

GAO

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

September 2009

DEPOT MAINTENANCE

Improved Strategic
Planning Needed to
Ensure That Army and
Marine Corps Depots
Can Meet Future
Maintenance
Requirements



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Highlights of [GAO-09-865](#), a report to the Subcommittee on Readiness, Committee on Armed Services, House of Representatives

Why GAO Did This Study

The Army and Marine Corps maintenance depots provide critical support to ongoing military operations in Iraq and Afghanistan and are heavily involved in efforts to reset the force. The Department of Defense (DOD) has an interest in ensuring that the depots remain operationally effective, efficient, and capable of meeting future maintenance requirements. In 2008, in response to direction by the Office of the Secretary of Defense (OSD), the Army and the Marine Corps each submitted a depot maintenance strategic plan. Our objective was to evaluate the extent to which these plans provide comprehensive strategies for meeting future depot maintenance requirements. GAO determined whether the plans were consistent with the criteria for developing a results-oriented management framework and fully addressed OSD's criteria.

What GAO Recommends

GAO is recommending that DOD direct the Army and Marine Corps to update their plans to ensure that they provide a comprehensive results-oriented management framework, fully address the criteria established by OSD, and mitigate and reduce uncertainties in future workload. In its written comments on a draft of this report, DOD concurred with GAO's recommendations.

[View GAO-09-865](#) or [key components](#). For more information, contact William M. Solis at (202) 512-8365 or solisw@gao.gov.

DEPOT MAINTENANCE

Improved Strategic Planning Needed to Ensure That Army and Marine Corps Depots Can Meet Future Maintenance Requirements

What GAO Found

The depot maintenance strategic plans developed by the Army and Marine Corps identify key issues affecting the depots, but do not provide assurance that the depots will be postured and resourced to meet future maintenance requirements because they do not fully address all of the elements required for a comprehensive, results-oriented management framework. Nor are they fully responsive to OSD's direction for developing the plans. While the services' strategic plans contain mission statements, along with long-term goals and objectives, they do not fully address all the elements needed for sound strategic planning, such as external factors that may affect how goals and objectives will be accomplished, performance indicators or metrics that measure outcomes and gauge progress, and resources required to meet the goals and objectives. Also, the plans partially address four issues that OSD directed the services, at a minimum, to include in their plans, such as logistics transformation, core logistics capability assurance, workforce revitalization, and capital investment. Army and Marine Corps officials involved with the development of the service strategic plans acknowledged that their plans do not fully address the OSD criteria, but they stated that the plans nevertheless address issues they believe are critical to maintaining effective, long-term depot maintenance capabilities.

The Army's and Marine Corps' plans also are not comprehensive because they do not provide strategies for mitigating and reducing uncertainties in future workloads that affect the depots' ability to plan for meeting future maintenance requirements. Such uncertainties stem primarily from a lack of information on (1) workload that will replace current work on existing systems, which is expected to decline, and (2) workload associated with new systems that are in the acquisition pipeline. According to depot officials, to effectively plan for future maintenance requirements, the depots need timely and reliable information from their major commands on both the amounts and types of workloads they should expect to receive in future years. Depot officials told us that the information they receive from their major commands on their future workloads are uncertain beyond the current fiscal year. Officials cited various factors that contribute to these uncertainties, such as volatility in workload requirements, changing wartime environment, budget instability, and unanticipated changes in customer orders.

In addition, depot officials said that they are not involved in the sustainment portion of the life cycle management planning process for new and modified systems. No clear process exists that would enable them to have input into weapon system program managers' decisions on how and where new and modified systems will be supported and maintained in the future. Unless they are integrated in this planning process, these officials said, the depots will continue to have uncertainties about what capabilities they will need to plan for future workloads and what other resources they will need to support new and modified weapon systems.

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United States Government Accountability Office
Washington, DC 20548

September 17, 2009

The Honorable Solomon Ortiz
Chairman
Honorable J. Randy Forbes
Ranking Member
Subcommittee on Readiness
Committee on Armed Services
House of Representatives

Army and Marine Corps maintenance depots support combat readiness by providing repair and manufacturing capability that is needed to keep weapon systems and other equipment in good working order. The depots have provided critical support to ongoing military operations and are heavily involved in efforts to reset the force.¹ The organic maintenance capability provided by the depots also helps to fulfill requirements under Title 10 of the U.S. Code, which directs the Department of Defense (DOD) to maintain a core logistics capability and limit the percentage of annual funding that may be used for depot maintenance performed by contractors.² Given the important role of the depots in sustaining a ready force and fulfilling Title 10 requirements, DOD has an interest in ensuring that the depots remain operationally effective, efficient, and capable of meeting future maintenance requirements. At the same time, DOD has been relying on contractors to support many of its weapons systems and, in 2001, identified performance-based logistics as its preferred support strategy.³ Prior to the onset of military operations in Iraq and Afghanistan, DOD's increased reliance on the private sector for depot maintenance

¹Resetting the force involves repairing, replacing, and recapitalizing equipment in preparation for future military operations.

²Under 10 U.S.C. § 2464, DOD is required to identify and maintain within government-owned and operated facilities a core logistics capability, including the equipment, personnel, and technical competence required to maintain weapon systems identified as necessary for national defense emergencies and contingencies. In addition, 10 U.S.C. 2466(a) requires that not more than 50 percent of annual depot maintenance funding made available to each military department be used for private sector performance.

³Performance-based logistics, which evolved from the more general concept of performance-based contracting, refers to the purchase of performance outcomes (such as the availability of functioning weapon systems) through long-term support arrangements rather than the purchase of individual elements of support—such as parts, repairs, and engineering support.

support—coupled with declining budgets, downsizing, and consolidations as a result of previous Base Realignment and Closure Act (BRAC) decisions—had led to a decline in depot-level maintenance workloads and contributed to the general deterioration of capabilities at military depots. The depots subsequently experienced a surge in workload as a result of operations in Iraq and Afghanistan. For example, they installed protective armor for trucks and repaired battle-damaged equipment.

In response to direction from the Office of the Secretary of Defense (OSD),⁴ both the Army and the Marine Corps developed depot maintenance strategic plans for their military depots and, in 2008, submitted them for review to DOD. The intent of these strategic plans, according to the OSD criteria, is to ensure the depots are postured and resourced to meet future requirements. Our objective was to evaluate the extent to which their plans provide a comprehensive strategy for meeting future depot maintenance requirements. In addition, we obtained information on depot productivity improvements (see app. II) and on workforce trends between fiscal years 1999 and 2008 (see app. III). This report is one in a series of reviews focusing on DOD's logistics and maintenance operations. In April 2008, we briefed your office on the preliminary results of our work on the military departments' depot capital investments. In July 2008, we reported on the increased carryover work occurring at the five Army depots.⁵ In December 2008, we reported on the implementation and impact of performance-based logistics arrangements on weapon system support costs.⁶ In May 2009, we reported on DOD's efforts to establish the required core capability for fielded, new, and modified systems.⁷

⁴OSD outlined the military services' depot maintenance strategic planning responsibilities in its Report to Congress. See Department of Defense, *Depot Maintenance Strategy and Implementation Plans*, part I-21 through I-24 (Washington, D.C. March 2007). This document established OSD criteria for the services' strategic plans.

⁵GAO, *Army Working Capital Fund: Actions Needed to Reduce Carryover at Army Depots*, [GAO-08-714](#) (Washington, D.C.: July 8, 2008).

⁶GAO, *Defense Logistics: Improved Analysis and Cost Data Needed to Evaluate the Cost-effectiveness of Performance Based Logistics*, [GAO-09-41](#) (Washington, D.C.: Dec. 19, 2008).

⁷GAO, *Depot Maintenance: Actions Needed to Identify and Establish Core Capability at Military Depots*, [GAO-09-83](#) (Washington, D.C.: May 14, 2009).

