

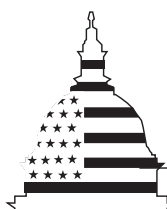
GAO

Report to the Chairman, Subcommittee
on Civil Service and Agency Organization,
Committee on Government Reform,
House of Representatives

April 2001

FEDERAL
EMPLOYEE
RETIREMENTS

Expected Increase
Over the Next 5 Years
Illustrates Need for
Workforce Planning



G A O

Accountability * Integrity * Reliability

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

April 27, 2001

The Honorable Joe Scarborough
Chairman, Civil Service and Agency
Organization Subcommittee
Committee on Government Reform
House of Representatives

Dear Mr. Chairman:

If the federal government is to effectively and efficiently manage the tasks and programs assigned to it through legislation, it must have a sufficient and qualified workforce. Ensuring that such a workforce will be in place in the future requires that federal agencies know what their skill needs will be, how well their workforces will meet those needs, and how those workforces will change over time. One important element that agencies must consider in their workforce planning is the number and kinds of employees they will lose to retirement. This consideration is important because retirees often represent an agency's most experienced and knowledgeable staff. Reports about the increasing numbers of federal employees who will become eligible to retire over the next few years have raised questions about whether the government will be adequately prepared to meet any problems that could arise as a result of retirements. If large numbers of employees retire over a relatively short period and agencies are not effective in replacing them with the appropriate number of employees possessing the needed skills, the resulting loss of institutional knowledge and expertise could adversely affect mission achievement. The importance we place on workforce planning, including planning related to employee retirements, is illustrated by our recent designation of strategic human capital management as a governmentwide high-risk area that needs urgent attention to ensure that the federal government functions economically, efficiently, and effectively.¹

¹ *High-Risk Series: An Update* (GAO-01-263, Jan. 2001) and *Human Capital: Meeting the Governmentwide High-Risk Challenge* (GAO-01-357T, Feb. 2, 2001).

Because of the problems that could occur with large numbers of retirements, you asked us to determine how many federal employees are likely to retire in the relatively near future. As agreed with your office, we (1) estimated the number of employees who would be eligible to retire and the number who would actually retire collectively and by agency for the 24 federal agencies that fall under the Chief Financial Officer (CFO) Act² for fiscal years 1999 through 2006, and compared those estimates with the number of employees who were eligible and actually retired during fiscal years 1991 through 1998; and (2) assessed actual and estimated eligibility and retirement for the same periods for selected occupations critical to the 24 agencies. We used data from the Office of Personnel Management's (OPM) Central Personnel Data File (CPDF) to determine actual eligibility and retirement numbers for fiscal years 1991 through 1998 and used standard statistical methods to estimate these numbers for fiscal years 1999 through 2006. We surveyed the 24 agencies to determine the occupations they considered critical to accomplishing their missions and assessed the retirement picture for 29 of those occupations. We did our work from November 2000 through March 2001 in accordance with generally accepted government auditing standards. Details on our methodology are in appendix I.

Results in Brief

A substantial portion of the federal workforce will become eligible to retire, and many who are eligible will retire between fiscal years 1999 and 2006. We estimate that by 2006 about 31 percent³ of the CFO agency employees working in 1998, or 493,000 people, will be eligible to retire, and that through the end of 2006 about half of the eligible employees (236,000 people, the equivalent of 15 percent of the 1998 workforce) will actually retire. This 15-percent retirement rate is higher than the actual rate for fiscal years 1991 through 1998, which was 11 percent.

The estimated proportion of employees working in 1998 who will be eligible to retire by 2006 varied substantially across the 24 agencies we

² These 24 agencies account for about 98 percent of Executive branch employees excluding the Postal Service, the Federal Reserve, the Tennessee Valley Authority, and intelligence agencies.

³ The eligibility estimate of 31 percent is based on cumulative data, which includes those already eligible and those reaching retirement eligibility between fiscal years 1999 through 2006 less the estimated 4 percent who are estimated to leave before they become eligible to retire.

reviewed. Estimated retirement eligibility rates range from 24 percent at the Department of Justice (DOJ) to 50 percent at the Agency for International Development (AID). Three-quarters of the agencies are estimated to have eligibility rates of 30 percent or more. Estimated retirement rates through fiscal year 2006 also vary across agencies. They range from 7 percent at the National Aeronautics and Space Administration (NASA) to 29 percent at AID. One-third of the 24 agencies will experience retirement rates of 18 percent or more.

For those occupations that agencies consider critical to the accomplishment of their missions, retirements are likely to be particularly challenging for some agencies. We estimate that 25 of the 29 critical occupations we analyzed will experience a retirement eligibility rate of 30 percent or more. The rates range from 27 percent for aerospace and electronic engineers to 53 percent for program managers. In addition, we estimate that 17 of the 29 occupations will experience retirement rates of 18 percent or more, with a range of from 8 percent for electrical engineers to 30 percent for program managers. These rates represented the 24 agencies combined, and some occupations within certain individual agencies will experience substantially higher rates.

The overall annual retirement rate that we estimate—about 2 percent per year—does not appear overwhelming, but it represents a major workforce planning challenge. Retirement estimates for the 24 CFO agencies are close in magnitude to the number of employees federal agencies eliminated to reduce the size of the federal workforce in response to the enactment of the Federal Workforce Restructuring Act from 1994 through 1998. Some agencies have experienced personnel-related problems since that downsizing, such as the loss of institutional knowledge, increased work backlogs, and skill imbalances, which affected their ability to carry out their missions. Agencies' experiences with downsizing may provide insight for managing future expected retirement losses. We concluded that many of the unintended results from downsizing could have been mitigated had agencies done adequate strategic and workforce planning. The retirement rates we estimated for individual agencies and for critical occupations within agencies demonstrate the importance of each agency undertaking workforce planning. For example, while replacing 10 percent of a workforce over 8 years should be manageable with effective planning, replacing 25 percent is obviously much more challenging, especially if that includes replacing employees in hard-to-recruit critical occupations.

In commenting on the report, OPM agreed that workforce planning is critical for assuring agencies have sufficient and appropriate staff and is especially important considering expected increases in employee retirements.

Background

The federal workforce is in flux. The demographics of the workforce and the education and skills workers need to enable agencies to accomplish their missions are changing and will likely change even more in the future. The work that federal agencies perform increasingly requires employees who can use new technologies and are open to continuous learning to upgrade their skills and acquire new ones. Federal hiring is complicated by the fact that agencies face a more competitive job market than in the past. A compounding factor is the common expectation that a growing number of retirement eligible federal employees will be retiring over the next 5 years and that those retiring are often the most experienced and knowledgeable employees. Other factors, such as the loss of federal employees to the private and nonprofit sectors, may further increase the difficulty of managing a changing federal workforce.

To effectively deal with the expected retirements and other workforce challenges, an essential step for agencies is workforce planning—a process to identify human capital needs, assess how current staff and expected future staff will meet those needs, and create strategies to address any shortfalls or imbalances. As we have reported, the high-performing organization typically addresses its current and future workforce needs by estimating the number of employees it will need; the knowledge, skills, and abilities these employees will need to have for the organization to accomplish its goals; and where employees should be deployed across the organization.⁴ High-performing organizations use this information to create strategies for identifying and filling gaps. OPM is on record supporting the need for federal agencies to use workforce planning to ensure that they have adequate staffs to accomplish their missions.⁵ The National Academy of Public Administration has also reported on the importance of workforce planning as a means of achieving a workforce that has the right person in the right place at the right time.⁶

The workforce of the 24 CFO agencies declined significantly from 1992 through 1998, from 2.2 million civilian employees to 1.8 million. Our view is that the widespread lack of attention to strategic human capital management in the past—including insufficient workforce planning during downsizing—has created a fundamental weakness in the federal government’s ability to efficiently, economically, and effectively deliver products and services to the public now and in the future. Consequently, we recently designated strategic human capital management as a governmentwide high-risk area.⁷ One of the problems we identified across a range of federal agencies that led us to make this designation is particularly relevant to this report—that is, difficulties in acquiring and developing staffs whose size, skills, and deployment meet agency needs. With the aging of the federal workforce and the need to replace retirees, this challenge will likely become even more urgent in coming years.

⁴*Human Capital: Key Principles from Nine Private Sector Organizations* (GAO/GGD-00-28, Jan. 31, 2000).

⁵*Strategic Human Resources Management: Aligning with the Mission* (OPM, MSE-99-8, Sept. 1999).

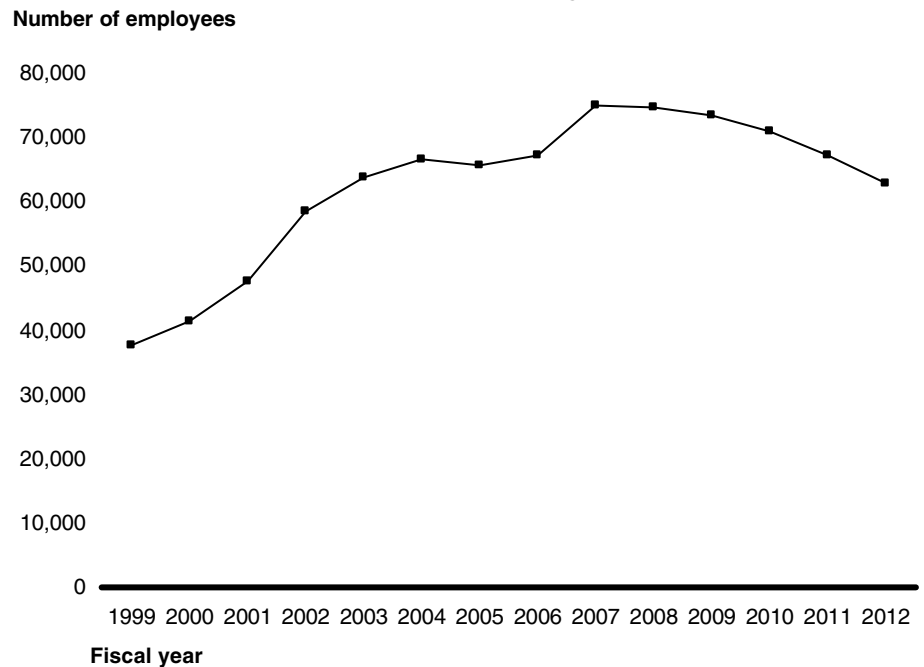
⁶*Building the Workforce of the Future to Achieve Organizational Success*, National Academy of Public Administration, Dec. 1999, Washington, DC.

⁷*High-Risk Series: An update* (GAO-01-263, Jan. 2001).

Increasing Losses of Federal Employees Estimated

An increasing number of federal employees will become eligible to retire over the next several years. Most federal employees do not retire immediately upon reaching eligibility, and we estimated that they will put off retirement longer than in the past. Nevertheless, the number of federal workers retiring each year over the next 5 years will be higher than during the preceding 8-year period. We estimated that the magnitude of retirement losses alone from 1999 through 2006 will result in workers leaving at a rate greater than the losses the government experienced during the downsizing from 1994 through 1998. Figure 1 shows that the number of CFO agency employees becoming eligible to retire will generally rise until fiscal year 2007, after which it will gradually decline.

