

DEPARTMENT OF DEFENSE

BIENNIAL CORE REPORT



Office of the Under Secretary of Defense

for

Acquisition and Sustainment

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BACKGROUND

Subsection 2464(d) of title 10 United States Code (U.S.C.) states:

Not later than April 1 of each even-numbered year, the Secretary of Defense shall submit to Congress a report identifying, for each of the armed forces (except for the Coast Guard), for the fiscal year after the fiscal year during which the report is submitted, each of the following:

- (1) The core depot-level maintenance and repair capability requirements and sustaining workloads, organized by work breakdown structure, expressed in direct labor hours.*
- (2) The corresponding workloads necessary to sustain core depot-level maintenance and repair capability requirements, expressed in direct labor hours and cost.*
- (3) In any case where core depot-level maintenance and repair capability requirements exceed or are expected to exceed sustaining workloads, a detailed rationale for any and all shortfalls and a plan either to correct or mitigate the effects of the shortfalls.*
- (4) Any workload shortfalls at any work breakdown structure category designated as a lower-level category pursuant to Department of Defense Instruction 4151.20, or any successor instruction.*
- (5) A description of any workload executed at a category designated as a first-level category pursuant to such Instruction, or any successor instruction, that could be used to mitigate shortfalls in similar categories.*
- (6) A description of any progress made on implementing mitigation plans developed pursuant to paragraph (3).*
- (7) A description of core capability requirements and corresponding workloads at the first level category.*
- (8) In the case of any shortfall that is identified, a description of the shortfall and an identification of the subcategory of the work breakdown structure in which the shortfall occurred.*
- (9) In the case of any work breakdown structure category designated as a special interest item or other pursuant to such Instruction, or any successor instruction, an explanation for such designation.*
- (10) Whether the core depot-level maintenance and repair capability requirements described in the report submitted under this subsection for the preceding fiscal year have been executed.*

This report complies with that direction.

Foreword

U.S. Code title 10, section 2464 (Core logistics capabilities) requires the Department of Defense (DoD) to have a ready and controlled source of depot level repair capabilities and mandates biennial reporting to certify the degree to which the Department is meeting this requirement. Section 2464 also requires that the DoD designate weapon systems that are necessary to the execution of strategic and contingency plans outlined by the Chairman of the Joint Chiefs of Staff (CJCS) to be core weapon systems. Based on the premise that performing maintenance and repair work helps keep the workforce practiced and proficient in that type of work, section 2464 requires the DoD to perform depot level maintenance on core weapon systems in Government owned and operated facilities (i.e., organic facilities) to ensure effective and timely response to contingency situations and other emergency requirements. The maintenance and repair workloads to be performed at organic facilities necessary to meet these core logistics capabilities is the “Core Sustaining Workload”.

The Biennial Core Report is comprised of four exhibits per Military Service, accompanied by amplifying narrative. Exhibit 1 provides projections for the upcoming Fiscal Year (FY). It identifies required core logistics capabilities and quantifies the associated workloads needed to sustain them (the Core Sustaining Workload). Using the procedures outlined by DoD Instruction (DoDI) 4151.20, “Depot Maintenance Core Capabilities Determination Process,” the Military Services identify core logistics capability requirements and workloads by weapon system category, expressed in direct labor hours (DLH) and cost required to sustain those capabilities. The level of effort required to sustain those systems is determined by applying a series of analytical steps that consider:

- Historical workload averages, work standards, and occurrence factors;
- Enabling product support needs including software and manufacturing; and
- Redundancy for systems that share repair processes, technologies, or capabilities.

The product of these analyses is referred to as the adjusted core requirement. Exhibit 1 shows, for each weapon system designated as generating a core logistics capability, the adjusted core logistics capability requirement, the actual workload projection, the difference between the requirement and the projection, and the expected cost to perform the Core Sustaining Workload for each weapon system in FY 2021.

Exhibit 2 is used when there is a core workload shortfall: a projected shortfall because the Core Sustaining Workload is greater than the actual projected workload. Exhibit 2 documents the rationale for the shortfall and the workload mitigation plans for minimizing the shortfall’s impact on core logistics capabilities. Exhibit 3 describes progress made on implementing any workload mitigation plans developed and provided in previous Biennial Core Report submissions. Exhibit 4 demonstrates whether the core depot-level maintenance and repair capability requirements for the previous FY have been executed as projected in the previous Biennial Core Report. Collectively these four exhibits summarize the Department’s performance trends in resourcing essential sustainment capabilities, forecast future performance, and explain actions being taken to enable materiel readiness and compliance with U.S. Code title 10, section 2464.

Executive Summary

The Department has a total core sustaining workload requirement of approximately 73.6 million DLH; approximately 6.2 million DLH greater than the 67.4 million DLH requirement reported in the 2018 Biennial Core Report. This requirement equates to an estimated accomplishment cost of approximately \$13.7B. The Army, Marine Corps, and Air Force each report some core workload shortfall between the Core Sustaining Workload and the actual projected workload for various core weapon systems. Each core sustaining workload shortfall is identified in the following Military Service tables, along with the rationale and mitigation plan for each shortfall. The overall details for each of the Military Services are:

Military Service	Total Adjusted Core Requirement	Projected Public Sector Depot Maintenance Workload	Estimated Costs of Workloads to Sustain Core Requirements
	DLH	DLH	\$
Army	23,339,779	15,119,883	\$4,211,480,490
Navy	29,575,159	55,721,879	\$3,373,510,249
Marine Corps	1,902,847	1,948,682	\$281,659,515
Air Force	18,748,049	25,785,776	\$5,868,420,254
DoD Totals	73,565,834	98,576,220	\$13,735,070,508

Adjusted Core Requirement Trends

	Total Adjusted Core Requirements (DLH)		
	FY 2021	FY 2019	FY 2017
Army	23,339,779	18,340,978	10,799,429
Navy	29,575,159	28,486,896	27,676,621
Marine Corps	1,902,847	1,786,644	1,847,189
Air Force	18,748,049	18,759,078	18,246,213
DoD Totals	73,565,834	67,373,596	58,569,452

The overall total adjusted core requirements have shown minor, but steady, growth over the last six years. The majority of the total growth was in Army weapon systems, and the major growth areas included Aircraft, Ground Vehicles, Ordnance, Weapons, and Missiles. The Navy, Marine Corps, and Air Force show minor total adjusted core requirements growth over the same period.

Estimated Cost Trend to Execute Core Sustaining Requirements FYs 2017-2021

Estimated Costs of Workloads to Sustain Core Requirements (\$)			
	FY 2021	FY 2019	FY 2017
Army	4,211,480,490	3,344,059,257	2,450,828,349
Navy	3,373,510,249	2,925,089,844	3,685,920,408
Marine Corps	281,659,515	260,028,593	286,655,889
Air Force	5,868,420,254	4,608,639,384	5,579,013,812
DoD Totals	\$13,735,070,508	\$11,137,817,078	\$12,002,418,458

Core Sustaining Projected Workload Shortfall Trends

FY 2019-2021 Core Sustaining Workload Projected Shortfalls (DLH)		
	2021	2019
Army	9,487,359	4,457,777
Navy	0	0
Marine Corps	713,719	82,971
Air Force	228,558	469,930
DoD Totals	10,429,636	5,010,678

DoD-wide core projected workload shortfalls have increased since the last Biennial Core Report.

