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Report to the Subcommittee on Readiness, Committee on Armed Services, House of Representatives

April 2003

DOD CIVILIAN PERSONNEL

Improved Strategic Planning Needed to Help Ensure Viability of DOD's Civilian Industrial Workforce

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Highlights

Highlights of GAO-03-472, a report to the Subcommittee on Readiness, Committee on Armed Services, House of Representatives

DOD CIVILIAN PERSONNEL

Improved Strategic Planning Needed to Help Ensure Viability of DOD's Civilian Industrial Workforce

Why GAO Did This Study

Between 1987 and 2002, the Department of Defense (DOD) downsized the civilian workforce in 27 key industrial facilities by about 56 percent. Many of the remaining 72,000 workers are nearing retirement. In recent years GAO has identified shortcomings in DOD's strategic planning and was asked to determine (1) whether DOD has implemented our prior recommendation to develop and implement a depot maintenance strategic plan, (2) the extent to which the services have developed and implemented comprehensive strategic workforce plans, and (3) what challenges adversely affect DOD's workforce planning.

What GAO Recommends

GAO recommends that the DOD complete revisions to core policy, promulgate a schedule for completing core computations, and complete depot strategic planning; develop a plan for arsenals and ammunition plants; develop strategic workforce plans; and coordinate the implementation of initiatives to address various workforce challenges. DOD concurred with 7 of our 9 recommendations; nonconcurring with two because it believes the proposed National Security Personnel System, which was submitted to Congress as a part of the DOD transformation legislation, will take care of these problems. We believe it is premature to assume this system will (1) be approved by Congress as proposed and (2) resolve these issues.

www.gao.gov/cgi-bin/getrpt?GAO-03-472.

To view the full report, including the scope and methodology, click on the link above. For more information, contact Derek Stewart at (202) 512-5559 or stewartd@gao.gov.

What GAO Found

DOD has not implemented our October 2001 recommendation to develop and implement a DOD depot strategic plan that would delineate workloads to be accomplished in each of the services' depots. The DOD depot system has been a key part of the department's plan to support military systems in the past, but the increased use of the private sector to perform this work has decreased the role of these activities. While title 10 of the U.S. code requires DOD to retain core capability and also requires that at least 50 percent of depot maintenance funds be spent for public-sector performance, questions remain about the future role of DOD depots. Absent a DOD depot strategic plan, the services have in varying degrees, laid out a framework for strategic depot planning, but this planning is not comprehensive. Questions also remain about the future of arsenals and ammunition plants. GAO reviewed workforce planning efforts for 22 maintenance depots, 3 arsenals, and 2 ammunition plants, which employed about 72,000 civilian workers in fiscal year 2002.

The services have not developed and implemented strategic workforce plans to position the civilian workforce in DOD industrial activities to meet future requirements. While workforce planning is done for each of the industrial activities, generally it is short-term rather than strategic. Further, workforce planning is lacking in other areas that OPM guidance and high-performing organizations identify as key to successful workforce planning. Service workforce planning efforts (1) usually do not assess the competencies; (2) do not develop comprehensive retention plans; and (3) sometimes do not develop performance measures and evaluate workforce plans.

Several challenges adversely affect DOD's workforce planning for the viability of its civilian depot workforce. First, given the aging depot workforce and the retirement eligibility of over 40 percent of the workforce over the next 5 to 7 years, the services may have difficulty maintaining the depots' viability. Second, the services are having difficulty implementing multiskilling—an industry and government best practice for improving the flexibility and productivity of the workforce—even though this technique could help depot planners do more with fewer employees. Finally, increased training funding and innovation in the training program will be essential for revitalizing the aging depot workforce.

Staffing Levels, Age, and Retirement Eligibility of Civilian Personnel in Industrial Facilities

Service	FY 2002 civilian staffing levels	Average age	Percent eligible to retire by 2007	Percent eligible to retire by 2009
Navy	35,563	46	28	39
Army	14,234	49	41	52
Marine Corps	1,323	48	45	60
Air Force	21,152	47	35	44
Total	72,272	47	33	43

Source: DOD (data), GAO (presentation).

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Abbreviations

ALC Air Logistics Center
DOD Department of Defense
OPM Office of Personnel Managment

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United States General Accounting Office
Washington, DC 20548

April 30, 2003

The Honorable Joel Hefley
Chairman
The Honorable Solomon P. Ortiz
Ranking Minority Member
Subcommittee on Readiness
Committee on Armed Services
House of Representatives

The manufacture and support of military weapons involves a vast array of industrial capability some of which is in the private sector and some of which is in the public sector. The part in the public sector centers around 27 key Department of Defense (DOD) industrial facilities, including 22 maintenance depots, 3 arsenals, and 2 government-owned and-operated ammunition manufacturing plants.[1] The civilian workforce in these activities was reduced by about 56 percent between 1987 and 2002—from about 163,000 to about 72,000 employees. The workforce reduction occurred as a result of downsizing initiatives, the increased use of the private sector for logistics support activities, and other factors. Because seniority was a major factor in determining which workers would be retained and little new hiring has occurred in most of these activities, the result of downsizing is that more than 7,000 civilian employees, or about 12 percent of the remaining workforce, are currently eligible to retire and about 43 percent will be eligible to retire by 2009. This has created a human capital management challenge for DOD. In addition, DOD's challenge is exacerbated by the war on terrorism and other critical military operations while it also is undertaking significant transformation initiatives and addressing initiatives to further streamline its operations, including responding to further downsizing mandates.

[1] DOD has nine other active ammunition manufacturing plants that are government-owned and contractor-operated. These nine plants have a total of 145 government civilians, 6 military personnel, and 5,314 contractor personnel. They are not included in this report's discussion.

In recent years, we have emphasized the importance of strategic planning in DOD for establishing and achieving key mission objectives.[2] We have also identified specific deficiencies in DOD's planning for depot maintenance operations. For example, in October 2001, we reported that DOD had no overall plan that tied investments in depot maintenance facilities and equipment with future workloads[3] and, in turn, with human capital needs. At that time we recommended that DOD, among other actions, develop a strategic—or long-term—plan for depot maintenance that addressed human capital needs and the specific actions necessary to meet them.

This report looks specifically at the strategic workforce planning for the 27 previously mentioned DOD industrial facilities. Concerned about DOD's apparent lack of a plan for its depot workforce and the potential implications of these deficiencies, you asked that we determine

- whether DOD has implemented our prior recommendation to develop and implement strategic plans for depot maintenance;
- the extent to which the services have developed and implemented strategic workforce plans to position the civilian depot workforce to meet future requirements; and
- what challenges adversely affect DOD's workforce planning for the long-term viability of its civilian depot workforce.

As part of our work, we reviewed DOD's and the services' existing strategic and other workforce plans for these activities. We visited 18 maintenance depots, three arsenals, and two ammunition manufacturing plants and obtained data from 4 additional maintenance depots we did not visit.

[2] Since 1997, we have issued several reports dealing with DOD's implementation of strategic planning initiatives generated as a result of the Government Performance and Results Act of 1993, P. L. No. 03-62. Aug. 3, 1993.

[3] U.S. General Accounting Office, *Defense Logistics: Actions Needed to Overcome Capability Gaps in the Public Depot System*, GAO-02-105 (Washington, D.C.: Oct. 12, 2001).

Results in Brief

DOD has not implemented our prior recommendation to develop and implement a departmentwide depot strategic plan that would delineate future workloads to be accomplished in each of the services' maintenance depots, and the services efforts to develop comprehensive depot strategic plans vary. Although recognition and maintenance of depots' core capabilities and their workforces are key to the continued viability of the depot system, DOD's increased use of the private sector in recent years has decreased the role of DOD's maintenance depots and raised questions about their long-term future role that have not been addressed by a comprehensive strategic plan. Uncertainties also exist about the future role of DOD arsenals and ammunition plants. Depot officials said that it is difficult to develop a depot strategic plan with so many uncertainties about how the military depots will be used in the future. However, title 10 of the U.S. Code provides direction regarding the role of the depots and the allocation of depot maintenance work between the public and private sectors, and it dictates a continuing role for a level of DOD depot maintenance capability. The lack of a strategic plan may have serious implications because without forethought to shape the future of the depots and their workforces, the future capability of the two for performing work is questionable. Absent a departmentwide plan, the services' efforts to develop comprehensive depot strategic plans vary. For example, the Army, Air Force and Marine Corps have developed depot plans, but the Army plan has been suspended, the Air Force plan does not address one depot nor identify specific new work, and the Marine Corps plan has not been approved and has no approval schedule. While the Navy has not developed a strategic depot plan, two of the Navy components—the shipyard and aviation communities—have begun strategic planning efforts.

The services have also not developed and implemented strategic workforce plans that will position the civilian industrial workforce to meet future requirements. Except for the Air Force, the services industrial activities' workforce plans are mostly short-term rather than strategic. The plans are also lacking in other areas that Office of Personnel Management (OPM) guidance and high-performing organizations identify as key to successful workforce planning. Specifically, they (1) usually do not assess the competencies needed for current and future workforces; (2) do not develop comprehensive retention plans that identify employees critical to accomplishment of organizational goals, develop an infrastructure to assist workers in becoming long-term assets of the organization, or provide meaningful incentives to retain valued employees; and (3) sometimes do not develop performance measures for evaluating

workforce plans to identify corrective actions needed to improve planning efforts.

Several challenges adversely affect DOD's workforce planning for the long-term viability of the workforce industrial workforce. First, given the aging of the workforce and the eligibility for retirement of about 43 percent of the workforce over the next 7 years, the services could have difficulty maintaining the viability of these activities. Yet, the implementation of short-term workforce planning rather than strategic planning does not address this challenge. Second, the services are having difficulty implementing multiskilling—an industry and government best practice for improving the flexibility and productivity of the workforce—even though this technique could help depot planners do more with fewer workers. Multiskilling is the process of training maintenance employees in specific skills that cross the traditional trade or craft lines and then ensuring that the work is performed. A major advantage of multiskilling is that particular jobs that require more than one craft—not necessarily more than one individual—can be performed by fewer personnel. Being able to provide additional compensation to workers for obtaining the desired new complementary skills could enhance the depots' ability to implement this program successfully. Finally, the need for both increased funds and innovation in the training program will challenge efforts to revitalize the depot workforce.

We are making recommendations to the Secretary of Defense to strengthen strategic workforce planning for DOD industrial activities. DOD provided oral comments after reviewing a draft of this report, concurring with seven of our nine recommendations. DOD's response highlighted the importance the department places in human capital management. In non-concurring with two of our recommendations, DOD officials said that DOD's new National Security Personnel System will provide all the flexibilities and authorities needed to maintain and enhance human resources competencies, capabilities, and performance across the department. Since the proposed new system has not yet been considered by the Congress, we believe it is premature to assume that all its provisions will be approved and that the new system will address our concerns.

Background

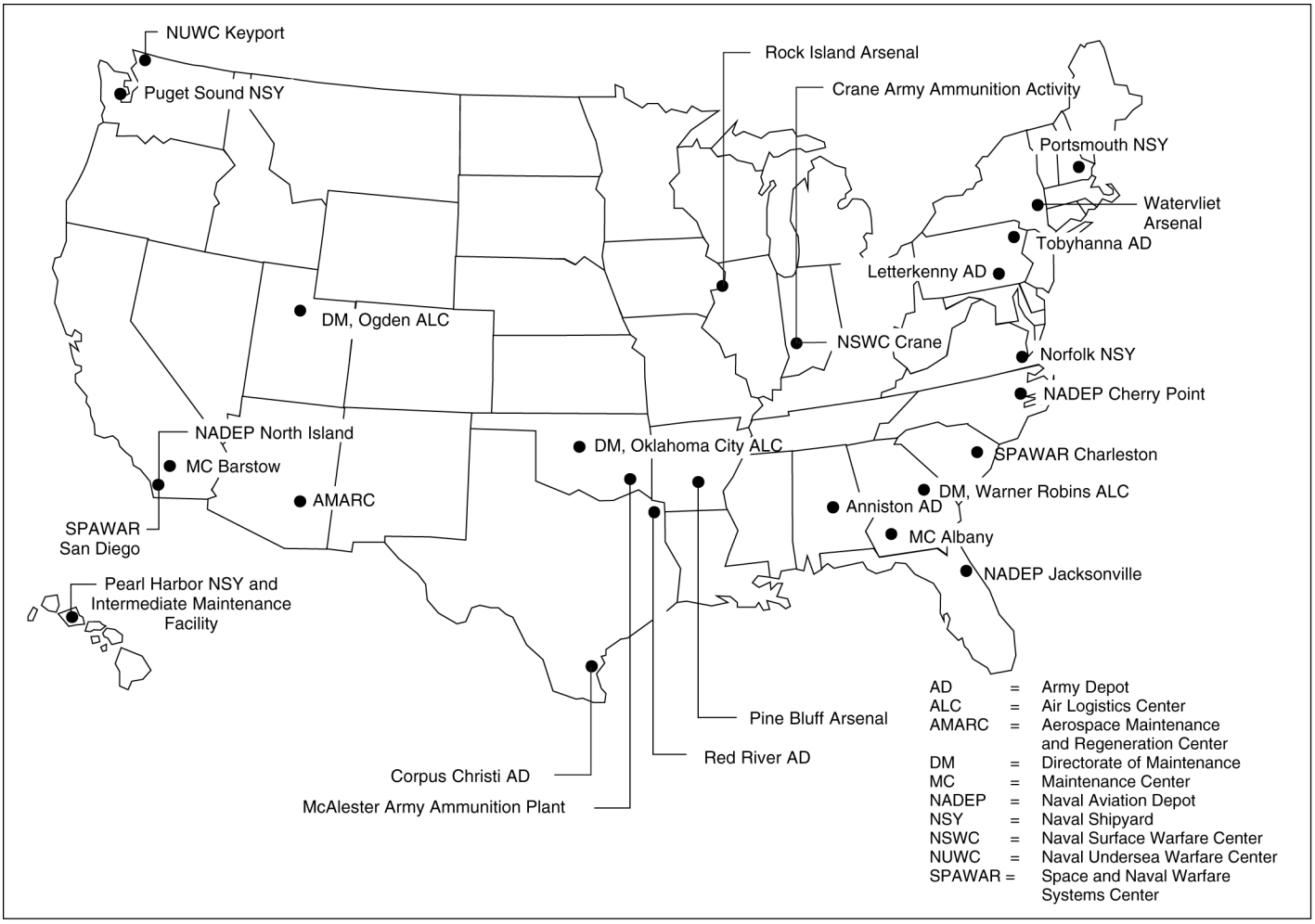
DOD Industrial Activities

DOD owns and operates industrial activities that support the military mission by repairing; rebuilding; overhauling; and upgrading components, ammunitions, or end items to return them to a like-new condition or by manufacturing new systems components or ammunitions. As of January 2003, and as shown in figure 1, DOD industrial activities included

- twenty-two maintenance depots—11 in the Navy (three aviation depots, four shipyards, and four warfare centers—two associated with ship systems and two associated with engineering analyses and command and control), 5 in the Army, 4 in the Air Force, and 2 in the Marine Corps;
- three Army arsenals[4] that have a manufacturing mission; and
- two Army ammunition manufacturing plants that are government-owned and -operated.

[4] The Arsenal Act (10 U.S.C. 4532) provides that the Army is to have its supplies made in U.S. factories or arsenals provided they can do so economically. The act further provides that the Secretary of the Army may abolish any arsenal considered unnecessary.

Figure 1: Location of 27 Key DOD Industrial Activities



Source: DOD.

