

Appendix A: References

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Appendix B: Public Sector Depot Maintenance Activities

Army Depot Maintenance Activities

The Army operates five major depot maintenance activities:

- **Anniston Army Depot (ANAD)** is located in northeastern Alabama. The depot is capable of performing maintenance on both heavy and light-tracked combat vehicles and their components. The depot is designated as a center of technical excellence for the M1 Abrams Tank and is the designated candidate depot for the repair of various Army combat vehicles. ANAD has also assumed depot maintenance responsibility for the towed and self-propelled artillery, as well as the M113 Family of Vehicles (FOV).¹
- **Corpus Christi Army Depot (CCAD)** is located in Corpus Christi, Texas. It overhauls, modifies, and modernizes a large range of rotary-wing aircraft (helicopters). It also provides additional depot maintenance support, including on-site maintenance teams, crash-damage analysis, and various kinds of technical support.² This is the Army's only aviation facility.
- **Letterkenny Army Depot (LEAD)** is located in south central Pennsylvania. It is a center of technical excellence for Air Defense and Tactical Missile Systems. It supports maintenance of the Patriot missile and its ground support and radar equipment. The organization also conducts maintenance, modification, and storage operations on tactical missiles and ammunition. Recently, the organization has been

¹ U.S. Department of the Army, <http://www.anad.army.mil/> (accessed 16 September 2004).

² U.S. General Accounting Office, *Depot Maintenance: Key Unresolved Issues Affect the Army Depot System's Viability*, GAO-03-682 (Washington, D.C.: GAO, 2003).

required to quickly modify certain vehicles for Army Special Forces, Army Rangers, and Navy Seals, based upon combat requirements.³

- **Red River Army Depot (RRAD)** is located in Texarkana, Texas. The organization provides depot-level maintenance actions on combat and tactical systems such as the Army's Bradley Fighting Vehicle. It also conducts maintenance on air defense and tactical systems.⁴
- **Tobyhanna Army Depot (TYAD)** is located in northeastern Pennsylvania. It is a repair, overhaul, and fabrication facility for the Army's communication and electronics equipment. These systems include satellite terminals, radio and radar systems, telephones, electro-optics, night vision and anti-intrusion devices, airborne surveillance equipment, navigational instruments, electronic warfare, and guidance and control systems for tactical missiles.⁵

In terms of relative workload for the Army depots, it is possible to use a measure of direct labor hours devoted to depot maintenance to make some general comparisons. Overall, Anniston, Corpus Christi, and Tobyhanna each applied similar numbers of direct labor hours to their respective workloads during fiscal year (FY) 2003. Letterkenny and Red River accomplished a significantly smaller amount of work, based upon the direct labor hour measure.⁶

³ U.S. Department of the Army, <http://www.letterkenny.army.mil/> (accessed 12 September 2004).

⁴ U.S. Department of the Army, <https://www.redriver.army.mil/> (accessed 7 September 2004).

⁵ U.S. Department of the Army, <http://www.tobyhanna.army.mil/> (accessed 13 September 2004).

⁶ U.S. Department of Defense, *Depot Maintenance Business Profile: Fiscal Years 2003–2009*.

Naval Air Depot Maintenance Activities

The Naval Air Systems Command operates three military depot maintenance organizations:

- **Naval Air Depot (NADEP) Cherry Point** is located in Cherry Point, North Carolina.

The organization performs major airframe modifications and repair for a wide variety of military aircraft, including the Harrier, the vertical-takeoff-and-landing tactical attack jet flown by the Marines; the medium-lift transport Sea Knight helicopter; and the Sea Stallion and the Super Stallion helicopter. In addition, depot mechanics are converting jet fighter/reconnaissance aircraft into drones to be used to tow targets during pilot training exercises. Also, engineers and logisticians have worked with prime contractors to set logistics and maintenance requirements for the V-22 Osprey. The NADEP is the proposed repair organization for the V-22, which is slated to eventually replace the Sea Knight.⁷

- **NADEP Jacksonville** is located in Jacksonville, Florida. The organization performs maintenance, repair, overhaul, and modification of aircraft, engines, and aeronautical components. The primary airframes it supports are the various surveillance planes and Navy fighter aircraft. It also performs work on select helicopters. Its engine repair capability is extensive. It also has a comprehensive repair capability for all Navy electronic warfare systems. The calibration laboratory associated with this capability is the primary repair site for more than twenty-five special electronic warfare test systems.⁸
- **NADEP North Island** is located in San Diego, California. NADEP North Island performs depot-level repairs and modification on more than 250 aircraft per year.

⁷ U.S. Department of the Navy, http://www.nadepcp.navy.mil/nadep_facts.htm#mission (accessed 15 September 2004).

⁸ U.S. Department of the Navy, <http://www.nasjax.navy.mil/> (accessed 17 September 2004).

NADEP North Island repairs helicopters, fighter planes, and surveillance planes. These systems undergo maintenance and repair actions that are performed by NADEP North Island artisans and squadron personnel stationed in San Diego and at various other locations. For example, NADEP North Island is home to the only West Coast tail-boom repair fixture for Cobra and Huey helicopter maintenance, alignment, and repair.⁹

Based upon a direct labor hour comparison similar to that discussed for the Army's maintenance depots, the Navy's depots are roughly the same size, with NADEP North Island slightly larger in terms of the number of direct labor hours applied.¹⁰

Naval Sea Depot Maintenance Activities

The Naval Sea Systems Command (NAVSEA) operates six depot maintenance activities that perform ship-related maintenance:

- **Portsmouth Naval Shipyard (PTNSY)** is located about fifty miles north of Boston, Massachusetts, at the southernmost tip of Maine. PTNSY provides submarine design, construction, modernization, and maintenance and has a key role in the very-deep-ocean submersible and special operations arenas. Today the shipyard's primary mission is the overhaul, repair, modernization, and refueling of Los Angeles-Class nuclear-powered submarines. It is currently the planning yard for the Navy's deepest-diving submarine and submersible, as well as other scientific research, defense prototype testing, and submerged rescue platforms. It is also the planning and engineering center for the Los Angeles Class.¹¹

⁹ U.S. Department of the Navy, <http://www.nadepni.navy.mil/home/maintenance.htm> (accessed 20 September 2004).

¹⁰ U.S. Department of Defense, *Depot Maintenance Business Profile: Fiscal Years 2003–2009*.

¹¹ U.S. Department of the Navy, <http://www.ports.navy.mil/> (accessed 10 September 2004).

- **Norfolk Naval Shipyard (NNSY)** is located in Norfolk, Virginia, on the southern branch of the Elizabeth River. The shipyard is capable of a large range of maintenance actions, including overhauling, repairing, installing, and testing all types of steam-generation and combustion-control systems, main engines, hydraulic components, generators and ship auxiliaries, pumps (weld repair and testing), valves, aircraft launch and recovery equipment, diesel engines, compressors, and optical alignment systems. In sum, it is capable of providing repair and modernization to the entire range of Navy ships.¹² It includes a multidisciplinary engineering site dedicated to integrating, testing, and implementing business process improvements in Navy and Department of Defense maintenance depots. NNSY is the cryptographic repair depot for the East Coast of the United States. It repairs, modifies, overhauls, certifies, and installs cryptographic equipment for the Navy. It is the depot-level antenna repair facility and range site that removes, restores, tests, ranges, and reinstalls navigation and surface/air search antennas.
- **Puget Sound Naval Shipyard and Intermediate Maintenance Facility** is located in Kitsap County, Washington. The shipyard engages in an extensive program of modernizing aircraft carriers. In 1990, the U.S. Navy authorized a program to recycle nuclear-powered ships at the shipyard. Approximately 6 percent of the shipyard's workload involves inactivation, reactor compartment disposal, and recycling of ships. Like NNSY, the shipyard can provide maintenance for every class of Navy vessel, including the Trident submarine fleet. The site operates refit piers, repair shops, and a

¹² U.S. General Accounting Office, *Navy Ship Maintenance: Allocation of Ship Maintenance Work in the Norfolk, Virginia, Area*. Letter Report to Owen B. Pickett, U.S. House of Representatives, 24 February 1999, GAO/NSIAD-99-54 (Washington, D.C., GAO, 1999).

dry dock and serves as the homeport of submarines, ships, and aircraft carriers in the Pacific Northwest. The shipyard has expertise in hull, mechanical, electrical, electronics, and weapons systems repair. Its facilities include the only dry dock in the world constructed parallel to the shoreline.¹³

- **Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility** is located in Pearl Harbor, Hawaii. This is the largest ship-repair site between the U.S. West Coast and the Far East. The shipyard plays a significant role in maintaining the Navy's fleet of ships in the Pacific. It is multicable, and because of its geographic location, it is of strategic importance. The shipyard is capable of a large range of maintenance actions, including overhauling, repairing, installing, and testing all types of generation and combustion control systems and ship modifications.
- **The Naval Undersea Warfare Center (NUWC) Division, Keyport**, is located in Keyport, Washington, in the Puget Sound. It has detachments located near Pacific Fleet customers in Lualualei and Pearl Harbor, Hawaii, and in San Diego, California. It also operates fleet-testing and logistics sites at Nanoose, British Columbia, and at Hawthorne, Nevada. NUWC provides test-and-evaluation; in-service engineering, maintenance, and repair; and industrial-base support for undersea warfare systems, countermeasures, and sonar systems. It is a key provider of materiel support, modernization, and industrial technology, including the preventive and corrective depot maintenance of submarines. Modernization and upgrade of components in these

¹³ U.S. Department of the Navy, <http://www.psns.navy.mil/> (accessed 13 September 2004).

products focus on improving performance, reducing required maintenance, and reducing testing required for new product acceptance.¹⁴

- **The Naval Surface Warfare Center (NSWC), Crane Division**, is located in Crane, Indiana. This depot has its origins as the military's central controller and storage point for ammunition, including pyrotechnics and illuminating projectiles. After the end of World War II, NSWC Crane began to develop expertise in engineering and electronics that has carried into its current mission. NSWC Crane is a multimission, multi-Service product and maintenance center. NSWC Crane acts as a steward of microwave tubes, printed wiring boards, pyrotechnics, radiation-hardened devices, and batteries. It can also support diverse and highly technical product lines in the areas of ordnance, electronics, and electronic warfare. NSWC Crane is involved in many aspects of maintenance and support related to ship, submarine, aircraft, and missile systems fielded by the Navy.¹⁵

In terms of direct labor hour comparisons, the workload at the Puget Sound Naval Shipyard and Intermediate Maintenance Facility is the largest of the four NAVSEA shipyard facilities. It is followed closely by Norfolk Naval Shipyard. Portsmouth Naval Shipyard and Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility represent not quite half of the direct labor hour amount of Puget Sound. The Naval Surface Warfare Center, Crane Division, and the Naval Undersea Warfare Center, Keyport, are similar in terms of direct labor hour allocation.¹⁶

¹⁴ U.S. Department of the Navy, <http://www-keyport.kpt.nuwc.navy.mil/Leadership.htm> (accessed 5 September 2004).

¹⁵ U.S. Department of the Navy, <http://www.crane.navy.mil/whoweare> (accessed 10 September 2004).

¹⁶ U.S. Department of Defense, *Depot Maintenance Business Profile: Fiscal Years 2003–2009*.

