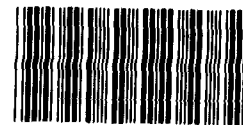# GAO

Report to the Ranking Minority Member, Subcommittee on Investigations and Oversight, Committee on Public Works and Transportation, House of Representatives

September 1993

FEDERAL JUDICIARY SPACE

Long-Range Planning Process Needs Revision

150033

GAO/GGD-93-132

GAO

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

General Government Division

B-249771

September 28, 1993

The Honorable James M. Inhofe
Ranking Minority Member
Subcommittee on Investigations
    and Oversight
Committee on Public Works and
    Transportation
House of Representatives

Dear Mr. Inhofe:

This report responds to your request that we review the reasonableness of the methodology used by the Administrative Office of the U.S. Courts (AOC) to project long-range space needs. Overall, we found that AOC's methodology had several weaknesses: (1) districts were not treated consistently, (2) baselines did not reflect current needs, and (3) final estimates of future space needs lacked reliability.

The report makes several recommendations to the Director of the Administrative Office of the U.S. Courts that are aimed at improving AOC's long-range planning process.

As agreed with the Subcommittee, unless you publicly announce the contents of the report earlier, we plan no further distribution until 30 days from the date of the report. At that time, we will send copies to the Director of the Administrative Office of the United States Courts, the Administrator of General Services, the Director of the Office of Management and Budget, and other interested congressional committees and subcommittees. Copies will be made available to others upon request.

Please contact me at (202) 512-8676 if you have any questions concerning this report or would like further information. Major contributors to this report are listed in appendix IV.

Sincerely yours,

William M. Hunt
Director, Federal Management
    Issues

Executive Summary

Purpose

Between 1979 and 1988, the federal judiciary's caseload increased by 99 percent, thereby creating a need for additional court space. Initial estimates from the long-range planning process, established by the judiciary in 1988 to project its future space needs, indicated that need for court space will continue to grow for the next 30 years. In 1991 Congress appropriated over $546 million for 13 new court construction projects, or about 42 percent of the total amount appropriated to the General Services Administration (GSA) for new construction projects. Concerned about the judiciary's continuing requests for more space, the Ranking Minority Member of the Subcommittee on Investigations and Oversight, House Committee on Public Works and Transportation, asked GAO to evaluate the reasonableness of the methodology used by the judiciary to project long-range space needs and to assess the reliability of the projections.

Background

In 1988, to anticipate future space requirements, the Judicial Conference of the United States, the policymaking body of the judiciary, directed each of the 94 district courts to develop a long-range plan for its space needs. It also directed the Administrative Office of the U.S. Courts (AOC), the administrative body of the judiciary, to provide the districts with the necessary planning guidance. By establishing a long-range planning process, the judiciary became one of the first government organizations to develop a mechanism for anticipating space needs. GSA uses the 10-year space projections provided by the judiciary as the basis for requests to Congress for new construction and expansion of court space in existing facilities.

The Judicial Conference also requested independent authority from Congress to acquire its own judicial facilities. The judiciary believed that such authority would provide greater control and flexibility because it would no longer be dependent upon the executive branch for space. Congress has not acted upon this request.

AOC developed an on-going, long-range planning process based on the basic assumptions that (1) caseloads should determine staffing needs, which, in turn, should dictate space needs; (2) local district representatives should determine actual space needs rather than depending primarily upon statistical estimation methods; and (3) each district is of equal importance and, therefore, space needs should not be prioritized among districts.

Under its long-range planning process, AOC annually categorizes the 94 districts into 1 of 4 groups on the basis of the district's total caseload. For each group, the average ratios of key personnel to specific caseloads are computed. AOC then develops 5-, 10-, 20-, and 30-year projections for each district for four different caseloads—bankruptcy filings, criminal and civil cases commenced, and the number of people under court supervision. AOC uses the ratios of caseload to key personnel to convert the projected caseload to staffing needs for each time period. Staffing needs are then converted to space needs using the U.S. Courts Design Guide, a planning document that was developed for use in the design of court space.

Because the judiciary believes that final space projections should reflect the knowledge and experience of local representatives, AOC's team conducted 3-day planning sessions in each of the 94 districts. The planning sessions were attended by local representatives from each of the court components, court-related agencies—the U.S. Attorneys' office, the U.S. Marshals Service, and the U.S. Trustees—and GSA. The local representatives reviewed and modified the initial staff and space projections and compared their current space assignments to the Design Guide to identify immediate, unmet space needs (deficits). The initial projections served as a starting point for discussion, and the representatives' modifications became the final projections of staff and space needs for the district. Agency officials reported that they do not plan to continue to routinely schedule on-site sessions after completion of all 94 districts.

As of September 1, 1992, AOC had completed space projections for 60 of the 94 districts. In order to determine the estimated total impact of AOC's planning process, GAO projected AOC's findings for the completed districts to the total 94 districts. GAO estimated that for all 94 districts, the total space requirements for courts and related agencies would increase to about 36.9 million square feet over a 10-year period, a 97-percent increase. (See p. 24.)

Because of the continuing requests for additional court space, GSA officials raised concerns about the methodology used by AOC to project future needs. When they communicated these concerns to Congress, GAO was asked to evaluate the methodology that AOC was using for long-range planning and to assess the reliability of the results produced.

Results in Brief

GAO found that AOC's process for projecting long-range space needs did not produce results that were sufficiently reliable to form the basis for congressional authorization and funding approval of new construction and renovation projects for court space. GAO's analysis indicated that AOC's projections of caseloads were higher than those generated using a standard statistical method in 76 districts and were lower in the remaining 18 districts. When GAO used an estimate of $31 per square foot, which represented the judiciary's average cost for all court space, the difference translated to a net cost in constant dollars of approximately $112 million annually, or $1.1 billion over the 10-year period.

GAO identified three key problems that have impaired the accuracy and reliability of the judiciary's projections. First, AOC had not treated all districts consistently. One reason for this was that it did not routinely revise district plans that were completed earlier to reflect changes made to critical factors, such as the space allocation per individual staff. Also, the procedure used to convert caseload estimates to staffing requirements did not reflect differences among districts that affect space needs. Second, based on AOC's assumptions regarding the relationship between caseloads and staff needs, many districts' baselines to which future space needs are added did not accurately reflect their current space needs. AOC used as the baseline for a district the amount of space it occupied plus any deficit identified by the local representatives. As a consequence, when a district occupied more space than the caseload warranted, future estimates of needs were overstated. Third, AOC's process did not provide reliable estimates of future space needs because the methodology used to project caseloads was not statistically acceptable. In addition, because of the amount of subjectivity involved in the process, it is likely that if the process were repeated for any district, even without any change to the caseloads, the estimate of space needs would be different.

GAO recognizes that it is difficult to project future space needs with precision. The projection of such needs is not an exact science, and in the final analysis, it is reasonable to expect some variation between the estimate and what is actually needed. Space estimates are particularly challenging for the judiciary because there are numerous factors that cause changes in the workload, and therefore space needs, which are beyond its control. However, by modifying the process, more reliable assessments of future space needs could be obtained that would provide a better basis for decisionmaking by GSA and by Congress.

GAO Analysis

Districts Have Been Treated Inconsistently

AOC's method for projecting space needs has treated districts inconsistently. The process began in 1989, but all 94 districts are not scheduled for completion until 1994. Since 1989, AOC has made a number of changes in the way space is allocated but has not routinely revised the completed plans to reflect the changes. As a consequence, those districts whose plans were completed early received lower space allocations than did those completed later. (See pp. 27-30.)

Another problem was the use of data from different time periods when future space needs were projected. AOC used 40 years of historic data to project future caseloads. Because the process has required 5 years for the completion of plans for all districts, the time period used to make caseload projections has not been the same for all districts. For example, some districts' estimates were based upon historic data for 1949 through 1989, while others included 1952 through 1992. The increase in the number of bankruptcy filings that occurred during 1990 and 1991 was not reflected in the early projections, thereby resulting in underestimates of space needs for bankruptcy courts. (See pp. 30-31.)

Another problem related to AOC's method of grouping districts into one of four "growth models." It used the districts' total caseloads, including civil and criminal cases commenced, bankruptcy filings, and number of persons under supervision, as the basis for determining the growth model. The average caseload, number of key personnel, and ratio of other staff to key personnel were then determined within each growth model. These data defined the relationships between caseloads and staff needs that were applied within each growth model when future space needs were calculated. This method gave equal weight to all cases and ignored differences among districts' caseloads that directly affected space needs, such as case complexity and length of trials. (See pp. 31-32.)

Baselines Have Not Reflected Current Needs

One of AOC's basic assumptions is that caseloads should determine staff needs, which should define space needs. However, GAO found that when determining the baselines, to which future space needs were added, AOC assumed that all authorized staff were needed. Therefore, space allocations were included for all staff regardless of whether the staff was justified by current caseloads. In addition, AOC included deficits in the

baselines without verifying that they represented actual space needs. (See p. 36.)

To determine the impact of these practices on projections, GAO tested two alternative methods for determining baselines. GAO did not include deficits as part of the baseline under either alternative. The first GAO alternative established district baselines directly from current caseload, while the second GAO alternative established baselines according to the number of authorized staff positions.

Under the first of these alternatives, GAO used AOC's caseload-to-staff ratios to convert current caseloads to staff needs. The Design Guide space allocations were then applied to determine the amount of space required to house this level of staff. On the basis of this alternative, GAO estimated that AOC's baselines overstated space needs in 65 districts by about 3 million square feet and understated needs in 29 districts by about 840,000 square feet. (See pp. 38-39.)

Under the second alternative, GAO began with the current staffing levels to establish the amount of space currently required. This alternative recognized that current staff levels may not correspond to the level needed to process the caseload. However, this alternative also recognized that existing staff levels could not be readily modified. On the basis of this alternative, GAO estimated that AOC's baselines overstated space needs in 63 districts by about 2.1 million square feet and understated baselines in 31 districts by about 1 million square feet. (See pp. 39-40.)

Under either of these alternatives, the GAO position was that additional space is not warranted until the caseload increases to the level that more staff are needed.

Projection Methods Have Not Produced Reliable Results

The long-range planning process used by AOC has not produced reliable estimates of future space needs. First, the methodology used to make initial caseload projections was statistically flawed. AOC averaged the results of different regression analyses to develop its final estimates. As a consequence, the accuracy of the initial caseload projections cannot be measured statistically. (See p. 46.)

In addition, the high level of subjectivity in the process made it likely that if the process were repeated for the same district even without a change in the caseloads, the final estimate of space needs would be different.

Subjectivity occurred at two points in the process. First, when initial caseload projections were made, if the estimate seemed to be too low, it was arbitrarily increased. (See pp. 46 and 47). Second, because the local representatives did not have available the caseload projections made by AOC prior to the on-site sessions, the final estimates of needs were based primarily upon their subjective experiences. (See pp. 47-49).

To assess the overall reliability of AOC's process, GAO developed 5- and 10-year projections of space needs for the judiciary using a standard acceptable statistical method. This analysis indicated that the judiciary's 10-year projections of court space needs were higher than GAO's estimates in 76 districts by about 5 million square feet and were lower in 18 districts by about 1.4 million square feet. Overall, AOC's estimates were about 16 percent higher than GAO's estimates. Using a GAO estimate of $31 per square foot, which reflected the judiciary's average cost for all court space for the period 1988 to 1992, this would represent an overestimate of about $112 million per year, or $1.1 billion for the 10-year planning period. (See p. 52).

Recommendations

GAO recommends that the Director of the Administrative Office of the U.S. Courts revise the future operations of the long-range planning process to

- treat all districts consistently in terms of the application of the assumptions regarding the relationships between caseloads, staff, and space (see p. 34);
- establish a baseline for each district that reflects its current caseload (see p. 42); and
- increase the reliability of the results by using an acceptable statistical methodology to project future caseloads and by reducing the level of subjectivity in the process (see p. 54).

Agency Comments

AOC provided written comments on a draft of this report; the text of these comments is presented in appendix III. AOC's comments and GAO's responses are discussed at the end of chapters 2, 3, 4, and appendix III. On June 21, 1993, GAO met with the Assistant Commissioner, Office of Planning, GSA. He provided official oral comments on a draft of this report. GAO also met with agency officials from AOC to discuss their comments.

AOC agreed with GAO that all districts should be treated consistently, even though this has not occurred in the past; however, AOC pointed out that

these inconsistencies were not intentional. GAO does not imply in the draft report that the inconsistencies were intentional. However, because of the 5-year period required to complete all districts, changes did occur that affected some districts, particularly those that had plans completed early in the period. Following the completion of plans for all 94 districts in early 1994, on-site planning sessions will no longer be routinely scheduled for all districts, thereby reducing the time required to complete all districts from 5 years to 2 years. As a direct consequence, the likelihood of changes that affect space allocations will be reduced, although not eliminated. GAO's position is that any time there is a change that affects space allocations, the plans for all districts should be updated to prevent the occurrence of inequities.

AOC stated that GAO misused its basic planning assumption that caseloads should determine staff needs, which should determine space needs, when it applied this assumption to determine the amount of current space needed (baselines). AOC's intent was that this assumption apply only to future needs, not to current needs, and that the baselines should reflect current space plus deficits. GAO's position is that the baselines used by AOC often do not accurately reflect existing needs; therefore, the estimates of future requirements will continue to reflect any existing overages or shortages in terms of the amount of space needed to process the districts' caseloads.

AOC commented that the projection of future space needs should be dependent primarily upon the qualitative information provided by the local representatives rather than upon statistical procedures. GAO recognizes that qualitative methods, which involve group participation, can be used successfully in some instances to generate accurate projections. However, there are two basic restrictions to the use of these qualitative methods. The participants should be experts in the relevant area, and the projection period should be limited to 1 or 2 years. However, the local representatives who participate in AOC's on-site sessions often would not qualify as experts, and AOC does not limit this method to short-term projections. Therefore, even if experts were involved the estimates produced would lack reliability. AOC stated that beginning in 1994 on-site sessions will no longer be routinely scheduled and that local input will be obtained through other channels. This may result in a reduction of the subjectivity and an improvement in the reliability of the estimates. However, GAO's position is that AOC should examine various alternative statistical methods for estimating caseloads. AOC could then directly translate these statistical projections into space requirements by applying

its assumptions regarding the relationships between caseloads and staff/space.

A general issue that AOC and GSA raised was that the total process for the acquisition of facilities is more complex than just the long-range plans. GAO recognizes that the court's projection of long-range space needs is only one phase of a complex process. However, GAO was only asked to evaluate the methodology the courts used for making long-range plans, not to evaluate the total space acquisition process.

GSA officials indicated that they concurred with the GAO draft report. They stated that the GAO methodology for calculating baselines represented a way to improve the reliability of future estimates of space needs for the judiciary. They also agreed with GAO that AOC should examine alternative caseload projection methods.

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Abbreviations

AOC	Administrative Office of the U.S. Courts
GSA	General Services Administration

Introduction

Background

The United States is divided geographically into 12 judicial circuits, including the District of Columbia. These circuits contain 94 districts, each of which may include as many as 6 different court components: the district court, the bankruptcy court, the circuit court, the probation office, the pretrial office, and the public defenders' office. Each district occupies one or more buildings that may be located at various sites. In March 1992, the court components occupied about 14 million square feet of space in the 94 districts. Figure 1.1 shows the proportion of this space occupied by each of the court components.

Figure 1.1: Proportion of Space Occupied by Court Components

Bankruptcy court

9%
Circuit court

2%
Public defenders

16%

73% ● —— —— District court (including probation and pretrial)
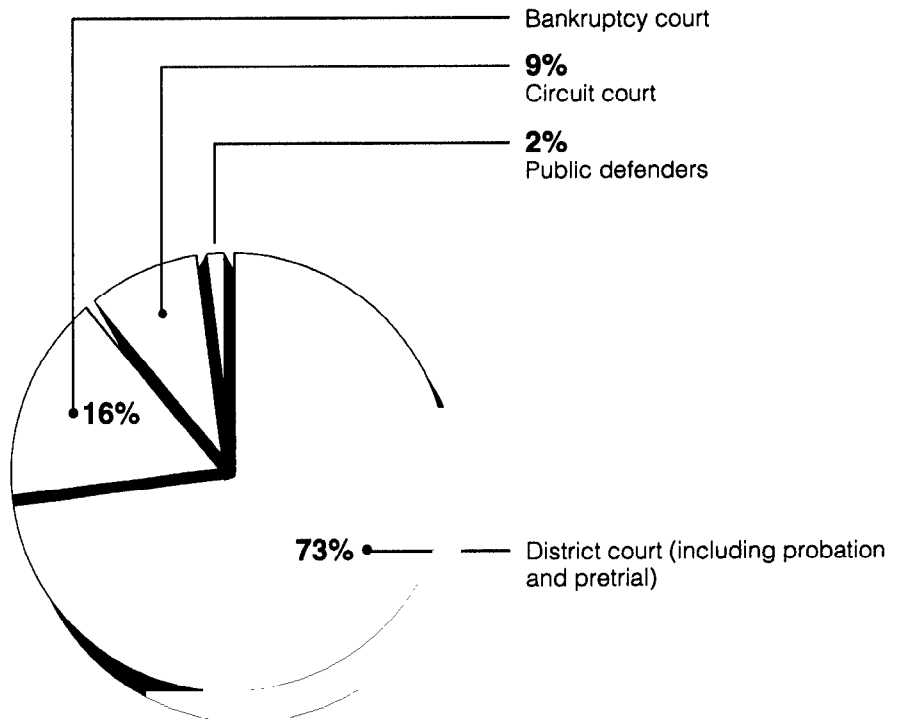
Source: AOC.

Three executive branch agencies have functions that directly relate to those of the courts and are included in court space plans: (1) the U.S. Attorneys, who prosecute criminal defendants in federal courts; (2) the

U.S. Marshals Service, which provides security for the federal courts; and (3) the U.S. Trustees, who provide administrative support for the bankruptcy courts. In March 1992, these court-related agencies occupied about 4.7 million square feet in the 94 districts. Figure 1.2 shows the proportion of space occupied by each of the related agencies.

Figure 1.2: Proportion of Space Occupied by Related Agencies

- U.S. Marshals
- **9%** U.S. Trustees
- **25%**
- **66%** — U.S. Attorneys
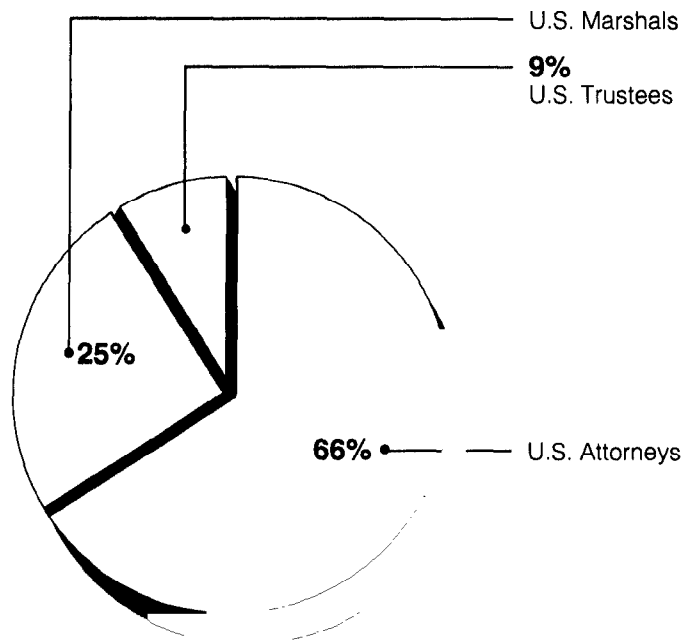
Source: AOC.

Although it is a separate branch of government, the judiciary is dependent on the executive branch to acquire and operate its space and facilities. The General Services Administration (GSA) serves as the landlord for the judiciary and other federal agencies. We reported in December 1991 that during fiscal years 1981 through 1990, GSA used on average about 14 percent of its total capital funding to satisfy the courts' expansion requirements.[1] During fiscal year 1991, Congress approved 13 new construction projects for court facilities at a cost of about $546 million, or

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[1]U.S. Courts: Estimated User Fee to Pay for New Facilities (GAO/GGD-92-8BR, Dec. 10, 1991).

42 percent of total GSA appropriations for new construction. Repairs and alterations were also approved for 10 courthouses at a cost of $58.4 million, or about 7 percent of the total appropriations for repair and alterations. Due to the increased number of projects requested by the judiciary, GSA officials expressed a concern about the accuracy of the methodology used by the Administrative Office of the U.S. Courts (AOC) to project long-range space needs.

The Judicial Conference of the United States, the policymaking body of the judiciary, has asked Congress for independent authority to acquire its own space and facilities. According to court officials, such authority would provide greater control and flexibility while allowing the courts to be more responsive to the facilities needs of newly created judgeships. Court officials also said that they should not have to compete with other agencies for building funds or be subject to executive branch control. Congress has not yet acted upon this request.

During the 10-year period from 1979 until 1988, the judicial caseload grew by 99 percent. As a result of the associated staff growth, the existing court space was not sufficient. The judiciary, like other government components, had no mechanism for anticipating future space needs, despite the fact that long-range planning should be an essential part of any capital expenditure program. In 1988, to determine where new and additional space was needed, the Judicial Conference directed the 94 districts to develop long-range plans that would allow them to identify their space and facilities needs on a continuing basis. The Judicial Conference asked AOC, the administrative arm of the judiciary, to develop guidance for assembling such plans. To comply with the Judicial Conference's directive, AOC developed a long-range planning process, which was implemented in the first district in early 1989.

As of September 1, 1992, AOC had completed long-range plans for 60 of the 94 districts. According to judiciary officials, AOC expected to complete plans for all 94 districts by January 1994. The process will then be repeated with modifications—on-site sessions will no longer be routinely scheduled and a newly developed computer system will be used to identify deficits.