These activities, which are a part of the combined public and private sector industrial base and are largely staffed by DOD civilians, are described in appendix II. This appendix also describes the type of work performed at the activities and the number of DOD civilians employed in each. The activities generally require extensive shop facilities and specialized equipment and employ a range of personnel from highly skilled technicians and engineers to laborers. Figure 2 shows a collection of maintenance or manufacturing activities performed in some of the 27 industrial activities. In fiscal year 2002, these activities employed about 72,000 civilian employees—about 10 percent of DOD's civilian workforce. About 1,200 military personnel are also employed in these activities, with

over half the military assigned to the Pearl Harbor Shipyard and Intermediate Maintenance Activity, which in 1998 consolidated its depot and intermediate maintenance work into one activity, bringing together the largely military workforce employed in the intermediate activity with the largely civilian population employed in the shipyard. In the other DOD industrial activities, military personnel are largely in managerial or supervisory positions. Of the approximately 72,000 civilian employees, the Army employs about 14,200; the Navy, about 35,500; the Marine Corps, about 1,300; and the Air Force, about 21,100. Various factors (such as the downsizing of the U.S. military force structure; increased use of the private sector for performing support activities; and changes in repair processes, increasing equipment's time in the field) have resulted in significant reductions in the number of personnel working in these facilities. For example, the number of personnel assigned to DOD maintenance depots was reduced by about 60 percent between 1987 and 2001—from about 156,000 to about 64,500 workers, while the total amount of maintenance work was cut in half during that period.

Figure 2: Collection of Various Maintenance and Manufacturing Activities Performed in Selected Industrial Activities

Source: DOD.

Top row (left to right) Electrical adjustments to microwave tube (Crane Naval Surface Warfare Center); final assembly of a MK 50 exercise torpedo (Keyport Naval Undersea Warfare Center); final finish work on 2000-pound bombs, e.g., stenciling and applying lugs (McAlester Army Ammunition Plant); rigging F100 Core Module for installation on engine (Directorate of Maintenance, Oklahoma City Air Logistics Center).

Middle row (left to right) Lifting the bow of the USS Radford (Norfolk Naval Shipyard); mechanical work on the F-15 fuselage (Directorate of Maintenance, Warner Robins Air Logistics Center); applying preservative to gun tubes (Watervliet Army Arsenal); repair of CH-53 helicopter (Cherry Point Naval Aviation Depot).

Bottom row (left to right) Preparing F/A-18 Hornet wingfold lock, (North Island Naval Aviation Depot); foundry pour for making metal parts (Rock Island Army Arsenal); repairing CH-46 helicopter (Cherry Point Naval Aviation Depot); using press to load projectiles (Crane Army Ammunition Activity); repair line for T700 engine, used to power various helicopters (Corpus Christi Army Depot).

The Government Performance and Results Act of 1993

Improved strategic planning has been a key goal of the federal government in recent years, with the Government Performance and Results Act of 1993 providing guidance on strategic planning for government activities.[5] Strategic plans are intended to be the starting point for each agency's performance measurement efforts. Each plan is to cover a period of 5 years and must include a comprehensive mission statement, which discusses, among other things, the agency's major functions and operations, a set of outcome-related goals and objectives, and a description of how the agency intends to achieve these goals and objectives. We previously reported that high-performing organizations begin their strategic planning by defining what they want to accomplish and what kind of organization they want to be.[6] Similarly, agencies establish their missions, visions for the future, core values, goals and objectives, and strategies.

Strategic Workforce Planning

High-performing public organizations have found that strategic planning and management can address human capital, or workforce, shortfalls. Strategic workforce planning—planning that focuses on developing long-term strategies for acquiring, developing, and retaining an organization's people and for aligning human capital approaches that are clearly linked to achieving programmatic goals—is a key part of human capital management. In short, according to a National Academy of Public Administration guide on building successful organizations, strategic workforce planning is a systematic process for identifying the human capital required to meet organizational goals and developing the strategies to meet these requirements. To help meet organizational goals, organizations use workforce planning—getting the right people with the right skills in the right jobs at the right time—that is explicitly linked to the agency's overall mission and goals.

[5] P.L. No. 103-62, Aug. 3, 1993.

[6] U.S. General Accounting Office, *Human Capital: A Self-Assessment Checklist for Agency Leaders*, GAO/OCG-00-14G (Washington, D.C.: September 2000).

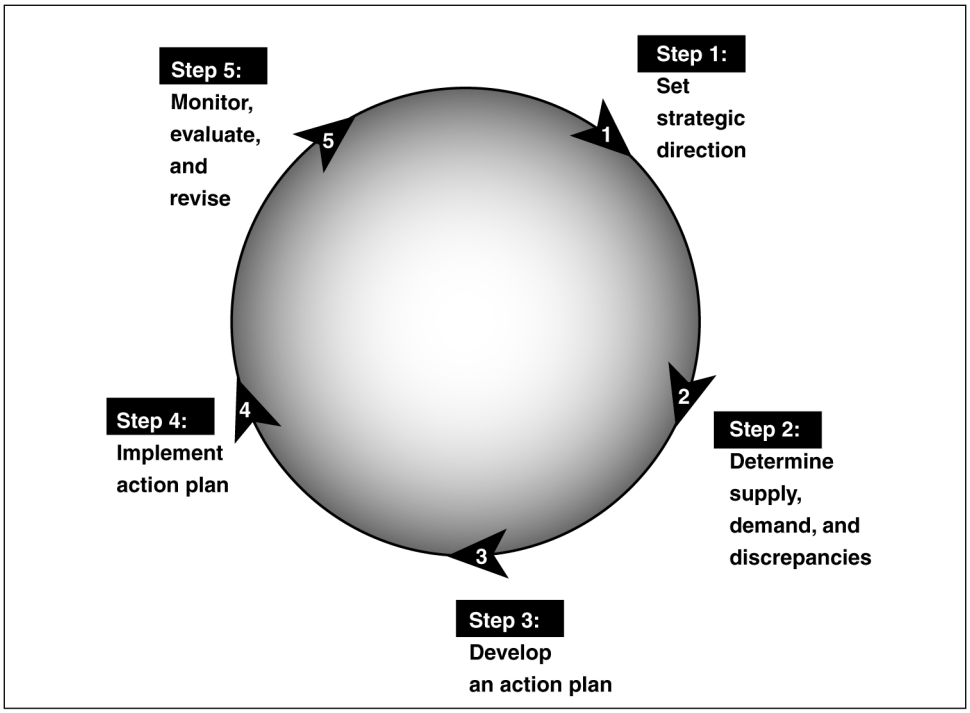
While many organizations have developed models for workforce planning,[7] putting aside variations in terminology, the models generally include the following steps.

- Set strategic direction, including the identification of organizational vision and objectives at that point in the future on which planning will be based. This direction should also include human capital goals.
- Identify workforce skills and competencies needed to achieve the objectives. Analyze the present workforce to determine what skills and competencies are present. Compare the present workforce skills and competencies to those needed in the future. This step is sometimes referred to as "gap analysis."
- Develop an action plan to transition from the present workforce to the future workforce. The action plan should address recruiting, hiring, training, succession, and retention.
- Implement the action plan by developing well-defined objectives, specific measurable workforce goals, and timetables and milestones; conducting recruiting and training; and putting retention strategies into practice.
- Establish performance measures; periodically evaluate the workforce action plans, review the mission and objectives to ensure they remain valid; and make adjustments as required by changes in mission, objectives, and workforce skills and competencies.

Strategic workforce planning is an iterative process, as demonstrated by the OPM's workforce planning model in figure 3.

[7] For example, OPM's Workforce Planning Model (http://www.opm.gov/workforce planning/wfpmodel.htm) and U.S. General Accounting Office, *Exposure Draft: A Model of Strategic Human Capital Management*, GAO-02-373SP (Washington, D.C.: March 2002).

Figure 3: Office of Personnel Management's Workforce Planning Model



Source: OPM.

As a guide to help agencies in their human capital management efforts, the OPM issued the Human Capital Assessment and Accountability Framework in November 2002. This document provides standards for success that include, among other things: (1) strategic alignment, (2) workforce planning and deployment, and (3) suggested performance indicators. Criteria provided in other workforce planning models we reviewed are compatible with the more recent OPM framework.

DOD Lacks Strategic Planning to Guide Future Planning for Industrial Activities

Although we have previously recommended the development and implementation of a strategic plan for depot maintenance, DOD does not yet have a strategic plan to guide the future development of depot maintenance activities, and questions continue about core capabilities and future work. While the DOD depot system has been a key part of the department's plan to support military systems, the increased use of the private sector to perform work previously performed by DOD employees has decreased the role of the services' depots and raised questions regarding their future. Title 10 of the U.S. Code provides direction regarding the role that DOD depots should play in supporting the fighting

forces and in how depot work should be allocated between the public and private sectors. However, while some action has been taken to begin formulating a depot strategic plan, DOD does not yet have a strategic plan for its depot maintenance activities, and it is uncertain when it will be completed. Absent a comprehensive DOD plan, the services have in varying degrees initiated a strategic depot planning effort. Generally, however, the service versions do not identify what work will be performed in the service depots in the future, and it is uncertain whether these activities will continue to be viable as the systems they support age and are phased out of the inventory.

Legislation Provides Direction Regarding the Continued Performance of Depot Maintenance in DOD Activities

Although legislation requires the continued performance of some key industrial activities—core capabilities—in government-owned facilities and by government personnel and specifies that not more than 50 percent of funds spent for depot maintenance may be spent for work performed by the private sector, DOD has in recent years increasingly relied on the private sector for the performance of various logistics activities, including depot maintenance. In the past, the department requested repeal of legislative provisions that influenced the continued use of DOD facilities and personnel performing depot maintenance activities and recently again considered proposing the repeal in order to gain flexibility for its business decisions. However, the identification and acquisition of future core capabilities are key to strategic depot planning.

Section 2464 of title 10 requires the Secretary of Defense to identify and maintain a core logistics capability. Under that provision, the core logistics capability is to be owned and operated by the government to ensure the existence of a ready and controlled source of technical competence and resources so that the military can effectively and timely respond to mobilization, national defense emergencies, and contingencies. The core capabilities are to include those necessary to maintain and repair the weapon systems and military equipment that the Secretary, in consultation with the Chairman of the Joint Chiefs of Staff, identifies as necessary to meet the nation's military needs. Furthermore, the Secretary is to identify the workloads required to maintain those core capabilities and to require their performance in government facilities. Finally, the Secretary is to assign these facilities sufficient workloads to ensure peacetime cost efficiency, technical competencies, surge capacity, and reconstitution capabilities to support military strategic and contingency plans. Nonetheless, the concept of core capabilities is not precise and has been controversial. We have previously reported that the department's implementation of the core statute is not comprehensive and that the

policy and implementing procedures and practices provide little assurance that core maintenance capabilities are being developed as needed to support future national defense emergencies and contingencies.[8] In response to our report, DOD has revised its core policy to improve the department's guidance to the military services regarding how core capability requirements should be developed. Although this guidance has been issued, questions remain about the guidance and the services are not accomplishing key analyses to identify essential core capabilities.

In addition, 10 U.S.C. 2466 specifies that no more than 50 percent of the funds made available for depot maintenance may be spent for private sector performance, unless the requirement is waived for a particular fiscal year. This sets aside 50 percent of the funding for public-sector performance of these workloads. In recent years, our mandated reviews of the allocation of depot maintenance work between the public and private sector with regard to the 50 percent funding rule have found that increasing amounts of the service's depot work was going to the private sector. For example, during fiscal 2001 and 2002, the Air Force exceeded the 50 percent limit and waived the requirement; we could not determine with precision whether the Army was in compliance with the 50 percent provision.[9]

Because DOD implemented an acquisition policy that called on the private sector for life-cycle logistics support of its weapons systems, during the 1990s most new weapon system programs called for using private-sector maintenance providers, with depot repair of few new programs going to military depots.[10] With some increased visibility and awareness of the 50-50 and core provisions, DOD has recognized the need to revitalize the depots. DOD guidance supports the use of public-private partnerships. In some of these partnerships, private-sector logistics providers subcontract with military depots for some depot maintenance work. We recently reported that public-private partnerships comprise only about 2 percent of DOD's

[8] U.S. General Accounting Office, *Defense Logistics: Actions Needed to Overcome Capability Gaps in the Public Depot System*, GAO-02-105 (Washington, D.C.: Oct. 12, 2001).

[9] U.S. General Accounting Office, *Depot Maintenance: Change in Reporting Practices and Requirements Could Enhance Congressional Oversight*, GAO-03-16 (Washington, D.C.: Oct. 18, 2002).

[10] U.S. General Accounting Office, *Defense Depot Maintenance: DOD Shifting More Workload for New Weapon Systems to the Private Sector*, GAO/NSIAD-98-8 (Washington, D.C.: Mar. 31, 1998).

depot maintenance work, and while the department plans to significantly increase the use of such partnerships, there are some challenges that must be overcome if the department's planned expansion of partnerships is to be realized.[11] It is uncertain the extent to which public-private depot maintenance partnerships will result in contractor personnel replacing DOD civilian personnel in depots. However, because the 50-50 guidance provides that the funds for some depot partnerships are not counted when applying the 50 percent limitation, partnership work could be a vehicle for transferring significant amounts of maintenance to the private sector without exceeding the 50 percent limitation.

DOD recently considered proposing changes to title 10 depot maintenance provisions. A legislative proposal that was associated with the department's transformation agenda suggested repealing six sections that impose limitations on the management of depot-level maintenance and repair by requiring certain amounts of work to be performed in public depots.[12] According to the proposed repeal, these limitations reduce the flexibility necessary for the department to make proper and efficient business decisions in determining the source for depot-level maintenance and repair. Although DOD decided not to submit this proposed repeal at this time, similar language could be proposed in the future.

DOD Still Has No Strategic Depot Maintenance Plan and the Future of the Depots Is Uncertain

We previously recognized the importance of the depot maintenance mission, noted that it is unclear what future role is planned for the military depots in supporting DOD's military mission, and recommended that the department develop a strategic plan for the military depots.[13] However, while DOD has initiated some action toward developing a depot strategic plan, the department still has no depot strategic plan and the future of these activities is uncertain.

[11] U.S. General Accounting Office, *Depot Maintenance: Public-Private Partnerships Have Increased, but Long-Term Growth and Results Are Uncertain*, GAO-03-423 (Washington, D.C.: Apr. 10, 2003).

[12] The sections that DOD considered proposing for repeal were 2460, 2464, 2466, 2469, 2470, and 2472.

[13] U.S. General Accounting Office, *Defense Logistics: Actions Needed to Overcome Capability Gaps in the Public Depot System*, GAO-02-105 (Washington, D.C.: Oct. 12, 2001).

Thus, DOD continues to manage its depots on an ad hoc basis without clearly defining their role for the future and the capabilities that are required to assure the continued performance of that role. The implications for the future are uncertain. In short, as we have reported, the future capability for performing work in the military depot maintenance facilities is questionable because no overall plan exists that ties investments in depot maintenance facilities and plant equipment with future workloads and, in turn, with human capital needs. Furthermore, no other department plan provides required direction to shape the future of these facilities and their workforce. Without strategic planning that identifies which capabilities these activities will need to provide in the future, there is no assurance they will be able to support future readiness requirements as they have in the past. For example, DOD's latest logistics strategic plan, which was developed in August 1999, neither mentioned maintenance nor the large infrastructure and cadre of personnel required to operate and support the DOD maintenance depots.[14] This occurred even though maintenance is an important logistics activity that is essential for keeping complex weapon systems ready to perform even though about half the department's depot maintenance work is currently performed in military depots.

Under the Government Performance and Results Act, federal agencies are required to develop strategic plans that include mission statements, strategic goals and objectives, and describe how the agencies intend to achieve their goals and objectives through their activities, human capital, information, and other resources. Depot officials said it is difficult to develop a depot strategic plan with so many uncertainties about how the military depots will be used in the future. This is particularly true in light of the support initiatives implemented in recent years to contract out to the private sector most logistics support activities, including depot maintenance, for new and upgraded systems and also in light of the base realignment and closure process that is planned for 2005. These initiatives indicate that the role of military depots could be further reduced in the future. But how much it will be reduced is not clear. However, as long as title 10 requirements remain, DOD will be limited in the extent to which it can reduce the amount of work performed in DOD depot repair activities.