- The Navy reported no core workload shortfalls.
- The Marine Corps reported an increase core workload shortfalls, primarily in Electro-Optics/Night Vision.
- The Air Force reported substantial core workload shortfall reductions.
- The Army reported significant increased core workload shortfalls from a shortfall of 4.5 million DLH in FY 2019, to a projected shortfall of approximately 9.5 million DLH in FY 2021. The majority of these increased core workload shortfalls are in Aircraft, Ground Vehicles, Support Equipment, Ordnance, Weapons, and Missiles.

Army FY 2020 Core Report

Army Exhibit 1, FY 2021 Projections

Weapon System Category	Adjusted Core Requirement	Projected Public Sector Depot Maintenance Workload	Core Sustaining Workload Overage or Shortfall	Estimated Costs of Workloads to Sustain Core Requirements
	DLH	DLH	DLH	\$
1 Aircraft	3,906,604	2,768,413	-1,138,191	1,012,577,197
1.1 Rotary	3,521,194	2,096,529	-1,424,665	937,681,678
1.2 VSTOL	433	0	-433	112,395
1.3 Cargo/Tanker	255	337	82	66,125
1.4 Fighter/Attack	4,506	0	-4,506	1,169,682
1.5 Bomber	319	0	-319	82,781
1.6 Unmanned Systems	101,850	75,984	-25,866	24,533,036
1.7 Aircraft Engines	278,047	595,563	317,516	50,250,088
2 Ground Vehicles	10,555,645	4,574,584	-5,981,061	1,814,003,053
2.1 Combat Vehicles	4,563,180	2,796,863	-1,766,317	958,665,655
2.2 Amphibious Vehicles	0	0	0	0
2.3 Tactical (Wheeled) Vehicles	5,853,706	1,748,017	-4,105,689	823,195,997
2.4 Construction Equipment	138,759	29,704	-109,055	32,141,401
2.5 Unmanned Systems	0	0	0	0
3 Sea Ships	0	0	0	0
4 Communication/Electronic Equipment	2,613,799	2,810,580	196,781	460,967,851
4.1 Radar	134,292	208,184	73,892	22,460,364
4.2 Radio	1,042,479	1,054,654	12,175	176,054,313
4.3 Wire	20,346	1,426	-18,920	3,140,066
4.4 Electronic Warfare	576,650	749,893	173,243	110,032,270
4.5 Navigational Aids	443,123	227,039	-216,084	62,402,731
4.6 Electro-Optics/Night Vision	105,022	189,640	84,618	17,784,530
4.7 Crypto	31,439	110,587	79,148	22,308,120
4.8 Computers	260,448	269,157	8,709	46,785,457
5 Support Equipment	512,806	127,861	-384,945	54,906,778
5.1 GSE	119,877	50,229	-69,648	9,102,026
5.2 Generators	365,495	66,284	-299,211	43,412,115
5.3 TMDE	27,434	11,348	-16,086	2,392,637
5.4 Calibration	0	0	0	0
6 Ordnance, Weapons, & Missiles	2,714,649	1,647,110	-1,067,539	416,292,288
6.1 Nuclear Weapons	0	0	0	0
6.2 Chemical Weapons	0	0	0	0
6.3 Biological Weapons	0	0	0	0
6.4 Conventional Weapons	23,925	9,582	-14,343	3,670,954
6.5 Explosives	0	0	0	0
6.6 Small Arms/Personal Weapons	322,720	318,351	-4,369	74,271,993
6.7 Strategic Missiles	28		-28	4,246
6.8 Tactical Missiles	2,367,976	1,319,177	-1,048,799	338,345,095
7 Software	1,990,324	1,642,978	-347,346	213,822,994
7.1 Weapon System	1,956,499	1,593,478	-363,021	210,249,888
7.2 Support Equipment	33,825	49,500	15,675	3,573,106
8 Fabrication/Manufacturing	31,318	381,024	349,706	6,011,754
9 Fleet/Field Support	1,494	140,671	139,177	286,923
10 Other*	1,013,141	1,026,662	13,521	232,611,652
Total	23,339,779	15,119,883	-8,219,896	4,211,480,490

*Other includes: Air Conditioners, Mobile Depot Maintenance, Chemical Defense Equipment, Food Service Hygiene Equipment, Force Provider, General Purpose Power Equipment, Language Lab, Materiel Handling Equipment, Rail, Shop Sets, Systems Integration Support, and Water Purification.

Army Exhibit 2, FY 2021 Projected Core Workload Shortfall Rationale and Mitigation Plans

The Army anticipates a net core workload shortfall totaling 8.2 million DLH, or 9.4 million DLHs at the second level of the Weapon Systems Category. The Army calculated its adjusted core requirement based on a Total Army Analysis tied to the National Military Strategy to determine wartime equipment demands. Workload forecasts indicate that the peacetime workload available does not meet those wartime core requirements. The Army currently plans workload requirements based on readiness goals for these systems. The Army will mitigate any negative effects of core shortfalls by performing workload that requires similar artisan skills, with emerging Foreign Military Sales (FMS) and Inter-Service workload and continues to make informed risk decisions associated with this shortfall. The Army assesses that this core workload shortfall is an acceptable risk, balanced with Army modernization priorities in support of large-scale combat operations (LSCO) and preserving the all-volunteer Army. The Army core workload shortfalls include:

Shortfall: Aircraft: Core workload shortfalls include Rotary (1,424,665 DLHs), VSTOL(433 DLHs), Fighter/Attack (4,506 DLHs), Bomber (319 DLHs)and Unmanned Systems (25,866 DLHs).	
Rationale	These weapon systems experienced significant equipment usage in accordance with (IAW) NMS force structure modeling.
Mitigation Plan	The Army will sustain the rotary core skill sets through the UH60 recapitalization program and mitigate the impact of core shortfalls through anticipated FMS workloads. The Fighter/Attack and Unmanned systems shortfalls do not negatively affect the Army’s ability to sustain core logistics capabilities.
Shortfall: Ground Vehicles: Core workload shortfalls include Combat Vehicles (1,766,317 DLHs), Tactical Wheeled Vehicles (4,105,689 DLHs), and Construction Equipment (109,055 DLHs).	
Rationale	These weapon systems experienced significant equipment usage IAW NMS force structure modeling.
Mitigation Plan	The Army anticipates performing FMS and Inter-Service workloads to mitigate the impact of the Combat and Tactical Wheeled Vehicle core workload shortfalls. Construction equipment core requirements do not negatively affect the Army's ability to sustain core depot maintenance capabilities.
Shortfall: Communication/Electronics Equipment: Core workload shortfalls include Wire (18,920 DLHs), and Navigational Aids (216,084 DLHs).	
Rationale	These weapon systems experienced significant equipment usage IAW NMS force structure modeling.
Mitigation Plan	These categories experienced significant equipment increases IAW DPS force structure modeling and does not present any negative effects to sustaining core depot maintenance capabilities.