In conducting our work, we analyzed the services' depot maintenance strategic plans to determine if they were consistent with criteria for developing a comprehensive results-oriented management framework and addressed OSD's criteria for developing a strategic plan. We discussed these plans with officials from the Army, the Marine Corps, and the Office of the Under Secretary of Defense for Logistics and Materiel Readiness. To gain further perspective on the plans and related issues that affect the depots' posture for meeting future maintenance requirements, we visited the Army's five maintenance depots (Anniston, Corpus Christi, Letterkenny, Red River, and Tobyhanna) and both of the Marine Corps' maintenance depots (Albany and Barstow). We also obtained data on the depots' workload and workforce trends, as well as information on actions aimed at improving depot productivity. Although each of the military services was required to submit its depot maintenance strategic plan to OSD, we decided to focus our initial work on the Army's and Marine Corps' plans because of these services' significant role in supporting overseas contingency operations in Iraq and Afghanistan. As agreed with your offices, we plan to report separately on the Air Force and Navy depot maintenance strategic plans.

We conducted this performance audit from August 2007 through September 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. A more detailed description of our scope and methodology is included in appendix I.

Results in Brief

The depot maintenance strategic plans developed by the Army and Marine Corps identify key issues affecting the depots, but do not provide assurance that the depots will be postured and resourced to meet future maintenance requirements because they do not fully address all of the elements required for a comprehensive, results-oriented management framework. Nor are they fully responsive to OSD's direction for developing the plans. Specifically, while the services' strategic plans contain mission statements, along with long-term goals and objectives, they do not fully address all the elements needed for sound strategic planning, such as external factors that may affect how goals and objectives will be accomplished, performance indicators or metrics that measure outcomes and gauge progress, and resources required to meet the goals and objectives. Also, the plans partially address four issues that OSD

directed the services, at a minimum, to include in their plans—logistics transformation, core logistics capability assurance, workforce revitalization, and capital investment. For example, the plans do not provide clear time frames or actions for addressing these issues. Army and Marine Corps officials involved with the development of the service strategic plans acknowledged that their plans do not fully address the OSD criteria, but they stated that the plans nevertheless address issues they believe are critical to maintaining effective, long-term depot maintenance capabilities. OSD has decided to wait until completion of the Quadrennial Defense Review in 2010 before asking the services to modify or update their strategies. Additionally, we found that the Army's and Marine Corps' plans are not comprehensive because they do not provide strategies for mitigating and reducing uncertainties in future workloads that affect the depots' ability to plan for meeting future maintenance requirements. Such uncertainties stem primarily from a lack of information on (1) workload that will replace current work on existing systems, which is expected to decline, and (2) workload associated with new systems that are in the acquisition pipeline. According to depot officials, to effectively plan for future maintenance requirements and acquire the necessary capabilities (including workforce skills, equipment, and infrastructure), the depots need timely and reliable information from their major commands on both the amounts and types of workloads they should expect to receive in future years. Depot officials told us, however, that the information they receive from their major commands on their future workloads is uncertain beyond the current fiscal year. Officials cited various factors that contribute to these uncertainties, such as the volatility in workload requirements: changing wartime environment; budget instability, including the timing of and heavy reliance on supplemental funding; and unanticipated changes in customer orders. In addition, depot officials said that they are not involved in the sustainment portion of the life cycle management planning process for new and modified systems. Depot officials also said that no clear process exists that would enable them to have input into weapon system program managers' decisions on how and where new and modified systems will be supported and maintained in the future. These decisions profoundly affect the depots' future workload plans. Unless the depots are integrated in the life cycle planning process, these officials said, the depots will continue to have uncertainties about what capabilities they will need to plan for future workloads and what other resources they will need to support new and modified weapon systems. As a result of these deficiencies in their strategic plans, the Army and Marine Corps may lack assurance that their depots are postured and resourced to meet future maintenance requirements.

We are recommending that the Army and Marine Corps update their depot maintenance strategic plans to ensure that they (1) fully address all elements needed for a comprehensive results-oriented management framework; (2) fully address the four specific issues OSD directed the services to include in their plans; and (3) include goals and objectives aimed at mitigating and reducing future workload uncertainties, and integrate the depots' input into the sustainment portion of the life cycle management planning process. In its written comments on a draft of this report, DOD concurred with all three of our recommendations.

Background

The Army and Marine Corps maintain organic depot maintenance capabilities that are designed to retain, at a minimum, a ready, controlled source of technical competence and resources to meet military requirements. In fiscal year 2008, DOD budgeted about \$5.6 billion for the five Army and two Marine Corps maintenance depots and maintained a workforce of about 26,000 personnel at these facilities.⁸ Depot-level maintenance and repair involves materiel maintenance or repair requiring the overhaul, upgrading or rebuilding of parts assemblies and subassemblies, and testing and reclamation of equipment as necessary, regardless of the source of funds for the maintenance or repair or the location at which the maintenance or repair is performed.⁹ Army and Marine Corps depots work on a wide range of weapon systems and military equipment, such as combat vehicles, aircraft, and communications and electronics equipment. Each of the services' depot-level activities has been designated as a Center for Industrial and Technical Excellence in the recognized core competency of the designee, pursuant to Section 2474 of Title 10, U.S Code. Table 1 describes the principal work performed at each Army and Marine Corps depot.

⁸Includes permanent government personnel, temporary workers, and contract workers.

⁹Depot-level maintenance and repair also includes all aspects of software maintenance classified by DOD as of July 1, 1995, as depot-level maintenance and repair, and interim contractor support or contractor logistics support, to the extent that such support is for the performance of service as described above. Depot-level maintenance and repair does not include the procurement of major modifications or upgrades of weapon systems that are designed to improve program performance or the nuclear refueling of an aircraft carrier; however, a major upgrade program covered by this exception could continue to be performed by private or public sector activities. Depot-level maintenance also does not include the procurement of parts for safety modifications, but does include the installation of parts for that purpose.

Table 1: Army and Marine Corps Depots and Principal Work Performed

Army depot	Location	Principal work
Anniston	Anniston, Alabama	Wheeled and tracked vehicles such as the M88 and M1 tank and components
Corpus Christi	Corpus Christi, Texas	Rotary wing aircraft such as the AH-64 Apache, CH-47 Chinook, and UH-60 Blackhawk
Letterkenny	Chambersburg, Pennsylvania	Air defense and tactical missiles such as the Patriot, Hawk, Avenger, Multiple Launch Rocket System, and Sidewinder, as well as mobile electric power generation equipment
Red River	Texarkana, Texas	Bradley Fighting Vehicle, tactical wheeled vehicles, Patriot Missile Recertification, rubber products, Multiple Launch Rocket System, and the Small Replacement Excavator
Tobyhanna	Tobyhanna, Pennsylvania	Command, control, communications, computers, intelligence, surveillance, and reconnaissance systems, as well as electronics, avionics, and missile guidance and control systems
Marine Corps depot	Location	Principal work
Albany	Albany, Georgia	Military ordnance, secondary components, engineering, electronic, and communications equipment, custom armor kits, and major end items such as the Assault Amphibious Vehicle, Light Vehicle System, and High Mobility Multipurpose Wheeled Vehicle
Barstow	Barstow, California	Radar systems, heavy mobility equipment, communications systems, diesel engines, wheeled and tracked vehicles, and weapon systems such as the Light Armored Vehicle, Hercules Armed Recovery Vehicle, Logistics Vehicle system, and a variety of components and subassemblies

Source: GAO analysis of Army's and Marine Corps' depot locations and principal work.

During the late 1980s and the late 1990s, Army and Marine Corps maintenance depots—like other DOD depots—were significantly downsized as a result of reductions in the armed forces and DOD’s decision to outsource many logistics activities, including depot maintenance, to the private sector. These downsizing efforts contributed to decreased workloads at the depots and diminished their capability, reliability, and cost effectiveness for supporting requirements for legacy systems; it also reduced their opportunities to acquire work for new and modified weapon systems. The downsizing also affected the depots’ ability to obtain investments in facilities, equipment, and human capital to support their long-term viability and to ensure that they remained a key resource for repair of new and modified systems. As a result, DOD’s depots had become facilities that primarily repaired aging weapon systems and equipment. In 2003, Army and Marine Corps depots experienced an increase in workload, stemming from overseas contingency operations in Iraq and Afghanistan. Contributing to this increase were efforts to reset systems such as the High Mobility Multipurpose Wheeled Vehicle, the M1 Abrams Tank, and the Bradley Fighting Vehicle, as well as work related to

armor fabrication and the armoring of systems such as the Medium Tactical Vehicle Replacement. Despite the increase in workload, the Army and Marine Corps lacked direction from DOD on a department wide strategic depot plan that clarified the future role of the military depots. We reported in April 2003 that the services and DOD had not implemented comprehensive strategic plans for defense maintenance to revitalize or protect the future viability of their depot facilities, equipment, and workers.¹⁰ In that report, we recommended that the services develop depot strategic plans that are linked to the services' missions and objectives, and that DOD develop a strategic plan that provides guidance and a schedule for identifying long-term capabilities to be provided in government-owned and -operated plants.