[14] DOD has not updated its logistics strategic plan since the 1999 plan. The document highlighting current logistics initiatives is the Future Logistics Enterprise, which consists of six elements, one of which is depot maintenance partnerships.

Absent DOD Direction, the Military Services' Efforts to Develop Strategic Plans Vary, but Generally Are Weak in Defining Future Work

Without benefit of a departmentwide strategic depot plan that clarifies the future role of military depots, the military services to varying degrees have provided a prospective for future depot management, with that of the Air Force and the Navy shipyards being the most mature. However, by and large, the vision provided is based on short-term workload projections—1 to 2 years beyond the current year—and does not provide the strategic long-term look that is needed to guide future workforce decision making.

Army

The Army does not have a current strategic depot plan, and its outdated plan was not comprehensive. According to Army planners, although the Army had a Depot Maintenance Enterprise Strategic Plan, the plan was suspended pending reassessment of depot capabilities and requirements as part of an ongoing study of depot proliferation. Further, while the suspended plan was intended to provide mission and vision statements, it was generally oriented toward improving depot business operations and it was not a comprehensive plan that provided a basis for guiding future depot planning.

Although not specifically addressed in the plan, in recent years, work assigned to the Army depots has greatly declined as have the workforces assigned to the depots. We reported in November of 1998, however, that the Army did not have a sound basis for identifying the number of positions to be eliminated from its depots.[15] This was particularly the case in determining the number of direct labor personnel needed to support depot workload requirements. To address this problem, the Army implemented the Army Workload and Performance System to correlate workload and funding requirements with the depot workforce. Nonetheless, this system does not provide the visibility of new systems, modernization programs, and upgrades that will have depot work that could be assigned to the depots.

Depot planners said they have little assurance that new systems will be brought in, as the older systems they currently work on are phased out of the inventory. Recently, ownership of Army depots has shifted to subordinate commands of the Army Materiel Command that are responsible for the sustainment of Army systems. It was hoped that this change would increase the commands' use of the depots and better

[15] U.S. General Accounting Office, *Army Industrial Facilities: Workforce Requirements and Related Issues Affecting Depots and Arsenals*, GAO/NSIAD-99-31 (Washington, D.C.: Nov. 30, 1998).

integrate depot work into the overall command mission performance, but it is too soon to know if this will be successful. The subordinate commands such as the Tank-automotive and Armaments Command and Aviation and Missile Command, which are responsible for making decisions about how support work will be allocated between the public and private sectors, were also responsible for decisions that moved responsibility for much of the work that used to be performed by the depots to the private sector. These actions were based on new acquisition guidance encouraging the use of contractor support.

The Army's suspended depot strategic plan identified five issues, one of which relates to depot workforce planning by keying in on the capability of the depot workforce to meet future requirements. The plan's goal for this strategic issue was "to ensure a sustainable, multi-skilled workforce that is capable of meeting future depot maintenance requirements;" and the plan identified implementation objectives and measurable criteria. Nonetheless, as previously noted, it is unclear what the depots' future work will be. Therefore, as older systems are phased out of the inventory, it is unclear what, if any, new work will be phased in. This was not addressed in the suspended plan.

The arsenals and manufacturing ammunition plants have strategic plans or draft plans providing a mission, vision statements, and goals for the organizations. However, it is unclear whether the extent that the vision these activities have for themselves is the same as the one that Army headquarters and the parent commands have for these organizations. Neither the Army nor most of the parent commands have officially published strategic plans that identify the vision and objectives for these activities. Most arsenals' workload and corresponding workforce have been declining for years. The arsenals generally project workload and corresponding workforce requirements primarily by consulting customers and prospective customers regarding their future workload for the arsenals. Arsenal officials said that this methodology provides a reasonable workload projection for only 2 years. Further, some of the work that is done in the arsenals is not the type of manufacturing work the arsenals used to perform. For example, instead of manufacturing large artillery systems, more than 40 percent of workload performed in the Rock Island arsenal is manufacturing and assembling tool kits—ranging from carrying-case sized sets to fully equipped maintenance shelters. A recent Rand study proposed privatizing the arsenals, but it is unclear to what extent the Army will pursue this strategy in the future.

The ammunition plants have a fluctuating workload, sometimes increasing and sometimes declining. The work at two government-owned and government-operated ammunition plants has declined in the past years, but it is now increasing. The McAlester, Oklahoma, ammunition plant, for example, will hire more than 200 new employees in fiscal year 2003, primarily because the bomb production workload has increased. According to ammunition plant managers, they are generally aware of their workload from less than 1 year to 2 years in advance.

Navy

The Navy does not have an overall strategic plan that covers all Navy depot maintenance activities, but the naval shipyard and aviation communities each have strategic planning efforts.

The Navy's plan for shipyards, called the Naval Shipyard Business Plan for Fiscal Years 2001 to 2005, has the essential elements of a strategic plan. It is aligned to the Naval Sea Systems Command's corporate strategy. The plan communicates the purpose and direction for naval shipyards and focuses on ship maintenance, workload performance, and associated improvement initiatives, including making investments in training, skills, and facilities necessary through 2005. It includes workload information from fiscal year 2001 to 2010. The plan has a strategic workforce goal for the naval shipyard workforce to have the skills and flexibility required to meet the demands of the future workload and business environment.

The naval shipyard plan describes the relationship of the naval shipyards, which comprise the public sector's share of the ship industrial base, to the overall industrial base—the total force. According to the plan, the shipyards must have a workforce that is capable of doing all the work. However, Navy officials said that, in reality, with regard to the ship repair business, the public sector and private sector personnel are complementary and personnel from both sectors are now used to support work that is primarily the responsibility of a shipyard from the other sector. This strategic planning approach would appear to drive workforce planning that is also complementary, but the shipyard business plan does not discuss private sector shipyard personnel.

The naval aviation community published its Depot Maintenance Strategic Plan in December 2002. This document is not a complete plan, but it provides the framework for general doctrinal policies and principles that will provide the future direction of naval aviation maintenance. It defines four strategic goals for the depot system: (1) maximize the ability to favorably impact war fighter readiness and safety, (2) reduce the war fighters' total cost of ownership, (3) fully integrate depot maintenance into

total life-cycle logistics management, and (4) become the knowledge base for naval aviation depot maintenance. The plan does not identify the workload and a workforce capability expected to be required at individual depots but does reveal that airframe work and modification work will be reduced and component rework and in-service engineering and logistics support work increased. The plan indicates that public-private partnerships will be pursued and are expected to be a significant share of the Navy depot maintenance business. According to Naval Aviation Systems Command officials, the strategic plan is the first of several documents that will be produced, with a depot business plan and comprehensive depot human resources plan to follow. The plan also noted that changes in title 10 legislation could be needed to implement the plan.

Strategic planning for the naval warfare centers is done for an entire center and includes the depot maintenance function. Depot maintenance is not the primary function of the centers but is integrated within several departments' operations and is not centrally managed. For example, depot maintenance at the Naval Surface Warfare Center Crane Division supports engineering efforts within three departments and is not centrally managed; rather each department manages the depot operations. Strategic planning does not specifically address depot operations but includes workforce goals for the center, which includes depot workers.

The Space and Naval Warfare Systems Command has depot operations located at two centers but depot maintenance is not the primary function of the centers. Each center has a strategic plan that includes depot operations. Depot operations are managed at the division levels in the centers, which provide engineering support for various systems. The divisions have strategic plans that include workforce goals, which include depot workers. The two centers' depot operations are not structured like other Navy depots and shipyards, where certain types of repairs are directed. Instead, they compete with other depots and repair activities for work.

Marine Corps

The Marine Corps does not yet have an approved strategic plan to guide actions to hire, develop, and retain the depot workforce of the future. However, efforts are under way to improve strategic planning at the Headquarters and at the Materiel Command, which is responsible for identifying depot maintenance requirements and the amounts and types of workload for the depots.

Headquarters Marine Corps has a draft plan, Depot Level Maintenance Strategic Plan, that contains mission and vision statements and

three related goals for improving the support of weapon systems and equipment at the depot level. This draft plan does not identify the Marine Corps organizations or offices responsible for implementing or monitoring the plan. According to a Headquarters Marine Corps official, no schedule has been established for the plan to be reviewed, approved, and issued.

The Materiel Command's draft strategic plan for fiscal years 2003 through 2008 contains mission and vision statements and six goals to improve materiel life cycle management of weapon systems and equipment at the depot level, but it is not depot specific. Command officials said that the plan, when finalized, would have metrics to evaluate implementation but is on hold pending decisions regarding the reorganization of the Materiel Command. As of February 2003, the command had no schedule for finalizing the plan. Logistics Bases, a subordinate command of Materiel Command, which owns the depots, published its first strategic plan about 2 years ago. Its current plan is not depot specific and is mostly business-process oriented, with only one of its six broad goals focused on workforce issues. Although the plan has mission and vision statements, Logistics Bases officials acknowledged that planning efforts do not yet address all the elements of workforce planning suggested by OPM and GAO because the command did not yet have the data it needed (such as attrition rates, retirement trends, and skill gaps) for these analyses. Officials of Logistics Bases also said the command has recently contracted for data collection and analysis on depot workforce and equipment activities that would provide a baseline for future strategic planning. Further, officials said they plan to use metrics to implement the plan and evaluate the results.

Air Force

The Air Force is the most progressive in its depot maintenance strategic planning. In August 2002, the Air Force issued a Depot Maintenance Strategy and a Depot Maintenance Master Plan covering fiscal years 2004-2020. These plans provide a roadmap designed to ensure the continuing viability of Air Force's three military depots to meet the war-fighter mission needs. However, the plans did not include the Aerospace Maintenance and Regeneration Center. The plans are intended to posture the Air Force's three other depots to support both new weapons systems and new technologies entering the inventory, as well as its aging systems. They have a workforce component, which calls for new and younger workers to be acquired and trained prior to the loss of the highly skilled workers who are nearing retirement to leverage their knowledge and skills. In addition, the Air Force plans call for an increased capital investment of approximately $150 million per year over the next 6 fiscal years, starting in fiscal year 2004, to modernize the Air Force depots.

However, key financial elements of the strategy and plan have changed somewhat since the issuance of the strategic and master plans. Most significantly, future capital investment plans, operational improvements, and workforce enhancements are still evolving and uncertain. For example, according to our analysis, funds for replacing and modernizing equipment used to accomplish current workloads are less than projected; funding amounts and sources for acquiring new capabilities to be provided by weapon system acquisition programs and the private sector are lagging and uncertain; and funding is not sufficient to implement initiatives to improve depot operations and financial systems and for workforce enhancements.

Services' Efforts to Develop Industrial Workforce Plans Vary and Generally Lack Some Key Planning Elements

Strategic workforce planning is intended to focus on developing, by its definition, long-term human capital strategies that are linked to achieving key programmatic goals. Strategic workforce planning requires a strategic plan, and as previously discussed, DOD still has not developed a depot strategic plan. Thus, the services generally do not perform strategic workforce planning that is tied to meaningful long-term visions, objectives, and strategic goals for their services' military roles and missions. However, in varying degrees, each of the services performs short-term depot workforce planning that is tied to the budget preparation process. The services' existing short-term workforce plans usually do not assess the workforce competencies needed to address future skill gaps, do not have comprehensive retention plans, and sometimes lack performance measures to evaluate the plans—all areas identified as key to successful workforce planning.

Service Depot Workforce Planning Is Largely Short-Term

Each of the services performs short-term workforce planning that is tied to the budget process. While largely not strategic in nature, the services perform most aspects of workforce planning, which in varying degrees address some elements of workforce planning identified by the OPM and high-performance organizations. Appendix III provides a synopsis of the services' short-term depot workforce planning efforts.

Army

The Army Materiel Command and its subordinate commands are responsible for determining the work for the Army's five maintenance depots. Semiannually, they hold workload conferences to review, analyze, document, and assign work to the depots. Once workload is assigned, the depots determine the number of employees needed to support the workload, including (1) direct labor workers who charge time to finite job taskings; (2) indirect workers, such as shop supervisors and parts

expediters, whose time supports the overall depot maintenance process rather than finite jobs; and (3) general and administrative overhead personnel such as production managers, technical specialists, financial managers, personnel officers, logisticians, contracting officers, computer programmers, and computer operators. Determining personnel requirements is an iterative process that begins with the depots and subordinate commands. The commands use the Army Workload and Performance System to identify projected workload and the future staffing requirements based on year-to-year workload changes, known organizational adjustments, efficiencies such as the Quadrennial Defense Review, and most efficient organization studies. After agreement is reached, the proposed staffing levels, which are included in the consolidated depot budgets, are forwarded for review up the chain of command. These commands can revise the levels initially requested based on past performance and other evolving workload and staffing information. Once the staffing levels are approved, the depots establish plans and take actions to size and reshape the workforce to support workload. These actions, in keeping with workforce planning, include identifying what skills may be lacking to support the workload and developing hiring plans to recruit new workers; training plans for new and existing workers to develop and enhance critically needed skills; or, if staffing levels are low, measures to accomplish the assigned workload such as increased use of overtime. These plans could also include reducing the number of depot workers, if the projected work does not support the number of workers.

Although each of the three arsenals determine their future workload and estimate future workforce requirements somewhat differently, the arsenals generally accomplish the task by (1) examining the currently funded work, (2) requesting customers and prospective customers to predict their workload for the arsenals for the next 2 to 3 years and estimating the labor hours and skills to provide the predicted products, (3) examining historical trends such as unexpected orders received, (4) discussing workload with their parent organizations, and (5) developing their workload and workforce requirements. The projected workload and workforce requirements are reviewed and approved at the parent organizations using a predictive staffing model to validate the arsenals' computations. Most arsenals estimate the workload and workforce requirements for 2 to 3 years in advance, and officials said their estimates for this time period are generally fairly accurate. The Watervliet Arsenal in New York estimates its workload for 6 years in advance, but officials acknowledged that estimates beyond 3 years are subject to change. However, they believe estimates are generally reliable.

The Army's two ammunition manufacturing plants' workload generally comes from their parent organization—the Joint Munitions Command (formerly Operations Support Command)—based on customer orders. The orders may come from other services or from commercial organizations, but the orders are placed through the parent organization. A predictive staffing model is used to determine the workforce requirements. Firm orders are usually placed no more than 1 year in advance, and the plants' workloads are generally known from less than 1 year to 2 years in advance.

Naval Aviation Depots

The Naval Air Systems Command distributes the annual and future (2 years) industrial-based workload to the three naval aviation depots. Once the depots receive the workload, they use historical workload data and staffing models to determine the civilian manpower requirements needed to accomplish the assigned workload. The staffing models break the total workload into the number of workers needed in each shop and the related trade skills required. These models include historical factors such as direct labor personnel, leave, and overtime percentages. The depots then develop the workforce requirements for the aircraft, engines, and component programs. Once the requirements are developed, the depots also prepare plans that include the specific skills, numbers, and types of workers needed in each production shop. These plans are used to establish hiring, training, and recruitment efforts at the depots. After the depots establish the workforce requirements, they are forwarded for review and approval to the Naval Air Systems Command.

