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**GENERAL SERVICES
ADMINISTRATION**

**Factors Affecting the
Construction and Operating
Costs of Federal Buildings**

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Physical Infrastructure Issues



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Highlights

Highlights of [GAO-03-609T](#), a testimony for the Subcommittee on Transportation, Treasury, and Related Agencies, House Committee on Appropriations

Why GAO Did This Study

The General Services Administration (GSA) has responsibility for more than 8,000 owned and leased buildings nationwide, together encompassing about 338 million square feet of space. Understanding construction and operating costs for these buildings is important, as the increased federal budget deficit has led to intensified competition for federal resources and recent events have highlighted security needs.

GAO examined (1) factors that have affected GSA's construction, leasing, and operating costs and (2) our designation of federal real property as a high-risk area.

GENERAL SERVICES ADMINISTRATION

Factors Affecting the Construction and Operating Costs of Federal Buildings

What GAO Found

Several factors have affected GSA's construction, leasing, and operating costs for federal buildings. For example, new security requirements for federal buildings developed after the 1995 bombing of a federal building in Oklahoma City and the September 11, 2001, terrorist attacks have led to increased costs for such measures as strengthening the ability of buildings to sustain a bomb blast and limiting building access. According to a GSA official, security costs for courthouses have increased from about \$8 a square foot to about \$24 a square foot. Another factor affecting costs is budget scorekeeping requirements meant to ensure full recognition of the government's financial commitments. The scorekeeping requirement that GSA must include in its budget the entire cost of constructing a building in the year the government commits the resources has led GSA to lease space rather than construct it, even though leasing often results in a higher overall cost to the taxpayer. For example, a GSA present value cost analysis estimated that the recently leased U.S. Patent and Trademark Office complex shown below, currently being constructed in Alexandria, Virginia, by a private company, cost taxpayers about \$48 million more to lease over the 20-year lease period than it would have cost to purchase it.

In January 2003, GAO designated federal real property as a high-risk area, in part because of such cost factors and also because many property assets are no longer effectively aligned with or responsive to agencies' changing missions and are no longer needed. Furthermore, many assets are in an alarming state of deterioration that may cost tens of billions of dollars to address. GAO believes there is a need for a comprehensive and integrated transformation strategy for federal real property.

The U.S. Patent and Trademark Office Complex in Alexandria, Virginia, February 2003



Source: U.S. Patent and Trademark Office.

www.gao.gov/cgi-bin/getrpt?GAO-03-609T.

To view the full testimony, including the scope and methodology, click on the link above. For more information, contact Bernard L. Ungar at (202) 512-2834 or ungarb@gao.gov.

Mr. Chairman and Members of the Subcommittee:

We welcome the opportunity today to discuss factors affecting the costs of constructing, leasing, and operating General Services Administration (GSA) owned and leased buildings. Reports of rising costs in these areas are of particular concern in today's environment, as the increased federal budget deficit has led to intensified competition for federal resources. At the same time, one of the main cost factors facing GSA is security. Physical security for federal office buildings has been a governmentwide concern since the 1995 bombing of the Alfred P. Murrah Federal Building in Oklahoma City, Oklahoma. This concern has become more compelling in the wake of the terrorist attacks of September 11, 2001, and the anthrax incidents that closely followed it. To assist GSA in determining how to best prioritize security enhancements while also addressing other federal building needs, we believe it is helpful to consider factors affecting the costs of meeting these needs.

GSA has responsibility for more than 8,000 owned and leased buildings nationwide, together encompassing about 338 million square feet of space. GSA's owned and leased space, which includes office buildings, courthouses, border stations, and other types of facilities, makes up about 6 percent of all federally owned space worldwide and 39 percent of all federally leased space worldwide. Between fiscal year 1995 and fiscal year 2002, GSA's average rental rate for leased space increased 4.1 percent in constant dollars, to \$20 per square foot, and GSA's building operations obligations increased by 31.3 percent in constant dollars, to about \$1.9 billion. In fiscal year 2002, GSA had total estimated project costs of about \$2.6 billion for new construction, about \$690 million for major renovations, and more than \$435 million for design of repair and alterations. It has obligated about \$3.1 billion for the rental of space, which is a 24 percent increase in constant dollars since fiscal year 1995. Today, in this context of rising costs and limited funds, we would like to discuss (1) factors that have affected GSA's construction, leasing, and operating costs and (2) our designation of federal real property as a high-risk area.