AOC's Long-Range Planning Process

The basic assumptions upon which AOC's long-range planning process was developed are as follows:

(1) Caseloads should determine staffing needs which in turn should dictate space needs within each district. (2) Final estimates of future staff and space needs should be determined by local district representatives without reliance upon statistical methods. (3) Each district is of equal importance and, therefore, space needs should not be prioritized among districts.

AOC's long-range planning process has involved three major steps: (1) the 94 districts were categorized annually into 1 of 4 groups, or growth models, according to total caseloads; (2) each district's caseloads were estimated for the 5-, 10-, 20-, and 30-year time periods, and the caseload estimates were converted to staff and space requirements; and (3) on-site planning sessions were held in the districts to obtain the perspective available from local representatives. Figure 1.3 illustrates how AOC's long-range planning process has operated.

Figure 1.3: AOC's Long-Range Planning Process

Step 1 Categorize Districts	Step 2 Initial Projections	Step 3 On-site Planning Session
Compute total caseloads	Project 4 types of caseloads for 5-,10-, 20- .30-years	Identify occupied space
Categorize districts		Determine deficits
Compute caseload ratios for key personnel	Convert caseloads to staff needs	
Compute average staff ratios to key personnel	Convert staff needs to space needs	
	Prepare projection package	Modify staff projections
		Convert staff to space
		Prepare facility package

Source: AOC Projection Packages.

Step 1: Categorizing Districts Into Growth Models

On an annual basis, AOC categorized the 94 districts into 1 of 4 groups according to the most recent year's total caseload. Caseloads included the number of civil and criminal cases commenced, bankruptcy filings, and the number of persons under supervision. Because some districts objected to being classified as small, medium, large, or large complex, AOC referred to the four categories as growth models 1 through 4.[2]

Within each growth model, AOC calculated the average caseload-to-staff ratio for key personnel and the average ratio of support staff to key personnel using the most current data available. Table 1.1 shows the results of these calculations based upon 1991 data. The caseload-to-personnel ratios formed the basis for converting projected caseloads for a district into staff needs during step 2 of the planning process.

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[2]The term growth model was selected to indicate AOC's intent that the groups reflect the anticipated patterns of growth over time. AOC expected that in growth model 1 caseloads would grow at a slow rate; the districts in growth model 2 would experience steady, consistent growth; growth model 3 would be heterogeneous in nature with mixed growth patterns; and growth model 4 would include large, fast-growing districts.

Table 1.1: Growth Models—Ratios of Key Personnel to Defined Caseloads and Ratios of Support Personnel to Key Personnel

Court component	Personnel classification	Growth model 1	Growth model 2	Growth model 3	Growth model 4
District Court	Judge[a]	363 civil and criminal cases	426 civil and criminal cases	496 civil and criminal cases	541 civil and criminal cases
	Senior Judge	.33 per judge	.33 per judge	.40 per judge	.45 per judge
	Magistrate	.33 per judge	.50 per judge	.50 per judge	.70 per judge
	Clerks	6 per judge	7 per judge	8 per judge	9 per judge
Bankruptcy Court	Judge[a]	1,424 filings	1,468 filings	2,172 filings	2,428 filings
	Clerks	12 per judge	14 per judge	14.5 per judge	15 per judge
Probation	Officer[a]	30 supervised	31 supervised	31 supervised	31 supervised
	Clerical	.63 per officer	.63 per officer	.62 per officer	.60 per officer
Pretrial	Officer[a]	105 criminal cases	110 criminal cases	115 criminal cases	90 criminal cases
	Clerical	.60 per officer	.66 per officer	.57 per officer	.54 per officer
Public Defenders	Attorneys[a]	110 criminal cases	101 criminal cases	101 criminal cases	76 criminal cases
	Investigators	.25 per attorney	.25 per attorney	.25 per attorney	.22 per attorney
	Paralegal	.10 per attorney	.10 per attorney	.10 per attorney	.10 per attorney
	Clerical	.60 per attorney	.60 per attorney	.63 per attorney	.69 per attorney
Circuit Court	Judges	.33 per district judge	.33 per district judge	.30 per district judge	.25 per district judge
	Senior Judge	.33 per circuit judge	.50 per circuit judge	.30 per circuit judge	.66 per circuit judge

[a]Indicates key personnel position; the ratio is based on caseload.

Source: AOC's Facility Projection Packages.

Step 2: Initial Projections and Preliminary Materials

During the second step, AOC developed initial caseload projections for any district for which the plans had not been completed. AOC used 40 years of historic data as the basis from which to project future caseloads, giving more weight to most recent experience. AOC officials reported that they used quadratic and linear regression models[3] to generate estimates of future caseload filings for civil, criminal, and bankruptcy cases, as well as the number of persons under court supervision. AOC averaged the estimates obtained from these analyses to obtain 5-, 10-, 20- and 30-year projections of caseloads. AOC reported that they may use other different regression models when it appears that the initial projections obtained were too low.

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[3]Regression analysis is a statistical procedure for estimating the value of one variable (Y) using information about an associated variable (X). Appendix I contains a full description of the procedure used by AOC to estimate caseloads.

Using the caseload estimates and the appropriate growth model, AOC determined the associated staffing needs for each of the district court components. The numbers of key personnel—district court judges, bankruptcy judges, probation officers, pretrial officers, and public defenders—were calculated directly from the projected caseloads for the 5-, 10-, 20-, and 30-year periods. The numbers of staff for other personnel classifications depended on the numbers of the key personnel.

AOC first determined the future staff needs for each time period on the basis of the caseload projections. It then calculated the difference between these numbers and the district's current staff, using current staff information obtained annually from AOC's Office of Personnel. The change in numbers of staff by personnel classification was then used to estimate the amount of space that would be needed to house the staff. AOC added the new space needs to current occupied space to determine the total amount of space required at each time period.

The U.S. Courts Design Guide was developed by the judiciary to provide specific criteria to use when designing court and related agency space. The Design Guide provides standards regarding the suitable space for each function or personnel position, as well as for special purpose space, such as courtrooms and judges' chambers. Under AOC's planning process the Design Guide formed the basis for converting staffing projections to space needs. Table 1.2 shows the space allocations for the staff classifications currently used by AOC to convert staff projections to space needs.

Table 1.2: Space Allocations Used by AOC According to Personnel Classifications

Court component	Personnel type	Square feet per person
District Court	Judgeships	6,145
	Senior judges	6,145
	Magistrates	4,695
	Clerks	125
	Reporters	300
Bankruptcy Court	Judgeships	4,770
	Clerks	125
Probation Office	Officers	150
	Support	125
Pre-trial Services	Officers	150
	Support	125
Public Defenders	Attorneys	200
	Investigators	150
	Paralegal	150
	Support	125
Circuit Court	Judgeships	2,340

Source: AOC's Facility Plans.

When converting staffing projections to space needs, AOC also applied an add-on factor that was composed of two parts: circulation and contingency. The Design Guide specifies that after the total number of square feet for staff/functional areas is computed, 20 percent should be added to allow for circulation space, which includes areas such as internal hallways. In addition, the Design Guide provides for other space requirements not directly associated with individual staff, such as jury assembly rooms, records and supplies storage areas, and copier areas. AOC referred to this as a contingency factor and added 25 percent to total court component space needs. Thus, 45 percent was added to the total space projections for court components to account for internal circulation and areas not related to individual staff/functions.

AOC computed space requirements for the 5-, 10-, 20-, and 30-year periods by applying the Design Guide criteria plus the 45 percent add-on to the estimates of future staffing that would be required to process the projected caseloads. These initial projections of staffing needs and space requirements were summarized in planning materials that were provided to local representatives prior to the on-site sessions. AOC also sent the

districts related demographic information derived from Census Bureau data and summary charts showing historic caseloads.

Step 3: On-Site Planning Sessions[4]

The third step, which AOC viewed as the most critical aspect of the total process, has been 3-day, on-site planning sessions in each district involving the two-member AOC team,[5] local representatives from the various court components and related agencies, and local GSA staff. The purpose of the on-site session was to obtain information from the local representatives and GSA that would determine the final estimates of future space requirements.

During the 3-day session, the local representatives first updated the current staffing information. The local representatives then provided information regarding estimated future staff needs based on their personal knowledge and experience. They also described any special factors that warranted consideration when future projections were determined, such as expected retirements. When a circuit court headquarters occupied space within the district, the local representatives made estimates of this component's future space requirements as well. The local representatives did not have available the actual caseload projections made by AOC prior to the on-site session. For this reason, their estimates were based primarily upon their subjective experience.

Court-Related Agency Projections—At the on-site session, the AOC team also obtained information from the related agencies about their current and projected staffing. AOC used data from districts whose plans were already completed to calculate the average square feet occupied by the staff within each related agency. AOC used an average of 325 square feet per individual for the U.S. Attorney's offices, 425 for the U.S. Marshals Service, and 455 for the U.S. Trustees. This space included conference rooms and storage areas as well as general office facilities. Projections of future space needs for these agencies did not receive the add-on percentage for circulation or contingency factors.

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[4] After AOC completes the 94 districts' plans, on-site sessions will no longer be routinely scheduled as part of the ongoing process for updating space plans. AOC is examining alternatives, such as video conferences or mailed surveys, with on-site sessions being used only when special circumstances warrant the need for extensive personal interaction.

[5] Since the inception of the long-range planning process, its management and operation have been dependent solely upon a two-member team, which includes the Chief of the Projects Development Branch of AOC's Space and Facilities Division and a consultant to AOC.

Identification of Deficits—A part of the on-site session was spent discussing current unmet needs. The local representatives identified the unmet needs or deficits. A deficit represented the difference between the space a component occupied and the amount of space to which the local representatives believed they were entitled according to the judiciary's Design Guide. The representatives from the related agencies also determined whether they had unmet space needs.

Conclusion of the On-site Session—After receiving the final estimates of future staff needs for each time period from the local representatives, AOC calculated the differences between these numbers and the district's current staff levels as provided by the local representatives. AOC applied the Design Guide criteria to the estimated staff change to generate the estimated change in space needs. The increased space needs were then added to the occupied space plus deficits (the baseline) to determine the total amount of space that would be needed to house the staff.

Using the method described above, at the conclusion of the on-site session, the AOC team generated new space estimates for each court component and for each of the related agencies on the basis of information from the local representatives. The AOC team prepared a revised package of materials, which focused on the buildings currently occupied by the courts and related agencies. The package of materials included timelines that showed for each occupied building all federal agencies that occupied space, the amount of space occupied, and projections regarding how these buildings could meet future court and related agency needs. The materials also included estimates that showed when the space needs of the court and related agencies would exceed each building's capacity.

At the end of the 3-day planning session, the AOC team asked the local representatives to prepare "assumption letters" that described the representatives' bases for their estimates of future staff changes. The local representatives provided the assumption letters to AOC as support for their final space estimates.

After the Chief Judge within the district approved the final plan, GSA received copies of the plan. GSA reported that its regional offices generally use AOC's 10-year plans to form the basis for requests for project authorization and funding for new construction and alterations to existing space without further review or examination. However, on occasion a GSA

regional office may request additional information when an actual building prospectus is being prepared.

Status of the Long-Range Planning Process

As of September 1, 1992, AOC had completed long-range plans for 60 of the 94 districts. For six of the districts that were completed early in the process, the data contained in AOC's files were not sufficient for our analyses. Appendix II contains a table showing the current space occupied by the courts and related agencies and AOC's projected space needs for 5, 10, 20, and 30 years for each of the 54 districts included in our analyses.

On the basis of data from the 54 districts, we estimated the space needs for the remaining 40 districts. As shown in table 1.3, under AOC's process nationwide space needs for court components and related agencies will increase from the current level of about 18.7 million square feet to about 53 million over the 30-year projection period (a 183-percent increase). Using $31 per square foot to represent the average total cost of court space from 1988 through 1992, we estimate the government's total annual cost associated with current space is about $579 million. At the conclusion of the 30-year time span, the government's annual cost will have increased to $1,642 million (assuming constant dollars). Appendix II includes a description of the methodology we used to determine the $31 per-square-foot cost.

Table 1.3: Projected Total Space Needs for Courts and Related Agencies for 94 Districts Plus Annualized Costs

	Total square feet for 54 completed districts	Estimated square feet for remaining 40 districts	Total square feet for all 94 districts	Total annualized cost (in millions)[a]
Current	11,771,304	6,897,700	18,669,004	$579
Current plus deficit	14,911,253	8,737,634	23,648,887	733
5-year projection	19,980,968	11,785,413	31,766,382	985
10-year projection	23,746,936	13,158,267	36,905,203	1,144
20-year projection	29,556,046	14,686,830	44,242,876	1,372
30-year projection	35,658,563	17,308,670	52,967,233	1,642

[a]Calculated using $31 per square foot in constant 1992 dollars.

Source: GAO calculations from data in AOC long-range facility plans.

Objective, Scope, and Methodology

Our objective was to evaluate the reasonableness of the methodology used by the U.S. Courts to project long-range space needs and to determine

whether the results produced are reasonable indicators of future space needs. To accomplish this objective, we

- determined whether the assumptions used by AOC were applied consistently from district to district,
- assessed the baselines from which AOC mades future space projections to ensure that AOC's baselines accurately represented current space needs, and
- assessed the projection methodology used by AOC to determine whether the process produced reliable estimates of future space needs.

We interviewed officials from the Space and Facilities Division of AOC's office in Washington, D.C., and the consultant hired by AOC to assist in implementing the long-range planning process. These officials provided detailed information on the operation of the process. We interviewed representatives from the National Center for State Courts and the National Institute of Building Sciences to obtain information regarding space allocations for state, local, and international court facilities as well as those of the federal government. We also interviewed officials from GSA who provided us with information on how they used AOC's space plans.

We reviewed the planning files for those districts where AOC had completed the process. We collected such data as the amount of space occupied, deficits, and current staffing information from these files. In addition, we recorded from these files AOC's estimates of space and personnel projections for the next 5, 10, 20, and 30 years.

AOC provided us with a copy of its historic database, which included caseloads for each of the 94 districts either since 1952 or since the district was established. Caseloads include the number of civil cases and criminal cases commenced, the number of bankruptcy filings, and the number of persons under supervision. The database also included personnel data for each district covering fiscal year 1991. We did not verify the accuracy of AOC's historic caseload data, the personnel data, or the data obtained from the planning files.

Using AOC's databases and the data we collected from AOC's files, we developed alternative methods for establishing the baselines—one using current caseloads and the other using current staffing levels. We also used AOC's database and a standard statistical method to project future caseloads in order to test the feasibility of such a procedure. When developing the alternative baselines and future caseload projections, we

applied AOC's assumptions regarding growth models and the associated caseload to personnel ratios without considering possible changes to the way these factors are computed, such as the inclusion of case complexity. We applied the space allocation procedures as they were used by AOC. As a consequence, we were able to directly compare the results of our analyses to AOC's results.

We reviewed the computer software developed to support AOC's planning process and accompanied the AOC team on two on-site sessions. We chose Michigan Eastern (Detroit) and Delaware (Wilmington) because they represented diverse types of districts. Delaware occupied buildings in one city and Eastern Michigan occupied buildings in five different metropolitan locations. During these sessions, we observed the interaction between the AOC team members and the local team members to assess the effects of these sessions on the final determination of space needs.

Much of the data needed for our analyses were not available for six of the districts that AOC completed early in the process. These included California Eastern, Florida Southern, Massachusetts, North Carolina Western, Washington Western, and the District of Columbia districts. To estimate the overall impact of AOC's planning process, we projected the information from the 54 districts to the entire universe.

We did our work between April and November 1992 in accordance with generally accepted government auditing standards. We received official comments from AOC on a draft of this report, and these comments are included in appendix III. Our discussion of AOC's comments is presented on pages 34-35, 42-44, 54-56, and 97-102. We also received official oral comments on the draft report from the Assistant Commissioner, Office of Planning, GSA. These latter comments have been incorporated into the report as appropriate.

We also met with AOC officials to discuss their comments on our draft report. After the meeting AOC provided us with a copy of a draft final report prepared by the National Center for State Courts. Under a contract with AOC, the National Center for State Courts was charged with the task of providing an independent assessment of the long-range planning process and of our draft report. Our review of the National Center's draft final report found basic agreement regarding the problems associated with the methodology AOC used to estimate future space needs.[6]

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[6]We found during our review that many of AOC's comments were taken directly from this document.

Districts Have Received Inconsistent Treatment

An important criterion for AOC's long-range planning process should be that all districts receive similar treatment given the same set of conditions. Differences in estimated future space needs among court districts should reflect different conditions rather than different applications of the methodology. We found that AOC applied its methodology differently across the districts. A primary cause of the differences was that since 1989 AOC has made changes to the process that directly affected space allocations and did not revise the earlier space plans accordingly. As a consequence, districts where the planning process occurred early received lower space allocations than did those that were done later.

We identified three specific problems that contributed to the inequitable treatment: (1) the several factors within the planning process were not applied consistently over time, (2) differences in the specific periods that were included in the 40 years of historic data used to make caseload estimates affected future estimates, and (3) AOC's method for categorizing districts to convert caseload to staffing needs did not reflect actual differences in space needs.

Planning Assumptions Have Not Been Applied Consistently

Since the inception of the long-range planning process in 1989, AOC has made a number of changes to parts of the process that directly affect the calculation of space needs. These changes have included

- altering the square-foot space allocations for the various personnel positions,
- increasing the space for internal hallways and for space not associated with personnel positions or specific functions, and
- placing greater emphasis on the identification of deficits.

As a result of the changes, those districts whose space needs were projected earlier received lower estimates of future space needs than did those done later, when in fact the differences reflected only changes in assumptions and not differences in need. Because all long-range plans were not regularly updated to reflect any changes in assumptions, these disparities among districts will continue into the future and reduce the reliability of the estimates for space needs.

Space Allocations Were Changed

As an example of the impact of changes in space allocations, we show the space allocation for district court judges in table 2.1. When the process began in 1989, AOC decided that 5,000 square feet was an appropriate space

allocation for a district court judge. With the distribution of the draft Design Guide in late 1990, the space allocation for district court judges increased to 5,810 square feet. In March 1991, the final Design Guide allocated a total of 6,295 square feet per district court judge. An error was found in this calculation, and the allocation was reduced to 6,145 in April 1992. Table 2.1 shows the different space allocation AOC used for district court judges in the 54 completed districts included in our analyses.

Table 2.1: Comparison of Numbers of Districts According to Space Allocations Used per District Court Judge

Time period	Total number of districts	5,000 sq. ft.	5,810 sq. ft.	5,850 sq. ft.	5,970 sq. ft.	6,145 sq. ft.	6,295 sq. ft.
Prior to 1/91	12	4	3	4	1		
1/91-6/91	13		13				
7/91-12/91	11		9				2
1/92-6/92	13					5	8
7/92-8/92	5					5	
Total	54	4	25	4	1	10	10

Source: GAO, compiled from AOC long-range facility plans.

Because of the inconsistency in the space allocations used over time, the long-range space plans for 34 districts provided for fewer than the 6,145 square feet currently allotted to district court judges. This difference accounted for a total of 125,015 square feet. On the other hand, the long-range space plans for 10 districts provided an allocation of 6,295 square feet for district court judges. Because this latter difference amounts to only 150 square feet per judge, the total was only 19,650 square feet. The lack of equity that resulted from these inconsistencies increased over the 5-, 10-, 20-, and 30-year projection periods because the same allocations were used for each of the time periods. AOC also made changes in the space allocations for other classifications of personnel over time.

Add-on Factor Was Increased

As indicated in chapter 1, the add-on factor was composed of two parts—one for circulation and one for contingency. The current Design Guide stipulates that a 20-percent factor should be added to the total square feet of court space for circulation, which includes internal hallways. The contingency factor, which has been changed several times since the long-range planning process began, was the percent added to

account for space not associated directly with personnel, such as jury assembly rooms, records and supplies storage, and copier areas.[7]

As shown in table 2.2 the total add-on factor was gradually increased from 25 percent to 45 percent. According to AOC officials, these changes were made partially at the request of GSA, which reported that space needs for contingencies were being underestimated, and as a consequence GSA was forced to return to Congress for additional monies to complete projects. On the basis of our discussion with a GSA representative about other GSA space planning standards, the Design Guide standard of 20 percent for circulation appears to be a reasonable standard. Our limited review of space allocation practices by state, local, and international governments indicated that the add-on factor of 25 percent for special purpose court space also appeared to be reasonable.

Table 2.2: Comparison of Number of Districts According to Different Add-on Factors Applied to Space Projections

Time period	Number of districts	with 25-percent factor	with 30-percent factor	with 35-percent factor	with 40-percent factor	with 45-percent factor
Prior to 1/91	12	10	1	1		
1/91-6/91	13	1		11		1
7/91-12/91	11			2	1	8
1/92-6/92	13					13
7/92-8/92	5					5
Total	**54**	**11**	**1**	**14**	**1**	**27**

Source: GAO, compiled from AOC long-range facility plans.

As a result of the differences over time in the application of the add-on factor, the long-range space plans for 27 districts provided less than the current 45 percent. In total the plans for these 27 districts would have included 680,068 more square feet if the 45-percent factor were used than they did under the lower add-on factors.

Identification of Deficits Has Received Increased Emphasis

According to AOC officials, when the planning process began, they assumed that any immediate, unmet needs (deficits) would be negotiated locally with GSA and, therefore, deficits were not considered under the long-range planning process.[8] As this process continued, the emphasis on the

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[7]The new automated system, AnyCourt, which applies the detailed Design Guide criteria to the number of staff input into the system, will eliminate the use of the 25 percent contingency factor.

[8]This is the reason that data for six of the districts were not adequate for inclusion in our analysis.

identification of deficits changed. Table 2.3 shows over time the percent of AOC's baselines accounted for by deficits.

Table 2.3: Changed Emphasis on Identification of Deficits

Time Period	Number of districts	Deficits as a percent of baselines
Prior to 1/91	12	19.0
1/91 to 6/91	13	23.8
7/91 to 12/91	11	25.5
1/92 to 6/92	13	33.4
7/92 to 9/92	5	52.1

Source: GAO, calculated from AOC data in long-range facility plans.