Naval Shipyards

The Naval Sea Systems Command distributes the workload to the four shipyards that determine the workforce requirements to accomplish the planned work. The Naval Sea Systems Command provides the shipyards with depot maintenance workload for at least 6 years. The shipyards' workload is predetermined from legislation, the availability of ships, depot-level maintenance requirements, and the budget. The primary tool the Naval Sea Systems Command and shipyards use to forecast workloads and workforces for budgeting and planning purposes is the Workload and Resource Report, which includes data on the current year and 2 subsequent years. Each shipyard is provided its assigned workload schedules so they can develop their workload and resource reports for the workforces of each production shop. As part of the shipyards' processes for determining the workforce and skills to efficiently execute the workload, each shipyard uses a resource allocation process. The resource allocation process determines the right number of workers with the right skills to efficiently execute the workload. Also, the shipyards' production shops implement hiring and training plans and skills assessments to

support critical skills that are determined to be necessary for successful execution of ship maintenance. After the shipyards' workforce requirements are determined, they are forwarded for approval to the Naval Sea Systems Command and included in the command's budget.

The Naval Sea Systems Command also has two warfare centers. Depot operations at both centers receive annual projected workload allocations from their prospective customers. The centers use the annual budget workload forecasts and knowledge of program's future plans to determine the civilian workforce requirements. Also, civilian workforce requirements are based on workforce demographics such as attrition and retirements. The workload allocations combined with changes in the civilian workforce demographics provide hiring and training requirements for the centers. The civilian workforce requirements for the depot operations are forwarded through the centers for approval and review up the chain of command.

Space and Naval Warfare Systems Centers

The Space and Naval Warfare Systems Command has two depot maintenance activities that are not structured like the other naval depots and shipyards, where certain types of repairs are directed. Rather, these centers compete with other depots and repair activities for their workload. The depot operations' workforce allocations are directly dependent on the annual workloads they solicit and maintain from customers such as the Naval Inventory Control Point, other services, and naval commands. Depot operations at the centers receive annual workload information from their perspective customers, which are used to develop civilian workforce requirements. Hiring and training plans are developed according to the annual civilian depot workforce requirements. The centers' depot workforce requirements are forwarded through the centers for approval and review up the chain of command.

Marine Corps

The Logistics Bases, a subordinate command of the Marine Corps Materiel Command, is responsible for identifying depot maintenance requirements and workloading at the Marine Corps' two maintenance depots. Annually, once depot maintenance requirements and related funding are identified, the two centers begin the process for determining the total number of workers to support the workload—including direct labor and indirect labor workers. The centers send their staffing requests back up the chain of command for review and approval. Revisions to staffing requests can occur as a result of the centers past performance, other evolving workload information, and staffing information. Once the centers have an approved staffing level, they establish plans and take actions to size and reshape the workforce to support workload. Such actions include, among others,

identifying skills needed to support the workload; developing hiring plans to recruit new workers and training plans for new and existing workers to develop and enhance critically needed skills; or if staffing levels are reduced, identifying measures to accomplish the assigned workload such as increased use of overtime; or, if necessary, reducing the number of depot workers.

Air Force

In early 2000, the Air Force Materiel Command, which has management and oversight responsibility for the four Air Force maintenance depots, developed and institutionalized workforce shaping processes to assist depot managers in planning and achieving their overall workforce objective. That objective is to obtain by fiscal year 2005 a trained, flexible workforce of sufficient size with the appropriate mix of skills and expertise to accomplish the depot mission. A key aspect of the command's workforce planning process is the development of accession or hiring/appointment data. The command requires the depots to provide annual accession data in order to determine the number of potential vacancies by job series that each center is likely to experience in the current and the next 5 fiscal years. The command, in turn, applies a probability loss model to produce out-year accession numbers using attrition and retirement rates and other loss data, such as separations and deaths, for each depot by occupational job series. The final accession numbers basically become the depots "hiring plan."

According to depot officials at each center we visited, change in the mission workloads is just one of many factors used in computing future accession requirements. They further stated that as a general rule, projected accessions are based primarily on current workloads and attrition rates rather than on future workload estimates. According to these officials, because the Air Force depot maintenance strategic plan does not identify new work to be performed in the depots, they cannot predict with a high level of confidence what their expected workload volumes will be more than 2 or 3 years out. Depot officials told us that their projected accession numbers beyond 2 or 3 years are their best guess. In addition, the depots annually conduct a bottoms-up workforce review to ensure that their civilian workforce is the right size and aligned to meet identified workload requirements. If properly done, the workforce planning process provides management with the needed data to make sound workforce decisions from implementing effective recruitment and retention programs, to developing valuable training programs, and to arranging for successful accession management.

Some Depot Workforce Planning Efforts Lack Competency Assessments, Comprehensive Retention Plans, and Evaluative Performance Measures

Depot workforce planning, as done by the services' depots, generally does not address elements of three steps identified by OPM and high-performing organizations as key to effective workforce planning: (1) the assessment of competencies needed to address skill gaps; (2) the development of comprehensive retention plans; and (3) the implementation of performance measures to evaluate the success of the workforce plans. Table 1 provides an assessment of the status of service depots' short-term workforce planning efforts in nine key areas of the five steps in strategic workforce planning. (See also appendix III.)

Table 1: Status of Service Depots' Short-Term Workforce Planning Efforts

Service/ depot type	Human capital goals	Vision & objectives	Assessed Competen-cies[a]	Gap analysis	Recruiting and/or hiring plans	Training plans	Succession plans	Comprehen-sive retention plans	Evaluate plans and adjust
Army									
Depots	√	√		√	√	√	√		√
Arsenals	√	√		√	√	√	√		
Ammo Plants	√	√		√	√	√	√		
Navy									
Aviation Depots	√	√		√	√	√	√		√
Shipyards	√	√		√	√	√	√		√
Naval Surface and Undersea Warfare Centers	√	√	√[b]	√	√	√	√		√
Space and Naval Warfare Systems Centers	√	√		√	√	√	√		√[c]
Marine Corps	√	√	[d]	√	√	√	√		√
Air Force	√	√	√[b]	√	√	√	√		√

Source: DOD (data), GAO (analysis).

Note: √ Checkmark indicates efforts under way to address elements in these steps.

[a]All the services and depots assessed their skills to address gaps relative to the future workforce requirements.

[b]The Naval Surface Warfare Center and the Air Forces' Directorates of Maintenance at Ogden Air Logistics Center, Oklahoma City Air Logistics Center, and Warner Robins Air Logistics Center did not assess competencies.

[c]Space and Naval Warfare Systems Center San Diego did not have performance measures.

[d]The Marine Corps reported that it has an initiative underway to study establishing competencies and career paths for its logistics and facilities communities. However, the results of that initiative have not been published.

Most Depots Did Not Separately Assess Competencies Needed for the Depot Workforce

Although one Naval Undersea Warfare Center and the Air Force's Aerospace Maintenance and Regeneration Center assessed competencies, most depots have not assessed the competencies—a set of behaviors that encompass skill, knowledge, abilities, and personal attributes that are critical to successful work accomplishment;[16] competencies can identify where gaps exist in the skills of the current depot workforce relative to those needed in the future.

As shown in table 1, most depot officials did not usually separately assess competencies for depot workers, relying instead on job skills, series, or classifications. Workforce planning models, however, suggest that the assessment of competencies provides more than is discussed in position descriptions. A survey of several top-performing organizations suggests that a better approach is to conduct an actual assessment of employees' competency levels. An actual assessment will provide much more useful information for determining the number of those available and capable of fulfilling future functional requirements. It can also give good information as to what recruitment, training, and other strategies will be needed to address workforce gaps and surpluses.

Workforce planning models point out the need for identifying competencies. For example, the required competencies identified for GAO analysts include, among others, thinking critically, improving professional competence, achieving results, collaborating with others, and facilitating and implementing change. According to the state of Washington's Workforce Planning Guide, competencies provide management and staff with a common understanding of the skills and behaviors that are important to the organization and the accomplishment of its mission.

Although most depots did not assess competencies separately for their depot workers, a couple of depots did competency assessments, with one depot doing competency assessments for its entire workforce and one

[16] As defined by several state and federal agencies such as the Washington State Department of Personnel, New York State Department of Civil Service, and the U.S. Departments of Interior and Health and Human Services.

doing an assessment for only a segment of its workforce. The Naval Undersea Warfare Center identified the following competencies in its assessment: innovative thinking, situational leadership, managing a diverse workforce, conflict management, interpersonal/team skills, technical competence, problem solving, and oral and written communications. According to warfare center personnel, these attributes are critical to the successful achievement of its mission and goals.

Additionally, the Air Force's Aerospace Maintenance and Regeneration Center developed a supervisor's needs assessment that identified supervisor competencies. They included integrity, communication, listening, empowering others, accepting responsibility, planning, being a team player, dependability, consistency, fairness, and effective prioritization. These competencies resulted in the development of a core-training curriculum for supervisors.

Services Lack Comprehensive Retention Plans

Although all of the services had some retention strategies to ensure continuity of leadership and for keeping high performing and highly skilled personnel, none have comprehensive retention plans to further enhance these strategies.

According to OPM, an important principle behind maintaining a quality workforce is employee retention. A critical analysis of workforce trends is essential to determine what factors most affect retention. Current workforce research has identified the following factors as being critical to enhancing the retention necessary for the construction of a high performance organization: diversity, career development and advancement, work life balance, recognition, employee benefits, and performance. Furthermore, OPM's 5-Step Workforce Planning Model states that a comprehensive retention plan should

- determine those employees who are critical to accomplishment of organizational goals,
- develop a means to provide constant feedback between these critical employees, and supervisors/managers to determine what they want and need to become long-term assets of the organization, and
- develop a means of providing incentives and/or working conditions designed to retain valued employees.

Most activities we evaluated had developed a means of providing incentives designed to retain valued employees. However, only the Air Force identified a separate list of occupations critical to accomplishment of organizational goals, with most depots reporting that every employee

was critical. Overall, the Naval Undersea Warfare Center and Navy shipyards were further along in developing their retention plans.

The Naval Undersea Warfare Center at Keyport, Washington, developed a personnel retention program that includes its depot workforce, concentrating on (1) work and job design, (2) career progression, (3) awards and compensation, and (4) quality of life. The center developed the retention program to make the center a great place to work. For example, the center has reinstituted new hire briefings, developed an employee handbook, and initiated an improvement award program to provide incentives to employees to submit new ideas for process improvement.

The Navy's shipyard retention strategies focus on bonuses, helper-to-worker programs, recognition programs, employment development and career opportunities, and leadership training. For example, the shipyards' helper-to-worker programs include, among other things, academics and trade theory training. Also, Puget Sound Naval Shipyard has used retention incentives to pay up to 25 percent of salary to retain approximately 30 employees who possessed engineering and technical knowledge that was critical to the shipyard's success. Meanwhile, an Air Force depot lost 8 of 12 workers in a shop because the highly skilled software engineers were disgruntled over not being able to get higher pay, even though their skills were critical, required years to acquire, and were and are not widely available.

Some Service Depots Lacked Performance Measures for Evaluating Workforce Plans

Although workforce planning models emphasize the need for establishing performance measures to provide a basis for evaluating workforce planning effectiveness, the workforce plans of some service depots did not have this element.

The Government Performance and Results Act stresses the need for establishing and using performance measures. Additionally, OPM's 5-Step Workforce Planning Model as well as some state and federal agencies stress the importance of measuring the effectiveness of workforce action plans as an element of effective workforce planning. Measuring performance allows organizations to track the progress they are making toward their goals and gives managers crucial information on which to base their organizational and management decisions. Leading organizations recognize that performance measures can create powerful incentives to influence organizational and individual behavior. According to the workforce planning guide of one high performance organization, leaders should regularly review performance measurement information,

assess what is working and not working, and make needed adjustments to the plan and strategies.

The Air Force depots and the naval shipyard communities did establish measures for evaluating the effectiveness of their workforce planning efforts. In April 2001, the Air Force Materiel Command issued a command wide Human Resources Strategic Plan that addressed critical workforce issues for depot maintenance workers as well as all other materiel command personnel. The plan contained, among other things, performance measures and milestones for each human-resource enabling task. For example, it identified various performance measures for the task "Develop and Implement Methods to Attract and Recruit High-quality Employees." They included, among others, determining whether milestones had been completed on time and whether appropriate actions had been taken after analysis of data from new employees' entrance surveys.

The Naval Sea Systems Command also developed performance measures for evaluating the effectiveness of workforce plans for Navy shipyard personnel. Performance measures for the Navy's shipyards include, among others, measuring the success of the hiring process by comparing actual to planned hires. Also, shipyards track the average age to determine whether the effect of workforce plans is lowering the average age of the overall shipyards' workforce. Furthermore, evaluations of shipyards' training plans include post training evaluations and review of the budgeted training funds expended.

Some Army depots and arsenals and one naval depot have not established performance measures for evaluating the effectiveness of workforce plans. Army and Navy officials said they did not develop such performance measures because their focus was on various business metrics that assessed the cost, schedule, and performance of their depot operations. However, while those metrics provide details about depot operations and worker productivity, they provide little insight into the progress being made toward achieving workforce goals and objectives.

Performance measures are an important element of workforce planning. Without establishing and using performance measures, managers will likely not be able either to evaluate the progress made toward the attainment of workforce planning goals relative to recruiting, hiring, training, retention, and succession or to measure the workforce's contribution toward achieving programmatic goals.

A Number of Challenges Inhibit Effective Strategic Workforce Planning

The services' depots face a number of challenges that adversely affect DOD's strategic workforce planning for the viability of its civilian workforce. First, the services may have difficulty maintaining the depots' long-term viability by replacing up to 31,000 skilled depot workers, if these workers retire when they are eligible by 2009. Second, the services are having difficulty implementing multiskilling—having one worker capable of performing more than one skill, or trade, in the depot—which has been shown to improve worker efficiency and productivity and could help the depots do more with less. The Navy and the Air Force have attempted to implement multiskilling but are having difficulty because additional compensation or other financial incentives have not been approved or are not available. Lastly, the need for increased training funding and innovation for workers who replace the large number of potential retirees will also pose a challenge. The Air Force is already facing unfunded training costs for its depot workers.

Difficulty Maintaining Depot Viability if Large Numbers of Eligible Skilled Workers Retire

As a result of depot downsizing, the DOD civilian depot workforce has about 31,000 personnel eligible to retire over the next 5 to 7 years.[17] This creates a challenge for the depots in retaining their viability, assisting service readiness, and revitalizing their workforces.

Table 2 provides age and retirement eligibility information for the 27 DOD industrial facilities. The average age ranges from 44 in the McAlester, Oklahoma, ammunition plant and 45 in three naval shipyards (where officials have actively worked to lower the average age), to 52 in the San Diego Space and Naval Warfare Systems Center and the Air Force's Aerospace Maintenance and Regeneration Center. In Army maintenance depots, where the average age is 49, depot officials said it is difficult to bring down the average age because there are not many new hires and some of those hired tend to be older employees.

[17] Retirement projections were based on date the employee becomes eligible for optional retirement under the Civil Service Retirement System or the Federal Employees Retirement System.