Figure 1: Number of CFO Agency Career Federal Employees Becoming Eligible to Retire for the First Time, Fiscal Years 1999 Through 2012



Note: Estimates do not reflect likely attrition before becoming eligible to retire.

Source: GAO analysis of CPDF data as of Sept. 30, 1998.

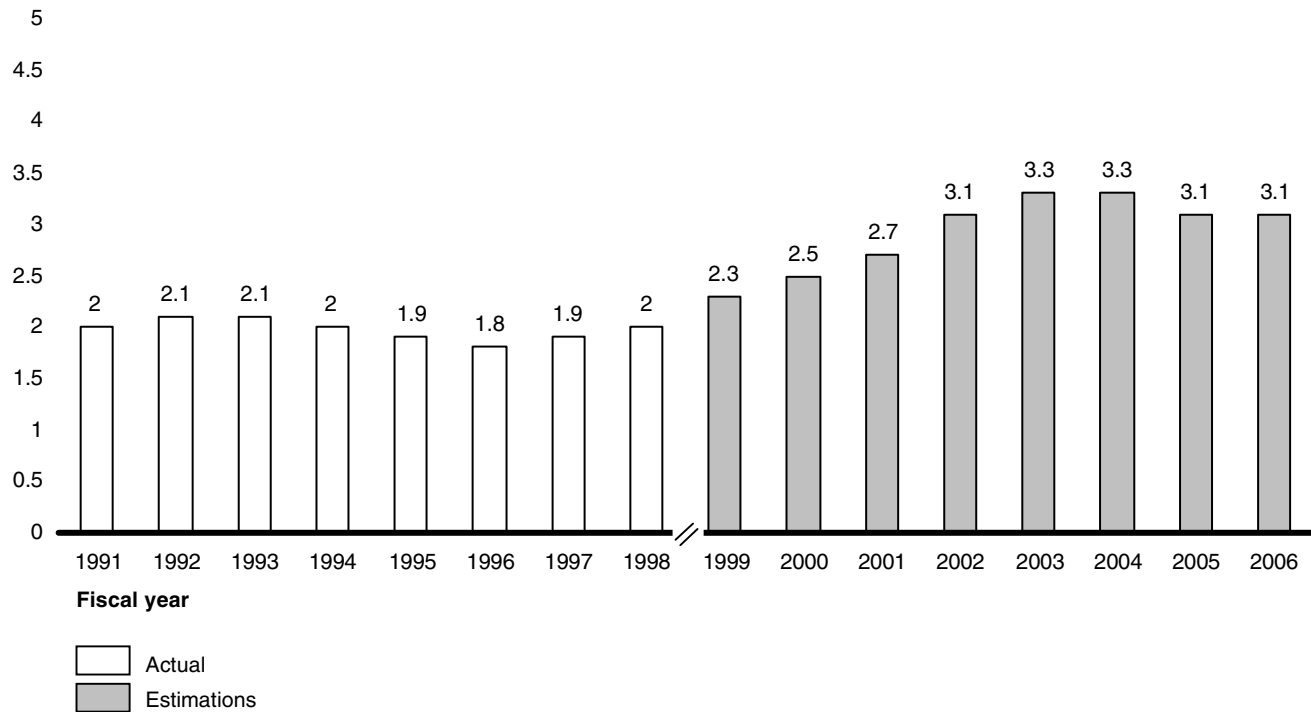
A common estimate of federal retirement eligibility is cumulative and suggests that 35 percent of the CFO agencies' 1998 workforce will be eligible to retire by 2006. In this report, however, we adjust the cumulative

estimate to account for employees who can be expected to leave federal service before becoming eligible to retire. Our analysis of CPDF data shows that 0.55 percent of federal employees left federal service each year in the 8 years prior to their eligibility dates. Eliminating those expected to leave prior to reaching retirement eligibility reduces the percentage of the 1998 workforce who will be eligible to retire by 2006 to 31 percent (with about 23 percent of those employees becoming eligible for the first time between 1999 and 2006).

Figure 2 illustrates the percentage of federal employees who became eligible each year between 1991 through 1998 and the percentage estimated to become eligible each year between 1999 and 2006. Between fiscal years 1991 and 1998, the percentage of employees who became eligible to retire each year ranged from 1.8 to 2.1 percent. The percentage estimated to reach eligibility each fiscal year between 1999 and 2006 ranges from 2.3 to 3.3 percent.

Figure 2: Percentages of the 1990 and 1998 Workforce Becoming Eligible to Retire in Each Year, in the Subsequent 8-Year Periods (Accounting for Attrition)

Percentage of total federal workforce eligible to retire for the first time



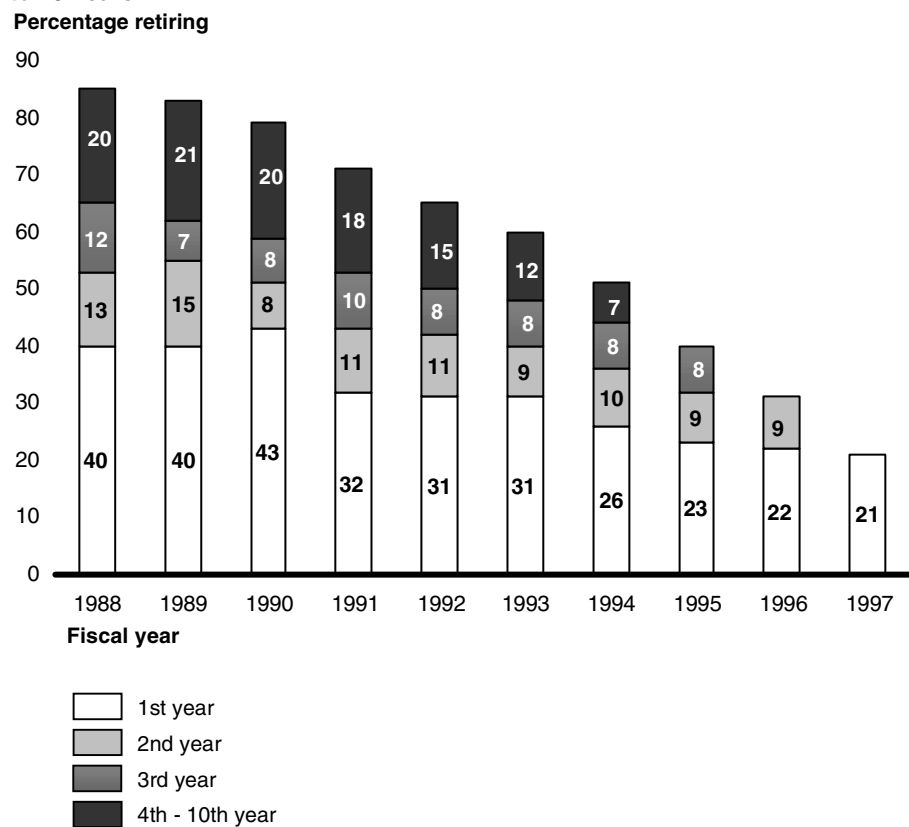
Source: GAO analysis of CPDF data.

Upon reaching retirement eligibility, employees may leave immediately or continue working.⁸ Based on estimates derived from federal retirement trends over the past 10 years, there is a consistent downward trend in the likelihood of employees retiring within the first few years of eligibility. As figure 3 indicates, federal employees have become less likely—by roughly 50 percent—to retire within their first year of eligibility. About 21 percent of the employees who became eligible to retire in fiscal year 1997 retired during their first year of eligibility. This is a 19-percentage point decrease from 1988, when 40 percent of those becoming eligible to retire actually did so. We did not attempt to determine why an increasing number of

⁸Law enforcement officers and firefighters are subject to mandatory retirement requirements; however, some continue working longer with waivers.

employees continue to work past their eligibility for retirement, because it was outside the scope of this report. However, labor force data maintained by the Bureau of Labor Statistics show that private sector workers are also remaining in the workforce longer. The percentage of private sector workers still working at age 65 or older increased from 10.8 percent in 1985 to 12.8 percent in 2000.

Figure 3: Percentage of Each Year's New Retirement Eligibles who Retired Within 1 to 10 Years



Note: Each column represents the aggregate percentage of the year's new retirement eligibles that have retired as of September 30, 1998. The difference between the aggregate percentage and 100 percent represents the percentage that were still in federal service as of September 30, 1998. The top block in the chart--retirements in the fourth year or later after eligibility--is 1 year less for each year after 1988. For example, there are 9 years of separation data for 1989 eligibles, so the top block represents retirements within 4 to 9 years of eligibility; for 1990 eligibles, it represents retirements within 4 to 8 years of eligibility, etc.

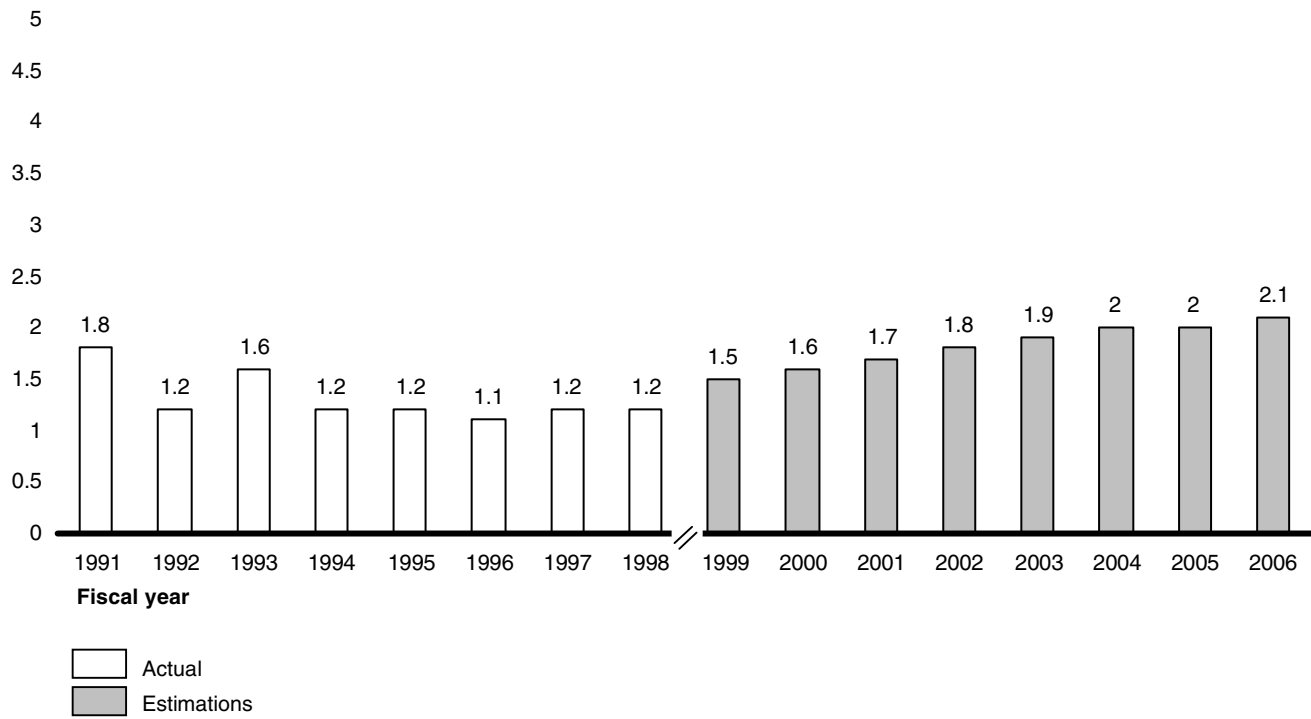
Source: GAO analysis.