My statement today is based largely on our past work on constructing, operating, leasing, and securing federally owned or leased buildings. In certain instances, we obtained updated information and opinions from

GSA officials. We also reviewed a GSA contractor's March 2002 report on courthouse construction costs.¹

Summary

- Several factors have affected GSA's construction, leasing, and operating costs for federal buildings. Two factors we recently reported on are increased security requirements and budget scorekeeping requirements meant to ensure full recognition in the budget of the government's commitments.² First, new security requirements for federal buildings developed in the wake of the 1995 bombing of the Alfred P. Murrah Federal Building in Oklahoma City and the September 11, 2001, terrorist attacks have resulted in increased building costs for such measures as strengthening the ability of buildings to sustain a bomb blast and limiting access to parking and building areas through such means as increasing the number of guards. For example, according to a GSA official, security costs for courthouses have increased from about \$8 a square foot to about \$24 a square foot. Second, to ensure budget recognition of the government's commitments, budget scorekeeping requires that GSA include in the budget the entire cost of constructing a building in the year that the government commits the resources. This has led GSA to sometimes use leasing over construction, even though leasing often results in a higher overall cost to the taxpayer. For example, a GSA present value cost analysis estimated that the recently leased U.S. Patent and Trademark Office complex, now under construction in Alexandria, Virginia, cost taxpayers about \$48 million more to lease than it would have cost to construct it. The choice of geographic location has also affected GSA's building costs, as have federal mandates that require measures such as the payment of specific minimum wages on government construction projects and energy conservation. Still other factors that have affected federal building costs include GSA's failure to adequately maintain buildings, the choice of building finishes, contract modifications, and inflation.
- In January 2003, we added federal real property to our high-risk list. We did this, in part, due to the issues affecting the cost of federal buildings discussed in this testimony, such as the challenges the federal government

¹ Kilpatrick Stockton, Studley, DPR, Gensler, *US Courthouse Construction Cost Comparison Study* (Mar. 12, 2002, revised).

² U.S. General Accounting Office, *Building Security: Security Responsibilities for Federally Owned and Leased Facilities*, [GAO-03-8](#) (Washington, D.C.: Oct. 31, 2002); *Budget Scoring: Budget Scoring Affects Some Lease Terms, but Full Extent Is Uncertain*, [GAO-01-929](#) (Washington, D.C.: Aug. 31, 2001).

faces in protecting its property, employees, and those who visit or use federal facilities. In adding this issue to our high-risk list, we also recognized that the federal government owns much vacant or underutilized property that it must pay to maintain, operate, and/or secure. To the extent that the federal government can rationalize its inventory of real property and retain only what it needs, it can save money and focus its efforts and limited resources on operating, maintaining, and securing only those facilities that are truly needed by the government. Furthermore, many assets are in an alarming state of deterioration; agencies have estimated restoration and repair needs to be in the tens of billions of dollars. In our high-risk report issued in January 2003,³ we stated that there is a need for a comprehensive and integrated transformation strategy for federal real property, and that an independent commission or governmentwide task force may be needed to develop this strategy. Realigning the government's real property assets with agency missions and taking into account the requirements of the future federal role and workplace will be critical to improving the government's performance and ensuring accountability within expected resource limits.

Security, Budget Scorekeeping Requirements, and Other Factors Have Affected Federal Building Costs in Recent Years

In managing the costs of constructing, leasing, and operating federal buildings, GSA has faced pressures in a number of areas in recent years. Many factors driving costs, such as security requirements, have tended to increase costs for construction, leasing, and operations. In addition, budget scorekeeping requirements have resulted in pressure to lease rather than construct, when in many cases leasing is more expensive over the long term. Another factor—implementing a federal mandate encouraging environmentally sound construction and renovation techniques—may result in higher initial construction costs but lead to lower operating costs.

Security Requirements Have Raised Costs of Constructing, Leasing, and Operating Federal Buildings

As a result of the Oklahoma City bombing in 1995, President Clinton directed the Department of Justice to assess the vulnerability of federal office buildings to attack, which resulted in a 1995 report entitled *Vulnerability Assessments of Federal Facilities*. The study designated five levels of security needs into which federal office buildings could be categorized, depending on the number of federal employees housed in the facility and the responsibilities of the agency; identified minimum

³ U.S. General Accounting Office, *High-Risk Series: Federal Real Property*, [GAO-03-122](#) (Washington, D.C.: January 2003).

standards for each of the five security levels; and recommended the establishment of the Interagency Security Committee (ISC) to provide a permanent body to address continuing governmentwide security concerns.

In May 2001, ISC issued security design criteria for new federal office buildings and major modernization projects, and in 2002 issued draft security standards for leased space.⁴ Both of these take into consideration the five levels of security needs, recognizing that some federal facilities need more protection than others. Overall, ISC's security design criteria and leasing security standards are designed to strengthen the ability of buildings to sustain a bomb blast or chemical attack as well as reduce the likelihood of such attacks through measures to better control access to parking and work areas. Construction measures in ISC's design criteria include items such as providing glazing protection for windows, establishing distances that buildings should be set back from the street, controlling vehicular access to the buildings, and locating air intakes. ISC's draft security standards for leased space require that GSA incorporate security operating standards into all future leases and in existing locations on a case-by case basis, and include similar measures as its construction standards, where relevant, such as controlling vehicular access to the building. We have not reviewed the implementation of the ISC security design criteria.