Shortfall: Support Equipment: Core workload shortfalls include Ground Support Equipment (GSE) (69,648 DLHs, Generators (299,211 DLHS), and Test Measurement Diagnostic Equipment (TMDE).(16,086 DLHs)	
Rationale	These weapon systems experienced significant equipment usage IAW NMS force structure modeling.
Mitigation Plan	The Army anticipates mitigating the impact of generator core workload shortfalls by FY 2025, as it divests equipment and begins to sustain new equipment. The GSE and TMDE shortfalls do not negatively affect the Army's core depot maintenance capabilities.
Shortfall: Ordnance, Weapons, & Missiles: Core workload shortfalls include Conventional Weapons (14,343 DLHs) Small Arms/Personal Weapons (4,369 DLHs) Strategic Missiles (28 DLHs) and Tactical Missiles.(1,048,799 DLHs)	
Rationale	These weapon systems experienced significant equipment usage IAW NMS force structure modeling.
Mitigation Plan	The core workload shortfall for Conventional Weapons and Small Arms does not negatively affect the Army's ability to sustain core depot maintenance capabilities. The Army expects to mitigate the impact of Tactical Missiles core workload shortfalls with planned workload increases by FY 2025.
Shortfall: Software: Weapon system (363,021 DLHs)	
Rationale	The Army software requirements to support embedded software in our weapon systems and test equipment increased based the Army's revised software core identification process.
Mitigation Plan	The Army expects that a phased approach to increasing its government workforce will mitigate the software core shortfall and meet the stated core requirement prior to the next Biennial Core Report.

Army progress made on implementing FY 2019 Core Sustaining Workload mitigation plans.

At the time of the 2018 Biennial Core Report, the Army expected to have Core Sustaining Workload requirements totaling 18,340,978 DLH, and core workload shortfalls totaling 4,457,777 DLH, The core workload shortfalls included Aircraft (-580,997 DLH), Ground Vehicles (-1,605,222 DLH), Support Equipment (-104,222 DLH), Ordnance Weapons and Missiles (-560,878 DLH), and Software (-340,800 DLH). These core workload shortfalls were primarily due to increased equipment requirements to support the NMS, lack of depot maintenance requirements to support readiness needs, newly established software core requirements, and a lack of sufficient funding to support depot maintenance support for readiness requirements across the Future Years Defense Program.

The Army expected to mitigate any negative effects of these core shortfalls by performing workload that requires similar skills for emerging FMS. Details of specific weapon systems' core workload shortfalls, mitigation plans, and progress to plan are summarized in exhibit 3.

Army Exhibit 3, Progress to Plan

<p>FY 2019 Rotary Wing Aircraft Projected Core Workload Shortfall: 851,284 DLH. Actual Core Workload Shortfall: 885,198 DLH. Core Workload Shortfall Increase: 33,914 DLH.</p>	
Mitigation Plan	<p>The Army will sustain the rotary core logistics capability skill sets through the UH-60 recapitalization program and mitigate core workload shortfalls through anticipated FMS workloads.</p>
Progress to Plan	<p>The Army maintained rotary core logistics capability skills sets to support the FY 2019 Core Sustaining Workload requirement through the UH-60 recapitalization program and similar workloads related to those skills.</p>
<p>FY 2019 Unmanned Aircraft Systems (UAS). Projected Core Workload Shortfall: 49,423 DLH Actual Core Workload Shortfall: 0 DLH Core Workload Decrease: 49,423</p>	
Mitigation Plan	<p>The UAS core shortfall is less than 50,000 DLH and does not negatively affect the Army’s ability to sustain UAS core capabilities</p>
Progress to Plan	<p>Met Requirement. No core shortfall based on the FY21 Core Report.</p>
<p>FY 2019 Ground Combat Vehicles Projected Core Workload Shortfall: 1,726,305 DLH. Actual Core Workload Shortfall: 992,565 DLH. Core Workload Shortfall Decrease: 733,740 DLH.</p>	
Mitigation Plan	<p>The Army anticipates performing FMS and Inter-service Core Sustaining Workloads to mitigate ground combat vehicle core workload shortfalls. The Army will make a decision regarding the Stryker combat vehicle and Tactical Wheeled Vehicle modernization strategy in the fall of 2018, and adjust depot maintenance workload plans to mitigate negative effects of those core workload shortfalls.</p>
Progress to Plan	<p>During this core reporting cycle the Army core workload shortfall decreased from that reported in the 2018 Biennial Core Report. The Army maintained the critical skills for ground combat equipment by performing similar work and through FMS and Inter-Service Core Sustaining Workloads related to those skills.</p>

<p>FY 2019 Construction Equipment Projected Core Workload Shortfall: 237,638 DLH. Actual Core Workload Shortfall: 224,649 DLH. Core Workload Shortfall Decrease: 12,989 DLH.</p>	
Mitigation Plan	The Army anticipates performing FMS and Inter-Service workloads to mitigate ground vehicle core shortfalls.
Progress to Plan	During this core cycle, the Army core workload shortfall decreased by 13,000 DLH from the 2018 Biennial Core Report. The Army maintained the critical core logistics maintenance skills for construction equipment by performing similar work and through FMS and Inter-Service Core Sustaining Workloads related to those skills.
<p>FY 2019 Projected Radio Core Workload Shortfall: 104,694 DLH. Actual Core Workload Shortfall: 0 DLH Core Workload Shortfall Decrease: DLH.: 104,694DLH</p>	
Mitigation Plan	This category experienced significant equipment increases IAW DPS force structure modeling and does not present any negative effects to sustaining core depot maintenance capabilities.
Progress to Plan	Met Requirement. No core shortfall based on the FY21 Core Report.
<p>FY 2019 Projected Wire Core Workload Shortfall: 10,208 DLH. Actual Core Workload Shortfall: 9,436 DLH Core Workload Shortfall Decrease: 772 DLH.:</p>	
Mitigation Plan	This category experienced significant equipment increases IAW DPS force structure modeling and does not present any negative effects to sustaining core depot maintenance capabilities.
Progress to Plan	The Army made a conscious decision to accept risk in Wire by trading off investment in this relatively low technology workload category in order to make resources available for more forward looking, higher technology future capabilities
<p>FY 2019 Projected Navigational Aids Core Workload Shortfall:166,189 DLH. Actual Core Workload Shortfall: 146,739 DLH Core Workload Shortfall Decrease: 19,450 DLH.:</p>	
Mitigation Plan	This category experienced significant equipment increases IAW DPS force structure modeling and does not present any negative effects to sustaining core depot maintenance capabilities.

Progress to Plan	The Army partially mitigated its shortfall projection of 166K DLH by 20K DLH by performing 227K DLH of its 373K DLH requirement
FY 2019 Projected Crypto Core Workload Shortfall: 24,076 DLH. Actual Core Workload Shortfall: 28,703 DLH Core Workload Shortfall Increase: 4,627 DLH	
Mitigation Plan	Core workload for COMSEC exceeds Army critical readiness sustainment requirements and does not have a negative effect on the depot maintenance core capability.
Progress to Plan	The Army experienced negative growth in this workload area due to funding constraints but sustains sufficient shelf stock to consistently meet operational requirements.
FY 2019 Generators Projected Core Workload Shortfall: 201,243 DLH. Actual Core Workload Shortfall: 177,307 DLH. Core Workload Shortfall Decrease: 23,936 DLH	
Mitigation Plan	The Army anticipates mitigating the generator core workload shortfalls by FY 2025, as it divests the Tactical Quiet Generator and begins sustaining the Advanced Medium Mobile Power Source.
Progress to Plan	The Army maintained the critical core logistics maintenance skills for generators by performing similar work and through FMS and Inter-Service Core Sustaining Workloads related to those skills. The Army continues to divest older generators and anticipates performing increased Core Sustaining Workload in future years to sustain critical skill sets.
FY 2019 TMDE Projected Core Workload Shortfall:10,221 DLH. Actual Core Workload Shortfall: 18,894 DLH. Core Workload Shortfall Increase: 8,673 DLH	
Mitigation Plan	TMDE shortfalls do not present any negative effects to sustaining core depot maintenance capabilities.
Progress to Plan	The Army experienced negative growth in this workload area due to funding constraints but sustains sufficient shelf stock to consistently meet operational requirements.