Table 2: Civilian Personnel in Industrial Facilities Eligible to Retire

Defense industrial facilities	FY 2002 civilian staffing levels	Average age	Number of civilians eligible to retire in FY 2002	Percent eligible to retire by FY 2007	Percent eligible to retire by FY 2009
Navy depots					
Cherry Point Aviation Depot	3,839	46	99	24	34
Jacksonville Aviation Depot	3,928	48	133	27	37
North Island Aviation Depot	3,138	49	109	31	43
Norfolk Naval Shipyard	7,525	45	527	27	38
Portsmouth Naval Shipyard	3,500	46	251	30	41
Puget Sound Naval Shipyard	8,608	45	676	28	38
Pearl Harbor Naval Shipyard	3,987	45	122	27	38
Crane Naval Surface Warfare Center[a]	311	45	10	32	40
Keyport Naval Undersea Warfare Center	608	48	26	41	55
Charleston Space and Naval Warfare Systems Center	49	51	5	47	59
San Diego Space and Naval Warfare Systems Center	70	52	1	43	47
Total Navy	**35,563**		**1,959**		
Army facilities[b]					
Anniston Army Depot	2,429	48	408	48	60
Corpus Christi Army Depot	2,869	49	223	22	27
Letterkenny Army Depot	1,082	49	147	46	59
Red River Army Depot	1,478	48	203	42	55
Tobyhanna Army Depot	2,237	49	502	58	72
Rock Island Arsenal	1,156	50	82	36	41
Watervliet Arsenal	484	50	28	42	61
Pine Bluff Arsenal	804	49	89	43	63
Crane Army Ammunition Activity	620	49	181	49	60
McAlester Army Ammunition Plant	1,075	44	226	30	48
Total Army	**14,234**		**2,089**		
Marine Corps depots					
Maintenance Center Albany	659	48	128	47	64
Maintenance Center Barstow	664	47	118	43	56
Total Marine Corps	**1,323**		**246**		
Air Force depots[c]					
Aerospace Maintenance and Regeneration Center	439	52	139	65	77
Directorate of Maintenance, Ogden ALC	5,852	47	1,015	39	49
Directorate of Maintenance, Oklahoma City ALC	8,533	45	1,167	33	41
Directorate of Maintenance, Warner Robins ALC	6,328	45	988	33	41
Total Air Force	**21,152**		**3,309**		
Total Defense industrial facilities	**72,272**	**48[d]**	**7,603**	**33**	**43**

Source: DOD (data), GAO (presentation).

[a]Staffing level as of November 2001.

[b]Army industrial facilities include depots, arsenals and government-owned and–operated ammunition plants.

[c]Air Force data as of September 30, 2001.

[d]Total weighted average age based on the number of civilian staff at each industrial facility.

As table 2 shows, about 7,600 employees in these activities—about 12 percent of the total workforce—were eligible to retire in fiscal year 2002. However, depot officials told us they cannot hire replacement workers until the vacancies occur. Given that years of experience are required to get the average worker to a journeyman level, these officials are concerned about the impact on depot operations of trying to replace large numbers of workers during a short time period. This situation will be aggravated during the next few years as the number of workers eligible to retire increases significantly. For example, the percent eligible to retire by fiscal year 2007 ranges from a low of 22 in one Army depot and 24 in one naval aviation depot to a high of 65 percent at one Air Force depot and 58 at one Army depot. In 2009, 77 percent of the workers will be eligible to retire at one Air Force depot, 72 percent at one Army depot, and 64 percent in one Marine Corps depot.

Air Force officials said they expect to hire 13,000 depot workers by September 2009 to replace retiring workers. They expect to encounter difficulties during that process, similar to those they experienced when they hired approximately 4,500 workers during the last 2 years (primarily as a result of Base Realignment and Closures and transfers). Those difficulties included the following:

- engineering positions were particularly difficult to fill, and the use of pay incentives to increase salary levels of engineers and other hard-to-fill positions was essential;
- some qualified and desirable potential employees went elsewhere because the hiring process took too long;
- new hires were not “shop ready” when they come in the door and needed additional training; and
- more supervisors are needed to manage the new workers.

According to officials at the Air Force’s Directorate of Maintenance, Ogden Air Logistics Center, workers in one software engineering shop became discouraged at not getting additional pay and 8 out of 12 quit and went to work for a local contractor. Unable to fill these highly skilled positions or otherwise get the work accomplished in the depot, the depot hired the contractor to do the work formerly done in the depot at a

considerably higher cost than was incurred when the work was done in the depot.

Army officials noted that a higher average age does not necessarily equate to high retirement eligibility. For example, workers at the Corpus Christi depot have an average age of 49, but the number of workers eligible to retire by 2009 is 27 percent—the lowest of any depot. According to Corpus Christi depot officials, during the mid-1980s they hired about 1,700 workers in their mid-30s, many of which were ex-military. Additionally, Army officials noted that many depot workers continue to work after they are eligible to retire. Nonetheless, Army depot officials recognize that with about 52 percent of the depot workforce eligible to retire by 2009, it will be difficult to maintain a viable, trained workforce if the retirement eligible employees choose to retire over a short period of time.

We analyzed Army retirement eligibility data for the Army depot workforce and observed that some work centers could lose a majority of their staff within the next 5 years. Depot officials acknowledged that some work centers are at risk if all or most of the workers leave during a short period of time and that realignments, or job transfers, are needed to make sure a large number of retirement eligible employees are not assigned to any one area. However, the depots have limited plans to deal with this situation. They said they cannot hire replacement workers until after an employee retires. Additionally, transfers to balance retirement eligible employees could be unwelcomed by personnel and could have an adverse impact on shop productivity, as workers require time to gain skills in new areas. It will be a major challenge to balance such concerns about current operational impacts and increased training now against longer term concerns about retirement eligibility over the next 5 to 7 years. However, the depots are generally not making such analyses and trade-offs.

According to Marine Corps depot officials, attrition rates are low and the centers have hired few new permanent employees. However, the percent of employees eligible to retire will increase from 43 and 47 percent in 2007 to 56 and 64 percent in 2009. Officials said it would be difficult to bring on such large numbers of new workers if these retirement-eligible personnel do retire about the same time. However, the centers' workload has declined significantly in the past. Systems that used to comprise the bulk of the centers' work are phasing out of the inventory, and questions remain about whether replacement systems will be maintained in the Marine Corps depots or the private sector. Officials acknowledged that it

is difficult to plan for the revitalization of the center workforce without knowing what work will be available for them to do.

An aging workforce has some advantages—particularly when the workload is relatively stable over time. Officials pointed out that as DOD was downsizing its depot workforce and doing no new hiring, there were fewer demands for training programs. About half of the depots have apprenticeship programs, which are the most comprehensive and expensive type of training for industrial workers. Some of these programs have been re-established in the past few years. Nonetheless, according to depot officials, it would be unaffordable to hire enough apprentices to replace the large numbers of workers who will be eligible to retire over the next 5 to 7 years.

Difficulty Implementing Multiskilling Even Though It Could Improve Worker Efficiency and Productivity

The services are having difficulty implementing or are not trying to implement multiskilling—a private-sector initiative designed to improve the flexibility, efficiency, and productivity of workers. Multiskilling is the process of training maintenance employees in specific skills that cross the traditional trade or craft lines and then ensuring the work is performed. It involves reviewing work processes to identify situations where efficiency and productivity can be enhanced by training workers in one skill area or occupational series to perform some tasks in another occupational series. A major advantage of multiskilling is that particular jobs that require more than one craft—not necessarily more than one individual—can be performed by fewer personnel. It can reduce the time it takes to perform jobs involving multiple skill requirements by eliminating the time a depot worker must wait for another worker to arrive and perform a task that the first worker is not trained to do. For example, an aviation mechanic trained in certain electrical tasks can reduce the times an electrician must be called when doing aircraft repair.

In a 1998 review of Army industrial facilities we pointed out inefficiencies in the depots and arsenals and stated that improved systems and procedures for shifting maintenance workers between different organizational units and skill areas would offer better opportunities to effectively use limited numbers of maintenance personnel.[18] Depot

[18] U.S. General Accounting Office, *Army Industrial Facilities: Workforce Requirements and Related Issues Affecting Depots and Arsenals*, GAO/NSIAD-99-31 (Washington, D.C.: Nov. 30, 1998).

officials had noted that prior practices made it difficult to transfer workers between organizational units and skill areas to adjust for unanticipated work stoppages caused by changes in work priorities, parts shortages, technical problems, or temporary labor imbalances. We pointed out that multiskilled workers offered added flexibility and could allow depot managers to use a limited number of workers more cost effectively. We recommended that the Secretary of the Army encourage depot managers to pursue worker agreements to facilitate multiskilling in industrial facilities. Although the Army has not been successful in implementing multiskilling, this initiative remains a goal Army depot planners would like to pursue.

In recent years, the naval aviation community has done the most to begin using multiskilling as a depot improvement initiative, but full project implementation has been delayed because they have not been given permission to allow an additional pay grade for workers having more than one skill. Although the Air Force first tried multiskilling in 1993 and its current depot improvement initiative calls for determining cost effective ways to implement multiskilling, the Air Force's multiskilling initiative is also floundering. In addition, although service, depot, and other officials attribute improved workforce flexibility and cost-effectiveness to multiskilling, Army depots and Marine Corps centers and Navy shipyards are not implementing it.

Naval Aviation Multiskill Efforts Are Delayed

The naval aviation community has attempted to implement multiskilling since 1999. Although its current request to pilot a multiskilling demonstration project to use a certain compensation system had not been approved as of March 2003, the community is implementing the pilot with an alternative compensation approach.

As a result of an extensive business process reengineering project completed in 2002, the Naval Air Systems Command identified multiskilling as a solution to achieve a more flexible workforce. The program is intended to provide a more flexible, multitraded, trained workforce that could react more quickly to fluctuating workloads because managers can reassign employees based on workload demands. According to naval aviation managers, a multiskilled worker could be particularly cost-effective when depot workers go to the weapon system in the field rather than bringing the weapon to the depot. For example, a worker trained as both a pneudraulic systems mechanic and an aircraft engine mechanic could be sent to an operational location to accomplish the work that previously required workers trained in each of these skills. As a result,

cost reductions should occur in field team assignments, which comprise an increasing share of Navy aviation depots' work.

The naval aviation community's current multiskilling initiative used a business case analysis to justify a demonstration project that would provide training for workers who are at the journeyman level in one skill, such as a sheet metal mechanic, to attain journeyman status in a second trade, such as an aircraft mechanic. The project called for compensating the workers involved by increasing their pay by an additional wage grade.[19] According to Naval Air Systems Command officials, the economic analysis indicated savings could be achieved even though the workers would receive increased compensation. Increased throughput is expected to result in efficiencies of up to 20 percent due to redirected travel savings and increases in volume efficiencies. This same business case analysis indicated that during a single year one depot could potentially accomplish 519 additional maintenance tasks for the same amount of budget. According to depot planners, private sector workers receive increased compensation under similar circumstances, and union officials believe government workers should also.

However, OPM's Job Grading Standards do not contemplate providing compensation for an additional grade for two equal trades. OPM's job grading standards state that pay is based on the highest level of work performed, regardless of how many different trades an employee is required to perform. According to Naval Air Systems Command officials, OPM's standard inhibits their ability to pursue multiskilling initiatives and achieve reengineering efficiencies.

The Naval Air Systems Command sought permission to go to OPM to request a demonstration project with additional compensation in September 2000; but Headquarters, Department of the Navy disapproved the request. Based on the results of the 2002 business case analysis, which showed that the multiskill concept would increase readiness by providing a more flexible and well-trained workforce, in September 2002 the naval aviation community again sought approval for the proposed demonstration project, including increased compensation.

[19] The additional grade would allow increased compensation (e.g., at wage grade 10) for work in two equal skills (e.g., both wage grade 09) when the worker performs the functions of the two skills for a minimum of 25 percent of the time at work.

Navy headquarters has not yet approved the request, but aviation depot officials are going forward with the project using an alternative compensation approach. They have established a compensation award at each site, not to exceed a $2,500 annual award. Five different skill combinations have been proposed for the Cherry Point Depot and two for the Jacksonville depot. One combination has begun at the North Island depot. According to naval aviation officials, workers are reluctant to participate because while in training they would not have the opportunity for overtime pay. Officials believe that getting an additional grade would be sufficient to increase the willingness of depot workers to participate—a goal that is likely critical to getting the program to sufficient numbers to make it cost-effective.

Air Force Multiskilling Program Is Older but Declining

Although the Air Force's current depot maintenance improvement effort calls for determining cost effective ways to implement multiskilling, officials are generally supportive of it as a workload tool; however, the Air Force's multiskilling program is declining in size. In 1993, the Air Force Materiel Command prototyped a multiskilling concept using aircraft mechanics at the Oklahoma City depot. The program involved training and certifying mechanics in multiple skills (aircraft, sheet metal, and electrical) that were capable of performing a series of tasks involving general airframe, structural, and electrical maintenance. By 1997, the program had over 100 participants. However, since then, depot officials told us the program has lost its popularity and currently consists of only 49 participants. Officials said that due to production requirements, many of the skilled workers participating in the original project are now working in their primary skill and new hires show little interest because there are no financial incentives.

At the Warner Robins depot, officials designated a specific occupation job series, 8801, as multiskilling to provide workers with greater job flexibility and a better career path. As of September 2001, 148 workers were functioning in this job series. Multiskilled workers primarily performed tasks in two occupations, such as aircraft mechanic and electrical mechanic or aircraft mechanic and sheet metal mechanic. According to depot officials, they used this occupational job series as a hiring tool to attract younger, multiskilled workers at the entry level. However, workers did not receive any additional salary.

As a part of its depot maintenance improvement efforts, the Air Force has refocused on multiskilling. Officials conducted a business case analysis to determine the feasibility of various opportunities for using multiskilling at the depots. After several months of data gathering and analysis, officials

said they were not able to provide a strong business case for developing a standardized approach or expanding the use of multiskilling at the depots. We found that, except in very limited cases, the depots are not doing true multiskilling today. Rather, the depots are doing something similar called multicrafting that does not involve the combination of two or more skills at the journeyman skill level. Despite the results of the business case analysis, officials from Headquarters, Air Force Materiel Command, and the depots were generally supportive of multiskilling as a tool to deal with fluctuating homogenous workloads and to facilitate movement of employees as workload demands fluctuate.

Multiskilling Is Cited as Improving Flexibility and Cost-Effectiveness of Depot and Other Workforces

Service, depot, and other organization officials cite the multiskilling concept as a way to provide a more flexible, productive workforce that can react more quickly to fluctuating workloads, a key issue in trying to improve the cost-effectiveness of maintenance operations as well as meet readiness needs.

According to officials of the Naval Air Systems Command, the extensive business case analysis they conducted indicated that multiskilling will provide a trained workforce, more flexible for increased readiness, and more capable of being able to be reassigned on demand to better support fluctuating workloads. The officials also indicated that a multiskilling program could also better support readiness by serving as an incentive to skilled, near-retirement workers to stay and provide on-the-job training for younger workers. In addition, depot officials reported, on the basis of the economic analysis that savings would be achieved even though workers would receive increased compensation.

Various organizations such as the Tennessee Valley Authority are exempt from OPM's job grading standards and are allowed to establish a classification system that is more flexible and better fits their environment. Among the flexibilities the Tennessee Valley Authority has implemented is a multiskilled work force that receives additional compensation for additional skills and work. The Tennessee Valley Authority's program will involve about 1,400 current employees as well as new hires. According to Authority officials, multiskilling is improving the flexibility and efficiency of the workforce. As North America's largest public power company, the Tennessee Valley Authority developed its union agreements on multiskilling in fiscal year 2000 and fully implemented its pilot program by the end of fiscal year 2001, with the program expected to be fully implemented by 2005. The plan is to review all preventive maintenance activities and reassign them to utilize multiskill employees. Authority officials said that the multiskilling training program

is resulting in a more efficient way to accomplish their work and to obtain and maintain a versatile group of employees. They reported that increases in productivity and efficiency were expected to reduce restaffing after attrition by about 15 percent.

Private sector industrial activities have also implemented multiskilling. According to Naval Air Systems Command and Air Force officials, they did benchmarking in the private sector before they began trying to put together their own multiskilling programs. Navy depot officials also noted that they see increased usage of this concept when they do private sector wage grade comparability studies.

Need for Increased Funding and Innovation Driven by Increased Training Requirements

Based on the potential retirement of about 31,000 depot workers out of the approximately 72,000 workers in the workforce eligible to retire by 2009, training requirements will increase significantly for new hires, and innovation will be required to develop more cost-effective training alternatives. For over 10 years, most depots had training costs much smaller than would normally be required for industrial activities since depot downsizing resulted in hiring few new employees. However, because the Air Force currently has a significant deficit in funding training for new hires and refresher training, depot officials raised concerns over their ability to fund future training requirements needed for workforce revitalization. Furthermore, as the depots face the challenge of developing and implementing plans to address skill imbalances occurring due to attrition and retirement over the next 5 to 7 years, the need for increased funding will likely drive the need to find new funding sources and to develop innovative training programs that cost less.