Length of Time for AOC's Process Ignores Fluctuations in Caseloads

During the 12-month period ending September 1, 1992, AOC conducted on-site sessions for 24 districts. Assuming that AOC continues to conduct on-site sessions at this rate, AOC will complete all judicial districts in early 1994, or about 5 years after the inception of the process.

AOC developed the first space projections for 5 years after the date of the on-site session within each district. Because caseload projections were based on the most recent 40 years of historic data, only those done after 1992 include data from 1953 through 1992. Districts done in 1992 included data through 1991, those done in 1991 used data from 1951 through 1990, those done in 1990 used data from 1950 through 1989, and those done in 1989 used data from 1949 through 1988. AOC's historic caseload database showed that there have been wide fluctuations for particular types of caseloads over time.

The data in figure 2.1 demonstrate how the caseloads have fluctuated from 1985 until 1991. Estimates for those districts where the planning process was completed during 1989 and 1990 did not reflect the significant increases in bankruptcy caseloads that occurred during 1990 and 1991. On the other hand, the projected criminal caseloads for these districts did not reflect the decline in the criminal caseloads that occurred during 1991. Because AOC heavily weighted the most recent years, the space projections made during 1991 and 1992 understated bankruptcy-related space needs and overstated space needs related to criminal cases.

Figure 2.1: Annual Percent Change in Caseloads From 1985 to 1991

25   Percent change

Year

Civil cases

Criminal cases

Persons supervised

Bankruptcy cases
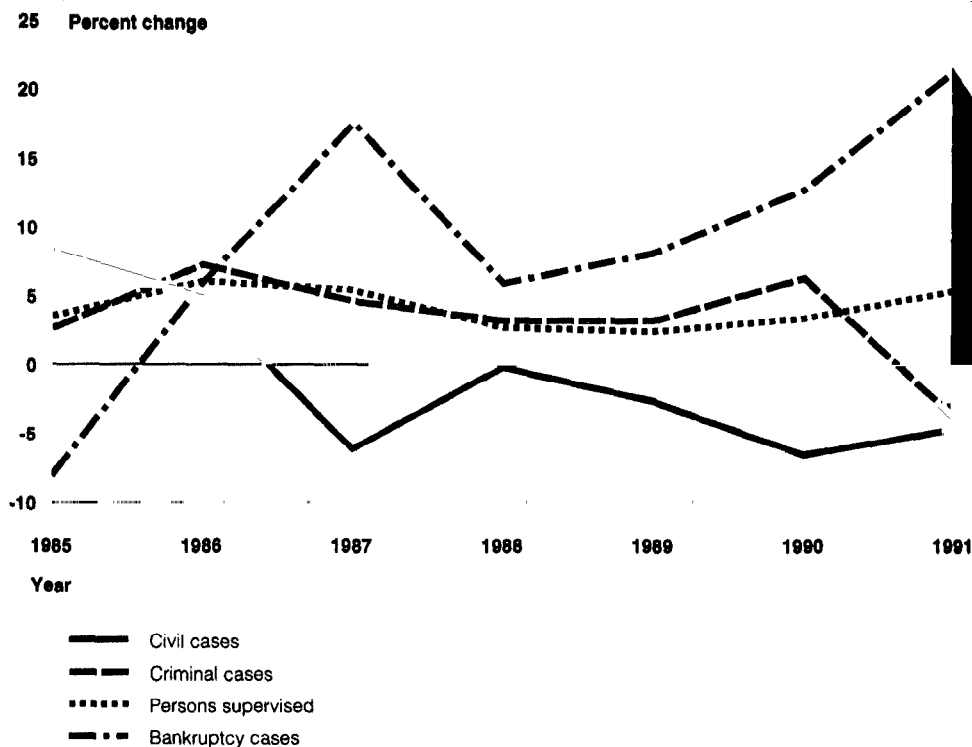
Source: GAO calculations using AOC historic database.

AOC Method of Classifying Districts May Result in Inconsistent Treatment

During the second step in the long-range planning process, AOC used the growth models' caseload-to-staff ratios to convert its estimates of future caseloads into staff requirements (see table 1.1). Unless growth models reflected differences among districts that related to space needs, the final estimates did not represent actual space needs. Appendix I includes a discussion of the actual criteria used to place districts within growth models.

The caseload projections for a district were compared to the growth model ratios to determine the number of key personnel required to process the estimated caseload. We found that under this process, growth model 1 districts had an advantage over districts in the other growth models during the part of the process when civil plus criminal caseloads determined the needed number of judges and related personnel. These districts could justify additional judges with a lesser increase in caseload.

On the other hand, we found that these same districts were at a disadvantage during the part of the process when ratios of support staff to key personnel were applied to compute the number of some support staff positions needed.

Total Caseload Is Not a Suitable Factor for Grouping Districts

Our analysis showed that the AOC process of using total caseloads to define the growth models did not met the basic criteria for a useful method for classifying court districts, which is that the characteristics of districts in each growth model should be substantially different from those of the other growth models, and within a particular growth model the districts should share similar characteristics. In addition, AOC's use of total caseloads as the method for categorizing districts did not discriminate among districts on a factor that related to staffing needs. AOC's method gave equal weight to each case regardless of type and complexity. For example, a criminal case involving a single individual who was indicted for a minor traffic violation that occurred on federal property received the same weight as a multibillion-dollar bankruptcy case. In this way, the use of total caseload to classify districts ignored differences among districts in the complexity of their caseloads, such as crime types, numbers of defendants per case, average length of trials, and frequency of plea bargaining. As we previously reported, complexity factors determine the time required to process cases.[9] Therefore, complexity should be considered in addition to total caseload when staff/space needs are determined.

Conclusions

After the process began in 1989, AOC made changes to the assumptions that directly affected the calculation of space needs. For example, the square-foot allocations for various personnel positions were changed as were the percentages associated with the add-on factors. Also, the emphasis on the identification of deficits increased over time. Because of these changes, the districts where the process was completed early received lower space allocations than they would have received if their plans were completed later. AOC did not routinely update all plans to reflect these changes.

Another example of inconsistent treatment is related to the fact that the 40 years of historic data used to make caseload estimates were not the same for all districts. Fluctuations in caseloads, which occur as a result of

[9]U.S.Attorneys: Better Models Can Reduce Resource Disparities Among Offices (GAO/GGD-91-39, March 6, 1991).

external factors such as changes in the economy, were not adequately addressed in a process that required 5 years for nationwide application. The reduction in the time required to complete all 94 districts from 5 years to 2 years will minimize the problem associated with short-term caseload fluctuations.

AOC classified districts into four growth models according to total caseloads and used the ratio of key personnel to caseload within each group to convert caseloads to staff needs. AOC's method for classifying districts also treated some districts unfairly because all cases received equal weight without regard to complexity. Complexity determines the time required to process cases and should be considered along with caseloads when determining staff/space needs.

Recommendations

We recommend that the Director of AOC revise its long-range planning process to ensure that all districts are treated consistently.

- AOC should prepare updated space plans for all districts whenever changes are made to the assumptions that affect staff/space allocations.
- AOC should devise a method for classifying districts that would consider case complexity in addition to caseload.

Agency Comments

AOC agreed with our position that districts should be treated consistently and that this has not occurred in the past. AOC pointed out that although districts have been treated inconsistently, this was not intentional. We did not imply in our draft report that the changes made in space allocations, emphasis given to deficits, and add-on factors were intentional. Our point is not that the changes were inappropriate given the circumstances. Instead, our concern is that the plans already completed were not routinely updated to account for all of the changes that occurred. As a consequence, some districts failed to receive the benefits of the increased allocations. We believe that the plans could have been updated without the need for additional on-site sessions, because AOC maintained all changes on the computer system that was used to generate the estimates of future needs.

AOC further stated that it has already begun the updating process for those districts where there is a special need. In our draft report we recommended that AOC reduce the time required to complete all 94 districts from 5 years to 1 year, possibly by eliminating on-site sessions to

only those districts that did not concur with AOC's estimates. We deleted this recommendation because AOC stated that it will begin to update the plans for all districts biannually beginning in 1994. We believe that although fewer changes that affect space allocation will occur over 2 years than over 5 years, the process should include a provision for ensuring that updated plans are generated whenever such changes do occur.

AOC commented that the growth models reflect differences in the relative size of districts and that these differences relate to space needs. We believe there are other factors, particularly case complexity, that directly relate to the time required to process cases and, therefore, to space needs. While the growth models currently used by AOC may have, by chance, reflected some aspects of case complexity such as the number of defendants per case, we believe that further study is warranted to identify the caseload characteristics or other factors that most closely relate to the time required to process cases. Sophisticated computer models exist that would permit the simultaneous use of multiple factors to group districts rather than rely upon total caseload as the sole criterion.

AOC Baselines Have Not Reflected Current Needs

The AOC process, like any planning process, should use an appropriate foundation or baseline to which it adds future estimates. If the baseline does not reflect current needs, the projections of future space needs will not be accurate. Under its long-range planning process, AOC used as the baseline for a district the current occupied space plus the deficits identified by the local district representatives. When developing future estimates for each district, AOC added the estimated additional space needed to the baseline to derive total space needs for the 5-, 10-, 20-, and 30-year periods.

Our analyses, which used AOC's assumptions regarding the relationships between caseloads and staff needs, showed that AOC's baselines did not accurately reflect the current space needs for all districts.[10] First, authorized staffing in a district did not necessarily reflect AOC's caseload-to-staffing ratios established under the growth models, because the ratios were the average within that particular growth model. Current authorized staffing for districts within a particular growth model therefore varied around the average. Second, when local representatives identified space deficits, the level of subjectivity involved reduced the reliability of the results. Improvements are needed in AOC's planning process to ensure that the baselines used do not exceed the amount of space needed according to its own assumptions regarding the relationships between caseloads and staffing needs.

AOC Baselines Equalled Current Space Plus Deficits

AOC used the space a district occupied plus the deficits identified by the local representatives as the baseline for projecting future space requirements. During the on-site planning sessions, the AOC team obtained information regarding the occupied space and deficits from the local court and related agency representatives as well as from GSA officials.

In 1992, the court components in the 94 districts occupied an estimated 14,014,838 square feet. The associated estimated total deficit was about 3,353,412 square feet.

Staffing Imbalances Have Affected Baseline Computations

One of AOC's basic assumptions in terms of its long-range planning process is that current caseload should determine staff needs, which should determine space needs. However, under AOC's calculations it assumed that all authorized staff were needed and, therefore, were entitled to space allocations, disregarding the caseload. If authorized staffing exceeded the

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[10]This chapter deals solely with the court components.

level necessary to process the current caseload, subsequent projections of space needs were overstated. Conversely, if staffing levels were below the level necessary to process the existing caseloads, the projections were understated. We recognize that staffing decisions in the judiciary, as in any organization, are not necessarily determined strictly by workloads. However, under the assumptions of the long-range planning process, AOC could not make accurate estimates of future space needs without considering the impact of current over and understaffing.

Local Representatives' Perceptions Regarding Deficits Have Affected Baseline Computations

In preparation for the on-site session, local representatives were asked to determine whether the space that their organizational components occupied included all of the space allocations described in the Design Guide and whether each allocation contained the appropriate square footage. Although the Design Guide was developed to provide guidance during the design and construction of court facilities, we found that the AOC team instructed the local representatives that these space allocations should be considered as entitlements. Deficits represented the difference between the space occupied and the space the Design Guide allocates for an individual or a function. Deficits also represented a subjective determination on the part of the local representatives that additional space was needed for a particular function. Within 2 weeks after the on-site session, the local representatives were required to submit to AOC assumption letters that included support for deficits that were identified and for modifications to AOC's initial estimates of future staff needs.

The inclusion of the deficits as part of the baseline had a significant impact upon future estimates. For the 54 districts included in our analysis, deficits added 24 percent to the occupied space. Deficits ranged from 2,640 square feet in the Northern Mariana Islands district to over 150,000 square feet each in the Illinois Northern, Missouri Eastern, Michigan Eastern, and California Central districts.

Alternative Methods Showed That AOC's Baselines Misstated the Need for Current Space

AOC used as the baseline to which it added future space needs current occupied space plus the deficits identified by the local representatives. To test the effect of the problems associated with this method for establishing the baselines, we used 2 alternative methods to develop baselines for the court components in each of the 94 districts. One of these methods used current caseloads to directly determine the level of staffing needed and the associated amount of space required (i.e., the original planning process

assumption). The other alternative used the current authorized staffing levels to determine space needs (i.e., disregarding current caseloads).

Use of Current Caseload to Determine Baselines

To develop baselines using current caseloads, we applied AOC's caseload-to-staffing ratios and the Design Guide space allocations, including the 45-percent add-on factor, to the judicial year 1991 caseload data. In this way we developed a baseline for each of the 94 districts that reflected the amount of space required to house the number of staff needed to process current caseloads.

We estimated that AOC's baselines for 65 districts were overstated by an estimated 3,026,968 square feet (see fig. 3.1). In the remaining 29 districts, AOC's baselines were understated by a total of about 841,320 square feet. In net total, AOC's baseline for all 94 districts was overstated by about 2,185,648 square feet when compared to our baseline which was determined directly from current caseloads. Using a cost estimate of $31 per square foot, we estimated that the annual government cost associated with this excess space would be about $68 million.

Figure 3.1: Comparison of AOC Baseline to Baseline Determined by Current Caseload
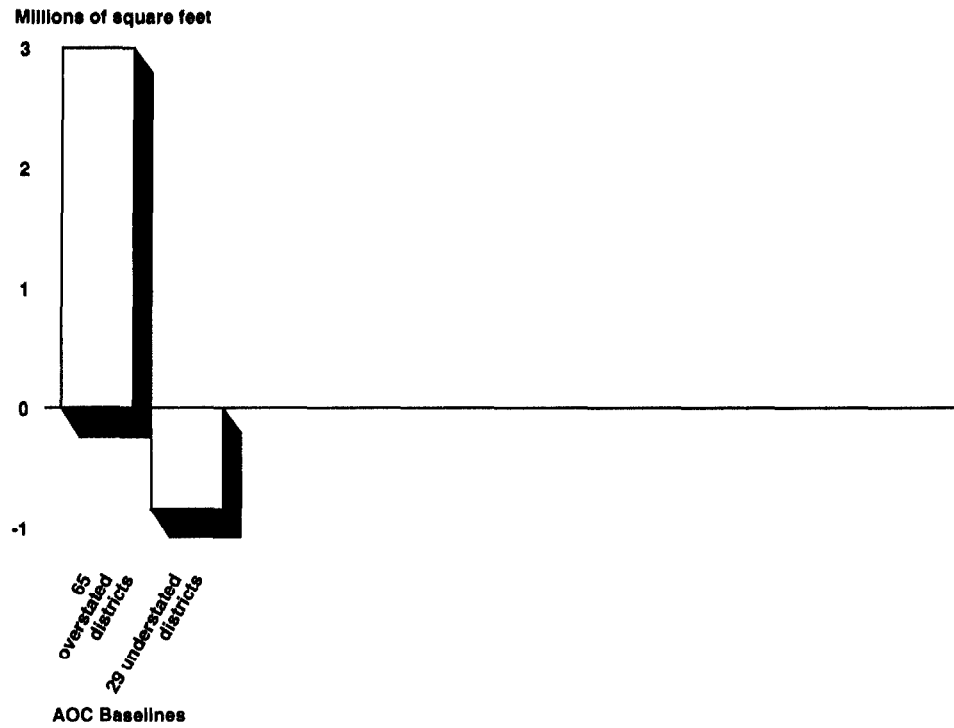
Millions of square feet

AOC Baselines

Source: GAO calculations.

Appendix II provides a description of the methodology we used to develop this alternative. It also includes a table that shows the difference between AOC's baseline and the amount of space required under this alternative method for each district. Table II.3 also shows the annual government cost associated with the difference identified for each district.

Use of Current Staff to Determine Baselines

The use of current staff to determine baselines did not conform to AOC's assumption that caseloads define the need for staff, which then determined space requirements. However, this alternative recognized that current staffing levels could exceed the caseload requirements in some districts and, therefore, must be considered when AOC develops long-range plans.

To develop baselines according to current staffing levels, we applied the Design Guide space allocations, including the 45-percent add-on factor, to the current staffing levels. In this way we calculated a baseline for each of the 94 districts that reflected the amount of space required to house the number of staff currently authorized.

Using current staffing to determine the baseline, we estimated that AOC's baselines for 63 districts were overstated by 2,145,477 square feet (see fig. 3.2). In the remaining 31 districts, AOC's baselines were understated by a total of about 1,040,844 square feet. On a net basis, AOC's baselines overstated the need for space by 1,104,633 square feet when compared to baselines based on current staffing. Using a cost estimate of $31 per square foot, we calculated that the annual government cost associated with this excess space would be about $34 million.

Figure 3.2: Comparison of AOC Baseline to Baseline Determined by Current Staffing
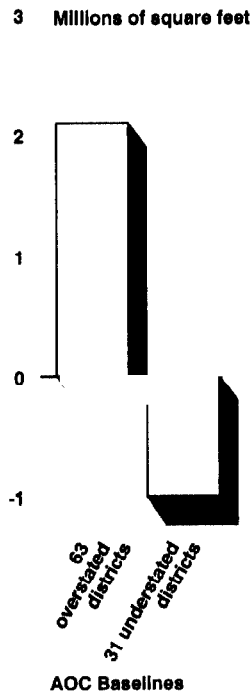
Source: GAO calculations.

Appendix II provides a description of the methodology we used to develop this alternative. It also includes a table that shows for each district the difference between AOC's baseline and the amount of space required under this alternative method. Table II.4 also shows the annual government cost associated with the difference identified for each district.

Comparison of AOC Baseline and Two Alternatives

Figure 3.3 provides a comparison of AOC's national baseline for court components to the baselines that resulted from either of our two alternative methods. AOC's baseline was about 16 percent higher than the baseline we determined on the basis of current caseloads. AOC's baseline was about 8 percent higher than the baseline determined according to the current level of staffing.

Figure 3.3: Nationwide Comparison of AOC Baseline to Baselines Determined by Caseload and Current Staff
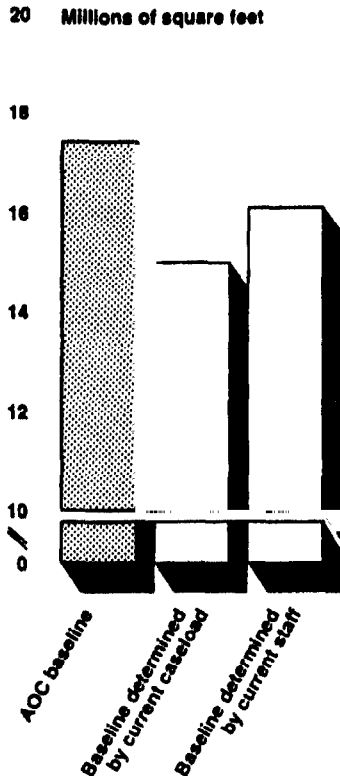
Source: GAO calculations.

Conclusions

For the AOC long-range planning process, the determination of an appropriate current baseline is essential to the accuracy of the future space estimates. AOC's process did not ensure that the baseline established for each district represented current space needs. First, under AOC's process it was assumed that all authorized staff were needed and, therefore, entitled to space allocations. Second, AOC's planning process did not test the validity of the deficits that were identified by local representatives. Future estimates for a district would be affected by any discrepancy that existed between the baseline and actual current space needs.

Using two alternative methods to compute baselines, we found that AOC's baselines did not equate to current space needs for the court components when we applied the assumption that caseloads define staff needs, which define space needs. Approximately one-third of the districts needed more space to handle their current caseloads or to house their current staff than was allocated under AOC's methodology. The remaining two-thirds of the districts were allocated more space under AOC's plan than either current caseloads or current staff warranted.

Recommendations

We recommend that the Director of AOC revise the long-range planning process to require that baselines be established that reflect AOC's assumptions regarding the relationships between caseloads, staff needs, and space requirements. These revised procedures should include a mechanism for verifying that deficits represent actual unmet space needs.

Agency Comments

AOC stated that it never intended to apply its assumptions regarding the relationships among caseloads, staff, and space to the calculation of existing needs. These assumptions were to be applied only to the determination of how much additional space would be required. AOC stated that its process relies primarily upon the local input for the definition of the baseline (occupied space plus deficits).

We agree with AOC's statement that it did not intend to apply the assumption regarding the relationships among caseloads, staff, and space to the determination of current needs. While we recognize that AOC's intent was to allow the local representatives to establish baselines, we do not agree that this produced results that were sufficiently reliable for use in long-range planning. (See pages 53-54 for a further discussion of this issue). By allowing the local representatives to determine baselines

(occupied space plus deficits) and then applying the caseload-to-personnel ratios and space allocations only when computing additional needs, AOC did not take into account that staff/space may be currently over or under the level warranted by the current caseload. We believe that balance between caseloads and staff/space should be achieved before future needs are added to the baseline. If baselines to which future needs are added are not accurate, then the problem will be compounded over time.

AOC further commented that our entire analysis was weakened because, when we developed our alternative baselines, we used the summarized data in table 1.2 for computing space allocations rather than the actual square footage per personnel/function from the Design Guide. Although we tested the validity of the summarized figures and concluded that there would be no significant differences between the results generated from the two sets of figures, we used the summary figures because AOC used them. If, as AOC stated, this weakened our analysis, their analyses are similarly weakened by the same factor.

AOC reported to us that it has developed an automated system, ANYCOURT, that will allow AOC to generate space needs according to the individual space elements included in the Design Guide, rather than the summary figures. Deficits can be computed by comparing the results generated to the actual space occupied. This system can eliminate the subjectivity that occurs when local representatives identify deficits.

AOC further stated if its planning assumptions are applied to current caseloads, the results will always understate the needs of the courts. Our analyses generated baselines that were higher than those identified by AOC for about one-third of the districts; i.e., the AOC estimates of needs were understated. Overall, we believe unless a consistent set of assumptions are applied at all steps within the planning process the final estimates of needs will be unreliable. Space needs will be overstated for some districts and understated for others.