<p>FY 2019 Small Arms Projected Core Workload Shortfall: 20,005 DLH. Actual Core Workload Shortfall: 23,988 DLH. Core Workload Shortfall Increase: 3,983 DLH</p>	
Mitigation Plan	Core workload for Small Arms/Personal Weapons exceed the Army readiness sustainment requirements and does not have a negative effect on the depot maintenance core capability
Progress to Plan	The Army experienced negative growth in this workload area due to funding constraints but sustains sufficient shelf stock to consistently meet operational requirements.
<p>FY 2019 Tactical Missiles Projected Core Workload Shortfall: 541,843 DLH. Actual Core Workload Shortfall: 709,832 DLH. Core Workload Shortfall Increase: 167,989 DLH</p>	
Mitigation Plan	The Army expects to mitigate tactical missiles core workload shortfalls with a planned increase of Guidance Enhancement Missile (GEM) C-T conversion, GEM-T recertification, and recently approved Stockpile Reliability funding workload by FY 2025.
Progress to Plan	The Army maintained the critical skills for tactical missiles by performing similar work and through FMS and Inter-Service Core Sustaining Workloads related to those skills. The Army continues to mitigate core workload shortfalls with increases in Tactical Missiles workload.
<p>FY 2019 Weapon System Software Projected Core Workload Shortfall: 514,648 DLH. Core Workload Actual Shortfall: 207,632 DLH. Core Workload Shortfall Decrease: 307,016 DLH.</p>	
Mitigation Plan	The Army has a phased approach to increase its Government workforce to meet software Core Sustaining Workload requirements prior to the next Biennial Core Report.
Progress to Plan	During this Core Reporting cycle, the Army's software core workload shortfall decreased from the 2018 Biennial Core Report. The Army is continuing to transition its software workload to organic support to meet Core Sustaining Workload requirements.

Army Exhibit 4, FY 2019 Core Sustaining Workload Compliance

Weapon System Category	PREVIOUSLY REPORTED		ACTUALS	
	FY 2019 Adjusted Core Requirement	FY 2019 Core Sustaining Workload Overage or Shortfall	FY 2019 Actual Workload	FY 2019 Core Sustaining Workload Overage or Shortfall
	DLH	DLH	DLH	DLH
1 Aircraft	3,330,482	-580,997	2,768,413	-562,069
1.1 Rotary	2,981,727	-851,284	2,096,529	-885,198
1.2 VSTOL	0	0	0	0
1.3 Cargo/Tanker	0	1,212	337	337
1.4 Fighter/Attack	0	0	0	0
1.5 Bomber	0	0	0	0
1.6 Unmanned Systems	71,227	-49,423	75,984	4,757
1.7 Aircraft Engines	277,529	318,497	595,563	318,034
2 Ground Vehicles	6,866,709	-1,605,222	4,574,584	-2,292,125
2.1 Combat Vehicles	3,789,428	-1,726,305	2,796,863	-992,565
2.2 Amphibious Vehicles	0	0	0	0
2.3 Tactical -Wheeled) Vehicles	2,822,928	358,721	1,748,017	-1,074,911
2.4 Construction Equipment	254,353	-237,638	29,704	-224,649
2.5 Unmanned Systems	0	0	0	0
3 Sea Ships	0	0	0	0
4 Communication/Electronic Equipment	2,556,163	106,906	2,810,580	254,417
4.1 Radar	192,211	68,209	208,184	15,973
4.2 Radio	977,186	-104,694	1,054,654	77,468
4.3 Wire	10,862	-10,208	1,426	-9,436
4.4 Electronic Warfare	531,749	207,869	749,893	218,144
4.5 Navigational Aids	373,778	-166,189	227,039	-146,739
4.6 Electro-Optics/Night Vision	103,105	83,357	189,640	86,535
4.7 Crypto	139,290	-24,076	110,587	-28,703
4.8 Computers	227,982	52,638	269,157	41,175
5 Support Equipment	297,965	-104,222	127,861	-170,104
5.1 GSE	24,132	107,242	50,229	26,097
5.2 Generators	243,591	-201,243	66,284	-177,307
5.3 TMDE	30,242	-10,221	11,348	-18,894
5.4 Calibration	0	0	0	0
6 Ordnance, Weapons, & Missiles	2,371,348	-560,878	1,647,110	-724,238
6.1 Nuclear Weapons	0	0	0	0
6.2 Chemical Weapons	0	0	0	0
6.3 Biological Weapons	0	0	0	0
6.4 Conventional Weapons	0	970	9,582	9,582
6.5 Explosives	0	0	0	0
6.6 Small Arms/Personal Weapons	342,339	-20,005	318,351	-23,988
6.7 Strategic Missiles	0	0	0	0
6.8 Tactical Missiles	2,029,009	-541,843	1,319,177	-709,832
7 Software	1,945,651	-340,800	1,642,978	-302,673
7.1 Weapon System	1,801,110	-514,648	1,593,478	-207,632
7.2 Support Equipment	144,541	173,848	49,500	-95,041
8 Fabrication/Manufacturing	31,318	19,314	381,024	349,706
9 Fleet/Field Support	1,494	57,662	140,671	139,177
10 Other	939,847	44,038	1,026,662	86,815
Total	18,340,978	-2,964,200	15,119,883	-3,535,831

