ARMY WORKING CAPITAL FUND
FISCAL YEAR 2020
BUDGET ESTIMATES

SUBMITTED TO CONGRESS MARCH 2019

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An AH-64 Apache flies in formation for the 25th Infantry Division Review.

The estimated cost of this report for the Department of Defense (DOD) is approximately $61,106 for Fiscal Year 2019. This includes $881 in expenses and $61,068 in DOD labor.

All photographs in this document were obtained from official U.S. DOD web sites.

ARMY STRONG

Army Civilian Corps Creed

I am an Army civilian – a member of the Army team.

I am dedicated to our Army, our Soldiers and civilians.

I will always support the mission.

I provide stability and continuity during war and peace.

I support and defend the Constitution of the United States and consider it an honor to serve our nation and our Army.

I live the Army values of loyalty, duty, respect, selfless service, honor, integrity, and personal courage.

Army Overview

Background

Working capital funds were established by Congress to more effectively control and account for the cost of programs and work performed in the Department of Defense. Under the provisions of Title 10 United States Code, § 2208, the Secretary of Defense may establish working capital funds to finance inventories of supplies and industrial-type activities that provide common services such as repair, manufacturing, or remanufacturing. Unlike profit-oriented commercial businesses, the revolving fund's goal is to break even by returning any monetary gains to appropriated fund customers through lower rates or collecting any monetary losses from customers through higher rates. Revolving fund prices are generally stabilized or fixed during the year of execution to protect customers from unforeseen fluctuations that would impact their ability to execute the programs approved by Congress.

The basic tenet of the revolving fund structure is to create a customer-provider relationship between military operating units and support organizations. This relationship is designed to make managers of the Army Working Capital Fund (AWCF) and decision-makers at all levels more aware of costs for goods and services.

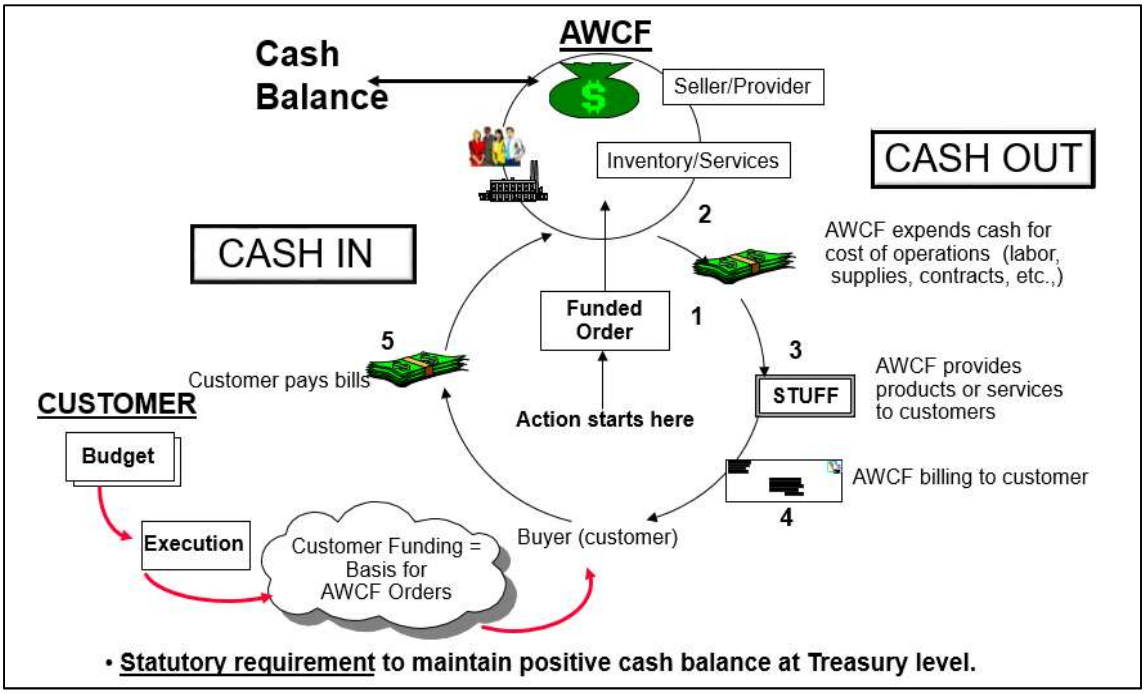
The M119A/A2 Howitzer and a HMMWV are airlifted by a CH-47 Chinook.

The Army's revolving fund activities evolved from two separate types of funds. The first type, known as the Stock Fund, procured spare parts in volume to either sell to customers or hold in inventory. The second type, known as the Industrial Fund, provided industrial services to customers, such as depot maintenance, munitions and weapon systems component manufacturing, and ammunition storage. Both types of revolving funds were financed primarily by reimbursements from customer appropriated accounts.

Figure 1 on the next page shows the interaction between customers' appropriated funds, AWCF business operations, and cash. Customer appropriated funding is synchronized with AWCF workload forecasts during budget development. During the year of execution, appropriated fund customers

submit funded orders (1) to AWCF providers requesting services (repair, overhaul, or manufacturing) or supplies (spare or repair parts). This obligates appropriated funds. In step 2, AWCF Supply Management purchases inventory for resale to customers. Also in step 2, Industrial Operations orders materiel and hires labor, supporting the projected workload (CASH OUT). In step 3, the customer receives the completed product or service and a bill (4) for payment. The customer pays the AWCF (5) for the materiel or services (CASH IN). Proper pricing of inventory and services, and accurately forecasting workload allows a balance between CASH OUT and CASH IN. Variance between these actions results in either a gain or loss of AWCF cash. Gains are returned to customers through lower future prices while losses are recouped through higher future prices.

Figure 1 - AWCF Cash Process



Introduction

The FY 2020 AWCF budget is aligned with the National Defense Strategy and supports the Army's vision to provide U.S. land forces with readiness and lethality, enabling the Army to Compete, Deter, and Win in ground combat against any adversary. The AWCF directly supports the materiel readiness of operating units.

The revolving fund structure encourages cost-effectiveness, flexibility, and adaptability to meet changing workload requirements in the year of execution. It also supports full cost visibility and full cost recovery while protecting appropriated fund customer accounts from year of execution price changes. The AWCF consists of the Supply Management and Industrial Operations activity groups, with operations spanning across seventeen cities and local areas within fourteen states. The exact locations are shown in each business activity's portion of the budget. The AWCF activities disbursed approximately $10.8 billion in FY 2018 to maintain the readiness and sustainability of military equipment.

Performance Measures

Key financial measures are net operating result, accumulated operating result, and unit cost.

The net operating result (NOR) represents the difference between revenue and expenses within a fiscal year. Accumulated operating result (AOR) represents the summation of all operating gains or losses since activity group inception along with any prior period adjustments. Prices and rates are set at a level that brings the accumulated gains and losses to zero over the budget cycle. The unit cost is a metric primarily used in the Supply Management activity group to relate operating costs to each dollar of sales. It is measured by dividing gross operating cost (the sum of total obligations, depreciation expense, and credit) by gross sales. Adjusting the unit cost determines how much obligation authority may be distributed based on gross sales.

A rifleman shoots during a live fire exercise.

In addition to financial measures (NOR, AOR, and unit cost), operational measures assess how well the financial inputs reflected in the AWCF budget support Army strategic goals and operational readiness. Operational measures include productive yield (an indicator of whether direct labor employees can

support projected workload) and stock availability (a measure of the ability of AWCF inventory to fill a customer's requisition). These are identified within each activity group's narrative.

Logistics Modernization Program

The Army's Logistics Modernization Program (LMP) provides a modernized logistics and finance solution that allows the U.S. Army Materiel Command (AMC) to provide world-class logistics readiness to Soldiers. LMP delivers a fully integrated suite of software and business processes, providing streamlined data on maintenance, repair and overhaul, finance, acquisition, spare parts, and materiel. It is the Army's core logistics information technology (IT) initiative, which meets the Army's IT logistics vision of transformation from legacy applications to a modernized logistics enterprise solution.

LMP manages approximately seven million transactions daily and is integrated with more than 80 DOD systems including interfaces with Army's other enterprise resource planning systems: Army Enterprise Systems Integration Program; Global Combat Support System-Army; and General Fund Enterprise Business Systems. LMP is currently used by more than 23,000 users at more than 50 Army and DOD locations. Enhancements and system changes continue to be applied to LMP to ensure compliance with statutory and regulatory requirements.

U.S. Soldiers take to the road during a joint platoon exercise.

Activity Groups

Supply Management

The Supply Management activity group buys and manages spare and repair parts for sale to its customers, primarily Army operating units. The activity group is committed to supporting and building readiness for present and future challenges. The Army's equipment and operational readiness, and the strength to win the Nation's wars, are directly linked to the availability of spare parts. Supply Management administers spare parts inventory for Army managed items, Non-Army managed items (NAMI) and war reserve secondary items (WRSI). It also maintains a protected inventory of spares in Army Prepositioned Stocks (APS), which is released to support deploying combat units. The Life Cycle Management Commands assigned to the Army Materiel Command manages the Supply Management activity, which consists of four major commodity groups: aviation and missile; communications-electronics; tank-automotive and armament; and NAMI. The war reserve stocks contain materiel from all commodity groups. As new equipment is added to the Army's operational and training forces, new spare parts are also scheduled for inclusion in the Supply Management inventory.

Industrial Operations

The 11th Armored Cavalry Regiment fires a FIM-92 Stinger missile at the MQM-170 Outlaw drone.

The Industrial Operations activity group provides the Army an organic industrial capability to: conduct depot level maintenance, repair and upgrade; produce munitions and large caliber weapons; and store, maintain, and demilitarize materiel for all branches of DOD. Industrial Operations is comprised of thirteen government owned and operated installation activities, each with unique core competencies. These include five hard-iron maintenance depots, three arsenals, two munitions production facilities, and three storage sites. Although comprised of diverse organic industrial capabilities, the preponderance of workload and associated estimates in the Industrial Operations budget submission relate to depot level maintenance, repair, and upgrade. The complex operational environment continues to place tremendous demands on equipment, resulting in higher usage rates than in routine peacetime operations. The Industrial Operations activities play an integral role in resetting equipment as it retrogrades from combat operations.

The Army's equipment Reset program is defined as a set of actions restoring equipment to a level of pre-deployment capability commensurate with a unit's future mission. Army equipment reset will replace[1], recapitalize[2], or repair[3] equipment to meet 10/20 maintenance standards and operational requirements. The Industrial Operations activity group is involved with both the recapitalization and repair efforts. The budget incorporates depot workload assumptions associated with the Reset program (Overseas Contingency Operations funding) and peacetime training operations.

Budget Highlights

Overview

The FY 2020 AWCF budget supports the Army's plans to maintain and strengthen unit readiness. The budget supports an increase in home station training and continued support to Operation Freedom Sentinel, Operation Inherent Resolve, and the European Deterrence Initiative, resulting in higher demands and sales forecasts in FY 2020.