GSA officials, when we met with them prior to our completion of the draft report, stated that our method for computing baselines could provide a useful means of assessing the current court needs prior to any consideration of future needs. They indicated that they were interested in trying to apply such a procedure.

In its comments AOC differentiated between those deficits that represented official but non-critical deficits (a discrepancy solely between the Design

Guide and occupied space) and those that were critical for the court's operation. We recognize that GSA makes an assessment of whether there is an immediate need for additional space or alterations to existing space to meet a critical need or whether the need should be satisfied through the long-range process. However, under AOC's long-range planning process all deficits are added to the occupied space to derive the district's baseline without any differentiation between critical and non-critical needs. This ensures that under the long-range plan all deficits will be included in space requests regardless of whether they are official but non-critical or are critical for the court's operation.

AOC Projection Methods Have Not Produced Reliable Estimates

Our analyses showed that AOC's long-range planning process did not produce reliable estimates of future space needs; i.e., if the process were repeated the results produced would be different. We identified three specific problems that contributed to this situation: (1) AOC did not use standard acceptable statistical methods when generating its initial projections of caseloads, (2) local representatives subjectively determined the final staffing and space projections, and (3) the 20- and 30-year projections lacked precision due to problems inherent in making long-range projections.

We compared AOC's final estimates of space needs to estimates we generated using a standard statistical method that allowed us to compute 95 percent confidence levels.[11] (See app. II for a discussion of this methodology.) We found that AOC's estimate of future space needs for court components nationally were higher than our estimates by approximately 3.7 million square feet at the end of the 5-year period and by approximately 3.5 million square feet at the 10-year period. AOC's 5-year estimate for court components would result in an annual government cost of about $716 million; for the 10-year period, the cost would be about $820 million. On the other hand, our estimates would result in an annual government cost at the 5-year point of about $603 million and at the 10-year point about $708 million. Over the 10-year period we estimated that the difference between AOC's and our estimates would be about $1.1 billion.

In addition, reliability was compromised by the amount of subjectivity that occurred during the caseload estimation process and during the on-site sessions. AOC determined whether the initial caseload estimates were reasonable and then subjectively decided how to adjust the estimates. Also, if the on-site session were replicated with a different set of local representatives, the final space estimates probably would be different.

Moreover, projections that extend 20 and 30 years into the future are useful primarily as indicators of trends. AOC's long-term space projections could be useful primarily to demonstrate that space needs will continue to increase over time; they should not be used to indicate that a particular district will need a certain number of square feet of space in the year 2020.

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[11]This chapter deals solely with the court components because historic workload data are not available for the related agencies.

Initial Caseload Projections Were Not Generated by a Reliable Method

According to the AOC consultant who was responsible for the projection process, he used regression analyses to estimate each of the four types of caseloads. Forty years of historic caseload data were used as the predictor, with the most recent year of caseload data given the greatest weight on the assumption that the future will be more like the recent past than like the distant past.

For each district, three steps were required to produce the estimate for each type of caseload. First, AOC reported that it uses linear and quadratic regression equations, each of which assumes a different historic trend, to generate projections for each type of caseload. If the results of these calculations were arbitrarily determined to be low by either the consultant or by the local representatives, reforecasts were generated using other regression equations.[12] Second, 5-, 10-, 20-, and 30-year projections using each of the regression equations were computed. Third, the average of the estimates was computed for each caseload. (A technical explanation of AOC's projection methodology is provided in app. I.)

Statistically, the use of different regression models is an appropriate method for determining trends in historic data. The single model is selected that meets the statistical tests for "best fit" to the data and is used to make the projections of future events. This method avoids the common error of assuming that the historic trend is always linear. This is not, however, the way the AOC team used the different models. The AOC team averaged the results from different models to derive the final projection. The averaging of regression results violates acceptable statistical practice and prevents the calculation of confidence intervals, which allow for the computation of the accuracy associated with the predictions.[13]

The Use of Multipliers to Adjust Caseload Estimates Introduced Subjectivity

Until June 1991, the AOC team ended the caseload estimation procedure after computing the average from the regression models. After that AOC examined the results of this procedure to determine whether the estimate met a subjective "reasonableness" criterion. If the estimate looked too low when compared to similar districts, the AOC consultant arbitrarily applied a

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[12]The four possible equations include (1) an exponential model, (2) a log transformation on the independent variable, (3) a power curve model, and (4) a log transformation on the dependent variable.

[13]None of the statisticians who are considered within the statistical community to be experts in the use of regression analyses, such as N. Draper and H. Smith in Applied Regression Analysis, or F. Mosteller and J.W. Tukey in Data Analysis and Regression, make reference to the use of an average estimate from different models to project future events. The primary reason that this technique is not acceptable is that each of the models assumes a different rate of growth, only one of which can approximate the true historic trend.

set of multipliers to the caseload estimates (see table 4.1). Because the multipliers ranged from 1.0 to 1.8, the result of this action could never be a lower number. Appendix II shows the multipliers that were used to generate the caseload projections for each district where the process was completed.

Table 4.1: Multipliers Applied to Caseload Estimates

Option	Civil cases	Criminal cases	Persons under supervision	Bankruptcy cases
Multiplier #1	1.0	1.0	1.0	1.0
Multiplier #2	1.1	1.2	1.3	1.4
Multiplier #3	1.05	1.1	1.15	1.2
Multiplier #4	1.2	1.4	1.6	1.8

Source: AOC consultant.

AOC's use of multipliers did not meet statistical standards for producing reproducible results because the selection of a particular multiplier was not based upon an objective criterion. Given a different individual or a different set of circumstances, the selection would probably be different.

The AOC consultant reported at our final meeting that he no longer applies the multipliers when estimates appear too low. Instead, he makes a reforecast using different regression models. However, he does not use any definitive criteria for his selection of the different regression models. Regardless of the method used to increase the estimates that appear to be too low, the fact that there are no specific selection criteria causes the results to be unreliable. Given a different time or person, it is likely that a different selection would be made.

Final Space Determinations Relied Primarily Upon Subjective Information From Local Representatives

The final determinations of space requirements that were made following the on-site sessions were significantly higher than the initial projections for the 54 districts included in our analysis. Initial AOC projections showed that space requirements would increase by 13 percent during the first 5-year period, while the final determinations indicated that the increase for this period would be 65 percent (see fig. 4.1). We therefore concluded that the on-site sessions resulted in an increase of 52 percent in space needs for the first 5-year period.

Local involvement may be valuable during the part of the process that deals with current critical needs and problems associated with the space

presently occupied. Our analysis indicated that the local representatives significantly increased the initial long-range estimates, but this was not related to the accuracy of the estimates. AOC did not routinely verify the information provided by the local representatives during the on-site session or as part of the assumption letters that were submitted after the session concluded. As discussed above, under the AOC process the accuracy of the final estimates could not be measured.

Figure 4.1: Comparison of AOC's Initial and Final Space Projections for Court Components
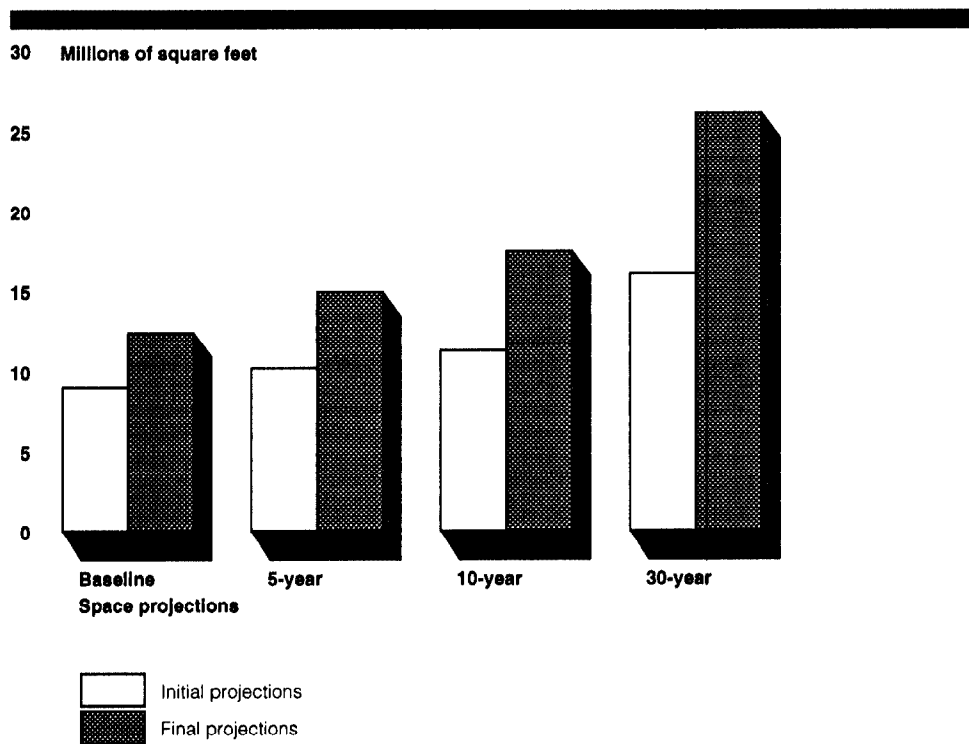
Source: GAO calculations.

AOC Process Has Not Produced Reliable Estimates for Related Agencies

Although GSA includes space requirements for related agencies as part of judiciary space,[14] AOC's process was not directly applicable to the estimation of future space needs for these agencies. The estimation of space needs for the related agencies occurred solely at the on-site planning sessions as related agencies' caseloads were not available to AOC.

[14]The related agencies occupied about 25 percent of the total space that GSA attributes to the courts. These agencies also accounted for 36 percent of the deficits that were identified by the local representatives.

Even though the U.S. Attorneys maintain caseload data at the district level that could be used as part of AOC's long-range planning process, these data were not routinely available to AOC. With the cooperation of the Executive Office for U.S. Trustees, AOC could develop a method for estimating future space needs that would relate this caseload to that of the bankruptcy courts. For the U.S. Marshals Service, caseloads have a lesser effect on space needs than does the configuration of the buildings occupied because of their responsibility for court security.

20- and 30-Year Projections Exceed the 10 Years Used by GSA to Plan for Space Needs

GSA officials said that their regional offices use only AOC's 10-year projections to support their requests for congressional approval of funds to build new court facilities and to modify existing buildings. Since the actual time required to design and construct a court building is generally less than 10 years, this time period allows adequate time to detect future space needs and reduces the likelihood of the over- or under-acquisition of space by the courts.

AOC decided to make 30-year projections because it said the average life span for court buildings is 30 years. However, AOC agreed that the 20- and 30-year estimates lack the level of precision of estimates for the 5- and 10-year periods. To project 30 years into the future presents particular problems for the judicial system due to (1) changes over time in the caseloads and (2) the fact that caseloads are determined by factors external to the organization. These factors include changes in the economy and, as we previously reported, changes in the indictment patterns of the U.S. Attorneys or changes in the prosecution patterns of investigative agencies.[15]

According to AOC, if its estimates of needs are found to be too low in future years, this will be detected by the local representatives and additional space can be built or leased. On the other hand, if the estimates are found to be too high after the space is acquired, AOC said that the space can be leased to other government agencies. However, GSA said that it may be difficult to find other agencies to fill the space, particularly in smaller cities.

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[15]Federal Criminal Justice System: A Model to Estimate System Workload (GAO/GGD-91-75, April 11, 1991).

Alternative Method for Projecting Caseloads Could Provide Reliable Estimates

As discussed, the methodology currently used by AOC to project caseloads did not conform to acceptable statistical principles. We compared the results obtained from AOC's methodology to those we generated using a standard statistical procedure to determine the accuracy of its estimates. We used linear equations to make estimates for the criminal caseload and the number of persons under supervision. We used exponential equations for the civil caseload and bankruptcy caseload. We selected these equations because they were the ones that AOC had first used in its long-range planning process, and over time the trendlines demonstrated that they were appropriate. (See app. II for a discussion of this methodology.)

Using the results from our four regression equations, we generated 5- and 10-year estimates for nationwide future space needs and the 95 percent confidence limits.[16] To make these projections we applied the appropriate AOC's caseload-to-personnel ratio for each caseload, the Design Guide space allocations, and the 45 percent add-on factor to the estimated future caseloads. Because we assumed that space needs were directly related to estimates of caseloads, we did not consider deficits as part of our alternative. Figure 4.2 compares our estimates to AOC's projections.

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[16]As discussed above, 20- and 30-year estimates are sufficiently imprecise that we did not generate them.

Figure 4.2: Estimates of Space Needs for Court Components Using Standard Statistical Methods and AOC Projections

Million square feet
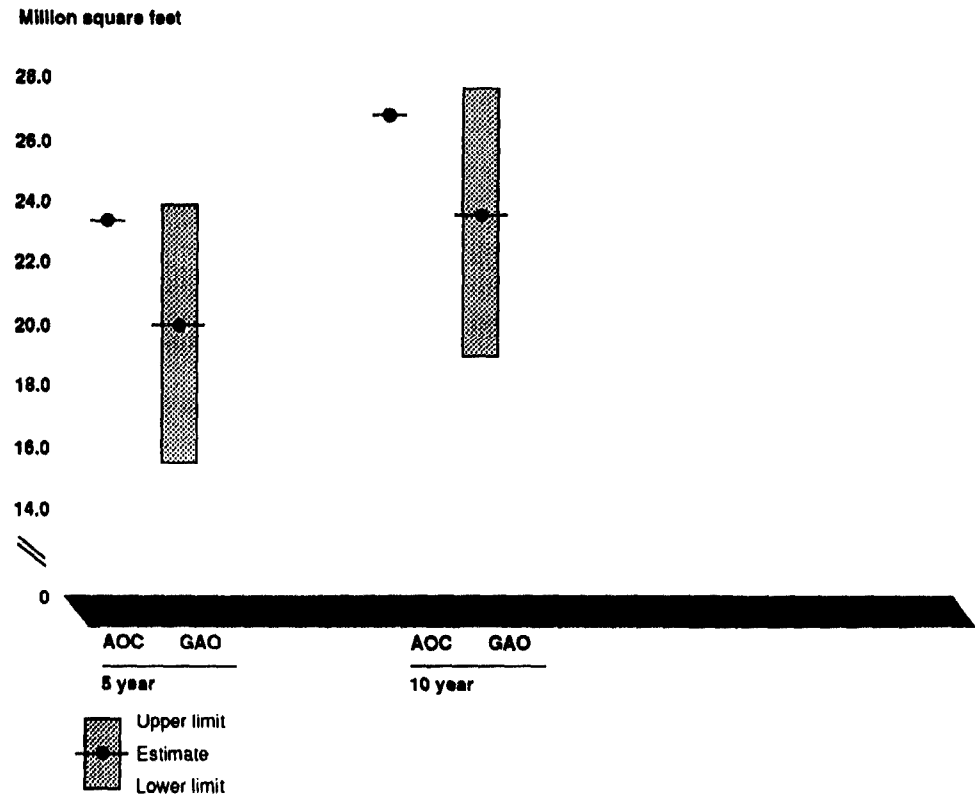
Source: GAO analyses using AOC data.

AOC's 10-year estimate was 0.8 million square feet less than the upper limit of our confidence interval. This can not be interpreted to indicate a similarity to our results due to the methodology used by AOC. Because AOC did not use a statistically acceptable methodology to produce its estimate, its results do not have a statistical meaning. Therefore, AOC's estimates can not be compared to the confidence limits generated by a standard statistical methodology.

Overall, AOC's projections were approximately 16 percent higher than projections derived from the standard statistical method we used. We found that AOC's projections appeared to overstate space needs for the 10-year period by about 5 million square feet in 76 districts. In the

remaining 18 districts, AOC's estimates appeared to understate needs by a total of about 1.4 million square feet.

The annual government cost associated with AOC's projections at the 10-year point would be about $820 million. Under the standard statistical method the corresponding annual government cost would be $708 million—a difference of $112 million. Figure 4.3 compares the annual costs in constant dollars associated with our estimates and AOC's projections.

Figure 4.3: Comparison of Annual Costs for AOC Projections and GAO Estimates
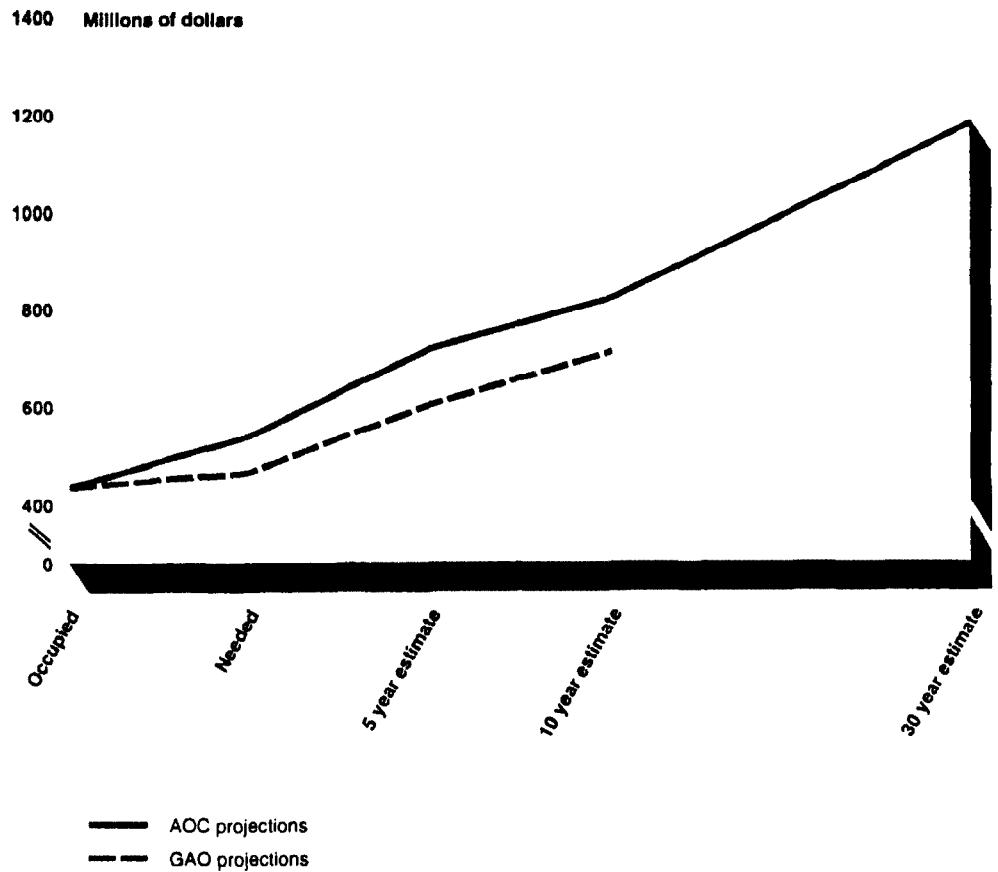
Source: GAO analysis of AOC data.

Other Statistical Techniques Warrant Consideration

We chose the procedure we used to make our projections because it provided a statistically acceptable method that used time as the predictor of future caseloads as did the AOC methodology and could provide a valid basis for determining the accuracy of the AOC methodology. We believe that AOC should further explore other potential methodologies for forecasting caseloads before selecting a procedure for use during its ongoing process. More sophisticated procedures, such as multivariate non-linear regression analysis, using additional predictors could yield accurate results with narrower confidence intervals.

Other statistical techniques, such as adaptive filtering or ARMA, auto-regressive moving averages, are well-suited to making estimates when the pattern is not linear. Adaptive filtering is a statistical analysis that uses external variables as predictors of future events. A limitation to the use of adaptive filtering is that useful predictor variables are for the most part not available at the district level. For example, the number of bankruptcy filings may relate to the state of the local economy; however, the geographic areas defined for economic data do not generally correspond to local court jurisdictions. ARMA uses internal patterns within the data to forecast future trends. The use of ARMA requires a high level of sophistication in the application of forecasting methodologies and requires continual monitoring to detect changes in trends.

Conclusions

The process used by AOC to formulate projections of future space needs did not produce reliable results; i.e., the statistical accuracy of the results could not be directly measured, and the same results would not have been produced if the process were repeated. AOC's averaging of the estimates produced from different regression models prevented the calculation of confidence intervals, which would have allowed for the estimation of the statistical accuracy associated with projections.

We used AOC's historic database to calculate caseload projections using a statistically acceptable method. We used a linear equation to estimate the criminal caseload and the number of persons under supervision and used an exponential equation for the civil and bankruptcy caseloads. We selected these equations because they were the ones originally considered by AOC, and the trendlines indicated that they were appropriate. Our analyses showed that AOC's projections of future space needs were higher that our estimates at the 10-year point by about 3.6 million square feet. This would equate to an annual cost of about $112 million, or about

$1.1 billion over the 10-year period, which is GSA's standard planning period.

Because of the subjectivity of AOC's process, the results produced lacked reproducibility. When making its initial projections of caseloads, AOC subjectively determined whether the regression estimate of caseload appeared too low before selecting a multiplier, which would increase the estimate. Also, the local representatives added subjectivity when they determined the final estimates of staffing/space needs for both court components and related agencies.

Recommendations

To improve the reliability of the estimates of future space needs, we recommend that the Director of AOC revise the long-range planning process by

- identifying and using a standard statistical technique that would generate accurate caseload projections with defined confidence intervals,
- reducing the subjectivity of the process by eliminating the use of arbitrarily selected regression models and by verifying the information provided by the local representatives, and
- limiting the time span covered by the projections to 10 years.

Agency Comments

AOC stated that the statistical methodology we used would not generate consistently accurate estimates of long-range space needs. We believe that AOC misunderstood our intent. We do not imply in the report that our method for making caseload projections was the "ideal" procedure, but rather that it provided statistically acceptable results with a definable confidence interval. GSA officials agreed with us that AOC should test other more complex statistical methods for making caseload projections. Many of these methods could include other factors in addition to time that affect caseloads and could produce results having a high level of accuracy over time.