The House Armed Services Committee has previously encouraged DOD to develop a comprehensive strategy to ensure that the depots are viably positioned, and that they have the workforce, equipment, and facilities they need to maintain efficient operations to meet the nation's current and future requirements.¹¹ In March 2007, the Under Secretary of Defense for Acquisition, Technology, and Logistics approved the DOD Depot Maintenance Strategy and Implementation Plans, which articulated OSD's strategy and plans for ensuring that the department's organic depot maintenance infrastructure is postured and resourced to meet the national security and management challenges of the 21st century. The plan also specified that each military service was responsible for conducting strategic planning for depot maintenance that focused on achieving DOD's strategy. OSD required the services to submit the results of their strategic plans no later than 6 months after the publication of DOD's plan. In March 2007, the Deputy Under Secretary of Defense for Logistics and Materiel Readiness modified this requirement to have each service submit either its published depot maintenance strategic plan, or a report describing the process being used to develop its strategic plan, and a target date for completing the plan by September 1, 2007. The Army and Marine Corps finalized and submitted their strategic plans to OSD in 2008.¹² In addition,

¹⁰GAO, *DOD Civilian Personnel: Improved Strategic Planning Needed to Help Ensure Viability of DOD's Civilian Industrial Workforce*, [GAO-03-472](#) (Washington, D.C.: April 30, 2003).

¹¹H.R. Rept. No. 108-106, p. 304 (2003), H.R. Rept. No. 109-452, p. 296 (2006).

¹²The Army submitted its strategic plan to OSD in June 2008, and the Marine Corps submitted its plan in March 2008.

the Army developed an implementation plan to accompany its strategic plan. The Marine Corps did not produce an implementation plan.

Strategic Plans Lack Elements Needed to Position the Depots to Meet Future Maintenance Requirements

While the depot maintenance strategic plans developed by the Army and the Marine Corps identify key issues affecting the depots, they do not fully address all of the elements required to achieve a results-oriented management framework, and they are not fully responsive to OSD's direction to the services for developing their plans. Furthermore, these plans do not address uncertainties in workload that affect the depots' ability to plan for meeting future maintenance requirements. Finally, they do not show whether and how the depots will have a role in planning for the sustainment of new and modified weapon systems. As a result of these deficiencies in their strategic plans, the Army and Marine Corps may lack assurance that their depots are postured and resourced to meet future maintenance requirements.

Strategic Maintenance Plans Do Not Fully Address All the Elements That Are Needed for a Results-Oriented Management Framework

The Army's and the Marine Corps' depot maintenance strategic plans do not fully address all of the elements that are needed for a comprehensive results-oriented management framework. In addition, the plans are not fully responsive to OSD's direction to the services for developing these plans. Our prior work has shown that organizations need sound strategic management planning in order to identify and achieve long-range goals and objectives. We have identified critical elements that should be incorporated in strategic plans to establish a comprehensive, results-oriented management framework.¹³ A results-oriented management framework provides an approach whereby program effectiveness is measured in terms of outcomes or impact, rather than outputs, such as activities and processes. The framework includes critical elements such as a comprehensive mission statement, long-term goals and objectives, approaches for accomplishing goals and objectives, stakeholder involvement, external factors that may affect how goals and objectives will be accomplished, performance goals that are objective, quantifiable, and

¹³GAO, *Results-Oriented Cultures: Implementation Steps to Assist Mergers and Organizational Transformations*, GAO-03-669 (Washington, D.C.: July 2, 2003); *Military Transformation: Clear Leadership, Accountability, and Management Tools Are Needed to Enhance DOD's Efforts to Transform Military Capabilities*, GAO-05-70 (Washington, D.C.: Dec. 17, 2004); and *Defense Management: Fully Developed Management Framework Needed to Guide Air Force Future Total Force Efforts*, GAO-06-232 (Washington, D.C.: Jan. 31, 2006).

measurable, resources needed to meet performance goals, performance indicators or metrics that measure outcomes and gauge progress, and an evaluation plan that monitors the goals and objectives. OSD also directed the services to include many of the elements in their depot maintenance strategic plans. Specifically, the OSD criteria stated that each military service's plan should include a comprehensive mission statement, general goals and objectives (including outcome-related goals and objectives), a description of how the goals and objectives are to be achieved, metrics that will be applied to gauge progress, key factors external to the respective service and beyond its control that could significantly affect the achievement of their general goals and objectives, and descriptions of the program evaluations used in establishing, monitoring, or revising goals and objectives, with a schedule for future program evaluations. Furthermore, OSD directed the services to address a number of specific issues in their strategic plans, including logistics transformation, core logistics capability assurance, workforce revitalization, and capital investment. OSD wanted the services, at a minimum, to address these four issues because it believed they were critical to ensuring the depots would be postured and resourced to meet future requirements.

Based on our evaluation of the Army's and Marine Corps' depot maintenance strategic plans, we found that the plans partially address the elements for a results-oriented management framework. While the services' strategic plans address key issues affecting the depots and contain mission statements, along with long-term goals and objectives, they do not fully address all the elements needed for sound strategic planning. Elements not fully addressed in the strategic plans are

- Approaches for accomplishing goals and objectives;
- Stakeholder involvement in developing the plan;
- External factors that may affect how goals and objectives will be accomplished;
- Performance goals that are objective, quantifiable, and measurable;
- Resources required to meet performance goals;
- Performance indicators or metrics that measure outcomes and gauge progress of the goals and objectives; and
- An evaluation plan that monitors the goals and objectives.

Table 2 summarizes, based on our evaluation, the extent to which the Army and Marine Corps depot maintenance strategic plans address the strategic planning elements needed for a comprehensive results-oriented management framework.

Table 2: Assessment of Results-Oriented Management Planning Elements within the Army and Marine Corps Depot Maintenance Strategic Plans

Results-oriented management framework planning element	Army plan	Marine Corps plan
Comprehensive mission statement	Addressed: The plan contains a mission statement that defines the Army's role and responsibility to support the Depot Maintenance Enterprise by providing resources, skills, and capabilities to sustain life cycle readiness of the warfighter's weapon systems and equipment worldwide in a reliable and efficient manner.	Addressed: The plan contains a mission statement that says the Marine Corps mission is to maintain optimum depot level capability required to ensure readiness in peacetime, sustainment in wartime, and reset after conflict or contingency.
Long-term goals and objectives	Addressed: The plan identifies three primary goals and nine objectives that will be used to support the Army's Depot Maintenance Enterprise. For example, one of the long-term goals and objective is to use the Army Force Generation to drive depot maintenance operations and update policies and regulations governing depot maintenance priorities as required to support the transforming Army.	Addressed: The plan identifies four major goals including, aligning maintenance operation metrics with warfighter outcomes, identifying and sustaining requisite core maintenance capability, sustaining a highly mission capable, mission-ready maintenance workforce, and ensuring an adequate infrastructure to execute assigned maintenance workload. There is also a list of objectives that are aligned with each major goal.
Approaches for accomplishing goals and objectives	Partially addressed: For example, the plan contains Army-wide actions that the service is undertaking for each of the strategic goals, but it does not fully describe the operational processes, skills and technology, human capital information, a schedule for significant actions, and other resources required to meet the goals and objectives.	Partially addressed: For example, the plan provides statements on what the Marine Corps plans to do for each goal, but it does not contain specifics on how the service plans to carryout these plans or time frames for completing the actions.
Stakeholder involvement in developing the plan	Partially addressed: For example, while the plan identifies individual stakeholders, it does not discuss their involvement in the planning process.	Partially addressed: For example, while the plan identifies individual stakeholders, it does not discuss their involvement in the planning process.
External factors that may affect how goals and objectives will be accomplished	Partially addressed: For example, the plan refers to factors, such as the Quadrennial Defense Review, that could affect the achievement of the general goals and objectives and the need to update the plan. It does not address those external factors that contribute to the loss of legacy work, or the lack of new work the depots are not receiving as a result of not having capability and infrastructure improvements.	Partially addressed: For example, the plan does address changes in force structure, the introduction of new weapon systems and modifications to legacy systems, but the plan does not address factors such as sustaining sufficient depot workload for the depots when current workloads decline.
Performance goals that are objective, quantifiable, and measurable	Partially addressed: For example, the plan has stated goals but does not show how outcomes will be measured.	Partially addressed: For example, the plan has stated goals, but do not contain any means to measure outcomes.