Although we have not comprehensively evaluated how these changes in security requirements have affected GSA's costs, we have gathered some examples of rising security costs in recent years. For example, according to a GSA official, security costs for courthouses have risen from about \$8 a square foot to about \$24 a square foot. Security requirements also have led GSA to look for larger sites for courthouses. According to a GSA official, in some cases, GSA is obtaining two separate but collocated urban sites on which to construct a courthouse and may need to close a street between the two sites to construct the building. In these circumstances, GSA may need to pay to move utilities that are in the street between the two sites. Both the increased size of the site and moving utilities located in the street will add to construction costs. A GSA official also stated that the estimate to renovate GSA's headquarters has risen from about \$80 million to \$120

⁴ Interagency Security Committee, *ISC Security Design Criteria for New Federal Office Buildings and Major Modernization Projects* (May 28, 2001). These criteria apply to new construction of general purpose office buildings and new or leased-construction of courthouses occupied by federal employees in the United States and not under the jurisdiction and/or control of the Department of Defense.

million, mostly due to meeting security needs. Similarly, in August 2001, we reported that the additional cost of security features for the Security and Exchange Commission's (SEC) new building currently under construction in Washington, D.C., is expected to be \$19 million.⁵ Enhancing blast protection for the Department of Transportation building in Washington, D.C., was estimated at about \$8 million in 2001.

Regarding the effects of ISC security leasing standards on costs, at one of four security roundtables that was held by an ISC team to discuss ISC's proposed security leasing standards with the private sector, the potential cost of security improvements was estimated at \$1.50 to \$2.50 per square foot, excluding heating, ventilating, and air conditioning. In extreme cases in which there are an unusually high number of entrances to protect, it could be as high as \$9 a square foot. Using the estimate of \$1.50 per square foot and the estimated 155 million square feet of leased space GSA had as of fiscal year 2002, GSA leasing costs could increase by a minimum of \$232 million dollars a year because of security requirements, assuming none of the improvements have already been made.

Building operations costs have also risen due to security requirements. GSA's building operations obligations have increased by 31.3 percent in 2002 constant dollars since fiscal year 1995. Forty-five percent of this increase is due to the increase in security obligations, which have risen by 231 percent in 2002 constant dollars since fiscal year 1995 to about \$397 million in fiscal year 2002.

One concern for which improving security is likely to affect construction, leasing, and operating costs is upgrading existing mailrooms in federal buildings. ISC guidelines addressing mailroom security were written prior to anthrax being sent through the mail to several federal buildings in the fall of 2001 and focused on securing mailrooms from bomb blasts rather than contamination. However, in the wake of the anthrax incidents, some agencies have begun screening and testing their incoming mail for hazardous material. Agencies have initiated a variety of efforts in this area, including, among other things,

- retrofitting existing mailrooms with air handling and ventilation systems that are independent of the systems supporting the rest of the facility;
- moving mailroom operations off-site;

⁵ [GAO-03-8](#).

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- contracting with private companies to screen, test, and process incoming mail;
 - training mailroom employees on the proper procedures for handling potentially hazardous mail and providing these employees with protective clothing and gear;
 - purchasing equipment to screen and test mail for hazardous material; and
 - modifying existing security contracts to require that security personnel X-ray incoming mail.

These and other measures to safeguard the mail are adding to the cost of security for federal agencies in the Washington, D.C., metropolitan area. In addition, GSA issued mail management guidelines in June 2002, which brought into question whether some of the actions taken by federal agencies to safeguard their mail were necessary, particularly in light of the U.S. Postal Service's efforts in this regard, which include irradiating certain mail destined for federal agencies located in the Washington metropolitan area. Because of the cost associated with safeguarding the mail and the uncertainty over the need for some of these safeguards, at the request of the Senate Committee on Governmental Affairs, we have initiated a review of agencies' mail security efforts and associated costs.

In October 2002, we issued a report that identified security-related costs being incurred by various agencies.⁶ While this information gives a picture of the security costs, we did not determine what types of costs are included. Some examples of recent security costs that agencies reported to us include the following:

- The Federal Protective Service (FPS) obligated approximately \$1.3 billion for security for fiscal years 1996 through 2001. Its fiscal year 2002 budget was \$362.1 million, of which about \$207 million was for contract guard services. Additionally, in fiscal year 2002, GSA was slated to spend over \$300 million more from its reimbursable program⁷ for contract guard services, according to a FPS official. This total of over \$500 million for contract guard services was to fund approximately 7,300 contract guards.
- In fiscal years 1999 through 2001, the Federal Judiciary paid \$71.6 million for security through its rent payments to GSA. The Federal Judiciary and the U.S. Marshals Service (USMS) also obligated about \$577.1 million from

⁶ GAO-03-8.

