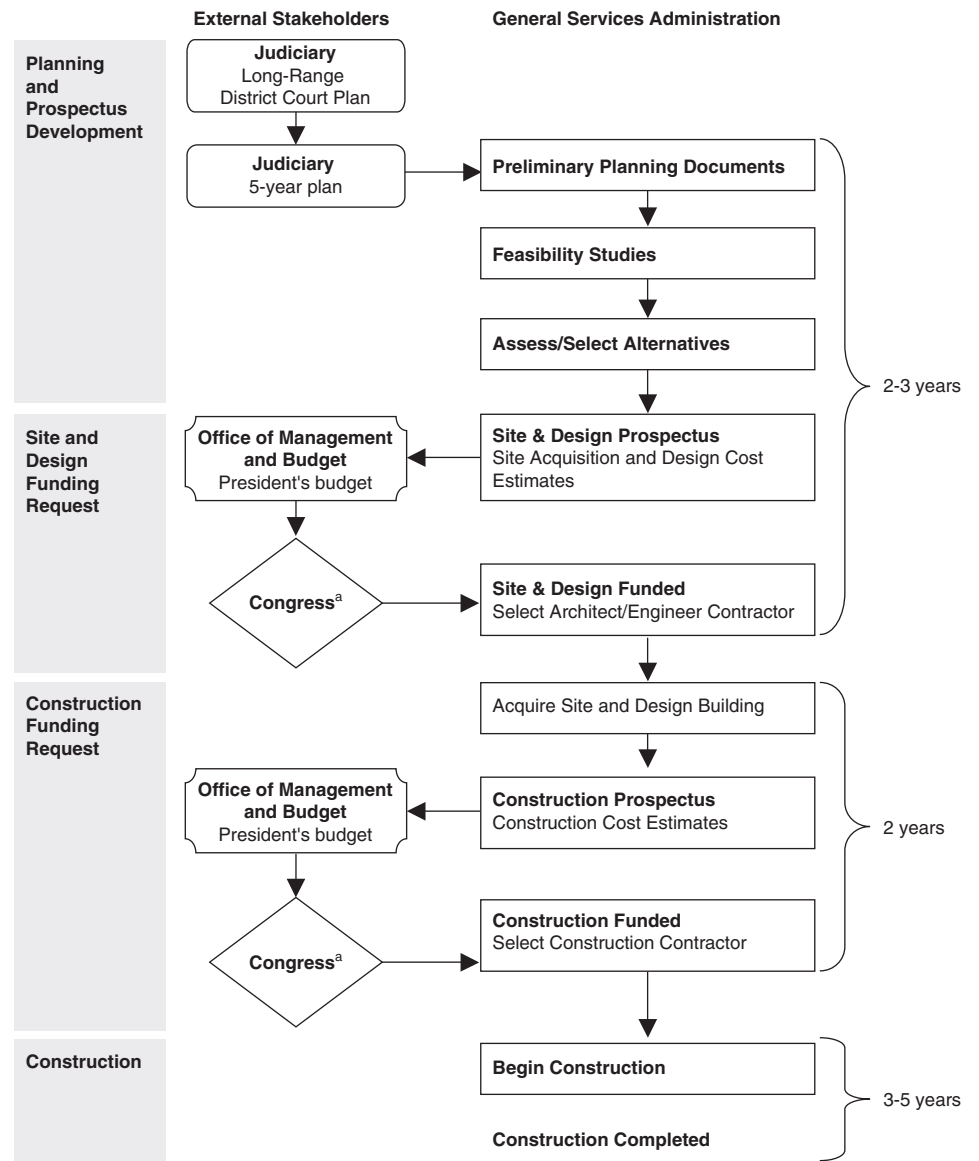
project descriptions called prospectuses.⁴ The prospectus includes the justification, location, size, and estimated cost of the new or annexed facility. GSA typically submits two prospectuses to Congress to request authorization and funding.⁵ The first prospectus, often called the site and design prospectus, outlines the scope and estimated costs of the project at the outset and typically requests authorization and funding to purchase the site for and design of the building. The second prospectus, often called the construction prospectus, outlines the scope and estimated costs of the project as it enters the construction phase and typically requests authorization and funding for construction, as well as additional funding if needed for site and design. At the request of Congress or when additional authority and funding are required, GSA may also provide additional prospectuses or fact sheets that contain the project's estimated total cost.

GSA requests funding for courthouses as part of the President's annual budget request to Congress. Once Congress authorizes and appropriates funds for the project, GSA refines the project budget and selects private-sector firms for the design and construction work through a competitive procurement process. GSA also manages the construction contract and oversees the work of the construction contractor. If disputes arise between GSA and the contractor that cannot be resolved, the contractor has the option of filing a claim against the federal government. Figure 1 illustrates the process for planning, approving, and constructing a courthouse project.

⁴Under the Public Buildings Act of 1959, as amended, prospectuses are submitted to the Senate Committee on Environment and Public Works and the House committee on Transportation and Infrastructure for the proposed construction, alteration, or acquisition of a public building that exceeds a certain annually adjusted cost threshold. The prospectus threshold for projects in fiscal year 2005 was \$2,360,000.

⁵Some courthouse projects are procured using the design-build method, which typically requires only one prospectus to be submitted to Congress because funding for the site, design, and construction are requested at the same time.

Figure 1: Development and Approval Process for Funding a Typical Courthouse



Note: This figure shows the typical process for a project procured through the design-bid-build method.

^aCourthouse projects are financed through the Federal Buildings Fund (FBF), a revolving fund that is used to fund GSA real property activities with rent from tenant agencies. The President's annual budget request to Congress proposes spending from the FBF. GSA submits detailed project descriptions called prospectuses to Congress as part of its Capital Investment Program. Prospectuses request authorization and funding for new construction and repair and alteration projects.

GSA and the judiciary have implemented a number of initiatives since fiscal year 1995 to improve the management of the courthouse construction program. These initiatives are consistent with leading practices that we have recognized in prior reports, including the use of project management tools and communication with stakeholders.⁶ To improve comprehensive planning, the judiciary implemented an annually updated 5-year plan to prioritize its courthouse projects and revised its *Design Guide* to include new criteria intended to encourage cost consciousness.

In 1995, GSA established the Courthouse Management Group, which was reorganized in 2003 as the Center for Courthouse Programs (CCP), to serve as a central point of contact for the judiciary, GSA's field offices, the Office of Management and Budget (OMB), and Congress. CCP's responsibilities include reviewing and finalizing prospectuses before they are submitted to OMB, developing cost benchmarks and comparing new projects' cost estimates with these benchmarks, and determining whether proposed courthouse designs conform to the *Design Guide's* standards. GSA also established three programs—the Project Management Center of Expertise and the Design and Construction Excellence programs—to share project management innovations and provide opportunities for peer review during the design and construction phases.

To provide for accountability and oversight throughout a project, GSA uses a benchmarking system at the start of the design process to develop the first estimate of the project's construction cost. This system computes the estimated cost of the building by comparing it to similarly sized courthouses and adjusts for differences in local market conditions and the number of years expected to complete the project. The benchmark is used to estimate the construction costs that will be submitted in the prospectus. To help ensure that courthouse projects can be built within authorized budgets, GSA develops independent cost estimates for each new courthouse at three milestone dates—during the preliminary planning, design development, and construction document phases. GSA also facilitates stakeholders' involvement, another recognized leading practice, by encouraging regular partnership meetings between the judiciary and

⁶GAO, *Executive Guide: Leading Practices in Capital Decision-Making*, [GAO/AIMD-99-32](#) (Washington, D.C.: Dec. 1998) and GAO, *Intercity Passenger Rail: Amtrak's Management of Northeast Corridor Improvements Demonstrates Need for Applying Best Practices*, [GAO-04-94](#) (Washington, D.C.: Feb. 27, 2004).

GSA and by using courtroom mock-ups to encourage greater judicial feedback on the design of the courthouse facilities.

Since the courthouse construction program began in the early 1990s, budgetary constraints faced by GSA and the courts have affected the program's progress, putting some planned courthouse construction projects on hold for extended periods. In response to recommendations by the 1993 National Performance Review, GSA initiated a "time-out and review" of all prospectus-level new construction projects, including courthouse projects, in 1993 and 1994. During this time-out and review, GSA reevaluated the costs of new construction projects to ensure that proposed projects were justified and cost effective and that alternatives had been adequately considered. Funding requests for courthouse projects were not included in the President's budget in 4 of the last 10 fiscal years (1998, 1999, 2000, and 2004). Congress did not provide funding for courthouse projects in fiscal years 1998 and 2000. Most recently, in September 2004, the Judicial Conference adopted a 2-year courthouse construction moratorium on planning, authorizing, and budgeting courthouse construction projects. This moratorium affects 42 out of the 57 projects listed on the judiciary's 5-year plan. According to judiciary officials, the moratorium was necessary to seek remedies for its own budgetary shortfalls, resulting in part from the increase in the total rent it pays to GSA for the space it occupies. According to the judiciary, rent currently accounts for just over 20 percent of its operating budget and is expected to increase to over 25 percent of its operating budget in fiscal year 2009 when the costs of new court buildings already under way are included. During this moratorium, AOUSC officials said that they plan to reevaluate the courthouse construction program, including reassessing the size and scope of projects in the current 5-year plan, reviewing the *Design Guide's* standards, and reviewing the criteria and methodology used to prioritize projects. Judiciary officials also said that they plan to reevaluate their space standards in light of technological advancements and opportunities to share space and administrative services.