Air Force Depot Maintenance Activities

The Air Force runs three air logistics centers that accomplish depot maintenance activities:

- **Oklahoma City Air Logistics Center (OC-ALC)** is located near Oklahoma City, Oklahoma, on Tinker Air Force Base (AFB). It provides worldwide logistics support and depot-level maintenance for a variety of weapons systems, including the B-1, B-52, multipurpose C-135-series aircraft, the E-3, and the E-4, and management of the B-2 bomber. It also supports the short-range attack missile and the air-launched cruise missile. The center is the public-sector source for management and repair of a large variety of aircraft engines.
- **Ogden Air Logistics Center (OO-ALC)** at Hill AFB, Utah, provides logistics support for the entire Air Force inventory of intercontinental ballistic missiles, as well as depot-level maintenance for F-16 and C-130 aircraft. Other responsibilities include management of the Maverick air-to-ground missile, GBU-15 and laser-guided bombs, and the Emergency Rocket Communications Systems. The Center is the logistics manager and depot maintenance provider for all landing gear, air munitions, solid propellants, and explosive devices used by the Air Force.
- **Warner Robins Air Logistics Center (WR-ALC)** at Robins AFB, Georgia, provides worldwide logistics management and depot-level maintenance for the F-15, C-5, and C-130 aircraft, as well as for utility aircraft, helicopters, missiles, and drone and remotely piloted vehicles. It is also the main U.S. operating base for the E-8 Joint Surveillance and Target Attack Radar System aircraft.¹⁷

¹⁷ U.S. Department of the Air Force, <http://www.usaf.com/orgs/5.htm> (accessed 5 September 2004).

In a direct labor hour comparison, these organizations are roughly equivalent in terms of workload, but the scope of work is much different at each location.

Marine Corps Depot Maintenance Activities

The U.S. Marine Corps operates two maintenance centers:

- **Maintenance Center Albany (MCA)** is located in Albany, Georgia. The facility repairs, rebuilds, and modifies all types of Marine Corps ground combat equipment, and combat support and combat service support equipment. The Center also works on all types of military ordnance, motor transport, engineering, general purpose, electronic, and communication equipment, including major end items and various depot-repairable components. The items for which the Center provides depot maintenance services include the main battle tank of the Marines, light armored vehicles, and amphibious assault vehicles.¹⁸
- **Maintenance Center Barstow (MCB)** is located in Barstow, California. The facility provides support for weapon systems such as amphibious, combat, tactical, communications, electronics, missiles, ship engines, construction, optics, and metrology. This support includes diagnostics, rebuild, engineering support services, manufacturing of small parts through the Maintenance Center's Small Mechanical Parts Manufacturing System (SMPMS), testing, radiographic services, calibration, prototype fabrication, technical assistance, and quality assurance services.¹⁹

¹⁸ U.S. Department of the Navy, <http://www.logcom.usmc.mil/maintctr/generalinfo.asp> (accessed 6 September 2004).

¹⁹ U.S. Department of the Navy, https://www.bam.usmc.mil/maintctr/Know_more.htm (accessed 9 September 2004).

Appendix C: Law Summary

The following is a summary of depot maintenance related legal guidance.

Section	Fiscal Year	Public Law (P.L.) Description
<i>Chapter 146 (Contracting for Performance of Civilian Commercial or Industrial Type Functions)</i>		
Section 2460: Definition of depot-level maintenance and repair	Pre-FY 1996	N/A
	FY 1996	N/A
	FY 1997	N/A
	FY 1998	Created by P.L. 105-85, Subtitle D (Depot-Level Activities), Section 355. Provides definition of what is to be considered as depot maintenance and repair: <ul style="list-style-type: none"> • Depot maintenance and repair are defined as materiel maintenance or repair requiring overhaul, upgrading, or rebuilding of parts, assemblies, or subassemblies and the testing and reclamation of equipment as necessary, regardless of source of funds for the maintenance and repair. • Term includes aspects of software maintenance classified by DoD as depot maintenance and repair, interim contractor support (ICS), or contractor logistics support (CLS). • Term excludes the procurement of major modifications or upgrades that are designed to improve performance, the procurement of safety modifications, and nuclear refueling of aircraft carriers.
	FY 1999	P.L. 105-261, Section 341, made minor correction in definition.
	FY 2000	N/A
Section 2464: Core logistics capabilities	Pre-FY 1996	FY 1985: Section 2464 was originally based on P.L. 98-525, which "Prohibits the contracting out of essential logistic functions of the Department. Permits the Secretary of Defense to waive such prohibition if it is determined that Government performance of a function is no longer essential for the national defense. Requires all waivers to be reported to the Armed Services Committees. Requires that a list of essential logistics functions be submitted to such committees by April 1, 1985." FY 1986: P.L. 99-145, Title XII, amends the original law by: <ul style="list-style-type: none"> • Specifying certain Core logistics functions of the Armed Forces and Defense Agencies to be subject to certain contracting-out limitations. Excludes certain functions from such limitations. • Requires the Secretary to ensure that services and activities are performed by non-Government personnel when such performance would be cost-effective and in the interest of national security. • Increases the employee-number thresholds applicable to certain contracting-out procedures under the Department of Defense Authorization Act, 1981.

Section	Fiscal Year	Public Law (P.L.) Description
Section 2464: Core logistics capabilities (continued)	FY 1996	<p>P.L. 104-106, Subtitle B (Depot-Level Activities), Section 311 (policy regarding performance of depot-level maintenance and repair for DoD). Outlines Congressional "Findings" and a "Sense of Congress" that there is a compelling need for DoD to articulate known and anticipated Core maintenance and repair requirements, to organize the resources of DoD to meet those requirements economically and efficiently, and to determine what work should be performed by the private sector and how such work should be managed:</p> <ul style="list-style-type: none"> • The SECDEF is required to (1) identify those depot-level maintenance and repair activities that are necessary to ensure the depot-level maintenance and repair; (2) provide for performance of Core depot-level maintenance and repair capabilities in facilities owned and operated by the United States; (3) provide for the Core capabilities, to include sufficient skilled personnel, equipment, and facilities that (a) is of the proper size to ensure a ready and controlled source of technical competence and repair and maintenance capability necessary to meet the requirements of the National Military Strategy and other requirements for responding to mobilizations and military contingencies and to provide for rapid augmentation in time of emergency and (b) is assigned sufficient workload to ensure cost efficiency and technical proficiency in time of peace; (4) address environmental liability; (5) in the case of depot-level maintenance and repair workloads in excess of the workload required to be performed by Department of Defense depots, provide for competition for those workloads between public and private entities when there is sufficient potential for realizing cost savings based on adequate private-sector competition and technical capabilities; (6) address issues concerning exchange of technical data between the Federal Government and the private sector; (7) provide for, in the Secretary's discretion and after consultation with the Secretaries of the military departments, the transfer from one military department to another, in accordance with merit-based selection processes, workload that supports the Core depot-level maintenance and repair capabilities in facilities owned and operated by the United States; (8) require that in any competition for a workload (whether among private-sector sources or between depot-level activities of DoD and private-sector sources), bids are evaluated under a methodology that ensures that appropriate costs to the Government and the private sector are identified; and (9) provide for the performance of maintenance and repair for any new weapons systems defined as Core, under Section 2464 of Title 10, United States Code, in facilities owned and operated by the United States. <p>PL 104-106, Section 313, extends authority for aviation depots and Naval shipyards to engage in competition for defense-related production and services through 30 September 1996 (first granted in FY 1991 Defense Authorization Act). Amended by PL 104-106, Subtitle B, Section 314 (modification of notification requirement regarding use of Core logistics functions waiver).</p>
	FY 1997	<p>P.L. 104-201, Subtitle B (Depot-Level Activities), Section 312 (test programs for modernization-through-spares):</p> <ul style="list-style-type: none"> • Requires the Secretary of the Army to submit a report to Congress on steps taken to ensure that the Army's modernization-through-spares program is conducted in accordance with previous legislative guidance, including "the Core logistics requirements in Section 2464 . . ." and the public-private competition requirements in Section 2469.

Section	Fiscal Year	Public Law (P.L.) Description
Section 2464: Core logistics capabilities (continued)	FY 1998	<p>Section 2464 amended by P.L. 105-85, Subtitle D (Depot-Level Activities), Section 356 (Core logistics capabilities of DoD):</p> <p>Requires that the SECDEF identify Core logistics capabilities and workloads to maintain those capabilities.</p> <p>Defines Core logistics capabilities as including those capabilities that are necessary to maintain and repair the weapon systems and other military equipment (including mission-essential weapon systems or materiel) as necessary to enable the Armed Forces to support fully the strategic and contingency plans.</p> <p>Requires that Core logistics capabilities be established not later than four years after applicable weapon systems achieve initial operational capability.</p> <p>Excludes special access programs, nuclear aircraft carriers, and commercial items that are identified by the Secretary, in consultation with the Chairman of the Joint Chiefs of Staff.</p> <p>Section 363 (repeal of a conditional repeal of certain depot-level maintenance and repair laws and a related reporting requirement) repeals Section 311 of the FY 1996 NDAA.</p> <p>Section 365 (report on allocation of Core logistics activities among DoD facilities and private-sector facilities) requires that the SECDEF submit to Congress a report on the allocation among DoD facilities and facilities in the private sector of the logistics activities that are necessary to maintain and repair the weapon systems and other military equipment identified by the Secretary, in consultation with the Chairman of the Joint Chiefs of Staff, as being necessary to enable the Armed Forces to conduct a strategic or major theater war.</p>
	FY 1999	<p>P.L. 105-261, Section 343, amends Section 2464 by requiring specific DoD justification the first time that a weapon system or other item of military equipment is determined to be a commercial item for purposes of the exception to requirements regarding Core logistics capabilities.</p>
	FY 2000	<p>P.L. 106-65 amends guidance contained in P.L. 105-261 pertaining to depot-level maintenance accomplished through prime vendor contracts. Requires a description "of the measures taken to ensure that the contract does not violate the Core logistics policies."</p>
Section 2466: Limitations on the performance of depot-level maintenance of materiel	Pre-FY 1996	<p>FY 1988: Section 2466 added (P.L. 100-456)</p> <p>FY 1991: P.L. 102-484 substituted "Limitations on the performance of depot-level maintenance of materiel" for "Prohibition on certain depot maintenance workload competitions."</p> <p>FY 1995: Amended by P.L. 103-337, Subtitle D (Depot-Level Activities), Section 332 (modification of limitation on performance of depot-level maintenance). Not more than 40 percent of funds made available by Service or Agency may be used to contract for performance by non-Government personnel.</p>
	FY 1996	<p>Defense Authorization Act contained provisions for repeal of this section if Secretary's proposed depot maintenance policy had been approved by Congress (P. L. 104-106, Div. A, Title III, Sec. 311(f)(2), 10 Feb. 1996, 110 Stat. 248, which directed striking out items 2466 and 2469, was repealed by P. L. 105-85, Div. A, Title III, Sec. 363, 18 Nov. 1997, 111 Stat. 1702).</p>
	FY 1997	<p>SASC report on FY 1997 Defense Authorization Act contained provision to change limitation from sixty-four to fifty-five, but authorization conferees agreed to take no action during FY 1997. Sections 2466 and 2469 remained intact.</p>