⁷ The reimbursable program provides security funding from the rents paid by agencies assigned space in GSA owned or leased buildings; the rent includes a building-specific charge for contract guards.

the Court Security Appropriation. For fiscal year 2002, the Federal Judiciary expected to pay \$36.7 million for security through its rent payments to GSA. Also, in fiscal year 2002, the Federal Judiciary received an appropriation and emergency supplemental for court security officers, court security inspectors, and security systems and equipment and transferred \$280.5 million to USMS to administer the Judicial Security Facilities Program. Through its own appropriation, USMS also received \$24.1 million in funding for construction; security, including guard contracts and security equipment; and furniture to handle serious security deficiencies in federal courthouses related to prisoner handling and the protection of judges, judicial employees, the public, and the Marshals.

- For fiscal years 1996 through 2001, the Department of Education paid GSA approximately \$7.7 million in security-related expenses. In fiscal year 2002, it expected to spend approximately \$2.0 million in security-related expenses, of which about \$1.9 million was for guard costs.

The ISC security design criteria recommend that in order to control costs, security budgets should be the result of a project-specific risk assessment on which a budget can be based. ISC reasoned that if cost is not considered early on, mitigation of one security risk might consume a disproportionate amount of the budget while other security risks might remain insufficiently or not addressed.

We also have supported the concept of risk assessment as a way to determine how best to use limited funds in the context of enhancing security. Specifically, we reported in a study focusing on homeland security and information systems security that applying risk management principles can provide a sound foundation for effective security whether the assets are information, operations, people, or federal facilities.⁸ We identified the following five basic steps as being part of a risk management process to determine security priorities and implement appropriate solutions: (1) identify assets, (2) determine threats, (3) analyze vulnerabilities, (4) assess risks, and (5) apply countermeasures. According to GSA, the agency uses a risk management approach when considering security needs for its owned and leased properties.

Budget Scorekeeping

Our work has shown that budget scorekeeping requirements affect the government's cost of acquiring space in two ways—by favoring operating leases over construction and by encouraging agencies to lease space for

⁸ U.S. General Accounting Office, *Homeland Security: A Risk Management Approach Can Guide Preparedness Efforts*, [GAO-02-208T](#) (Washington, D.C.: Oct. 31, 2001).

shorter time periods.⁹ To ensure budget recognition of the government's commitments when they are made, budget scorekeeping requires GSA to include the total cost of a building construction project in its budget in the year that the government commits the resources. This requirement for full up front funding promotes discipline by requiring that the full cost of decisions be accounted for upfront when the irrevocable decision to commit the resources is made. Requiring up front funding for all programs (including health, education, and human capital as well as real property) ensures that none of them are given a relative advantage, especially when there is no clear evidence that a shift in relative priorities would be appropriate. However, we have previously reported that scorekeeping requirements favor operating leases, the cost of which can be accounted for in the budget on a yearly basis, rather than accounting for the total cost upfront. This has led GSA to lease rather than construct space for some new acquisitions needs. This practice has resulted in increasing the cost of space to the government and taxpayers because the cost of leasing space for which the government has a long-term need is usually greater than the cost of purchasing that space through construction.

In March 1999, we reported that our review of the economic analyses of 24 lease and construction acquisitions by GSA for approval in the budget cycles for fiscal years 1994 through 1999 showed that, given certain assumptions, construction was estimated as less costly than leasing in all but one case.¹⁰ Analysis of 15 of these acquisitions showed that construction had a cost advantage over leasing in present value terms ranging from \$2.9 million to \$63 million. The present value analysis of the construction of a hypothetical 100,000 square foot building in 11 locations throughout the country showed that construction was consistently more cost-effective than leasing, with the differences ranging from \$0.3 million to \$14 million. The new Patent and Trademark Office complex currently under construction in Alexandria, Virginia, is one example of an acquisition that cost taxpayers more because GSA leased the property rather than constructing it. A GSA present value cost analysis estimated

⁹ Budget scorekeeping is the process of estimating the budgetary effects of pending and enacted legislation and comparing them with limits set in the budget resolution or legislation. Scorekeeping tracks data such as budget authority, receipts, outlays, the surplus or deficit, and the public debt limit.

¹⁰ U.S. General Accounting Office, *General Services Administration: Comparison of Space Acquisition Alternatives—Leasing to Lease Purchase and Leasing to Construction*, GAO/GGD-99-49R (Washington, D.C.: Mar. 12, 1999).

that the recently leased U.S. Patent and Trademark Office complex cost taxpayers about \$48 million more to lease than construct.