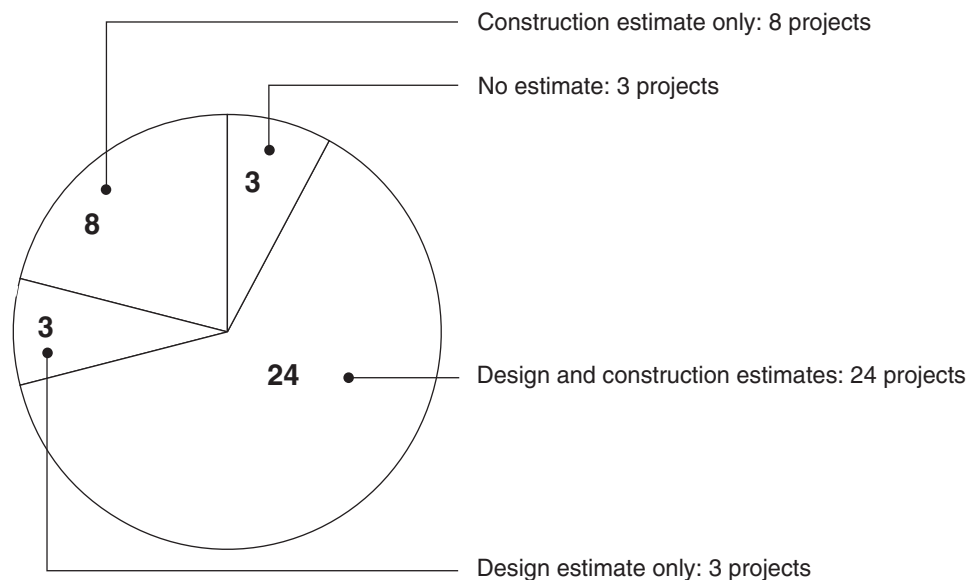
Actual Costs of Courthouse Projects Can Vary Significantly from Estimates Provided to Congress, and Changes Are Not Consistently Explained

The actual costs for courthouse construction projects completed since fiscal year 1998 varied from the estimates provided to Congress at the design and construction phases. As expected, the variation was greater, on average, for the design phase estimates than for the later, more refined construction phase estimates. For many projects, the estimated cost and proposed building size changed between the design and construction phases, but GSA often did not indicate that these changes had occurred or explain the reasons for them in the prospectuses and fact sheets it supplied to Congress.

As shown in figure 2, GSA provided Congress with at least two separate total cost estimates for 24 of the 38 projects. Of the remaining 14 projects, GSA provided Congress with a single, total-cost estimate for 11 of the projects and provided no formal estimate prior to the appropriation of funds for 3 of the projects. The single estimates were for design-build projects, for which all funding was requested at one time, or for projects for which GSA did not provide a total project cost estimate when requesting funds for design. In all, for the 38 projects we reviewed, GSA provided Congress with a total project cost estimate at the design phase for 27 projects and at the construction phase for 32 projects. The project cost estimates that GSA provides to Congress typically include all costs associated with acquiring the site and designing and constructing the courthouse.⁷ These estimates do not include estimates for items that the tenant agencies fund for the new courthouse, such as space alterations above the standard normally provided by GSA.

⁷GSA accounts for inflation in estimates by escalating the project's cost to reflect the anticipated construction start date.

Figure 2: Breakdown of Estimates Provided to Congress by GSA for 38 Projects



Source: GAO analysis of GSA documents submitted to Congress.

Notes: Estimate provided at design for 27 projects.

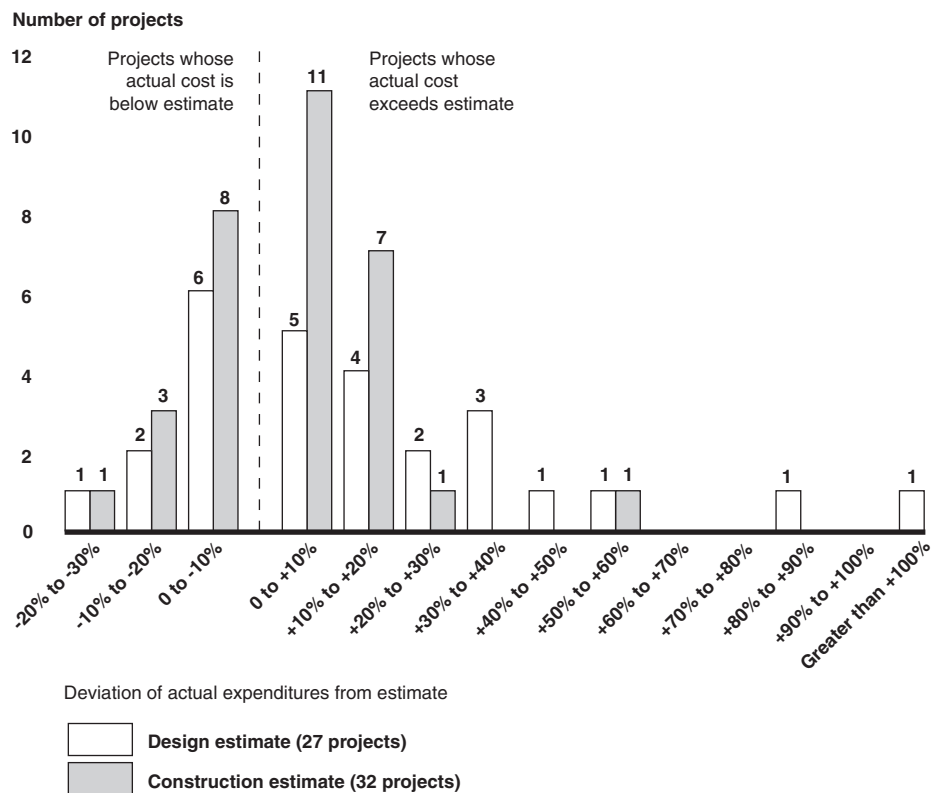
Estimate provided at construction for 32 projects.

For the 27 projects that had a total cost estimate provided to Congress at the design phase, the actual cost, including claims, exceeded the estimate by an average of 17 percent and ranged from 23 percent below to 115 percent above the estimate.⁸ The actual cost compared more favorably with the estimate at the construction phase, which is provided to Congress an average of 2 years after the initial design phase estimate. This improved accuracy is expected because more information is available to estimate the cost of the project as its design moves forward and becomes more fully defined. For the 32 projects that had a total cost estimate provided to Congress at the construction phase, the actual cost exceeded the estimate by an average of 5 percent and ranged from 25 percent below to 52 percent above the estimated cost. The actual cost exceeded this estimate by more than 10 percent for 9 of these 32 projects. The construction industry commonly uses 10 percent as a benchmark for the expected variance

⁸Claims are paid out of available project funds until the funds are exhausted. If additional funds are needed, they are paid out of the U.S. Treasury Department's Judgment Fund.

between the actual cost and the construction estimate. Figure 3 illustrates the numbers of projects whose actual costs fell short of or exceeded estimates at both the design and construction phases. See appendix II for additional details on the estimated project costs provided to Congress and the actual costs for all projects we examined.

Figure 3: Comparison of Actual and Estimated Costs

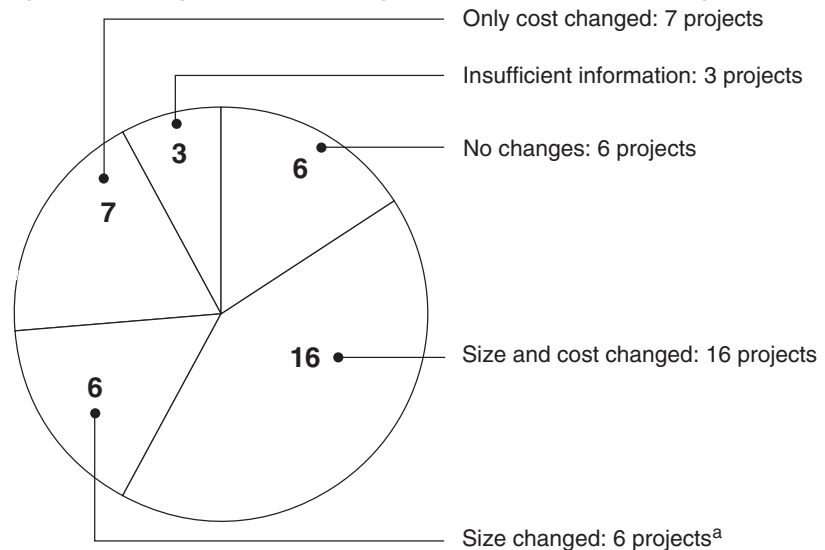


Sources: GAO (analysis), GSA (data).