The adequacy and predictability of resources is critical for accurately forecasting and executing workload. OPTEMPO assumptions assist in the development of the budget request, but as changes to these assumptions materialize, the projections for the AWCF can change significantly. To offset this risk, both activity groups will be able to adapt to changing workload forecasts, constraining or expanding costs as necessary. The Supply Management budget request includes variability target to support spares replacement for any surge in customer demands above projected levels. The Industrial Operations activity group budget request includes a mix of permanent, temporary, and term-appointment employees, in addition to contract labor, to better respond to unanticipated increases or decreases in new orders.

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[1] The purchase of new equipment to replace battle losses, worn-out or obsolete equipment, and critical equipment deployed and left in theater, but needed for homeland defense, homeland security, and other critical missions.

[2] A rebuild effort that extends the equipment's useful life by returning it to a near zero-mile/zero-hour condition with either the original performance specifications or with upgraded performance specifications.

[3] A repair or overhaul effort that returns the equipment's condition to the Army standard. It includes the Special Technical Inspection and Repair (STIR) program for aircraft.

Personnel

The AWCF civilian personnel posture reflects an overall decrease in FY 2020. Changes to personnel levels are discussed within the narrative of each activity group. Civilian and military end strength and civilian full time equivalents are shown in the following table.

Table 1 - Personnel

	FY 2018	FY 2019	FY 2020
Supply Management			
Civilian End Strength	1,830	2,138	2,131
Full Time Equivalents	1,830	2,138	2,131
Military End Strength	2	2	2
Industrial Operations			
Civilian End Strength	19,382	20,386	19,799
Full Time Equivalents	19,265	20,297	20,052
Military End Strength	25	24	24
Total			
Civilian End Strength	21,212	22,524	21,930
Full Time Equivalents	21,095	22,435	22,183
Military End Strength	27	26	26

Revenue and Expenses

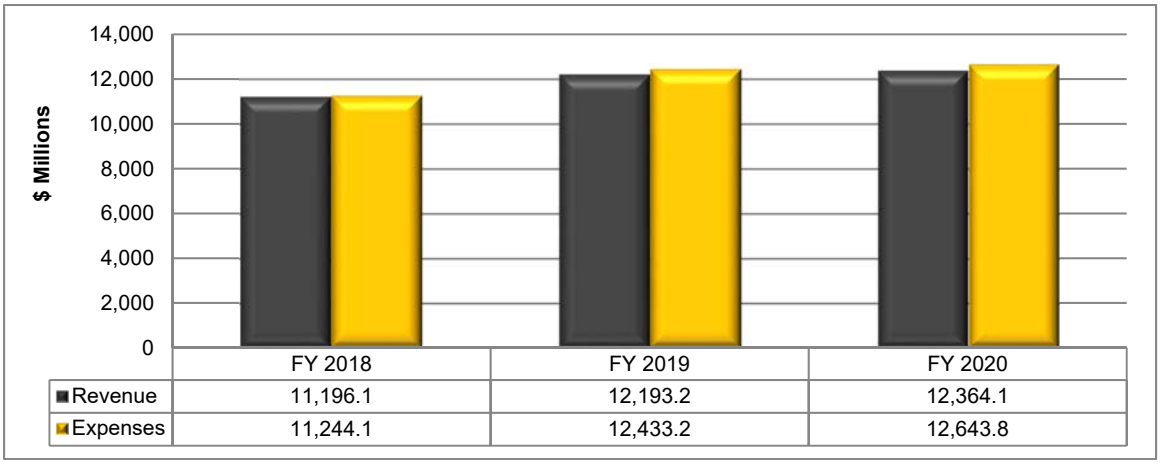
Revenue is an indicator of the combined volume of work completed by the AWCF activity groups. Expenses identify the cost of goods and services produced or sold. Both revenue and expenses are expected to increase in the budget year based on workload. Major expense drivers include cost of goods sold for Supply Management and the cost of labor and materiel consumed in Industrial Operations. Table 2 and Chart 1 show revenue and expenses for Supply Management and Industrial Operations.

Table 2 - Revenue and Expenses

($ Millions)	FY 2018	FY 2019	FY 2020
Revenue			
Supply Management			
Gross Sales	8,727.5	9,610.3	9,773.0
Less Credit	2,014.4	2,162.4	2,179.3
Net Supply Management	6,713.0	7,447.9	7,593.7
Industrial Operations	4,483.0	4,745.3	4,770.3
Total Revenue	11,196.1	12,193.2	12,364.1
Expenses			
Supply Management	6,533.6	7,599.1	7,696.7
Industrial Operations	4,710.5	4,834.1	4,947.1
Total Expenses	11,244.1	12,433.2	12,643.8

Note: Total revenue above does not include appropriated funds for war reserve secondary items as shown on the Supply Management exhibit Fund 14, *Revenue and Costs*. Numbers may not add due to rounding.

Chart 1 - Revenue and Expenses



Net and Accumulated Operating Results

Financial performance is measured by comparing actual results to goals. The goal of the AWCF is to break even over time. Army considers several factors when determining the accumulated operating result (AOR) amount to return in the rates. Returning a large positive AOR balance in one year may cause the rates to drop significantly in that year and increase significantly in the following year. In addition, the Army reviews the cash balance and the projected balance for the budget year to determine if sufficient cash exists to return the gain to the customers. In FY 2020, Supply Management activity rate includes a negative cash surcharge that will return gains of $146.4 million. The Industrial Operations

activity received approval to defer the return of $357.0 million of AOR for future rate stabilization as workload decreases. Table 3 shows the net and accumulated operating results for both Supply Management and Industrial Operations. Details can be found under the NOR and AOR section for each business area.

Table 3 - Operating Results

($ Millions)	FY 2018	FY 2019	FY 2020
Supply Management			
Net Operating Result	179.4	(151.1)	(103.0)
Prior Year AOR	74.7	254.1	103.0
Accumulated Operating Result	254.1	103.0	0.0
Industrial Operations			
Net Operating Result	(161.5)	16.3	(127.3)
Deferred AOR	0.0	0.0	(357.0)
Accumulated Operating Result	468.0	484.3	0.0

Note: Numbers may not add due to rounding

Customer Rates

Each activity group has a unique rate structure. The Supply Management activity group adds a cost recovery rate (CRR) to the price of inventory items sold to recoup operating costs. Typical cost categories within the CRR include civilian pay, distribution depot costs, transportation costs, other Defense bills associated with supply operations, and costs of replacing inventory losses. The Industrial Operations activity group sets customer rates on a direct labor hour basis. The hourly composite rate recovers all costs, both direct and overhead. Activity group rates are stabilized so that the customer's buying power is protected from price swings during the year of execution. Table 4 shows the Supply Management composite cost recovery rates and the Industrial Operations composite direct labor hour rates.

Table 4 - Customer Rates

	FY 2018	FY 2019	FY 2020
Supply Management	14.8%	13.3%	11.0%
Industrial Operations	$157.25	$155.28	$155.28

Customer Rate Change

The Supply Management customer rate change is expressed as the change in overhead costs weighted by sales revenue. Table 5 shows the customer rate change for both business areas.

Table 5 - Price Change to Customer

	FY 2018	FY 2019	FY 2020
Supply Management	2.8%	0.4%	(0.1%)
Industrial Operations	0.0%	(1.2%)	0.0%

Fund Balance with Treasury

The Defense Working Capital Fund (DWCF) Fund Balance with Treasury, account symbol 97X4930, is subdivided at the Treasury into five sub-numbered Treasury accounts. The Army's account is 97X4930.001. The current balance of funds with Treasury is equal to the amount at the beginning of the fiscal year plus the cumulative fiscal-year-to-date amounts of collections, appropriations, and transfers-in minus the cumulative fiscal-year-to-date amounts of disbursements, withdrawals, and transfers-out. The AWCF is required to maintain a positive cash balance to prevent an Anti-deficiency Act violation under Title 31, United States Code, § 1517(a), *Prohibited obligations and expenditures*. Unlike appropriated funds, the AWCF cash balance is not equal to outstanding obligations. Cash on hand at Treasury must be sufficient to pay bills when due and should remain sufficient to support operational requirements plus six months of capital investment program disbursements.

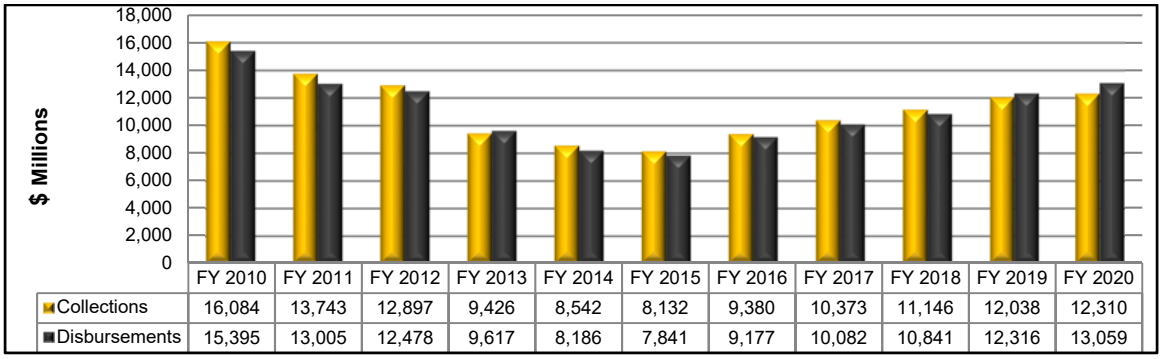
The operational requirement may include any positive accumulative operating result returned to customers, cash equal to undisbursed direct appropriations, and a commodity/market adjustment. In preparation for daily cash visibility at the Department of Treasury, Army studied weekday cash transactions from the Logistics Modernization Program (LMP). This study identified a pattern of multiple disbursement cycles before a collection cycle. The operational cash requirement also includes risk mitigation factors to ensure sufficient cash is available for these cycles.

The cash balance is primarily affected by cash generated from operations but the balance is also impacted by appropriations, transfers, and withdrawals. Maintaining a proper cash balance is dependent on setting rates to recover full costs, including prior year losses, and accurately projecting workload.

Cash from Operations

The day-to-day operations of the fund consume and replenish cash. The FY 2020 cash plan includes all expected collections and disbursements from the operations of both the Supply Management and Industrial Operations activity groups, including appropriations and transfers. Chart 2 displays collections and disbursements from operations, however does not include appropriations and transfers. The projected change in collections and disbursements from FY 2019 to FY 2020 is due to a combination of collecting less overhead from customers through negative cash surcharge and disbursing less due to total obligations decreasing.