Section	Fiscal Year	Public Law (P.L.) Description
Section 2466: Limitations on the performance of depot-level maintenance of materiel (continued)	FY 1998	<p>Section 2466(a) was amended by P.L. 105-85, Subtitle D (Depot-Level Activities), Section 357 (increase in percentage of depot-level maintenance and repair that may be contracted for performance by non-Government personnel). Amended by striking out "40 percent" and inserting "50 percent."</p> <p>Section 2466 currently states: "Not more than 50 percent of the funds made available in a fiscal year to a military department or a Defense Agency for depot-level maintenance and repair workload may be used to contract for the performance by non-Federal Government personnel of such workload for the military department or the Defense Agency. Any such funds that are not used for such a contract shall be used for the performance of depot-level maintenance and repair workload by employees of the Department of Defense."</p> <p>Section 358 requires that DoD submit an annual report to Congress identifying the percentage of depot maintenance funds expended in the public and private sectors.</p>
	FY 1999	N/A
	FY 2000	P.L. 106-65 amends Section 2466 by requiring DoD to identify, by Military Service, the percentage of depot maintenance funds expended in the public and private sectors during the two previous years. It further requires DoD to estimate, for each of the next five years, the percentage of depot maintenance funds projected to be expended in the public and private sectors.
Section 2474: Centers of Industrial and Technical Excellence: designation; public-private partnerships	Pre-FY 1996	N/A
	FY 1996	N/A
	FY 1997	N/A
	FY 1998	<p>Section added by P.L. 105-85, Subtitle D (Depot-Level Activities), Section 361. Requires SECDEF to designate each depot-level activity as a Center of Industrial and Technical Excellence (CITE) in the recognized Core competency of the activity:</p> <p>Objective is for the SECDEC to establish a policy to encourage the Secretary of each military department and the head of each Defense Agency to reengineer industrial processes and adopt best-business practices at their depot-level activities in connection with their Core competency requirements, so as to serve as recognized leaders in their Core competencies throughout DoD and in the national technology and industrial base.</p>
	FYs 1999/2000	N/A
	FY 2001	<p>Revised by P.L. 106-398, Subtitle D (DoD Industrial Facilities), Section 341. Revisions include:</p> <ul style="list-style-type: none"> • Authorization for the Service Secretaries to designate CITEs • Addition of general provisions of 10 U.S.C. §2471, which was repealed <p>Enablement for private industry to perform work that involves one or more Core competencies at a CITE.</p>

Appendix D: Policy Directives

This appendix includes various policy directives related to depot maintenance provision decisions.

Directive, Instruction, or Policy Letter	Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Description
DoD Directive 5128.32 <i>Defense Depot Maintenance Council</i> 7 November 1990	✓					Establishes a senior-level Defense Depot Maintenance Council (DDMC) to advise the Deputy Under Secretary of Defense (Logistics) on depot maintenance within the Department of Defense.
DoD Directive 4151.18 <i>Maintenance of Military Materiel</i> 12 August 1992 Updated on 31 March 2004	✓					Basic maintenance policy directive that sets requirements for the establishment of maintenance programs and requires the use of the DoD Core decision logic methodology. Establishes policy and assigns responsibilities for the performance of DoD materiel maintenance. Describes Core maintenance as “an integral part of a depot maintenance skill and resource base that shall be maintained within depot activities to meet contingency requirements. Core will comprise only a minimum level of mission-essential capability and must be under the control of an assigned individual DoD Component or may be a consolidated capability under the control of an assigned or jointly determined DoD Component where economic and strategic considerations warrant.” Also reflects the legal requirement to establish Core capability requirements and implement related capabilities not later than four years after initial operational capability.
USD(A&T) Memorandum <i>Integrated Management of Department of Defense Logistics Activities</i> 14 October 1993	✓					Supports management improvements, including accelerating the implementation of the DDMC, accelerating the implementation of the Core depot maintenance policy, and creation of a strategy for addressing Congressional guidelines for depot maintenance operations and structure.
DEPSECDEF Memorandum <i>Management of DoD Depot Maintenance Activities</i> 5 November 1993	✓					Established an “empowered” DDMC as the “best approach to immediately impact DoD depot maintenance.” Memorandum further states that “this approach should significantly enhance cross servicing and reduce excess capacity in Department of Defense maintenance depots.” Led to change 2, to DoD Directive 5128.32, <i>Defense Depot Maintenance Council</i> , dated 10 March 1994. Memorandum in response to a Joint Service Study Group that reviewed alternatives to management of depot maintenance operations.
DUSD(L) Memorandum <i>Policy for Maintaining Core Depot Maintenance Capability</i> 15 November 1993	✓					Establishes Core policy and outlines sizing methodology. States that “this policy statement will be incorporated into applicable DoD policy directives and instructions during their next revision.”

Directive, Instruction, or Policy Letter	Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Description
OSD Report to Congress <i>Report on Determination of Core Depot Maintenance Workload</i> April 1994	✓					The report, prepared for the Committees on Appropriations, outlines the Core concept (including the methodology and results), public-private workload split issues, and the depot workload allocation process.
DEPSECDEF Memorandum <i>Depot Maintenance Operations Policy</i> 4 May 1994	✓					Responds to a Defense Science Board (DSB) report, <i>Task Force on Depot Maintenance Management</i> (April 1994). The DEPSECDEF memorandum: Restated DoD Core policy as contained in DUSD(L) Memorandum, <i>Policy for Maintaining Core Depot Maintenance Capability</i> ; Determined that the DoD Core concept is to be considered Department-wide (the DSB recommended Military Service Core); Discontinued public-private cost competitions (because a level cost playing field is not achievable in the near term); Discontinued public-public competitions (but encourages continued interservicing); and Excluded from depot maintenance Core major modifications and upgrades that increase the performance envelope of systems.
DUSD(L) Memorandum <i>Guidance for Implementing Sections of the FY 1995 Defense Authorization Act of Concern to Depot Maintenance Operations</i> 16 November 1994	✓					Provides guidance regarding DoD implementation of the new (FY 1995) legislative provisions that pertain to depot maintenance operations. Policy guidance includes the inclusion of Interim Contractor Support (ICS) and Contractor Logistics Support (CLS) in depot maintenance reporting, the requirement to report Military Service plans for the depot maintenance of new weapon systems, and the DoD reporting requirement for its revised definition of Core.
DUSD(L) Memorandum (for the CORM) <i>Core Depot Maintenance</i> January 1995	✓					The DUSD(L) memorandum states, "The DoD Core methodology requires the Services to 'identify the specific mission-essential equipment to be used in the JCS-approved contingency scenario(s)'. The Core maintenance workload is based on scenario readiness and sustainability requirements. This means that all of the DoD's Core capability is required to assure success in the JCS-approved two MRC planning scenarios. It is important to understand that Core is a single methodology that is applied uniformly across all scenario time frames, including returning weapon systems and equipment to their pre-MRC readiness level after the conflicts are successfully concluded."
Depot Maintenance Privatization Working Group Memorandum <i>Working Group Service Members' Recommendation on Core Methodology</i> 12 December 1995	✓	✓				Details the Core methodology (flow diagram), including explanation of each step.

Directive, Instruction, or Policy Letter	Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Description
DoD Regulation 7000.14-R (DoD Financial Management), Volume 6, Chapter 14 <i>Depot Maintenance Reporting</i> February 1996		✓				Prescribes requirements that the Military Services must satisfy with regard to reporting the accomplishment of depot maintenance workloads in DoD depot maintenance activities, other DoD activities, and private-sector activities.
DoD Report to Congress <i>Policy Regarding Performance of Depot-Level Maintenance and Repair</i> March 1996		✓				Complies with Section 311 of the National Defense Authorization Act for FY 1996. Provides DoD policy on depot maintenance issues, including Core capabilities, general management, workload management, and private-sector support.
DoD Handbook 5000.60-H <i>Assessing Defense Industrial Capabilities</i> April 1996		✓				The handbook outlines DoD's analysis process, asking the following questions: What industrial capabilities are essential to making the products and services that DoD needs? Are these capabilities truly unique? Truly endangered? What is the best source of action for DoD?
DoD Directive 5000.60 <i>Defense Industrial Capabilities Assessments</i> 25 April 1996		✓				Establishes policy and assigns responsibilities for assessing defense industrial capabilities. The purpose of the assessment is to ensure that the industrial capabilities needed to meet current and future national security requirements are available and affordable.
DEPSECDEF Memorandum <i>Consolidation of Contract Requirements</i> 28 October 1996			✓			States the policy considerations that must be taken into account when contracts or requirements of a kind suitable for performance by small businesses are proposed for consolidation.
Chairman, JPGC-DM Memorandum <i>Refinement of Depot Maintenance Core Methodology</i> Undated (assumed to be November 1996)			✓			Memorandum transmits Integrated Process Team (IPT) recommendations for a revised Core methodology flow chart, a revised narrative, and a list of common minimum criteria to be used in conducting a risk assessment.
ADUSD(L)/MPP&R Memorandum <i>Refinement of Depot Maintenance Core Methodology Risk Assessment Criteria</i> 20 December 1996			✓			Disseminates the results of the IPT formed by the Joint Policy Coordinating Group on Depot Maintenance (JPCG-DM) to refine the Risk Assessment portion of the Core methodology. The refined Risk Assessment was reviewed and coordinated by the IPT and the JPCG-DM. It was also briefed to DUSD(L). The memorandum was sent to the DDMC members "for final review." No comments were apparently received.
USD(A&T) Memorandum <i>Designation of the DDMC as the Single-Manager Element for Aircraft Maintenance</i> 17 January 1997			✓			Provides guidance regarding DoD implementation of the DEPSECDEF decision and establishes the scope, procedures, and requirements of implementing SME for aircraft maintenance.

Directive, Instruction, or Policy Letter	Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Description
DoD Handbook 4151.18-H <i>Depot Maintenance Capacity and Utilization Measurement Handbook</i> 24 January 1997			✓			Provides updated guidance for a common methodology to measure and provide visibility of the capacity and utilization of DoD organic depot maintenance activities. Defines Core as follows: "Depot maintenance Core is the capability maintained within organic Defense depots to meet readiness and sustainability requirements of the weapon systems that support the Chairman of the Joint Chiefs of Staff contingency scenarios. Core exists to minimize the operational risks and to guarantee readiness of these weapon systems. Core depot maintenance capabilities will comprise only the minimum facilities, equipment, and skilled personnel necessary to ensure a ready and controlled source of required technical competence. The Military Services will use the DoD-approved methodology to compute Core depot maintenance requirements." Further described is the Core Capacity Index, which is "an indicator of the capacity, expressed in direct labor hours, required for a shop or depot to provide essential maintenance capabilities that is used and Core capability that is held in reserve."
USD(A&T) Memorandum <i>Competition Between Public Sector (Organic) Maintenance Depots and Private Sector Commercial Firms</i> 2 May 1997			✓			Addresses 10 U.S.C. §2469 and §2470. Requires incorporation of guidance into DoD Directive 4151.18. Policy states that only depot maintenance and repair workloads not necessary to sustain Core capabilities shall be available for public-private competition. The policy guidance further states that non-Core workloads will be requantified biennially as an adjunct to the Core redetermination process.
USD(A&T) Memorandum <i>Deriving Cost Benefits Through Competitions for DoD Depot Maintenance Work</i> 8 September 1997			✓			Subject to the DEPSECDEF memorandum, <i>Consolidation of Contract Requirements</i> , this policy guidance encourages DoD, within practical limits, to eliminate existing barriers and impediments to full and open competition for depot maintenance. The memorandum notes that a substantial portion of existing depot maintenance requirements are acquired under private-sector contracts awarded by using other than full and open competition (often sole source).
DUSD(L) Memorandum <i>Agreements and Assignments (A&A) from the Defense Depot Maintenance Council (DDMC)</i> 10 September 1997 22 September 1997			✓			Tasks the Military Services to accomplish their biennial Core review for FY 1999. "The representative from ADUSD(L) Maintenance Policy, Programs, and Resources (MPP&R) advised the Military Service representatives that the Services' biennial Core review should be provided to ADUSD(L)/MPP&R by 30 January 1998 for OSD review."
DDMC, Cost Comparability Committee <i>Cost Comparability Handbook</i> January 1998				✓		Provides standardized procedures and techniques to ensure cost comparability during consolidation studies and when competing depot maintenance workloads between Military Services (public-public) and between organic (DoD) sources and the private sector (public-private).