The Public Buildings Act of 1959, as amended, requires GSA to seek approval from Congress if the estimated maximum expenditures for a project exceed the amount appropriated for the project by more than 10 percent. We found that GSA obtained approval from Congress for those projects where the estimated cost exceeded appropriated amounts by more than 10 percent.

Project cost estimates and proposed building sizes often changed between GSA's submissions to Congress of the design and construction phase documents. According to prospectuses and fact sheets provided to Congress, 29 of the 38 projects experienced changes in cost, building size, or both after the initial estimated project cost at design was submitted. As shown in figure 4, for 16 projects, both the proposed building size and the estimated project cost changed between the design phase and the construction phase. For another 7 projects, only the cost estimate changed, and for the other 6 projects, the building size changed; but only one estimate was provided to Congress, so we could not determine if the estimated cost changed. The building size changes ranged from small additions or subtractions of tenant space to substantial changes in overall square footage. For example, the proposed size of the Hammond, Indiana, courthouse increased by nearly two-thirds because the need for additional space was identified during a long-range planning process initiated after the initial funding request was submitted to Congress. By contrast, the proposed size of the Omaha, Nebraska, courthouse was reduced by approximately 11 percent after funds were requested for design because of a re-evaluation of construction projects completed as part of GSA's time-out and review process.

Figure 4: Changes between Design and Construction Funding Requests



Source: GAO analysis of GSA documents submitted to Congress.

^aFor these six projects, we were unable to determine if the estimated costs had changed because only one estimated total project cost was provided.

As we have explained in a previous report on funding capital projects, an important factor reinforcing the decision-making process is the availability of good information.⁹ Although changes in the proposed building size and estimated cost of a project during its design phase are not unexpected, GSA did not consistently identify or explain project changes in the prospectuses and fact sheets it submitted to Congress. For 17 of the 29 projects that changed after the design phase, no description or explanation of the change was provided in later construction phase documents submitted to Congress. In some cases, significant changes in building size, estimated cost, or both were not explained. For example, a comparison of documents submitted at the design and construction phases for the Jacksonville, Florida, courthouse shows a total estimated cost increase of over \$11 million (13 percent) and an increase in total building size of approximately 9,000 square feet (2 percent), yet these changes are not described or explained. Similarly, an increase in the estimated unit construction cost of \$55 per square foot—which increased the estimated total costs by over \$3 million (11 percent) for the Greeneville, Tennessee courthouse—was not explained in the fact sheet provided to Congress. By contrast, GSA fully explained the reasons for a nearly 40-percent decrease in the proposed size of the Youngstown, Ohio, courthouse, along with a 27-percent decrease in the project’s estimated cost. For the Tucson, Arizona, courthouse, GSA submitted a fact sheet describing numerous changes made in building size and estimated costs since the initial funding request, but it did so in response to a congressional staff request.

⁹[GAO/AIMD-99-32](#).

Changes in Scope and Postponement of Planned Construction Start Dates Resulted in Cost Changes for Selected Projects

For the seven projects we reviewed in detail, changes in scope and the postponement of planned construction start dates resulted in differences between estimated and actual project costs.¹⁰ Several factors contributed to changes in scope, including issues associated with site selection, historic preservation requirements, changes in tenants' requirements, and the need for additional security after the Oklahoma City bombing. Depending on circumstances unique to each project, some changes increased, while other changes decreased, the project's total costs. Postponing the start of construction for five of the seven projects increased their cost because of inflation, since GSA's project cost estimates are based on an expected construction start date.

The actual costs for the seven projects we reviewed in detail varied from 5 to 56 percent above the cost estimates provided to Congress at the design phase and from 2 percent below to 25 percent above the cost estimates provided at the construction phase. Table 1 compares the estimated costs with the actual costs for these seven projects.

¹⁰These seven projects represent a nonprobability sample. Results from nonprobability samples cannot be used to make inferences about a population, because in a nonprobability sample, some elements of the population being studied have no chance or an unknown chance of being selected as part of the sample. For details on how these projects were selected, see appendix I.

Table 1: Changes between Estimated and Actual Costs for Seven Projects

Dollars in millions

Project	Estimate at design	Estimate at construction	Actual cost	Change between estimate at design and actual cost	Change between estimate at construction and actual cost
Albany, GA ^a	N/A	\$12.2	\$13.1	N/A	7.9%
Cleveland, OH	\$199.2	\$170.5	\$213.3	7.1%	25.1%
Denver, CO	\$76.2	\$93.5	\$99.1	30.0%	5.9%
Erie, PA ^b	\$21.5	\$34.0	\$33.4	55.8%	-1.8%
Gulfport, MS	\$52.1	\$52.4	\$59.3	13.8%	13.2%
Las Vegas, NV ^c	\$99.0	N/A	\$103.7	4.7%	N/A
Seattle, WA ^b	\$164.4	\$216.1	\$214.7	30.6%	-0.6%

Source: GAO analysis of GSA data.

Note: N/A = Not applicable.

^aGSA submitted only one prospectus to Congress on February 23, 1995. The prospectus noted that Congress had included design funding in GSA’s fiscal year 1992 budget and construction funding in GSA’s fiscal year 1993 and fiscal year 1995 budgets.

^bAdditional costs are likely for the Seattle and Erie projects because of outstanding claims.

^cThe Las Vegas courthouse project was procured using the design-build method, thus requiring only one prospectus.

Multiple Factors Led to Changes in Project Scope

For each of the seven projects we reviewed, the scope changed and contributed to differences between the estimated cost provided to Congress and the actual cost. The term “scope” refers both to building size and to the amount of work or number of tasks required to complete the project. Factors that caused changes in scope included site selection issues, the need to address historic preservation requirements, changes in tenants’ requirements, and the need for additional security provisions. Although some scope changes changed both the building size and the amount of work to be done, other scope changes, such as those necessary to comply with historic preservation requirements and certain improvements requested by tenants, increased only the amount of work to be done. Table 2 identifies the factors that contributed to changes in scope for each of the projects we reviewed.

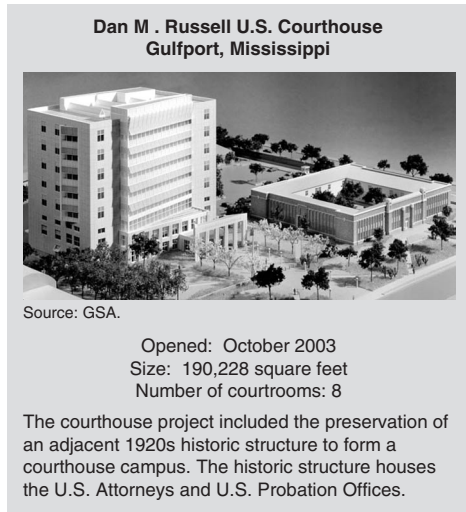
Table 2: Factors That Caused Scope Changes for Seven Selected Projects

Project	Site acquisition issues	Historic preservation requirements	Changes in tenants' requirements	Additional security needs
Albany, GA				X
Cleveland, OH			X	X
Denver, CO			X	X
Erie, PA		X		
Gulfport, MS	X	X		
Las Vegas, NV				X
Seattle, WA	X		X	

Source: GAO analysis.

Site Selection Issues

Difficulties with finding and acquiring a site for a new courthouse increased the scope of two projects, adding to their costs.



The scope of the Gulfport project increased when GSA faced community resistance to the preferred site and had to purchase a larger site and close a street to accommodate the new courthouse. According to GSA officials and the project files we reviewed, procuring the only site that was suitable and acceptable to the community required GSA to purchase more land than it had planned in order to accommodate the preservation of a historic high school building that was on part of the property. The site cost \$3.63 million, or 94 percent, more than GSA had planned when it submitted its design funding request.

In Seattle, GSA had to redesign the courthouse to include three more courtrooms when it could not locate the new courthouse adjacent to the existing courthouse as planned. Under the new plan, the circuit courtrooms remained in the existing courthouse building and the bankruptcy courts were included in the new building. This change was required after GSA was unable to reach an agreement with the city of Seattle on relocating the city library, which was located on the preferred site.