AOC referred to the importance of input from local district representatives as a means of securing data not available elsewhere and to the group dynamics that occur throughout this part of the process. AOC stated that the subjective input from local representatives strengthens the reliability of the planning process over what would be obtained from mathematical procedures. We agree with AOC that qualitative approaches, such as Delphi techniques and focus groups, have been used in other situations to

produce reliable short-term estimates. However, the successful use of these qualitative techniques requires that the participants be experts in the area under consideration and the projection period be limited to 1 or 2 years. For AOC to use qualitative methods successfully, the on-site participants should be knowledgeable regarding space management practices. We noted in the sessions we attended that many of the participants would not qualify as professional experts in the relevant field. Also, qualitative methods are not suited for making 5- and 10-year estimates even if qualified experts are involved. For these reasons, we do not believe that the final estimates of future space needs that are generated on the basis of local input are reliable.

We concur with AOC that during the on-site sessions the information provided by the local representatives was corroborated by the other members of the group. However, verification through group corroboration does not reduce the need for comparison to objective criteria to establish the validity of the information provided. In its comments AOC agreed that if the process were repeated with different individuals, the results would be different. We believe that unless long-range plans are reproducible given similar conditions, the accuracy of the estimates produced lack reliability and should not be used for decisionmaking.

AOC's decision to replace on-site sessions with either surveys of local representatives or conference telephone calls, after initial plans are completed for all districts, may reduce the subjectivity associated with estimating growth in numbers of staff needed to process the caseload. However, regardless of how local input is obtained, AOC should validate, from other sources where possible, changes that local districts propose to the estimates produced through statistical procedures. This is not meant to negate the value associated with local input but rather to ensure the quality of the final estimates.

In its comments AOC stated that 10-year projections are not adequate because the construction of a new facility requires from 7 to 10 years. We based our recommendation that AOC limit its projections to 10 years on an interview with GSA officials who stated that they do not use any of AOC's estimates beyond the 10-year estimate. GSA officials stated that if they need more current information when preparing a prospectus they request revised information from AOC. When discussing our recommendation that projections be limited to the 5- and 10-year time periods, AOC stated that "due to short-sighted planning, some courthouses . . . were out of space before the doors even opened." We believe that this may have occurred

not because the time span was too short but because the estimates from the AOC long-range planning process were unreliable; i.e., the projections may have been understated in the particular instances cited.

Technical Description of AOC's Process

In this appendix we describe the technical issues relating to AOC's long-range planning process. These issues relate to the categorization of districts and the methodology AOC used to project caseloads.

AOC Method of Categorizing Districts

In order to reflect differences among districts, AOC categorizes districts into four groups (growth models 1 through 4) based upon total caseloads. Growth model 1 includes the slow-growing districts that often spread over large geographic areas and districts that consist of a single city. Growth model 2 includes "typical" districts, where growth is steady and consistent. Growth model 3 includes districts made up of large cities that are heterogeneous in socio-demographic characteristics. Growth model 4 includes districts with the largest and fastest growing caseloads and includes large metropolitan areas.

The growth model becomes the basis for converting estimated future caseloads to staff needs. Within each growth model the required numbers of key personnel—judges, probation and pretrial officers, and public defenders—are determined according to the average caseload-to-staff ratio. Table 1.1 shows the ratios used to differentiate among the growth models.

In general, the districts with smaller caseloads receive a lower ratio of staff to judges than do districts with larger caseloads. On the other hand, districts with smaller caseloads require a lesser increase in caseloads to justify additional judgeships than do larger districts. Because the ratios are computed from the actual data, these allocations reflect the fact that in larger districts staff process more cases than do the same number of staff in a smaller district.

When formulating growth models AOC first calculates the mean for the 94 districts' caseloads using the most recent fiscal year's data. The mean for each of these two groups is then computed. This then creates four groups—two above the original mean and two below. Growth model 4 includes those districts whose total caseloads are in the uppermost category. Growth model 1 includes districts whose total caseloads are in the lowest category. Models 2 and 3 are those nearest the overall mean. We found that for 1992 model 4 included 13 districts, model 3 included 20 districts, model 2 included 29 districts, and model 1 included 32 districts.

Table I.1 shows the districts included in each growth model for 1992. The caseload data included the 1991 judicial year (July 1, 1990, through June 30, 1991).

Table I.1: Growth Model Assignments for 1992

Growth model 4		Growth model 3	
Over 21,718		Between 21,718 and 11,566	
California Central	69,509	Alabama Northern	21,184
Illinois Northern	36,926	Colorado	20,774
New York Southern	35,088	New Jersey	20,762
Georgia Northern	29,230	Michigan Eastern	20,140
Florida Middle	29,016	Pennsylvania Eastern	19,545
California Northern	26,095	Indiana Southern	18,239
Ohio Northern	25,663	Texas Western	18,095
Virginia Eastern	23,851	Florida Southern	18,063
Ohio Southern	23,850	New York Eastern	17,728
Texas Southern	23,677	Washington Western	17,669
Arizona	23,101	Minnesota	17,114
Texas Northern	22,926	Massachusetts	16,516
California Eastern	22,880	Tennessee Western	15,937
		Maryland	15,726
		California Southern	15,616
		Oregon	14,331
		Tennessee Middle	13,216
		Tennessee Eastern	12,948
		Georgia Middle	12,055
		Oklahoma Western	11,890
Growth model 2		**Growth model 1**	
Between 11,566 and 5,772		Less than 5,722	
Louisiana Eastern	11,336	Oklahoma Northern	5,751
Kansas	10,941	Nebraska	5,716
Missouri Eastern	10,873	Washington Eastern	5,403
Missouri Western	10,546	North Carolina Middle	5,292
Louisiana Western	10,301	North Carolina Western	5,289
Utah	10,091	Illinois Southern	5,168
Indiana Northern	10,032	Mississippi Northern	5,121
Kentucky Western	9,827	Idaho	5,020
Mississippi Southern	9,716	Wisconsin Western	4,802

(continued)

Connecticut	9,656	West Virginia Southern	4,739
South Carolina	9,566	Iowa Southern	4,596
Georgia Southern	9,510	Alabama Southern	4,559
Illinois Central	9,049	Florida Northern	4,255
Nevada	9,014	Hawaii	4,021
Wisconsin Eastern	8,877	Arkansas Western	3,658
Kentucky Eastern	8,838	Iowa Northern	3,143
Pennsylvania Western	8,507	Louisiana Middle	3,128
Michigan Western	8,047	Montana	3,113
Arkansas Eastern	7,373	Rhode Island	2,756
Virginia Western	7,370	Maine	2,644
Puerto Rico	7,120	Oklahoma Eastern	2,535
Alabama Middle	7,072	New Hampshire	2,376
North Carolina Eastern	6,994	South Dakota	2,336
Texas Eastern	6,847	West Virginia Northern	2,220
New Mexico	6,521	Alaska	2,180
New York Western	6,396	Wyoming	2,122
District of Columbia	6,331	Delaware	1,968
Pennsylvania Middle	6,217	North Dakota	1,906
New York Northern	5,952	Vermont	1,460
		Virgin Islands	1,240
		Guam	423
		North Mariana Islands	28

Source: AOC listing of districts according to growth model and historic database.

AOC Method of Projecting Initial Caseloads

AOC used historic data for 40 years to compute regression models for each of the four caseloads: civil cases commenced, criminal cases commenced, persons under supervision, and bankruptcy filings. For each caseload, linear and quadratic regression models are generated. Each of these models assumes a different caseload distribution and assumes that the distribution will continue into the future. The AOC consultant stated that when either he or the local representatives believe that these estimates are too low, a reforecast is generated. The equation for each of the potential models is shown below.

Linear model	$Y = a + bX + e$
Quadratic model	$Y = a + bX^4 + e$
Power model	$Y = a * X^b + e$
Exponential model	$Y = a * bX^2 + e$
Logarithmic transformation on independent variable	$Y = a + b(\ln) X + e$
Logarithmic transformation on dependent variable	$(\ln) Y = a + bX + e$

Where

Y = estimate of caseload
a = intercept of regression line
b = slope of regression line
X = year(transformed 40= most recent year to 1=earliest)
e = error term

The AOC consultant stated that after calculating the regression models, he generated projections for each caseload for 5-, 10-, 20-, and 30-year periods[17] and then averaged the projections for each time period for each caseload.

Each of the terms in a regression equation has an associated standard error term. These error terms allow for the calculation of confidence intervals that indicate at a defined probability level (usually 95 percent) the boundaries within which the true value will occur. As estimates are computed over extended time periods, the confidence interval boundaries increase. This indicates that the accuracy of the estimates declines as the time period is extended.

Because AOC computed average estimates on the basis of the results of different regression models, confidence intervals cannot be calculated. Therefore, the statistical accuracy of AOC's estimates cannot be determined.

In addition to problems relating to the determination of the accuracy of the caseload projections, the reproducibility of the results decreases when AOC interjected subjectivity into the process through the use of the multipliers or adjustment factors. The estimates produced by averaging the regression results were examined by the AOC consultant and a subjective determination of "reasonableness" made. He then arbitrarily decided whether a multiplier factor should be used to increase the

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[17]Estimates are sometimes omitted for the 20-year period.

estimate. Table I.2 shows the multiplier applied to each of the 60
completed districts.

Table I.2: Multipliers Applied to Averaged Regression Estimates for 60 Completed Districts

District	Civil	Criminal	Persons under supervision	Bankruptcy
Alaska	1.0	1.0	1.6	1.0
Alabama Middle	1.0	1.0	1.0	1.0
Alabama Northern	1.0	1.4	1.15	1.0
Arkansas Eastern	1.0	1.0	1.0	1.0
Arkansas Western	1.0	1.0	1.0	1.0
Arizona	1.0	1.0	1.3	1.0
California Central	1.0	1.0	1.0	1.0
California Eastern	1.0	1.0	1.0	1.0
California Northern	1.0	1.2	1.0	1.2
California Southern	1.0	1.0	1.6	1.0
Colorado	1.0	1.2	1.0	1.0
Delaware	1.1	1.1	1.0	1.4
District of Columbia	1.0	1.0	1.0	1.0
Florida Middle	1.0	1.0	1.0	1.0
Florida Northern	1.0	1.2	1.0	1.0
Florida Southern	1.0	1.0	1.0	1.0
Georgia Middle	1.0	1.0	1.0	1.0
Georgia Northern	1.0	1.2	1.15	1.0
Georgia Southern	1.0	1.4	1.3	1.0
Guam	1.2	1.1	1.0	1.8
Hawaii	1.0	1.0	1.0	1.0
Idaho	1.0	1.4	1.0	1.0
Illinois Central	1.0	1.0	1.0	1.0
Illinois Northern	1.0	1.2	1.0	1.0
Kentucky Eastern	1.0	1.0	1.6	1.0
Louisiana Eastern	1.0	1.4	1.0	1.0
Louisiana Western	1.0	1.0	1.0	1.0
Massachusetts	1.0	1.0	1.0	1.0
Michigan Eastern	1.1	1.0	1.0	1.0
Mississippi Northern	1.1	1.2	1.0	1.0
Mississippi Southern	1.1	1.2	1.0	1.0
Missouri Eastern	1.0	1.0	1.0	1.0
Missouri Western	1.0	1.0	1.0	1.0
Montana	1.0	1.0	1.15	1.0

(continued)

District	Civil	Criminal	Persons under supervision	Bankruptcy
Nebraska	1.0	1.0	1.0	1.0
Nevada	1.0	1.0	1.0	1.0
New Mexico	1.0	1.0	1.0	1.0
New York Eastern	1.0	1.0	1.0	1.0
New York Western	1.1	1.0	1.0	1.4
North Carolina Western	1.0	1.0	1.0	1.0
North Dakota	1.0	1.1	1.0	1.0
Northern Mariana Islands	1.2	1.4	1.6	1.8
Ohio Northern	1.0	1.0	1.0	1.0
Ohio Southern	1.0	1.0	1.0	1.0
Oklahoma Eastern	1.0	1.0	1.3	1.0
Oregon	1.0	1.0	1.0	1.0
Pennsylvania Eastern	1.0	1.1	1.0	1.0
Pennsylvania Middle	1.0	1.0	1.0	1.0
Pennsylvania Western	1.1	1.0	1.0	1.4
South Carolina	1.05	1.0	1.0	1.0
Tennessee Western	1.0	1.2	1.0	1.0
Texas Eastern	1.0	1.0	1.0	1.0
Texas Northern	1.0	1.0	1.0	1.0
Texas Southern	1.0	1.0	1.0	1.0
Texas Western	1.0	1.0	1.15	1.0
Utah	1.0	1.0	1.0	1.0
Washington Eastern	1.0	1.0	1.0	1.0
Washington Western	1.0	1.0	1.0	1.0
West Virginia Southern	1.0	1.0	1.0	1.0
Wyoming	1.0	1.0	1.0	1.0

Source: AOC consultant.

Reliability from the statistical perspective refers to the probability that given identical data, the same results will occur regardless of when the calculations are made or who makes them. Because there were no established guidelines for the AOC consultant to follow in selecting a multiplier, there was no assurance that the process would produce consistent results. Also, because local representatives were not selected on the basis of defined criteria, if different individuals were selected to represent any of the components, the final estimates of future staff needs probably would be different.

Technical Description of GAO's Analyses

In this appendix we discuss the methods we used to (1) compute an estimated annual government cost per square foot for court space, (2) generalize the findings from the 54 districts for which complete data were available to the total 94 districts, (3) develop baselines using two alternative methods, and (4) estimate future caseloads using a statistically acceptable methodology.

Method Used to Estimate the Cost per Square Foot for Court Space

To determine the cost of court space on a square footage basis, we estimated the government's average yearly cost for court space during fiscal years 1988 through 1992 and then divided by the average square footage amount of space occupied during the same 5-year period. Using this approach, we estimated the annual cost per square foot for court space at about $31.

Determining the Annual Space Costs of the Courts

GSA's costs of acquiring and maintaining space for the courts include (1) capital projects to satisfy the courts' expansion requirements and (2) operation and maintenance of existing court space. The judiciary makes two types of payments to GSA for its facilities: (1) rent payments for normal real property operations and (2) reimbursable payments for above-standard alterations to court facilities. To determine the total costs for judiciary space, we added GSA's capital investment and operating costs for court space to the courts' reimbursable payments for space alterations.

As shown in table II.1, between fiscal years 1988 and 1992, GSA budgeted about $1.3 billion to meet the capital investment needs of the courts and about $707 million for operation and maintenance of existing court space. According to estimates provided by AOC officials, the courts' reimbursable payments for above-standard alterations during the same 5-year period totaled about $232 million. Using the yearly average of GSA's capital and operating costs and the courts' reimbursable payments, we estimated that the government's total court facilities costs averaged about $447 million per year during the 5-year budget period.

Table II.1: Estimated Annual Facilities Costs for the Courts

		Total costs 1988-1992 (In millions)	Annual average cost (In millions)
GSA's costs	Capital investment	$1,300	$260
	Operations and maintenance	707	141
Courts' costs	Reimbursable payments	232	46
Total		**2,239**	**447**

Source: GSA Capital and Operating Budget (fiscal years 1988-1992) and AOC data.

Estimating the Per-Square-Foot Cost of Court Space

After estimating the government's average annual cost for court space at about $447 million, we converted this total cost to a cost per square foot. According to an AOC official, the average annual amount of court space during fiscal years 1988 through 1992 was about 14.0 million square feet. By dividing the estimated annual court space cost by the total square footage of the courts, we estimated the annual cost per square foot for court space to be about $31.

Procedures Used to Generalize to the Universe of 94 Districts

The AOC team had completed long-range plans for 60 of the 94 districts by September 1, 1992. However, the data available for 6 of the 60 were not adequate for our analyses. Table II.2 shows the current space and AOC's estimated future space needs for the 54 districts.

Table II.2: Current and Future Space Needs for 54 Districts Including Both Court and Related Agencies[a]

District	Current space	5-year estimate	10-year estimate	20-year estimate	30-year estimate
Alaska	113,195	191,784	232,289	289,300	349,017
Alabama Middle	87,054	148,923	183,565	221,028	258,489
Alabama Northern	268,505	426,845	468,273	564,623	650,870
Arkansas Eastern	149,639	244,381	278,799	331,553	384,484
Arkansas Western	86,165	145,106	160,238	191,712	215,903
Arizona	333,992	567,023	700,527	853,714	1,023,071
California Central	702,495	1,373,107	1,729,062	2,339,485	2,945,884
California Northern	529,712	743,141	864,308	1,096,825	1,382,634
California Southern	242,323	397,891	491,581	664,209	844,900
Colorado	233,411	326,855	404,965	516,946	650,406
Delaware	92,003	177,909	204,982	242,842	272,947
Florida Middle	405,910	701,315	871,179	1,081,257	1,390,453
Florida Northern	121,740	260,257	315,173	408,980	489,852
Georgia Middle	119,593	233,649	267,320	330,216	388,496
Georgia Northern	424,164	731,272	973,554	1,252,141	1,493,996
Georgia Southern	113,081	190,034	241,230	338,075	483,966
Guam	21,299	47,022	50,629	66,872	83,121
Hawaii	90,120	143,170	190,837	266,207	341,573
Idaho	77,750	188,556	231,833	289,069	344,476
Illinois Central	129,402	199,691	250,244	309,296	373,158
Illinois Northern	560,480	898,849	1,040,316	1,256,245	1,487,117
Kentucky Eastern	151,532	245,541	292,500	354,505	427,717
Louisiana Eastern	437,692	581,425	658,628	776,369	903,009
Louisiana Western	195,927	239,762	260,322	331,905	403,487
Michigan Eastern	336,049	676,697	758,784	893,716	1,048,620
Mississippi Northern	98,445	194,916	231,497	265,901	318,763
Mississippi Southern	163,708	272,060	321,170	442,586	509,417
Missouri Eastern	224,366	555,819	646,418	825,735	1,005,041
Missouri Western	212,966	376,372	440,899	550,977	650,957
Montana	105,122	200,646	223,794	262,724	281,260
Nebraska	70,626	132,441	169,171	217,871	266,571
Nevada	199,247	393,967	467,695	572,317	673,192
New Mexico	187,856	213,644	269,119	338,507	407,894
New York Eastern	307,497	641,429	769,249	966,825	1,164,400
New York Western	152,524	330,873	372,722	441,835	506,915
North Dakota	77,170	127,349	160,352	175,784	184,898

(continued)

District	Current space	5-year estimate	10-year estimate	20-year estimate	30-year estimate
Northern Mariana Is.	18,951	26,845	29,498	42,529	46,699
Ohio Northern	278,839	493,660	598,130	738,341	878,537
Ohio Southern	324,224	449,728	511,965	635,485	758,997
Oklahoma Eastern	58,550	90,587	113,234	126,296	171,453
Oregon	185,150	352,466	462,446	635,033	807,514
Pennsylvania Eastern	515,443	780,455	903,957	1,055,176	1,229,990
Pennsylvania Middle	109,743	272,696	308,843	375,740	435,196
Pennsylvania Western	231,496	404,702	447,745	521,561	590,154
South Carolina	263,907	478,233	533,739	631,044	729,462
Tennessee Western	111,383	234,025	285,350	375,555	455,584
Texas Eastern	252,045	380,846	434,919	515,591	596,432
Texas Northern	332,153	589,016	679,581	847,160	1,082,230
Texas Southern	456,563	594,198	670,228	835,543	1,000,858
Texas Western	347,001	575,127	702,294	836,958	1,013,188
Utah	147,033	213,726	261,165	326,839	416,780
Washington Eastern	111,410	203,981	253,572	311,067	358,563
West Virginia Southern	126,463	188,988	209,763	240,073	270,383
Wyoming	78,190	131,968	147,283	177,905	209,589
Total	**11,771,304**	**19,980,968**	**23,746,936**	**29,556,046**	**35,658,563**

[a]Where arithmetic errors were found in AOC's computations, these errors were corrected and the correct number shown in the table.

Source: GAO derived from AOC's long-range facility plans.

To project to the universe of 94 districts, we used data from the 54 districts. The projection of findings from those completed districts to the universe required that we assume that there were no consistent differences between the two groups of districts on the characteristics that were relevant to our analyses. While we recognize that AOC has completed more of the larger districts than it has of the smaller, we assumed that the rate of growth for the remaining districts would be similar.

Projection of Deficits

In order to compute the estimated deficits for those districts where the process was not completed, we totaled the space occupied and the deficits within the 54 districts where the process was completed and then divided the deficits by the space occupied. The results represented the actual percentage for deficits. Deficits averaged 23.98 percent for court

components and 35.68 percent for related agencies. By multiplying the space occupied in each of the 40 remaining districts by these percentages, we obtained an estimate of the deficits for each of these districts.

Projection of Estimates for 5-, 10-, 20-, and 30-Year Periods

We totaled current occupied space separately for the 54 and the 40 districts. We also totaled the 5-, 10-, 20-, and 30-year estimates for the 54 districts. By dividing each of these totaled estimates by the current total space occupied, we were able to determine the expected rate of increase. We then multiplied the current space occupied in each of the 40 districts by the expected rate of increase to obtain projections for each of the time periods.

Methodology Used to Develop Alternative Baselines

In order to compute alternative baselines, we used current authorized staff as determined by AOC during the on-site sessions for the 54 districts for which complete data was available. For the remaining 40 districts we used the data contained in AOC's personnel database, which reflect current authorized staff. We used AOC's historic database to obtain information on caseloads for 1991.

Baseline Determined by Caseloads

Step 1: For each district, we applied the appropriate caseload-to-staff ratio from table 1.1 to the relevant caseload. For example, if a district's civil plus criminal caseload was 2,978 and the district was in growth model 2, we divided 2,978 by 426. Therefore, we could conclude that the district needed a total of seven district court judges to process its civil and criminal caseload. Using the relevant caseload-to-staff ratios, we performed similar computations for the remaining key personnel—bankruptcy court judges, probation and pretrial officers, and public defenders.