Navy FY 2020 Core Report

Navy Exhibit 1, FY 2021 Projections

Weapon System Category	Adjusted Core Requirement	Public Sector Depot Maintenance Workload	Core Sustaining Workload Overage or Shortfall	Estimated Costs of Workloads to Sustain Core Requirements
	DLH	DLH	DLH	\$
1 Aircraft	2,220,991	3,892,060	1,671,069	594,603,710
1.1 Rotary	951,033	1,513,529	562,496	254,610,555
1.2 VSTOL	382,543	594,221	211,678	102,414,412
1.3 Cargo/Tanker	82,901	95,206	12,305	22,194,256
1.4 Fighter/Attack	538,617	1,172,642	634,025	144,198,543
1.5 Bomber	0	0	0	0
1.6 Unmanned Systems	3,171	4,384	1,213	848,940
1.7 Aircraft Engines	262,726	512,078	249,352	70,337,005
2 Ground Vehicles	0	0	0	0
3 Sea Ships	24,572,948	44,174,078	19,601,129	2,294,855,268
3.1 Aircraft Carriers	7,917,867	10,745,935	2,828,069	736,359,458
3.2 Submarines	14,612,965	31,152,697	16,539,731	1,359,140,466
3.3 Surface Combatants	2,042,116	2,275,446	233,329	199,355,344
4 Communication/Electronic Equipment	206,628	368,474	161,846	41,166,405
4.1 Radar	16,721	56,187	39,466	4,476,508
4.2 Radio	72,435	87,843	15,408	8,668,195
4.3 Wire	0	0	0	0
4.4 Electronic Warfare	44,306	134,429	90,123	11,694,449
4.5 Navigational Aids	0	0	0	0
4.6 Electro-Optics/Night Vision	52,826	63,735	10,909	13,883,213
4.7 Crypto	20,340	26,280	5,940	2,444,040
4.8 Computers	0	0	0	0
5 Support Equipment	90,364	168,511	78,147	24,192,250
5.1 GSE	0	2,516	2,516	0
5.2 Generators	0	0	0	0
5.3 TMDE	0	0	0	0
5.4 Calibration	90,364	165,995	75,631	24,192,250
6 Ordnance, Weapons, & Missiles	1,242,457	1,506,367	263,910	98,163,428
6.1 Nuclear Weapons	0	0	0	0
6.2 Chemical Weapons	0	0	0	0
6.3 Biological Weapons	0	0	0	0
6.4 Conventional Weapons	1,240,829	1,501,264	260,434	97,727,730
6.5 Explosives	0	0	0	0
6.6 Small Arms/Personal Weapons	1,627	5,103	3,476	435,698
6.7 Strategic Missiles	0	0	0	0
6.8 Tactical Missiles	0	0	0	0
7 Software	0	0	0	0
7.1 Weapon System	0	0	0	0
7.2 Support Equipment	0	0	0	0
8 Fabrication/Manufacturing	131,927	234,654	102,728	23,401,753
9 Fleet/Field Support	559,823	3,787,511	3,227,688	149,875,814
10 Other*	550,021	1,590,224	1,040,203	147,251,622
Total	29,575,159	55,721,879	26,146,720	3,373,510,249

* Other includes Aircraft Other (E-6, E-2, P-3/P-8, EA-18G, and components common across multiple platforms).

Navy FY 2021 Exhibit 2, Projected Core Workload Shortfall Rationale and Mitigation Plans

Shortfalls: The Navy projects no core sustaining workload shortfalls for FY 2021.

Navy Exhibit 3, Progress to Plan

The Navy reported no core sustaining workload shortfalls for FY 2019.¹

¹ **Note:** The Navy and Marine Corps submissions reflect zero core workload under the software category (Work Breakdown Structure (WBS) 7.0). The Department of the Navy (DON) reported it was able to obtain metrics for software Core Sustaining Workload for Naval Aviation and for Marine Corps Ground weapon systems, but was not able to isolate and extract software Core Sustaining Workload data across all of its varied warfare domains. DON's view of software is it is in a continuous state of development throughout its performance lifecycle to correct deficiencies and add new capabilities with no delineation for sustainment phase, so capturing the software Core Sustaining Workload across all DON domains requires a more comprehensive analysis of the accounting and reporting requirements. A shift in paradigm will be necessary for DON to come into compliance with 10 U.S.C. § 2464 and DoD policy for reporting on Core Sustaining Workload as pertains to software. To address this shift in paradigm, and in order to develop a common Service approach for Core Sustaining Workload determination and reporting, the Office of the Secretary of Defense (OSD) has established a joint cross-Service team to develop a framework for accounting and reporting core software maintenance requirements and capabilities specific to weapon system software that will take Service-unique attributes in account, and that will be applicable across all of DoD. Until that framework is developed and implemented DON remains non-compliant in determining and reporting Core Sustaining Workloads for software.

Partial DON data for software Core Sustaining Workloads is provided as follows:

	Core Requirement (DLH)	Public Sector Workload (DLH)
Naval Aviation Software	1,784,446	1,898,968
Marine Corps Ground Software	524,212	134,592

Navy Exhibit 4, FY 2019 Core Sustaining Workload Compliance

Weapon System Category	PREVIOUSLY REPORTED		ACTUALS	
	FY 2019 Adjusted Core Requirement	FY 2019 Core Sustaining Workload Overage or Shortfall	FY 2019 Actual Workload	FY 2019 Core Sustaining Workload Overage or Shortfall
	DLH	DLH	DLH	DLH
1 Aircraft	2,252,498	1,491,612	3,821,163	2,399,218
1.1 Rotary	894,806	611,506	1,481,348	586,542
1.2 VSTOL	380,479	199,758	485,099	104,620
1.3 Cargo/Tanker	158,060	61,034	181,535	854,028
1.4 Fighter/Attack	645,085	445,742	1,008,915	363,830
1.5 Bomber	0	0	0	0
1.6 Unmanned Systems	1,565	441	1,219	-346*
1.7 Aircraft Engines	172,503	173,131	663,047	490,544
2 Ground Vehicles	0	0	0	0
3 Sea Ships	23,649,374	20,304,629	44,161,901	20,512,527
3.1 Aircraft Carriers	7,593,833	3,965,340	11,265,990	3,672,157
3.2 Submarines	14,472,769	15,779,299	30,076,889	15,604,120
3.3 Surface Combatants	1,582,772	559,990	2,819,022	1,236,250
4 Communication/Electronic Equipment	206,161	197,803	327,402	121,241
4.1 Radar	31,755	40,161	56,187	24,432
4.2 Radio	80,993	9,378	80,993	0
4.3 Wire	0	0	0	0
4.4 Electronic Warfare	38,735	134,526	106,238	67,503
4.5 Navigational Aids	0	0	0	0
4.6 Electro-Optics/Night Vision	26,818	7,798	56,124	29,306
4.7 Crypto	20,340	5,940	20,340	0
4.8 Computers	7,520	0	7,520	0
5 Support Equipment	62,739	59,708	77,066	14,327
5.1 GSE	0	3,652	296	296
5.2 Generators	0	0	0	0
5.3 TMDE	0	0	0	0
5.4 Calibration	62,739	56,056	76,770	14,031
6 Ordnance, Weapons, & Missiles	1,171,129	327,069	1,440,263	269,135
6.1 Nuclear Weapons	0	0	0	0
6.2 Chemical Weapons	0	0	0	0
6.3 Biological Weapons	0	0	0	0
6.4 Conventional Weapons	1,156,271	304,782	1,403,367	247,097
6.5 Explosives	0	0	0	0
6.6 Small Arms/Personal Weapons	14,858	22,287	36,896	22,038
6.7 Strategic Missiles	0	0	0	0
6.8 Tactical Missiles	0	0	0	0
7 Software	0	0	0	0
7.1 Weapon System	0	0	0	0
7.2 Support Equipment	0	0	0	0
8 Fabrication/Manufacturing	181,345	140,837	215,605	34,260
9 Fleet/Field Support	733,773	3,676,837	3,518,756	2,784,983
10 Other	229,878	486,418	888,454	658,576
Total	28,486,896	26,684,913	54,450,610	26,794,267

Note: No significant impact. The FY 2021 organic planned workload will exceed projected Core Sustaining Workload requirements.