Directive, Instruction, or Policy Letter	Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Description
ADUSD(L)/MPP&R Memorandum <i>Joint Service Core Process Meeting, 18–19 November 1997</i> 26 January 1998				✓		Disseminates minutes from subject meeting. The minutes are not necessarily a coordinated Military Service position, but they do represent a work product that was to serve as a basis for further development of Core policy. (Note: In October 1999, an ADUSD(L)/MPP&R representative stated that the results of this meeting were never approved/implemented.)
Department of Defense <i>Logistics Strategic Plan</i> 1998 Edition				✓		Establishes maintenance-related objectives with metrics. Specific objectives include (1) improve the efficiency of public-sector maintenance depots by downsizing capacities, (2) pursue public-private competitions for depot maintenance and repair workloads accomplished by Federal Government personnel to the maximum extent allowed by statute, and (3) effect maximum competition for maintenance workloads previously awarded without full and open competition.
Services' Submissions of Their FY 1999 Core Capability Requirements Various Dates				✓		Copies of the Services' FY 1999 biennial Core requirements.
PDUSD(A&T) Memorandum <i>Distribution of DoD Depot Maintenance Workloads</i> 23 November 1998					✓	Data call regarding public-private distribution of depot maintenance workload (fifty-fifty report). Data call describes specific workload that is included and excluded from depot maintenance (e.g., CLS, ICS, and depot software maintenance are included, but procurement of modifications, the nuclear refueling of aircraft carriers, and the procurement of parts for safety modifications are excluded from the term "depot-level maintenance").
PDUSD(A&T) Memorandum <i>Follow-Up on GAO Report, GAO/NSIAD-98-221, "Defense Depot Maintenance: Weaknesses in the T406 Engine Logistics Support Decision Methodology . . ."</i> 24 March 1999					✓	Provides guidance pertaining to 10 U.S.C. §2464(c), which requires that repair capability be established for new systems identified as "Core systems" within four years of IOC. Memorandum outlines exception requirements.
PDUSD(A&T) Memorandum <i>Biennial Data Call for Identification of Core Logistics Capabilities for Depot-Level Maintenance and Repair</i> 10 August 1999					✓	Tasks the Military Services to accomplish their biennial Core review for FY 2001. Memorandum also includes reporting format. Requested that the data be submitted by 23 December 1999.

Directive, Instruction, or Policy Letter	Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Description
Department of Defense <i>Logistics Strategic Plan</i> FY 2000 Edition					✓	Refines early versions of the <i>Logistics Strategic Plan</i> and focuses on ensuring the war fighter's confidence in the responsiveness of the logistics process. One of the seven end-state (i.e., FY 2006) characteristics is "Commercial Practices and Core Functions." The description, in part, reads, "Although commercial products and capabilities are the principal source of commodity and services support, the Department continues to perform its Core functions and capabilities. Core functions are principally military tasks unavailable in the commercial marketplace, or competencies the DoD clearly performs in a superior manner, or to satisfy inherently governmental responsibilities."
PDUSD(A&T) Memorandum <i>Depot Maintenance Capacity and Utilization Measurement</i> 30 September 1999					✓	Provides interim supplementary instructions to DoD Handbook 4151.18-H. Changes include a revised definition of the Core Capacity Index, which now reads: "The Core Capacity Index is an indicator of the capacity, expressed in DLHs, available within a shop or depot to support Peacetime Core capability requirements identified in the approved DoD Core methodology (as depicted in Block H of the Core methodology). This includes both Core capability that is used and Core capability that is held in reserve."
PDUSD(A&T) Memorandum <i>Distribution of DoD Depot Maintenance Workloads</i> 19 October 1999					✓ FY 2000	Data call regarding public-private distribution of depot maintenance workload (fifty-fifty report). Data call describes specific workload that is included and excluded from depot maintenance (e.g., CLS, ICS, and depot software maintenance are included, but procurement of modifications, the nuclear refueling of aircraft carriers, and the procurement of parts for safety modifications are excluded from the term "depot-level maintenance").
PDUSD(A&T) Memorandum <i>Distribution of DoD Depot Maintenance Workloads</i> 29 October 2000					✓ FY 2001	Data call regarding public-private distribution of depot maintenance workload (fifty-fifty report). Data call describes specific workload that is included and excluded from depot maintenance (e.g., CLS, ICS, and depot software maintenance are included, but procurement of modifications, the nuclear refueling of aircraft carriers, and the procurement of parts for safety modifications are excluded from the term "depot-level maintenance").

Directive, Instruction, or Policy Letter	Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Description
USD(AT&L) Interim Memorandum replacing DoD Regulation 5000.2-R <i>Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs</i> 4 January 2001					✓ FY 2001	Establishes DoD policy for organic Core. Also requires best-value decision process for non-Core-related workload: "10 U.S.C. §2464 and DoD policy require organic Core maintenance capabilities; such capabilities provide effective and timely response to surge demands, ensure competitive capabilities, and sustain institutional expertise. Within statutory limitations, support concepts for new and modified systems shall maximize the use of contractor-provided, long-term, total life-cycle logistics support that combines depot-level maintenance for non-Core-related workload along with wholesale and selected retail materiel management functions. Best value over the life cycle of the system and use of existing contractor capabilities, particularly while the system is in production, shall be considered as key determinants in the overall decision process. The PM shall provide for long-term access to data required from competitive sourcing of systems support throughout its life cycle. Additional guidance appears in DoDD 4151.18 and DoD 4151.18-H." (Paragraph 2.8.2.1)
Deputy Under Secretary of Defense for Logistics and Materiel Readiness Memorandum <i>Biennial Data Call for Identification of Core Logistics Capabilities for Depot-Level Maintenance and Repair</i> November 24, 2003					FY 2001	Separates Core workload determination from capability requirements. Designed to bring Core policy firmly into Congressional guidance.
DoD Instruction 4100.33 <i>Commercial Activities Program Procedures</i> (undated draft, to replace version published 9 September 1985)					✓ FY 2000	Exempts Core logistics capabilities from provisions of OMB Circular A-76. Guidance in DoD Instruction 4100.33 specifically does not apply to "inherently government functions." Also, guidance does not apply when contrary to law.

Appendix E: Summary of Interview Process and Interview Questions

During the later parts of the Interpretation phase and into the Explanation phase of the project, I conducted elite interviews to gather insights and reactions to the tentative observations I had postulated from the research to that stage. During a three-month time frame between September and November 2004, several individuals who have specialized or managerial knowledge of depot maintenance provision were consulted and asked to comment on specific subjects related to my research agenda. Each was provided the same draft version of my working sense of the substantive issues attributed to each stakeholder group and the current decision-making framework, its proposed problematic consequences, and a draft implementation approach to address the problematic consequences.

Specifically, I carried out sixteen elite interviews. Results from the interviews were analyzed for key themes and issue areas and subsequently incorporated, through an interpretive process of reviewing the validity, reliability, and meaning of my findings, in the final description of patterns, problems, solutions, and conclusions that appears in Chapters Four and Five of the study. In the interview process, I used a semi structured face-to-face interview format. I adapted a specific set of questions to particular responses and information needs of individual respondents. However, as noted above, each individual was asked initially to prepare to respond to the same set draft document and set of interview questions. Below is the draft document that each respondent received as well as the list of questions that each respondent was asked to comment upon.

Summary of Stakeholder Positions

The decision-making setting that determines the choice of roles for depot maintenance provision yields important insight into complicated issues raised when trying to reach agreement on the proper mix of private and public facilities and capabilities in the defense industrial base. This is because the structure of the U.S. defense infrastructure is multifaceted and complex and consists of a variety of private and public parts of the U.S. economy.

Given major world events, the military has reduced its budget for major weapons systems significantly (a full 59% during a ten year period beginning in 1987) and while this trend is presently reversing to some degree, the interest to provide depot maintenance (or back-end) repair services has become extremely intense. The private sector views the depot maintenance needs of the military, which is currently approximately \$20B a year, as a business area they should cultivate in order to off-set major income shortfalls due to declines in new system starts as well as overall lower production quantities. Traditionally, many of these businesses were not interested in maintenance work because of its irregular characteristics, but they have shown significant interest in current history.

This situation has resulted in greater competition between public and private sectors to provide depot maintenance, which, according to previously long standing policy, had occurred primarily in the public sector depot system. In sum, the private sector has argued that increased business sector provision of maintenance work helps preserve vital defense industrial capability, since fewer new systems are being built. This argument has been advocated by industry groups as well as senior levels of the military throughout the past 14 years. While no serving Secretary of Defense or Service secretary has overtly called for the disestablishment of the public sector depots, policies have identified have indicated their intentions. The public sector depots, on the other hand, have argued that a public sector depot maintenance capability is essential to maintain

a ready and controlled capability to fight and win wars. This point of view has been generally, and at times strongly, supported by Congress.

In the middle of these two perspectives, the Military Services have worked to satisfy each position described above as it has been articulated and formalized in laws and policy documents. Acquisition program managers within the Military Services decide on the depot maintenance source of repair for the new weapons systems procurements they manage. These decisions allocate billions of dollars of support costs and affect near-term military investments in facilities, technical data, and repair parts. While these managers have historically relied upon public sector depot maintenance activities to provide maintenance services for the systems that they buy, they have moved from a reliance on the public sector for about 75% of their workload in 1994 to approximately 50% today. The Military Services are also required to employ the DOD Core methodology, in their Logistics Commands, to allocate depot maintenance workloads among public and private sector maintenance depots for fielded equipment as input to the program managers support strategy.

The chart below provides a summation of the stakeholder positions as they have been articulated during the past 14 years. Substantive issue(s) is/are associated with each stakeholder group to suggest a high-level characterization of the stakeholder's point of view with regard to the determination of public and private roles for depot maintenance.