The Air Force is already challenged by unfunded training costs. Air Force workers who had received little training for years were required to take "back-to-basics training." This came about after accidents occurred at two depots and additional training requirements evolved from the personnel changes resulting from closing two Air Force depots and transferring their work to other locations. However, although training requirements increased, training budgets have not kept pace. For example, when Air Force Materiel Command depot managers requested $10 million in 2001 to train first-line supervisors, the Command did not approve any of that funding. And when managers requested $11.5 million for budget years 2002 to 2007 to provide added training for new workers, the Command only funded a portion of that request. Lacking sufficient training dollars to fund their requirements, Air Force depot managers have been seeking ways to partner with state government programs. Partnering with the states to

develop training programs and curriculum for co-op students at high schools, vocational technical colleges, and universities was a cost-effective strategy that enabled depots to hire certified and credentialed workers to replace retirees. For example, the Warner Robins and Oklahoma City depots are working primarily with the states of Georgia and Oklahoma to establish training programs with local community colleges and high schools so that new hires will be trained and certified as Federal Aviation Association Aircraft and Power Plant license holders. Each of the Air Force depots is developing courses to groom the next generation of leaders and managers. But according to depot planners, much more needs to be done and where the funding is to come from is unclear. This is particularly true as the Air Force plans for the potential retirement of 43 to 52 percent of its depot workforce over the next 5 to 7 years.

The other service depots are also experiencing challenges in funding training as they begin to hire new employees after years of downsizing. About half of the depots provide new industrial workers with training through apprentice programs. The Air Force and one Marine Corps center are using cooperative education programs, because they believe apprenticeship programs, which take 3 to 4 years to qualify workers for becoming journeymen-level workers, are too expensive. The Army Materiel Command estimated that $7.9 million was needed to sustain 79 apprentices already in the program and to add 50 additional apprentices for fiscal year 2002, or about $55,000 for each apprentice. However, the Command did not receive this level of funding, which caused the Command to transfer the costs to the depots as a cost of their operations. Army Materiel Command reported that it has requested additional funding for the apprentice program to support an average of 184 apprentices each year for the 7-year period, fiscal years 2003 through 2009. Army depot officials said that the program was too small in number to significantly impact future worker needs. In addition, without the Army directly funding the program costs; customers pay for depot services will increase, which could lead to a loss of customer support. Two of the five Army maintenance depots decided that no additional apprentices will be accepted into the apprenticeship program unless the program can be directly funded.

In confronting the human capital challenge of revitalizing the depot workforce, the services have the opportunity to develop innovative training programs that cost less and to identify new funding sources for training. According to Navy and Air Force officials, centralized training programs and centralized funding could be considered cost-effective ways to support depot revitalization. Officials also noted that centralized

training programs would help ensure consistency in the quality of training provided to depot workers. Also, centralized funding would be another source of funding and would provide centralized oversight and accountability over how the funds are disbursed.

Conclusions

Continued shortfalls in DOD's strategic planning process, including the lack of a DOD depot strategic plan and a strategic plan for arsenals and ammunition facilities have created questions regarding the future of the 72,000 civilians in the depot maintenance, arsenal, and ammunition manufacturing plant workforce and their ability to support future military operations. Without a strategic perspective that complements the department's overall mission and objectives, the services do not have the long-term visibility they need to ensure the continued performance of these important support missions. When this is coupled with DOD's adoption of increased contracting of work to the private sector, the future role of these industrial facilities and their workforce is clearly in doubt. The situation is compounded by questions regarding DOD's implementation of the core maintenance statute, which is an essential feature in defining the depot workforce of the future. While in some cases the services have made a start at defining future objectives for the industrial facilities that are centered around the development of public-private partnerships, it is unclear how these partnerships should be folded into future industrial facilities planning. Further, without a departmental approach that has been approved by the Congress, future depot planning will continue to be fragmented, inconclusive, and inefficient. Since we have previously recommended that DOD develop a depot strategic plan, we are not repeating that recommendation in this report. However, we continue to believe a depot strategic plan is needed and we will continue to follow DOD's progress toward implementing one.

The absence of strategic guidance regarding the future of the DOD industrial facilities has generally prevented the development of comprehensive strategic workforce plans that are required for effectively managing DOD's 72,000 civilian industrial facilities workers to meet the challenges of the future. For example, without having long-term strategies for acquiring, developing, and retaining their workforce that are clearly linked to achieving programmatic goals, the services continued to downsize these activities without a vision for what capabilities would be required in the future. The result of downsizing is that the remaining depot maintenance workforce averages 47 years of age and has skill imbalances. With workload in some activities continuing to decline and with uncertainties about new work for the future, officials in depots, arsenals,

and ammunition plants are uncertain whether they should plan to replace retiring workers and about what skills will be needed in the future. Furthermore, the industrial planners, in their short-term planning, have followed some but not all of the steps identified by OPM and high performing organizations, with the naval shipyard community and Air Force more comprehensive in their workforce planning approaches. However, the planners, have not, in general, identified competencies, developed comprehensive retention plans, or evaluated the performance of workforce planning efforts and taken corrective actions—all best practices that could help depots more effectively meet current and future challenges.

A number of challenges confront DOD's workforce planning for the revitalization of this industrial workforce, about 12 percent of which are eligible to retire in fiscal year 2002 and about 43 percent of which will be eligible to retire by 2009. First, workforce planning efforts, which are generally focused on the short-term, do not address the potential loss of a third to over 40 percent of the depot workforce over a short period of time, a challenge that could threaten the depots' viability. Only the Air Force has taken action to ensure the continued viability of its depots in 2007 and beyond. Secondly, the current occupational series may not be the best to most efficiently perform required maintenance operations. Multiskilling, which has been successfully implemented in the private sector and in some government activities, has flexibilities unavailable to most government activities. However, depot activities trying to implement the flexibilities have been confronted by rules that do not allow providing an additional grade for performing work in additional skill areas. While the naval aviation community is trying an approach that would use a bonus rather than additional pay, naval aviation officials believe the additional flexibilities are still needed. We also believe that if it proves to be cost-effective, the full option of providing an additional grade would help ensure the greatest potential for success. Finally, with the large number of workers eligible to retire by 2009, training requirements and funding for training will increase significantly for new hires. Further, the need for increased funding for training will likely drive the need to find new funding sources and to develop cost-effective training programs. A centralized DOD depot training program could be a very practicable way to introduce more innovative and cost-effective approaches to producing and funding the required training to support depot revitalization, if the department intends to continue using the depots as an important part of its industrial base.

Recommendations for Executive Action

To improve the management and direction of DOD's strategic planning for maintenance depots, we recommend that the Secretary of Defense direct the Deputy Under Secretary of Defense for Logistics and Materiel Readiness to

- complete the revisions to DOD's core policy and develop a schedule for the services to complete the computation of core requirements;
- require the service secretaries and the Commandant of the Marine Corps to develop revised core capabilities to provide a baseline for defining workloads that should be performed in government facilities by government personnel; and
- require the service secretaries and the Commandant of the Marine Corps to develop, or complete the development of, and implement strategic plans that are linked to the services' mission and objectives and the Office of the Secretary of Defense's depot strategic plan when it is developed and that delineate industrial workloads to be accomplished in each service's depots, other service's depots, by contractors at their own sites and at government sites and using partnerships and identify the workforce requirements to support the performance of this work.

To improve the management and strategic direction of DOD's strategic planning for arsenals and ammunition plants, we recommend that the Secretary of Defense require the Deputy Under Secretary of Defense for Acquisition, Technology, and Logistics to develop a strategic plan that provides guidance and a schedule for identifying long-term capabilities to be provided by the private sector, those to be provided in government-owned and -operated plants; and those to be provided in government-owned and contractor-operated plants.

To improve the quality and comprehensiveness of the services' workforce planning efforts, we recommend that the Secretaries of the services and the Commandant of the Marine Corps develop strategic workforce plans that include improvements in areas identified in this report as being deficient, such as assessing workforce competencies required for the current and future workforce; implementing action plans that include comprehensive retention plans; and establishing performance metrics to use in evaluating workforce planning efforts and a mechanism for performing assessments of prior workforce planning efforts. The strategic workforce plans should be linked to DOD's strategic plan for depot maintenance and the strategic plan for arsenals and ammunition plants when they are developed.

To improve DOD's strategic workforce planning to ensure the viability of its depot maintenance workforce, we recommend that the Secretary of Defense require the Under Secretary of Defense for Personnel and Readiness, in coordination with the Deputy Under Secretary of Defense for Logistics and Materiel Readiness, to coordinate the implementation of an initiative to

- provide guidance for developing workforce revitalization strategies and strategic plans to address expected depot attrition over the next 5 to 7 years;
- provide options for incorporating multiskilling into depot workforce planning initiatives; and
- implement a working group to explore options for innovative and cost-effective training and to explore appropriate funding alternatives, to include centralized funding, to revitalize the depot workforce.

Given the difficulties the Department of Defense is having implementing multiskilling and its potential for improving the flexibility and productivity of the department's maintenance workforce, we recommend that the Secretary of Defense require the Under Secretary of Defense for Personnel and Readiness to implement a demonstration project that would give the military depots the flexibility to provide additional compensation for multiskilled depot workers when the services have demonstrated by a cost-benefit analysis the benefits of such a program.

Agency Comments and Our Evaluation

The Department of Defense reviewed a draft of this report and provided oral comments from the Office of the Undersecretary of Defense for Personnel and Readiness. The department concurred with seven of our nine recommendations dealing with the need for completion of the identification of core depot maintenance requirements and capabilities and for improved strategic planning and workforce planning for depots, arsenals, and ammunition plants. The department did not concur with our recommendation to implement a working group to explore (1) options for innovative and cost-effective training and (2) appropriate funding alternatives to help revitalize the depot workforce. Also, the department did not concur with our recommendation to implement a demonstration project for multiskilling.

The department's comments noted that the importance of human capital strategic planning was clearly recognized in the Quadrennial Defense Review, is the first item on the President's Management Agenda, and is a

top priority for the department. Further, in early 2003, the department published its FY 2003 Year of Execution Plan as an Annex to the integrated DOD Civilian Human Resources Strategic Plan, and focuses on seven goals to direct and improve all aspects of human capital strategic planning. We recognize that the high-level strategic planning efforts undertaken by the department are a necessary first step, but we also believe that much more needs to be done to assure that successively lower levels of organizations and activities accomplish complementary human capital planning that addresses specific issues that may be of concern for a given subset of the department's population, such as for the workers in the department's industrial activities.

DOD agreed with our recommendation that the department complete revisions to DOD's core policy and our recommendation to develop revised core capabilities that provide a baseline for defining workloads that should be performed in government facilities by government personnel. Officials noted that the department is finalizing required changes to its revised methodology and, upon completion, will task the military services with computing their depot maintenance core requirements. Regarding our recommendation, to develop depot strategic plans that are linked to the services' mission and objectives and to the Office of the Secretary of Defense's depot strategic plan when it is completed, DOD officials concurred, noting that in some cases it may be more practical to include these plans as part of a logistics or systems command strategic plan. DOD agreed with our recommendation to develop a strategic plan that provides guidance and a schedule for identifying long-term capabilities for arsenals and ammunition plants. DOD also agreed with our recommendation to improve the quality and comprehensiveness of the services' workforce planning efforts. DOD partially concurred with our recommendation to provide guidance for developing workforce revitalization strategies and strategic plans to address expected depot attrition over the next 5 to 7 years. Officials said that the department developed the DOD Civilian Human Resources Strategic Plan—2002-2008 to ensure a DOD-wide civilian workforce capable of responding rapidly, efficiently, and effectively to mission requirements. However, they agreed that a near-term strategic plan is needed at the depot level. We do not believe that the human resources strategic plan cited in DOD's response provides the required guidance for developing workforce revitalization strategies and strategic plans and supporting the other issues we noted in our recommendation because it is at a higher level and does not address issues that need to be dealt with for this work force group, such as how to provide affordable technical training for large numbers of blue-collar workers. Additionally, to be

useful in supporting revitalization of the depot workforce, a depot strategic plan should address long-term as well as near-term requirements.

Regarding our recommendation that the department develop options for incorporating multiskilling into depot workforce planning initiatives, the department concurred, stating that its proposed National Security Personnel System will provide personnel flexibilities designed to address multiskilling requirements. However, the National Security Personnel System is a proposed change to the current personnel system that DOD has requested the Congress to consider as a part of a large and diverse DOD transformation legislative proposal. Because the Congress has not yet acted on the department's transformation proposal, we believe that it is premature to assume that Congress will approve this new personnel system. We continue to believe that whether or not the new personnel system is approved, the depots need options for incorporating multiskilling into depot workforce planning initiatives.

DOD nonconcurred with our recommendation to implement a working group to explore (1) options for innovative and cost-effective training and (2) appropriate funding alternatives to help revitalize the depot workforce. The department stated that a working group is not necessary to explore options already offered by new authorities and flexibilities in the proposed National Security Personnel System. Because the proposed new personnel system has not yet been considered by the Congress, we believe that is premature to assume that it will be implemented, and we continue to believe that a working group's exploration of options would benefit depot workforce revitalization.

DOD also nonconcurred with our recommendation regarding the implementation of a demonstration project that would give the military depots the flexibility to provide additional compensation for multiskilled depot workers when the services have demonstrated by a cost-benefit analysis the benefits of such a program. Again, the department's response assumes the flexibilities and authorities expected from the proposed National Security Personnel System will cover the problems multiskilling is intended to address. As with our comments on the prior recommendations, we believe that this response is premature and that independent action should be taken to implement the recommendation.

The department provided technical comments that have been incorporated when appropriate.

We are providing copies of this report to the Secretary of Defense; the Secretaries of the Army, Navy, and Air Force; the Commandant of the Marine Corps; and the Director, Office of Management and Budget. We will make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff have questions regarding this report, please contact me on (202) 512-5559 or stewartd@gao.gov or Julia Denman at (202) 512-4290 or denmanj@gao.gov. Major contributors to this report are listed in appendix V.

Derek B. Stewart
Director
Defense Capabilities and Management

Appendix I: Scope and Methodology

To determine the extent to which the Office of the Secretary of Defense has implemented our prior recommendation to develop and implement a strategic plan for depot maintenance, we interviewed officials and reviewed the Government Performance and Results Act to identify guidance on developing strategic plans and various laws providing guidance on the role of DOD depots.

To determine the extent to which the services have developed and implemented strategic workforce plans to position the civilian depot workforce to meet future requirements, we interviewed officials and obtained and reviewed

- DOD's Civilian Human Resources Strategic Plan 2002-2008 and the services' strategic plans for depot maintenance where available to identify human capital goals, visions, and objectives and
- services' and depots' workforce plans (including recruiting/hiring plans, training plans, succession plans, and retention plans) to determine whether they had a strategic/long-term perspective or a short-term focus that was oriented toward the budget process.

In analyzing the extent to which these workforce plans positioned the civilian depot workforce to meet future mission requirements, we compared the elements of the depots' workforce plans to applicable workforce planning documents and guidance issued by the OPM, the GAO, the National Academy of Public Administration, and other federal and state government agencies. Based on our analyses, we identified efforts underway that addressed aspects of these elements.

Additionally, we analyzed the services'

- civilian depot workforce skills and competency assessments to determine whether they had identified the skills and competencies needed to address current and future workforce requirements,
- civilian depot workforce retention plans to determine whether they had the factors identified by current research as being critical to enhancing the retention necessary for the construction of a high-performance organization, and
- assessments of workforce plans to determine whether they included performance measures that evaluated the effectiveness of their workforce plans.