On the basis of actual retirement trends from 1988 through 1998, we estimated that 15 percent of the fiscal year 1998 workforce will retire between 1999 and 2006 or a rate of about 2 percent a year. If Congress broadens agencies' buyout authorities or makes other changes to civil service laws, a greater but unestimated number of employees may retire.⁹ The projected 15-percent retirement represents a 4-percentage point increase from retirements taken without buyouts in fiscal years 1991 through 1998. In that 8-year period, nearly 202,500 career employees (11 percent) took voluntary or mandatory retirements without buyouts and an additional 61,000 career employees retired with buyouts. We estimated that 63 percent of the employees who become eligible to retire each year from 1999 through 2006 will retire within 10 years after their eligibility dates. Most of these retirements are likely to occur within 4 years of eligibility. See figure 4 for a comparison of past and projected retirements.

⁹We did not attempt to estimate retirements associated with future buyouts because we could neither estimate how many agencies would be given buyout authority, the nature of that authority, nor to what extent agencies would use buyouts.

Figure 4: Past and Estimated Federal Workforce Retirements as a Percentage of the Fiscal Year 1990 or Fiscal Year 1998 Workforce

Percentage of total federal workforce retiring or estimated to retire



Source: GAO analysis of CPDF data.

The retirement estimations from 1999 through 2006 are close in magnitude to the number of positions cut by federal agencies under Federal Workforce Restructuring Act from fiscal years 1994 through 1999. The act required agencies to eliminate 272,900 full-time equivalent (FTE) positions by 1999. The human capital shortfalls that developed during this downsizing may provide insight for managing the expected future retirement losses. In response to a 1995 survey, several agencies said that mandated downsizing resulted in a loss of institutional memory, increased work backlogs, and skill imbalances.¹⁰ Half of the 24 agencies surveyed said that the downsizing hindered their ability to carry out their missions. As a result of federal downsizing efforts, many federal agencies have done only limited recent recruiting and hiring. According to an OPM report on downsizing, one of the top three strategies for accomplishing downsizing was the hiring freeze.¹¹ As our work at federal agencies has shown, downsizing without appropriate attention to maintaining the needed number of skilled employees has impaired some agencies' ability to perform their core missions.¹² Without adequate workforce planning and succession strategies, the possibility exists that similar imbalances may result from retirement-related losses expected over the next 5 years, particularly at agencies with higher proportions of staff becoming eligible for retirement.

Projected Eligibility and Retirements Rates Differ Among Agencies

As figure 5 shows, the percentage of employees in the 1998 federal workforce in each agency who will be eligible to retire by the end of fiscal year 2006¹³ will be substantial at all 24 of the agencies we reviewed. Every agency except one will see at least a quarter of its workforce eligible for retirement by 2006.

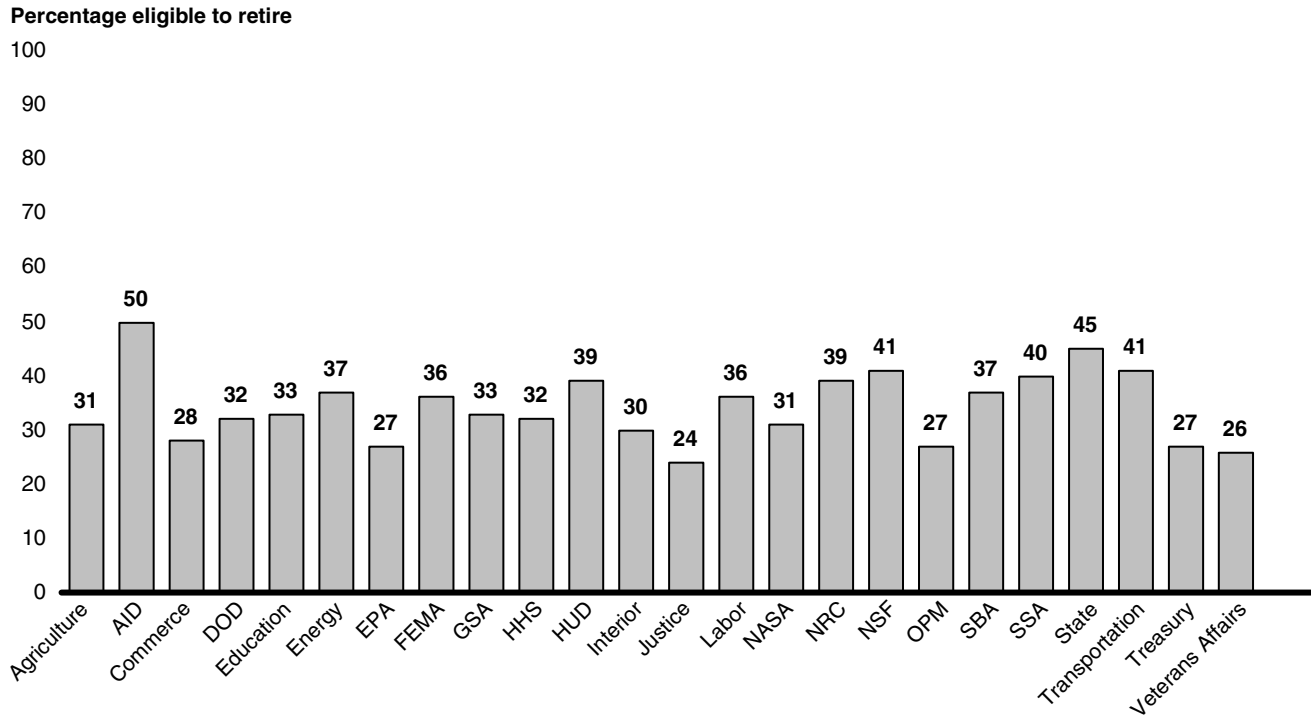
¹⁰*Federal Downsizing: Better Workforce and Strategic Planning Could Have Made Buyouts More Effective* (GAO/GGD-96-62, Aug. 26, 1996).

¹¹*Report of an Oversight Special Study: Downsizing in the Federal Government*, OPM, Office of Merit Systems Oversight and Effectiveness, Karen Bandera and Sherman Chin, (Aug. 1998).

¹²See *Human Capital: Managing Human Capital in the 21st Century* (GAO/T-GGD-00-77, Mar. 9, 2000) and *Human Capital: Meeting the Governmentwide High-Risk Challenge* (GAO-01-357T, Feb. 1, 2001).

¹³Estimates for retirement eligibility exclude roughly 5 percent of the fiscal year 1998 workforce who would become eligible between fiscal years 1999 and 2006 but are projected to leave prior to reaching retirement eligibility.

Figure 5: Percentage of Each Agency's Fiscal Year 1998 Workforce Who Will Be Eligible to Retire as of the End of Fiscal Year 2006

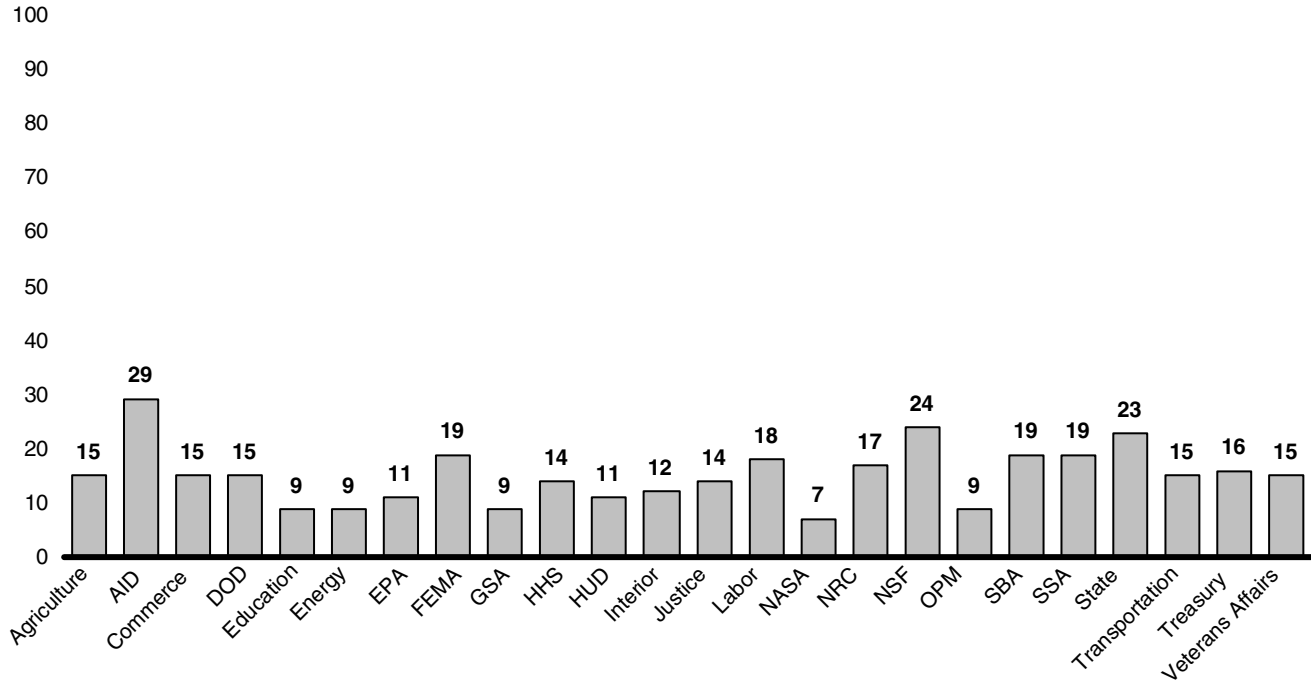


Source: GAO analysis of CPDF data.

Based on past retirement patterns at each of the 24 CFO agencies, we calculated retirement estimates for each agency, for fiscal years 1999 through 2006.¹⁴ We estimated that retirements will range from about 7 percent of the 1998 workforce at NASA to about 29 percent at AID. Because the size of each agency's 1988 workforce and the estimated retirement rates differed, the number of estimated retirements ranges from a low of 258 employees at the National Science Foundation (NSF) to a high of nearly 97,000 employees at Department of Defense (DOD). Figure 6 shows our retirement estimates for each of the 24 agencies.

¹⁴ The Federal Bureau of Investigation (FBI) does not submit personnel action data to the CPDF. Consequently, retirement probabilities for FBI employees are based entirely upon the historical retirement data of all other Justice employees.

Figure 6: Percentage of Each CFO Agency's Fiscal Year 1998 Workforce Who We Estimate Will Actually Retire by 2006
 Percentage estimated to retire



Source: GAO analysis of CPDF data.