The budget scorekeeping requirements for leases can also affect the cost of leasing federal properties by encouraging GSA or other agencies to lease space for shorter time periods. Budget scorekeeping requirements treat different types of leases differently. The Office of Management and Budget has established six criteria for defining an operating lease.¹¹ A capital lease is any lease other than a lease-purchase that does not meet the criteria of an operating lease. Budget scorekeeping requires that for a capital lease, the net present value of the entire cost of the lease be included in the budget for the year the lease is approved, while for an operating lease, only each year's cost must be included in that year's budget. We reported on this issue in August 2001.¹² We found that at least 13 leases or lease project¹³ terms—the length of the lease—were affected by budget scoring, and that others may have been similarly affected. For example, the term of the lease for the SEC building was reduced from 20 years to 14 years, and the lease for the new Department of Transportation headquarters building was reduced from 20 years to 15 years; the changes in terms changed the leases from capital leases to operating leases. Although we could not determine the overall monetary impact of the budget scoring requirements for leases on lease terms, GSA officials agreed that a 20-year lease usually has a lower annual cost than a 10- or 15-year lease. Furthermore, in the report, we cited a private-industry official who had testified before Congress that a 20-year lease term could have annual rates as much as 33 percent less expensive than a 10-year lease and 13 percent less expensive than a 15-year lease. We found that the lease

¹¹ The Office of Management and Budget defines capital and operating leases in Circular-No. A-11, appendix B. A capital lease means any lease other than a lease-purchase that does not meet the criteria of an operating lease. An operating lease must meet six criteria: 1) ownership of the asset remains with the lessor during the term of the lease and is not transferred to the government at or shortly after the end of the lease term; 2) the lease does not contain a bargain-price purchase option; 3) the term does not exceed 75 percent of the estimated economic life of the asset; 4) the present value of the minimum lease payments over the life of the lease does not exceed 90 percent of the fair market value of the asset at the beginning of the lease term; 5) the asset is a general purpose asset rather than being for a special purpose of the Government and is not built to the unique specification of the Government as lessee; and 6) there is a private sector market for the asset.

¹² [GAO-01-929](#).

¹³ A lease project is a project on which GSA is trying to obtain a lease.

terms on these 13 cases were shortened because of the budget scorekeeping requirements for leases.

Decision-makers have struggled with this matter since the scoring requirements were established and the tendency for agencies to choose operating leases instead of ownership became apparent. We have suggested the alternative of scoring all operating leases up front on the basis of the underlying time requirement for the space so that all options are treated equally.¹⁴ Although this could be viable, there would be implementation challenges if this were pursued, including the need to evaluate the validity of agencies' stated space requirements. Another option, which was recommended by the President's Commission to Study Capital Budgeting in 1999 and discussed by us,¹⁵ would be to allow agencies to establish capital acquisition funds to pursue ownership where it is advantageous from an economic perspective. Budget scorekeeping and its effects on the acquisition of space is a complex issue that will not be easy to effectively resolve. Nonetheless, as we reported in January 2003, it has a significant unintended effect on costs and needs to be addressed.¹⁶

Geographic Location of Buildings

Three aspects of where a building is located can affect its costs. The first aspect is the part of the United States in which the building is located. For example, in a 1999 report, we reported that, at that time, to build a hypothetical 100,000 square foot building would cost a high of \$63.2 million in New York City, New York; \$37.9 million in Boston, Massachusetts; and a low of \$32.7 million in Denver, Colorado.¹⁷ The second aspect of location that can affect building costs is whether the building site is in a central business area or a rural or noncentral business area. Currently, the Rural Development Act directs federal agencies to give first priority to the location of new offices and other facilities in rural areas, and Executive Order 12072 specifies that when the agency mission

¹⁴ U.S. General Accounting Office, *Supporting Congressional Oversight: Budgetary Implications of Selected GAO Work for Fiscal Year 2003*, [GAO-02-576](#) (Washington, D.C.: Apr. 26, 2002).

¹⁵ U.S. General Accounting Office, *Accrual Budgeting: Experiences of Other Nations and Implications for the United States*, [GAO/AIMD-00-57](#) (Washington, D.C.: Feb 18, 2000).

¹⁶ [GAO-03-122](#).

¹⁷ [GAO/GGD-99-49R](#).

and program requirements call for facilities to be located in urban areas, agencies must give first consideration to locating in central business areas.

In a July 2001 report, we noted that federal agencies subject to the Rural Development Act continue to locate for the most part in higher cost urban areas.¹⁸ Most of the agencies included in our review said that they located their facilities on the basis of mission needs, although agencies did have flexibility in some cases. We reported that 8 of the 13 cabinet agencies we surveyed had no formal Rural Development Act siting policy, and there was little evidence that agencies considered the act's requirement when siting new federal facilities. In contrast, we reported that private-sector companies chose rural areas to take advantage of such factors as lower real estate and labor costs. We did find that rural locations can result in higher costs in some cases even though the cost of the land itself can be cheaper. For example, according to a GSA official, rural sites for border stations can result in increased construction costs because GSA may have to bring in construction workers from long distances and pay them for travel or pay for or provide local housing for the workers.

We also found that locating a building in a central business area can result in higher lease costs than siting it in a noncentral business area; specifically, the average cost of leasing for 11 cities was \$4.03 more expensive per square foot in the central business area than in noncentral business areas. For example, locating in the central business area of San Francisco can be \$11.40 a square foot more expensive than locating in the noncentral business area of that same city. However, out of the 11 cities we reviewed, 3 had higher lease rates in their noncentral business areas.