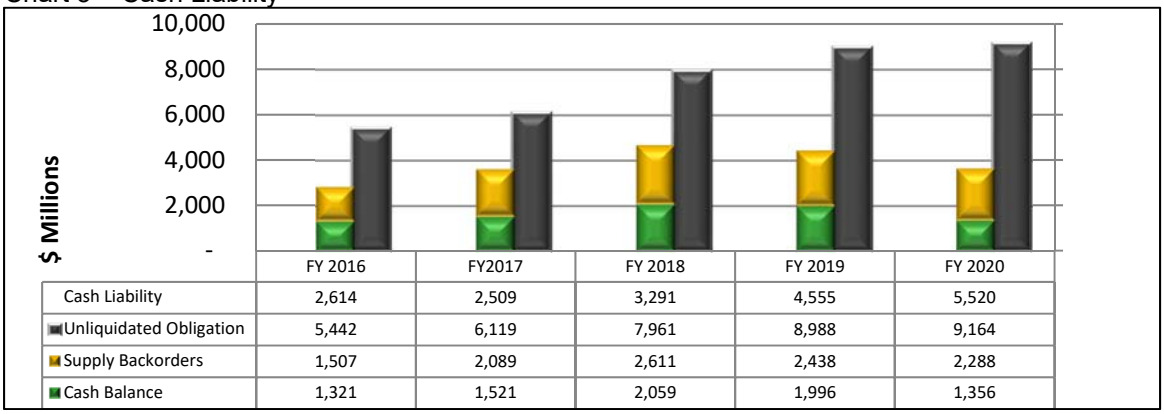
Chart 2 - Cash from Operations



	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Collections	16,084	13,743	12,897	9,426	8,542	8,132	9,380	10,373	11,146	12,038	12,310
Disbursements	15,395	13,005	12,478	9,617	8,186	7,841	9,177	10,082	10,841	12,316	13,059

Chart 3 displays the potential risk to the AWCF cash balance through FY 2020 due to unliquidated obligations (ULOs). ULOs represent the dollar value of material and services ordered but not yet received by the AWCF. ULOs will result in future disbursements, reducing cash. There is increased risk to cash when ULOs are high even though collections from backorders mitigate a portion of this risk. Fund managers must maintain a sufficient cash balance to cover future disbursements as the material and services are delivered. The AWCF has experienced a large increase to ULOs since FY 2016 due to significant increases in material obligations supporting the Army's readiness objectives.

Chart 3 – Cash Liability



	FY 2016	FY2017	FY 2018	FY 2019	FY 2020
Cash Liability	2,614	2,509	3,291	4,555	5,520
Unliquidated Obligation	5,442	6,119	7,961	8,988	9,164
Supply Backorders	1,507	2,089	2,611	2,438	2,288
Cash Balance	1,321	1,521	2,059	1,996	1,356

Appropriations

Table 6 displays the requested AWCF Direct Appropriations broken out by type. The Supply Management Activity (SMA) is requesting War Reserve Secondary Items to purchase secondary items for Army Prepositioned Stocks (APS) and Inventory Augmentation. The Overseas Contingency Operations (OCO) requests support activities participating in European Deterrence Initiative (EDI). For further explanation on these requested Direct Appropriations see the Supply Management Activity section.

The Industrial Operations (IO) activity is requesting Industrial Mobilization Capacity for costs associated with maintaining facilities to meet surge capacity needed for mobilization or war. For further explanation on IO Direct Appropriations request please see the Industrial Operations section.

Table 6 – Appropriations

($ Millions)	FY 2018	FY 2019	FY 2020
War Reserve Secondary Items	**79.6**	**106.4**	**52.1**
Base Funding	*57.7*	*99.8*	*32.1*
Overseas Contingency Operations[1]	*21.9*	*6.6*	*20.1*
Inventory Augmentation (ASLs)	**48.0**	**0.0**	**0.0**
Base Funding	*0.0*	*0.0*	*0.0*
Overseas Contingency Operations	*48.0*	*0.0*	*0.0*
Industrial Mobilization Capacity	**43.1**	**59.0**	**57.5**
Base Funding	*43.1*	*59.0*	*57.5*
Overseas Contingency Operations	*0.0*	*0.0*	*0.0*
Arsenal Sustainment Initiative	**99.0**	**99.0**	**0.0**
Base Funding	*99.0*	*99.0*	*0.0*
Overseas Contingency Operations	*0.0*	*0.0*	*0.0*
Total Appropriated Funds	**269.8**	**264.4**	**109.7**
Base Funding	*199.8*	*257.8*	*89.6*
Overseas Contingency Operations	*69.9*	*6.6*	*20.1*

Note 1: The Overseas Contingency Operations (OCO) funding requested is for the OCO Funding Category of: OCO for Enduring Requirements ($20.1 million). OCO for Enduring Requirements are enduring in-theater and in-CONUS costs that will likely remain after combat operations cease, but have previously been funded in OCO.

Cash Management Plan

The AWCF cash requirement is established using a process, based on four primary elements: 1) rate of disbursements; 2) range of operations; 3) risk mitigation; and 4) cash reserves. This method is known as the "Four Rs" and the elements are explained below:

1) **Rate** of Disbursements – The rate of disbursements varies within the Army's two activity groups; thus an optional calculation was used to derive the average amount disbursed between collection cycles.

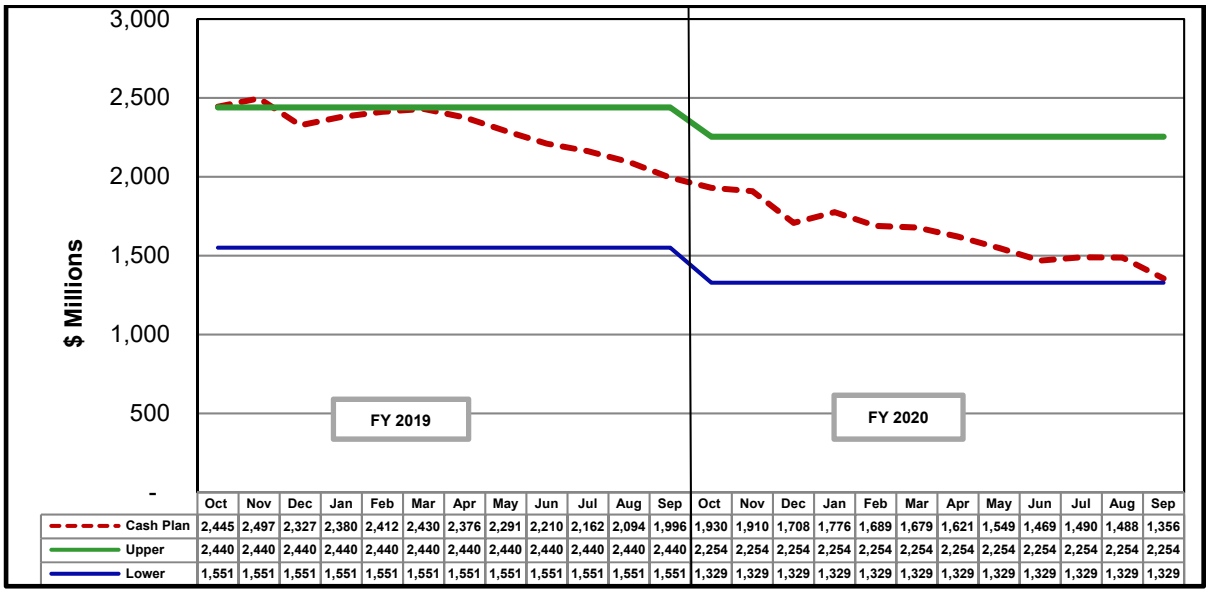
2) **Range** of Operations – The range of operations are derived using the difference between the highest and lowest expected monthly cash level in the preceding fiscal year.

3) **Risk** Mitigation – The risk mitigation element includes a factor for operational volatility and the supply management pricing/credit policy. Operational volatility is based on multiple disbursement cycles before a collection cycle. A factor is also included for risk mitigation supporting the Army's recent return to standard pricing and credit.

4) Cash **Reserves** – The cash reserves includes the amount of positive accumulated operating results planned to be returned to the customers; unliquidated disbursements for capital investments; direct appropriations; a commodity/market price adjustment; and an amount to cover the minimum required capital investment.

Chart 4 shows the projected monthly cash balances for FY 2019 and FY 2020. This chart demonstrates how the afore mentioned cash from operations and appropriations effect the cash balance, as well as where the projected ending balance falls within the upper and lower operating range. The FY 2020 Customer Prices have been set to achieve a cash balance within the operating range.

Chart 4 - Cash Management Plan



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Cash Plan	2,445	2,497	2,327	2,380	2,412	2,430	2,376	2,291	2,210	2,162	2,094	1,996	1,930	1,910	1,708	1,776	1,689	1,679	1,621	1,549	1,469	1,490	1,488	1,356
Upper	2,440	2,440	2,440	2,440	2,440	2,440	2,440	2,440	2,440	2,440	2,440	2,440	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254
Lower	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,329	1,329	1,329	1,329	1,329	1,329	1,329	1,329	1,329	1,329	1,329	1,329

End of Year Cash Balance

Table 7 shows total collections, disbursements, appropriations, transfers, and ending cash balances. The FY 2020 budget includes a cash plan based on projected operational and capital disbursements, collections, and direct appropriations. Upper and lower operational range cash requirements have been identified to measure the sufficiency of cash. The FY 2020 cash balance is projected to be within the upper and lower operational requirements. Although no advance billings are included in the budget submission, the Supply Management rate includes a negative cash surcharge that will return gains of $146.4 million to customers in FY 2020.

Table 7 - Cash Balance

($ Millions)	FY 2018	FY 2019	FY 2020
Disbursements	10,840.7	12,315.7	13,059.3
Collections	11,146.1	12,037.8	12,309.8
Net Outlays from Operations	(305.4)	277.9	749.5
Direct Appropriations	269.8	264.4	109.7
Transfers In	0.0	0.0	0.0
Transfers Out	0.0	50.0	0.0
Total Net Outlays	(575.2)	63.5	639.8
Ending Cash Balance	**2,059.2**	**1,995.7**	**1,355.8**
Upper Operating Range	1,798.4	2,439.9	2,254.5
Lower Operating Range	1,134.3	1,551.0	1,329.3

Capital Budget

The AWCF activities develop and maintain operational capabilities by acquiring or replacing production equipment, executing minor construction projects, and developing software. New equipment is acquired to replace obsolete and unserviceable equipment, modernize production and maintenance processes, and eliminate environmental hazards. The cost of capital projects is recouped through capital investment recovery included in customer rates. Unlike the operating budget which contains the annual operating costs of each activity, the capital budget justifies the purchase of assets that equal or exceed a unit cost of $250,000 and have a useful life of two or more years.

A more in-depth discussion and detailed exhibits are provided in the Capital Budget section. Table 8 summarizes the AWCF capital investment program request.

Table 8 - Capital Budget

($ Millions)	FY 2018	FY 2019	FY 2020
Supply Management	24.4	58.1	21.7
Industrial Operations	57.8	78.8	64.3
Total Capital Budget	82.2	136.9	86.0
Total Capital Cash Outlays	66.1	102.9	108.9

Supply Management

Introduction

The Supply Management activity group operates in a business-like environment by relying on sales revenue rather than appropriations to finance continuing operations. This enterprise uses contract authority to procure and repair spare parts. As suppliers deliver equipment components, the Army Working Capital Fund (AWCF) expends cash and places spare parts in inventory to await customer demands. Filled customer demands result in the collection of sales revenue, which replenishes cash. The Supply Management enterprise synchronizes rates and budget assumptions with Army appropriated funding requests in support of Soldier and weapon systems readiness. The bulk of demands originate from Operation and Maintenance, Army customers, who primarily request spare parts to maintain combat equipment readiness for the Army operating forces.