Results-oriented management framework planning element**Army plan****Marine Corps plan**

Resources needed to meet performance goals

Partially addressed: For example, the plan and action plan references the Army Materiel Command Human Capital Plan for workforce needed for the depots. But it does not contain specifics on how the Army intends to carry out these actions or time frames for completing the actions and the human capital plan does not specify time frames for completing the human capital plan.

Partially addressed: For example, the plan does address the need for sustaining a highly capable, mission-ready maintenance workforce. However, the plan does not contain specifics on how the service will carry out these actions or time frames to address these areas.

Performance indicators or metrics that measure outcomes and gauge progress of the goals and objectives

Partially addressed: For example, the plan contains some metrics that are being used to measure the performance of a specific goal or objective. However, it does not contain all the metrics that provide a measure for determining how well each of the actions is helping to meet the goals and objectives.

Partially addressed: For example, the plan contains metrics for two of the goals including what will be used for measuring each objective. However, it does not specify how often they will measure or how and when they will report the results.

Evaluation plan that monitors the goals and objectives

Partially addressed: For example, the plan contains some planned monitoring, but it does not provide a schedule for future program evaluations.

Partially addressed: For example, the plan contains some planned monitoring. However, it does not provide a schedule for future program evaluations.

Source: GAO analysis of Army and Marine Corps depot maintenance strategic plans.

The Army's and Marine Corps' depot maintenance strategic plans partially address logistics transformation, core logistics capability assurance, workforce revitalization, and capital investment—the four issues that OSD directed each service, at a minimum, to include in their plans. Table 3 summarizes, based on our evaluation, the extent to which the Army and Marine Corps depot maintenance strategic plans discuss these four issues.

Table 3: Assessment of OSD-Identified Issues within the Army and Marine Corps Depot Maintenance Strategic Plans

OSD-identified issues to be addressed in the military service depot maintenance strategic plans	Army plan	Marine Corps plan
Logistics transformation	Partially addressed: For example, the plan makes statements that the Army intends to address the role/capabilities envisioned for their depots. However, the actions within the plan are broad and unclear and do not state when the actions will be complete.	Partially addressed: For example, the plan does provide actions for potential organizational changes such as study the feasibility of constructing limited, forward deployed temporary repair facilities from the Maritime Positioning Force. However, the plan does not contain a discussion on how or when they plan to take these actions.
Core logistics capability assurance	Partially addressed: For example, the plan states the Army has not been following policy on maintaining a core logistics capability, but addresses the need to improve policy and procedures to identify core capabilities. The plan and accompanying implementation action plan does not contain metrics to fully measure progress.	Partially addressed: For example, the plan does mention core requirement including source of repair decisions. The statement in the plan is very general and does not explain how the Marine Corps plans will be responsive to the regulations and directives on core requirements.
Workforce revitalization	Partially addressed: For example, the plan does cite the need for the workforce to change with the changing mission needs and meet future core capability while maintaining flexibility. However, the plan does not contain a timeframe for completing the actions.	Partially addressed: For example, the plan states actions, such as the need to have information on projected retirements. The plan does not contain a discussion on how or when the Marine Corps plans to take these actions.
Capital investment	Partially addressed: For example, the plan has an objective that addresses updating the infrastructure by identifying military construction projects required to modernize organic depots and update the Capital Investment Plan. However, neither the plan nor the accompanying implementation plan identifies a method for prioritizing needed investments or projected funding.	Partially addressed: For example, the plan appears to address the capabilities that Marine Corp intends to provide through its planned investments. However, the plan is vague and provides no strategy on how the Marine Corps plans to implement the investments.

Source: GAO analysis of Army and Marine Corps depot maintenance strategic plans.

Army and Marine Corps officials involved with the development of the service strategic plans acknowledged that their plans do not fully address the OSD criteria, but they stated that the plans nevertheless address issues they believe are critical to maintaining effective, long-term depot maintenance capabilities. An official in the Office of the Deputy Chief of Staff of the Army, G4,¹⁴ who was involved with the Army’s depot

¹⁴G4 is the acronym for the Army’s logistics branch.

maintenance strategic plan acknowledged that the Army's plan does not fully address OSD's criteria. According to this official, the Army's plan focuses on issues of greatest priority to the service's depots. The official added that the OSD criteria lacked clear and specific instructions to the services. According to an official in the Marine Corps' Logistics Plans, Policy, and Strategic Mobility Division who was involved with that service's depot maintenance strategic plan, the Marine Corps' plan was intended to be only an overarching outline and was not intended to provide the detailed "nuts and bolts" that would be needed for implementation. The Army and Marine Corps have not updated their strategic plan since initially submitting them to OSD in 2008, and since that time neither service has received notice from OSD that its plan did not meet OSD's criteria or should be revised and updated. An OSD official in the Office of the Deputy Secretary of Defense for Logistics and Materiel Readiness told us that although the services' strategic plans are not completely responsive to OSD's direction, they represent a good first start on developing a strategic plan. Although OSD plans to require the services to update their plans, this official told us that OSD would wait until after completion of the Quadrennial Defense Review. That review is to be completed in early 2010. According to the OSD official, it would be counterproductive to ask the services to update their strategic plans in 2009 and then update them again following the Quadrennial Defense Review.¹⁵

Strategic Plans Do Not Address Uncertainties in Workload That Affect the Depots' Ability to Plan for Meeting Future Maintenance Requirements

The Army's and Marine Corps' depot maintenance strategic plans do not provide strategies for mitigating and reducing uncertainties in future workloads that affect the depots' ability to plan for meeting future maintenance requirements. These uncertainties stem primarily from a lack of information from the depots' major commands on workload that will replace current work on legacy systems, which is expected to decline, as well as workload associated with new systems that are in the acquisition pipeline (which is discussed further in the next section of this report). Workload uncertainties hinder effective planning for meeting future depot maintenance requirements because workload is a key driver in planning

¹⁵DOD officials also noted that the department is sponsoring an on-going study on future depot capability, in response to section 322 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009, Pub. L. No. 110-417 (2008). The study, among other things, will contain a quantitative analysis of the post-reset depot capability required to provide life cycle sustainment of military legacy systems and new systems and military equipment.

for the necessary capabilities such as workforce skills, equipment, and infrastructure. Depot officials said that these resources require significant lead times to develop and put in place to effectively respond to the customers' needs. In the absence of timely and reliable data on future workloads, the depots' efforts to identify and develop needed capabilities and to conduct workforce planning may be adversely affected.

The depots' major commands generate workload projections from workload forecasting systems and are based on past history and discussions with customers about workload planned for the depots. The Army uses the Army Workload and Performance System as a tool for projecting future workloads, coordinating personnel requirements, managing resources, and tracking performance. The Marine Corps use the Principle End Item Stratification Module within the Material Capability Decision Support System to determine its depot level maintenance requirements. Army and Marine Corps guidance identifies workload as a key planning factor for supporting the expected life of a materiel system. For example, Army Regulation 750-1, Army Materiel Maintenance Policy, states that a depot maintenance capability will be established and sustained on the basis of workload generated by those weapon systems and materiel that is essential to the completion of the Army's primary roles and mission. The Marine Corps' Depot Level Maintenance Program guide establishes general guidelines for planning workloads for the depots.