The third aspect of location that can have a substantial effect on construction costs is the specific site selected. In November 1995, we testified that certain features of sites that had been selected for the construction of federal courthouses had resulted in additional construction-related costs that would not necessarily have been incurred had another site been selected.¹⁹ For example:

¹⁸ U.S. General Accounting Office, *Facility Location: Agencies Should Pay More Attention to Costs and Rural Development Act*, [GAO-01-805](#) (Washington, D.C.: July 31, 2001).

¹⁹ U.S. General Accounting Office, *Federal Courthouse Construction: More Disciplined Approach Would Reduce Costs and Provide for Better Decisionmaking*, [GAO/T-GGD-96-19](#) (Washington, D.C.: Nov. 8, 1995).

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- a waterfront site required that the building include extensive waterproofing and wind bracing and a \$1.6 million pier and floating dock to accommodate the Coastal Zone Management Act;
 - an urban site, which was a small and oddly shaped parcel of land, did not allow for an efficient design configuration and had contaminated soil that cost \$3.2 million to remove; and
 - another urban site, which sloped, allowed only a high-rise building, which is more costly to build, and required a more costly “split-level” lobby.

Federal Mandates

Federal mandates, such as laws and executive orders, have affected the construction, leasing, and operating costs of federal buildings. GSA's *General Reference Guide for Real Property Policy* lists the laws and executive orders that impact GSA's roles, including many that affect design, construction, and leasing. In October 1999, we issued a report that listed 29 federal statutes and 7 executive orders applicable to leasing.²⁰ Examples of laws that affect construction and/or leasing and operations include the following:

- The Architectural Barriers Act of 1968 (42 U.S.C. §4151-4156) establishes standards for the accessibility of federal buildings to physically disabled persons.
- The Davis-Bacon Act (40 U.S.C. §3142) requires the payment of minimum wages for laborers and mechanics employed on government construction projects. The wages are established by the Department of Labor and are based on prevailing wage rates in a locality.
- The Small Business Act (15 U.S.C. §631 et seq.) requires federal agencies to utilize small and small disadvantaged businesses and to ensure that such businesses have the maximum practical opportunity to participate as subcontractors in the performance of federal contracts.
- The Energy Policy and Conservation Act (42 U.S.C. §6201 et seq.) requires federal agencies to implement programs that reduce energy consumption in federal facilities. This includes federal leased space.

Examples of executive orders that may affect federal building costs include the following:

²⁰ U.S. General Accounting Office, *Federal Statutes and Executive Orders Applicable to the Public Buildings Service's Leasing Program*, [GAO/GGD-00-27R](#) (Washington, D.C.: Oct. 18, 1999)

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- Executive Order 11990—Protection of Wetlands—requires federal agencies to avoid causing wetlands to be filled unless there is no practical alternative to doing so.
 - Executive Order 12072—Federal Space Management—requires federal agencies to give first consideration to a centralized community business area when locating federal facilities.
 - Executive Order 12770—Metric Usage in Federal Programs—requires, with certain exceptions, that the metric system of measurement be implemented in all new federal design and construction projects.
 - Executive Order 12902—Energy Efficiency and Water Conservation at Federal Facilities—requires that appropriate consideration be given to building efficiencies in the design and construction process.

In a March 2002 study prepared for GSA by a contractor concerning courthouse construction costs, 28 federal mandates were identified that had to be considered on every federal courthouse construction project.²¹ In comparing state and federal courthouse construction costs, the study estimated that these mandates added an average \$4.04 per square foot to the cost of a federal courthouse. A specific example of the impact of a mandate is the executive order on metric use. The study showed that using the metric system added an estimated \$0.57 per square foot to federal government construction costs for the projects covered in the study. The study points out that pipe suppliers stock standard U.S. Customary System sizes of pipe and have to special order corresponding metric pipe sizes, which usually represents an increased cost to the supplier that is passed on to the federal government.

In a March 2003 testimony we discussed federal mandates relative to building construction that address conservation and environmental protection, steps GSA and other federal organizations have taken to implement these mandates, and obstacles agencies have faced in attempting to implement them.²² We said that GSA encourages agencies to use sustainable design approaches in federal construction and renovation projects. Sustainable designs are intended to result in energy efficiency and minimal impact on the environment. The objectives of this type of design are to

²¹ *US Courthouse Construction Cost Comparison Study* (Mar. 12, 2002, revised).

²² U.S. General Accounting Office, *Federal Energy Management: Facility and Vehicle Energy Efficiency Issues*, [GAO-03-545T](#) (Washington, D.C.: Mar. 12, 2003).

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- reduce consumption of nonrenewable resources,
 - minimize waste and impact on the environment,
 - optimize site potential,
 - minimize nonrenewable energy consumption,
 - use environmentally preferable products,
 - protect and conserve water,
 - enhance indoor environmental quality, and
 - optimize operation and maintenance practices.