Historic Preservation

The scope of two courthouse projects increased to provide for historic preservation work that GSA had not anticipated when it requested design funding for the projects. The original design concept for the Erie courthouse project called for the preservation and incorporation of a historic public library building into the courthouse design. According to

GSA officials and the project files we reviewed, additional preservation work was required when an old clothing store on the site became eligible for historic status. Rather than demolish the store as originally planned, GSA incorporated it into the project design. This decision increased the project's total cost by about \$1.3 million.

Procuring the Gulfport project site, as discussed above, was contingent on preserving a historic high school. This requirement increased the scope of work for both the design and construction phases because, as shown in figure 5, three of the old school's four exterior walls had to be preserved. According to our analysis of GSA data, preserving the exterior walls and retrofitting a new structure within the walls of the old school increased the project's design costs by 14 percent.

Figure 5: Historic Preservation for the Gulfport Courthouse Project



Source: GSA.

Tenants' Space Requirements

Changes in tenants' space requirements increased the scope of work for three of the projects we reviewed. The U.S. Marshals Service (USMS) provides security for the federal judiciary, including physical protection of courthouses and prisoner transport, and was a tenant in each of the courthouses we reviewed. The U.S. Attorneys Offices are also often located in courthouse facilities. In Cleveland and Seattle, the U.S. Attorneys Offices initially resisted relocation to the new courthouses because they preferred their current leased spaces. In addition, for the Seattle U. S. Attorneys,

Carl B. Stokes U.S. Courthouse
Cleveland, Ohio



Source: U.S. Courts.

Opened: September 2002
Size: 774,950 square feet
Number of courtrooms: 16

The courthouse is located on the edge of Cleveland's downtown commercial district and overlooks the Cuyahoga River. The courthouse is easily accessible to the public by an indoor pedestrian walkway that connects the courthouse to a local transit station and shopping mall.

there were questions of whether they would have to move again at a later date as the courts' space needs grew. In Denver, the USMS revised its plans for the amount of office space it would occupy in the new courthouse. For these three projects, GSA had to redesign space to meet the tenant agencies' needs.

According to GSA's project manager, to preserve the Cleveland project's schedule, the project moved forward after an agreement could not be reached with the U.S. Attorneys Office on the design of its space. The U.S. Attorneys determined that the original space was not large enough and received authorization from the Department of Justice for additional space in the courthouse. This change required five floors of the courthouse to be redesigned to meet the U.S. Attorneys Office's requirements.

In Seattle, according to the GSA project manager, the redesign effort was minimized because GSA anticipated the inclusion of the U.S. Attorneys in the courthouse and included an option in the construction contract to build out the required space. In Denver, the USMS revised its occupancy plan for the Denver courthouse during the design phase, prompting a redesign effort. The USMS decided to occupy office space in the new courthouse rather than remain in the existing, adjacent courthouse as planned. According to the GSA project manager, this change in the tenant's requirements led to redesigning and allocating most of the third floor to the USMS.

GSA now has a policy to obtain signed agreements from the tenant agencies specifying how much space they will occupy in a new building before construction begins. These agreements, called occupancy agreements, also specify the rent that the agencies will pay for their space. According to the project managers we spoke with, the occupancy agreements have helped tenant agencies understand the rent commitments they are entering into and have helped GSA resolve occupancy issues before starting construction.

Security Enhancements

Enhancements made to building security required scope changes for four of the seven projects we reviewed. According to the GSA project managers for the Denver and Albany projects, these enhancements were made in response to the 1995 Oklahoma City bombing and reflected updates to the *U.S. Marshals' Design Guide*. Thus, additional security features were added to those projects that were in design or under construction between 1995 and 1999.

Changes to the design criteria for federal buildings increased the scope of work for the Las Vegas courthouse project and resulted in a claim against the project. This was the first federal courthouse designed after the Oklahoma City bombing. For security purposes, the building was reinforced with additional steel, increasing the project's costs. In addition, because this was a new security design, the contractor had not correctly anticipated the amount of steel that would be needed and filed a claim to recoup the cost of the additional steel. According to the GSA project manager, the project's budget was increased by \$4.7 million to meet the enhanced security requirements; and after the construction was complete, the contractor was paid \$3.2 million to settle his claim for the additional work and materials associated with blast proofing the exterior walls.

Changes made to the *U.S. Marshals' Design Guide* increased the costs of projects in Cleveland, Albany, and Denver. Among other things, these changes modified the type of materials used in the prisoners' holding cells.

Postponing Construction and Changes in Local Market Conditions Contributed to Changes in Project Costs

Postponing the start of construction and changes in local market conditions contributed to changes in costs for five of the seven projects we reviewed. GSA had to postpone its schedule for starting construction on five projects. Of these five projects, two were built in highly competitive local construction markets whose volatility also contributed to increases in the projects' costs. Local market conditions are driven by the supply of skilled construction labor, materials, and the relative number of construction projects within a locality.

Courthouse construction takes place in a dynamic and constantly changing economic environment. Postponing construction schedules exposes a project to cost changes caused by annual inflation or deflation rates and increases the risk that the assumptions used to establish the project's budget may not keep pace with changing local market conditions. Yet, even if construction is not postponed, the 2 years that typically elapse between the development of a prospectus and the actual funding of a project provide ample time for local market conditions to drift from the conditions assumed in developing the estimates in the first place. Thus, postponing construction schedules for reasons as diverse as the timing of appropriations or the judiciary's current moratorium increase the probability that estimated and actual costs will diverge.

The Erie project illustrates the effect that not receiving funding when anticipated and postponing construction can have on a project's costs. The

**Federal Courthouse
Erie, Pennsylvania**



Source: GSA.

Opened: August 2004
Size: 134,794 square feet
Number of courtrooms: 4

The courthouse complex encompasses three historic buildings, an atrium connecting the historic courthouse and library, and a new annex. This project was honored by the state with a 2005 Historic Preservation Award.

design prospectus for the Erie project was submitted in March 1994. When a fact sheet was submitted in March 1999—5 years after the prospectus—the design concept had changed, as discussed earlier, increasing the scope of historic preservation work and adding to the design costs. Furthermore, appropriations for construction funding were not provided until fiscal year 2002. Primarily because of inflation and the scope increase, the project’s estimated total cost increased 59 percent in nominal dollars over the estimate provided in the 1994 prospectus.

Construction on two projects, Gulfport and Seattle, were postponed as a result of site acquisition issues, as discussed earlier. In addition, according to the GSA project manager, the booming local construction market in Seattle contributed to increased project costs. The Seattle project also illustrates the uncertainty involved in anticipating local market conditions. GSA’s benchmark used an escalation factor of 3 percent to estimate construction costs, but the project manager said that the escalation in Seattle was closer to 3.9 percent.

According to GSA’s project manager, the Denver courthouse also was constructed in a highly competitive economic environment that increased the project’s cost. During the project’s development, the project manager said that Denver experienced a construction boom that caused construction prices to rise sharply and contributed to construction bids for the project that came in approximately \$10 million over budget. Although one floor was removed from the design and other cost-saving measures were implemented, the persistent, ongoing competition in the local construction market contributed to actual costs that were 6 percent higher than the estimated costs submitted with the construction funding request.

Other Factors Caused Project Costs to Change

Other factors that were unique to specific projects we reviewed also caused costs to change. For example, costs increased for the Denver project when GSA headquarters decided that the Denver courthouse project would serve as a demonstration project to showcase a number of sustainable design features, such as solar panels, light shelves, and automated heating and air-conditioning controls. These project changes increased the estimated cost of construction by \$5 million.¹¹

¹¹GSA did a life-cycle cost analysis that showed the sustainable design features may lower the energy related life cycle costs.

According to the Cleveland project manager, problems with contractors and a design error increased the actual costs of the project. Although the project was originally intended to use design-bid-build procurement, because of design delays, the construction schedule was divided into three phases, and construction started before the design was completed. When the contractor fell behind in the second phase, GSA followed the advice of its construction manager and became the general contractor for the final construction phase in an effort to avert potential claims arising from the second phase delays. GSA managed over 10 contracts in the final construction phase. According to the GSA claims attorney involved in the project, GSA's taking on the role of general contractor accounted for the large number of claims paid on the project. GSA settled the claims for approximately \$20.8 million, or 12 percent of the estimated total cost that was submitted with the construction prospectus. In addition, construction costs increased when a design error that underestimated the size of certain steel beams was corrected, and special beams had to be manufactured and imported from an overseas supplier.

**C. B. King Federal Courthouse
Albany, Georgia**



Source: GSA.

Opened: June 2002
Size: 86,364 square feet
Number of courtrooms: 3

The courthouse was built on a site donated by the city of Albany as part of a downtown redevelopment project. The courthouse was designed and constructed by a partnership between GSA and Section 8(a) firms, which are socially or economically disadvantaged small businesses.