Estimated eligibility and retirement rates also likely vary at the component level within agencies. Thus, even those agencies that have relatively low agencywide percentages of employees estimated to retire may have components that will be heavily affected, which in turn could affect the accomplishment of mission tasks and strategic goals for agency components and for the agency as a whole. For example, while NASA is projected to lose only 7 percent of its staff at the agency level, some of its components could be affected severely by losses. As a result of NASA complying with the FWRA, several NASA and Aerospace Safety Advisory Panel studies concluded that the shuttle program workforce has suffered significantly from the agency's past downsizing.¹⁵ The studies concluded that the workforce may not be sufficient to support the planned shuttle flight rate and many key positions are not sufficiently staffed by qualified workers. Retirements that disproportionately affected specific areas, such as the space-shuttle program, could severely effect NASA's ability to meet mission objectives.

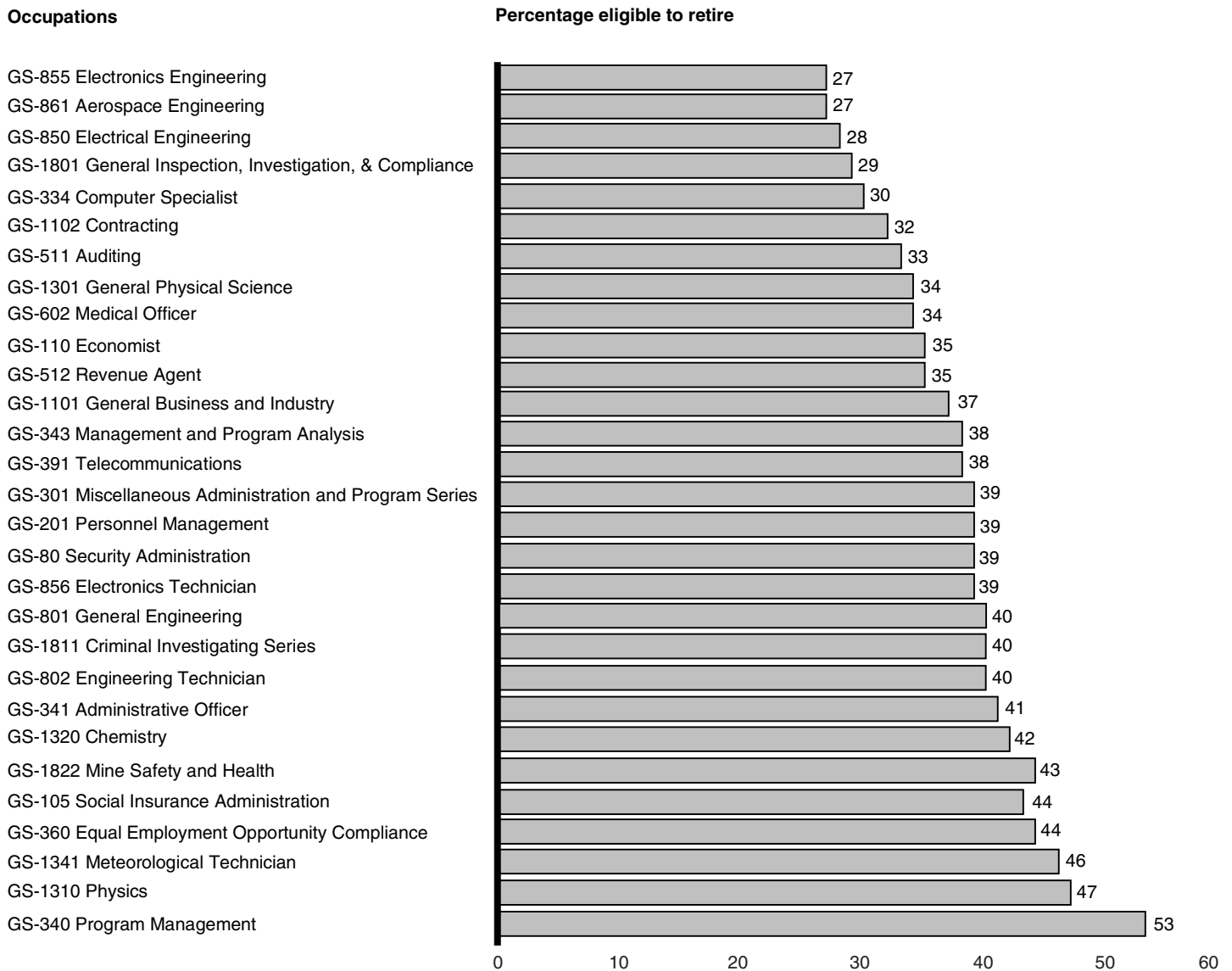
The availability of workers with the necessary skills can also affect an agency's ability to replace retiring workers. For example, NRC is estimated to lose about 7 percent of its staff. However, NRC's ability to maintain the skills needed to achieve its mission and fill gaps created by retirement eligibilities could be threatened by the decline in university enrollments in nuclear engineering and other fields related to nuclear safety.

Projected Eligibility and Retirement Rates Differ Among Mission-Critical Occupations

Just as retirement eligibility and actual retirements will vary among agencies, we estimated that they will also vary among the 29 mission-critical occupations we reviewed. The percentage of employees estimated to reach retirement eligibility over the next several years will be substantial for many occupational series. As figure 7 indicates, between 27 percent and 53 percent of the 1998 employees in the selected occupations will be eligible to retire by the end of fiscal year 2006.

¹⁵*Independent Assessment of the Shuttle Processing Directorate Engineering and Management Processes, NASA's Human Exploration and Development of Space Independent Assessment Office* (Nov. 4, 1999); *Report to Associate Administrator, Office of Space Flight, Space Shuttle Independent Assessment Team* (Mar. 7, 2000); and *Annual Report for 1999, Aerospace Safety Advisory Panel* (Feb. 2000).

Figure 7: Estimated Percentage of Selected Mission-Critical Occupation's Fiscal Year 1998 Workforce That Will Be Eligible to Retire as of the End of the Fiscal Year 2006

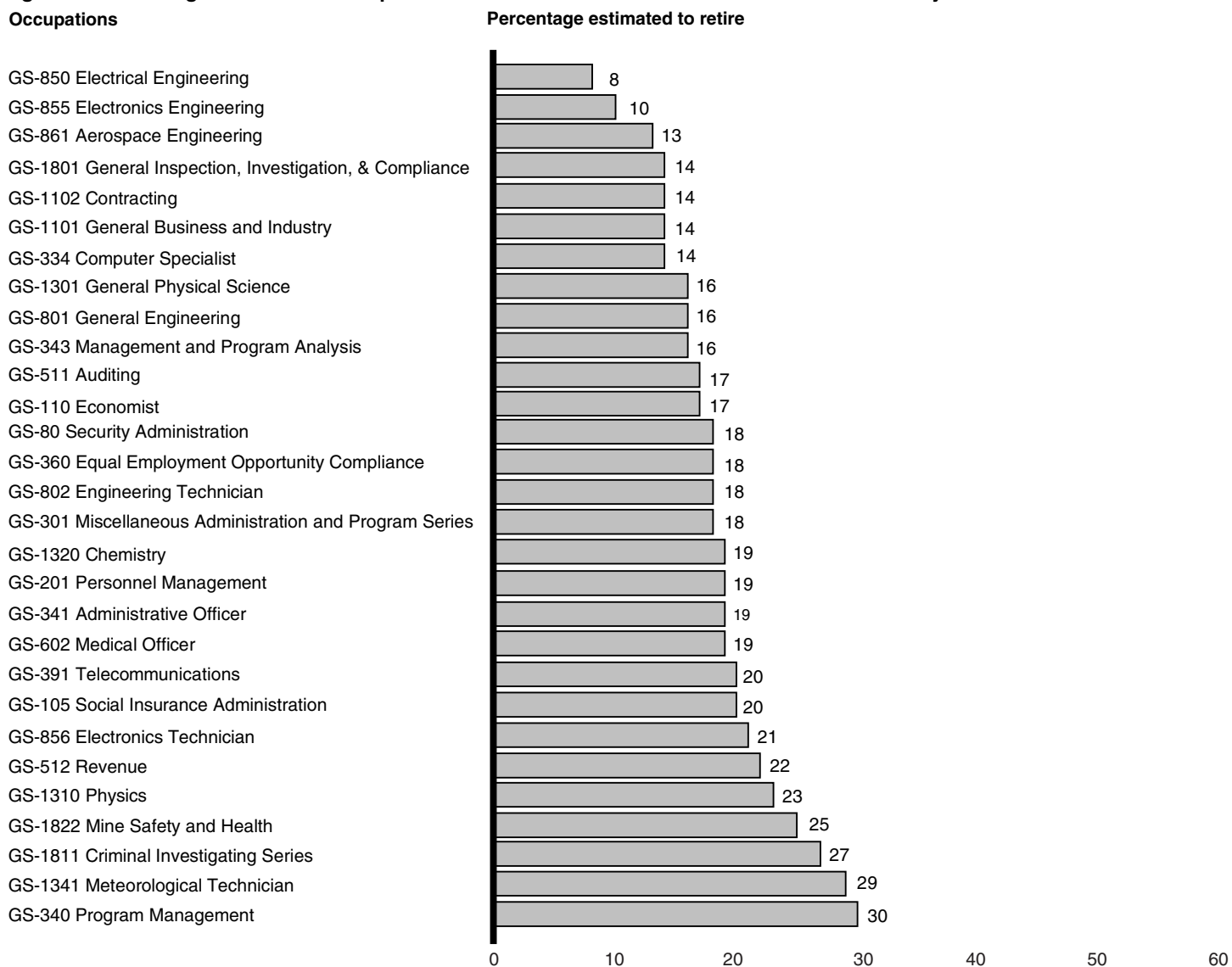


Source: GAO analysis of CPDF data.

Based on past retirement patterns for each of the selected occupations, we also calculated retirement estimates for fiscal years 1999 through 2006. We estimated that actual retirements in the 8-year period will range from 8 percent for Electrical Engineers (GS-850) to 30 percent for Program

Managers (GS-340). Figure 8 shows our retirement estimates for each of the 29 selected occupations.

Figure 8: Percentage of Selected Occupation's Fiscal Year 1998 Workforce Estimated to Retire by 2006



Source: GAO analysis of CPDF data.

It is also important to know the total number of estimated losses for each occupation, because occupations with similar percentages retiring could provide different challenges in workforce planning. For example, of the 29 selected mission critical occupations, the occupation with the smallest number of employees estimated to retire and the one with the largest have close retirement percentages. Numerically, we estimated 289 Meteorological Technicians (GS-1341) and 9,217 Criminal Investigators (GS-1811) will retire. However, these numbers represent 29 percent of the Meteorological Technicians (GS-1341) and 27 percent of Criminal Investigators (GS-1811). If management chooses to replace these losses, depending on the job markets, it could be more of a recruitment challenge to replace a large number of employees in one occupation than a smaller number in another, even though their percentages of losses are similar. Conversely, if only a small number of people work in an occupation, replacing a few of them could be very challenging.