Although the services have guidance, systems, and processes for workload planning, depot officials told us that the workload forecasts they receive from their major commands are unreliable beyond the current fiscal year. Officials cited various factors that contribute to workload uncertainties, such as the volatility in workload requirements; changing wartime environment; budget instability, including the timing of and heavy reliance on supplemental funding; and unanticipated changes in customer orders. Depot officials also cited other factors such as delayed work returning from theater and workload cancellations. Depot officials told us that they were not in a position to address these factors on their own, and that reducing or mitigating future workload uncertainties would require substantial involvement of the service headquarter organizations and major commands that are responsible for managing the depots. Officials at the TACOM Life Cycle Management Command,¹⁶ one of the commands that support two Army depots, said that they too had difficulty forecasting

¹⁶Formally known as the Tank Automotive and Armaments Command.

workload flowing to the depots because of factors that were outside their control, such as technology development and surge requirements. Marine Corps Logistics Command officials said that they are currently implementing an enterprise-level maintenance program that focuses on how to better identify future year requirements.

Army and Marine Corps depot officials expressed particular concern that they lacked information on workloads that might replace some of their current work on legacy systems that is expected to decline due to various factors, including a drawdown of U.S. forces resulting from a decline in combat operations in Iraq and from the 2005 BRAC decisions. For example, Anniston Army depot's work on the M1 Abrams tank fleet is projected to decrease from about 6,000 tanks to 2,500 tanks by fiscal year 2013, as a result of the Army's projected decline in demand. In addition, the 2005 BRAC decision is expected to reduce future workload at the Marine Corps' Barstow depot by about 30 percent by fiscal year 2011, when BRAC is fully implemented.¹⁷ Moreover, Army and Marine Corps officials noted that the surge in workload resulting from operations in Iraq could be masking a decline in traditional organic depot work that occurred during this operation. Furthermore, these officials expressed concern that they lack information on workload associated with new and modified systems in the acquisition pipeline that will require future maintenance support at the depots. Depot officials also said that they are not involved in the sustainment portion of the life cycle management planning process for new and modified systems. Army Aviation and Missile Command officials said that the life cycle sustainment planning process is a responsibility of the program manager. While the command is operationally aligned with the program manager and plays a significant role in deciding how weapon systems will be supported, they do not include the depots in this planning process.

Both the Army's and the Marine Corps' depot maintenance strategic plans recognize that forecasting workload is important to the depots. However, while the Army's strategic plan notes the need to identify sufficient work for its depots, it does not explain how or when the Army will take steps to develop more reliable forecasts or take other steps that could reduce or mitigate depot workload uncertainties. The Marine Corps' strategic plan also mentions workload estimating, stating that the Marine Corps plans to

¹⁷Barstow used fiscal year's 2003 actual workload and fiscal years' 2004 and 2005 estimated workloads as its base to quantify the potential loss of work.

forecast depot maintenance workload with sufficient lead time to allow it to analyze the required depot capabilities. However, the strategic plan does not specify how the depots will be involved in this process, how this process will be accomplished, or who is going to be held accountable to ensure that this process is performed.

The Plans Do Not Address Whether and How the Depots Will Have a Role in Planning for the Sustainment of New and Modified Weapon Systems

Neither the Army's nor the Marine Corps' strategic plans address whether and how the depots will be integrated into the sustainment portion of the life cycle management planning process for new and modified weapon systems. During this process, weapon system program managers plan for how and where a new or modified system will be supported and maintained in the future—decisions that have a profound impact on planning future depot workload and related infrastructure, capital investments, and workforce requirements. According to depot officials, they are not involved in the program managers' planning because no clear process exists that would enable them to have input.

The department's overarching acquisition guidance, DOD Directive 5000.01,¹⁸ states that the program manager shall be the single point of accountability for accomplishing program objectives for total life-cycle systems management, including sustainment. While program managers are required to assign work to the depots to maintain core capabilities, they have no formal requirement to include the depots in the sustainment planning process to determine how a weapon system will be supported. In prior reports, we have noted that program managers often make decisions to contract out the repair of new and modified systems without considering the impact of these decisions on the requirement to maintain core capability for essential systems in military depots.¹⁹ Our recent report on core depot maintenance indicates that shortcomings in DOD's acquisition guidance and its implementation have resulted in DOD program managers not identifying and establishing required core capability at military depots in a timely manner—capability that will be

¹⁸DOD Directive 5000.01, *The Defense Acquisition System*, November 20, 2007.

¹⁹GAO, *Depot Maintenance: Key Unresolved Issues Affect the Army Depot System's Viability*, GAO-03-682 (Washington, D.C.: July 7, 2003), and *Defense Maintenance: Sustaining Readiness Support Capabilities Requires a Comprehensive Plan*, GAO/01-533T (Washington, D.C.: March 23, 2001).

needed to support future maintenance requirements for new and modified systems.²⁰

The depots' lack of involvement in life cycle management planning limits their ability to influence how weapon systems being acquired by their service will be sustained, and also plan for and develop capabilities they will need to support these systems in the future. For example, even though Red River Army depot is designated as the primary repair facility for Bradley Fighting Vehicles, depot planners stated that they were not involved in the Army's life cycle management planning process to decide which facility would have full capability to perform the test and repair work on the newer model of the Bradley A3. As a result, this depot received minimal work associated with this weapon system, while the majority of this work—including the testing on the turret and the major overhaul of the system—went to a private contractor.

According to depot officials, including the depots in the sustainment portion of the life cycle management planning process cannot be achieved without full participation and coordination between the sustainment and acquisition communities, and without consistent communication between the services' major commands and the depots during the process of determining how new and modified systems will be sustained. The Army Materiel Command's Industrial Base Strategic Plan notes the importance of developing a process that provides closer interface between the acquisition and sustainment communities to ensure that future weapon system requirements are matched with organic sustainment capabilities early in the acquisition process.²¹ Also, the Marine Corps Logistics Command's Alignment and Integration Strategic Plan emphasizes the importance of this command to assist program managers with the planning and execution of total life cycle management responsibilities for their weapon systems.²² Without a clear process to integrate the depots in the sustainment portion of the life cycle management planning process, the depots cannot determine what capabilities are needed to plan for future workloads and what other resources are needed to support new and modified weapon systems.

²⁰GAO-09-83.

²¹U.S. Army Industrial Base, *Strategic Plan*, April 2006.

²²United States Marine Corps Logistics Command, *Alignment and Integration Strategic Plan*, February 2008.

Conclusions

The Army and Marine Corps face some challenges to ensure that their maintenance depots will remain operationally effective, efficient, and capable of meeting future maintenance requirements. The increased reliance on contractor support for weapon systems, including contractor support provided through performance-based logistics, and the continuing uncertainties about workload, increase the risk that the depots may not be postured and resourced to meet future requirements. These issues, if not addressed, could adversely affect materiel readiness and future depot operations and potentially lead to equipment shortages and delays in meeting the combatant commander's requirements. While strategic planning is a valuable management tool to help mitigate the challenges facing the depots, the Army and Marine Corps plans as currently written are not comprehensive enough for this purpose. The plans do not fully address all the elements needed for a results-oriented management strategy or the specific issues that OSD directed each service, at a minimum, to include in their plans. Furthermore, until the services address problems caused by workload uncertainties, the depots will continue to have difficulties planning for future maintenance requirements. Regarding workload uncertainties for systems that have yet to enter the defense inventory, without a clear process for integrating the depots into the sustainment portion of the life cycle management planning process, the depots may continue to lose key opportunities to develop needed capabilities that would enable them to provide depot level maintenance support for new and modified systems.

Recommendations for Executive Action

To provide greater assurance that the military depots will be postured and resourced to meet future maintenance requirements, we recommend that the Secretary of Defense direct the Secretary of the Army and the Commandant of the Marine Corps to take the following three actions to update the depot maintenance strategic plans:

- Fully address all elements needed for a comprehensive results-oriented management framework, including those elements partially addressed in the current plans—such as the approaches for accomplishing goals and objectives, stakeholder involvement, external factors that may affect how goals and objectives will be accomplished, performance goals that are objective, quantifiable, and measurable, resources needed to meet performance goals, performance indicators used to measure outcomes and gauge progress, and an evaluation plan that monitors goals and objectives.
- Fully address the four specific issues of logistics transformation, core capability assurance, workforce revitalization, and capitalization, consistent with OSD criteria provided to the services.