Mission:
Provide the Army with inventory management of spare and repair parts supporting equipment sustainment, operational readiness, and combat capability.

The Army prices spare parts based on the most recent acquisition cost from a commercial vendor, or the most recent repair cost from a contract or organic source of repair. The price of each item includes a surcharge known as the cost recovery rate (CRR), to recover the cost of AWCF operations. The intent of the CRR is to:

- Recover the activity's overhead costs such as payroll, supplies, contracts, storage, transportation, and depreciation
- Maintain a sufficient cash corpus to cover disbursements
- Break even over time

The core financial measures for Supply Management are the net operating result (NOR) and accumulated operating result (AOR). The NOR measures the activity's gain or loss within a single fiscal year, and is used to monitor how closely the activity performs compared to its budget. The AOR measures the activity's accumulated gains and losses since the fund's inception. Rates are set during budget development to break even by bringing the AOR to zero over a budget cycle. This method returns accumulated gains through reduced rates and recovers accumulated losses through increased rates. The cash management section describes the impact of cash balance analysis on rate setting. The unit cost is another core financial measure, and relates operating costs to each dollar

of sales. The unit cost can be set at, above, or below 1.0 depending on projected sales volume; the unit cost section discusses this metric.

Efficiencies and Business Process Improvements

Cost efficiency is an inherent attribute of the Army Working Capital Fund (AWCF). The revolving fund construct promotes total cost visibility, full cost recovery, and fosters a business-like, competitive atmosphere. Although commercial businesses focus on their bottom line profit, the Supply Management activity focuses on the unit cost and other indicators to gauge the efficiency of the operation. Supply Management activities continue to emphasize the control of overhead costs also known as logistics operations (LOGOPS). In FY 2019, there is a realignment of headquarters AMC personnel spaces from Operations and Maintenance, Army (OMA) reimbursable to AWCF direct, reducing internal reimbursements. This effort does not increase total cost but shifts the costs from a contract expense to the civilian pay category.

Army Materiel Command (AMC) continues proactive measures of reducing inventory through the Sales and Operations Planning (S&OP) process initiated in FY 2013. The S&OP process allows management better oversight and improves the supply chain review process and financial planning. The supply chain review process has shifted from the legacy review of inventory by segmentations to total inventory holdings. The S&OP decisions and action plans align to established strategic goals and are executed through the Army's supply action module, Material Requirements Planning (MRP), in the Logistics Modernization Program (LMP). Army's current focus is on improving inventory turns, establishing new inventory reduction goals, and reducing forecast errors. AMC also facilitates quarterly reviews of unserviceable assets to better assess the need to repair rather than initiating new procurement.

Inventory Management

In FY 2016, the Army changed the methodology used to calculate inventory requirements from a quarterly stratification of inventory report known as STRAT to a monthly Supply Chain Planning and Reporting Tool (SCPRT). The movement to SCPRT aligns reporting requirements with the Army's Enterprise Resource Planning (ERP) system, Logistics Modernization Program (LMP). This change leverages LMP's Material Requirements Planning (MRP) module using backwards planning of requirements, improves accuracy of forecasting, and better supports Warfighter requirements.

Army continuously takes proactive measures ensuring forecasted inventory meets future demands. Army reviews and validates requirement levels versus

inventory levels maintaining focus on buying and repairing items needed by customers, and not retaining excess inventory.

Functional Description

The Supply Management activity group buys and manages an operating inventory of Army-managed and non-Army managed spare and repair parts for sale to its customers, primarily Army operating units. The activity group also maintains a protected inventory of spares in Army Prepositioned Stocks (APS) released in support of deploying combat units. The AWCF operating inventory is stored and maintained primarily at more than 200 supply support activities (SSA). SSA management includes, but is not limited to, stocking the items needed for customer readiness, monitoring performance metrics, and conducting inventories. Inventory is managed at national and below national levels as described below:

- National Level - consists of life cycle management commands, depots, and arsenals. Materiel may be Army managed or non-Army managed meaning the source of supply may be Department of the Army, another Service, or another Department of Defense activity. Typically, SSAs request and receive materiel from the national level.

- Below National Level:

  - Tactical – under the control of Sustainment Brigade Commanders. These SSAs provide spares supporting the immediate needs of combat and combat support battalions and companies. The quantity of inventory items is limited to an amount capable of transport by unit organic vehicles or aircraft.

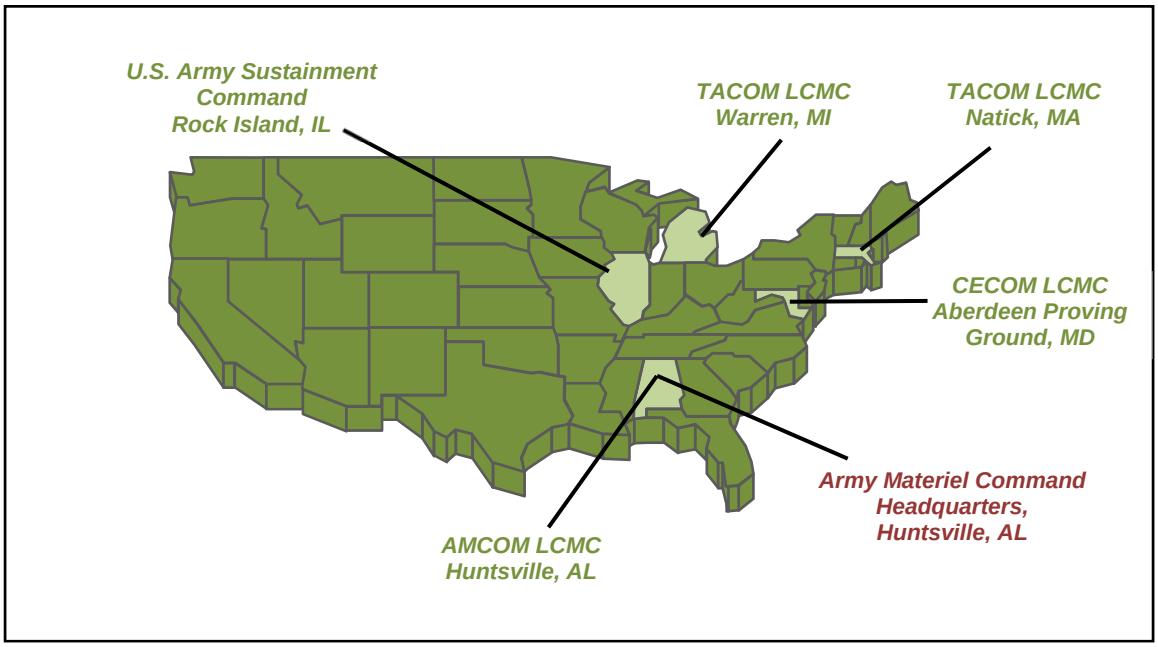
  - Installation - under the control of the Logistics Readiness Centers (LRC). These activities provide a means to retrograde unneeded materiel from tactical SSA to meet other Army requirements. They also stock back-up inventory to meet tactical units' requirements that exceed storage capacity. When deployed to a contingency theater of operations, tactical activities receive back-up support from a theater distribution center established by the deployed force command to centrally receive, redistribute, and retrograde spares as required.

AWCF Army Preposition Stock (APS) is protected inventory located in the United States, Europe, South Korea, Kuwait, and aboard ships afloat off Guam and Diego Garcia. This prepositioned war reserve materiel is protected inventory and released to deploying units performing combat, peacekeeping, or other contingency operations.

Activity Group Composition

Figure SM 1 below displays the locations of Headquarters, Army Materiel Command (AMC), each Life Cycle Management Command (LCMC), and the Army Sustainment Command. The AMC mission is complex and ranges from developing sophisticated weapon systems, to advancing research, to maintaining, and distributing spare parts. Three core competencies encompass AMC's mission: acquisition excellence, logistics power projection, and technology generation and application. AMC works closely with industry, colleges and universities, the other Services, and other government agencies developing, buying, and maintaining state-of-the-art materiel for Army.

Figure SM 1 - Supply Management locations



The Life Cycle Management Commands (LCMC), assigned to the Army Materiel Command (AMC), manage the activity group. Each LCMC acquires and manages consumable supplies and spare parts for distinct categories of weapon systems. The Army Sustainment Command acquires and maintains the Army Prepositioned Stocks, which contain materiel from each LCMC.

The mission of the Tank-automotive and Armaments Command (TACOM) LCMC includes developing, acquiring, equipping, and sustaining ground and support systems for Soldiers and other joint operations through the integration of effective and timely acquisition, logistics, and technology. The TACOM LCMC item managers support a diverse set of product lines through their life cycles, ranging from tracked combat and wheeled tactical vehicles, armaments, and watercraft, to Soldier-specific gear and biological/chemical equipment. Major weapon systems supported include the M1 Abrams Tank, M2 Bradley Fighting Vehicle, Mine Resistant Ambush Protected (MRAP) vehicle, High Mobility Multipurpose Wheeled Vehicle (HMMWV), and Stryker family of vehicles. TACOM LCMC is also responsible for providing clothing and heraldry products to Soldiers, units, and veterans. Included in TACOM LCMC is a small retail business of high demand non-Army managed items (NAMI). TACOM LCMC Headquarters activities are located at Detroit Arsenal in Warren, Michigan and U.S. Army Soldier Systems Center in Natick, Massachusetts. In FY 2020, TACOM LCMC has an authorized level of 713 civilian personnel.

An Assault Breacher Vehicle (ABV) launches an inert Mine Clearing Line Charge during obstacle reduction training.

The Communications-Electronics Command (CECOM) LCMC mission is to develop, provide, integrate, and sustain command, control, communications, computers, intelligence, surveillance, and reconnaissance capabilities for the Army. CECOM LCMC Headquarters activity is located at Aberdeen Proving Ground, Maryland. In FY 2020, CECOM has an authorized level of 796 civilian personnel.

A soldier using a radio in tactical training.

The mission of the Aviation and Missile Command (AMCOM) LCMC includes developing, acquiring, fielding, and sustaining aviation, missile, and unmanned vehicle systems, ensuring readiness with seamless transition to combat operations. Major weapon systems supported include the AH-64 Apache, UH-60 Black Hawk, CH-47 Chinook, Multiple Launch Rocket System, and Patriot missile. AMCOM LCMC Headquarters activity is located at Redstone Arsenal in Huntsville, Alabama and has operational control of all aviation logistics management functions at Fort Rucker, Alabama, home of the Army Aviation Center. In FY 2020, AMCOM has an authorized level of 519 civilian personnel.

Soldiers exit a UH-60 Black Hawk helicopter during an air assault mission exercise.

The mission of the Army Sustainment Command (ASC) mission includes synchronizing distribution and sustainment of materiel to and from the field. Army Prepositioned Stocks are acquired and maintained as a part of this mission. These stocks include combat equipment, supplies, and humanitarian mission stocks at worldwide land and sea-based positions. ASC is located at Rock Island Arsenal, Illinois.