Depot Maintenance Provision – Problem Representation by Key Policy Stakeholders

Stakeholder Group	Approach to Depot Maintenance Provision Choice	Substantive Issues
U.S. Congress – Depot Caucus	Depot maintenance provision is an issue of a critical national capability. Given several risks that are not acceptable with complete private sector provision, coupled with the need to keep military assets involved in military maintenance, we must keep key maintenance capabilities in public control and structure and monitor decisions to ensure this situation. We will sanction up to half of depot maintenance dollars for a given year for private sector provision, and will monitor compliance with this requirement. While this quota is somewhat arbitrary, it is currently a necessary “backstop” given DOD’s proclivity to outsource maintenance capabilities and workloads. We will also monitor laws to ensure that a process to evaluate the public sector depot maintenance infrastructure is followed within the DOD, given employment concerns related to political factors. Recent legislation that makes public sector depots centers of technical excellence for certain commodities and the encouragement of public-private partnerships could be seen as a way ahead.	Resource Preservation, Risk Aversion, Job Retention
Office of the Secretary of Defense	Since 1990, overall approach to depot maintenance provision is very much aligned with private industry problem definition (below). Various studies, proposals and policies have been advanced based upon this perspective. This has created a recent history of contention and legal issues given the Congressional position, but overall support has been for private sector provision of depot maintenance, given lingering public sector over-capacity issues. Compliance with all legal requirements, however, has been attempted, and in most cases, reached.	Economic, Compliance
Military Services	The depot maintenance source of repair decision is approached in two central ways, given law and policy, and this is difficult to manage. For new program requirements, the decision is placed in the hands of our acquisition communities. In this case, depot source of repair decisions are made on a system-by-system basis. For fielded systems, we rely upon our logistics commands, which employ the Core methodology, as required, which views decisions in the context of war fighting requirements and our public sector depot infrastructure, at least within individual services. The major constituency groups that surround the depot maintenance decision can both provide maintenance services to us and, in some senses, be competitors. All groups look for political support, which, at times, has also driven where we decide to do depot maintenance. Political interest in these decisions is ubiquitous.	Compliance and Responsiveness
Depot Maintenance Providers - Private Industry	Central position in early 1990s is that the private sector can improve maintenance service and overall responsiveness, and save the military money. State-of-the-art capabilities and processes should provide all depot maintenance for the military. This was seen as a good long-term investment for the country’s national security needs. Over the past 4-5 years, the private sector is receiving most “new start” depot maintenance provision decisions, but seems to be cooperating in greater fashion with public sector depots to provide depot maintenance services.	Economic, Business Base
Depot Maintenance Providers – Public Sector	Based upon history of support to the military forces, we are multi-product capable and possess integrated capabilities for a wide-variety of depot maintenance processes and product lines. Meet the essential requirement to provide a ready and controlled source of depot maintenance technical competence to ensure an effective and timely response to national defense contingencies and emergency requirements, very recent anecdotal evidence from war fighters confirms this claim. Capabilities should be options for depot maintenance requirements for new and emerging systems, as well as those currently in operation.	Competency and Mission Linkage
Operators - Depot Maintenance Customers	Depot maintenance must be provided in world class fashion to support a unique set of systems (very old as well as cutting edge) that must be mission capable and beat any adversary. Depot maintenance should be viewed as part of a logistics enterprise and depot maintenance provision decisions should be transparent to me, yet show effective results in the form of workable replacement equipment systems.	Effective Mission Support

Overall Trends and Patterns

The historical and stakeholder analysis provided in this study suggests that the choice of public versus private roles for depot maintenance provision for the U.S. military is a difficult and complex matter. Key patterns indicate that:

- Public and private sector depots are historically roughly equivalent in costs associated with depot maintenance provision. This is based upon the support that public sector depots have won roughly half of the public-private competitions held by the military in the early 1990s. Therefore, the depot maintenance provision choice often narrows to a consideration of initial start-up costs and capital investment requirements and avoids equipment life-cycle cost considerations.
- The military's preference for private sector depot maintenance provision (which has been seen in the DOD 5000 Series of directives) has been offset by a need to keep a responsive public sector capability. This need has been clearly articulated in laws that are designed to protect public sector selection. This situation has created an on-going debate. Central to this debate are DOD's efforts to rely more on the private sector for depot maintenance and federal laws that (1) limit private sector depot workloads to 50% of available funding in a fiscal year, (2) require the government to maintain certain core capabilities in military depots, and (3) required public versus private competitions for certain depot maintenance workloads.
- Acquisition program managers within the DOD must comply with both law and DOD policy and this presents administrative difficulties.
- Senior leadership within the DOD has taken a "pro-business" approach to the depot maintenance provision issue in recent history. Formal policy documents and legislative proposals have indicated this position. DOD argues that current depot maintenance statutes- which it characterizes as arbitrary limitations- reduce its flexibility to make proper and efficient business decisions in determining the best source for depot-level maintenance and repair and to seek the most efficient and cost effective source of support for the war fighter.
- The Base Realignment and Closure (BRAC) process has been an effective tool to reduce excess public sector depot maintenance capacity. However, its use has had a substantial impact on senior government management personnel and as a consequence appears to have undermined institutional determination to manage depot maintenance based upon an enterprise approach within the DOD. This contributes to what can be termed a lack of "introspection" within the DOD over the past 6 years which is evidenced by an ostensible lack of organizational energy applied to depot maintenance issues.
- Historical attempts, primarily in the early 1990's, made to manage depot maintenance provision decisions through a corporate approach stress the centralization of depot maintenance management and decision-making. These attempts were largely unsuccessful, seemingly because they required reactive decision-making based upon the need to meet reductions and pre-planned savings goals.

Underlying these considerable patterns, a multiple stakeholder analysis indicates that depot maintenance roles are actually being determined based upon varying rationales that do not appear to be coordinated. This has led to a situation in which current maintenance provision decisions are determined at various organizational levels within the DOD and according to an inconsistent and conflictive set of decision-making approaches. Additionally, there does not appear to be comprehensive management of these choices because they are treated as ad hoc decisions. So DOD's ability to identify, develop, or nurture the complex range of depot maintenance capabilities and workloads (that goes beyond either public versus private provision) is currently lacking. There is evidence that the Military Services have recognized this divergence and have worked to restore some collaborative decision processes, but these efforts have not presently been coordinated or evaluated in a comprehensive manner.

Current Depot Maintenance Provision Decision-Making Framework

The analysis indicates that depot maintenance provision choices are actually being made in the following specific and diverse ways:

According to legal requirements – specifically the current Core and 50/50 legislation:

This legal framework can be viewed as a congressional reaction to DOD's stated policy to outsource depot maintenance workloads to the private sector. The legislation is very specific and requires significant reporting from DOD. DOD answers these legislative requirements through 50/50 reporting and reliance on a Core methodology that is based on arguably outdated factors for the assessment of maintenance provision risk, which essentially state that any weapons system that is used in a war-fighting scenario must have a public sector depot maintenance capability established. While some aspects of the methodology are sound, overall it

serves to support an “either-or” approach to public versus private maintenance provision, at best it may lead to workload splits. Subsequently, a significant amount of management attention must focus to “meet the quota” at the OSD level and within the Military Services. The methodology also appears to impose a formal rationality on a set of decisions that often defy linear calculation. Stakeholders are aware of this issue, and this presents credibility problems for decisions that are based upon the methodology’s outputs.

According to strong DOD advocacy for private sector depot source of repair provision through the military services acquisition program managers:

This decision determination rationale is heavily supported through political leadership appointments within OSD throughout the 1990s and up to the present time. It is based upon an economic rationale that is not opposed formally by Congress, but Congress has tempered DOD’s rationale by developing a clear stance designed to protect national capabilities and workforces that is evident in the legal requirements cited above. This particular decision approach has been clearly articulated in DOD acquisition policy. Its focus is primarily on program managers’ reliance upon Original Equipment Manufacturers (OEMs) or private sector integrators for maintenance support to ostensibly reduce total life cycle support costs. The rationale for this approach has been supported by key DOD studies that maintain that the private sector is a less expensive alternative for depot maintenance services.

According to the “last source” capabilities of public sector depots:

The first Bush and Clinton administrations did not pursue a substantial number of major weapons system procurements during much of the 1990s. As part of the “peace dividend,” the DOD decided to maintain and upgrade existing weapons systems. According to policy at that time, the public sector depot system was the depot source of repair for much of the equipment

deployed during that timeframe and continues to maintain it today. As the equipment continues to age, replacement parts are harder to come by and skilled artisans increasingly difficult to retain or locate.

According to advocacy based upon the national/local political process:

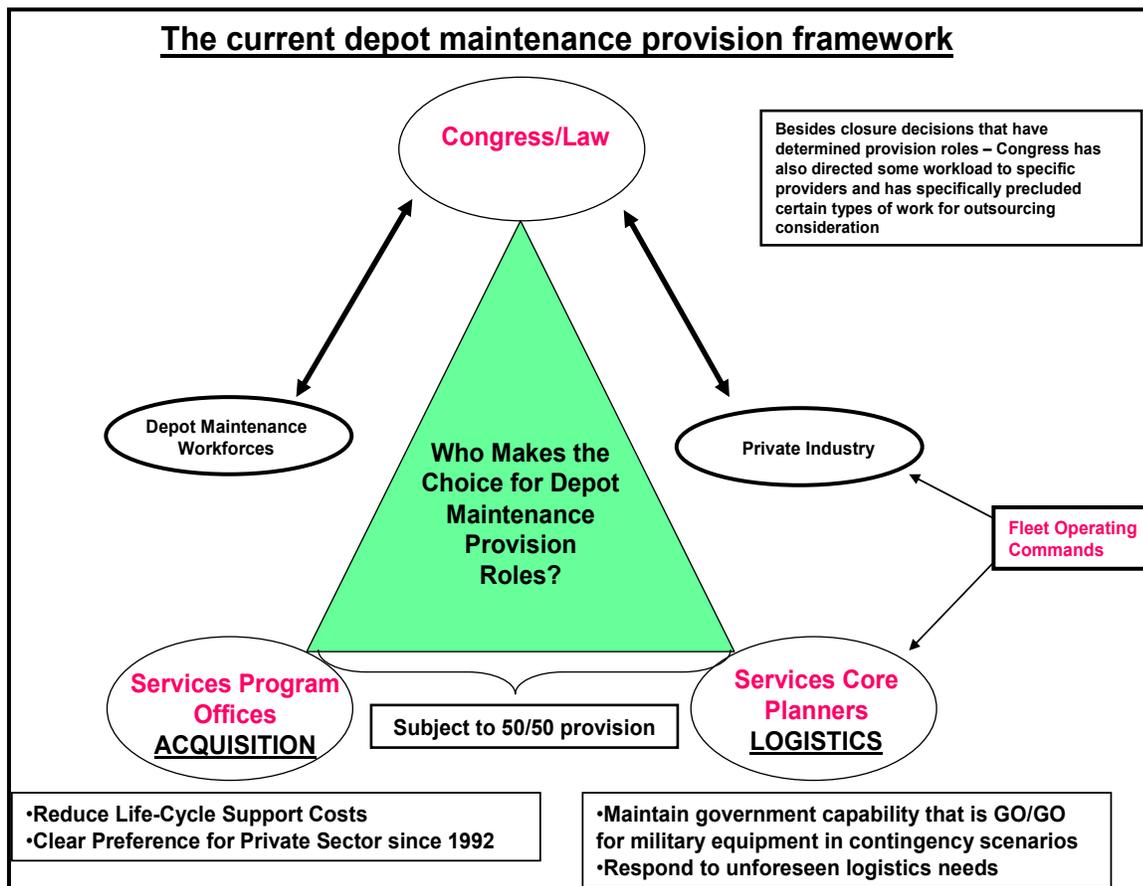
Several historical Base Closure and Realignment Commission (BRAC) related decisions have reassigned some depot maintenance workloads in certain maintenance depots for reasons that appear to be purely political in nature. The BRAC process has been a very effective method to reduce overall excess public sector maintenance capacity and infrastructure, but it has caused some lingering problems in the depot maintenance policy setting. For instance, several BRAC-related workload placement controversies, particularly during the Clinton administration, have contributed to perpetual Congressional wariness regarding DOD intentions in this area.

According to a fundamental change in the nature of depot maintenance, which includes more ability for operating commands to make depot maintenance choices based upon immediate need and current funding positions:

The overall number of depot repair requirements for the public and private sectors is declining due to digital, integrated and more reliable equipment as well as a substantial reduction in force structure. The growth in contractor logistics support arrangements and the increased use of novel funding arrangements to support the war-fighting community provide the war-fighting commands increased flexibility and authority. These organizations can then make a larger number of sourcing decisions. While these repair sourcing decisions may be appropriate, the fact that they are uncoordinated and detached from centralized management provides little opportunity for feedback or tracking of maintenance workload provision, movement, and the

possibility of future capability development to more efficiently meet requirements. Also, it inhibits possible synergies in which one provider's capability could respond to another's need.

The figure below provides a graphical representation of the current decision-making framework for the depot maintenance provision choices just described.