Moreover, because OPM had identified the elements that should be included in a comprehensive retention plan, we compared those elements to those found in the services' retention plans. We did not do this type of comparison for the services' recruiting/hiring, training, and succession plans because OPM did not identify comprehensive plans for these elements of workforce plans.

To determine what challenges adversely affect DOD's strategic planning for the viability of its civilian depot workforce, we interviewed officials and obtained, reviewed, and analyzed documentation to identify the types of challenges that might impact planning for the viability of the civilian depot workforce. In doing so, we also determined

- civilian depot workforce retirement eligibility and whether the services will have difficulties replacing an aging workforce if large numbers of eligible retirees retire over the next 5 to 7 years,
- the total weighted average age based on the civilian staffing at each industrial facility,
- whether the services are having difficulties implementing the multiskilling concept to improve worker efficiency and productivity, and
- whether increased funding will be needed to address increased training requirements.

During this review, we visited and obtained information from the Office of the Secretary of Defense and the Army, Air Force, Navy, and Marine Corps headquarters, all in the Washington, D.C., area; Headquarters, Army Materiel Command in Alexandria, Virginia; and 5 subordinate Army commands—the Army Aviation and Missile Command, Huntsville, Alabama; Communications-Electronics Command, Fort Monmouth, New Jersey; the Tank-automotive and Armaments Command, Warren, Michigan; Operations Support Command (now the Joint Munitions Command), Rock Island, Illinois; and the Soldier and Biological Chemical Command, Aberdeen Proving Ground, Maryland. Additionally, we visited the following depots and activities:

- **Army**: Anniston Army Depot, Anniston, Alabama; Corpus Christi Army Depot, Corpus Christi, Texas; Letterkenny Army Depot, Chambersburg, Pennsylvania; Red River Army Depot, Texarkana, Texas; Tobyhanna Army Depot, Tobyhanna, Pennsylvania; Rock Island Arsenal, Rock Island, Illinois; Watervliet Arsenal, Watervliet, New York; Pine Bluff Arsenal, Pine Bluff, Arkansas; Crane Army Ammunition Activity, Crane, Indiana; and McAlester Army Ammunition Plant, McAlester, Oklahoma.

- **Air Force**: Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio; Aerospace Maintenance and Regeneration Center, Tucson, Arizona; Directorate of Maintenance, Ogden, Utah; Directorate of Maintenance, Oklahoma City, Oklahoma; Directorate of Maintenance, Warner Robins, Georgia; and the Joint Depot Maintenance and Activities Group, Wright-Patterson Air Force Base, Ohio.
- **Navy**: Naval Air Systems Command, Patuxent River, Maryland; Naval Aviation Depot, Cherry Point, North Carolina; Naval Aviation Depot, Jacksonville, Florida; and Naval Aviation Depot North Island, San Diego, California;
- **Navy**: Naval Sea Systems Command, Washington, D.C.; Norfolk Naval Shipyard, Portsmouth, Virginia; Portsmouth Naval Shipyard, Portsmouth, New Hampshire; and Puget Sound Naval Shipyard, Bremerton, Washington.
- **Navy**: Space and Naval Warfare Systems Center, Charleston, South Carolina.
- **Marine Corps**: Marine Corps Materiel Command, Albany, Georgia; Marine Corps Logistics Bases Albany, Georgia; Marine Corps Logistics Bases Barstow, California; Marine Corps Maintenance Center, Albany, Georgia; and the Marine Corps Maintenance Center, Barstow, California.

Additionally, we received written responses to audit questions from the following activities: Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility, Pearl Harbor, Hawaii; Space and Naval Warfare Systems Center San Diego, California; Naval Surface Warfare Center Crane Division, Crane, Indiana; and Naval Undersea Warfare Center Keyport Division, Keyport, Washington.

We conducted our review from October 2001 to March 2003 in accordance with generally accepted government auditing standards.

Appendix II: Fiscal Year 2002 Services' Depots

Depots	Principal work	Number of civilian depot employees per location
Army		
Army depots		
Anniston Army Depot Anniston, Alabama	The depot performs maintenance on heavy and light-tracked combat vehicles and components and is the designated center of technical excellence for the M1 Abrams tank.	2,429
Corpus Christi Army Depot Corpus Christi, Texas	As the Army's only aviation facility, the depot overhauls and repairs DOD rotary wing aircraft and components, such as the AH-64 Apache, CH-47 Chinook, and the UH-60 Blackhawk.	2,869
Letterkenny Army Depot Chambersburg, Pennsylvania	This depot provides repair and overhaul support for air defense and tactical missiles such as the Patriot, Hawk, Avenger, Multiple Launch Rocket System, and Sidewinder.	1,082
Red River Army Depot Texarkana, Texas	For combat and tactical systems, the depot supports systems such as the Bradley Fighting Vehicle, Multiple Launch Rocket System, and vehicles for the Patriot and Hawk missiles.	1,478
Tobyhanna Army Depot Tobyhanna, Pennsylvania	From handheld radios to satellite communication, the depot provides repair and overhaul support for hundreds of communications and electronic systems.	2,237
Army arsenals		
Rock Island Arsenal Rock Island, Illinois	The arsenal is primarily a metal manufacturing facility with foundry, forging, machining, finishing, and fabricating capabilities. It produces tank and artillery components such as gun mounts and recoil mechanisms, spare parts, and other equipment. It also fabricates and/or assembles tool sets ranging from carrying case-sized sets to fully equipped shelters.	1,156
Watervliet Arsenal Watervliet, New York	This arsenal is a metal manufacturing facility whose capabilities include forging, casting, machining, heat-treating, plating, and fabrication. Its primary products are cannons—such as the large gun tubes for tanks and howitzers—and mortars.	484
Pine Bluff Arsenal Pine Bluff, Arkansas	The facility produces, renovates, and stores smoke, riot control, and incendiary ammunitions such as red and white phosphorus. Also, it manufactures and refurbishes chemical and biological defense equipment.	804
Army ammunition plants		
Crane Army Ammunition Activity Crane, Indiana	The plant produces, renovates, stores, and demilitarizes conventional ammunition. Its products include the Navy's 5-inch projectile, bombs, missile warheads, pyrotechnic munitions, and plastic explosives.	620
McAlester Army Ammunition Plant McAlester, Oklahoma	The plant produces, renovates, stores, and demilitarizes conventional and missile ammunition. Its products include bombs—ranging from 500 to 5,000 pounds, missile warheads, rockets, and plastic explosives.	1,075
Total Army		**14,234**

Depots	Principal work	Number of civilian depot employees per location
Navy		
Naval Aviation Depots		
Naval Aviation Depot, Cherry Point North Carolina	The depot performs standard depot-level maintenance and periodic maintenance, modifications, and in-service repairs for crash and battle damages for helicopters and engines. The depot performs maintenance on aircraft such as the AV-8, H-53, and H-46. It also repairs such components as jet fuel starters and auxiliary power units.	3,839
Naval Aviation Depot Jacksonville, Florida	The depot serves as a production center concentrating on repair and modification of patrol aircraft, fighter aircraft, attack aircraft, electronic countermeasures, engines, and associated components. The depot performs maintenance on aircraft such as the P-3, F-14 and SH-60. Also, the depot repairs components such as electro-optics, electronic warfare, and antisubmarine warfare systems.	3,928
Naval Aviation Depot North Island San Diego, California	The depot serves as the production center concentrating on repair and modification of miscellaneous aircraft and associated components. The depot performs maintenance on the following aircraft systems: E-2 Hawkeye, C-2 Greyhound, and F/A 18 Hornet. It also provides engineering, logistics, and calibration services.	3,138
Naval shipyards		
Norfolk Naval Shipyard Portsmouth, Virginia	This shipyard is the East Coast's largest facility for surface ship, aircraft carrier, and submarine overhauls, maintenance and modernization. It also repairs, overhauls, dry docks, converts, modernizes, and inactivates ships. Also, the shipyard can perform any technical, fabrication, manufacturing, and engineering work required by its customers on site or through rapid-deployment of special teams to ships and facilities anywhere in the world.	7,525
Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility Pearl Harbor, Hawaii	This shipyard is the largest ship repair facility between the West Coast and Far East, and it is responsible for ship maintenance, modernization, and nuclear ship recycling. Also, the shipyard provides such services as reactor plant servicing, nuclear propulsion plant work, and ship maintenance training.	3,987
Portsmouth Naval Shipyard Portsmouth, New Hampshire	The shipyard performs nuclear submarine overhauls, refuelings, modernizations, and repairs. Also, it provides nuclear maintenance engineering and planning for the Los Angeles class submarines.	3,500
Puget Sound Naval Shipyard Bremerton, Washington	The shipyard overhauls and repairs all types and sizes of Navy ships. Also, the shipyard provides other services such as nuclear propulsion work, reactor compartment disposal, nuclear-powered ship recycling, and emergent fleet support.	8,608
Naval Warfare Centers		
Naval Surface Warfare Center Crane Division Crane, Indiana	The overall center provides acquisition, engineering, logistics, and maintenance for the fleet's weapons and electronic systems, ordnance, and associated equipment components. The majority of its depot maintenance is in electronic warfare systems, engineering and industrial base support, electronic module test and repair, microwave components, and radar systems.	311
Naval Undersea Warfare Center Keyport Division Keyport, Washington	The overall center provides test and evaluation, in-service engineering, maintenance and repair, fleet support, and industrial base support for designated systems. The largest depot workload is the torpedo program. Also, the depot operates and maintains shops that accomplish mechanical, electrical and electronic production, and assembly of complex undersea warfare equipment.	608

Depots	Principal work	Number of civilian depot employees per location
Space and Naval Warfare Systems Centers		
Space and Naval Warfare Systems Center Charleston Charleston, South Carolina	Depot operations, managed at the division level, provide engineering analysis and design, hardware/software development, and integration. Also the depot operations include repair, fabrication, installation, and logistics products and services to DOD and federal government sponsors.	49
Space and Naval Warfare Systems Center San Diego San Diego, California	The depot operation at the center provides engineering, management, life cycle support, test, restoration, assessments, and prototype modeling. The depot operations also include facilities that enable it to serve as a designated overall point and repair facility for reparables (i.e., assemblies, modules, and printed circuit boards drawn from various types of equipment).	70
Total Navy		**35,563**
Marine Corps		
Maintenance Center Albany, Georgia	The depot has multicommodity capability to support overhauls, repairs, and upgrades for weapons systems such as the Amphibious Assault Vehicle, M1A1 Tank, M198 Howitzer, AN TPS 63 Radar, small arms, and communications-electronics equipment.	659
Maintenance Center Barstow, California	The depot has multicommodity capability to support overhauls, repairs, and upgrades for weapons systems such as the Amphibious Assault Vehicle, M1A1 Tank, M198 Howitzer, AN TPS 63 Radar, small arms, and communications-electronics equipment.	664
Total Marine Corps		**1,323**
Air Force		
Aerospace Maintenance and Regeneration Center Tucson, Arizona	The center provides for the storage, regeneration, reclamation, and disposal of aircraft and related aerospace items such as tooling, pylons, and engines.	439
Directorate of Maintenance, Ogden Air Logistics Center, Utah	It provides worldwide engineering and logistics management for the F-16 and maintains the C-130 aircraft. The center produces more than 250 aircraft and 16,800 avionics and structural components annually. In addition, the center is responsible for logistical support of the nation's fleet of strategic intercontinental ballistic missiles, including the Minuteman and Peacekeeper missiles. It also overhauls and repairs landing gear, wheels and brakes, rocket motors, photonic equipment, avionics, hydraulics, and software.	5,852
Directorate of Maintenance, Oklahoma City Air Logistics Center, Oklahoma	The center is the worldwide manager for a wide range of aircraft, engines, missile, and commodity items, aided by some of the most sophisticated technical repair and manufacturing processes in the world. The center manages an inventory of 2,267 aircraft, which include the B-1, B-2, B-52, KC-10, C/KC-135, E-3, and about 25 other contractor logistics support aircraft.	8,533
Directorate of Maintenance, Warner Robins, Air Logistics Center, Georgia	This activity is the cargo/transport technology repair center for the Air Force. It has worldwide management and engineering responsibilities for the repair, modification, and overhaul of the C-130, C-141, C-5, as well as F-15, U-2, all Air Force helicopters, and all special operations aircraft and their avionics systems.	6,328
Total Air Force		**21,152**
Total		**72,272**

Source: DOD (data) and GAO (presentation).

Appendix III: Synopsis of Service Depots' Short-Term Workforce Plans

Army Depots

Role and Workforce Size
The Army Materiel Command, through its three subordinate commands, is responsible for management of five depots. These depots are located in Anniston, Alabama; Corpus Christi, Texas; Chambersburg, Pennsylvania; Texarkana, Texas; and Tobyhanna, Pennsylvania. The depot maintenance function supports overhauls, repairs, and upgrades to nearly all of the Army's ground and air combat systems. These systems include tanks, helicopters, communications systems, and various assemblies and subassemblies of end items such as helicopter rotor blades, transmissions, and engines. In fiscal year 2002, the five depots had 10,095 civilian employees.

Condition of Civilian Depot Workforce
The Army's civilian depot workforce is on the verge of a major turnover. Until recently, few new employees had been hired into the workforce since large-scale reductions began in the late 1980s. In fiscal year 2002, the average age of the depot workforce was about 49 years. Currently, about 15 percent (1,483) of the workforce can retire whenever they choose and by fiscal year 2007, about 42 percent (4,201) of the current workforce will be eligible for retirement. Depot officials acknowledge that some work centers are at risk with all employees eligible for retirement but pointed out that workers generally do not retire when first eligible.

Status of Overall Workforce Plans
(Checkmark indicates efforts under way to address elements in these steps.)

Step 1
√ Human capital goals
√ Vision/Objectives

Step 2
√ Skills assessment
Competency assessment
√ Gap analysis

Steps 3 and 4
√ Recruiting and hiring plans
√ Training plans
√ Succession plans
Comprehensive retention plans

Step 5
√ Performance measures: monitor/evaluate/adjust

Efforts
According to Army officials, depot maintenance workforce planning is accomplished primarily during the annual budget process where workforce needs are matched with authorized maintenance workloads and funding. With authorized workloads, the depots follow normal hiring practices with plans and actions to recruit and retain permanent, term, and/or temporary workers with needed skills to meet workload requirements and provide training for these new workers and the existing workforce to enhance their skills. Most of the depots are addressing the aging workforce issue and imbalances in critical skills with programs for apprentices and cooperative education students to help identify and bring in critical skills and younger workers.

Army Arsenals

Role and Workforce Size
The Army Tank-automotive and Armaments Command is responsible for managing the manufacturing arsenals at Rock Island, Illinois, and Watervliet, New York. The Soldier and Biological Chemical Command manages the manufacturing arsenal located at Pine Bluff, Arkansas. Rock Island and Watervliet are primarily metal manufacturing facilities. Their primary products include tank and artillery components such as cannons, gun mounts, and recoil mechanisms; and tool sets ranging from carrying case size sets to fully equipped shelters. The Pine Bluff Arsenal produces, renovates, and stores smoke, riot control, and incendiary munitions. It also manufactures and refurbishes chemical and biological defense equipment such as protective masks, decontamination equipment, and filtration systems. In fiscal year 2002, the three arsenals employed 2,444 civilians.

Condition of Civilian Depot Workforce
Rock Island and Watervliet Arsenals have been experiencing declining workloads and, as a result, declining workforces. The arsenals are hiring few, if any, new employees. Rock Island and Pine Bluff hired 42 and 79 employees, respectively, within the last year, and Watervliet has not hired in several years. The average age of the civilian workforce is about 50 years; about 965 will be eligible to retire by fiscal year 2007.

Status of Overall Workforce Plans
(Checkmark indicates efforts under way to address elements in these steps.)