By improving energy efficiency, federal agencies may also reduce operating costs. Federal organizations have made progress in implementing these efforts. GSA and other agencies have begun using the Leadership in Energy and Environmental Design Rating (LEED) system. By using LEED, agencies can gauge the impact of design decisions on energy efficiency and other sustainable factors. In a similar vein, the White House reduced its operating costs by about \$300,000 annually using sustainable design. As part of the Pentagon renovation, sustainable design principles are being implemented with the hope of reducing operating costs by \$4 million to \$5 million each year.

Although up-front investments in sustainable design features can save building operating costs and help protect the environment, agencies have faced obstacles in implementing this concept. For example, initial costs of sustainable design features can be more costly than other approaches. GSA estimated that obtaining the second from the highest LEED rating for the construction of the Department of Transportation headquarters building would cost about \$10 a gross square foot. Agencies have faced difficulty in securing the funding needed for this approach.

Inadequate Maintenance, Construction Finishes, Contract Modifications, and Inflation

Failure to adequately maintain buildings may also affect operating costs. In 2001, we reported that 44 buildings in GSA's inventory each had \$20 million or more in repair and alteration backlogs.²³ Many of the repair and alteration needs in these buildings had a direct impact on the energy efficiency of the buildings, including aging and inefficient plumbing, heating ventilation, and air conditioning systems. For example, the Dwight D. Eisenhower building in Washington, D.C., had a repair and alteration backlog of \$216 million, which included the need to address the building's

²³ U.S. General Accounting Office, *Federal Buildings: Funding Repairs and Alterations Has Been a Challenge—Expanded Financing Tools Needed*, GAO-01-452 (Washington, D.C.: Apr. 12, 2001).

antiquated air conditioning system. GSA officials said that this system, which uses about 250 individual window units, is outdated and not efficient in cooling the building or conserving energy. In July 2000, we reported estimates that the Government Printing Office could save over \$400,000 a year in energy and maintenance costs by replacing its aged air conditioning chillers with new, more energy efficient ones and could save \$800,000 annually by upgrading its energy inefficient lighting at an estimated cost of \$1.6 million.²⁴ The Government Printing Office expects to have its air conditioning chillers and its lighting projects completed in April and May 2003, respectively. Greening the Building and the Bottom Line, a report from the Rocky Mountain Institute in cooperation with the Department of Energy (DOE), documents the case of a lighting retrofit that resulted in a 540 percent return on investment.

In 1995, we testified that interior construction costs, which include interior finishes, ranged from \$19 to \$68 a square foot for eight courthouse construction projects we studied.²⁵ For example, we noted that for one courthouse, using wood veneer paneling from floor-to-ceiling increased costs by \$5 million versus using wood wainscot paneling. Also, the choice of exterior finish can increase cost. For example, using granite versus precast concrete or brick will increase the construction costs. GSA and the Administrative Office of the United States Courts established the Independent Courts Building Program Panel to evaluate the program.

Contract modifications after the initial contract is issued also can affect costs. In June 1994, we reported that, for GSA's 100 new construction contracts and 337 repair and alteration contracts that were substantially completed between fiscal year 1988 and the first half of fiscal year 1993, over 50 percent had cost growth that exceeded the 5 percent and 7 percent, respectively, that GSA provided as contingencies for contract modifications.²⁶ Our detailed case studies of 12 construction contracts for 7 major projects showed that contract changes to overcome design and planning problems were a major contributor to contract cost growth. As

²⁴ U.S. General Accounting Office, *Government Printing Office: Space Utilization and Potential Opportunities for Saving on Facilities*, unnumbered correspondence (Washington, D.C.: July 24, 2000).

²⁵ [GAO/T-GGD-96-19](#).

²⁶ U.S. General Accounting Office, *General Services Administration: Better Data and Oversight Needed to Improve Construction Management*, [GAO/GGD-94-145](#) (Washington, D.C.: June. 27, 1994).

part of GSA's current strategic goals, a long-range performance goal has been established to reduce the cost escalation rate for new construction projects to 1 percent. GSA reported that cost escalation on construction projects was 2.3 percent in fiscal year 2002. Finally, inflation is a factor in construction cost growth. A GSA contractor asked to report on inflation rates indicated that from 1999 to 2000 the construction inflation rate in the Washington, D.C., area was 7 percent due to significant labor shortages in concrete, masonry, and especially drywall.

We Have Designated Federal Real Property as High-Risk

In January 2003, we designated federal real property as a high-risk area.²⁷ As you know, our high-risk update is provided at the start of each new Congress in conjunction with a special series we have issued biennially since January 1999, entitled the *Performance and Accountability Series: Major Management Challenges and Program Risks*. This effort is intended to help the new Congress focus its attention on the most important issues and challenges facing the federal government. In designating this area high-risk, we reported that the federal real property portfolio reflects an infrastructure that is based on the business model and technological environment of the 1950s. Many assets are no longer effectively aligned with or responsive to agencies' changing missions and are therefore no longer needed. Furthermore, many assets are in an alarming state of deterioration; agencies have estimated restoration and repair needs to be in the tens of billions of dollars. Compounding these problems are the lack of reliable governmentwide data for strategic asset management, a heavy reliance on costly leasing instead of ownership to meet new space needs, and the cost and challenge of protecting these assets against potential terrorism. The persistence of these problems—many of which have been discussed earlier in this testimony—and various obstacles that have impeded progress in resolving them led to the high-risk designation.