The Problematic Consequences of this Framework

A number of problematic consequences arise from the way depot maintenance provision decisions are occurring. The most general and sober problem observed is that decision making in this area is essentially split between depot maintenance managers in the logistics commands and the DOD acquisition community with start-up cost avoidance as the key concern rather than life cycle support considerations. Since depot maintenance provision is not generally a top priority for program managers that are relying increasingly on contractor support, the tendency is

to defer decisions about or not adequately consider the full range of available depot maintenance capabilities.

Over time, this state of affairs implies several consequences, chief of which are notions that depot maintenance (which represents a unique and necessary set of skills and facilities) is losing its prominence and distinctive role as a military institution. The danger is that it is being modernized as an enterprise less and less through the introduction of new repair processes. These circumstances make it more difficult to recognize and manage depot maintenance as a viable and vibrant logistics mission. Overall, the conflicts that underlie the policy and legal framework for depot maintenance provision suggest a larger institutional dilemma. There are many specific consequences related to this somewhat general, serious institutional problem.

First, the majority of current laws and policies for depot maintenance provision foster an either/or choice between the public and private sector. As has been noted, current law requires that core depot maintenance capabilities must be exclusively maintained in Government-owned/Government-operated (GOGO) facilities and that the work needed to maintain those capabilities must be performed by Federal Government employees. This requirement can inhibit cooperation among providers and overall strategic management of depot maintenance capabilities and associated workloads. There is currently a more diverse industrial base for meeting DOD depot maintenance requirements than that which existed in the past and that this law supposes.

The legal requirements are causing the military services to overlook potential opportunities for better maintenance provision solutions through partnerships and a fuller range of public-private integration – these could be determined based upon competition and specific workload characteristics. The result is that depot maintenance decision making is not being

addressed through a strategic consideration of maintenance capabilities and workloads that could be supported by an extensive range of public, private, and integrated maintenance activities.

Second, depot maintenance provision decisions are occurring at various organizational levels, but primarily on a workload by workload basis in the acquisition community. This is not necessarily detrimental in and of itself, but no forum for coordination currently exists that allows for an overall assessment of capabilities and maintenance workloads in the context of maintenance providers, customers, and political interests. Maintenance repair source decisions made solely on a system-by-system basis cannot accommodate the cumulative effect of other system acquisitions and system retirements on the overall depot infrastructure.

Third, the various levels of decision-making suggest that there is not a well-defined consensus among top decision makers in the DOD and Congress as to how overall public and private roles should be determined in depot maintenance provision. The post Cold-War focus has been on maintaining and responding to aggregate “quotas” within maintenance sectors based upon initial needs to downsize overall depot maintenance capacity followed by increased reliance upon the private sector for maintenance provision. The political posturing associated with this activity has taken a significant amount of institutional energy and has taken the strategic focus off of depot maintenance mission effectiveness and the systemic management of current and future depot maintenance capabilities.

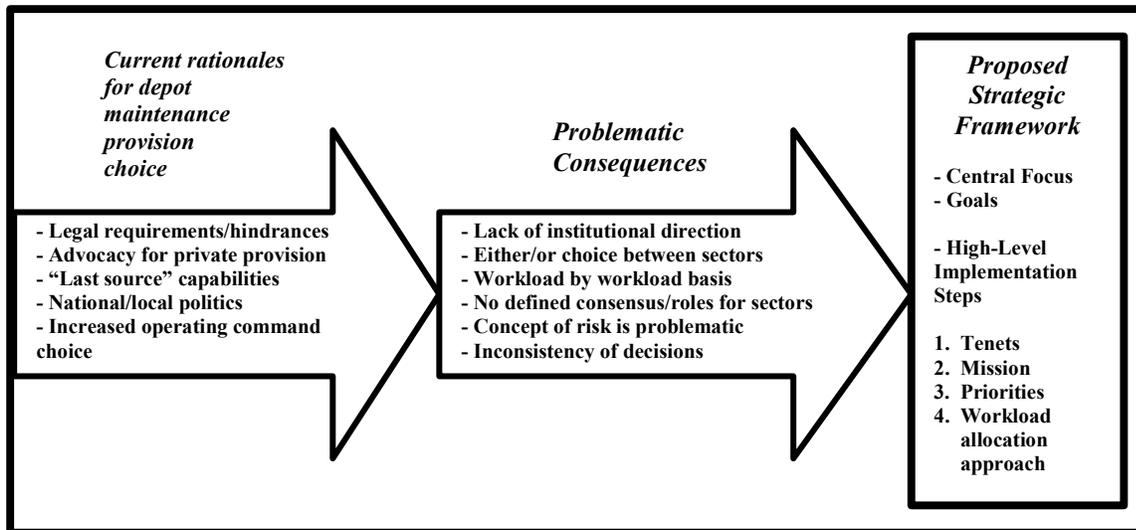
Fourth, the key legal requirement for use of the public sector depots that is used in the core methodology (risk aversion) is suspect, and often ignored. This presents major implementation and credibility problems for DOD as it pursues and reports on depot maintenance provision choices. There are many weapons systems that historically and currently are included in war-fighting efforts that are supported solely by contractors from a maintenance

perspective. The notion that contractor support is intrinsically a major risk is not supportable, and it obscures good reasons for maintaining certain maintenance capabilities in either sector. Recent experience in Iraq, for example, suggests there may be increased risk from the larger number of uncoordinated contractor efforts. This does not mean the source of repair is the wrong choice, but may point to other sources of risk related to military missions.

Finally, decisions for depot maintenance provision are made inconsistently within the military services, with most service acquisition communities relying very heavily on private sector maintenance provision, especially for new weapons system requirements. These decisions seem to raise an issue for the public sector maintenance base because they “dry up” the public depot’s capability to modernize and stay current with technological developments. The heavy reliance on private sector maintenance provision has also put several military services in a position to breach the current 50/50 depot maintenance allocation legal requirements. Given the current policy framework, this makes DOD appear less able to manage depot maintenance as an enterprise and key logistics function.

Proposed Improved Depot Maintenance Provision Decision-Making Framework

In order to address the problematic consequences of the current decision-making setting, a strategic framework is proposed. Its central focus is described first and a high-level model of the framework is provided. This is followed by a delineation of high-level implementation steps that address the development of tenets, mission, and priorities that could result from the suggested framework. The following figure illustrates the relationship between the proposed framework and current setting and problematic consequences for depot maintenance provision decision-making that has been discussed.



Central Focus and Goals

The principal rationale of the proposed improved framework is that, from a number of perspectives, DOD would be better served by a more robust depot maintenance workload allocation process that is set in a broader strategic framework than currently exists. The framework could support processes that protect essential depot maintenance capabilities and the workloads needed to support them, regardless of whether those capabilities are in the public sector, the private sector, or a hybrid of the two. Within this framework, the identification of essential depot maintenance capabilities could eventually be better understood and managed at an enterprise level and appropriately linked to other DOD strategic management processes.

The goals of this framework are to set the direction and agenda for a strategic management process, led at the OSD level, and to help shape and clarify the mission of depot maintenance as an important logistics element in the support of war-fighting requirements. This framework would treat depot source of repair decisions in the context of the most effective joint war-fighting and integrated logistics support functions. The framework would also stress the importance of inter-organizational leadership that could work to ensure that the source of repair

decision process provides depot maintenance support that meets the readiness needs of operating forces and cost-effectively addresses the political realities of the depot maintenance provision decision.

The primary goal of this proposed framework is to create an atmosphere in depot maintenance provision discussions that is less contentious and more strategic. The framework does not deny that interest seeking organizations in a competitive environment cause action, it attempts to capitalize upon this notion by clarifying what these interests are and guiding energy in a coherent manner that focuses upon war fighting needs.

Major problems related to the particular depot maintenance provision decision which have been discussed, such as its lack of consistent definition and the either/or mentality it suggests, are taken as symptoms of larger problems that have been avoided in recent history by policy approaches that represent rather entrenched points of view, particularly over the past five years. These need to be brought to the table and addressed.

To meet these goals, the proposed framework faces a formidable challenge – but this challenge helps justify its importance. This is the fact that much conflict has occurred and many approaches and strong points of view currently exist regarding the decision of how and on what basis to attain depot maintenance services. Therefore, DOD must use an inductive approach to begin the development of a strategic framework in this area. This means acknowledgment that consensus does not currently exist on many issues, but that solutions are possible and workable. This approach should start with an identification of key issues and proceed to resolve them through policies, programs, and provision decisions that focus upon creating competition among depot maintenance providers as well as a focus upon the strategic management of maintenance capabilities that are needed to expertly support the war fighting community.

High-level Implementation steps

The first wide-ranging requirement for implementation of this proposed plan is a group of leaders that is willing to sponsor and follow the process and an overall champion that is willing to sustain it. This will be a serious issue for DOD given recent leadership arrangements, but it is absolutely essential for strategic management of this decision area. Given the complexity of the depot maintenance provision issue as it exists, it is suggested that this group be chosen initially from members of the Military Services and sponsored at the OSD level, at the level of the Under Secretary for Acquisition, Logistics, and Technology. These people should be empowered with sufficient authority and responsibility to work across functions, components, and organizations within DOD to sustain the intent of DOD senior management.

This small group should work to negotiate agreement among themselves and key internal decision makers as to the overall goals of the process. It is suggested that this group meet several times shortly after the planned BRAC decisions are announced in the spring of 2005, as major infrastructure decisions will have been made during this process that should figure heavily into strategic discussions surrounding depot maintenance provision choices. The following topical areas are suggested for discussion by this group:

- What is the strategic environment for depot maintenance? How are depot maintenance and the capabilities it represents integrated into current/future logistics planning?
- How can depot maintenance be evaluated from a mission orientation?
- What are current examples of strategic planning that are happening within the Military Services with regard to depot maintenance? Is depot maintenance being discussed in new/novel ways to match evolving doctrinal changes?
- What would a “transformed” depot maintenance enterprise entail and how would a modified approach for provision decisions support this vision?

This group should also come to agreement on the following points:

- The specific purpose of the proposed effort;
- Preferred steps in the process;

- The role, functions, and membership of any group or committee that would be established and empowered to oversee the effort;
- The role, functions, and membership of that group;
- Key tenets of the planning process.

Examples of such tenets could include a view that public sector and contract capabilities should be viewed as an integrated entity or that the planning group should work to establish processes that could manage the depot maintenance enterprise, not just its sources. Issues such as current congressional interest areas, opportunities for policy development and articulation, and key leadership roles should be explored. To increase the chances of success, the maintenance community will need to bring the Congress with them in any proposed transformation.

Based upon the history reviewed as part of this study, it is recommended that leaders consider reviewing the composition and mandates of the former Defense Depot Maintenance Council as the type of forum that could be empowered to oversee and guide the proposed effort. This small group should then select a leadership council that can work within the tenets they have established for depot maintenance strategic management.

Once the group is selected, a series of workshops should be held with the leadership council to identify and discuss the strategic issues that currently surround depot maintenance and inform specific depot maintenance provision decisions. A statement of strategic issues should result from these workshops. Each strategic issue should have three elements.

First, the issue should be described succinctly, preferably in a single paragraph. The issue should be framed as a question that the set of organizations can do something positive to answer. Second, the factors that make the issue a fundamental challenge should be listed. Finally, the leadership forum should prepare a statement of consequences of failing to address the issue. These specific issues and the consequences of not addressing them should be compiled and reviewed by the group and issued in draft form for discussion purposes.