Marine Corps FY 2020 Core Report

Marine Corps Exhibit 1, FY 2021 Projections

Weapon System Category	Adjusted Core Requirement	Public Sector Depot Maintenance Workload	Core Sustaining Workload Overage or Shortfall	Estimated Costs of Workloads to Sustain Core Requirements
	DLH	DLH	DLH	\$
1 Aircraft	0	0	0	0
2 Ground Vehicles	1,180,598	1,360,518	138,774	174,752,358
2.1 Combat Vehicles	54,649	251,696	197,047	8,089,193
2.2 Amphibious Vehicles	797,336	532,730	-264,606	118,021,742
2.3 Tactical (Wheeled) Vehicles	295,267	522,173	226,906	43,705,518
2.4 Construction Equipment	33,346	53,919	-20,573	4,935,906
2.5 Unmanned Systems	0	0	0	0
3 Sea Ships	0	0	0	0
4 Communication/Electronic Equipment	533,232	331,507	-201,725	78,929,063
4.1 Radar	643	99,861	99,218	95,094
4.2 Radio	85,599	176,295	90,696	12,670,463
4.3 Wire	21,340	44,757	23,417	3,158,830
4.4 Electronic Warfare	0	0	0	0
4.5 Navigational Aids	0	0	0	0
4.6 Electro-Optics/Night Vision	425,650	10,594	-415,056	63,004,676
4.7 Crypto	0	0	0	0
4.8 Computers	0	0	0	0
5 Support Equipment	17,796	52,504	34,708	2,634,182
5.1 GSE	0	0	0	0
5.2 Generators	582	5,298	4,716	86,154
5.3 TMDE	17,214	47,206	29,992	2,548,028
5.4 Calibration	0	0	0	0
6 Ordnance, Weapons, & Missiles	98,550	95,858	-2,692	14,587,277
6.1 Nuclear Weapons	0	0	0	0
6.2 Chemical Weapons	0	0	0	0
6.3 Biological Weapons	0	0	0	0
6.4 Conventional Weapons	80,271	60,474	-19,797	11,881,683
6.5 Explosives	0	0	0	0
6.6 Small Arms/Personal Weapons	17,953	3,693	-14,260	2,657,432
6.7 Strategic Missiles	0	0	0	0
6.8 Tactical Missiles	326	31,691	31,365	48,162
7 Software	0	0	0	0
7.1 Weapon System	0	0	0	0
7.2 Support Equipment	0	0	0	0
8 Fabrication/Manufacturing	0	0	0	0
9 Fleet/Field Support	0	0	0	0
10 Other	72,671	108,295	35,624	10,756,635
Total	1,902,847	1,948,682	4,689	281,659,515

Marine Corps Exhibit 2, FY 2021 Projected Core Workload Shortfall Rationale and Mitigation Plans

Shortfall: Amphibious Vehicles (-264,606 DLH).	
Rationale	This core workload shortfall is due to amphibious assault vehicle (AAV) workload decreasing in response to legacy system drawdown as a part of force structure redesign. This core sustaining workload shortfall is a direct result of a reduction in requirements.
Mitigation Plan	As force structure redesign initiatives become formalized, the Core Sustaining Workload requirement for AAVs will be decremented commensurate to the decline in the number of weapon systems in active inventory.
Shortfall: Electro-Optics/Night Vision (-415,056 DLH).	
Rationale	This core workload shortfall is because a high quantity of the optical sight sustaining workload requires outsourcing to commercial vendors due to required proprietary information and a lack of available organic sources of repair. These are currently considered by the Marine Corps to be commercial items and do not have an established Marine Corps organic electro-optical depot level of repair capability.
Mitigation Plan	The Marine Corps will submit a Depot Maintenance Introduction (DMI) package on all Electro-Optics/Night Vision sites that do not have a Depot Source of Repair (DSOR) decision registered, in an attempt to establish organic capabilities and mitigate this core workload shortfall. Should the DMI process not identify an organic repair capability, a secondary alternative will be to pursue partnerships with the original equipment manufacturer (OEM) in order to meet the repair requirements using OEM capabilities at a Government owned and operated facility. Concurrently, the Marine Corps Systems Command (MCSC) will re-evaluate the level of repair analysis to determine whether depot level of maintenance is applicable to these items.
Shortfall: Conventional Weapons (-19,797 DLH).	
Rationale	Shortfall due to decrease in workload requirements. Previous year M777 Howitzer workload increased dramatically to support operations in Syria causing a skewed/increased core requirement. Steady state workload is around 30 M777 Howitzers per year which increased to 91 as a result of operations in Syria.
Mitigation Plan	There is no mitigation strategy due to the shortfall being a direct result of a temporary surge in requirements. This shortfall will self-mitigate over time.
Shortfall: Small Arms/Personal Weapons (-14,260 DLH).	
Rationale	This shortfall occurred because of a temporary efficiency shift made to the system sustainment strategy. The Marine Corps has been performing retrofit replacements to M16A4 rifles in lieu of depot repair. This change in sustainment strategy dramatically reduced the required labor hours and parts costs.
Mitigation Plan	Mitigation will be self-executing, as this core workload shortfall was created by a onetime influx of excess Navy weapons being transferred to the Marine Corps.

Marine Corps progress made on implementing FY 2019 Core Sustaining Workload mitigation plans.

At the time of the 2018 Biennial Core Report, the Marine Corps expected to have Core Sustaining Workload requirements totaling 1,786,644 DLH, and core workload shortfalls totaling 82,971 DLH in Construction Equipment. The overages in similar workloads mitigate the impact of shortfalls in this commodity area.

Marine Corps Exhibit 3, Progress to Plan

FY 2019 Construction Equipment Projected Core Workload Shortfall: 82,971 DLH. Actual Core Workload Shortfall: 34,893 DLH. Core Workload Shortfall Decrease: 48,078 DLH.	
Mitigation Plan	The Marine Corps will maintain the requisite series skill sets by performing repairs on similar (other tracked vehicles) equipment within the Ground Vehicles Weapon System Category Amphibious Vehicles (Weapon System Category 2.2) has a Core Sustaining Workload overage of approximately 975,000 DLH. The skill sets in Amphibious Vehicles are similar to those in Construction Equipment (Weapon System Category 2.4). The Marine Corps depot maintenance personnel are sufficiently multi-skilled to work across this Weapon System Category The following workloads are more than sufficient to satisfy the 82,971 DLH core workload shortfall in Construction Equipment: <ul style="list-style-type: none"> • Assault Amphibious Vehicle, Recovery, 33,000 DLH • Assault Amphibious Vehicle, Command, 36,000 DLH • Assault Amphibious Vehicle, Personnel, 503,000 DLH
Progress to Plan	During this Core Reporting Cycle, the Marine Corps Core Sustaining Workload requirement for Construction Equipment decreased to 33,346 DLH, which the Marine Corps is projected to exceed in FY 2021.