Finally, a general contractor's inability to maintain the construction schedule and meet its obligations to building material suppliers caused the construction phase of the Albany project to be extended 3 years beyond its anticipated completion. Eventually, the general contractor's surety company, which guaranteed the contractor's ability to perform the work, took over the management of the project and brought it to completion. GSA still had to settle claims brought against the project by the contractor's surety. Although GSA was able to limit the actual cost increase to 7.9 percent over the estimate submitted to Congress, the relatively small building took 5 years to construct.

Several project managers also noted the effect that GSA's time-out and review initiative had on the early planning for the projects. The principal motivation of GSA's time-out and review initiative was to cut costs, reevaluate priorities, and improve the management of the federal buildings program. For the courthouse construction program, GSA reevaluated priorities and trimmed the costs of existing projects, identifying savings of \$324 million from 43 courthouse projects. For example, as a result of time-out and review, the estimated cost of the Cleveland project was reduced by \$63 million or about 26 percent. However, in this project, much of the savings were not realized and had to be added back into the project during construction.

Departures from the *Design Guide* Had Little Impact on Project Costs

In 1991, the judiciary issued the *U.S. Courts Design Guide*, which specified the judiciary's criteria for designing new court facilities. The *Design Guide* provides specific guidelines for the size, design requirements, security, and other features of courtrooms, judges' chambers, and other court-related space. Significant departures from the *Design Guide* criteria must be justified by the district courts and approved by the Circuit Judicial Council for the judicial circuit where the project is located. The *Design Guide* has been revised several times in response to economic constraints and is being reevaluated during the judiciary's current moratorium to determine if additional revisions are appropriate.

Departures from the *Design Guide* are often thought to increase courthouse project costs. However, we found few departures from the *Design Guide* in the projects we reviewed, and most of them were made to increase the building's functionality. The project managers said none of the departures resulted in an increase in the building size. We were not able to quantify the costs associated with the departures, but according to the project managers, their impact on cost was minimal.

- In the Albany courthouse, ceilings were lowered by 1 to 2 feet, which reduced costs and allowed the magistrate judge courtrooms on the floor above to be built to the size of district courtrooms to meet future expansion needs.
- In Gulfport, the judiciary obtained approval to include a special proceedings courtroom in the new courthouse. These courtrooms are 600 square feet larger than a traditional district courtroom and are used for multidendant trials or special events, such as naturalization ceremonies.
- In Cleveland, increases in the size of the grand jury suite and magistrate judges' courtrooms were accommodated within the planned size of the building by reducing the size of other court spaces.

GSA Used Several Strategies to Reduce and Control Costs of Selected Projects

For the seven projects we reviewed in detail, GSA project managers used several strategies to reduce costs and keep them within budget. These strategies included value engineering, modified contracting methods, and a variety of approaches for involving and communicating with tenant agencies. On the basis of estimates provided by GSA, Congress authorizes and appropriates funds for individual courthouse construction projects.

GSA sets each project budget according to the appropriated funds and seeks to manage each project to the specified budget.

Value Engineering Used to Bring Costs within Budget

For the seven projects we reviewed, GSA project managers used value engineering during the design phase to identify cost-saving changes and to reduce costs. Project managers also used value engineering as the primary method to reduce costs to meet the budget when the initial construction bids exceeded the project's budget. Value engineering is an organized effort to analyze the functions of systems, equipment, and facilities for the purpose of achieving the essential functions at the lowest cost possible while maintaining performance, reliability, quality, and safety. Changes resulting from value engineering ranged from using less expensive materials than originally planned to making changes in scope that affected the features built into the courthouse. Some changes made as a result of value engineering permanently reduced building costs while other changes deferred costs to later years.

In a commitment to continue cost reduction after the time-out and review process of the mid-1990s, GSA emphasized the use of value engineering as a method to reduce costs below the approved budgets. The Office of Management and Budget requires executive branch agencies to use value engineering as appropriate to reduce program and acquisition costs while maintaining necessary quality levels. For the projects we reviewed, GSA project managers generally hired outside consultants to perform value engineering studies during the design phase to identify potential areas for cost savings. Project managers used value engineering again for four of the seven projects, when the construction bids exceeded the project's budgets. The estimated cost at construction or the construction bids exceeded the budget by \$2 million to \$16 million, or 6 to 18 percent, for these four projects. The project managers tasked the contractors that were bidding on the construction phase of the project to submit ideas for cutting costs. This approach allowed GSA to reduce the bids to within the budget without redesigning the building. Having to redesign the building, then going through another bidding process is time consuming; and as discussed earlier, starting construction later than planned can lead to cost increases.

Many relatively small changes were often made as a result of value engineering to reduce projects' costs. The most common change for all seven projects was substituting less expensive materials for more expensive materials that were originally called for in the design. For example, using commercially available products rather than custom-made

Lloyd D. George U.S. Courthouse
Las Vegas, Nevada



Source: GSA.

Opened: July 2000
Size: 454,885 square feet
Number of courtrooms: 10

The courthouse was built on a downtown site donated by the city of Las Vegas. The courthouse anchors a governmental district that also includes the adjacent Foley Federal Building and state and local government offices.

materials lowered costs. These material substitutions often had no or minimal impact on the appearance and functionality of the building. For example, in two courthouse projects, wainscoting was used in place of full-height wood paneling. For the Seattle project, GSA removed the copper cladding from the roof after determining that its removal would not negatively affect the appearance or durability of the building.

The court officials involved in the seven projects told us that they participated in the value engineering sessions and agreed with the changes to reduce the construction costs. These officials understood that there was a limited budget and made trade-offs to get the features they wanted the most. For example, in Las Vegas the judges agreed to reduce the amount of limestone used on the outside of the building so that they could keep wood paneling in the courtrooms.

Other value engineering changes resulted in the elimination or reduction of spending on some features, such as building systems, to reduce projects' costs. While these changes lowered the construction costs, some could increase future operating and maintenance costs. In Las Vegas, a window-washing platform was eliminated to save \$250,000. According to the GSA building manager, it now costs about \$30,000 to wash the courthouse's windows, because special equipment is needed. As a result, the windows are seldom washed. For two projects, GSA eliminated the funds for heating and air-conditioning systems from the construction contracts and entered into energy savings and performance contracts (ESPC) to procure these systems. Under an ESPC, the contractor purchases and installs the heating and air-conditioning systems and GSA pays for the systems over the life of the contract, for as long as 25 years, from its operating budget. It is expected that the contractor will install a more energy-efficient system than would have been installed without the ESPC and that the cost of the system will be paid for from the savings attributed to a more efficient system. In new construction, energy savings are estimated using many assumptions about energy usage and costs, since there are no actual systems and costs on which to base estimates of expected savings.

In December 2004, we reported that using ESPCs to install heating and air-conditioning systems is more expensive than funding the installation of

such systems up front as part of the construction costs.¹² In that review, we estimated that the use of an ESPC for the Gulfport Federal Courthouse might cost about \$2.5 million, compared with about \$1.6 million if the system had been installed as part of the construction. This is an increase of about 56 percent in the cost of the heating and air conditioning system. We found that GSA focused on reducing the construction costs, so that it could award the construction contract, rather than on the long-term cost implications of using an ESPC.

Modified Contracting Methods Used to Control Costs

On three projects, project managers identified the contracting method as a strategy they used to help control costs and keep the project on schedule. One project involved the construction contractor in the design phase of the project while another included incentive award clauses in the construction contract. The third project used versions of both of these approaches.

GSA traditionally approaches a new construction project by designing the building and then soliciting bids to construct the building based on the design. This is referred to as the design-bid-build method of contracting. In this traditional method, the construction contractor is not involved in the design process and often has questions about the design, which can lead to changes during construction. To reduce the risk of changes during construction and accelerate the project's schedule, the Las Vegas project manager used a design-build bridging contract method. Under this contracting method, the project began with a traditional design phase to develop the concept for the building. The concept design identified the basic structure of the building, including the layout of courtrooms and chambers on each floor. GSA then advertised for a contractor to complete the detailed building design and construct the building. The winning contractor was a joint venture between an architectural firm and a general contractor. This approach allowed construction to begin as soon as the design was completed, thus saving time and reducing the chances of the tenants' requirements changing between the time of design completion and the start of construction. In addition, the architect and builder were with the same firm, so when issues came up during construction, each had an interest in arriving at solutions rather than finger-pointing and blaming each other. According to the project manager, as a result of this contracting

¹²GAO, *Capital Financing: Partnerships and Energy Savings Performance Contracts Raise Budgeting and Monitoring Concerns*, [GAO-05-55](#) (Washington, D.C.: Dec. 16, 2004).

U.S. Courthouse
Seattle, Washington



Source: GSA.