Step 2: We then applied the ratios of key personnel to other staff that are shown in table 1.1. For example, growth model 2 provides a ratio of 0.5 magistrates for each district court judge; for the seven district court judges in the example above, four magistrates would be needed in the district court to assist the judges. By applying a similar method we were able to determine according to each personnel classification the number of staff that were needed to process the different types of caseloads.

Step 3: We applied the Design Guide space allocations shown in table 1.2 to the estimated staffing numbers to determine the associated space

requirement. For the example shown above, the seven district court judges would be allocated 43,015 square feet and the four magistrates would receive 16,780. In addition, we included senior judges and support staff in our calculations for district courts. We calculated space needs for the other court components using a similar method.

Step 4: After calculating the allocated square feet for each personnel classification within each court component, we added the 45-percent add-on factor. When totalled, the final calculation provided a baseline for each district that reflected the actual amount of space needed to process the current caseloads based upon AOC's own space allocations.

This alternative method for determining the baselines is based upon the assumption that caseload should form the basis for staff and space decisions. While excess staff and/or space may exist currently and cannot be readily reduced, additional space in the form of deficits should not be requested until caseload increases to the point that more staff is warranted.

The results of this analysis are shown in table II.3. Missouri Eastern is an example of 1 of the 65 districts where AOC's baseline is overstated. The Missouri Eastern district currently occupies 132,924 square feet of space and reported a deficit of 197,105. AOC's baseline, therefore, would be 330,029 square feet. However, on the basis of the 1991 caseload for this district, only 168,583 square feet are needed to house the staff needed to process the caseload. Thus, AOC's baseline for Missouri Eastern is overstated by 161,446 square feet.

On the other hand, the Georgia Middle district is an example of 1 of the 29 districts where AOC's baseline is understated. The Georgia Middle district occupies 85,308 square feet of space and reported a deficit of 20,535. On the basis of the 1991 caseload for this district, 177,868 square feet are needed to house the staff needed to process the caseload. Thus, AOC's baseline for Georgia Middle is understated by 72,025 square feet.

Table II.3: Disparity Between AOC Baselines and Baselines Derived From Current Caseloads

Districts	Occupied space[a]	Deficits	Needs based on caseloads	Disparity[c]	Annual cost associated with disparity[c]
Alabama Middle[b]	66,550	15,727	113,680	(31,403)	$(973,490)
Alabama Northern[b]	226,371	30,316	208,725	47,962	1,486,822
Alabama Southern	85,934	20,562	82,525	23,971	743,102
Alaska[b]	90,370	26,640	50,260	66,750	2,069,241
Arizona[b]	252,927	30,586	245,072	38,441	1,191,659
Arkansas Eastern[b]	123,507	20,923	126,899	17,531	543,463
Arkansas Western[b]	70,827	6,910	69,902	7,835	242,898
California Central[b]	538,570	135,454	717,759	(43,735)	(1,355,778)
California Eastern[b]	294,747	70,526	208,168	157,105	4,870,250
California Northern[b]	410,027	38,324	311,255	137,096	4,249,974
California Southern[b]	153,353	18,040	209,416	(38,023)	(1,178,716)
Colorado[b]	140,860	44,935	172,146	13,649	423,104
Connecticut	109,691	26,246	148,356	(12,419)	(384,983)
Delaware[b]	65,001	42,326	55,794	51,533	1,597,519
District of Columbia[b]	214,362	61,799	166,672	109,489	3,394,155
Florida Middle[b]	292,729	7,541	333,506	(33,236)	(1,030,314)
Florida Northern[b]	77,183	34,820	91,110	20,893	647,694
Florida Southern[b]	342,455	81,941	336,829	87,567	2,714,584
Georgia Middle[b]	85,308	20,535	177,868	(72,025)	(2,232,790)
Georgia Northern[b]	238,243	174,293	277,548	134,988	4,184,630
Georgia Southern[b]	88,129	9,595	119,392	(21,668)	(671,705)
Guam[b]	12,957	8,802	12,365	9,394	291,201
Hawaii[b]	65,025	19,710	146,602	(61,867)	(1,917,863)
Idaho[b]	55,120	70,631	55,504	70,247	2,177,649
Illinois Central[b]	91,383	9,450	114,105	(13,272)	(411,433)
Illinois Northern	371,874	218,315	486,970	103,219	3,199,787
Illinois Southern	80,958	19,371	93,725	6,604	204,722
Indiana Northern[b]	123,954	29,659	107,720	45,893	1,422,675
Indiana Southern	147,667	35,333	165,972	17,028	527,856
Iowa Northern	66,285	15,860	51,944	30,201	936,246
Iowa Southern	57,503	13,759	79,813	(8,551)	(265,091)
Kansas	148,847	35,615	133,237	51,225	1,587,974
Kentucky Eastern[b]	115,240	36,539	120,428	31,351	971,885
Kentucky Western	101,321	24,244	117,414	8,151	252,681
Louisiana Eastern[b]	278,733	118,954	225,975	171,712	5,323,058

(continued)

Districts	Occupied space[a]	Deficits	Needs based on caseloads	Disparity[c]	Annual cost associated with disparity[c]
Louisiana Middle	43,154	10,326	75,371	(21,891)	(678,634)
Louisiana Western[b]	142,943	15,090	147,456	10,577	327,886
Maine	46,792	11,196	56,126	1,862	57,726
Maryland	233,239	55,808	237,383	51,664	1,601,573
Massachusetts[b]	205,737	60,074	223,344	42,467	1,316,483
Michigan Eastern[b]	260,030	127,613	310,667	76,976	2,386,244
Michigan Western	100,832	24,127	123,635	1,324	41,031
Minnesota	191,549	45,833	168,489	68,893	2,135,671
Mississippi Northern[b]	79,989	24,926	79,549	25,366	786,350
Mississippi Southern[b]	126,659	30,587	116,865	40,381	1,251,818
Missouri Eastern[b]	132,924	197,105	168,583	161,446	5,004,811
Missouri Western[b]	168,266	21,550	166,848	22,968	712,003
Montana[b]	72,197	30,818	64,950	38,065	1,180,020
Nebraska[b]	57,192	22,195	93,460	(14,073)	(436,249)
Nevada[b]	154,621	75,071	143,379	86,313	2,675,688
New Hampshire	41,659	9,968	53,955	(2,328)	(72,183)
New Jersey	127,687	30,552	341,472	(183,233)	(5,680,238)
New Mexico[b]	137,378	15,602	117,834	35,146	1,089,523
New York Eastern[b]	237,042	55,088	316,267	(24,137)	(748,244)
New York Northern	93,917	22,472	114,299	2,090	64,785
New York Southern	275,103	77,829	408,037	(55,105)	(1,708,254)
New York Western[b]	103,314	77,456	108,690	72,080	2,234,472
North Carolina Eastern	127,452	30,496	149,745	8,203	254,278
North Carolina Middle	90,084	21,555	78,390	33,249	1,030,734
North Carolina Western[b]	71,778	17,175	94,220	(5,267)	(163,278)
North Dakota[b]	56,960	22,700	44,590	35,070	1,087,178
North Mariana Islands[b]	14,844	1,200	15,868	176	5,442
Ohio Northern[b]	209,801	33,956	278,008	(34,251)	(1,061,768)
Ohio Southern[b]	170,131	151,132	211,824	109,439	3,392,594
Oklahoma Eastern[b]	44,817	1,800	49,184	(2,567)	(79,583)
Oklahoma Northern	91,554	21,907	82,598	30,863	956,738
Oklahoma Western	90,862	21,741	139,208	(26,605)	(824,769)
Oregon[b]	145,370	26,005	164,374	7,001	217,016
Pennsylvania Eastern[b]	320,525	138,306	395,903	62,928	1,950,775
Pennsylvania Middle[b]	78,578	73,334	124,680	27,232	844,192
Pennsylvania Western[b]	184,531	48,269	172,080	60,720	1,882,320
Puerto Rico	114,646	27,432	123,106	18,972	588,133

(continued)

Districts	Occupied space[a]	Deficits	Needs based on caseloads	Disparity[c]	Annual cost associated with disparity[c]
Rhode Island	46,065	11,022	58,473	(1,386)	(42,974)
South Carolina[b]	199,907	98,875	209,236	89,546	2,775,917
South Dakota	66,800	15,984	46,123	36,661	1,136,496
Tennessee Eastern	97,260	23,272	139,332	(18,800)	(582,811)
Tennessee Middle	90,405	21,632	128,019	(15,982)	(495,456)
Tennessee Western[b]	84,394	45,059	143,165	(13,712)	(425,073)
Texas Eastern[b]	201,365	10,530	158,581	53,314	1,652,728
Texas Northern[b]	241,017	45,498	292,332	(5,817)	(180,332)
Texas Southern[b]	362,569	36,155	380,040	18,684	579,210
Texas Western[b]	258,276	40,959	256,177	43,058	1,334,811
Utah[b]	117,110	7,970	97,752	27,328	847,158
Vermont	49,998	11,963	29,810	32,151	996,685
Virgin Islands	32,980	7,891	52,824	(11,953)	(370,554)
Virginia Eastern	226,209	67,637	341,685	(47,839)	(1,483,004)
Virginia Western	114,868	27,485	124,299	18,054	559,672
Washington Eastern[b]	72,220	41,565	80,439	33,346	1,033,718
Washington Western[b]	185,880	44,477	196,932	33,425	1,036,162
West Virginia Northern	42,389	10,143	44,148	8,384	259,906
West Virginia Southern[b]	95,676	22,893	99,203	19,366	600,343
Wisconsin Eastern	70,316	16,825	100,323	(13,182)	(408,629)
Wisconsin Western	57,246	13,698	77,935	(6,991)	(216,728)
Wyoming[b]	57,150	0	34,798	22,352	692,899

[a]Occupied space source used GSA facilities data and deficits are GAO estimates.

[b]Plans have been completed for these districts.

[c]Numbers shown in () represent understatements under AOC's process.

Source: GAO calculations based on AOC facility plans.

Baseline Determined by Staff Levels

In order to formulate a baseline that was based upon current staff levels, we began our calculations with step 3 above using current rather than estimated staff. Under this method we assumed that current staffing levels reflect actual need. The results of this analysis are provided in table II.4.

Table II.4: Disparity Between AOC Baselines and Baselines Determined From Current Staff Levels

Districts	Occupied space	Deficits	Needed space based on staff	Disparity[a]	Annual cost associated with disparity[a]
Alabama Middle[b]	66,550	15,727	106,611	(24,334)	$(754,354)
Alabama Northern[b]	226,371	30,316	218,718	37,969	1,177,039
Alabama Southern	85,934	20,562	106,988	(492)	(15,252)
Alaska[b]	90,370	26,640	82,251	34,759	1,077,529
Arizona[b]	252,927	30,586	276,218	7,295	226,145
Arkansas Eastern[b]	123,507	20,923	127,600	16,830	521,730
Arkansas Western[b]	70,827	6,910	44,472	33,265	1,031,215
California Central[b]	538,570	135,454	700,212	(26,188)	(811,828)
California Eastern[b]	294,747	70,526	250,749	114,524	3,550,244
California Northern[b]	410,027	38,324	397,452	50,899	1,577,869
California Southern[b]	153,353	18,040	241,055	(69,662)	(2,159,522)
Colorado[b]	140,860	44,935	242,157	(56,362)	(1,747,222)
Connecticut	109,691	26,246	160,414	(24,477)	(758,787)
Delaware[b]	65,001	42,326	99,833	7,494	232,314
District of Columbia[b]	214,362	61,799	325,924	(49,763)	(1,542,653)
Florida Middle[b]	292,729	7,541	264,458	35,812	1,110,172
Florida Northern[b]	77,183	34,820	90,806	21,197	657,107
Florida Southern[b]	342,455	81,941	389,245	35,151	1,089,681
Georgia Middle[b]	85,308	20,535	82,766	23,077	715,387
Georgia Northern[b]	238,243	174,293	278,538	133,998	4,153,938
Georgia Southern[b]	88,129	9,595	96,309	1,415	43,865
Guam[b]	12,957	8,802	12,680	9,079	281,449
Hawaii[b]	65,025	19,710	92,691	(7,956)	(246,636)
Idaho[b]	55,120	70,631	75,937	49,814	1,544,234
Illinois Central[b]	91,383	9,450	108,344	(7,511)	(232,841)
Illinois Northern	371,874	218,315	502,324	87,865	2,723,815
Illinois Southern	80,958	19,371	71,471	28,858	894,598
Indiana Northern[b]	123,954	29,659	122,511	31,102	964,162
Indiana Southern	147,667	35,333	152,504	30,496	945,376
Iowa Northern	66,285	15,860	57,739	24,406	756,586
Iowa Southern	57,503	13,759	88,334	(17,072)	(529,232)
Kansas	148,847	35,615	193,590	(9,128)	(282,968)
Kentucky Eastern[b]	115,240	36,539	116,943	34,836	1,079,916
Kentucky Western	101,321	24,244	111,186	14,379	445,749
Louisiana Eastern[b]	278,733	118,954	250,741	146,946	4,555,326

(continued)

Districts	Occupied space	Deficits	Needed space based on staff	Disparity[a]	Annual cost associated with disparity[a]
Louisiana Middle	43,154	10,326	58,247	(4,767)	(147,777)
Louisiana Western[b]	142,943	15,090	198,389	(40,356)	(1,251,036)
Maine	46,792	11,196	72,710	(14,722)	(456,382)
Maryland	233,239	55,808	294,234	(5,187)	(160,797)
Massachusetts[b]	205,737	60,074	274,072	(8,261)	(256,091)
Michigan Eastern[b]	260,030	127,613	355,323	32,320	1,001,920
Michigan Western	100,832	24,127	120,974	3,985	123,535
Minnesota	191,549	45,833	193,039	44,343	1,374,633
Mississippi Northern[b]	79,989	24,926	63,720	41,195	1,277,045
Mississippi Southern[b]	126,659	30,587	128,934	28,312	877,672
Missouri Eastern[b]	132,924	197,105	185,934	144,095	4,466,945
Missouri Western[b]	168,266	21,550	165,184	24,632	763,592
Montana[b]	72,197	30,818	85,485	17,530	543,430
Nebraska[b]	57,192	22,195	85,536	(6,149)	(190,619)
Nevada[b]	154,621	75,071	148,596	81,096	2,513,976
New Hampshire	41,659	9,968	54,868	(3,241)	(100,471)
New Jersey	127,687	30,552	353,539	(195,300)	(6,054,300)
New Mexico[b]	137,378	15,602	124,048	28,932	896,892
New York Eastern[b]	237,042	55,088	293,067	(937)	(29,047)
New York Northern	93,917	22,472	117,124	(735)	(22,785)
New York Southern	275,103	77,829	642,807	(289,875)	(8,986,125)
New York Western[b]	103,314	77,456	123,439	57,331	1,777,261
North Carolina Eastern	127,452	30,496	110,454	47,494	1,472,314
North Carolina Middle	90,084	21,555	104,494	7,145	221,495
North Carolina Western[b]	71,778	17,175	98,702	(9,749)	(302,219)
North Dakota[b]	56,960	22,700	66,229	13,431	416,361
North Mariana Islands[b]	14,844	1,200	9,889	6,155	190,805
Ohio Northern[b]	209,801	33,956	297,845	(54,088)	(1,676,728)
Ohio Southern[b]	170,131	151,132	213,708	107,555	3,334,205
Oklahoma Eastern[b]	44,817	1,800	29,522	17,095	529,945
Oklahoma Northern	91,554	21,907	80,910	32,551	1,009,081
Oklahoma Western	90,862	21,741	151,619	(39,016)	(1,209,496)
Oregon[b]	145,370	26,005	174,950	(3,575)	(110,825)
Pennsylvania Eastern[b]	320,525	138,306	469,960	(11,129)	(344,999)
Pennsylvania Middle[b]	78,578	73,334	149,676	2,236	69,316
Pennsylvania Western[b]	184,531	48,269	209,337	23,463	727,353
Puerto Rico	114,646	27,432	130,181	11,897	368,807

(continued)

Districts	Occupied space	Deficits	Needed space based on staff	Disparity[a]	Annual cost associated with disparity[a]
Rhode Island	46,065	11,022	65,083	(7,996)	(247,876)
South Carolina[b]	199,907	98,875	207,800	90,982	2,820,442
South Dakota	66,800	15,984	73,776	9,008	279,248
Tennessee Eastern	97,260	23,272	124,780	(4,248)	(131,688)
Tennessee Middle	90,405	21,632	96,353	15,684	486,204
Tennessee Western[b]	84,394	45,059	136,293	(6,840)	(212,040)
Texas Eastern[b]	201,365	10,530	145,181	66,714	2,068,134
Texas Northern[b]	241,017	45,498	286,114	401	12,431
Texas Southern[b]	362,569	36,155	380,444	18,280	566,680
Texas Western[b]	258,276	40,959	292,345	6,890	213,590
Utah[b]	117,110	7,970	117,378	7,702	238,762
Vermont	49,998	11,963	60,625	1,336	41,416
Virgin Islands	32,980	7,891	35,830	5,041	156,271
Virginia Eastern	226,209	67,637	274,935	18,911	586,241
Virginia Western	114,868	27,485	114,876	27,477	851,787
Washington Eastern[b]	72,220	41,565	102,624	11,161	345,991
Washington Western[b]	185,880	44,477	193,887	36,470	1,130,570
West Virginia Northern	42,389	10,143	51,113	1,419	43,989
West Virginia Southern[b]	95,676	22,893	104,270	14,299	443,269
Wisconsin Eastern	70,316	16,825	128,869	(41,728)	(1,293,568)
Wisconsin Western	57,246	13,698	51,004	19,940	618,140
Wyoming[b]	57,150	0	47,647	9,503	294,593

[a]Numbers shown in () represent understatements by AOC's process.

[b]Plans have been completed for these districts.

Source: GAO calculations using AOC facilities plans and personnel database.

Methodology Used to Project Caseloads

We used linear equations to project the criminal caseload and the number of persons under supervision and used exponential equations to project the civil and bankruptcy caseloads. We selected these equations for three reasons: (1) they were simple, (2) they were the ones that AOC had first used in its long-range planning process, and (3) the trendlines demonstrated that they were appropriate.

After projecting the four types of caseloads we applied the AOC caseload-to-staff ratios and the Design Guide to derive space needs for the

5- and 10-year periods. Our projections indicated that at the 5-year period the court components would need 19.4 million square feet of space to house the staff that would be needed to process the caseloads. At the 10-year period 22.9 million square feet would be needed.

In order to estimate the potential accuracy of our estimates we generated confidence intervals at the 95-percent level. This enabled us to state with 95-percent confidence that the true value at the 5- and 10-year points would fall between defined limits. At the 5-year period we can be 95-percent certain that the true space need nationally will be somewhere between 15.4 and 23.5 million square feet. At the 10-year period we can be 95-percent certain that true space needs will fall between 18.5 and 27.2 million square feet. Table II.5 shows the 5- and 10-year space projections for each of the 94 districts and the associated 95-percent confidence interval.[18]

Table II.5: Caseload Projections Using a Standard Statistical Procedure

	5-Year			10-Year		
Districts	Estimate	Confidence interval lower limit	Confidence interval upper limit	Estimate	Confidence interval lower limit	Confidence interval upper limit
Alabama Middle	140,092	119,360	160,824	167,580	145,102	190,059
Alabama Northern	259,011	205,884	312,138	305,039	247,419	362,659
Alabama Southern	112,112	88,360	135,864	131,993	106,317	157,668
Alaska	71,037	55,776	86,299	84,655	68,114	101,196
Arizona	277,605	195,437	359,773	328,382	240,664	416,099
Arkansas Eastern	184,167	159,550	208,784	222,667	196,002	249,332
Arkansas Western	88,958	73,595	104,321	106,784	90,153	123,415
California Central	911,540	711,248	1,111,831	1,097,008	875,873	1,318,142
California Eastern	253,439	193,796	313,082	302,936	237,770	368,102
California Northern	503,635	391,273	615,997	594,819	473,047	716,591
California Southern	165,907	19,852	311,961	162,769	5,924	319,614
Colorado	231,365	191,542	271,189	276,469	233,327	319,612
Connecticut	177,771	148,926	206,616	212,199	180,958	243,440
Delaware	67,960	57,489	78,430	81,478	70,206	92,750
District of Columbia	390,341	315,112	465,569	410,237	335,008	485,465
Florida Middle	389,302	313,122	465,481	468,881	385,470	552,291
Florida Northern	108,813	90,876	126,750	129,885	110,601	149,170

(continued)

[18]The caseload estimates produced from the regression analyses for the District of California Southern at the 10-year point were negative. This produced a set of confidence intervals that appear to be unreasonable. This was the only district where the caseload estimates were negative.