Retirement and eligibility estimates for the selected occupations are based on the aggregate workforce of the 24 agencies. Consequently, to determine agencywide, and perhaps component-specific, eligibility and retirement estimates for mission critical occupations, agencies would need to conduct analyses of their own specific workforce needs. For example, the Departments of Labor and Justice (along with 14 other CFO agencies) identified Criminal Investigators (GS-1811) as a mission critical occupation. However, while about 50 (or 40 percent) of Labor's criminal investigators were eligible to retire in fiscal year 1999, about 3,500 (or 18 percent) of Justice's criminal investigators were eligible. These and other workforce demographics are an essential part of comprehensive workforce analyses because they indicated different human capital consequences that will require different actions to address them. For example, although the number of criminal investigators eligible to retire at Labor is relatively low, the percentage of that occupation eligible to retire is significant, and represents a considerable loss of institutional knowledge. Alternatively, at Justice, where 18 percent of criminal investigators are eligible to retire, the loss of institutional knowledge may not be as great of a concern. However, replacing 3,500 employees could present significant recruiting challenges for Justice. Recruiting concerns are particularly noteworthy in the case of Criminal Investigators (GS-1811), given that 15 other agencies listed the occupation as mission-critical, adding interagency competition to the existing competition with state and local governments and the private sector. This is especially problematic with occupations such as the Computer Specialist Series (GS-334), which was identified by all 24

agencies as mission critical and is a field for which there is keen competition from the private sector.

Conclusions

Federal agencies will be facing an increased loss of employees to retirement over the next 5 years. The number of employees retiring will be roughly equivalent to the decrease in employees during the downsizing of the 1990s, which, because of inadequate human capital management accompanying downsizing, resulted in a number of problems affecting the ability of agencies to accomplish their missions. We believe that the challenges facing the federal government from retirements over the next 5 years make it imperative that agency officials act promptly to ensure their workforce's will be adequate in the future to efficiently, economically, and effectively deliver products and services to the public.

It is generally accepted that workforce planning that assesses current and future needs, matches those needs to the skills and abilities of current and expected future employees, and devises strategies to overcome any shortfalls or imbalances is necessary to ensure the availability of adequate human capital. Managing the effect of federal retirements on an agency's capability to accomplish its missions is an important part of workforce planning.

In designating strategic human capital management as a governmentwide high-risk area, we pointed out the importance of agencies acquiring and developing staffs whose size, skills, and deployment meets agency needs. Workforce planning is a key step toward this goal. We also found in our previous work that workforce planning is an important element of human capital management in the private sector, and that federal agencies need to have good workforce planning to enable them to accomplish their missions. Our estimates for retirement eligibility and actual retirements, overall and for agencies and critical occupations, further illustrate the importance of each agency conducting workforce planning so that their own special needs and circumstances are considered and so that they do not find themselves with staffing skills shortfalls.

OPM has begun stressing to agencies the importance of integrating strategic human capital management into agency planning. OPM has also been focusing more attention on developing workforce planning tools to help agencies. For example, it has developed a workforce planning model with associated research tools and has launched a website to facilitate information sharing about workforce planning issues.

Agency Comments

OPM agreed that it is critical for agencies to use workforce planning to address the challenges in replenishing the federal workforce. OPM also strongly supported our use of statistical workforce analysis to estimate the likely retirements rather than limiting the analysis to the number of employees eligible to retire, which can be misleading. Additionally, the agency agreed with the trends shown in our estimates although its estimates are somewhat higher due to differences in our methodologies. For example, OPM included likely early out retirements in its projections while ours did not. Our estimating method is more conservative than OPM's but its method is also reasonable. Our and OPM's estimates both illustrate the need for workforce planning.

We are sending copies of this report to Senator Richard J. Durbin, Senator Joseph I. Lieberman, Senator Fred Thompson, Senator George V. Voinovich, and to Representative Judy Biggert, Representative Dan Burton, Representative Elijah E. Cummings, Representative Steve Horn, Representative Asa Hutchinson, Representative Jim Turner, and Representative Henry A. Waxman, in their capacities as Chair or Ranking Member of Senate Committees and Subcommittees or Chair or Ranking Minority Member of House Committees and Subcommittees. We are also sending copies of this report to the Honorable Steven R. Cohen, Acting Director, Office of Personnel Management, the heads of the 24 CFO agencies, and other interested parties. We will make copies available to others on request.

If you or your staff have any questions on this report, please call me or Thomas G. Dowdal on (202) 512-6806. Key contributors to this report were Walter E. Reed, Jr. and Rebecca Shea.



Victor S. Rezendes
Managing Director, Strategic Issue

Scope and Methodology

Our objectives were to (1) estimate the number of employees who would be eligible to retire and the number who would actually retire for fiscal years 1999 through 2006 at 24 major agencies, and compare those estimates with the number of employees who were eligible and actually retired during fiscal years 1991 through 1998; (2) assess actual and estimated eligibility and retirement for the same periods for each of the 24 agencies; and (3) assess actual and estimated eligibility and retirement for the same periods for selected occupations critical to the 24 agencies. To accomplish these objectives, we

- determined retirement eligibility rates for fiscal years 1999 through 2006 by applying retirement plan eligibility rules to data in Office of Personnel Management's (OPM) Central Personnel Data File (CPDF) using employees age at hire, birth date, and retirement plan;
- determined past retirement rates by analyzing separation data from OPM's CPDF for fiscal years 1991 through 1998;
- estimated retirement rates for fiscal years 1999 through 2006 by creating a forecasting model using retirement trends for fiscal years 1988 through 1997;
- determined the extent of change between retirement rates for fiscal years 1991 through 1998 and projected retirement rates for fiscal years 1999 through 2006;
- surveyed the 24 CFO agencies to determine the occupations they consider critical to achieving their missions and strategic goals and analyzed historical and projected retirement data for 29 selected occupations that agencies identified; and
- reviewed our prior work and current literature on retirement projections and workforce planning to provide context.

Estimated Retirement Eligibility and Projected Retirements

To determine the federal employee retirement eligibility and projected retirement estimates for fiscal years 1999 through 2006, we used OPM's CPDF. Retirement eligibility dates were calculated using age at hire, years of service, birth date, and retirement plan coverage. Probabilities for retirement between fiscal years 1999 and 2006 were developed from actual separation data, of which retirement is a component, for fiscal years 1988 through 1998. We calculated retirement probabilities for the entire CFO workforce, for each agency, and for 29 selected occupations. Employees who retired with a buyout were excluded from the analysis to avoid overstating estimated future retirements.¹ The Federal Bureau of Investigation (FBI) does not submit personnel action data, such as retirements or other separations, to the CPDF. Consequently, retirement probabilities for FBI employees are based entirely upon the historical retirement data of all other Justice employees. Also, governmentwide retirement data from fiscal years 1991 through 1998 are slightly lower than actual because of the unreported FBI retirements. We did not independently verify the CPDF data for the years we reviewed. However, in a 1998 report, we found that governmentwide data from the CPDF for the key variables in this study (agency, birth date, service computation date, occupation, and retirement plan) were 99 percent or more accurate.²

Specifically, using the population of career employees on board as of September 30, 1987, we selected, on the basis of retirement plan, length of service, age at hire, and birth date, employees who were either already eligible to retire, or who would become eligible to retire by September 30, 1997. The separation activity of this extracted population was tracked through September 30, 1998, providing a 10-year time period of actual retirement data (1988 to 1998) upon which to base retirement projections.

Separation activity from 1988 to 1998 for the selected population consisted of the following actions: (1) separation from federal service prior to reaching retirement eligibility, (2) retirement after reaching retirement eligibility, (3) separation other than retirement upon reaching retirement eligibility, and (4) no separation within the 10-year time period. For each

¹ During the 1990s, federal agencies could, within certain parameters, offer employees up to \$25,000 to leave federal employment. This incentive was referred to as a buyout and was used to help reduce the size of the federal workforce.

² *OPM's Central Personnel Data File: Data Appear Sufficiently Reliable to Meet Most Customer Needs* (GAO/GGD-98-199, Sept. 30, 1998)

year, we calculated frequencies for separation prior to eligibility and for retirement for each cohort of employees becoming eligible to retire for the first time that year. For example, of those who became eligible to retire in fiscal year 1988, we determined the percentage that retired each year through September 30, 1998. Similarly, of the employees who became eligible in fiscal year 1997, we determined the percentage that separated each year since 1988. Due to data limitations, both ends of the prediction spectrums are truncated. Taking employees who became eligible in fiscal year 1995 as an example, we could only determine the number who actually retired within 3 years of eligibility because our latest separation data was for 1998. Similarly, for this cohort, we could only derive frequencies for separation prior to eligibility for 7 years, since our earliest separation data was for 1988.

Final retirement probabilities are the average of three summary statistics of retirement and separation frequencies for the 10-year time period. The three summary statistics are (1) the 10-year average, (2) the most recent data point, and (3) the next data point on a fitted regression line. The probabilities for each of the 10 years do not total 100 percent—the amount under 100 percent represents employees who are expected to retire after the 10-year time period.

We applied the retirement and preeligibility separation probabilities to career employees on board as of September 30, 1998, and calculated estimates through fiscal year 2006. Because we excluded retirements taken with buyouts, early-out retirements, and disability retirements from our trend data, our projections for future retirement are for regular, voluntary, and mandatory retirements only. At the time we started our analysis, we had CPDF data only through 1998. However, we later received 1999 data and compared our retirement estimates with actual retirements taken without buyouts in fiscal year 1999 and found that they differed by only 127 people, or 0.5 percent less than the actual.

We used these same techniques to estimate future retirements within each of the 24 CFO agencies and within the 29 selected occupations.

Identifying Mission-Critical Occupations

We surveyed the 24 CFO agencies in June 1999 to determine the occupations they considered critical to achieving their missions. (See app. II for the survey.) Each agency determined which occupations they considered mission critical in responding to the survey. Agencies provided listings of occupations by agency title and OPM series number.

We focused on the OPM series number and compiled a listing of occupations using the OPM official titles. We did this because agencies' listings often used different agency titles with the same occupational series number. Focusing on the series number, agencies identified 364 occupations as mission critical, as shown in table I. About 43 percent of the 364 occupations identified as mission-critical were cited by only 1 agency, about 17 percent were identified by 2 agencies, and about 40 percent were identified by 3 or more agencies. We judgmentally selected 29 of the 364 occupations for review based on the following criteria, which required that the occupation

- included at least 100 employees in fiscal year 1998 at each agency that identified them as mission critical,
- had at least a 10-percent eligibility rate for retirement within the agency as of the end of fiscal year 1999,
- met the above criteria for 3 or more agencies, and
- included at least 1000 employees governmentwide who would become eligible to retire between 1988 and 1998.

We also selected three occupations that were each identified as mission critical by only one agency and which represented at least 8 percent of that agency's workforce. For example, the Social Insurance Administration series (GS-105) is only employed by the Social Security Administration and represents 41 percent of the agency's workforce.

We used these criteria to help us select occupations that could represent the most significant future retirement challenges or opportunities for the 24 CFO agencies.