-
- Develop goals and objectives, as well as related strategic planning elements, aimed at mitigating and reducing future workload uncertainties. As part of this last effort, the Army and Marine Corps should develop a clear process for integrating the depots' input into the sustainment portion of the life cycle management planning process for systems in the acquisition pipeline.

Agency Comments and Our Evaluation

In written comments on a draft of this report, DOD concurred with all three of our recommendations to provide greater assurance that the military depots will be postured and resourced to meet future maintenance requirements. DOD's written comments are reprinted in appendix IV.

The department concurred with our first two recommendations to direct the Army and the Marine Corps to update their depot maintenance strategic plans to fully address all elements needed for a comprehensive results-oriented management framework, and fully address the four specific issues of logistics transformation, core capability assurance, workforce revitalization, and capitalization, consistent with OSD criteria provided to the services. DOD stated that they will reiterate and incorporate these recommendations into the next update of the strategic plan. While this is a step in the right direction, DOD did not indicate what steps, if any, it plans to take to ensure that the Army and Marine Corps will also incorporate these recommendations into their depot maintenance strategic plans. Therefore, DOD may need to take further action by following up with the Army and Marine Corps to ensure that they fully incorporate these recommendations into their depot maintenance strategic plans.

DOD also concurred with our third recommendation to direct the Army and Marine Corps to develop goals and objectives for mitigating and reducing future workload uncertainties and integrate the depot's input into the sustainment portion of the life cycle management planning process. DOD stated that the Army has initiated several actions to mitigate and reduce uncertainties in projecting future depot workload and to ensure viability of the depot workforce. DOD said that the Army has established integrated product teams to address core workload shortfalls and developed an action plan and the resources and time line required to transfer sufficient workload from the original equipment manufacturers to the applicable Army depot to meet core requirements. In addition, DOD said that the Army has begun to develop policy that would require review of Core Logistic Assessments / Core Depot Assessments and Source of

Repair Analyses during the milestone decision review process, and to develop a comprehensive training package for export to program executive officers and program managers, Life Cycle Management Commands, and depots. While these are positive steps that would help to improve future workload planning, these steps focus on addressing core requirements and do not fully address the need to mitigate and reduce workload uncertainties or to include the depots' input into the sustainment portion of the life cycle management planning process for systems in the acquisition pipeline. We continue to believe the depots will have difficulties planning for future maintenance requirements until the services develop solutions for mitigating and reducing uncertainties across the full range of the depots' workloads. We also continue to believe that without a clear process for integrating the depots into the sustainment portion of the life cycle management planning process, the depots will continue to lose key opportunities to develop capabilities that would enable them to provide depot-level support for systems in the acquisition pipeline. The department reiterated its plan to incorporate our recommendations into the next update of the strategic plan. As we stated above with regard to our first two recommendations, DOD may need to take further action by following up with the Army and Marine Corps to ensure that they fully incorporate this recommendation into their depot maintenance strategic plans.

We are sending copies of this report to the appropriate congressional committees and the Secretary of Defense, the Secretaries of the Army, the Navy, the Air Force, and the Commandant of the Marine Corps. In addition, this report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. If you or your staff have questions about this report, please contact me at (202) 512-8365 or solisw@gao.gov. Key contributors to this report are listed in appendix VI.

A handwritten signature in black ink, appearing to read 'W. Solis', with a long horizontal flourish extending to the right.

William M. Solis
Director, Defense Capabilities and Management

Appendix I: Scope and Methodology

To evaluate the extent to which the Army's and Marine Corps' strategic plans provide a comprehensive strategy for meeting future depot maintenance requirements, we assessed the Army's April 2008 Depot Maintenance Enterprise Strategic Plan, and the Marine Corps February 2008 Depot Maintenance Strategic Plan to determine if they are consistent with the criteria for developing a comprehensive results-oriented management framework as indicated in GAO's prior work on strategic management plans. While the Office of the Secretary of Defense (OSD) required all the services to prepare and submit such plans to them, we decided to focus our work on the Army's and Marine Corps' plans because of their significant roles in supporting overseas contingency operations in Iraq and Afghanistan. We also determined if the Army's and Marine Corps' strategic plans for depot maintenance fully addressed the criteria for developing a strategic plan specified in the Department of Defense (DOD) March 2007 Depot Maintenance Strategy and Implementation Plans. Furthermore, we determined if the Office of the Under Secretary of Defense for Logistics and Materiel Readiness assessed the services' depot management strategic plans and provided follow on actions to ensure the plans meet their criteria. In addition, we reviewed and addressed issues regarding uncertainties in projecting future workloads, which is necessary for effective depot planning. We also interviewed depot management officials to determine the depots' participation in the sustainment portion of the life cycle management planning process to effectively plan and prepare for future maintenance work and related capabilities.

To gain further perspective on the services' efforts to plan for the future of the depot maintenance facilities, we interviewed and obtained documentation from officials at Headquarters, Department of the Army, Washington, D.C.; U.S. Army Materiel Command, Fort Belvoir, Virginia; Headquarters Marine Corps, Arlington, Virginia; Marine Corps Systems Command, Quantico, Virginia; and Marine Corps Logistics Command, Albany, Georgia. We also visited, interviewed, and obtained documentation from officials at the Army's five maintenance depots that perform organic level maintenance at Anniston Army Depot, Anniston, Alabama; Corpus Christi Army Depot, Corpus Christi, Texas; Letterkenny Army Depot, Chambersburg, Pennsylvania; Red River Army Depot, Texarkana, Texas; and Tobyhanna Army Depot, Tobyhanna, Pennsylvania. In addition, we visited, interviewed depot officials and obtained documentation from the Marine Corps' two maintenance depots that perform organic level maintenance at Maintenance Center Albany, Georgia and Maintenance Center Barstow, California. Furthermore, we obtained data and information on actions aimed at improving depot productivity at the Army and Marine Corps depots and data on the depots' workforce

trends from fiscal year 1999 through fiscal year 2008. We determined that the data used were sufficiently reliable for our purposes. We conducted this performance audit from August 2007 through September 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Army and Marine Corps Depot Actions to Improve Productivity

Both the Army and Marine Corps depots have reported actions they have taken to improve their productivity. The depots have reported that they have improved their maintenance operations' productivity and efficiency through the use of several process improvements including Lean, Six Sigma, Value Stream Mapping, and Theory of Constraints. They report that such improvements have allowed them to identify and reduce or eliminate unnecessary work-related functions and other impediments that created restrictions or "bottlenecks" in their production processes and have resulted in increases in the number of weapon systems or other components processed, reductions in repair cycle times,¹ and reductions in the cost of production. The Army² and Marine Corps³ have issued a policy and a guidebook, respectively, aimed at improving the depots' repair processes, including information on assessing the depots' progress in making, sharing, and sustaining improvements and in measuring overall productivity. We questioned depot officials about the data associated with these improvements and relied on their professional judgment concerning the adequacy and reliability of the data.

Table 4 shows information reported by the Army depots on the results of initiatives to improve the repair process for selected weapon systems—one from each of the five Army depots. The Army depots generally assess the results of their productivity improvements based on increases in the number of units produced, reductions in repair cycle times, and reductions in production costs. The third column shows the period during fiscal years 2004 through 2007 in which the initiative was implemented. The fourth column shows the average reduction in repair cycle time expressed in days, and the fifth column shows this reduction expressed as a percentage by which repair time was reduced. The final column shows the estimated cost reduction or savings that the Army depots reported for the period. Army depot officials told us that there is limited sharing of lessons learned or cross application among the depots and that increased sharing and cross application could contribute to additional reductions in repair days and cost savings or cost avoidances.

¹Repair cycle time is the average number of days that is required to repair a weapon system or a major component.

²Department of the Army, Policy Letter—U.S. Army Materiel Command (AMC) Continuous Process Improvement (CPI) Policy, January 3, 2006.

³United States Marine Corps Continuous Process Improvement Guidebook, December 21, 2007.