	5-Year			10-Year		
Districts	Estimate	Confidence interval lower limit	Confidence interval upper limit	Estimate	Confidence interval lower limit	Confidence interval upper limit
Florida Southern	387,260	274,773	499,746	452,575	331,289	573,862
Georgia Middle	175,775	127,409	224,142	204,605	153,312	255,899
Georgia Northern	336,654	271,751	401,557	402,202	331,872	472,533
Georgia Southern	130,318	90,492	170,144	153,462	111,190	195,734
Guam	13,336	4,850	21,823	14,231	5,105	23,358
Hawaii	206,375	142,073	270,677	242,178	174,354	310,001
Idaho	84,165	69,491	98,838	100,347	84,477	116,217
Illinois Central	147,621	123,363	171,878	173,678	150,170	197,186
Illinois Northern	681,642	576,105	787,179	806,857	694,862	918,853
Illinois Southern	120,535	93,790	147,281	141,058	113,398	168,717
Indiana Northern	158,406	128,708	188,104	187,537	156,467	218,606
Indiana Southern	48,505	40,273	56,736	56,932	48,120	65,745
Iowa Northern	75,483	62,137	88,829	89,795	75,341	104,250
Iowa Southern	121,249	97,946	144,552	145,885	120,616	171,154
Kansas	173,205	145,815	200,595	200,908	171,323	230,494
Kentucky Eastern	145,644	114,399	176,889	173,053	139,264	206,842
Kentucky Western	154,857	129,032	180,681	181,692	153,859	209,525
Louisiana Middle	104,001	73,600	134,403	127,403	93,268	161,538
Louisiana Eastern	375,629	314,401	436,858	442,815	376,433	509,198
Louisiana Western	219,716	179,601	259,831	263,410	220,183	306,636
Maine	66,744	49,729	83,759	77,993	59,533	96,452
Maryland	338,329	276,515	400,142	401,764	335,286	468,241
Massachusetts	266,941	195,557	338,325	310,816	233,217	388,414
Michigan Eastern	468,920	361,521	576,320	556,899	441,006	672,792
Michigan Western	177,731	144,529	210,933	214,370	178,346	250,394
Minnesota	210,633	155,434	265,832	249,192	189,283	309,100
Mississippi Northern	102,726	81,659	123,792	123,548	100,853	146,243
Mississippi Southern	167,604	130,530	204,678	201,542	161,503	241,581
Missouri Eastern	212,218	175,409	249,028	253,444	213,510	293,378
Missouri Western	219,838	181,988	257,687	256,351	215,617	297,085
Montana	91,201	75,698	106,705	107,812	91,029	124,595
Nebraska	133,764	113,931	153,597	160,171	138,687	181,655
Nevada	167,540	143,445	191,634	203,656	177,651	229,662
New Hampshire	61,640	45,636	77,644	73,935	56,507	91,363
New Jersey	413,337	355,988	470,686	494,124	432,325	555,924
New Mexico	145,071	113,577	176,565	170,980	137,114	204,846

(continued)

Districts	5-Year			10-Year		
	Estimate	Confidence interval lower limit	Confidence interval upper limit	Estimate	Confidence interval lower limit	Confidence interval upper limit
New York Northern	120,581	95,157	146,005	142,327	114,863	169,792
New York Eastern	366,850	303,407	430,293	432,930	364,656	501,203
New York Southern	517,125	439,311	594,939	576,471	492,280	660,662
New York Western	127,601	107,362	147,839	149,740	127,935	171,544
North Carolina Eastern	186,115	133,032	239,197	219,129	162,397	275,860
North Carolina Middle	105,245	76,323	134,166	122,929	91,742	154,115
North Carolina Western	117,835	87,913	147,756	138,375	106,050	170,701
North Dakota	47,400	38,805	55,995	55,320	46,099	64,541
North Mariana Islands	15,722	15,140	16,304	15,643	14,990	16,296
Ohio Northern	403,543	331,105	475,980	480,615	402,305	558,924
Ohio Southern	309,455	230,912	387,997	368,371	283,031	453,712
Oklahoma Eastern	61,898	51,626	72,169	73,023	62,001	84,044
Oklahoma Northern	111,401	94,122	128,679	132,993	114,261	151,724
Oklahoma Western	213,541	172,019	255,063	256,600	211,571	301,629
Oregon	211,751	170,737	252,766	251,724	207,220	296,228
Pennsylvania Eastern	513,491	450,498	576,484	611,465	543,383	679,548
Pennsylvania Middle	163,992	144,486	183,498	196,485	175,334	217,637
Pennsylvania Western	210,623	173,922	247,324	239,352	205,391	273,313
Puerto Rico	190,298	135,823	244,774	226,901	167,776	286,026
Rhode Island	71,575	56,102	87,047	85,154	68,398	101,909
South Carolina	245,453	206,617	284,290	292,457	250,649	334,265
South Dakota	56,720	41,878	71,561	65,023	49,154	80,892
Tennessee Eastern	160,127	129,022	191,232	188,120	154,498	221,742
Tennessee Middle	147,826	122,979	172,673	176,482	149,626	203,337
Tennessee Western	154,307	129,437	179,177	183,456	156,497	210,416
Texas Eastern	205,107	176,892	233,322	247,088	216,448	277,728
Texas Northern	356,045	302,245	409,846	424,529	366,206	482,852
Texas Southern	491,982	326,816	657,147	507,171	401,237	613,106
Texas Western	247,337	121,273	373,402	284,212	150,610	417,814
Utah	131,456	101,816	161,096	158,898	126,743	191,052
Vermont	31,129	23,292	38,965	34,527	26,121	42,934
Virgin Islands	71,400	34,674	108,126	76,534	36,816	116,251
Virginia Eastern	415,292	350,013	480,572	485,902	416,207	555,597
Virginia Western	193,821	151,989	235,653	232,754	187,323	278,186
Washington Eastern	102,392	80,808	123,975	121,507	98,283	144,731
Washington Western	277,742	227,142	328,341	330,162	275,756	384,568

(continued)

Districts	5-Year			10-Year		
	Estimate	Confidence Interval lower limit	Confidence Interval upper limit	Estimate	Confidence Interval lower limit	Confidence Interval upper limit
West Virginia Northern	65,493	48,425	82,560	77,031	58,594	95,467
West Virginia Southern	136,537	108,409	164,666	161,939	131,484	192,394
Wisconsin Eastern	228,744	188,800	268,689	269,919	230,156	309,682
Wisconsin Western	158,468	132,588	184,347	186,055	160,373	211,737
Wyoming	60,167	60,167	60,167	69,986	69,986	69,986

Source: GAO calculations using AOC caseloads and personnel data.

Comments From the Administrative Office of the U.S. Courts

L. RALPH MECHAM
DIRECTOR

JAMES E. MACKLIN, JR
DEPUTY DIRECTOR

**ADMINISTRATIVE OFFICE OF THE
UNITED STATES COURTS**

WASHINGTON, D.C. 20544
June 22, 1993

ROBERT M. CROWDER
OFFICE OF
PROGRAM ASSESSMENT

Honorable Charles A. Bowsher
Comptroller General of the United States
General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Bowsher:

This is in response to your letter of May 25, 1993, by which you have
transmitted your draft report, entitled Federal Judiciary Space: Long-Range Planning
Process Needs Revision, for our review and comment.

The Administrative Office welcomes this opportunity to review your draft. The
Space and Facilities Division of the Administrative Office has prepared detailed
comments with proposed revisions for the final report. The draft comes at a
particularly opportune time in our history. Our requirements for accommodations for
the United States Courts are expected to grow substantially. Moreover, we are
especially mindful of the necessity for wisdom in the conservation of our existing
Federal court facilities, and in the design and planning for the new facilities. For these
reasons, the Administrative Office appreciates your recommendations on the long-
range planning process.

The Space and Facilities Division informs me that some areas in the long-range
planning process have recently been improved, and that they believe others remain to
be addressed. As examples of improvements, the division's staff now routinely updates
long-range plans on a two-year cycle, and has implemented more detailed, court-by-
court descriptions of facilities, rather than relying on summary data for justifications of
building appropriations as had been done previously.

However, the division has also identified a number of significant discrepancies
and misunderstandings in the draft report which we ask that you clarify by appropriate
statements in the final report. The Space and Facilities Division has provided me with
suggested modifications. (Enclosure) As a part of our agency's review, the Statistics
Division also examined the draft report closely. Regrettably that division could not
provide any substantive comments because of insufficient information in some areas to
determine a basis for GAO's recommendations.

A TRADITION OF SERVICE TO THE FEDERAL JUDICIARY

Honorable Charles A. Bowsher
Page 2

In January of 1992, at the direction of the Subcommittee on Long-Range Planning of the Judicial Conference Committee on Space and Facilities, the Administrative Office engaged the National Center for State Courts to conduct an independent review of the long-range planning process. The National Center has reviewed and evaluated long-range forecasting methodologies, surveyed estimation processes used by State and local courts, and examined your draft report to assess the impact of its suggested methodologies on space and facilities projections. The review was based on common statistical practices and space planning factors. As usual, the National Center has provided us with insightful and expert recommendations which we consider to be very worthwhile.

The Subcommittee on Long-Range Planning wishes to share the views of the National Center and recommends strongly that, prior to publication of a final report, your audit team meet with staff from the Space and Facilities Division to discuss the National Center's recommendations. We believe this approach will enable the audit team and the division to discuss the enclosed comments and proposed revisions, and share the recommendations of the National Center. Furthermore, it will provide an opportunity to address the issues which remain outstanding from the team's February 19, 1993, briefing at the Administrative Office.

The point of contact for all issues relating to this study is Mr. Walter G. Moon. Please do not hesitate to contact Mr. Moon in the event that you need information about our comments. Once again, thank you for this opportunity to comment on your draft report.

Sincerely,

Robert M. Crowder
Program Assessment Officer
Office of Program Assessment

Enclosure

cc: Space and Facilities Committee Members
       Mr. L. Ralph Mecham
       Mr. William R. Burchill, Jr.
       Mr. Clarence A. Lee, Jr.

Administrative Office of the United States Courts
Space and Facilities Division
June 24, 1993

ADMINISTRATIVE OFFICE OF THE UNITED STATES COURTS

SPACE AND FACILITIES DIVISION

COMMENTS AND PROPOSED REVISIONS

ON GAO'S DRAFT REPORT

Entitled Federal Judiciary Space:

Long-Range Planning Process Needs Revision,

May 25, 1993

THURGOOD MARSHALL FEDERAL JUDICIARY BUILDING

One Columbus Circle, N.E.

WASHINGTON, D.C. 20544

Administrative Office of the United States Courts
Space and Facilities Division
June 24, 1993

FORWARD

At the direction of the Subcommittee on Long-Range Planning
of the Judicial Conference Committee on Space and Facilities, the
Administrative Office of the United States Courts submits these
detailed comments with proposed revisions on GAO's Draft Report
entitled Federal Judiciary Space: Long-Range Planning Process
Needs Revision, May 25, 1993.

The Space and Facilities Division of the Administrative
Office requests that the Comptroller General of the United States
exercise the authority under section 718(c), of Title 31, United
States Code, to ensure that the changes in the draft report which
are indicated by these comments, proposed revisions, and letters
are made in the final report.

Administrative Office of the United States Courts
Space and Facilities Division
June 24, 1993

COMMENTS WITH PROPOSED REVISIONS

DISCREPANCIES AND MISUNDERSTANDINGS

Three discrepancies and misunderstandings developed during the audit which now seem to form the foundation of the draft GAO report and, we believe, affect the validity of its findings, conclusions, and recommendations.

1. It appears that the GAO auditors apparently misunderstood and miscalculated the baseline.

The baseline is composed of the current space occupied by the court components plus any existing space shortages. A space shortage is defined as the difference between the space occupied and the space that is functionally specified for each court component. See U.S. Courts Design Guide.

The GAO calculated the baseline using two different methods, a caseload approach and a current staffing method. Both of these methods significantly understate the needs of the courts. The same flaw is inherent in both of these approaches: GAO has used the pre-site caseload-to-personnel ratios and the space figures contained in the Space and Facilities Division's Projection Package, which reflects the Statistics Division data and projects the future expansion for courts of similar size, to determine the courts' space needs. The figures in the Projection Package and the methodology employed are only designed for calculating additional space needs, not for calculating current needs. This misunderstanding weakens the draft report, and much of the draft is based on it.

2. We maintain that the GAO auditors are incorrect in their finding that the Space and Facilities Division averages the results of five regression formulas to perform caseload projections.

Nowhere in the projection process or the projection model does the Space and Facilities Division average five regression formulas.

Five different regression formulas are used in the facility planning process, but the results of the five formulas are not averaged. During the development of the planning process, five formulas were used to calculate projections on each caseload type to determine the formula with the "best statistical fit." Experience has shown that a combination of two formulas, the linear and quadratic formulas, consistently produce the best

Administrative Office of the United States Courts
Space and Facilities Division
June 24, 1993

projection results. Therefore, these two formulas are averaged
and used to perform the pre-site projections.

Once on-site, if the court planners determine as a group
that a particular caseload type needs to be "re-forecasted" using
a different regression formula, one of the five formulas is
selected to perform the calculation. The court planners then
view the results and either accept, reject, or otherwise modify
the projections based on their experience. This does not
invalidate the process because the reforecast is based on actual
data of the professional experts.

3.   It seems that the GAO evaluated a complex and
interactive process by only reviewing one part.

The draft report overlooks the data and input that is
gathered by court planners and GSA personnel, and does not
address how planning data is used in developing facility options
and recommendations for future action. The latter point in
particular is critical because the facility recommendations
determine the actions requested by each district. Simply because
a thirty-year projection is developed does not automatically
indicate that the district will request a new building to satisfy
its thirty-year needs (in fact, this seldom happens). To
determine options, the long-range planning data is used in a
collaborative effort among district, Space and Facilities
Division, and GSA personnel. This effort is not considered in
the draft report.

A review of the draft report can lead to a false conclusion
that the Space and Facilities Division can perform an isolated
mathematical process and come up with a plan. Such a conclusion
will be false. For example, the statistics gathered by the Space
and Facilities Division are only gathered at the district-wide
level. The court planners must work together through the process
to break these numbers into the specific court locations in each
district.

In addition, the data provided by the Space and Facilities
Division includes more than just caseloads, personnel, and space.
The Space and Facilities Division also provides the planning team
with socio-demographic information gathered from the 1990
Census Bureau data, an analysis of the district's past growth,
and a handbook on how to perform the process. These materials
are mailed to the district one month prior to the planning
orientation so that the court planners may have time to prepare
their responses and provide feedback. Moreover, this information
is mailed to GSA National Headquarters, to the GSA Regional

See comment 2.

See comment 3.

See comment 4.

See comment 7.

Administrative Office of the United States Courts
Space and Facilities Division
June 24, 1993

Office serving the court, and to the Executive Offices of the
U.S. Attorney, U.S. Marshal, and U.S. Trustee.

See comment 3.

During the pre-site process and the on-site orientation,
GSA is a full partner in the process. GSA contributes by
providing building inventory data, assignment drawings, and
building evaluation reports. GSA plays a crucial role in
evaluating the structural integrity of each facility, and in
developing the long-range facility options that are recommended
in each district.

See comment 3.

In summary, the GAO draft report overlooks how the data is
used, the group process, and the extensive information
coordination that takes place during the planning orientation.
We believe GAO will agree that evaluating the utility of an
entire forecasting process by focusing on only one part of many,
while omitting others, does not present an accurate picture.

FACTUAL ERRORS

Now pp. 16-17. See
comment 5.

1. Estimates of staff needs should be determined by the
district court representatives without reliance upon statistical
methods. (GAO Draft Report, p. 21.)

Final estimates of staff needs are determined by the
district court representatives without reliance upon statistical
methods.

Now p. 18. See comment
3.

2. GAO's diagram of the process is incomplete. (GAO Draft
Report, p. 22.)

The diagram of the long-range planning process does not
reflect the entire process.

Now p. 23. See comment
6.

3. The planning process is solely a two-member AOC effort.
(GAO Draft Report, p. 29.)

The process involves many more people than the "2-member"
Space and Facilities Division team. The process participants
include fifteen to forty people depending on the district.

Now p. 21. See comment
7.

4. The courts have no advance knowledge of planning
materials. (GAO Draft Report, p. 29.)

The Space and Facilities Division mails the *Projections
Package* to the court planners one month prior to performing the
orientation. The estimates of the court planners are made in
light of, or as a response to, the pre-delivered statistical

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projections and supporting data.

See comment 3.

    5.   GSA involvement is overlooked by GAO. (GAO Draft
Report, pp. 29-31.)

    This description of court-related agency projections does
not mention the involvement of GSA in terms of providing data and
on-site support. GSA's input is critical when determining the
options for each facility and performing structural evaluations.
GAO omits to mention the pre- and post-site information
coordination among the Space and Facilities Division and the
circuit councils, GSA National Headquarters, GSA Regional Office
serving the court, Executive Offices of the U.S. Attorney,
U.S. Marshal, and U.S. Trustee.

Now pp. 24-25. See
comment 8.

    6.   GSA generally uses AOC's ten-year plans to form the
basis for requests for project authorization and funding. (GAO
Draft Report, pp. 31-32.)

    GSA does not develop buildings solely upon the information
produced at the planning orientation.

Now pp. 26-27. See pp.
42-44.

    7.   GSA used AOC materials and models to develop
alternative methods for estimating the baselines. (GAO Draft
Report, p. 35.)

    The Space and Facilities Division model cannot be used to
calculate total space needs or baselines. The model is designed
to project additional growth only. The baseline data is gathered
on site with the assistance of the local court representatives
and GSA.

Now p. 28. See pp. 34-35.

    8.   Differences in assumptions reflect only changes in, and
not differences, in need. (GAO Draft Report, p. 38.)

    The changes in assumptions that are referred to in
paragraph 2, line 1, are not merely subjective. These
modifications resulted from concrete experience and changes to
the U.S. Courts Design Guide.

Now pp. 28-29. See p. 34.

    9.   Space allocations were changes by AOC. (GAO Draft
Report, p. 39.)

    A database of all planning figures has been maintained and
kept up to date since 1990. The updated features include the
current circulation figure, design guide square footage, and add-
on factors.

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10. **Add-on factors were increased without cause.** (GAO Draft Report, p. 41.)

The add-on factor is based on experience from performing detailed programming on facilities.

11. **AOC used different time-frames.** (GAO Draft Report, p. 44.)

There is little statistical significance (weight) to the very early caseload data in a forty-year profile. For long-range planning purposes, this point carries little weight. Caseloads fluctuate year to year - it is difficult to judge the validity of a five, ten, twenty, or thirty-year projection based on two or three years of experience. Bankruptcy cases exploded in 1990 and 1991, as GAO states; but now caseload growth in many bankruptcy courts is apparently slowing. The criminal caseload did slow in 1991, but now is on the rise again. The point is that a long-range forecast cannot be viewed through a short range lens. For over 200 years, the U.S. Courts have consistently grown. The year-to-year trends fluctuate, but the overall trend is one of consistent growth.

12. **AOC's growth model one justifies additional judges with lesser increase in caseloads, but does not justify a sufficient number of support staff personnel needed.** (GAO Draft Report, p. 46.)

The growth models are reflective of differences in space needs in based differences in sizes of districts. For example, in growth model one districts (i.e. small districts), there is a lower caseload average per judge. The staffing to caseload ratios are based upon the historical AOC data base, not on speculation. In 1991, there was an average of 363 unweighted cases per district judge in growth model one districts. Moreover, there is direct relationship between size of districts and case filings. As one compares growth model one districts to models two, three, and four, the average number of case filings per judge increases.

Small districts are generally more rural (e.g., District of Wyoming) and encompass larger geographical areas than larger districts. Because the caseload is often lower, fewer judges are needed. Moreover, caseloads generally comprise less complex filings in small districts than in growth model two, three, and four districts. Judges in small districts often travel to distant locations to hold court. Because of travel time and caseloads, the average filing per judge ratio is often lower in a

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small district. Also, where there are fewer judges in a
district, each judge must perform, on average, more
administrative work than judges in districts having more judges.

Section deleted.

See comment 10.

13. AOC made changes to the assumptions that directly
affected the calculation of space needs. (GAO Draft Report,
p. 48.)

Application of a specific growth model is determined solely
upon caseload with no further manipulation of the data;
therefore, the Space and Facilities Division did not place ten
districts in growth model four that would have been in growth
model three.

14. AOC should depend on statistical approach; only limit
on-site sessions to those districts that do not concur. (GAO
Draft Report, pp. 49-50.)

Recommendation deleted.
See pp. 34-35.

The on-site process is much more complex than just having
districts verify caseloads. Sensitive issues must be addressed
with the GSA representatives, and facility assessments must be
gathered. It is true that the initial phase of planning will
take five years. However, once this has been completed it will
only take two years to repeat the cycle to keep all ninety-four
plans up to date.

15. GAO used two models and AOC growth model. (GAO Draft
Report, p. 51.)

Now pp. 37-38. See pp.
42-43.

The need for deficit space has actually little to do with
growth models or caseloads. The court either does or does not
have its functionally required space. It is not possible to use
the Space and Facilities Division model to calculate current
needs, it was never designed to perform this task. Any attempt
at doing so will result in a significantly lower level of space
projection than is actually required.

Now p. 37. See pp. 54-55.

16. GAO states that the level of subjectivity involved
when local representatives identify space deficits reduces the
reliability of the results. (GAO Draft Report, pp. 51-52.)

Some subjectivity is required when gathering deficits so
that the court does not recommend moving out of facilities due to
official, but non-critical space needs.

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17. **Because current personnel figures given . . . are overstating/understating projections.** (GAO Draft Report, p. 53.)

The number of currently authorized staff is used as the starting point for the personnel projections.

18. **Subjectivity undermines the reliability of the projection process.** (GAO Draft Report, p. 61.)

The reliability of the estimates is strengthened by the "subjectivity" of the input from the court managers. Court managers add their experience and actual working knowledge of their district to the process. The managers use the Space and Facilities Division's statistical projections as a starting point for developing their assumptions. If the managers make changes to the statistical information, these changes are documented in the final report. This "expert panel" method strengthens the planning process by encouraging responsible input from managers, as opposed to a process that blindly accepts statistical data without regard to the experience, intuition, or "gut feelings" of those in the best position to provide it.

19. **"The AOC does not routinely verify the information provided by the local representatives. . ."** (GAO Draft Report, p. 65.)

This statement is factually incorrect. The plan belongs to the district and, as such, the assumptions it includes are validated through the group process that occurs during the orientation. To provide feedback to the court managers, the Space and Facilities Division produces a series of graphics and reports that compare the results of the group to the trends gathered in similar-sized districts throughout the nation. The trends so determined are validated through the qualitative methods of the focus group process and participant interviews. Such processes are standard practice in the behavioral and social sciences. Moreover, the planning team goes through the rigorous detail of cross-comparing the assumptions of all court managers.

20. **AOC undermines space needs estimates of U.S. Attorneys, U.S. Marshals, and U.S. Trustees . . . by not gathering advance data.** (GAO Draft Report, p. 66.)

The Space and Facilities Division only performs unofficial planning for the court-related agencies (i.e., the U.S. Attorney, U.S. Marshal, and the U.S. Trustee). To the contrary, the Space and Facilities Division has worked out an understanding with GSA to verify all executive branch agency projections with the

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executive office of each agency.

21. **Projecting thirty years.** (GAO Draft Report, p. 67.)