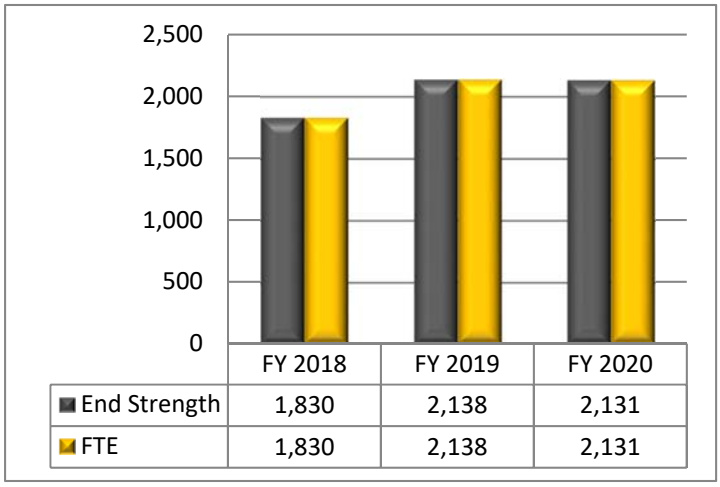
Budget Highlights

Assumptions

The FY 2020 budget represents a business plan that supports Soldier and weapon systems readiness for both peacetime training and wartime operating requirements. The FY 2020 estimate assumes an increase in home station training and continued support to Operation Freedom Sentinel, Operation Inherent Resolve, and the European Deterrence Initiative, resulting in higher demands and sales. If OPTEMPO levels exceed budget estimates during the year of execution, variability target is included in the budget to ensure supply contract authority is available to remain ready and responsive to changing operational requirements. Variability target is further discussed in the Operating Contract Authority section.

Personnel

Chart SM 1 – Civilian Personnel



	FY 2018	FY 2019	FY 2020
End Strength	1,830	2,138	2,131
FTE	1,830	2,138	2,131

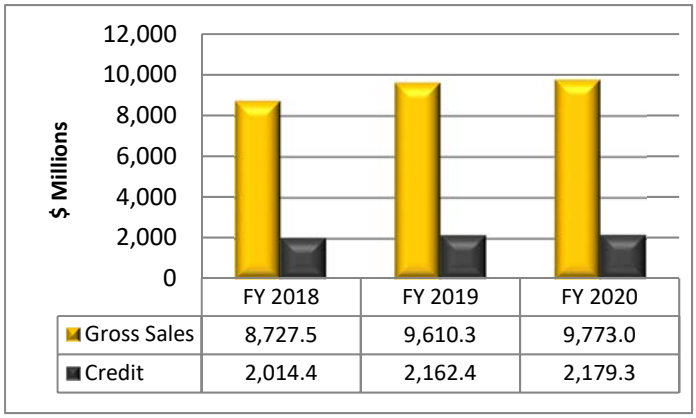
The personnel end strength reflects actual execution in FY 2018 and authorized levels in FY 2019 and FY 2020. In FY 2019, there is a realignment of headquarters AMC personnel spaces from Operations and Maintenance (OMA) reimbursable to AWCF direct, reducing internal reimbursements. This effort does not increase total cost but shifts the costs from a contract expense to the civilian pay category. Personnel levels include secondary item managers, logistics management specialists, and general and administrative support positions. Military end strength in FY 2020 is two.

Sales

Sales and credit reflect increased OPTEMPO activity and customer funding associated with requirements for home station training. Sales reflect income from operations and do not include direct appropriations for war reserve materiel and inventory augmentation.

Chart SM 2 reflects actual execution in FY 2018 and projected levels in FY 2019 and FY 2020. Sales gradually increased from FY 2018 through FY 2020 due to home station training and force structure changes. Several exhibits display Sales: Fund 14, *Revenue and Costs;* Fund 11, *Source of New Orders and Revenue;* and SM 1, *Supply Management Summary* (sales net of credit).

Chart SM 2 – Gross Sales

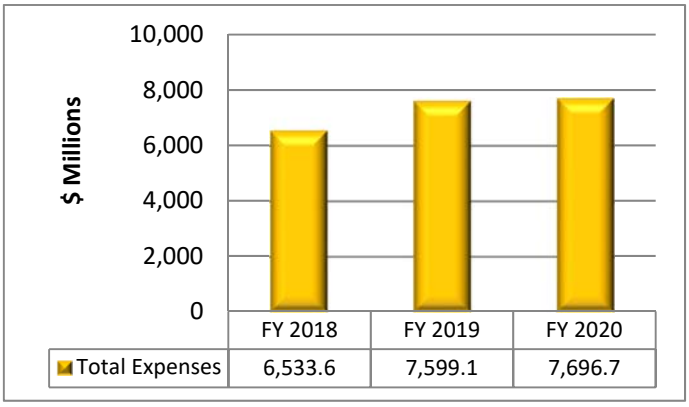


	FY 2018	FY 2019	FY 2020
Gross Sales	8,727.5	9,610.3	9,773.0
Credit	2,014.4	2,162.4	2,179.3

Expenses

Expenses consist of materiel and operational costs. Total expenses remain relatively stable between FY 2019 and FY 2020. The slight increase in FY 2020 is attributed to increased materiel sold from projected sales volume. Operational costs for salary, contracts, and materiel and supplies remain steady. Expenses are displayed on exhibit Fund 14, *Revenue and Costs*.

Chart SM 3 – Expenses

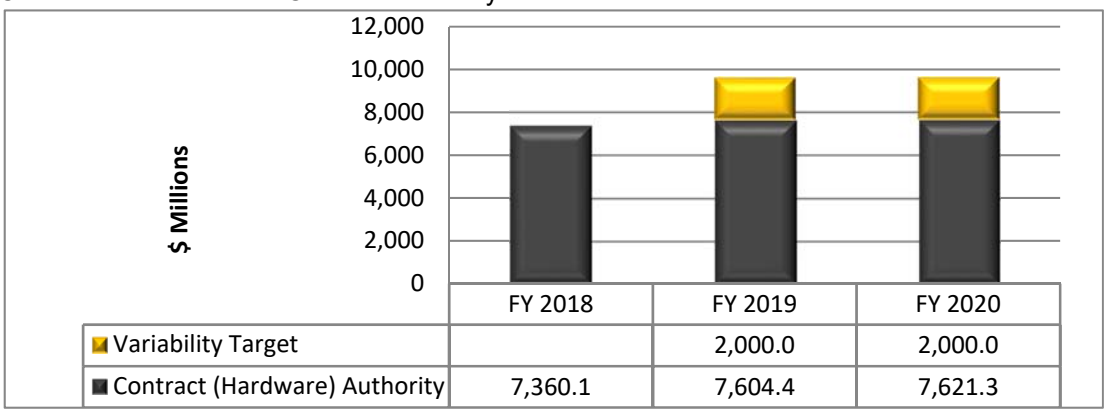


	FY 2018	FY 2019	FY 2020
Total Expenses	6,533.6	7,599.1	7,696.7

Operating Contract Authority (Hardware)

The budget requests operating contract authority for the acquisition, repair, and replenishment of spare parts. FY 2020 contract authority requirements are in line with FY 2019 levels. Variability target is included in the budget to ensure supply contract authority is available to respond rapidly to unexpected variances in costs or customer demands during the year of execution. Operating contract authority is displayed on exhibit SM 1, *Supply Management Summary* and SM 3b, *Operating Requirements by Weapon System*.

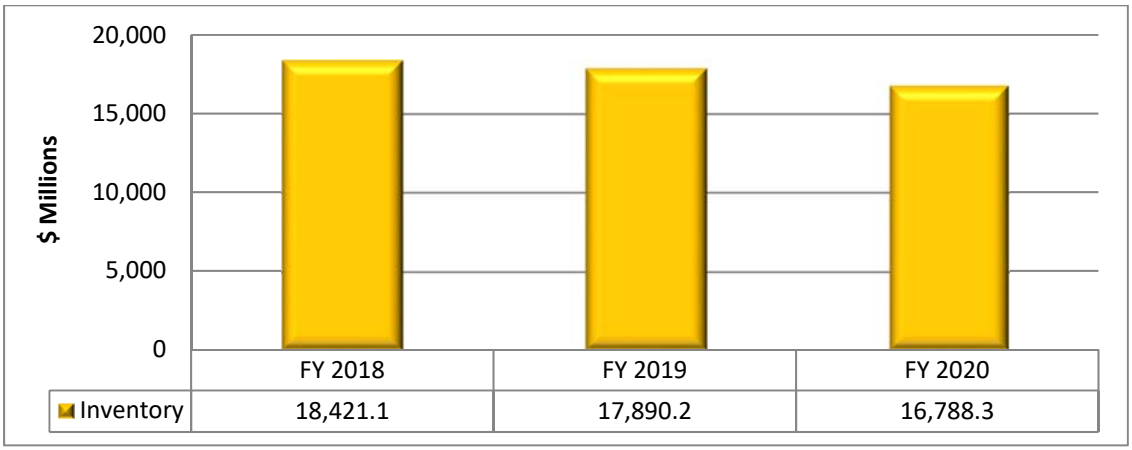
Chart SM 4 – Hardware Contract Authority



Inventory

Inventory values shown in chart SM 5 below, include operational inventory, carcasses awaiting repair, inventory required beyond the budget year, economic and contingency retention stock, and secondary items included in war reserve. Spares inventory levels are sufficient to ensure high stock availability for war efforts. Supply Management continues its effort to decrease inventory by reducing inactive inventory and disposing of dormant stock. Supply Management will continue working to reduce on-order and on-hand excess inventory. Inventory is displayed on exhibit SM 4, *Inventory Status*.

Chart SM 5 – Inventory



Operating Results

The net operating result (NOR) represents the difference between revenue and expenses within a fiscal year. The accumulated operating result (AOR) represents the summation of all operating gains and losses since activity group inception along with any prior period adjustments. AWCF operates on a break-even basis during the budget cycle. In the next budget cycle, Supply Management will evaluate its AOR projections, cash position, and impact on future rates to determine the amount of AOR to recover. NOR and AOR are displayed on exhibit Fund 14, *Revenue and Costs*.

Table SM 1 - Operating Results

($ Millions)	FY 2018	FY 2019	FY 2020
Net Operating Result	179.4	(151.1)	(103.0)
Prior Year AOR	74.7	254.1	103.0
Accumulated Operating Result	254.1	103.0	0.0

Cost Recovery Rate

The Supply Management cost recovery rate (CRR) is set to recover full costs and adjust for gains and losses. Typical costs recovered include civilian pay, distribution depot costs, transportation costs, other Defense bills associated with supply operations, and costs of replacing inventory washouts. The FY 2020 CRR includes a negative cash surcharge of approximately $146.4 million to customers. The price change to customer is the change in overhead costs weighted by the change in sales volume.