The problems the government faces in this area have multibillion-dollar cost implications. The cost implications are particularly evident regarding excess and underutilized property and the need for the government to realign these assets. For example, underutilized or excess property is costly to maintain. The Department of Defense estimates that it is spending \$3 billion to \$4 billion each year maintaining facilities that are not needed. In July 1999, we reported that vacant Department of Veteran

²⁷ GAO-03-122.

Affairs (VA) space was costing as much as \$35 million to maintain each year.²⁸ Costs associated with excess DOE facilities, primarily for security and maintenance, exceed \$70 million annually.²⁹ It is likely that other agencies that continue to hold excess or underutilized property are also incurring significant costs for staff time spent managing the properties and for maintenance, utilities, security, and other building needs. Furthermore, in addition to day-to-day operational costs, the government is needlessly incurring unknown opportunity costs, because these buildings and land could be put to more cost-beneficial uses, exchanged for other needed property, or sold to generate revenue for the government. For example, in 1998, we reported that VA could reduce expenditures by an estimated \$200 million over the next 10 years by consolidating hospital services into three locations in Chicago, Illinois, rather than continuing to operate four underutilized locations.³⁰

GSA also has vacant and underutilized property. In August 2002, we reported on a recent GSA initiative to deal with its under performing properties.³¹ GSA had identified over 500 of its owned properties that were not generating sufficient income to cover their expenses and meet other financial performance criteria. GSA was developing and beginning to implement strategies for disposing of these properties, renting space to nonfederal tenants, or taking other actions to address the problem.

The problem of repair backlogs in federal facilities also has major cost implications. In addition to the multibillion-dollar backlog in needed work that is currently identified, we have reported that the ultimate cost of completing delayed repairs and alterations may escalate because of inflation and increases in the severity of the problems caused by the delays. The overall cost of needed repairs could also be affected by government realignment. That is, to the extent that unneeded property is

²⁸ U.S. General Accounting Office, *VA Health Care: Challenges Facing VA in Developing an Asset Realignment Process*, [GAO/T-HEHS-99-173](#) (Washington, D.C.: July 22, 1999).

²⁹ DOE Office of the Inspector General, *Disposition of the Department's Excess Facilities*, DOE/IG-0550 (Washington, D.C.: Apr. 3, 2002)

³⁰ U.S. General Accounting Office, *VA Health Care: Closing A Chicago Hospital Would Save Millions and Enhance Access to Services*, [GAO/HEHS-98-64](#) (Washington, D.C.: Apr. 16, 1998).

³¹ U.S. General Accounting Office, *Financial Condition of Federal Buildings Owned by the General Services Administration*, unnumbered correspondence (Washington, D.C.: Aug. 8, 2002).

also in need of repair, disposing of such unneeded property could reduce the repair backlog. And finally, the cost of securing unneeded assets against the threat of terrorism, in addition to being significant, will use funds that likely could have been directed to realignment and repair efforts for properties that the government determines it should retain.

As discussed in our high-risk report, resolving these long-standing problems will require high-level attention and effective leadership by Congress and the administration. Also, because of the breadth and complexity of the issues involved, the long-standing nature of the problems, and the intense debate that will likely ensue regarding potential solutions, current structures and processes may not be adequate to address these problems. Given this situation, we concluded in our high-risk report that there is a need for a comprehensive and integrated transformation strategy for federal real property, and an independent commission or governmentwide task force may be needed to develop this strategy. Such a strategy could be based on input from agencies, the private sector, and other interested groups. The strategy also should reflect the lessons learned and leading practices of public and private organizations that have attempted to reform their real property practices. These organizations have recognized that real property, like capital, people, technology, and information, is a valuable resource that, if managed well, can support the accomplishment of their missions and the achievement of their business objectives. In addition, as these organizations are recognizing, the workplace of the future will differ from today's work environment.

For the federal government, technological advancements, electronic government, flexible workplace arrangements, changing public needs, opportunities for resource sharing, and security concerns will call for a new way of thinking about the federal workplace and the government's real property needs. Realigning the government's real property assets with agency missions and taking into account the requirements of the future federal role and workplace will be critical to improving the government's performance and ensuring accountability within expected resource limits. If actions resulting from the transformation strategy comprehensively address the problems and are effectively implemented, agencies will be better positioned to recover asset values, reduce operating and space acquisition costs, improve facility conditions, enhance safety and security, and achieve mission effectiveness.

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