Step 1
√ Human capital goals
√ Vision/Objectives

Step 2
√ Skills assessment
Competency assessment
√ Gap analysis

Steps 3 and 4
√ Recruiting and hiring plans
√ Training plans
√ Succession plans
Comprehensive retention plans

Step 5
Performance measures: monitor /evaluate/adjust

Efforts
Each of the arsenals determines its future workloads and estimates future workforce requirements. The arsenals have or are planning to implement several strategies to ensure that the critical skills are available in light of declining workloads and workforces. For example, Rock Island and Watervliet have extensively retrained current employees to provide the critical skills. In addition, Rock Island established an apprentice program to help replenish critical skills and, in fiscal year 2002, Watervliet analyzed skill shortfalls and projected attrition for the next 4 years. As a result, they plan two apprentice programs to replenish critical skills. Pine Bluff has begun a study to address projected retirements.

Army Ammunition Plants

Role and Workforce Size
The Joint Munitions Command manages the Army's two ammunition-manufacturing plants—Crane Army Ammunition Activity in Crane, Indiana, and McAlester Army Ammunition Plant in McAlester, Oklahoma. These plants produce, renovate, store, and demilitarize conventional and missile ammunition such as large projectiles, bombs, and explosives. In fiscal year 2002, Crane and McAlester employed about 1,695 civilian employees.

Condition of Civilian Depot Workforce
The workload of the ammunition plants fluctuates. At times, both plants have experienced declining workforces, but presently, Crane is hiring about 100 additional term (appointed for a specified period of time) employees, and McAlester plans to hire more than 200 employees (mostly term) during fiscal year 2003. The average ages of Crane and McAlester employees are 49 and 44 years, respectively, and 631 employees are eligible to retire by fiscal year 2007.

Status of Overall Workforce Plans
(Checkmark indicates efforts under way to address elements in these steps.)

Step 1
√ Human capital goals
√ Vision/Objectives

Step 2
√ Skills assessment
Competency assessment
√ Gap analysis

Steps 3 and 4
√ Recruiting and hiring plans
√ Training plans
√ Succession plans
Comprehensive retention plans

Step 5
Performance measures: monitor /evaluate/adjust

Efforts
The ammunition plants cope with a fluctuating workload by maintaining a flexible workforce. About 24 percent of the plants' workforce is temporary, term, or permanent seasonal– not guaranteed permanent full-time work. During fiscal year 2002, the McAlester Commander's office studied all organizations to determine where retirements will occur within the next 2 years, authorized over hires to prepare for the impending attrition, and is hiring and training new personnel before separation of the retirees. McAlester also has a hiring plan for the additional employees required during fiscal year 2003. Crane reorganized in late fiscal year 2002; each director identified the skill imbalances for the new organization; and, with the Commander's approval, established recruiting priorities to correct the skill imbalances. In addition, Crane is attempting to hire a younger workforce by establishing trainee positions for selected skills, hiring younger people who would meet the requirements for the trainee positions (but not the journeyman position), and developing the younger people to meet the journeyman level requirements.

Naval Aviation Depots

Role and Workforce Size
The Naval Air Systems Command has three naval aviation depots located in Cherry Point, North Carolina; San Diego, California; and Jacksonville, Florida. These depots provide in-depth overhaul repair and modification of aircraft, engines, avionics, and aeronautical components. In fiscal year 2002, there were about 10,905 civilian depot employees at the three aviation depots. Some of the trade skills include aircraft mechanic, electronics mechanic, and metals inspector.

Condition of Civilian Depot Workforce
The naval aviation depots are experiencing an aging civilian depot workforce. In the past 10 years, the civilian depot workforce has been reduced by 56 percent. As of fiscal year 2002, the average age was 48 years, and approximately 4,100 civilian employees were eligible to retire in the next 5 years. The average length of service is 19 years.

Status of Overall Workforce Plans
(Checkmark indicates efforts under way to address elements in these steps.)

Step 1	Steps 3 and 4
√ Human capital goals	√ Recruiting and hiring plans
√ Vision/Objectives	√ Training plans
	√ Succession plans
	Comprehensive retention plans
Step 2	**Step 5**
√ Skills assessment	√ Performance measures: monitor /evaluate/adjust
Competency assessment	
√ Gap analysis	

Efforts
Depot maintenance workforce planning is accomplished at the level where depot operations are performed and primarily involves determining resource needs and developing plans to address those needs. Naval Air Systems Command has several initiatives for recruiting and revitalizing the existing aging civilian depot workforce. They implemented the People Focus Program that focuses on the command's civilian and military personnel and their workplace needs. One of the group's major initiatives is the Campaign for People, which focuses on developing hiring plans consistent with workload projections, reducing the hiring cycle time to 66 days and reducing the attrition rate to 5 percent. The depots participate in Naval Air Systems Command's Senior Executive Management Development Program, which provides a systematic framework for developing mid-level managers for senior management positions. They also have apprenticeship programs designed to develop journey level production artisans to meet longer-range workforce requirements. Furthermore, the depots' Student Career Experience Program trains student for careers in administrative, professional, or vocational/technical occupations by integrating work experience with periods of academic study at local colleges.

Naval Shipyards

Role and Workforce Size of Shipyards
The Naval Sea Systems Command has four naval shipyards located in Portsmouth, Virginia; Pearl Harbor, Hawaii; Portsmouth, New Hampshire; and Bremerton, Washington. The shipyards maintain, repair, and modernize the Navy's surface ships, submarines, and carriers, and provide inactivation and disposal services for decommissioned fleet assets. They also overhaul vessels, perform depot-level maintenance and repair work, and emergency repair work. In fiscal year 2002, there were approximately 23,620 civilian shipyard employees at the four Naval Shipyards. Some of the trades at the shipyards are electricians, painters and blasters, pipe fitters, and welders.

Condition of Civilian Depot Workforce
The Naval shipyards are currently faced with maintaining adequate numbers of skilled mechanics and supervisors, while the workforce ages and retires. As of July 2002, the average age of the Naval shipyards' workforce was 45 years, and approximately 7,500 employees were eligible to retire in the next 5 years. Also, over 33 percent of the workforce was over 50 years old.

Status of Overall Workforce Plans
(Checkmark indicates efforts under way to address elements in these steps.)

Step 1
√ Human capital goals
√ Vision/Objectives

Step 2
√ Skills assessment
Competency assessment
√ Gap analysis

Steps 3 and 4
√ Recruiting and hiring plans
√ Training plans
√ Succession plans
Comprehensive retention plans

Step 5
√ Performance measures: monitor /evaluate/adjust

Efforts
The Naval Sea Systems Command is monitoring the shipyards' average age of its workforce as part of its revitalization program. The goal is to have a declining average age by fiscal year 2005. The shipyards have implemented several near-term workforce initiatives to revitalize and reduce the aging workforce to reach the Command's goal to revitalize the workforce. First, the Naval shipyards are hiring to maintain current employment levels and critical skills. Second, in varying degrees, each shipyard has an apprenticeship program that prepares students for wage grade occupations by alternating periods of academic study and work experience. Also, some of the shipyards have programs that recruit high school or college students and provide them work experience and later recruit them for future employment. For recruitment purposes, most shipyards offer bonuses of between $4,000-$8,000 to attract only engineers and nuclear engineers. Furthermore, some shipyards have leadership or mentoring programs and strategies such as helper training programs to retain qualified workers.

Naval Surface and Undersea Warfare Centers

Role and Size of Workforce
The Naval Surface Warfare Center Crane Division (Crane, Indiana) and Naval Undersea Warfare Center Keyport Division (Keyport, Washington) are managed by the Naval Sea Systems Command. Crane provides acquisition, engineering, logistics, and maintenance for the fleet's weapons and electronic systems, ordinance, and associated equipment. Keyport provides test and evaluation, in-service engineering, maintenance and repair, and industrial base support for designated systems. In fiscal year 2002, there were about 608 and 311 civilian depot workers at Keyport and Crane, respectively.

Depot maintenance performed at the centers is integrated within the overall divisions' operations and is not centrally managed. Crane's civilian depot employees do not work full-time on depot operations because the maintenance is embedded within several departments. The civilian workers at Keyport work full time in depot maintenance. Some of the positions at the centers include engineering technicians, electrical engineers, and welders.

Condition of Civilian Depot Workforce
The Naval Surface and Undersea Warfare Centers are experiencing an aging civilian depot workforce. In fiscal year 2002, the average age of civilian depot workers was 45 and 48 at Crane and Keyport, respectively. By fiscal year 2007, about 32 percent of the Crane's and about 41 percent of Keyport's civilian depot workers will be eligible to retire.

Status of Overall Workforce Plans
(Checkmark indicates efforts under way to address elements in these steps.)

Step 1
- √ Human capital goals
- √ Vision/Objectives

Step 2
- √ Skills assessment
  Competency assessment[1]
- √ Gap analysis

Steps 3 and 4
- √ Recruiting and hiring plans
- √ Training plans
- √ Succession plans
  Comprehensive retention plans

Step 5
- √ Performance measures: monitor /evaluate/adjust

Efforts
According to depot officials, workforce planning is accomplished at the level where depot operations are performed and primarily involves determining resource needs and developing plans to address those needs. Both centers have implemented several workforce strategies to reduce the aging workforce that include hiring and training plans. For example, in 2001 Crane established an apprenticeship program to replace the workforce with well-trained, capable employees that are being lost through attrition. Likewise, Keyport has a hiring plan to recruit scientist, engineers, and other workers for fiscal years 2002 to 2007.

[1] Crane Warfare Center did not do a competency assessment.

Space and Naval Warfare Systems Centers

Role and Workforce Size

The Space and Naval Warfare Systems Centers in San Diego, California and Charleston, South Carolina are under the Space and Naval Warfare Systems Command. The Charleston depot provides engineering analysis and design, hardware/software development, integration, repair, fabrication, installation, and logistics products and services for DOD and federal government sponsors. The San Diego location is responsible for engineering, management, life-cycle support, and prototype modeling, and is a repair facility for reparables from command control, communications, computers, and intelligence. In fiscal year 2002, there were 49 civilian depot workers at Charleston and 70 at San Diego. Some of the positions at the centers include electronics technician, engineering specialist, and equipment specialist.

Condition of Civilian Depot Workforce

Both centers are experiencing an aging depot workforce. In fiscal year 2002, the average age for civilian depot workers at Charleston was 51; twelve employees were eligible for retirement, and an additional 15 will be eligible by fiscal year 2009. Also, in fiscal year 2002, the average age for San Diego civilian depot workers was 52; twenty-one were eligible to retire, and an additional 12 will be eligible to retire by fiscal year 2009.

Status of Overall Workforce Plans

(Checkmark indicates efforts under way to address elements in these steps.)

Step 1	Steps 3 and 4
√ Human capital goals	√ Recruiting and hiring plans
√ Vision/Objectives	√ Training plans
	√ Succession plans
	Comprehensive retention plans
Step 2	Step 5
√ Skills assessment	√ Performance measures: monitor /evaluate/adjust [2]
Competency assessment	
√ Gap analysis	

Efforts

According to depot officials, workforce planning is accomplished at the level where depot operations are performed and primarily involves determining resource needs and developing plans to address those needs. To manage the current aging civilian workforce, the Charleston depot has implemented a hiring plan, student cooperative program, and training program. The hiring plan is for fiscal years 2002-2009; during that time officials expect to hire at least 21 employees. Although the San Diego depot does not have any formal workforce plans, according to depot officials there are overall workforce plans for the center. Depot officials said there is no formal depot hiring plan because the number of employees leaving the depot is relatively small (at least one per year). Also, the San Diego area has a large military technical base to recruit and hire qualified depot workers.

[2] Space and Naval Warfare Systems Center San Diego did not have performance measures.

Marine Corps Depots

Role and Workforce Size
The Marine Corps' Materiel Command is responsible for managing two depot maintenance centers located in Albany, Georgia, and Barstow, California. Both centers have multicommodity capability to support overhauls, repairs, and upgrades for weapons systems such as the Amphibious Assault Vehicle, M1A1 Tank, M198 Howitzer, AN TPS 63 Radar, small arms, and communications-electronics equipment. In fiscal year 2002, there were about 1,300 civilian employees at the two centers.

Condition of Civilian Depot Workforce
The Marine Corps is facing a major human resource management challenge in staffing its civilian depot workforce for the future. Until recently, few new employees had been hired into the workforce since reductions began in the late 1980s. The civilian depot maintenance workforce is aging. In fiscal year 2002, the average age of the civilian workforce was about 48 years. Currently, about 19 percent (246) of the civilian workforce can retire whenever they choose and by fiscal year 2007, about 45 percent (591) of the current workforce will be eligible for retirement.

Status of Overall Workforce Plans
(Checkmark indicates efforts under way to address elements in these steps.)

Step 1
√ Human capital goals
√ Vision/Objectives

Step 2
√ Skills assessment
Competency assessment
√ Gap analysis

Steps 3 and 4
√ Recruiting and hiring plans
√ Training plans
√ Succession plans
Comprehensive retention plans

Step 5
√ Performance measures: monitor /evaluate/adjust

Efforts
The Marine Corps' Materiel Command has not yet established workforce plans to position its depot workforce for the future. Officials at the Materiel Command and the centers said that workforce planning is accomplished primarily through the annual budget process that matches civilian depot workforce requirements to authorized workload and funding. To address its aging civilian depot workforce and replenish critical worker skills, the Marine Corps has a Student Temporary Employment Program and Student Career Experience Program (co-op program) being used by one of its centers. Apprentice programs are not being utilized because depot officials said that the programs were not affordable under the current requirement for the depots to fund the costs from their overhead budgets.

Air Force Depots

Role and Workforce Size
The Air Force Materiel Command has management responsibility for the Air Force's four depot maintenance centers located in Ogden, Utah; Oklahoma City, Oklahoma; Tucson, Arizona; and Warner Robins, Georgia. The depots' primary mission is to repair systems and spare parts that ensure readiness in peacetime and provide sustainment to combat forces in wartime. The depots currently employ about 22,000 civilian employees in a variety of highly skilled and technical maintenance positions. Of those, about 68 percent are blue-collar workers. Some of the blue-collar occupations include aircraft mechanics, aircraft electricians, sheet metal mechanics, and electronics integrated systems mechanics.

Condition of Civilian Depot Workforce
Because of past hiring freezes, the Command reported in April 2000 that the depot workforce was primarily journeyman-level positions. With an average age of 47, nearly 35 percent of the civilian depot workforce will be eligible to retire by 2005. Hard-to-fill occupational job series like mechanical and software engineers are major recruiting challenges because salaries are non-competitive.

Status of Overall Workforce Plans
(Checkmark indicates efforts under way to address elements in these steps.)

Step 1
- √ Human capital goals
- √ Vision/Objectives

Step 2
- √ Skills assessment
- √ Competency assessment [3]
- √ Gap analysis

Steps 3 and 4
- √ Recruiting and hiring plans
- √ Training plans
- √ Succession plans
- Comprehensive retention plans

Step 5
- √ Performance measures: monitor/evaluate/adjust

Efforts
Depot maintenance civilian workforce planning is accomplished at the personnel offices at Air Force Materiel Command and the depots by primarily determining resource needs and developing plans to address those needs. Based on the results of its 2000 workforce shaping study, the overall workforce objective is to develop a qualified, flexible workforce in sufficient numbers with appropriate employment and skill mix by 2005. In April 2001, the Command issued a command-wide human resource strategic plan to govern its workforce-shaping efforts. With the anticipated mass retirements, the depots plan to hire an additional 13,000 workers by 2009. Each depot has tailored its workforce shaping and hiring efforts by, among other things, partnering with local vocational-technical/trade schools and paying incentives or bonuses for hiring.

[3]The Directorates of Maintenance at Ogden Air Logistics Center, Oklahoma City Air Logistics Center, and Warner Robins Air Logistics Center did not assess competencies.

Appendix IV: GAO Staff Acknowledgments

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