Table SM 2 – Cost Recovery Rate and Price Change

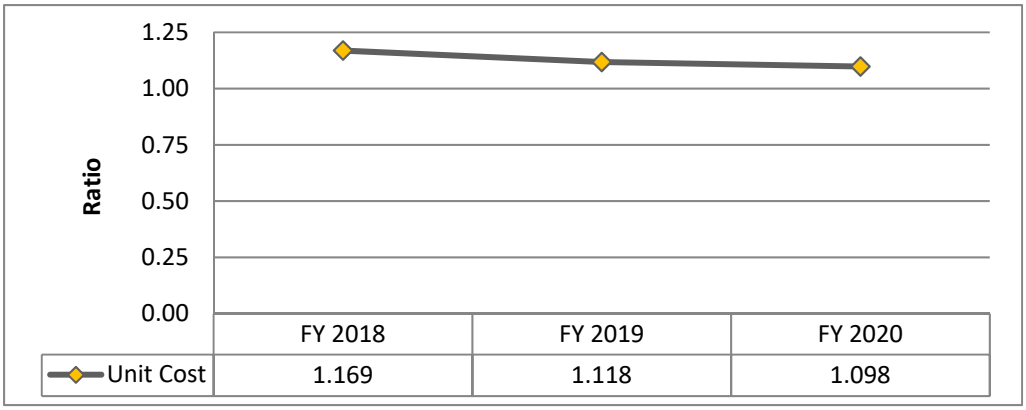
	FY 2018	FY 2019	FY 2020
Cost Recovery Rate (CRR)	14.8%	13.3%	11.0%
Price Change to Customer	2.8%	0.4%	-0.1%

Unit Cost

The unit cost is a metric relating operating cost to each dollar of sales. Unit cost is calculated by dividing gross operating costs (the sum of total obligations and credit) plus depreciation by gross sales. As recommended in Government Accountability Office (GAO) report 10-480, Army continues to evaluate and adjust the unit cost as necessary to support contingency operations. A unit cost below 1.0 means that the enterprise is reducing inventory by selling and not replenishing thus reducing contract

authority requirement. A unit cost above 1.0 means the Army is purchasing inventory in anticipation of future need based upon inventory management forecasts. As the Army approaches a unit cost of 1.0, this indicates the AWCF inventory is approaching a level consistent with customer demands. Chart SM 6 shows unit cost for FY 2018 through FY 2020.

Chart SM 6 - Unit Cost



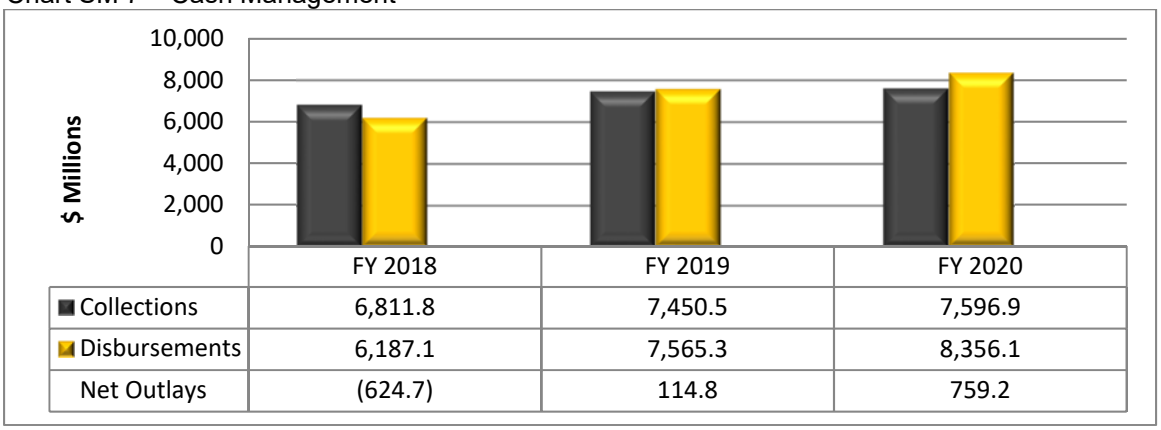
	FY 2018	FY 2019	FY 2020
Unit Cost	1.169	1.118	1.098

$$\textit{Unit cost} = \frac{\textit{Obligations + Credit + Depreciation expense}}{\textit{Gross sales}}$$

Collections, Disbursements, and Outlays

Collections are projected based on sales and changes in accounts receivable. Disbursements are projected based on monthly operating expenses, changes in accounts payable, and Capital Investment Program obligations.

Chart SM 7 – Cash Management



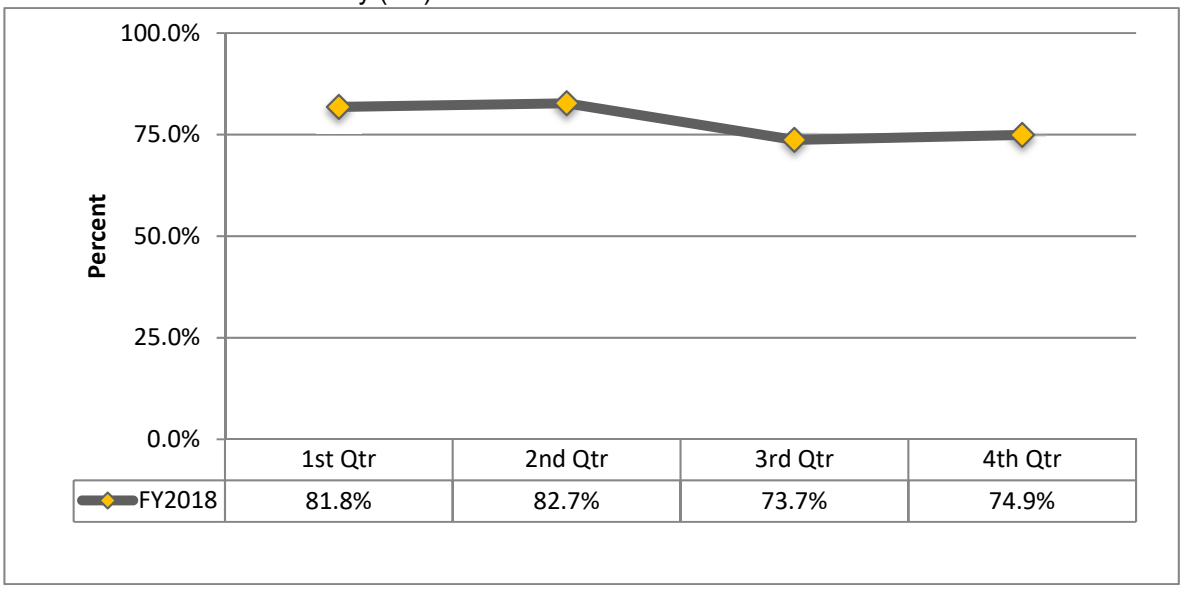
	FY 2018	FY 2019	FY 2020
Collections	6,811.8	7,450.5	7,596.9
Disbursements	6,187.1	7,565.3	8,356.1
Net Outlays	(624.7)	114.8	759.2

Performance Measurement

Stock Availability

Supplying and maintaining Army's equipment remain key components of readiness. The stock availability (SA) goal is a primary performance measure indicating the ability of the supply system to fill requisitions. The Army's goal is 85 percent of customer demands fulfilled immediately. SA is administered through adequate funding of hardware, proper management of the supply chain, and reliable oversight of materiel stockage requirements. Chart SM 8 displays SA at the end of each quarter below the 85 percent goal in FY 2018. Army SA dropped in the third and fourth quarters due to a product quality deficiency (PQDR) recall for HMMWV wheel assemblies arising in May. Army's shift in training strategy has required a shift in Army's supply planning and prioritization. The Army is working to make corrections to its planning and execution to ensure requirements are met and SA returns to the performance expectation of 85 percent.

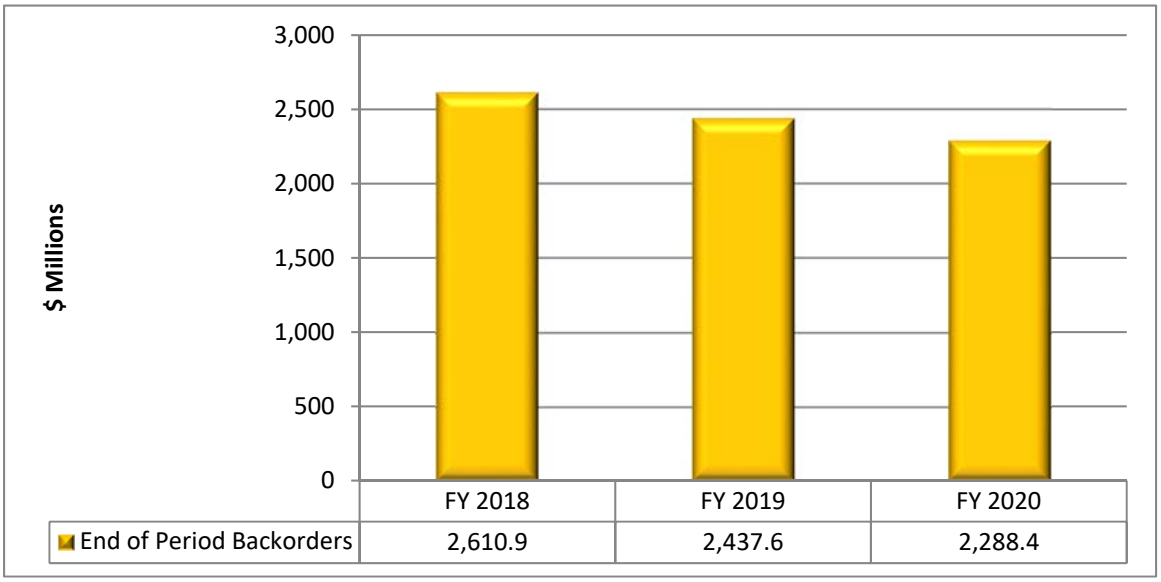
Chart SM 8 – Stock Availability (SA)



Customer Backorders

Backorders are expected to decrease through FY 2019 due to increased sales. Customer backorders for the end of each fiscal year are displayed on exhibit Fund 11, *Source of New Orders and Revenue*.

Chart SM 9 – Customer Backorders



Supply Management Workload

Table SM 3 below displays Supply Management workload drivers. The increases in requisitions received and issues completed are based on deployed force activity assumptions.