The Space and Facilities Division projects thirty years
because GSA uses this time-frame to indicate the economic life of
a facility. Projecting only ten years, as GAO suggests, is not
far enough in the future because construction of a new facility
requires from seven to ten years. Due to short-sighted planning,
some courthouses (i.e., Birmingham, St. Croix, Alexandria, etc.)
were out of space before the doors even opened. The Judicial
Conference recognized this pattern, as well as courts' space
deficits, when the decision was made to direct the Space and
Facilities Division to implement the long-range facility planning
process.

No one can project accurately for thirty years because one
cannot know the future for certain. The long-range plan is a
statement of the court's future needs which GSA uses as a part of
their decision process. For example, GSA has not built a thirty-
year building which remains unoccupied. If GSA does not have
enough non-court related agencies to fill a thirty-year request,
they do not build to the thirty-year estimate.

22. **GAO alternative method for projecting caseloads could
provide reliable estimates.** (GAO Draft Report, p. 68.)

The regression equations selected by the GAO may
"statistically" work in the short term, but over the long run
such methods will result in substantially higher caseload
projections.

23. **GAO states that AOC projections appeared to overstate
needs for the ten-year period.** (GAO Draft Report, p. 69.)

On GAO's graph, the Space and Facilities Division's process
is within the confidence level for both the five and ten-year
periods. Thus, the Space and Facilities Division projections
fall within the statistical range calculated by GAO.

24. **The process/results would be different every time with
different people.** (GAO Draft Report, p. 71.)

The exact input the Space and Facilities Division receives
at any given district cannot not be precisely duplicated given
that district court planners have different experiences. The
fallacy here is that GAO is using a statistical measure of
reliability to judge a process that is only partly statistical.

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To perform a proper reliability test, GAO must use a qualitative,
not a quantitative measure.

**25. GAO failed to understand how the AOC's growth model
categories are developed. (GAO Draft Report, Appendix I, p. 74.)**

Now p. 58.

GAO has incorrectly described how the Space and Facilities
Division determines the growth model categories. To divide the
courts into model categories, the Space and Facilities Division
process takes the mean of the total caseloads for all ninety-
four districts. Once the mean is established, there is a group
higher than the mean and a group lower than the mean. The model
is further divided by taking the mean of both these groups
thereby creating four model categories; two below the first mean
(one on either side of the mean of the group below the original
mean) and two above it (one on either side of the mean of the
group above the original mean).

Now p. 58.

An initial attempt was made to incorporate standard
deviations, but the Space and Facilities Division quickly found
that the standard deviations produced inconsistent groupings.
The process of using means is responsive to the caseload size
while keeping the number of districts in each category
comparable. Statistically, though not the most conclusive
method, experience has shown that this process holds up when
performing the long-range plans.

**26. GAO says the models on page 6 are assumptions - not
fact. (GAO Draft Report, Appendix I, p. 75.)**

Now p. 58. See comment 15.

The caseload to personnel ratios used by the Space and
Facilities Division are not assumptions as referred to by GAO.
Rather, these ratios are based on actual averages; therefore,
they are valid planning factors.

**27. AOC doesn't compute costs in developing building
options. (GAO Draft Report, Appendix II, p. 85.)**

Footnote deleted. See comment 16.

The footnote is factually incorrect. The Space and
Facilities Division does compute cost in determining the options
for each facility.

**28. GAO uses personnel-to-caseload ratios to estimate
correct staffing requirements. (GAO Draft Report, Appendix II,
p. 92.)**

Now pp. 68-69. See comment 14.

GAO is missing one crucial point: each district is unique.
The fact that caseload-to-personnel ratios are produced for each

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model, does not mean that those which differ are under or over-
staffed. More than just caseload-to-personnel averages are used
in calculating actual court staff. The averages used by the
Space and Facilities Division have only been sanctioned for long-
range planning purposes, and are not designed to calculate the
current number of authorized personnel.

29. **Baseline issue.** (GAO Draft Report, Appendix II,
pp. 92-93.)

GAO makes what we think is a critical error in performing
its baseline calculations. Table 1.2 is meant as a design guide
summary for personnelists that is to be used in the planning
process to calculate additional personnel only. To do this
evaluation correctly, GAO must use each individual space category
contained in the *U.S. Courts Design Guide*, not the summary
figures in Table 1.2. In our opinion, this error significantly
weakens the team's entire analysis because the team's analysis
relies on the baseline calculations to prove many points
concerning space needs.

ISSUES THAT NEED CLARIFICATION

1. GAO estimated the space needs for forty districts for
which long-range plans had not been completed based on the
results of the fifty-four districts for which the long-range
plans were completed. (GAO Draft Report, p. 32.)

The average of the initial fifty-four districts was not used
for the remaining forty courts. Rather, using the data from
fifty-four districts, the space needs of the other forty
districts were estimated. If the average of the fifty-four
completed plans was used, then the results could be misleading
because the larger and more complex districts were addressed
first. Thus, the internal validity of the GAO draft report is
questionable because there is not an evenly distributed sample.

2. GAO's interviews are undocumented; thus, AOC has no
opportunity to review and comments on the interviews, but would
question their validity. (GAO Draft Report, p. 34.)

Are there transcripts from the interviews? How were they
conducted? Is the information provided during the interviews
documented?

3. GAO's involvement of behavioral scientist undocumented.

During the February 19, 1993, briefing, the GAO auditors

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indicated that behavioral and social scientists reviewed the
process. However, there is no indication in the draft report
that this occurred. Did behavioral and social scientists provide
input to the draft? Could we review that input? If they did
provide input, how could it be verified if they did not
participate in the planning process?

AREAS OF AGREEMENT

1.   The districts should be treated consistently.
(GAO Draft Report, pp. 34-37.)

All districts were not treated consistently during the
planning process because of (1) changes made to the *U.S. Courts
Design Guide*, and (2) the changing add-on factor which was
modified based on experience from the actual facility programming
phase (the programming phase consists of using the general
summary figures produced during the planning process to create
highly detailed design guide breakouts for specific projects).
However, the Space and Facilities Division has maintained an
updated database for all districts since 1990, and has
implemented a formal biannual updating procedure for all long-
range plans which was commenced in May, 1992.

2.   The AOC should revise the plans performed during the
beginning phases of the process. (GAO Draft Report, p. 37.)

As mentioned in paragraph 1. above, the Space and Facilities
Division has implemented a biannual update process so that all
plans are refreshed and kept up to date with each district's
changing needs. In addition to the updating process, the Space
and Facilities Division maintains continuous contact with the
districts where building projects have been identified. To date,
the Space and Facilities Division has re-projected the planning
figures for over 75 specific project requests from the division's
space program managers, court personnel, and GSA regional staff.

3.   The AOC should have a consistent process for
identifying deficits. (GAO Draft Report, p. 43.)

It is true that the gathering of deficits was not stressed
heavily at the commencement of the planning process. However, as
the requirements analysis was performed on each identified
project, the Space and Facilities Division noticed the original
planning figures were too conservative because they did not
include current space deficits. Thus, the process was modified
by placing an emphasis on documenting in detail the space
shortages that exist at each court location. In addition,

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through the updating process current space deficits are being
gathered for all Districts. Furthermore, in October of 1992, the
Space and Facilities Division began the development of an
"AnyCourt" application, which is a computer model that will
automatically perform the detailed requirements analysis from the
long-range planning data.

Upon its completion in July of 1993, "AnyCourt" will be able
to document consistently the detailed design guide requirements
for all court locations for both current and future needs. Once
completed the "AnyCourt" application will be incorporated into
the normal long-range planning working process to produce long-
range plans.

4. The AOC should consider caseload complexity when
determining the growth model categories instead of using raw or
unweighted caseloads. (GAO Draft Report, p. 44.)

Caseload complexity and various socio-demographic variables
have high correlations with the four growth model categories.
For example, in growth model 1 (small districts) there is an
average of 1.39 defendants per criminal case commenced, while in
growth model 4 (large-complex districts) there is an average of
1.47 defendants per case (based on Table D-1. Cases and Table
D-1. Defendants, *Annual Report of the Director*, 1992).

What is implied by this brief example is that the larger the
model the more complex the criminal caseload. This relationship
also holds true for other caseload types, demographic figures,
and economic indicators. Having performed seventy-four plans to
date, the Space and Facilities Division's experience has revealed
no problems with the model categories; however, if a more
rigorous methodology is desirable, then one can be readily
incorporated into the planning process.

5. The AOC should not use "arbitrary multipliers" to
modify the caseload projections. (GAO Draft Report, p. 63.)

The multipliers are growth factors that were designed to
increase the initial caseload forecasts in twenty-four districts.
They were developed through experience and applied to the
forecasts because the Space and Facilities Division caseload
projections were consistently too low, given the assumptions
being stated by court managers. In other words, changes were
occurring in the courts that the historical data did not predict,
such as the "war on drugs," the explosive bankruptcy filing rate,
the impact of the sentencing guidelines, and the increased
federalization of crimes.

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        The multipliers were merely rough fixes to slightly boost
the caseloads until the projection model could be permanently
modified to account for the historically unanticipated changes.
They were applied because the planning process moved quicker than
the process to update the projection model. In October of 1992
the Space and Facilities Division began the task of modifying the
model so that the experience based factors or "arbitrary
multipliers" would be unnecessary. Through the updating process
the caseload projections are being recalculated to incorporate
any model changes and to utilize the input of the most recent
caseload data.

GAO Comments

The following GAO comments on the Administrative Office of the U.S. Courts' letter are in addition to those included in the report on pages 34-35, 42-44, and 54-56.

(1) AOC stated (AOC comment 2 under Discrepancies and Misunderstandings) that our description of its methodology was not correct—its projections are generated by averaging the results from two analyses rather than the five that we showed in our draft report. In the course of our work, a document provided by the AOC consultant confirmed the averaging of the results from five regression models to generate the caseload estimates. Although we modified the text to indicate that AOC uses linear and quadratic formulas during the projection process, our criticism remains the same. Regardless of whether two or five analyses are averaged, regression results cannot be averaged to produce meaningful estimates.

(2) AOC stated (AOC comment 2 under Discrepancies and Misunderstandings) that reforecasts are made at the request of the local representatives. On page 46 we discuss the implications of the reforecasts now being used by AOC. We do not agree with AOC's statement that a reforecast "does not invalidate the process because the reforecast is based on actual data of the professional experts." The local representatives provide to the AOC team only estimates of future staff/space needs formulated from their experiences. These estimates do not equate to the actual caseload data that would be required to perform reforecasts using acceptable statistical methods.

(3) We agree with AOC that the long-range planning process is only one step in a multiphase procedure for the acquisition and/or alteration of judicial facilities (AOC comment 3 under Discrepancies and Misunderstandings). However, our task was to evaluate the reasonableness of the methodology used by the courts to project long-range space needs. For this reason, our draft report did not include a detailed discussion of how GSA or OMB uses the plans to prepare and/or to revise building prospectuses.

We agree that GSA plays an important role in the building acquisition process, particularly in the structural assessment of existing facilities. However, this role is not an integral part of AOC's long-range planning process for estimating future space needs. GSA's primary function is performed after AOC establishes future space needs, when the existing facility is evaluated to determine the potential for expansion or the need

for new construction. When GSA begins the development of specific plans for a facility, AOC's 10-year projections become the basis for determining the amount and type of space that will be required to house the projected number of staff.

(4) AOC stated (AOC comment 3 under Discrepancies and Misunderstandings) that we incorrectly concluded that a mathematical procedure could be used to come up with a plan. AOC stated that the statistics gathered by the Space and Facilities Division (SFD) are gathered only at the district level. We do not disagree that the data used by SFD are aggregated by districts; however, the database that is the source of this data also contains an identifier for specific court locations within each district. If AOC used this objective source rather than the subjective information obtained during the on-site sessions, we believe the estimates would be more reliable.

(5) AOC requested (AOC comment 1 under Factual Errors) that the words "should be" be changed to "are." Because we defined the assumptions as the way the process was meant to operate, we did not change the text.

(6) AOC stated (AOC comment 3 under Factual Errors) that the on-site sessions involved more people than we indicated. We stated in our draft report on what is now page 23 that the two-member AOC team, local court representatives, representatives from the related agencies, and GSA attended the on-site sessions. In a footnote we identified the two-member AOC team. We believe we adequately identified the on-site participants; therefore, we made no change to the text.

(7) AOC indicated (AOC comment 3 under Discrepancies and Misunderstandings and comment 4 under Factual Errors) that in our draft report we erroneously stated that the local representatives received no advance information. On what is now page 23 of the report we described the materials provided to local representatives prior to the on-site session. Our further statement now on page 23 of the report states that the local representatives did not receive information directly relating to the caseload projections. Because we believe the draft text was adequate, we did not make any change.

(8) AOC commented (AOC comment 6 under Factual Errors) that GSA does not develop buildings solely upon the information from the on-site sessions. On the other hand, GSA officials told us that they generally use AOC's 10-year plans to form the basis for requests for project authorization

and funding. As per GSA's comments, we modified our draft report to indicate that GSA regional offices may, if they believe the situation warrants, request additional information when an actual building prospectus is being prepared. However, GSA does not routinely request such additional information.

(9) AOC indicated (AOC comment 11 under Factual Errors) that although there have been year-to-year fluctuations in caseloads, the trend over the last 200 years has been consistent growth. While AOC stated that the short-term fluctuations should not be considered during long-range planning, we believe that the current short-term fluctuations adversely affected AOC's projections of future space needs. We believe that because AOC did not include for some districts the significant changes that occurred during 1990 and 1991, this resulted in an inaccurate assessment of needs for some court components. The bankruptcy caseload was underestimated in those districts that were completed prior to 1991, and the criminal caseload was overestimated in these same districts.

The fact that short-term fluctuations do occur in judicial caseloads provides further support for the use of an acceptable statistical methodology for estimating caseloads rather than relying upon qualitative methods. We discuss in the report several sophisticated statistical techniques that will generate accurate projections that take into account the fluctuations that occur over time. (See p. 53). Rather than minimizing the fluctuations that occurred, such procedures generate projections on the basis of the probability that these will occur in the future.

We believe that caseload fluctuations further complicate the task of qualitatively estimating future needs. Local representatives are likely to view future needs primarily in terms of recent caseload changes without considering that this may be only a temporary fluctuation that is not indicative of what will happen over time. (See pages 54-55 for a detailed discussion of the lack of reliability associated with qualitative methods.)

(10) During our audit work, we found that the actual method AOC used to produce growth models differed from the way AOC described the procedure. Rather than using the mean and standard deviations to differentiate among the groups, AOC calculated an overall mean to separate groups one and two from three and four. The mean for each of these two groups was then computed and used to define the four growth models. In our draft report, we included a section that described this ambiguity and showed that 10 districts were misplaced during 1992. As a result of AOC's

comment (AOC comment 13 under Factual Errors), we deleted the section dealing with the ambiguity and modified the section of the report that deals with the categorization methodology.

(11) AOC stated (AOC comment 17 under Factual Errors) that "the number of currently authorized staff is used as the starting point for the personnel projections." Because this was recognized in our draft report, we did not change the text.

(12) AOC commented (AOC comment 20 under Factual Errors) that it does not "undermine" space needs for related agencies because it performs only unofficial planning for them. In our report we do not imply that these needs are undermined, but rather that the process produces unreliable results for the related agencies. The estimation of future space needs for the related agencies relies totally upon the subjective input from local representative at the on-site session. (See pages 54-55 for a discussion of the lack of reliability associated with qualitative methods of projecting needs.) Because workload data are not readily available for these agencies, we could not assess the accuracy of the results. Because the 10-year estimates being produced through the AOC process are being used by GSA to determine future needs without further verification, we believe that a more reliable way of dealing with these estimates is needed. However, we recognize that this is an issue over which the AOC Director has little control; therefore, we did not make a recommendation to implement a change in this part of the process.

(13) In response to AOC's comments (AOC comment 23 under Factual Errors) we modified the text on page 51 to state that because AOC did not use an acceptable statistical methodology, its estimates cannot be compared mathematically to estimates that were produced by a standard statistical method. This modification is an expansion of the statement in our draft report.

(14) AOC stated (AOC comment 12 under Factual Errors) that within the growth models there is a direct relationship between the size of districts and caseloads. We stated that those districts in growth model 1 required a smaller increase in caseload to justify an additional judge than did those in the other growth models. At the same time, these same districts required a greater increase in the number of judges to justify additional support staff. We did not refer to the numbers as sufficient or not sufficient. Because this is a nonjudgmental statement but merely a statement of fact, we did not modify the text.

(15) AOC stated (AOC comments 25 and 26 under Factual Errors) that because the caseload-to-personnel ratios are based on actual averages, they are valid planning factors. In response to these comments we modified the text on page 58 to show how these ratios are formulated. However, our position is that until the growth models are validated as accurately grouping districts on factors that relate to space needs, ratios based on group averages cannot be assumed to be valid.

(16) We agree that AOC computes costs in developing building options (AOC comment 27 under Factual Errors). Therefore, we deleted a footnote that appeared in the draft report. We further believe that this step in the process is beyond the coverage of this report.

(17) AOC stated (AOC comment 1 under Issues that need Clarification) that we should not have used data from the 54 districts to generalize to the universe. As we state on pages 67-68 of our report, in projecting from the completed districts to those not yet completed, we assumed that the growth rates would be similar. Before we applied this methodology we examined the rate of growth for the completed districts within each of the growth models and determined that our assumption was valid.

(18) AOC stated (AOC comment 2 under Issues that need Clarification) that it had no opportunity to review and comment on our interviews and would question their validity. We followed the GAO standard auditing procedure as defined in the GAO Policy and Procedures Manual, the Communications Manual, Government Auditing Standards, and other relevant procedural guidelines when preparing our interview writeups.

(19) AOC questioned GAO's involvement of a behavioral scientist in the internal review process (AOC comment 3 under Issues that need Clarification). GAO policies define the specific qualifications required of individuals who perform the "referencing" role for draft reports. These persons review all evidence obtained by the audit team to determine whether the information in the files supports the statements made in the report. This was the role of the social scientist to whom AOC referred.

(20) On the basis of AOC's statement (AOC comment 5 under Areas of Agreement) that the multipliers are no longer used, we modified the appropriate sections of the report. However, our concern is that AOC now performs a "reforecast" when the estimates appear to be too low. Because there are no clearly defined criteria for the selection of a method for generating the "reforecast," our criticism remains the same. The results are

not reliable. Given a different time or different individuals, the selection of the method may be different and the results produced may be different.

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Glossary

Adaptive Filtering	A forecasting method that uses errors in past forecasts, assuming that the forecasting method had been in operation at the earlier point in time, to develop weights that will improve future forecasts.
Add-on Factor	The percentage that AOC applies to space allocations when converting staffing estimates to space needs; composed of a circulation factor and a contingency factor.
Administrative Office of the U.S. Courts	The administrative portion of the federal judicial system.
Assumption Letters	Documents prepared by local district representatives as support for the estimates of future staff provided to AOC during the on-site planning sessions.
Auto-Regressive Moving Averages	A forecasting method that uses a weighted moving average to make future estimates; the weights are established by the forecaster.
Baseline	The amount of space within a district that forms the foundation to which future estimates are added.
Caseloads	Judicial workload consisting of the number of civil and criminal cases commenced, bankruptcy filings, and number of persons under supervision.
Circulation Factor	A percentage that AOC adds to space allocations to account for internal circulation, such as hallways (see add-on factor).
Confidence Interval	A statistical procedure that allows for the estimation at a defined probability level that the population value will fall within defined upper and lower limits.
Contingency Factor	A percentage that AOC adds to space allocations to account for space not directly associated with individual staff, such as jury assembly rooms, records and supplies storage areas, and copier areas (see add-on factor).

Court Components	The six components that may be found within a district's space include the district court, the bankruptcy court, the circuit court, the probation office, the pretrial office, and the public defenders' office.
Court-Related Agencies	Those agencies whose functions are related to the judiciary and whose space needs are included by GSA as part of the judiciary space and, therefore, are included as part of the long-range planning process—the U.S. Attorneys' office, the U.S. Marshals Service, and the U.S. Trustee's office.
Deficits	The difference between the space currently occupied by a court component or related agency and the amount of space that the U.S. Courts Design Guide shows as appropriate for that unit or for that function.
Exponential Model	A regression equation that is appropriate when the distribution of the data being used to make a forecast exhibits an initial sharp increase followed by a sharp decline with a long-term leveling-off effect.
General Services Administration	The executive branch agency whose responsibilities include establishing policy for and providing economical and efficient management of government property, including the construction and operation of buildings for various federal agencies and for the judicial branch.
Growth Models	The four categories into which AOC annually places judicial districts in order to establish the ratios used to translate caseloads into staff needs.
Judicial Conference	The policymaking body for the federal judicial system.
Linear Model	A regression equation that is appropriate for use when the distribution of the data being used to make a forecast exhibits a continuing gradual increase or decrease.
Log Transformation	A statistical procedure used often in forecasting to smooth out irregularities in the distribution of the data upon which the forecast is based.

Multiplier	One of a set of numbers between 1.0 and 1.8 that AOC applies to caseload projections when the estimate seems "too low."
Persons Under Court Supervision	Persons who have been placed under court supervision either pending trial or sentencing or as a consequence of a guilty sentence that includes probation.
Regression Analysis	A statistical procedure for estimating the value of one variable (Y) using information about an associated variable (X).
Reliability	A statistical term that relates to the probability that the same results would be reproduced given similar conditions if the process were repeated.
U.S. Attorneys Office	A Department of Justice component whose responsibilities include the prosecution of criminal defendants in federal courts.
U.S. Courts Design Guide	A judiciary document intended to provide recommended space allocations when court space is designed; used by AOC in the long-range planning process to convert staff estimates to space needs.
U.S. Marshals Service	A Department of Justice component whose responsibilities include providing security within buildings occupied by employees of the federal judiciary or related agencies.
U.S. Trustees	A Department of Justice component whose responsibilities include providing administrative support for the bankruptcy courts.

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