**Appendix II: Army and Marine Corps Depot
Actions to Improve Productivity**

Table 4: Results of Selected Army Depots' Process Improvements, Fiscal Years 2004 through 2007

Depot	Weapon system	Fiscal years	Repair cycle reduction (days)	Repair cycle reduction (percentage)	Estimated cost reduction/savings (millions of dollars)
Anniston	Field Artillery Ammunition Vehicle	2004 to 2006	3	8.6%	\$2.50
Corpus Christi	UH-60 Tail Rotor Blades Processes	2006 to 2007	7	35%	\$3.90
Letterkenny	High Mobility Multipurpose Wheeled Vehicle Recap	2005	43	73%	\$5.20
Red River	High Mobility Multipurpose Wheeled Vehicle Recap	2004 to 2006	3	75%	\$3.90
Tobyhanna	Firefinder Antenna Transceiver Group	2004 to 2007	15	12%	\$0.02

Source: GAO analysis of selected Army depots' process improvements.

Table 5 shows information reported by the Marine Corps depots on the results of initiatives to improve the repair process for selected weapons systems repaired at its two depots for fiscal years 2004 through 2007. The Marine Corps depots generally assess the results of their productivity improvements based on reductions in repair cycle times. The second column shows the average number of days taken for the repair cycle in fiscal year 2004, the baseline year before the depots initiated their process improvement initiatives.⁴ The third column shows the average number days the depots reported for repair cycle time in fiscal year 2007, after implementing process improvement initiatives. The fourth and fifth columns show the reported reduction in repair time expressed as number of days and the percentage by which repair time was reduced. The Marine Corps depots generally do not either capture or report cost savings or cost avoidances resulting from such improvements. A Marine Corps official responsible for managing the results of the depots' improvement told us that some of the reductions in repair days were achieved by using overtime and multiple shifts. The official also told us that there is limited sharing of lessons learned or cross application among the depots and that increased sharing and cross application could contribute to additional reductions in repair days and in cost savings or cost avoidances.

⁴Reductions are measured against operations that existed prior to implementation of Theory of Constraints (TOC).

**Appendix II: Army and Marine Corps Depot
Actions to Improve Productivity**

Table 5: Results of Selected Marine Corps Depots' Process Improvements, Fiscal Years 2004 through 2007

Depot/weapon system	2004 average repair cycle (days)	2007 average repair cycle (days)	Reduction in repair cycle (days)	Percentage reduction
Albany:				
MK-48	100	38	62	62%
MK-15 Trailer	71	5	66	93%
MK-17 Trailer	53	10	43	81%
M970 Refueler	86	4	82	95%
M149A2 Water Trailer	49	19	30	61%
M88 Tank Retriever	89	31	58	65%
Barstow:				
LAV 25	180	96	84	47%
LAV Anti-Tank	182	145	37	20%
M970 Tanker	129	104	25	19%
MK-14 Trailer	152	39	113	74%

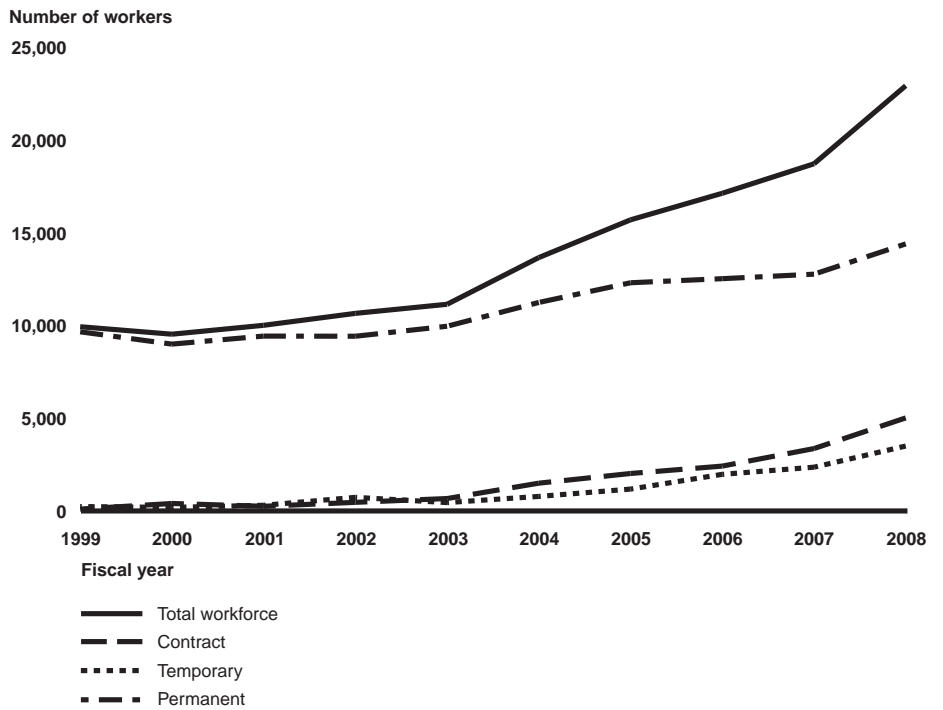
Source: GAO analysis of selected Marine Corps depots' process improvements.

Appendix III: Trends in Army and Marine Corps Depot Workforce Levels

Workforce levels for the Army and Marine Corps depots have been increasing along with the workloads since fiscal year 2003. The depots have accommodated the surge in workload by hiring primarily temporary and contract employees. Depot officials told us they hired temporary and contract workers in lieu of permanent government workers due to uncertainties about the duration of the overseas contingency operations in Iraq and Afghanistan. The depots plan to reduce temporary and contract labor as workload related contingency operations decreases. Although uncertainties about future workload inhibit their workforce planning, we found that the depots' workforce strategic planning addresses anticipated personnel and skill gaps. For example, while the workloads have increased, the depots have been able to maintain a skilled workforce. In addition, with a large percentage of depot workers becoming eligible to retire over the next 5 years, some of the depots are working with local community colleges to provide specialized programs focused on skills needed by the depots.

The Army and Marine Corps depots' workforce was relatively stable from fiscal year 1999 through fiscal year 2002. The depots report that the increase in workload associated with the Global War on Terrorism (GWOT) began during fiscal year 2003. Before GWOT, the total depot workforce was more than 89 percent permanent government employees, but at the end of fiscal year 2008 permanent government employees made up only 62 percent of the total depot workforce. After remaining relatively constant from fiscal year 1999 through fiscal year 2002, total workforce increased from fiscal year 2003 through fiscal year 2008, along with the increases in workload associated with GWOT. From fiscal year 2003 through fiscal year 2008, the Army depots' workforce increased by 106 percent and the Marine Corps' by 99 percent. Figures 1 and 2 illustrate these changes in the Army's and the Marine Corps' depots' workforces from fiscal year 1999 through fiscal year 2008.

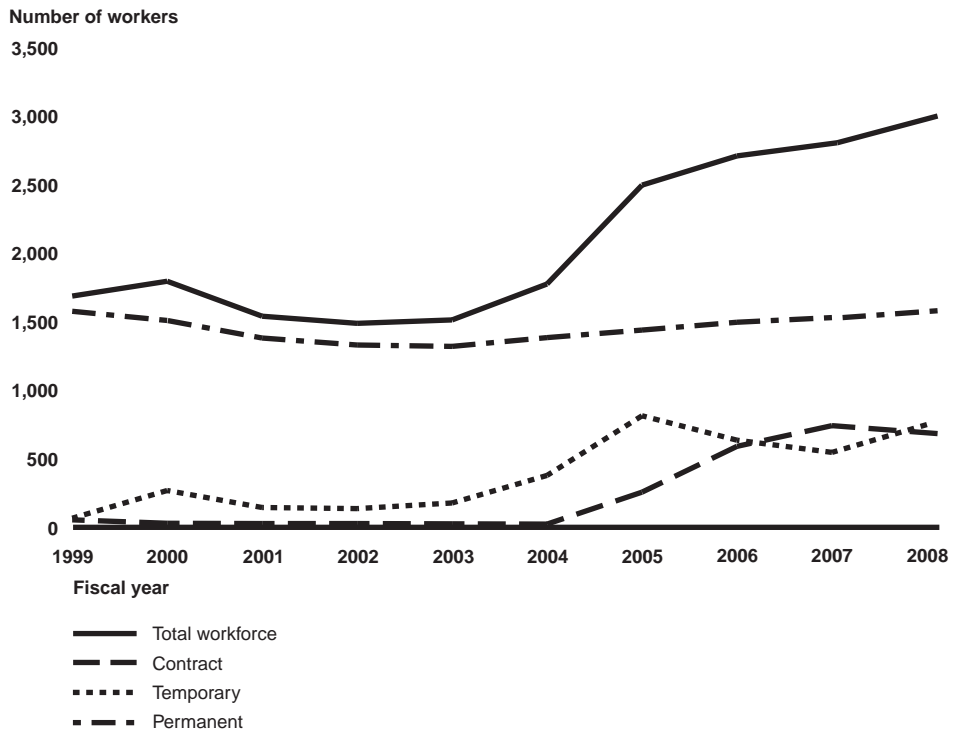
Figure 1: Army Depots' Workforce by Category, Fiscal Years 1999 to 2008



Source: GAO analysis of Army depots' workforce data.