Opened: August 2004
Size: 680,016 square feet
Number of courtrooms: 18

The courthouse is located in downtown Seattle and houses the district, magistrate, and bankruptcy courts as well as offices for the U.S. Attorneys. Several floors are designed to enable judges to share courtrooms.

method, relatively few changes were made on the project during construction.

For the Gulfport courthouse project, GSA hired the general contractor during the design stage when the building's design was only 35 percent complete. The project manager believed that involving the general contractor in the development of the design and construction documents would minimize the number of questions the contractor would have about the design and thus minimize the number of change orders. Change orders on a project may increase the time needed to construct the building and increase the cost of construction. The project manager believed that this was a successful approach because there were few questions about the design during construction and relatively few change orders due to design issues.

GSA used construction contracts with incentive award clauses for the Gulfport and Seattle courthouses. The incentive awards required periodic reviews of the contractors' performance throughout the projects, which ensured a certain level of communication. The project manager for the Seattle courthouse said that this method forced the stakeholders to communicate and address issues that, without the incentive award, might not have been addressed until the end of the project. The use of incentive awards is intended to increase communication and help control the projects' overall costs. The contractor on the Gulfport project earned 85 percent of the incentive award, and the contractor on the Seattle project earned about 92 percent of the incentive award.

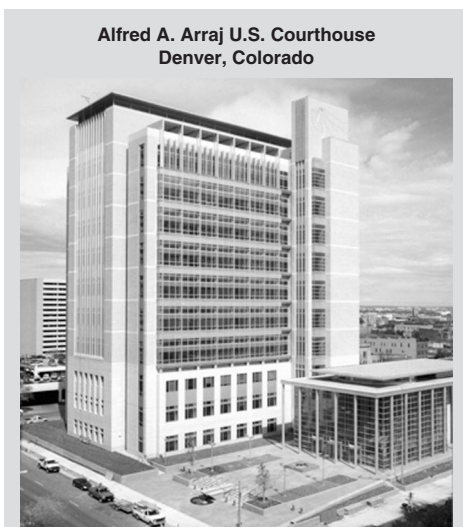
Tenant Agency Involvement and Communication Identified as Keys to Projects' Success and to Controlling Costs

GSA project managers and judiciary officials said the involvement of tenant agencies and open and continual communication with them on the projects we reviewed were important to the successful completion of the projects and to controlling their costs.¹³ Judges at each of the courthouses said the new buildings met their requirements, and they were all very happy with the new courthouses. GSA project managers used a variety of strategies, such as regular meetings and courtroom mock-ups, to identify changes prior to construction, to involve tenant agencies in planning the courthouse

¹³The courthouse projects that we reviewed often included space for the district, magistrate, and bankruptcy courts; U.S. Attorneys Office; USMS; Probation and Pretrial Services; and congressional offices.

projects, and to keep them informed about the progress of the projects. The judiciary also generally hired its own project manager to oversee each of the projects and to facilitate communication between GSA and the judiciary. In addition, many of the project managers used a Web-based project management tool to facilitate communication among the construction contractors.

Involving tenant agencies and incorporating their interests into a project, particularly during the planning stages, is one of the five components of a leading practices framework. Project managers agreed that working with tenant agencies to define their requirements and keeping tenants informed about the project were important to getting the agencies' "buy-in" on the project and to minimizing changes during construction. Making changes during a project's design to ensure that tenants' requirements are met is generally less costly than making changes during construction. Leading practices in capital project management suggest frequent communication and involvement through such means as meetings and correspondence. GSA project managers and judiciary officials who represented the various courts' interests said that judiciary officials were actively involved from the conception of the projects. Project documents show that other tenant agencies were also involved throughout the projects.



Alfred A. Arraj U.S. Courthouse
Denver, Colorado

Source: GSA.

Opened: November 2002
Size: 327,101 square feet
Number of courtrooms: 15

The courthouse was built on a downtown site adjacent to the Byron G. Rogers Federal Building-Courthouse. It is a pilot sustainable design project that incorporates features designed to reduce the damage to the environment resulting from its operations.

While all of the project meetings included tenant agency representatives, GSA and judiciary officials said that using courtroom mock-ups and having a judicial project manager were important strategies used to facilitate communication. All project managers used courtroom mock-ups in which a full-size model of a courtroom was constructed and the judges and other courtroom participants evaluated the model for such things as sight lines and the placement of furniture. The courtroom mock-ups resulted in changes to courtroom designs, and, according to GSA, no major changes were required during or after the construction of the courtrooms to correct deficiencies. Thus, the courtrooms met the judges' requirements, and costs were avoided by making necessary changes prior to construction.

According to judiciary officials, there was open communication between the judiciary and GSA on six of the seven projects. These officials said that the collegial relationships they developed with GSA facilitated communication and allowed them to work together to control and, when necessary, to reduce costs in a constructive way. For these six projects, the judiciary had its own project manager, who interacted with GSA on a regular basis. The judges said that it was critical for them to have this project manager, who was knowledgeable about construction, and could

advise the judges on suggested changes and facilitate communication with GSA.

The USMS and the U.S. Attorneys Office were also major tenants in most of the courthouses we reviewed. According to GSA project managers, these agencies were involved in the projects to a lesser extent than the judiciary. USMS officials said that their level of involvement varied, depending on the project and the project manager involved. As discussed, some of the cost increases during construction resulted from the USMS's and the U.S. Attorneys Office's requirement changes. USMS changes primarily resulted from increases in security standards, which could not have been anticipated prior to construction. Changes involving the U.S. Attorneys Office more often resulted because of its decisions about moving to the new building. As noted, GSA's policies and procedures have changed over the last several years, and GSA now requires tenant agencies to sign occupancy agreements prior to construction. Such agreements define the amount of space the tenant will occupy and the rental cost for the space. This policy should eliminate last minute questions about which tenants will occupy the building and the amount of space they will occupy.

Finally, GSA used commercially available Web-based project management tools for several of the projects to facilitate communication among the contractors. These tools facilitate communication by reducing paperwork; electronically assigning responsibility for tasks; tracking changes, questions, and answers; and providing all contractors with access to the same information as appropriate. For example, if a contractor has a question about the design of a particular building element, it can submit a question to the architect; and GSA can track the question and response to ensure that the question is resolved as quickly as possible. The Seattle project manager highlighted the importance of having clearly defined design and construction requirements. The manager said that in Seattle, he was able to reduce the construction bid by meeting with the subcontractors to answer their questions about the building requirements. If subcontractors do not fully understand an aspect of the design, they will build in additional costs to cover their risk. By clarifying the building requirements, GSA was able to reduce the subcontractors' risk and thus reduce their bids on the project.

Recent GSA Program Improvements

During the last decade, GSA has implemented a number of initiatives to enhance and improve the performance of the courthouse construction program. Among these initiatives are enhancements to the benchmarking

system, the use of courtroom mock-ups, and the ongoing development of project management practice through the Project Management Center of Expertise. GSA's Center for Courthouse Programs is also conducting independent cost estimates and quality control reviews at three points during the design phase of projects to help ensure that courthouse projects can be built within budget and the quality of the buildings is not being sacrificed to stay within budget. While the results of some of these initiatives were apparent in the seven projects we reviewed, such as with the courtroom mock-ups, the effects of the more recent efforts to enhance the program are not captured in our data collection. This situation occurred because many of the projects in our universe were already fairly advanced by time the more recent initiatives were introduced.

Conclusions

Courthouse construction is a process that evolves over many years and includes multiple stakeholders. Many factors can affect the cost of a courthouse project as it moves from planning and design to construction. Our work showed that the most significant cost changes occurred between the time of GSA's request for design and its request for construction funding. Some reasons for cost increases, such as the need for additional security or changing market conditions, affected several projects and could not have been easily anticipated. Other reasons for cost changes were unique to individual projects. It is important to provide decision makers with information about the costs, risks, and scope of projects before resources are committed. Such a practice would be consistent with our past work on leading practices in capital decision making. In the case of courthouse projects, GSA does not consistently explain project changes in documents provided to congressional decision makers. These changes may only be apparent if congressional decision makers compare the information submitted with the construction funding request to the information submitted, sometimes years earlier, with the design funding request.

Recommendations for Executive Action

To improve the usefulness of the information on courthouse construction projects that GSA provides to Congress, we recommend that the Administrator of GSA, when requesting funding for those projects, identify and explain changes in estimated costs and building size from the information provided to Congress in prior project prospectuses or fact sheets.