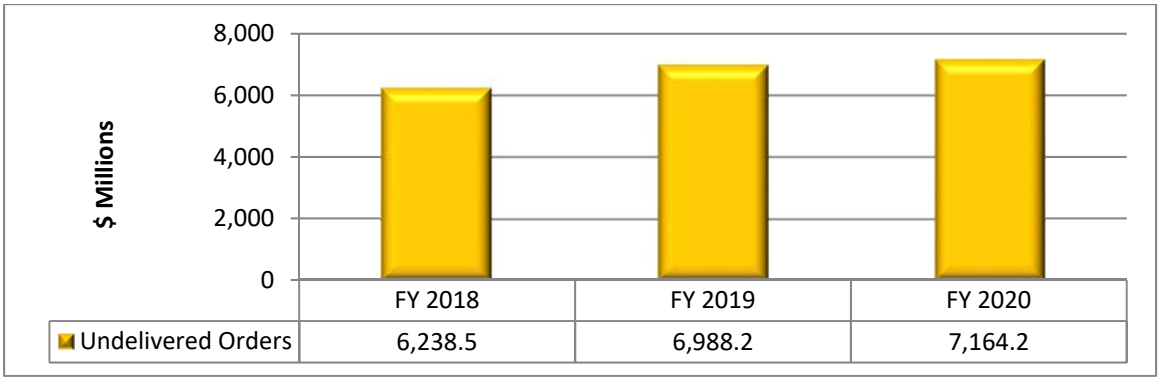
Table SM 3 - Supply Management Workload

Supply Management Workload			
Supply Management Workload	**FY 2018**	**FY 2019**	**FY 2020**
Items Managed	122,611	122,964	122,152
Requisitions Received	750,543	897,317	868,674
Issues Completed	469,983	526,742	510,571
Procurement Receipts	76,004	78,011	73,720
Contracts Awarded	10,626	11,187	10,528

Undelivered Orders

Undelivered orders represent goods and services ordered, but not yet received by AWCF. A sufficient cash balance is required to pay suppliers upon receipt of these orders. As shown in the chart below, undelivered orders are projected to increase in FY 2020 due to higher demands and obligations in support of home station training.

Chart SM 10 - Undelivered Orders



Appropriations

War reserve equipment positioned without secondary items would significantly jeopardize Army's ability to complete its combat missions successfully. The secondary items purchased for war reserves support important combat weapon systems such as M2 Bradley Fighting Vehicle, artillery howitzers, rocket launchers, High Mobility Multipurpose Wheeled Vehicles (HMMWV), Mine Resistant Ambush Protected Vehicles (MRAP), Army Prepositioned Stock 4, operational project (OPROJ) stocks, and Authorized Stockage Lists (ASL) for Watercraft, Sustainment Brigade, and Theater Opening Port Opening (TOPO). FY 2019 and 2020 Overseas Contingency Operations (OCO) funding of $6.6 million and $20.1 million, respectively, is for War Reserve Secondary Item (WRSI) packets for new APS-2 static unit sets in Europe to include an Air Defense Artillery Brigade, a Sustainment Brigade, Theater Medical Units and Engineer Units. SM 4, *Inventory Status* and SM 6, *War Reserve Materiel* exhibits displays War Reserve inventory.

Exhibit Fund 14, *Revenue and Costs* displays requested Appropriations.

Table SM 4 - Appropriations

($ Millions)	FY 2018 Actuals	FY 2019 Enacted	FY 2020 Request
War Reserve Secondary Items	**79.6**	**106.4**	**52.2**
Base Funding	*57.7*	*99.8*	*32.1*
Overseas Contingency Operations[1]	*21.9*	*6.6*	*20.1*
Inventory Augmentation	**48.0**	**0.0**	**0.0**
Base Funding	*0.0*	*0.0*	*0.0*
Overseas Contingency Operations	*48.0*	*0.0*	*0.0*
Total Appropriated Funds	**127.6**	**106.4**	**52.2**
Base Funding	***57.7***	***99.8***	***32.1***
Overseas Contingency Operations	***69.9***	***6.6***	***20.1***

Note 1: The Overseas Contingency Operations (OCO) funding requested is for the OCO Funding Category of: OCO for Enduring Requirements ($20.1 million). OCO for Enduring Requirements are enduring in-theater and in-CONUS costs that will likely remain after combat operations cease, but have previously been funded in OCO.

War reserve secondary items improve Army's ability to meet global missions by sustaining the deployed combat force until CONUS-based re-supply commences.

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Supply Management

Revenue and Costs
($ in Millions)

	FY 2018	FY 2019	FY 2020
Revenue			
AMI Sales	7,134.4	7,708.3	7,871.0
NAMM Sales	1,592.2	1,900.0	1,900.0
AMC MOB Sales	0.9	2.0	2.0
Total Gross Sales	**8,727.5**	**9,610.3**	**9,773.0**
Credit and Allowances	2,014.4	2,162.4	2,179.3
Net Sales	**6,713.0**	**7,447.9**	**7,593.7**
Other Income	**127.6**	**106.4**	**52.2**
War Reserve-Secondary Items	79.6	106.4	52.2
Inventory Augmentation - Base	0.0	0.0	0.0
Inventory Augmentation - OCO	48.0	0.0	0.0
Total Income:	**6,840.7**	**7,554.3**	**7,646.0**
Costs			
Cost of Materiel Sold from Inventory			
AMI	4,055.6	4,668.0	4,791.5
NAMM	1,563.8	1,807.0	1,807.0
AMC MOB	0.9	2.0	2.0
Total Cost of Materiel Sold from Inventory	**5,620.3**	**6,476.9**	**6,600.5**
Inventory Losses/Obsolescence	113.9	140.7	169.6
Salaries and Wages Total	222.4	260.4	256.1
Military Personnel Compensation & Benefits	0.2	0.2	0.2
Civilian Personnel Compensation & Benefits	222.2	260.2	255.9
Travel & Transportation of Personnel	2.4	2.6	2.7
Materiel & Supplies (For Internal Operations)	0.4	1.0	1.0
Equipment	0.2	1.9	1.9
Other Purchases from Revolving Funds	257.4	276.6	247.6
Transportation of Things	54.1	67.3	67.7
Capital Investment Recovery (CIR) - Capital	48.1	44.8	24.6
Printing and Reproduction	3.9	3.9	3.9
Advisory and Assistance Services	37.5	36.4	33.9
Audit Readiness (memo entry)	4.0	6.1	5.9
Financial Statement Audit (memo entry)	1.6	7.2	7.2
Rent, Communication, Utilities & Misc. Charges	0.6	0.5	0.5
Other Purchased Services	172.4	286.0	286.6
Total Expenses	**6,533.6**	**7,599.1**	**7,696.7**
Operating Result	**307.0**	**(44.8)**	**(50.7)**
Less Recovery of Prior Year Pricing Discrepancies	0.0	0.0	0.0
Other Changes Affecting NOR:			
Less Direct Funding	(127.6)	(106.4)	(52.2)
Adjustment for Non-Recoverable Expense	0.0	0.0	0.0
Net Operating Result	**179.4**	**(151.1)**	**(103.0)**
Prior Year AOR for Budget Purposes	74.7	254.1	103.0
Non-Recoverable AOR for Budget Purposes	0.0	0.0	0.0
Accumulated Operating Result	**254.1**	**103.0**	**0.0**

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Supply Management

Source of New Orders and Revenue
($ in Millions)

	FY 2018	FY 2019	FY 2020
1. New Orders			
a. Orders from DOD Components:			
Department of Army			
Operation & Maintenance, Army	6,432.0	6,550.5	6,773.5
Operation & Maintenance, ARNG	758.4	740.6	734.7
Operation & Maintenance, AR	172.7	194.0	190.3
Subtotal, O&M:	**7,363.0**	**7,485.1**	**7,698.4**
Industrial Operations Business	566.8	610.7	592.5
Procurement Appropriations	171.6	201.6	197.7
RDT&E	34.7	26.9	27.0
All Other Army	22.8	21.6	20.6
Subtotal, Department of the Army:	**795.9**	**860.7**	**837.8**
Department of Navy	89.5	91.3	91.1
Department of Air Force	269.5	285.5	289.3
US Marine Corps	108.8	125.4	119.4
Other Department of Defense	141.5	163.0	164.0
Subtotal, Other DoD Services:	609.2	665.2	663.8
b. Total DOD	**8,768.2**	**9,011.0**	**9,199.9**
c. Other Orders:			
SSA Other Federal Agencies	0.0	0.1	0.1
FMS	468.7	418.6	416.5
Map (002) Limitation	0.0	0.0	0.0
Other Federal Agencies	7.0	4.3	4.4
All Other	4.6	3.1	3.0
Subtotal, Other Federal Agencies:	**480.2**	**426.0**	**423.9**
1. Total New Orders	**9,248.4**	**9,437.0**	**9,623.9**
2. Net Carry-In Orders (Back Orders From Prior Years)	**2,089.9**	**2,610.9**	**2,437.6**
3. Total Gross Orders	**11,338.3**	**12,047.9**	**12,061.4**
4. Less Carry-Out	**2,610.9**	**2,437.6**	**2,288.4**
5. Total Sales	**8,727.5**	**9,610.3**	**9,773.0**
6. Less Credit and Allowances	**2,014.4**	**2,162.4**	**2,179.3**
7. Net Sales	**6,713.0**	**7,447.9**	**7,593.7**

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Supply Management

Supply Management Summary
($ in Millions)

			Obligation Targets		
	Net Customer Orders	Net Sales	Operating (Contract Authority)	Direct Appropriation	Total
Non-Army Managed Items (NAMI)					
FY 2018	1,761.2	1,589.8	1,748.5	12.3	1,760.8
FY 2019	1,899.5	1,899.0	1,899.0	0.0	1,899.0
FY 2020	1,899.5	1,899.0	1,899.0	0.0	1,899.0
Army Managed Items (AMI)					
FY 2018	5,008.3	5,166.5	5,610.7	65.9	5,676.7
FY 2019	5,373.1	5,546.9	5,703.4	84.3	5,787.7
FY 2020	5,543.1	5,692.7	5,720.3	33.4	5,753.7
AMC Mobilization					
FY 2018	0.9	0.9	0.9	49.4	50.2
FY 2019	2.0	2.0	2.0	22.1	24.1
FY 2020	2.0	2.0	2.0	18.8	20.8
Total Hardware					
FY 2018	**6,770.4**	**6,757.2**	**7,360.1**	**127.6**	**7,487.7**
FY 2019	**7,274.6**	**7,447.9**	**7,604.4**	**106.4**	**7,710.8**
FY 2020	**7,444.6**	**7,593.7**	**7,621.3**	**52.2**	**7,673.5**
Cost of Operations (LOGOPS)					
FY 2018			783.8		783.8
FY 2019			936.6		936.6
FY 2020			902.0		902.0
Enterprise Software Initiative					
FY 2018			0.0		0.0
FY 2019			35.0		35.0
FY 2020			35.0		35.0
Total Operating Authority					
FY 2018	**6,770.4**	**6,757.2**	**8,143.9**	**127.6**	**8,271.5**
FY 2019	**7,274.6**	**7,447.9**	**8,576.0**	**106.4**	**8,682.4**
FY 2020	**7,444.6**	**7,593.7**	**8,558.2**	**52.2**	**8,610.5**

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Supply Management

Supply Management Summary
($ in Millions)