This set of workshops is most likely going to yield a set of issues that are not “urgent” in the traditional sense, but that require serious and politically savvy contemplation. It is anticipated that some of the issues identified should be vetted informally with Congressional staffers, and this should be done with care. It is also recommended that DOD consider preparing a formal statement of these issues, once vetted informally, to Congressional staffers and other stakeholders, to demonstrate the basis for a long-term depot maintenance strategic planning process.

This set of issues could then become the basis for specific strategies and plans that could be designed to address them. Strategic issues that can be anticipated will be in the areas of depot maintenance workload, workforce, and capital investment dimensions. Council members should be assigned with administering proposals to address the issues and the actions that must be taken to implement the proposals to address them. The scope of these proposals will determine the longer term composition of the council and specific measures of success that need to be established.

The overall set of strategies and plans should be incorporated into a strategic planning document that shows enterprise commitment and current and planned action for improved depot maintenance management. The table below provides a suggested high-level implementation plan, including a timeline, participants, key activities, and expected outputs for the process just described.

Timeframe	Participants	Activity	Output
Spring 2005	Small leadership group from OSD and the Military Services	Series of 3 meetings to develop and articulate purpose, goals, and composition of depot maintenance strategic planning actions	Decision on Leadership Council composition and guidelines for strategic activity
Fall 2005	Leadership Council as determined by leadership group	Series of 3 workshops to identify the strategic issues that are facing depot maintenance as an enterprise, including the consequences of those issues	Formal articulation of Strategic Issues and Consequences
Winter 2005	Leadership Council and additional members as appropriate	Two sessions to assign strategic issues to champions	Plan for receipt of specific plans and activities to address the strategic issues
Spring 2006	Leadership Council and additional members as appropriate	Session to review specific plans developed and overall framework for integrated strategic planning document	Initial strategic planning document for a depot maintenance long-term strategy

Two points should be noted in the discussion of this high-level implementation plan. First, discussion and consideration of the actual depot source of repair decision is “nested” in much broader strategic activities. This is necessary based upon the current lack of agreement on approaches and the problems with the current decision framework. Specific provision decisions will not be treated strategically if they are not viewed from a larger perspective and discussed in the context of enterprise maintenance capabilities.

Second, several of the individual Military Services have devoted a significant amount of time and effort in attempts to grapple with enterprise issues related to depot maintenance provision, perhaps because circumstances have forced them to approach conflicting guidance and circumstances through some measure of strategic planning. While these efforts have not been undertaken at the DOD level, there are several approaches that could be reviewed as part of the proposed Leadership Council discussions. Some of the processes that should occur at the

Military Service level, but should be monitored and somehow integrated at the OSD level include:

- An annual review of depot maintenance management improvements – in both sectors, or as combined entities;
- Methods to improve the tie of depot maintenance strategic planning to resources through the DOD's Planning, Programming, and Budgeting System
- Annual reviews of legislative and policy changes that support and/or hinder depot maintenance provision choices;
- Annual tracking of process improvements through standard depot maintenance metrics.

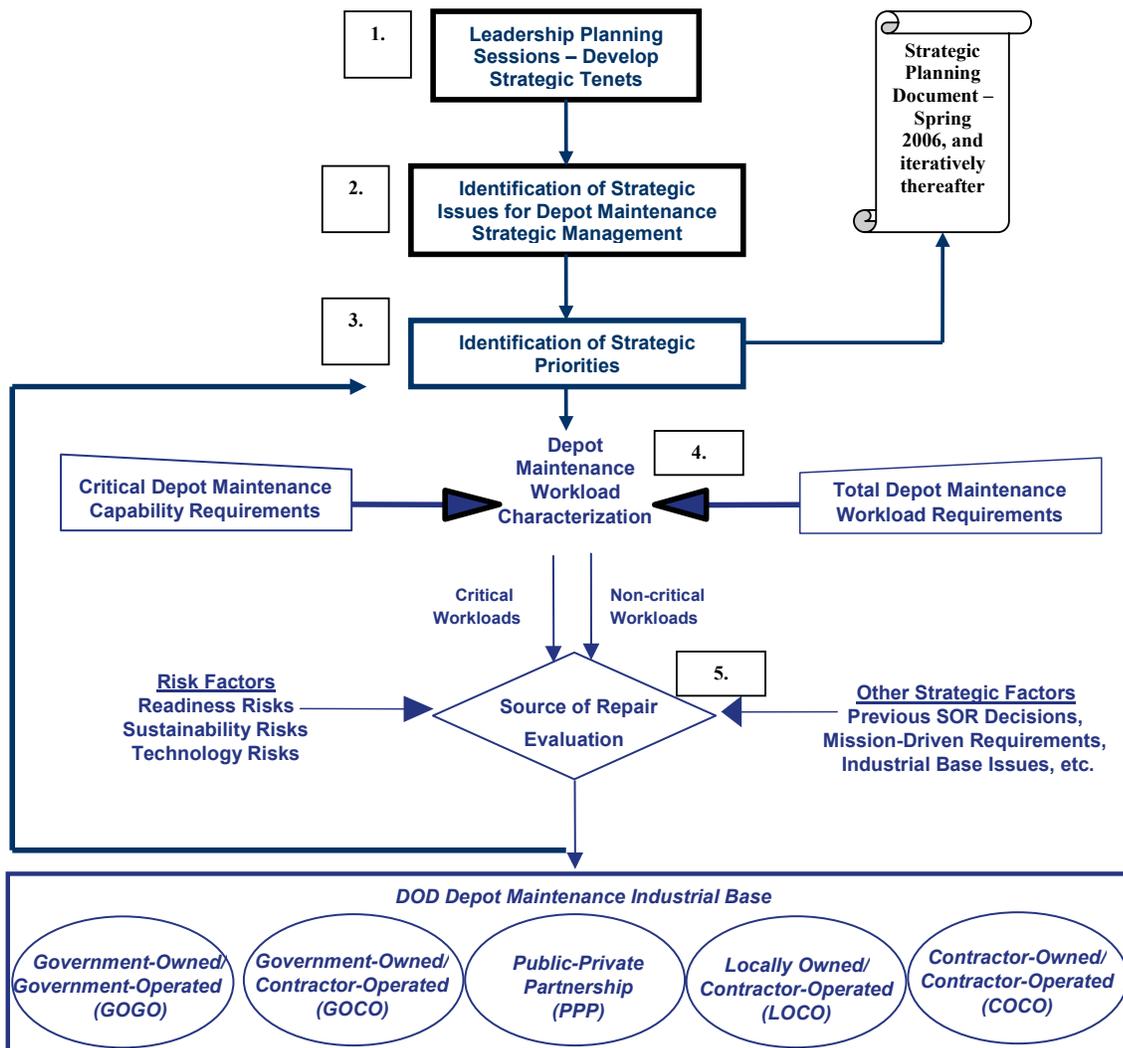
We have seen DOD leadership make various proposals to Congress in our historical review asking for relief from laws that support a public sector depot maintenance capability. Perhaps Congressional overseers would have a different opinion of such proposals if they were based upon rationales that were based less upon primarily ideological arguments and more upon the current, and in many cases unique, capabilities of both private and public sector depot sectors. It is even conceivable that a strategic assessment of depot maintenance would have DOD requesting a different sort of Congressional action altogether.

In the context of the strategic planning process just described, it is anticipated that depot maintenance source of repair decision process would be viewed more strategically and, perhaps, centralized for certain commodities or systems, such as older legacy systems. Decisions may also more explicitly consider risk factors and industrial base issues, as well as overall logistics support costs, in allocating depot maintenance workloads across a wider spectrum of public sector depots, commercial repair activities, and public-private hybrid maintenance facilities. Considerations might necessitate issuance of waivers from 50/50 requirements or a repeal or modification of 10U.S.C. 2464 provisions regarding core capabilities. This will depend upon the iterative, strategic process that DOD should use.

The depot maintenance workload allocation process that results from this strategic management process could specifically address significant industrial base concerns (e.g., protecting essential depot maintenance capabilities, regardless of whether those capabilities are in the public or private sector; providing more comprehensive oversight for critical sources of repair; and enabling split-source and last-source determinations).

This approach could also provide a solid foundation for assessment of essential depot maintenance capability requirements from the war fighters’ perspective and illuminate how to achieve the best mix of public and private depot maintenance capabilities to support those requirements within the context of overall logistics support objectives.

A graphic of the proposed strategic planning framework for depot maintenance provision follows, with source of repair decisions included as an aspect of this framework.



According to the draft milestone provided, DOD could realistically produce a draft strategic plan for depot maintenance and its provision characteristics, which is reflective of strategic priorities in this area, by the spring of 2006. This will require accomplishment of steps 1-3 above. This document could establish a context for steps 4 and 5. The central notion is that critical depot maintenance capabilities that are established in the strategic process will be compared with total depot maintenance workload in order to ascertain which workloads are most strongly related to critical depot maintenance capabilities. In some cases, the workload characterization assessment may be clear-cut (e.g., Abrams tanks, nuclear aircraft carriers, B-2 aircraft, etc.), but there may be several repairable items that are not so easily classified. In any case, the purpose of this step is to determine which workloads would be carefully tracked from a war fighter perspective during a source of repair evaluation and actual workload execution, regardless of where the work is performed.

In this plan, critical workloads would be more closely monitored than non-critical workloads in order to ensure that war fighter requirements are fully addressed during both the initial screening process and the actual source of repair evaluation process. For both critical and non-critical workloads, an evaluation process should be used that allocates work within an industrial base that includes public sector depots, commercial maintenance providers, and various types of public-private hybrid depot maintenance facilities. It is suggested that a comprehensive process for determining critical depot maintenance capabilities should be linked to the strategic planning steps outlined above and completed on a recurrent and periodic basis (with possible annual budgetary updates). The outcomes of these processes should be integrated with Military Services weapon system acquisition and logistics planning through mechanisms developed by the previously outlined Leadership Council.

Interview Questions

1. Has the current decision-making framework for depot maintenance provision been characterized accurately?
2. If not, what important aspects have been overlooked?
3. If the current framework is characterized accurately, how might it be improved? Please focus upon the description of stakeholder groups and the substantive issue(s) identified in relation to depot maintenance provision.
4. Can you comment upon the problematic consequences identified based upon the description offered of the current framework?
5. If the consequences do not appear valid, how would you improve the conception of or clarify the consequences?
6. If the problematic consequences do appear valid, how would you elaborate in any general or specific way(s)?
7. What is your reaction to the decision-making framework proposed to address the problematic consequences identified and described?
8. Could you comment upon the central focus of the proposed framework?
9. Could you comment upon the high-level implementation approach proposed in the framework?
10. Do you have any additional comments or questions?