Agency Comments

We provided a draft copy of this report to the Administrator of the General Services Administration and the Director of the Administrative Office of the U. S. Courts for their review and comment. On June 24, 2005, GSA provided us with written comments and concurred with our recommendation (see app. III). GSA noted that in 2004 it began notifying Congress when significant changes in scope and budget occurred in courthouse projects. While GSA started notifying the authorizing committees of significant changes to projects in 2004, it has not been notifying the appropriation committees of these changes. We believe that all the stakeholders should have the same information, and changes to the project should be included in the prospectuses as part of the funding process. GSA also noted changes it has made over the years to how it plans, budgets, and manages courthouse projects and provided technical clarifications, which we have incorporated in this report as appropriate. AOUSC provided technical clarifications, which we have incorporated as appropriate.

As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies of this report to the appropriate congressional committee, the Administrator of GSA, and the Director of the Administrative Office of the U.S. Courts. Copies will also be made available to other interested parties on request. In addition, the report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-6670 or GoldsteinM@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix IV.



Mark L. Goldstein
Director, Physical Infrastructure Issues

Scope and Methodology

The objectives of our report were to (1) compare estimated and actual costs for recently completed courthouse projects, (2) identify factors that contributed to differences between the estimated and actual costs of selected projects, and (3) identify strategies that were used to help control the costs of selected projects. To address these objectives, we reviewed project prospectuses and courthouse expenditure data; interviewed General Services Administration (GSA) and judiciary officials; and conducted a detailed review of seven completed courthouses around the country.

We identified a total of 38 new courthouse construction projects completed since 1998 from information supplied by GSA's Center for Courthouse Programs (CCP). We chose 1998 as a starting date to exclude the projects we had considered in our previous report on the courthouse construction program and to include only those projects that were designed and built during the period when a number of changes were made to the program, such as the implementation of 5-year plans by the Administrative Office of the U.S. Courts (AOUSC) and the establishment of the CCP.

To determine estimated costs, we examined prospectuses and fact sheets submitted to Congress during the appropriations process.¹ For 35 of the 38 projects completed since 1998, at least one estimate of total project cost was provided to Congress. Three projects did not go through the typical approval and funding process. GSA typically submits two requests for funding, one in the prospectus for design funding and another in the prospectus for construction funding, but this is not always the case. For some projects, the initial estimate was submitted in the form of a "Report of Building Project Survey," sometimes called an 11(b) report after the section of the Public Buildings Act of 1959, which provides for such a report. In other cases, the estimate was submitted in the form of a one-page fact sheet either as a supplement to or in lieu of a prospectus. Prospectuses and fact sheets typically contain an estimated total project cost as the sum of separate estimates for site acquisition, design, management and inspection, and construction. For some projects, we added the construction cost estimate to the amounts previously appropriated for design and site acquisition to arrive at a total project cost estimate. To

¹Under the Public Buildings Act of 1959, as amended, prospectuses are submitted to the Senate Committee on Environment and Public Works and the House Committee on Transportation and Infrastructure for the proposed construction, alteration, or acquisition of a public building that exceeds a certain annually adjusted cost threshold. The prospectus threshold for construction projects in fiscal year 2005 was \$2.36 million.

determine changes in proposed building size and parking, we compared documents submitted for the construction phase funding with those submitted for the design phase funding.

To determine actual costs, we used data provided by GSA's Public Building Service (PBS) Budget Office for all courthouse projects completed since 1998. We defined actual costs as all obligations recorded against each project through the end of fiscal year 2004 plus any claims paid from the U.S. Treasury Department's Judgment Fund. According to information supplied by the PBS Budget Office, 13 of the 38 projects that we examined had at least one claim paid from the Judgment Fund, ranging from \$65,000 on the St. Louis courthouse to over \$20 million on the Cleveland courthouse. Claims are paid from the Judgment Fund when there are no funds left available in the project budget to pay the claims. The reported actual costs of the courthouse projects include only funds budgeted by GSA and specifically authorized by Congress for new construction and exclude items funded by the tenant agencies. We also reviewed appropriation acts for fiscal years 1993 through 2005 to identify funding appropriated for new courthouse construction projects and other relevant legislation relating to GSA's construction authority.

To compare actual with estimated costs, we calculated the percentage by which actual costs differed from estimates of the costs. When more than one estimate was provided for a project, we compared the actual costs with the initial and latest estimates. For example, when an 11(b) report was prepared for a project, we used this document as a source for the original estimate. Similarly, when a fact sheet was submitted after a construction prospectus for a project, we used the estimate provided in the fact sheet.

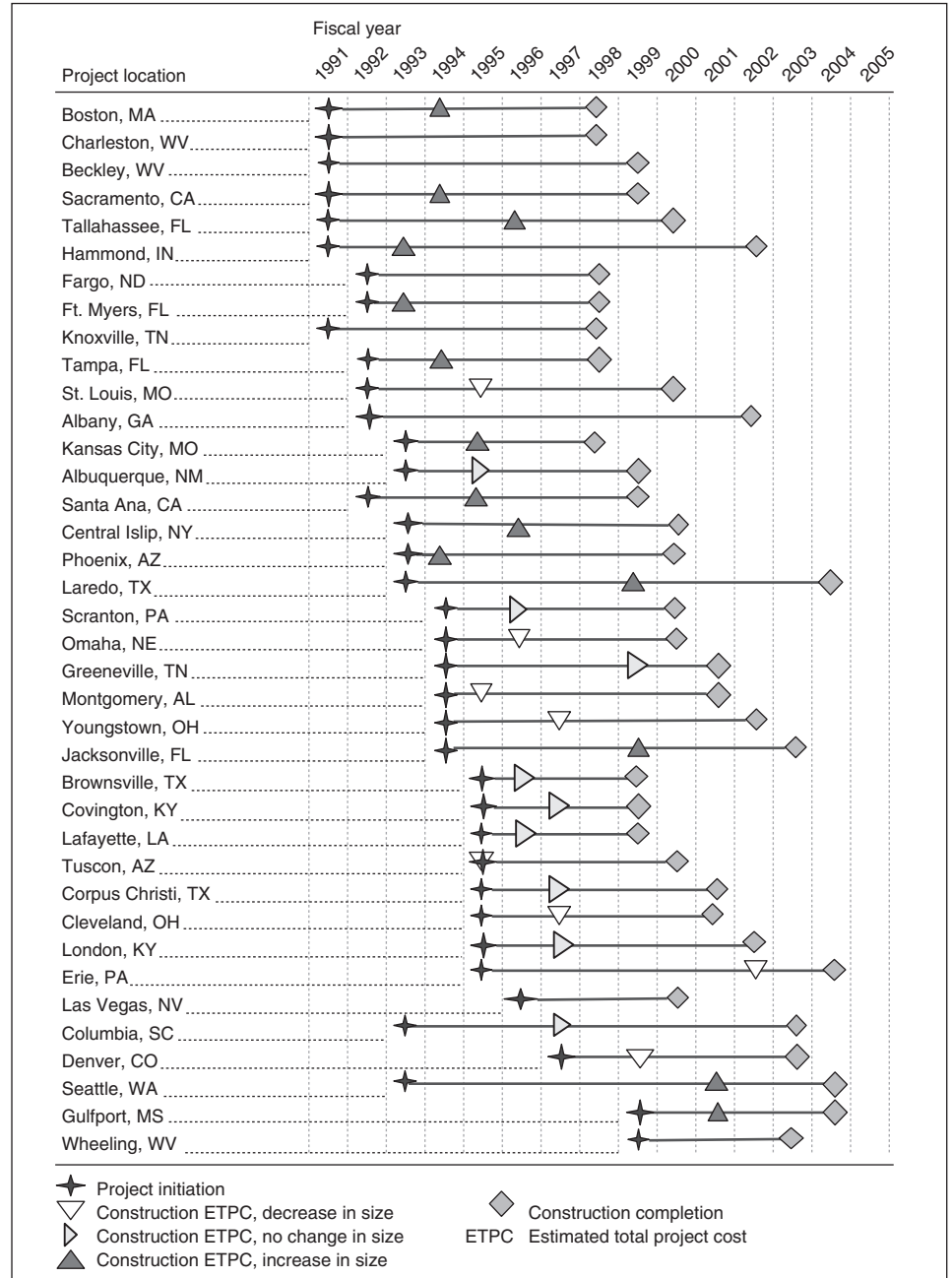
To identify factors that contributed to differences between estimated and actual costs and to identify the types of strategies used to controls costs, we selected seven courthouses whose construction was completed between 2000 and 2004: Albany, Georgia; Cleveland, Ohio; Denver, Colorado; Erie, Pennsylvania; Gulfport, Mississippi; Las Vegas, Nevada; and Seattle, Washington. To select these courthouses, we considered a number of factors, including the range and scope of the cost changes, the size of the project, and the geographic location. For each of these seven courthouses, we obtained estimated and actual cost information by reviewing prospectuses, 11(b) reports, and fact sheets submitted to Congress and budgetary expenditure data provided by GSA.