The Survey

GAO

U. S. General Accounting Office

**Retirement Trends and Succession Patterns
Facing the Federal Workforce****Introduction**

The U.S. General Accounting Office, an investigative agency of Congress, has been asked by the House Subcommittee on Civil Service to review retirement trends and succession patterns facing the federal workforce. The issues we are focusing on in this review center on workforce challenges in the near future due to demographic changes, specifically the loss of federal personnel as they age and retire, and the ability of federal agencies to replace them with skilled and qualified personnel.

There are two separate data collection instruments contained in this package. Each focuses on employment trends for mission critical occupations in your department/agency. Specifically, we are interested in actual retention rates and potential problems in retaining and replacing staff in mission critical occupations in the near future as well as in the more distant future. Our definition of a mission critical occupation is found at the top of form "A".

The forms included in this package are as follows:

Form "A" – is a form for listing of **all** mission critical occupations for each major separate sub-component (e.g., bureau, command, etc.) of your department or agency.

Form "B" – is a form that contains a series of questions focusing on each separate mission critical occupation identified by each major separate component (e.g., bureau, command, etc.) of your department or agency.

Instructions for Completing Forms "A" and "B"

Forms "A" and "B" should be completed at the department/agency level **and** for each major separate sub-component (e.g., bureau, command, etc.) of the department or agency.

- Make as many photocopies of forms "A" and "B" as necessary.
- Complete one copy of form "A" listing all occupations considered to be mission critical.
- For each of the occupations listed on form "A", a separate copy of form "B" must be completed.
- Return all completed forms to the point of contact at your department or agency headquarters.

If you have any questions, please call Mr. Walter Reed at (202) 512-5584. Thank you for your assistance.

**Appendix II
The Survey**

Form B (Page 1 of 2)

Please make as many photocopies of this form as necessary.

Form B - Mission Critical Occupation Form

Department/Agency/Bureau/Command name: _____

When entering series numbers and series titles, please use OPM's standard job series numbers and series titles.

Series number: _____ Series title: _____

a. Do you consider this job series (occupation) to be core mission or critical support as defined on the top of form A? *(Check one.)*

1. Core mission (Most directly affects agency's ability to accomplish its mission, e.g., FAA - air traffic controller)
2. Critical support (Provides support for the core mission occupations, e.g., FAA - computer systems analyst)

b. Please indicate the level of difficulty your department/agency has had and anticipates having in **retaining** sufficient staff in this job series for the following time frames. *(Check one box in each row.)*

Time period	Very difficult (1)	Somewhat difficult (2)	Not difficult (3)	No basis to judge (4)
FY 1997				
FY 1998				
FY 1999 through 2000				
FY 2005 through 2006				

c. Please indicate the level of difficulty your department/agency has had and anticipates having in **recruiting** sufficient staff in this job series for the following time frames. *(Check one box in each row.)*

Time period	Very difficult (1)	Somewhat difficult (2)	Not difficult (3)	No basis to judge (4)
FY 1997				
FY 1998				
FY 1999 through 2000				
FY 2005 through 2006				

d. Currently, how easy or difficult is it for your department/agency to find employees in this job series **that meet your criteria for quality?** *(Check one.)*

1. Very easy
2. Somewhat easy
3. Somewhat difficult
4. Very difficult

e. If you checked box 3 or 4 (somewhat or very difficult) in question d, to what extent, if at all, has your department/agency hired staff in this job series who, in your estimation, are of lower quality than you would have desired? *(Check one.)*

1. To a very great extent
2. To a great extent
3. To a moderate extent
4. To some extent
5. To little or no extent
-
6. No basis to judge

(Continued on page 2)

**Appendix II
The Survey**

Form B (Page 2 of 2)

f. To the best of your knowledge, at the current time, do the following factors make it difficult, easy, or have no effect on your department's/agency's ability to **retain** staff in this job series? (Check one box in each row.)

Retention Factors	Makes it very difficult (1)	Makes it somewhat difficult (2)	Has no effect (3)	Makes it somewhat easy (4)	Makes it very easy (5)	No basis to judge (6)
a. Pay compared to nonfederal employers (private sector, state/local government)						
b. Benefits (leave, retirement, health insurance, etc) compared to nonfederal employers.						
c. Content of work (challenging assignments, federal issues, etc.)						
d. Availability of job opportunities for similar work outside of the federal government						
e. Reputation/image of the federal government as an employer						
f. Opportunities for promotion						
g. Availability of awards or recognition						
h. Availability of training/opportunities for growth						
i. Job security provided by the federal government						
j. Ability of FERS employees to leave the federal government for the private sector						
k. Other-Specify: _____						

g. To the best of your knowledge, at the current time, do the following factors make it difficult, easy, or have no effect on your department's/agency's ability to **recruit** staff in this job series? (Check one box in each row.)

Recruitment Factors	Makes it very difficult (1)	Makes it somewhat difficult (2)	Has no effect (3)	Makes it somewhat easy (4)	Makes it very easy (5)	No basis to judge (6)
a. Pay compared to nonfederal employers (private sector, state/local government)						
b. Benefits (leave, retirement, health insurance, etc) compared to nonfederal employers.						
c. Content of work (challenging assignments, federal issues, etc.)						
d. Availability of job opportunities for similar work outside of the federal government						
e. Reputation/image of the federal government as an employer						
f. Opportunities for promotion						
g. Availability of awards or recognition						
h. Availability of training/opportunities for growth						
i. Job security provided by the federal government						
j. Ability of FERS employees to leave the federal government for the private sector						
k. Other-Specify: _____						

List of 364 Mission Critical Occupations

Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
1.	Correctional Institution Administration Series	GS-0006									1
2.	Correctional Officer Series	GS-0007									1
3.	Safety and Occupational Health Management Series	GS-0018		1	1		1	1		1	1
4.	Safety Technician Series	GS-0019		1							
5.	Community Planning Series	GS-0020									
6.	Outdoor Recreation Planning Series	GS-0023								1	
7.	Park Ranger Series	GS-0025								1	
8.	Environmental Protection Specialist Series	GS-0028					1	1		1	
9.	Environmental Protection Assistant Series	GS-0029									
10.	Chaplain Series	GS-0060									1
11.	Fingerprint Identification Series	GS-0072									
12.	Security Administration Series	GS-0080			1		1				
13.	Fire Protection and Prevention Series	GS-0081		1							
14.	Police Series	GS-0083		1	1					1	
15.	Nuclear Materials Courier Series	GS-0084					1				
16.	Security Guard Series	GS-0085			1						
17.	Social Science Series	GS-0101		1		1		1	1		1
18.	Social Science Aide and Technician Series	GS-0102						1			
19.	Social Insurance Administration Series	GS-0105									
20.	Unemployment Insurance Series	GS-0106									
21.	Health Insurance Administration Series	GS-0107						1			
22.	Economist Series	GS-0110		1			1	1	1		1
23.	Foreign Affairs Series	GS-0130					1				

**Appendix III
List of 364 Mission Critical Occupations**

Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
															1
															1
1		1		1					1						10
															1
		1			1										2
															1
															1
		1			1	1			1						7
						1									1
															1
			1												1
	1	1	1		1	1	1	1							9
															1
			1					1							5
															1
					1	1								1	8
															1
														1	1
1															1
															1
1	1	1	1		1	1								1	12
	1														2

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List of 364 Mission Critical Occupations**

(Continued From Previous Page)

Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
24.	International Relations Series	GS-0131									
25.	Intelligence Series	GS-0132					1				1
26.	International Cooperation Series	GS-0136									
27.	Manpower Development Series	GS-0142									
28.	Geography Series	GS-0150		1						1	
29.	Civil Rights Analysis Series	GS-0160									
30.	History Series	GS-0170								1	
31.	Psychology Series	GS-0180		1				1			1
32.	Psychology Aide and Technician Series	GS-0181						1			
33.	Social Work Series	GS-0185						1			
34.	Social Services Aide and Assistant Series	GS-0186						1			
35.	Social Services Series	GS-0187						1			
36.	Archaeology Series	GS-0193								1	
37.	Personnel Management Series	GS-0201		1	1		1	1	1	1	
38.	Personnel Clerical and Assistance Series	GS-0203		1				1	1	1	
39.	Military Personnel Clerical and Technician Series	GS-0204						1			
40.	Military Personnel Management Series	GS-0205						1			
41.	Personnel Staffing Series	GS-0212						1			
42.	Personnel Classification Series	GS-0221						1			
43.	Employee Relations Series	GS-0230		1			1	1			
44.	Labor Relations Series	GS-0233						1	1		
45.	Employee Development Series	GS-0235		1			1		1		
46.	Apprenticeship and Training Series	GS-0243									
47.	Contractor Industrial Relations Series	GS-0246					1				
48.	Wage and Hour Compliance Series	GS-0249									

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Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
		1													1
	1	1	1												5
					1										1
1															1
		1													3
		1													1
		1													2
		1		1					1			1			7
															1
				1											2
															1
															1
															1
1	1	1	1	1	1	1	1	1	1			1	1		18
		1		1	1	1						1			9
															1
															1
1		1										1			4
1												1			3
1		1			1							1			7
1		1										1			5
1		1		1	1							1			8
1															1
															1
1															1

**Appendix III
List of 364 Mission Critical Occupations**

(Continued From Previous Page)

Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
49.	Equal Employment Opportunity Series	GS-0260		1	1		1	1	1		
50.	Federal Retirement Benefits Series	GS-0270									
51.	Miscellaneous Administration and Program Series	GS-0301	1	1	1		1	1	1	1	
52.	Miscellaneous Clerk and Assistant Series	GS-0303		1				1	1	1	
53.	Information Receptionist Series	GS-0304		1							
54.	Mail and File Series	GS-0305		1				1			
55.	Secretary Series	GS-0318	1	1				1	1	1	
56.	Clerk-Typist Series	GS-0322		1							
57.	Office Automation Clerical and Assistance Series	GS-0326		1						1	
58.	Computer Operation Series	GS-0332		1			1				
59.	Computer Specialist Series	GS-0334	1	1	1	1	1	1	1	1	1
60.	Computer Clerk and Assistant Series	GS-0335		1						1	
61.	Program Management Series	GS-0340		1			1	1			
62.	Administrative Officer Series	GS-0341		1			1	1	1	1	
63.	Support Services Administration Series	GS-0342									
64.	Management and Program Analysis Series	GS-0343		1	1	1	1	1	1	1	
65.	Management and Program Clerical and Assistance Series	GS-0344		1				1	1		
66.	Logistics Management Series	GS-0346			1		1	1			
67.	Equipment Operator Series	GS-0350		1				1			
68.	Printing Clerical Series	GS-0351		1							
69.	Data Transcriber Series	GS-0356									
70.	Equal Opportunity Compliance Series	GS-0360				1		1			
71.	Telephone Operating Series	GS-0382		1							
72.	Telecommunications Processing Series	GS-0390									

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List of 364 Mission Critical Occupations**

Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
1		1		1	1	1									10
												1			1
1	1	1	1	1	1	1	1	1				1	1		18
		1		1				1		1			1		9
															1
				1											3
		1	1	1		1	1	1							11
															1
		1		1		1									5
			1	1											4
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
				1								1			4
		1	1	1	1	1		1					1		10
		1		1	1	1							1		10
				1	1	1									3
1		1	1	1	1	1	1	1	1			1			17
		1		1											5
							1		1						5
		1													3
															1
			1												1
1		1													4
															1
						1									1