Appendix F: Glossary of Select Terms

- Capability:** The combination of skills, facilities and equipment, processes, and technology needed to perform a particular category of work (e.g., composite repair).
- Capacity:** The amount of work that can be performed within a certain period of time, generally expressed in direct labor hours (DLHs) per year. DoD has an approved methodology for measuring public depot maintenance capacity, using workstation analysis.
- Commercial items:** Those items that have been sold or leased in substantial quantities to the general public and are purchased by DoD without modification in the same form that they are sold in the commercial marketplace, or with minor modifications to meet Federal Government requirements.
- Commodity groups:** A means of characterizing depot workload as generic groups of similar items (e.g., ships, fixed-wing aircraft, rotary-wing aircraft, engines, tactical missiles, combat vehicles, and communications-electronics).
- Components:** Assemblies or subassemblies for which depot maintenance is provided (e.g., avionics/electronics, black boxes, hydraulic pumps, landing gear, and starters). Some items such as turbine engines may be categorized as both end items and components.
- Contingency:** An emergency involving military forces caused by natural disasters, terrorists, or subversives or by required military operations. Because of the uncertainty of the situation, contingencies require plans, rapid response, and special procedures to ensure the safety and readiness of personnel, installations, and equipment.
- Core:** The public depot maintenance capability (including personnel, equipment, and facilities) maintained by the Department of Defense as the ready and controlled source of technical competence and resources necessary to ensure effective and timely response to a mobilization, national defense contingency situations, and other emergency requirements.
- Depot maintenance:** Materiel maintenance requiring the overhaul, repair, upgrading, or rebuilding of parts, assemblies or subassemblies, and end items (e.g., aircraft, engines, and ships), including the manufacture of parts and modifications, 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.
- Direct labor hour (DLH):** A common metric for measuring depot maintenance capability, workload, or capacity, representing one hour of direct work (e.g., touch labor or other directly attributed effort).
- End item:** Nominally a weapon system such as an aircraft, ship, tank, etc., but sometimes interpreted as an item that includes many subassemblies (e.g., landing gear). A turbine engine could be either an end item or a component of an end item (e.g., an aircraft).
- Equipment:** All nonexpendable items needed to outfit or equip an individual or organization.

Excess capacity: Capacity not required to support current or anticipated workloads.

Initial operational capability (IOC): The first attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics. The weapon/item/system is manned or operated by an adequately trained, equipped, and supported military unit or force.

Maintenance: All action taken to retain materiel in a serviceable condition, to return it to serviceability, or to restore its inherent reliability. Includes functions such as inspection, testing, servicing, classification as to serviceability, overhaul, repair, rebuilding, and reclamation. Also includes maintenance engineering activities associated with the design and development of maintenance programs for new systems, as well as assuring that existing materiel maintenance programs remain effective and economical.

Materiel: All items (including ships, tanks, self-propelled weapons, aircraft, etc., and related spares, repair parts, and support equipment, but excluding real property, installations, and utilities) necessary to equip, operate, maintain, and support military activities, without distinction as to an item's application for administrative or combat purposes.

Modification/upgrade: A modification is defined as a change to a system that is still being produced, while an upgrade is a change to a system that is out of production. Specifically, a modification is a change in the material or physical makeup of a weapon system or support system, subsystem, component, or other part in accordance with approved technical standards or direction. Modification efforts include, but are not limited to, changes in the material composition of an item; improvements in safety, reliability, and maintainability; and the enhancement of readiness, mission performance, or capability.

Non-Core workload: Workload not required to sustain DoD Core depot maintenance capabilities or being accomplished as "last source of repair" or "best value" workload; the difference between current or planned total peacetime workload and workload required to sustain Core capabilities. This may include workload on mission-essential weapon systems and equipment; non-mission-essential systems, foreign military sales, and other Federal customer workload; or other direct reimbursement work.

Organic: Internal DoD depot maintenance facilities and workload.

Outsourcing: Moving workload from public repair sources to commercial repair sources; moving support functions from public accomplishment to private-sector support.

Private-sector: Not part of Federal, State, or local government infrastructure (e.g., commercial firms).

Product support: The package of functions necessary to maintain the readiness and operational capability of weapon systems, subsystems, and support systems. In addition to maintenance, product support encompasses all critical functions related to weapon system readiness, including materiel management, distribution, technical data management, training, cataloging, configuration management, engineering support, repair parts management, failure reporting, and reliability growth.

Public-sector (public): Part of the Federal, State, or local government infrastructure.

Readiness: The ability of U.S. military forces to fight and meet the demands of the national military strategy. Readiness is the synthesis of two distinct, but interrelated, levels.

Risk: The potential that the absence of timely depot maintenance capability would compromise readiness or sustainability. Mitigation of operational risk is the principal foundation of the Core decision methodology. The three risk categories are readiness risk, sustainability risk, and technology risk:

Readiness risk: The risk that the absence of timely depot capability will compromise operational readiness.

Sustainability risk: The risk that the industrial base will not have sufficient depot maintenance competencies and capabilities to ensure that mission-essential weapon systems can be repaired and maintained to (1) support contingency operations and (2) meet the time constraints imposed by the DPG/JCS scenario(s).

Technology risk: The risk associated with the absence of technological knowledge and awareness.

Skills: The various kinds of expertise required to perform depot maintenance (e.g., welding, composite repair, software programming, turbine engine repair, and electronics repair). This may also include other skill areas such as support for in-service engineering.

Source of repair: The public, private, or hybrid entity that will accomplish the maintenance workload for specific defense materiel.

Surge: The act of expanding an existing depot maintenance repair capability to meet increased requirements by adjusting shifts or by adding skilled personnel, equipment, spares, and repair parts. The expanded capability will increase the flow of repaired or manufactured materiel to the using activity or for serviceable storage.

Sustainability: The ability to maintain the necessary level and duration of operational activity to achieve military objectives. Sustainability is a function of providing for, and maintaining, those levels of ready forces, materiel, and consumables necessary to support military effort.

Weapon system: A combination of one or more weapons with all related equipment, materiel, services, personnel, and means of delivery and deployment (if applicable) required for self-sufficiency.

Workload: An amount of depot maintenance work, usually specified in direct labor hours or workdays. It relates to specific weapon systems, equipment, components, or programs and to specific services, facilities, and commodities.

Appendix G: Abbreviations

A&A	Agreements and Assignments
ACNO	Assistant Chief of Naval Operations
AD	Army Depot
ADUSD(MPP&R)	Assistant Deputy Under Secretary of Defense (Maintenance Policy, Programs, and Resources)
AFB	Air Force Base
AFMC	Air Force Materiel Command
ALC	Air Logistics Center
AMC	Army Materiel Command
ANAD	Anniston Army Depot
ASD(P&L)	Assistant Secretary of Defense (Production and Logistics)
BRAC	Base Realignment and Closure
CAN	Center for Naval Analysis
CBO	Congressional Budget Office
CBP	Corporate Business Plan
CCAD	Corpus Christi Army Depot
CITE	Center of Industrial and Technical Excellence
CLS	Contractor Logistics Support
CNO	Chief of Naval Operations
COCO	Contractor-Owned, Contractor-Operated
CONUS	Continental United States
CORM	Commission on Roles and Missions

D	Democrat
DCNO	Deputy Chief of Naval Operations
DDMC	Defense Depot Maintenance Council
DEPSECDEF	Deputy Secretary of Defense
DLH	Direct Labor Hour
DLR	Depot-Level Repairable
DM	Depot Maintenance (synonymous with Depot-Level Maintenance)
DMI	Depot Maintenance Interservicing
DMR	Defense Management Review
DMRD	Defense Management Review Decision
DoD	Department of Defense
DoDD	Department of Defense Directive
DPG	Defense Planning Guidance
DSB	Defense Science Board
DUSD(L&MR)	Deputy Under Secretary of Defense (Logistics and Materiel Readiness) [formerly Deputy Under Secretary of Defense (Logistics)]
DUSD(L)	Deputy Under Secretary of Defense (Logistics)
FAR	Federal Acquisition Regulation
FMR	Financial Management Regulation
FOV	Family of Vehicles
FWG	Functional Working Group
FY	Fiscal Year
FYDP	Future Years Defense Program

GAO	Government Accountability Office (formerly the General Accounting Office)
GOCO	Government-Owned, Contractor-Operated
GOGO	Government-Owned, Government-Operated
GPO	Government Printing Office
HASC	House Armed Services Committee
ICS	Interim Contractor Support
ILMM	Integrated Logistics and Maintenance Office
IOC	Initial Operational Capability
IPT	Integrated Process Team
IT	Information Technology
JCS	Joint Chiefs of Staff
JCSG-DM	Joint Cross-Service Group for Depot Maintenance
JDMAG	Joint Depot Maintenance Activities Group
JIT	Just-In-Time
JPCG-DM	Joint Policy Coordinating Group on Depot Maintenance
JPMG	Joint Performance Measurement Group
JV2010/2020	Joint Vision 2010 and 2020
K	Thousand
LEAD	Letterkenny Army Depot
LMI	Logistics Management Institute
LOCO	Locally Owned, Contractor-Operated
M	Million
MAIS	Major Automated Information System

MCA	Maintenance Center Albany
MCB	Maintenance Center Barstow
MCLB	Marine Corps Logistics Base
MDAP	Major Defense Acquisition Program
MRO	Maintenance, Repair, and Overhaul
MRP	Manufacturing Resources Planning
MTSSG	Maintenance Technology Senior Steering Group
MTW	Major Theater War
NADEP	Naval Aviation Depot or Naval Air Depot
NAVAIR	Naval Air Systems Command
NAVICP	Naval Inventory Control Point
NAVSEA	Naval Sea Systems Command
NDAA	National Defense Authorization Act
NNSY	Norfolk Naval Shipyard
NST	New Sciences of Transformation
NSWC	Naval Surface Warfare Center
NSY	Naval Shipyard
NUWC	Naval Undersea Warfare Center
OC-ALC	Oklahoma City Air Logistics Center
OEM	Original Equipment Manufacturer
OMB	Office of Management and Budget
OO-ALC	Ogden Air Logistics Center
OSD	Office of the Secretary of Defense

PBL	Performance-Based Logistics
PDUSD(A&T)	Principal Deputy Under Secretary of Defense (Acquisition and Technology)
PEO	Program Executive Officer
PIPT	Privatization Integrated Policy Team
PM	Program Manager
POM	Program Objectives Memorandum
PPBS	Planning, Programming, and Budgeting System
PPP	Public-Private Partnership
PTNSY	Portsmouth Naval Shipyard
QDR	Quadrennial Defense Review
R	Republican
RBA	Repair Base Assessment
RCM	Reliability-Centered Maintenance
RDT&E	Research, Development, Test, and Evaluation
RRAD	Red River Army Depot
SASC	Senate Armed Services Committee
SECDEF	Secretary of Defense
SIA	Strategic Improvement Agenda
SME	Single Management Element
SMPMS	Small Mechanical Parts Manufacturing System
SOR	Source of Repair
SPO	System Program Office
TCE	Transaction-Cost Economics

TOCR	Total Organic Capability Requirement
TRC	Technology Repair Center
TYAD	Tobyhanna Army Depot
U.S.	United States
U.S.C.	United States Code
USA	United States Army
USAF	United States Air Force
USD(A&T)	Under Secretary of Defense (Acquisition and Technology) (subsequently redesignated as Acquisition, Technology, and Logistics)
USD(AT&L)	Under Secretary of Defense (Acquisition, Technology, and Logistics)
USMC	United States Marine Corps
USN	United States Navy
VCNO	Vice Chief of Naval Operations
WR-ALC	Warner Robins Air Logistics Center

VITA
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- Phd Public Administration/Public Affairs, Center for Public Administration and Policy, Virginia Polytechnic Institute and State University, Blacksburg, VA, 2005.
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- 2004–2005, LMI Government Consulting, Research Fellow
- 2002–2004, IBM Corporation, Senior Consultant
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- 1996–1999, Naval Supply Systems Command, Supply Systems Analyst
- 1994–1996, Virginia Polytechnic Institute and State University, Graduate Assistant
- 1987–1994, Naval Supply Systems Command, Logistics Management Specialist

Professional Experience

Nicholas Avdellas is an analyst and program manager with more than 18 years of combined experience as a Federal civil servant and management consultant. He is practiced in Federal supply chain and maintenance management policy and program development, logistics information systems development and implementation, process analysis and improvement, and strategic planning. He has published several articles on strategic and resource issues that face the Federal Government and has applied his project management and consulting skills to all branches of the U.S. Department of Defense and to several other public institutions.