During our visits to the seven courthouses, we reviewed the relevant project files from GSA. We looked specifically for documentation of factors that contributed to or helped control cost changes, such as scope modifications, contractor and bid documents, change orders, and claims. We also interviewed GSA and judiciary officials responsible for each courthouse project, including judges, project managers, contracting officers, and other individuals involved during the design and construction phases of the courthouse. We also interviewed judiciary officials associated with the projects including Administrative Office of the U.S. Courts (AOUSC) officials and judges. From the interviews and project file reviews, we obtained information on the extent of and reasons for the cost changes. We also reviewed GSA and AOUSC documents related to management controls, policies, procedures, and guidance for courthouse construction projects.

For the estimated costs of the 38 courthouse projects, we relied on the original source documents, including the prospectuses that GSA provided to Congress. We assessed the reliability of actual cost data provided by GSA's PBS Budget Office by (1) reviewing documents describing policies and procedures for the administrative control of funds, (2) interviewing knowledgeable agency officials about the data, and (3) reviewing an independent auditor's report. We determined that the data were sufficiently reliable for the purposes of this report. We also corroborated much of the testimonial information provided by GSA and judiciary officials during our seven courthouse reviews by obtaining documentation of project management and cost changes during our file reviews. Because we selected a nonprobability sample of courthouses to review in detail, our findings are not generalizable to the 38 projects.

Timelines and Costs of Courthouse Projects Completed Since 1998

Figure 6: Timelines of Courthouse Construction Projects



Source: GAO analysis of GSA documents submitted to Congress.

Note: Project initiation refers to the fiscal year for which funds were first requested from Congress, an 11(b) report was submitted, or funds were first appropriated.

**Appendix II
Timelines and Costs of Courthouse Projects
Completed Since 1998**

Table 3: Summary of Estimated and Actual Costs

Project location	Design ETPC^a	Construction ETPC^b	Total obligations^c	Claims	Actual cost
Albany, GA	N/A	\$12,163,000	\$13,127,344		\$13,127,344
Albuquerque, NM	N/A	\$56,794,000	\$50,146,643		\$50,146,643
Beckley, WV	N/A	N/A	\$35,677,860		\$35,677,860
Boston, MA	\$163,005,000	\$202,005,000	\$230,671,501	\$4,250,000	\$234,921,501
Brownsville, TX	\$35,027,000	\$33,813,000	\$32,708,650		\$32,708,650
Central Islip, NY	N/A	\$227,009,000	\$215,629,990	\$700,000	\$216,329,990
Charleston, WV	\$80,406,500	N/A	\$80,754,535		\$80,754,535
Cleveland, OH	\$199,203,000	\$170,537,000	\$192,497,198	\$20,790,000	\$213,287,198
Columbia, SC	\$55,960,000	\$55,961,000	\$63,721,116		\$63,721,116
Corpus Christi, TX	\$33,740,000	\$33,056,000	\$34,244,915		\$34,244,915
Covington, KY	\$20,858,000	\$21,791,000	\$22,155,221		\$22,155,221
Denver, CO	\$76,211,000	\$93,504,000	\$99,052,566		\$99,052,566
Erie, PA	\$21,450,000	\$34,039,000	\$33,412,332		\$33,412,332
Fargo, ND	N/A	N/A	\$19,328,942		\$19,328,942
Ft. Myers, FL	N/A	\$29,796,000	\$25,897,340		\$25,897,340
Greeneville, TN	\$28,043,000	\$31,165,000	\$31,056,543		\$31,056,543
Gulfport, MS	\$52,093,000	\$52,391,000	\$59,287,053		\$59,287,053
Hammond, IN	\$28,028,000	\$59,061,000	\$60,316,073		\$60,316,073
Jacksonville, FL	\$85,305,000	\$96,680,000	\$96,591,397		\$96,591,397
Kansas City, MO	\$114,476,000	\$112,181,000	\$113,860,442	\$232,665	\$114,093,107
Knoxville, TN	N/A	N/A	\$39,709,609		\$39,709,609
Lafayette, LA	\$34,409,000	\$34,607,000	\$34,314,536		\$34,314,536
Laredo, TX	\$23,194,000	\$36,531,000	\$42,579,078		\$42,579,078
Las Vegas, NV ^d	\$99,041,000	N/A	\$100,491,555	\$3,200,000	\$103,691,555
London, KY	\$15,808,000	\$16,642,000	\$19,018,809		\$19,018,809
Montgomery, AL	\$53,638,000	\$48,335,000	\$60,115,326	\$13,178,171	\$73,293,497
Omaha, NE	N/A	\$67,194,000	\$65,579,829	\$5,300,000	\$70,879,829
Phoenix, AZ	N/A	\$111,063,000	\$114,030,705	\$11,152,007	\$125,182,712
Sacramento, CA	N/A	\$173,249,000	\$130,509,658		\$130,509,658
Santa Ana, CA	N/A	\$134,902,000	\$125,861,026	\$18,080,137	\$143,941,163
Scranton, PA	\$41,679,000	\$36,188,000	\$35,553,938		\$35,553,938
Seattle, WA	\$164,407,000	\$216,082,000	\$214,730,651		\$214,730,651
St. Louis, MO	\$251,772,000	\$230,863,000	\$250,234,082	\$65,000	\$250,299,082
Tallahassee, FL	\$23,472,000	\$29,129,000	\$30,556,900	\$721,684	\$31,278,584

**Appendix II
Timelines and Costs of Courthouse Projects
Completed Since 1998**

(Continued From Previous Page)

Project location	Design ETPC^a	Construction ETPC^b	Total obligations^c	Claims	Actual cost
Tampa, FL	\$84,561,000	\$81,161,000	\$69,487,426	\$1,253,605	\$70,741,031
Tucson, AZ	\$98,625,000	\$81,708,000	\$83,765,867	\$9,050,776	\$92,816,643
Wheeling, WV ^d	\$29,303,000	N/A	\$28,324,368		\$28,324,368
Youngstown, OH	\$21,534,000	\$15,799,000	\$16,517,999		\$16,517,999

Source: GAO Analysis of funding requests submitted to Congress.

Note: N/A = not applicable.

^aETPC = estimated total project cost.

^bFor some projects, additional funds were requested after the construction ETPC was submitted.

^cTotal obligations are through the end of fiscal year 2004.

^dThese projects were procured using the design-build process, so only one ETPC was provided to Congress.

Comments from the General Services Administration



GSA Administrator

JUN 24 2005

Mr. Mark L. Goldstein
Director, Physical Infrastructure
Government Accountability Office
Washington, DC 20548

Dear Mr. Goldstein:

The General Services Administration (GSA) appreciates this opportunity to review and provide the enclosed comments on the Government Accountability Office's (GAO's) draft Report to the Chairmen, Committee on Environment and Public Works and Subcommittee on Transportation and Infrastructure, U.S. Senate, *Courthouse Construction: Information on Project Cost and Size Changes Could Enhance Oversight* (GAO-05-673).

The report recommends that GSA, when requesting funding for new courthouse projects, identify and explain changes in estimated costs and building size from the information provided to Congress in prior project prospectuses or fact sheets.

GSA concurs with this recommendation and has made significant changes in how it plans, budgets, and manages these projects that, in many cases, began more than 10 years ago. For example:

- A "verification of preparedness" checklist is administered to ensure that project teams are prepared to begin design phase;
- Design start meetings reinforce the requirements of scope, schedule, and budget;
- Design management evaluations by independent consultants are performed to ensure that scope, program, and budget requirements are met;
- Construction start meetings confirm that the most effective construction delivery method is used and that project's scope and program can be delivered on schedule and within budget; and,
- Controls were established on how to issue construction change orders.

In 2004, GSA began notifying Congress when significant changes in the scope and budget occurred in courthouse projects that had been previously authorized and had funding appropriated for design. GSA is also working with the judiciary to better define

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**Appendix III
Comments from the General Services
Administration**

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and confirm space requirements for future courthouse projects during the planning phase. Detailed space programming studies will be conducted and confirmed by signed occupancy agreements prior to the design prospectus.

In addition, beginning in fiscal year 2007, GSA will request design funding sufficient to incorporate interoperable building information modeling using Industry Foundation Classes into the design of new courthouse projects. This system will allow automated standards checking and cost estimating during design to better control project scope and cost.

Should you have any questions, please contact me. Staff inquiries may be directed to Mr. Robert Andrukonis, Director, Center for Courthouse Programs, Public Buildings Service, at (202) 501-1517.

Sincerely,



for Stephen A. Perry
Administrator

Enclosure

GAO Contact and Staff Acknowledgments

GAO Contact

Mark L. Goldstein, (202) 512-2834

**Staff
Acknowledgments**

In addition to those named above, Lindsay Bach, Maria Edelstein, Bess Eisenstadt, Daniel Hoy, David E. Sausville, Dave Stickers, and Dorothy Yee made key contributions to this report.

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