Note: Excludes data on the part-time workforce, which constitutes a small proportion of the total workforce.

Figure 2: Marine Corps Depots' Workforce by Category, Fiscal Years 1999 to 2008



Source: GAO analysis of Marine Corps depots' workforce data.
 Note: Excludes data on the part-time workforce, which constitutes a small proportion of the total workforce.

The trends reflected in figures 1 and 2 show marked changes in the composition of the Army's and Marine Corps' depots' workforces since fiscal year 2003. The largest increases have been in the number of temporary workers and contract labor hired in lieu of permanent staff. As GWOT continued and the workload continued to increase, the depots continued to hire more temporary and contract workers to accommodate the increased workload. The depots plan to reduce the number of temporary and contract workers as they employ GWOT-related workload decreases.

As figures 1 and 2 illustrate, in fiscal year 2008, 37 percent of the Army depots' workforce and 48 percent of the Marine Corps depots' workforce were comprised of temporary and contract workers. Specifically, temporary workers represented about 15 percent of the Army depots' workforce and 25 percent of the Marine Corps depots' workforce.

Contract workers represented about 22 percent of the Army depots' workforce and about 23 percent of the Marine Corps depots' workforce.

We have previously reported that the depots may face challenges that could inhibit effective strategic workforce planning.¹ These challenges include the high average age of workers, difficulty in maintaining depot viability if large numbers of eligible skilled workers retire, and lack of an available source of trained and skilled personnel. The Army and Marine Corps depots' have reduced the average age of their permanent workers. For fiscal year 2008, the age of permanent workers in the Army's depots averaged 45, and the age of permanent workers in the Marine Corps' depot averaged 46. Since fiscal year 1999, the average age of the Army's permanent depot workers has decreased by 9 percent, while that of the Marine Corps' has decreased by 12 percent. Depot officials attributed this reduction to the retirement of older permanent workers; the availability of younger, qualified applicants; and in-house training programs.

The depots have developed workforce strategic plans that address current and anticipated personnel and skill gaps. These plans include maintaining a mix of personnel with the skills and capabilities needed to satisfy current workload requirements. According to Army and Marine Corps depot officials, permanent, skilled workers are readily available. Further, the depots forecast a high rate of retirement eligibility in the next 5 years, and they are taking steps to address the potential loss of skilled personnel. According to Army data, 34 percent of the Army's permanent depot workforce will be eligible for retirement in fiscal year 2013. According to Marine Corps data, 43 percent of the Marine Corps' permanent depot workforce will also be eligible for retirement in fiscal year 2013. Both services' depots track and monitor personnel who may be eligible to retire soon, considering their skills in order to address potential skill gaps in the future workforce. Both Army and Marine Corps depots address this potential loss of personnel and skills in their workforce strategic plans, and they have instituted various types of recruitment and training programs designed to attract and train workers.

¹GAO, *DOD Civilian Personnel: Improved Strategic Planning Needed to Help Ensure Viability of DOD's Civilian Industrial Workforce*, and [GAO-03-472](#) (Washington, D.C.: April 30, 2003).

Appendix IV: Comments from the Department of Defense



DEPUTY UNDER SECRETARY OF DEFENSE FOR
LOGISTICS AND MATERIEL READINESS
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

SEP 04 2009

Mr. William M. Solis
Director, Defense Capabilities and Management
U.S. Government Accountability Office
441 G Street N.W.
Washington, DC 20548-0001

Dear Mr. Solis:

This is the Department of Defense (DoD) response to the GAO Draft Report, GAO-09-865 "DEPOT MAINTENANCE: Improved Strategic Planning Needed to Ensure That Army and Marine Corps Depots Can Meet Future Maintenance Requirements," dated July 30, 2009 (GAO Code 351073).

The Department concurs with all three recommendations. An explanation of the DoD position is enclosed. The Department appreciates the opportunity to comment on the Draft Report and requests that the enclosed comments be made a part of the final report.

Sincerely,

A handwritten signature in black ink, appearing to read "Alan F. Estevez".

Alan F. Estevez
Acting

Enclosure:
As stated



GAO DRAFT REPORT – DATED JULY 30, 2009
GAO CODE 351073/GAO-09-865

"DEPOT MAINTENANCE: Improved Strategic Planning Needed to Ensure That Army
and Marine Corps Depots Can Meet Future Maintenance Requirements"

DEPARTMENT OF DEFENSE COMMENTS
TO THE RECOMMENDATIONS

RECOMMENDATION 1: The GAO recommends that the Secretary of Defense direct the Secretary of the Army and the Commandant of the Marine Corps to update the depot maintenance strategic plans to fully address all elements needed for a comprehensive results-oriented management framework, including those elements partially addressed in the current plans — such as the approaches for accomplishing goals and objectives, stakeholder involvement, external factors that may affect how goals and objectives will be accomplished, performance goals that are objective, quantifiable, and measureable, resources needed to meet performance goals, performance indicators used to measure outcomes and gauge progress, and an evaluation plan that monitors goals and objectives. (Page 21/GAO Draft Report)

DOD RESPONSE: Concur. The Department will reiterate and incorporate the above recommendations into the next update of the strategic plan.

RECOMMENDATION 2: The GAO recommends that the Secretary of Defense direct the Secretary of the Army and the Commandant of the Marine Corps to update the depot maintenance strategic plans to fully address the four specific issues of logistics transformation, core capability assurance, workforce revitalization, and capitalization, consistent with OSD criteria provided to the Services. (Page 21/GAO Draft Report)

DOD RESPONSE: Concur. The Department will reiterate and incorporate the above recommendations into the next update of the strategic plan.

RECOMMENDATION 3: The GAO recommends that the Secretary of Defense direct the Secretary of the Army and the Commandant of the Marine Corps to update the depot maintenance strategic plans to develop goals and objectives, as well as related strategic planning elements, aimed at mitigating and reducing future workload uncertainties. As part of this last effort, the Army and Marine Corps should develop a clear process for integrating the depots' input into the sustainment portion of the life cycle management planning process for systems in the acquisition pipeline. (Page 21/GAO Draft Report)

DOD RESPONSE: Concur. Since the Army's Depot Maintenance Strategic plan was developed in 2008 the Army has initiated several actions to mitigate/reduce uncertainties in the projecting future depot workload and to ensure viability of the depot workforce. The Army has established Core Workload Integrated Product Teams to address Core workload shortfalls and developed an action plan and the resource/timeline required to transfer sufficient workload from

**Appendix IV: Comments from the Department
of Defense**

the Original Equipment Manufactures to the applicable Army depot to meet Core requirements. The Army has also initiated the development of policy that requires review of Core Logistic Assessments(CLA)/Core Depot Assessments and Source of Repair Analyses(SORA) during the Milestone Decision Review process as well as development of a comprehensive CLA/SORA training package for export to Program Executive Officers/Program Managers, Life Cycle Management Commands and depots. However, to ensure comprehensive strategic plans, the Department will reiterate and incorporate the recommendations into the next update of the strategic plan.

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

William M. Solis, (202) 512-8365 or solisw@gao.gov

Staff Acknowledgments

In addition to the contact named above, Julia Denman and Tom Gosling, Assistant Directors; Larry Bridges; John Clary; Joanne Landesman; Latrealle Lee; Katherine Lenane; and Christopher Watson made key contributions to this report.

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