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List of 364 Mission Critical Occupations**

(Continued From Previous Page)

Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
73.	Telecommunications Series	GS-0391		1	1		1	1	1	1	1
74.	General Telecommunications Series	GS-0392									
75.	Administration and Office Support Student Trainee Series	GS-0399									
76.	General Biological Science Series	GS-0401		1			1	1		1	1
77.	Microbiology Series	GS-0403		1				1			
78.	Biological Science Technician Series	GS-0404		1				1		1	
79.	Pharmacology Series	GS-0405						1			
80.	Ecology Series	GS-0408		1						1	
81.	Physiology Series	GS-0413						1			
82.	Entomology Series	GS-0414						1			
83.	Toxicology Series	GS-0415						1			
84.	Botany Series	GS-0430								1	
85.	Plant Physiology Series	GS-0435									
86.	Genetics Series	GS-0440						1			
87.	Rangeland Management Series	GS-0454								1	
88.	Range Technician Series	GS-0455								1	
89.	Forestry Series	GS-0460								1	
90.	Forestry Technician Series	GS-0462								1	
91.	General Fish and Wildlife Administration Series	GS-0480								1	
92.	Fishery Biology Series	GS-0482		1						1	
93.	Wildlife Refuge Management Series	GS-0485								1	
94.	Wildlife Biology Series	GS-0486								1	
95.	Financial Administration and Program Series	GS-0501		1	1		1	1	1		
96.	Financial Clerical and Assistance	GS-0503									
97.	Financial Management Series	GS-0505		1	1		1	1	1		
98.	Accounting Series	GS-0510	1	1	1	1	1	1	1	1	1
99.	Auditing Series	GS-0511		1			1	1	1	1	1

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Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
	1	1	1	1	1	1	1	1						1	16
	1			1										1	3
				1											1
					1	1			1						8
						1									3
						1									4
															1
						1									3
									1						2
															1
						1									2
									1						1
															1
															1
															1
															1
															1
															1
															1
															1
	1	1	1	1	1	1		1	1				1		14
			1	1	1							1			4
		1		1	1				1						9
1		1	1	1	1	1	1	1	1			1	1		20
1		1	1	1	1	1	1	1					1		15

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Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
100.	Revenue Agent	GS-0512									
101.	Accounting Technicians	GS-0525	1	1				1		1	
102.	Tax Auditor	GS-0526									
103.	Cash Processing Series	GS-0530									
104.	Voucher Examining Series	GS-0540									
105.	Civilian Pay Series	GS-0544						1			
106.	Military Pay Series	GS-0545						1			
107.	Budget Analysis Series	GS-0560		1	1		1	1	1	1	
108.	Budget Technician	GS-0561								1	
109.	National Bank Examiner	GS-0570									
110.	Tax Examiner	GS-0592									
111.	Insurance Accounts Series	GS-0593									
112.	Financial Management Student Trainee Series	GS-0599									
113.	General Health Science Series	GS-0601						1			
114.	Medical Officer Series	GS-0602			1			1			1
115.	Physician's Assistant Series	GS-0603						1			1
116.	Nurse Anesthetist	GS-0605									
117.	Nurse Series	GS-0610						1			1
118.	Licensed Practical Nurse	GS-0620						1			
119.	Nursing Assistant	GS-0621						1			
120.	Dietitian and Nutritionist Series	GS-0630						1			
121.	Occupational Therapist Series	GS-0631						1			
122.	Physical Therapist Series	GS-0633						1			
123.	Rehabilitation Therapy Assistant Series	GS-0636									
124.	Recreation/Creative Arts Therapist Series	GS-0638						1			
125.	Health Aide and Technician Series	GS-0640						1			
126.	Nuclear Medicine Technician Series	GS-0642						1			
127.	Medical Technologist Series	GS-0644						1			

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Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
			1												1
			1	1		1									7
			1												1
				1											1
				1											1
				1	1										3
															1
1	1	1	1	1	1	1		1				1	1		16
			1	1											3
			1												1
			1												1
				1											1
				1											1
				1	1	1			1						5
			1	1	1				1						7
				1											3
				1											1
				1	1										4
				1											2
				1											2
				1	1										3
				1											2
				1											2
				1											1
															1
															1
				1											2
				1											2

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List of 364 Mission Critical Occupations**

(Continued From Previous Page)

Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
128.	Medical Technician Series	GS-0645						1			
129.	Diagnostic Radiologic Technologist Series	GS-0647						1			
130.	Therapeutic Radiologic Technologist Series	GS-0648									
131.	Medical Instrument Technician Series	GS-0649						1			
132.	Respiratory Therapist Series	GS-0651						1			
133.	Pharmacist Series	GS-0660						1			
134.	Pharmacy Technician Series	GS-0661						1			
135.	Optometrist Series	GS-0662									
136.	Speech Pathology and Audiology Series	GS-0665						1			
137.	Podiatrist Series	GS-0668						1			
138.	Medical Records Administration Series	GS-0669						1			
139.	Health System Administration Series	GS-0670						1			
140.	Health System Specialist Series	GS-0671						1			
141.	Prosthetic Representative Series	GS-0672									
142.	Medical Records Technician Series	GS-0675						1			
143.	Medical Clerk Series	GS-0679						1			
144.	Dental Officer Series	GS-0680						1			1
145.	Dental Assistant Series	GS-0681						1			
146.	Dental Hygiene Series	GS-0682						1			
147.	Dental Laboratory Aide and Technician Series	GS-0683						1			
148.	Public Health Program Specialist Series	GS-0685						1			
149.	Sanitarian Series	GS-0688						1			
150.	Industrial Hygenist	GS-0690			1		1	1			
151.	Consumer Safety Series	GS-0696			1			1			
152.	Veterinary Medical Science Series	GS-0701						1			

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List of 364 Mission Critical Occupations**

Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
				1											2
				1											2
				1											1
				1											2
															1
				1											2
															1
				1											1
				1											2
				1											2
				1											2
															1
				1											2
				1											1
				1											2
				1											3
				1											2
				1											2
															1
															1
															1
1							1								5
															2
															1

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List of 364 Mission Critical Occupations**

(Continued From Previous Page)

Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
153.	Animal Health Technician Series	GS-0704						1			
154.	General Engineering Series	GS-0801		1	1		1	1	1	1	
155.	Engineering Technician Series	GS-0802		1			1	1		1	
156.	Safety Engineering Series	GS-0803		1			1				
157.	Fire Protection Engineering Series	GS-0804		1			1				
158.	Materials Engineering Series	GS-0806		1	1						
159.	Landscape Architect Series	GS-0807									1
160.	Architecture Series	GS-0808		1				1	1	1	
161.	Construction Control Series	GS-0809		1				1		1	
162.	Civil Engineering Series	GS-0810		1	1		1		1	1	
163.	Surveying Technician Series	GS-0817		1							
164.	Engineering Drafting Series	GS-0818		1							
165.	Environmental Engineer Series	GS-0819			1		1	1			
166.	Construction Analyst Series	GS-0828							1		
167.	Mechanical Engineering Series	GS-0830		1	1		1	1	1	1	
168.	Nuclear Engineer	GS-0840		1	1		1				
169.	Electrical Engineering Series	GS-0850	1	1	1		1	1		1	
170.	Computer Engineering Series	GS-0854		1	1		1	1			
171.	Electronics Engineering Series	GS-0855	1	1	1		1	1			1
172.	Electronics Technician Series	GS-0856		1			1	1			1
173.	Biomedical Engineering Series	GS-0858		1				1			
174.	Aerospace Engineering Series	GS-0861			1						
175.	Naval Architecture Series	GS-0871									
176.	Ship Surveying Series	GS-0873									
177.	Mining Engineering Series	GS-0880						1			
178.	Petroleum Engineer	GS-0881			1		1			1	
179.	Agricultural Engineering Series	GS-0890									
180.	Ceramics Engineering Series	GS-0892		1							
181.	Chemical Engineering Series	GS-0893		1	1		1	1			
182.	Industrial Engineer	GS-0896		1	1						

**Appendix III
List of 364 Mission Critical Occupations**

Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
															1
	1	1	1	1	1			1	1		1				14
		1		1		1			1						8
1		1	1						1						6
		1	1						1						5
		1							1						4
				1											2
	1	1	1	1				1							9
			1												4
	1	1	1				1								9
															1
															1
		1	1			1			1						7
													1		2
	1	1				1		1							10
						1					1				5
	1	1	1			1			1						11
						1			1						6
		1	1					1	1						10
		1				1	1		1						8
				1											3
		1							1						3
		1													1
		1													1
1															2
															3
									1						1
									1						2
		1	1			1			1						8
		1	1												4

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(Continued From Previous Page)

Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
183.	Law Clerk	GS-0904									
184.	General Attorney Series	GS-0905		1		1	1	1	1	1	1
185.	Hearing Officer	GS-0930									1
186.	Administrative Law Judge	GS-0935									1
187.	Paralegal Specialist	GS-0950		1				1	1	1	1
188.	Pension Law Specialist Series	GS-0958									
189.	Contract Representative	GS-0962									
190.	Legal Instruments Examining Series	GS-0963		1						1	1
191.	Land Law Examiner	GS-0965								1	
192.	Passport and Visa Examining Series	GS-0967									
193.	Legal Clerical and Assistance	GS-0986						1	1	1	
194.	General Claims Examining Series	GS-0990									1
195.	Workers' Compensation Claims Examining Series	GS-0991									
196.	Loss and Damage Claims Examining Series	GS-0992									
197.	Veterans Claims Examining Series	GS-0996									
198.	Claims Clerical Series	GS-0998									
199.	General Arts and Information Series	GS-1001		1				1		1	
200.	Museum Curator	GS-1015								1	
201.	Museum Specialist	GS-1016								1	
202.	Public Affairs Series	GS-1035		1			1	1	1	1	
203.	Language Specialist Series	GS-1040						1			1
204.	Photography Series	GS-1060							1		
205.	Audiovisual Production Series	GS-1071		1				1	1		
206.	Writing and Editing	GS-1082		1						1	1
207.	Technical Writer-Editor	GS-1083		1						1	1
208.	Visual Information Series	GS-1084		1				1	1	1	
209.	Editorial Assistant	GS-1087		1					1	1	

**Appendix III
List of 364 Mission Critical Occupations**

Agencies That Identified a Series as Mission Critical															Total Agencies
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	
		1				1									2
1	1	1	1	1	1	1	1	1	1		1		1	1	20
				1											2
		1												1	3
1		1		1	1	1								1	11
1															1
			1	1								1		1	4
		1	1												5
															1
	1														1
				1	1									1	6
														1	2
1															1
						1									1
				1										1	1
				1										1	2
															3
															1
															1
	1	1		1	1	1									10
	1														3
		1													2
															3
		1		1	1	1									7
															3
		1													5
															3

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List of 364 Mission Critical Occupations**

(Continued From Previous Page)