Marine Corps Exhibit 4, FY 2019 Core Sustaining Workload Compliance

Weapon System Category	PREVIOUSLY REPORTED		ACTUALS	
	FY 2019 Adjusted Core Requirement	FY 2019 Core Sustaining Workload Overage or Shortfall	FY 2019 Actual Workload	FY 2019 Core Sustaining Workload Overage or Shortfall
	DLH	DLH	DLH	DLH
1 Aircraft	0	0	0	0
2 Ground Vehicles	1,358,456	669,390	3,198,910	1,840,454
2.1 Combat Vehicles	54,895	23,997	217,627	162,732
2.2 Amphibious Vehicles	452,323	522,763	1,641,938	1,189,615
2.3 Tactical (Wheeled) Vehicles	724,174	205,590	1,247,173	522,999
2.4 Construction Equipment	127,065	-82,971	92,172	-34,893
2.5 Unmanned Systems	0	0	0	0
3 Sea Ships	0	0	0	0
4 Communication/Electronic Equipment	96,422	106,456	294,049	197,627
4.1 Radar	0	0	0	0
4.2 Radio	52,985	62,127	207,628	154,643
4.3 Wire	40,258	22,760	68,532	28,274
4.4 Electronic Warfare	0	0	0	0
4.5 Navigational Aids	0	0	0	0
4.6 Electro-Optics/Night Vision	3,180	21,569	17,889	14,709
4.7 Crypto	0	0	0	0
4.8 Computers	0	0	0	0
5 Support Equipment	234,674	60,707	208,439	-26,235
5.1 GSE	0	0	0	0
5.2 Generators	7,220	6,024	15,875	8,655
5.3 TMDE	227,454	54,183	192,564	-34,890
5.4 Calibration	0	0	0	0
6 Ordnance, Weapons, & Missiles	97,091	61,215	228,320	131,229
6.1 Nuclear Weapons	0	0	0	0
6.2 Chemical Weapons	0	0	0	0
6.3 Biological Weapons	0	0	0	0
6.4 Conventional Weapons	54,931	1,320	158,569	103,638
6.5 Explosives	0	0	0	0
6.6 Small Arms/Personal Weapons	42,160	59,895	69,751	27,591
6.7 Strategic Missiles	0	0	0	0
6.8 Tactical Missiles	0	0	0	0
7 Software	0	0	0	0
7.1 Weapon System	0	0	0	0
7.2 Support Equipment	0	0	0	0
8 Fabrication/Manufacturing	0	0	0	0
9 Fleet/Field Support	0	0	0	0
10 Other	0	0	0	0
Total	1,786,644	897,768	3,929,718	2,143,075

Air Force FY 2020 Core Report

Air Force Exhibit 1, FY 2021 Projections

Weapon System Category	Adjusted Core Requirement	Public Sector Depot Maintenance Workload	Core Sustaining Workload Overage or Shortfall	Estimated Costs of Workloads to Sustain Core Requirements
	DLH	DLH	DLH	\$
1 Aircraft	12,377,596	14,863,367	2,485,772	4,653,402,589
1.1 Rotary	3,213	3,765	552	731,615
1.2 VSTOL	66	134	68	14,961
1.3 Cargo/Tanker	5,782,991	7,004,620	1,221,630	1,659,646,228
1.4 Fighter/Attack	3,903,346	4,417,607	514,261	1,064,392,812
1.5 Bomber	886,209	1,588,776	702,566	339,232,775
1.6 Unmanned Systems	296,379	116,602	-179,777	67,753,424
1.7 Aircraft Engines	1,505,391	1,731,864	226,472	1,521,630,773
2 Ground Vehicles	0	0	0	0
3 Sea Ships	0	0	0	0
4 Communication/Electronic Equipment	208,082	225,631	17,549	48,686,239
4.1 Radar	11,357	200	-11,157	2,806,007
4.2 Radio	35,980	23,266	-12,714	8,922,950
4.3 Wire	27,095	2,185	-24,910	6,768,417
4.4 Electronic Warfare	0	0	0	0
4.5 Navigational Aids	0	0	0	0
4.6 Electro-Optics/Night Vision	0	0	0	0
4.7 Crypto	133,650	199,980	66,330	30,188,864
4.8 Computers	0	0	0	0
5 Support Equipment	5,338	16,847	11,509	1,783,152
5.1 GSE	0	0	0	0
5.2 Generators	5,338	16,847	11,509	1,783,152
5.3 TMDE	0	0	0	0
5.4 Calibration	0	0	0	0
6 Ordnance, Weapons, & Missiles	711,504	822,700	111,196	188,395,879
6.1 Nuclear Weapons	0	0	0	0
6.2 Chemical Weapons	0	0	0	0
6.3 Biological Weapons	0	0	0	0
6.4 Conventional Weapons	0	0	0	0
6.5 Explosives	0	0	0	0
6.6 Small Arms/Personal Weapons	0	0	0	0
6.7 Strategic Missiles	707,002	817,637	110,635	187,280,631
6.8 Tactical Missiles	4,502	5,063	561	1,115,248
7 Software	4,022,475	6,261,156	2,238,681	579,631,311
7.1 Weapon System	3,892,471	5,502,536	1,610,065	560,759,305
7.2 Support Equipment	130,004	758,620	628,616	18,872,007
8 Fabrication/Manufacturing	0	623,891	623,891	0
9 Fleet/Field Support	0	0	0	0
10 Other*	1,423,055	2,972,183	1,549,128	396,521,084
Total	18,748,049	25,785,776	7,037,726	5,868,420,254

*Other includes: Shelter Components, Vehicle Components, Area Base, Aircraft Other Major End Items (OMEI), Missiles OMEI, Vehicles OMEI, Automotive OMEI, Ordnance & Munitions OMEI, General Purpose OMEI, and Storage.

U.S. Air Force Exhibit 2, FY 2021 Projected Core Workload Shortfall Rationale and Mitigation Plans

Shortfall: Unmanned Systems (-179,777 DLH): Core workload shortfalls include Airframe, Airborne Electronics, and Photographic Equipment.	
Rationale	The Air Force made a conscious and deliberate decision to accept risk in the near term capabilities to repair and maintain RQ-4 airborne electronics, photographic equipment, and training/simulation equipment because the Air Force plans to establish similar capabilities (e.g., C-130J, UH-1N Rep) within four years of initial operational capability. Additionally, the Air Force has a sufficient level of competencies in place, in the aggregate for these commodity types, to serve as a ready and controlled source of repair for contingency situations.
Mitigation Plan	Similar capabilities are being activated in C-130J, C-17 and C-5 RERP Depot Maintenance Activation Working Group (DMAWG) efforts.
Shortfall: Communication Equipment Radar -11,157 DLH Radio -12,714 DLH Wire -24,910 DLH	
Rationale	The Air Force made a conscious and deliberate cost-saving decision to align future activations of all new ground electronics workload to Warner Robins-Air Logistics Complex (WR-ALC).
Mitigation Plan	The June 9, 2019, SAF/AQD Center of Industrial and Technical Excellence (CITE) memo now aligns all new ground electronics to one location, WR-ALC. This action will improve the efficiency and effectiveness of operations.

Air Force progress made on implementing FY 2019 Core Sustaining Workload mitigation plans.

At the time of the 2018 Biennial Core Report, the Air Force expected to have Core Sustaining Workload requirements totaling 18,759,078 DLH, and core workload shortfalls totaling 451,582 DLH. The Air Force’s 2020 Biennial Core Report submission reflects workload shortfalls for the following Weapon System Categories:

Air Force Exhibit 3, Progress to Plan

FY 2019 Rotary Aircraft Projected Core Workload Shortfall: 8,796 DLH. Actual Core Workload Shortfall: 13,202 DLH. Core Workload Shortfall Increase: 4,406 DLH.	
Mitigation Plan	Fleet Readiness Center (FRC) - Southeast, Jacksonville will accomplish near-term workload overflows. The long-term implementation plan will add work back to Corpus Christi Army Depot as its productivity and quality improves. The Air Force expects this core shortfall to be resolved in the 2020 Biennial Core Report.
Progress to Plan	Tracking to plan. Full resolution of this core workload shortfall is forecasted to occur by FY 2021, as projected.

FY 2019 VSTOL Aircraft Projected Core Workload Shortfall: 12,216 DLH.
 Actual Core Workload Shortfall: N/A
 Core Workload Shortfall Increase: N/A

Mitigation Plan	The Air Force reported a shortfall of 12,216 hours in VSTOL for the CV-22 Osprey. This workload requirement is under a Performance Based Logistics contract through the Naval Air System Command (NAVAIR) with the Original Equipment Manufacturer (OEM). The Air Force transferred the entire core requirement with the workload to NAVAIR. This shortfall will be satisfied when combined with the Department of the Navy’s VSTOL workload.
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Progress to Plan	No core shortfall based on the FY21 Core Report
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FY 2019 Unmanned Aircraft Systems Projected Core Workload Shortfall: 297,701 DLH.
 Actual Core Workload Shortfall: 390,714 DLH.
 Core Workload Shortfall Increase: 93,013 DLH.

Mitigation Plan	The Air Force is working with the program offices, OEMs, and the organic depots to increase performance of Core Sustaining Workload. The Air Force invested \$56 million to activate the RQ-4’s engine maintenance capability at Oklahoma City Air Logistics Complex (OC-ALC). Investments in the MQ-9 software integration lab (SIL) are ongoing along with the common avionics and airborne electronics. In addition, the Air Force secured permission from the Federal Aviation Administration (FAA) to fly unmanned systems into Robins Air Force Base earlier this year. Acquiring this permission from the FAA was required to activate any unmanned aircraft system’s structural repairs at the organic depot. The Air Force will continue to focus on priority activations based on impact to readiness and best value to the government.
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Progress to Plan	<p>The AF invested \$56M to activate the RQ-4 engine at Oklahoma -Air Logistics Complex and Programmed Depot Maintenance (PDM)at WR-ALC (the Program Manager is currently working the PDM package).</p> <p>The MQ-9, RQ-4 (137 engine, Rolls Royce 3007) are currently in sustainment as of 2016 and capabilities are being established for additional parts of the engine. Similar capabilities are being activated in the C-130J, C-17 and C-5 Reliability, Enhancement and Re-engining Program (RERP) – DMAWGs. The Air Force is also, working to establish capabilities for Extended Range Quick Engine Change (QEC) and Fuel Systems at OC-ALC.</p> <p>RQ-4B Landing Gear depot capability is being established for MQ-9 Software SIL at WR-ALC.</p> <p>This core workload shortfall has not been resolved but it is improving (as demonstrated by the 298,000 DLH core workload shortfall in FY 2019 decreasing to a 180,000 DLH core workload shortfall projected for FY 2021).</p>
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FY 2019 Radar Projected Core Workload Shortfall: 750 DLH. Actual Core Workload Shortfall: 926 DLH. Core Worload Shortfall Increase:176 DLH.	
Mitigation Plan	The Air Force will work with Tobyhanna Army Depot (TYAD), program offices, and the OEMs to repatriate Core Sustainment Workload or activate newer and more efficient Core Sustainment Workloads, as needed.
Progress to Plan	The June 9, 2019, SAF/AQD CITE memo now aligns all new ground electronics to WR-ALC which will help bring in more organic workload. This core workload shortfall is improving.
FY 2019 Radio Projected Core Workload Shortfall: 91,720 DLH. Actual Core Workload Shortfall: 125,778 DLH. Core Workload Shortfall Increase: 34,058 DLH.	
Mitigation Plan	The Air Force will work with TYAD, program offices, and the OEMs to shift Core Sustainment Workload from contract to organic, or activate newer and more efficient Core Sustainment Workloads, as needed.
Progress to Plan	The June 9, 2019, SAF/AQD CITE memo now aligns all new ground electronics to WR-ALC which will help bring in additional organic workload. This core workload shortfall is improving.
FY 2019 Wire Projected Core Workload Shortfall: 16,974 DLH. Actual Core Workload Shortfall: 19,730 DLH. Core Workload Shortfall Increase: 2,756 DLH.	
Mitigation Plan	The Air Force will work with TYAD, program offices, and the OEMs to shift contract work to organic workload, or activate newer and more efficient workloads as needed.
Progress to Plan	The June 9, 2019, SAF/AQD CITE memo now aligns all new ground electronics to WR-ALC which will help bring in more organic workload. This core workload shortfall is improving.
FY 2019 Tactical Missiles Projected Core Workload Shortfall: 41,773 DLH. Actual Core Workload Shortfall: N/A Core Workload Shortfall Increase: N/A	
Mitigation Plan	Due to similarity of skills, the Air Force recommend this area be combined with Strategic Missiles (176K overage). The skills required for repair are the same.
Progress to Plan	No core shortfall based on the FY21 Core Report

Air Force Exhibit 4, FY 2019 Core Sustaining Workload Compliance

Weapon System Category	PREVIOUSLY REPORTED		ACTUALS	
	FY 2019 Adjusted Core Requirement	FY 2019 Core Sustaining Workload Overage or Shortfall	FY 2019 Actual Workload	FY 2019 Core Sustaining Workload Overage or Shortfall
	DLH	DLH	DLH	DLH
1 Aircraft	11,508,397	4,061,858	15,415,256	3,906,859
1.1 Rotary	16,231	-8,796	3,029	-13,202
1.2 VSTOL	12,636	-12,216	516	-12,121
1.3 Cargo/Tanker	5,743,204	269,331	7,507,523	1,764,318
1.4 Fighter/Attack	2,471,773	2,394,714	3,227,001	755,228
1.5 Bomber	958,685	851,118	2,344,249	1,385,564
1.6 Unmanned Systems	395,884	-297,701	5,170	-390,714
1.7 Aircraft Engines	1,909,984	865,408	2,327,769	417,785
2 Ground Vehicles	0	0	0	0
3 Sea Ships	0	0	0	0
4 Communication/Electronic Equipment	235,730	-91,096	32,319	-203,411
4.1 Radar	926	-750	0	-926
4.2 Radio	133,985	-91,720	8,206	-125,778
4.3 Wire	19,730	-16,974	0	-19,730
4.4 Electronic Warfare	0	0	0	0
4.5 Navigational Aids	0	0	0	0
4.6 Electro-Optics/Night Vision	0	0	0	0
4.7 Crypto	81,090	18,346	24,113	-56,977
4.8 Computers	0	0	0	0
5 Support Equipment	6,949	12,728	25,255	18,306
5.1 GSE	0	0	0	0
5.2 Generators	6,949	12,728	25,255	18,306
5.3 TMDE	0	0	0	0
5.4 Calibration	0	0	0	0
6 Ordnance, Weapons, & Missiles	1,126,933	134,362	536,219	-590,714
6.1 Nuclear Weapons	0	0	0	0
6.2 Chemical Weapons	0	0	0	0
6.3 Biological Weapons	0	0	0	0
6.4 Conventional Weapons	0	0	0	0
6.5 Explosives	0	0	0	0
6.6 Small Arms/Personal Weapons	0	0	0	0
6.7 Strategic Missiles	1,078,050	176,135	515,500	-562,550
6.8 Tactical Missiles	48,883	-41,773	20,719	-28,164
7 Software	4,255,386	914,362	1,812,211	-2,443,175
7.1 Weapon System	4,109,856	389,115	1,761,058	-2,348,798
7.2 Support Equipment	145,530	525,248	51,153	-94,376
8 Fabrication/Manufacturing	0	402,451	0	0
9 Fleet/Field Support	0	0	0	0
10 Other	1,625,683	737,239	1,639,356	13,673
Total	18,759,078	6,171,905	19,460,617	701,539