Line Item	Series Title	Series Number										
			USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ	
210.	General Business and Industry Series	GS-1101	1	1	1		1	1	1	1		
211.	Contracting Series	GS-1102		1	1	1	1	1	1		1	
212.	Industrial Property Management Series	GS-1103					1					
213.	Property Disposal Series	GS-1104										
214.	Purchasing Series	GS-1105		1			1	1		1		
215.	Procurement Clerical and Technician Series	GS-1106		1				1				
216.	Property Disposal Clerical and Technician Series	GS-1107										
217.	Public Utilities Specialist Series	GS-1130	1				1					
218.	Trade Specialist	GS-1140		1								
219.	Industrial Specialist Series	GS-1150		1			1					
220.	Production Control Series	GS-1152			1			1				
221.	Financial Analyst	GS-1160								1	1	
222.	Insurance Examining Series	GS-1163										
223.	Loan Specialist Series	GS-1165	1			1				1		
224.	Revenue Officer	GS-1169										
225.	Realty Series	GS-1170					1			1	1	
226.	Appraising Series	GS-1171								1		
227.	Building Management Series	GS-1176										
228.	Patent Attorney Series	GS-1222		1				1			1	
229.	Patent Advisor Series	GS-1224		1								
230.	General Physical Science Series	GS-1301		1	1			1	1		1	
231.	Health Physics Series	GS-1306		1	1			1	1			
232.	Physics Series	GS-1310		1	1			1	1			
233.	Physical Science Technician	GS-1311		1							1	
234.	Geophysics Series	GS-1313			1						1	
235.	Hydrology Series	GS-1315		1							1	
236.	Hydrologist Technician	GS-1316		1							1	
237.	Chemistry Series	GS-1320		1	1			1	1		1	

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Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
1		1	1	1	1	1		1					1		15
1	1	1		1	1	1	1	1	1				1		16
															1
		1						1							2
				1	1										6
						1		1							4
		1													1
															2
				1	1										3
															2
															2
		1	1			1							1		6
		1													1
				1									1		5
			1												1
		1		1				1							6
				1											2
								1							1
		1							1						5
															1
		1	1		1	1			1	1	1				13
						1				1	1				7
									1	1					6
						1				1					4
									1	1					4
						1				1					4
										1					3
			1			1				1					9

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Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
238.	Metallurgy Series	GS-1321		1	1						1
239.	Astronomy and Space Science Series	GS-1330		1	1						
240.	Meteorology Series	GS-1340		1							
241.	Meteorological Technician Series	GS-1341		1							
242.	Geologist	GS-1350		1	1					1	1
243.	Oceanography Series	GS-1360		1	1						
244.	Navigational Information Series	GS-1361									
245.	Cartographer	GS-1370		1						1	
246.	Cartographer Technician	GS-1371		1						1	
247.	Geodesy Series	GS-1372		1							
248.	Land Surveyor	GS-1373								1	
249.	Geodetic Technician Series	GS-1374		1							
250.	Forest Products Technology Series	GS-1380									
251.	Food Technology Series	GS-1382									
252.	Textile Technology Series	GS-1384									
253.	Photographic Technology Series	GS-1386									1
254.	Document Analysis Series	GS-1397									1
255.	Physical Science Student Trainee Series	GS-1399									
256.	Librarian Series	GS-1410		1				1			
257.	Library Technician Series	GS-1411		1				1			
258.	Technical Information Service	GS-1412		1			1	1			
259.	Archives Technician Series	GS-1421									
260.	Actuary Series	GS-1510						1			
261.	Operations Research Series	GS-1515		1			1		1		
262.	Mathematics Series	GS-1520		1	1			1			
263.	Mathematical Statistician	GS-1529		1			1	1	1		
264.	Statistician	GS-1530		1		1		1			1
265.	Statistical Assistant Series	GS-1531		1							
266.	Cryptanalysis Series	GS-1541									1

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Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
										1					4
									1	1					4
									1	1					3
										1					2
						1				1					6
		1							1	1					5
		1								1					2
		1								1					4
										1					3
										1					2
										1					2
										1					2
										1					1
										1					1
										1					1
										1					2
			1	1						1					4
										1					1
		1								1					3
		1		1						1					4
		1				1				1					5
				1						1					1
				1						1				1	3
		1								1					4
									1						4
1		1				1	1								8
1		1		1			1								8
															1
															1

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Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
267.	Computer Science Series	GS-1550		1	1		1	1			1
268.	General Facilities and Equipment Series	GS-1601		1			1				
269.	Cemetery Administration Series	GS-1630									
270.	Facility Manager/Specialist	GS-1640						1		1	
271.	Printing Management Series	GS-1654		1				1	1		
272.	Steward Series	GS-1667									1
273.	Equipment Specialist Series	GS-1670		1	1			1			
274.	General Education and Training	GS-1701					1	1	1		
275.	Education and Vocational Training	GS-1710			1					1	1
276.	Training Instruction Series	GS-1712			1		1	1	1		
277.	Vocational Rehabilitation Series	GS-1715									
278.	Education Program Series	GS-1720				1					
279.	Education Research Series	GS-1730				1					
280.	Education Services Series	GS-1740									
281.	Instructional Systems Series	GS-1750									
282.	General Inspection, Investigation, and Compliance Series	GS-1801		1				1	1	1	1
283.	Compliance Inspection and Support Series	GS-1802		1				1			
284.	General Investigating Series	GS-1810									
285.	Criminal Investigating Series	GS-1811		1	1			1		1	1
286.	Game Law Enforcement	GS-1812		1						1	
287.	Immigration Inspection Series	GS-1816									1
288.	Mine Safety and Health Series	GS-1822									
289.	Aviation Safety Series	GS-1825									
290.	Inspector/Specialist/A&T Tax Specialist	GS-1854									
291.	Import Specialist	GS-1889									
292.	Inspector	GS-1890									
293.	Entry Aid	GS-1894									
294.	Border Patrol Agent Series	GS-1896									1

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Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
				1		1			1						8
															2
				1											1
		1				1									4
		1													4
															1
								1							4
				1	1										5
		1			1										5
	1	1		1			1								8
				1											1
															1
															1
		1													1
	1	1													2
1		1	1	1											9
			1	1	1										5
			1		1										2
1	1	1	1	1	1	1	1	1					1		15
															2
															1
1															1
				1											1
															1
															1
															1

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Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
295.	Customs Aid	GS-1897									
296.	Quality Assurance Series	GS-1910			1		1	1			
297.	General Supply Series	GS-2001		1	1			1			
298.	Supply Program Management	GS-2003		1	1			1			
299.	Supply Clerical and Technician Series	GS-2005		1				1			
300.	Inventory Management Series	GS-2010		1	1		1	1	1		
301.	Distribution Facilities and Storage Management Series	GS-2030			1						
302.	Supply Cataloging Series	GS-2050		1							
303.	Transportation Specialist Series	GS-2101		1	1		1				
304.	Transportation Clerk and Assistant Series	GS-2102		1							
305.	Transportation Industry Analysis Series	GS-2110									
306.	Railroad Safety Series	GS-2121									
307.	Highway Safety Series	GS-2125									
308.	Traffic Management Series	GS-2130		1	1		1	1			
309.	Freight Rate Series	GS-2131									
310.	Transportation Operations Series	GS-2150			1		1				
311.	Air Traffic Control Series	GS-2152									
312.	Marine Cargo Series	GS-2161			1						
313.	Aircraft Operation Series	GS-2181								1	1
314.	Electronics Mechanic	WG-2604		1			1				
315.	Electronic Industrial Controls Mechanic	WG-2606									
316.	Electronic Equipment Craftsman	WG-2619					1				
317.	Electrician	WG-2805		1			1				
318.	Lineman	WG-2806					1				
319.	Electrician - High Voltage	WG-2810		1						1	
320.	Meter and Relay Craftsman	WG-2843					1				
321.	Electrical Equipment Repairing	WG-2854					1				
322.	Instrument Making	WG-3314		1							

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Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
			1												1
									1						4
		1						1							5
		1		1	1			1							7
		1		1	1										5
		1													6
		1													2
															1
		1			1										5
					1										2
		1													1
		1													1
		1													1
	1	1			1										7
				1											1
		1							1						4
		1													1
															1
		1	1												4
															2
					1										1
															1
		1		1											4
															1
															2
															1
					1										2
															1

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Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
323.	Machining	WG-3414		1							
324.	Power Saw Operating	WG-3422		1							
325.	Machine Tool Operator	WG-3431									
326.	Linehandler	WG-3501									
327.	Laborer	WG-3502		1						1	
328.	Custodial Working	WG-3566		1				1			
329.	Insulating	WG-3610		1							
330.	Sheet Metal Mechanic	WG-3806		1							
331.	Metal Form Machine Operator	WG-3869									
332.	Audio Visual Equipment Operator	WG-3901		1							
333.	Pipefitting	WG-4204		1							
334.	Plumbing	WG-4206		1							
335.	Glassblowing	WG-4370		1							
336.	Bindery Working	WG-4402						1			
337.	Picture Engraver	WG-4446									
338.	Plate Printer	WG-4454									
339.	Wood Crafting	WG-4605		1							
340.	Carpentry	WG-4607		1							
341.	General Maintenance and Operations	WG-4701		1							
342.	Utility Systems Repairing-Operating	WG-4742		1							
343.	Maintenance Mechanic	WG-4749		1				1		1	
344.	Cemetery Caretaking	WG-4754									
345.	Locksmithing	WG-4804		1							
346.	Navigational Aids Repairing	WG-4843									
347.	Gardening	WG-5003		1							
348.	Animal Caretaking	WG-5048								1	
349.	Planner Estimator	WG-5201		1							
350.	Air Conditioning Equipment Mechanic	WG-5306		1							
351.	Elevator Mechanic	WG-5313		1							

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Line Item	Series Title	Series Number	USDA	Comm	DOD	DOEd	DOE	HHS	HUD	DOI	DOJ
352.	Production Machinery Mechanic	WG-5350									
353.	Plant Mechanic	WG-5352		1						1	
354.	Power Plant Operator	WG-5407								1	
355.	Lock and Dam Operating	WG-5426									
356.	Motor Vehicle Operating	WG-5703		1				1	1		
357.	Engineering Equipment Operating	WG-5716						1			
358.	Heavy Mobile Equipment Mechanic	WG-5803		1							
359.	Automotive Mechanic	WG-5823		1							
360.	Tools and Parts Attending	WG-6904		1							
361.	Materials Handler	WG-6907		1				1			
362.	Materials Expediting	WG-6910		1							
363.	Cooking	WG-7404						1			
364.	Food Service Working	WG-7408									
Agency Totals			10	154	56	11	73	144	49	83	44

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List of 364 Mission Critical Occupations**

Agencies That Identified a Series as Mission Critical															Total
DOL	DOS	DOT	Treas	VA	AID	EPA	FEMA	GSA	NASA	NSF	NRC	OPM	SBA	SSA	Agencies
			1												1
		1													3
															1
		1													1
		1		1											5
				1											2
															1
				1											2
															1
		1		1				1							5
															1
															1
				1											1
34	25	113	62	114	54	55	16	33	41	28	6	17	17	14	

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