			Obligation Targets		
	Net Customer Orders	Net Sales	Operating (Contract Authority)	Direct Appropriation	Total
Total Capital Obligations (CIP)					
FY 2018			25.8		25.8
FY 2019			58.1		58.1
FY 2020			21.7		21.7
Variability Target					
FY 2018			0.0		0.0
FY 2019			2,000.0		2,000.0
FY 2020			2,000.0		2,000.0
Target Total					
FY 2018	**6,770.4**	**6,757.2**	**8,169.6**	**127.6**	**8,297.2**
FY 2019	**7,274.6**	**7,447.9**	**10,634.1**	**106.4**	**10,740.5**
FY 2020	**7,444.6**	**7,593.7**	**10,579.9**	**52.2**	**10,632.2**
Direct Appropriations					
Mobilization - War Reserve Materiel (Base)					
FY 2018				57.7	**57.7**
FY 2019				99.8	**99.8**
FY 2020				32.1	**32.1**
Mobilization - Army Prepositioned Stock (OCO)					
FY 2018				21.9	**21.9**
FY 2019				6.6	**6.6**
FY 2020				20.1	**20.1**
Other - Augmentation Spares (Base)					
FY 2018				0.0	**0.0**
FY 2019				0.0	**0.0**
FY 2020				0.0	**0.0**
Other - Augmentation Spares (OCO)					
FY 2018				48.0	**48.0**
FY 2019				0.0	**0.0**
FY 2020				0.0	**0.0**
TOTAL DIRECT APPROPRIATIONS					
FY 2018				**127.6**	**127.6**
FY 2019				**106.4**	**106.4**
FY 2020				**52.2**	**52.2**

EXHIBIT SM-1
SUPPLY MANAGEMENT SUMMARY

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Supply Management

Operating Requirements by Weapon System
($ in Millions)

	FY 2018		FY 2019		FY 2020	
Weapon System	**Obligations**	**NMCSR[1]**	**Obligations**	**NMCSR[2]**	**Obligations**	**NMCSR[2]**
AH-64, Apache	573.4	10.0%	588.6	10.0%	704.0	10.0%
CH-47D, Chinook	327.2	5.0%	243.5	10.0%	267.8	10.0%
UH-60, Black Hawk	1,117.3	4.0%	1,239.1	10.0%	1,171.3	10.0%
OH-58D, Kiowa Warrior	19.7	0.0%	24.5	10.0%	19.9	10.0%
Other Aviation	72.3	N/A	144.3	N/A	187.8	N/A
MLRS	12.5	5.0%	17.7	<10.0%	17.5	<10.0%
Patriot	184.1	3.0%	139.9	<10.0%	140.6	<10.0%
Other Missile	42.7	N/A	47.0	N/A	53.0	N/A
Firefinder	0.0	12.7%	0.8	<10.0%	0.4	<10.0%
Night Vision Goggles	68.6	3.0%	37.7	<10.0%	82.1	<10.0%
SINCGARS	24.9	0.0%	20.1	<10.0%	28.7	<10.0%
Other Communications Electronics	589.6	N/A	518.3	N/A	439.6	N/A
FMTV	33.5	6.0%	27.0	<10.0%	25.7	<10.0%
HEMTT	23.0	7.0%	12.3	<10.0%	10.3	<10.0%
HMMWV	119.0	20.0%	88.4	<10.0%	79.8	<10.0%
M109A6, Palidin	55.8	12.0%	97.9	<10.0%	64.4	<10.0%
M777, Towed Howitzer	34.5	0.0%	4.5	<10.0%	3.4	<10.0%
M1A1, Abrams Tank	841.1	17.0%	626.1	<10.0%	600.0	<10.0%
M1A2, Abrams Tank (SEP)	279.4	14.0%	119.5	<10.0%	51.5	<10.0%
M2/M3, Bradley Fighting Vehicle	164.1	9.0%	290.5	<10.0%	176.3	<10.0%
Stryker	171.3	12.0%	244.8	<10.0%	262.4	<10.0%
Other Tank - Automotive & Armament	856.9	N/A	1,170.9	N/A	1,333.9	N/A
Subtotal:	**5,610.7**		**5,703.4**		**5,720.3**	
NAMM Hardware Contract Authority	1,748.5		1,899.0		1,899.0	
AMC-MOB Hardware Contract Authority	0.9		2.0		2.0	
Total:	**7,360.1**		**7,604.4**		**7,621.3**	

Note 1: FY2018 Non Mission Capable Rate Supply (NMCRS) displays the percent of time a weapon system is not mission capable due to lack of critical spare parts.
Note 2: The FY2019 and FY2020 NMCRS for aviation systems displays the NMCRS goal. The FY2019 and FY2020 ground systems' NMCRS displays the not-mission capable (NMC) goal.

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Supply Management

Inventory Status
($ in Millions)

FY 2018	TOTAL	Demand Based	Mobilization	Non-Demand Based
1. Inventory BOP	17,089.9	13,669.6	2,011.4	1,409.0
2. BOP Inventory Adjustments				
A. Reclassification (Memo)	0.0	(1,257.7)	0.0	1,257.7
B. Price Change Amount (Memo)	794.0	0.0	0.0	794.0
C. Adj. Inventory BOP	17,884.0	12,411.9	2,011.4	3,460.7
3. Receipts at LAC (+)	3,851.6	3,666.9	184.7	0.0
4. Sales (from Schedule 6)	8,727.5	8,726.6	0.9	0.0
5. Inventory Adjustments				
A. Capitalization (+ or -)	(74.5)	12.1	0.0	(86.5)
B. Returns from Customers for Credit (+)	3,911.9	3,911.9	0.0	0.0
C. Returns from Customers Without Credit (+)	1,479.4	283.1	1.5	1,194.7
D. Returns to Suppliers (-)	(32.7)	(14.1)	0.0	(18.7)
E. Transfers to Property Disposal (-)	(1,370.5)	(163.5)	(1.5)	(1,205.5)
F. Issues/Receipts wo Reimbursements (+ or -)	(192.8)	(9.5)	(12.8)	(170.5)
G. Other	1,692.2	1,662.2	(198.0)	228.0
H. Total Adjustments	5,413.0	5,682.3	(210.7)	(58.5)
6. Inventory EOP	18,421.1	13,034.5	1,984.4	3,402.1
7. Inventory EOP (MAC)	18,421.1	13,034.5	1,984.4	3,402.1
A. Economic Retention (Memo)				559.7
B. Contingency Retention (Memo)				1,773.5
C. Potential DoD Reutilization (Memo)				1,068.9
8. Inventory on Order EOP (Memo)	6,344.5	6,290.5	54.0	0.0

Narrative: Column "Non-Demand Based" includes inventory that stratifies beyond the budget year, economic and contingency retention stock, and inventory excess to the approved acquistion objective.

EXHIBIT SM-4
INVENTORY STATUS

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Supply Management

Inventory Status
($ in Millions)

FY 2019	TOTAL	Demand Based	Mobilization	Non-Demand Based
1. Inventory BOP	18,421.1	13,034.5	1,984.4	3,402.1
2. BOP Inventory Adjustments				
A. Reclassification (Memo)	0.0	0.0	0.0	0.0
B. Price Change Amount (Memo)	0.0	0.0	0.0	0.0
C. Adj. Inventory BOP	18,421.1	13,034.5	1,984.4	3,402.1
3. Receipts at LAC (+)	3,772.2	3,697.9	74.3	0.0
4. Sales (from Schedule 6)	9,610.3	9,608.3	2.0	0.0
5. Inventory Adjustments				
A. Capitalization (+ or -)	(81.3)	2.3	(5.0)	(78.6)
B. Returns from Customers for Credit (+)	2,965.7	2,965.7	0.0	0.0
C. Returns from Customers Without Credit (+)	1,673.2	150.0	0.0	1,523.2
D. Returns to Suppliers (-)	(20.9)	(15.0)	0.0	(5.9)
E. Transfers to Property Disposal (-)	(1,574.2)	(184.9)	(25.0)	(1,364.4)
F. Issues/Receipts wo Reimbursements (+ or -)	(14.2)	0.0	0.0	(14.2)
G. Other	2,359.0	2,028.6	15.5	314.9
H. Total Adjustments	5,307.2	4,946.7	(14.5)	375.0
6. Inventory EOP	17,890.2	12,070.8	2,042.2	3,777.2
7. Inventory EOP (MAC)	17,890.2	12,070.8	2,042.2	3,777.2
A. Economic Retention (Memo)				556.8
B. Contingency Retention (Memo)				1,738.3
C. Potential DoD Reutilization (Memo)				1,482.1
8. Inventory on Order EOP (Memo)	5,751.4	5,636.4	115.0	0.0

Narrative: Column "Non-Demand Based" includes inventory that stratifies beyond the budget year, economic and contingency retention stock, and inventory excess to the approved acquistion objective.

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Supply Management

Inventory Status
($ in Millions)

FY 2020	TOTAL	Demand Based	Mobilization	Non-Demand Based
1. Inventory BOP	17,890.2	12,070.8	2,042.2	3,777.2
2. BOP Inventory Adjustments				
A. Reclassification (Memo)	0.0	0.0	0.0	0.0
B. Price Change Amount (Memo)	0.0	0.0	0.0	0.0
C. Adj. Inventory BOP	17,890.2	12,070.8	2,042.2	3,777.2
3. Receipts at LAC (+)	4,027.2	3,926.6	100.6	0.0
4. Sales (from Schedule 6)	9,773.0	9,771.0	2.0	0.0
5. Inventory Adjustments				
A. Capitalization (+ or -)	(73.3)	2.2	(2.0)	(73.5)
B. Returns from Customers for Credit (+)	2,686.8	2,686.8	0.0	0.0
C. Returns from Customers Without Credit (+)	1,679.8	150.0	0.0	1,529.8
D. Returns to Suppliers (-)	(17.5)	(15.0)	0.0	(2.5)
E. Transfers to Property Disposal (-)	(1,463.7)	(150.0)	(13.0)	(1,300.7)
F. Issues/Receipts wo Reimbursements (+ or -)	(13.3)	0.0	0.0	(13.3)
G. Other	1,845.1	1,557.4	(15.2)	302.8
H. Total Adjustments	4,643.8	4,231.4	(30.2)	442.6
6. Inventory EOP	16,788.3	10,457.8	2,110.6	4,219.8
7. Inventory EOP (MAC)	16,788.3	10,457.8	2,110.6	4,219.8
A. Economic Retention (Memo)				605.8
B. Contingency Retention (Memo)				2,037.1
C. Potential DoD Reutilization (Memo)				1,576.8
8. Inventory on Order EOP (Memo)	5,955.0	5,842.4	112.6	0.0

Narrative: Column "Non-Demand Based" includes inventory that stratifies beyond the budget year, economic and contingency retention stock, and inventory excess to the approved acquistion objective.

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Supply Management

WAR RESERVE MATERIEL (WRM)
STOCKPILE ($ in Millions)

FY 2018	TOTAL	WRM Protected	WRM Other
1. Inventory BOP	2,011.4	2,011.4	0.0
2. Price Change	0.0	0.0	0.0
3. Reclassification	0.0	0.0	0.0
4. Inventory Changes			
a. Receipts	186.2	186.2	0.0
(1) Purchases	184.7	184.7	0.0
(2) Returns from Customer	1.5	1.5	0.0
b. Issues	(0.6)	(0.6)	0.0
(1) Sales	0.9	0.9	0.0
(2) Returns to Suppliers	0.0	0.0	0.0
(3) Disposals	(1.5)	(1.5)	0.0
c. Adjustments	(210.8)	(210.8)	0.0
(1) Capitalizations	0.0	0.0	0.0
(2) Gains and losses	(12.8)	(12.8)	0.0
(3) Other Adjustments	(198.0)	(198.0)	0.0
5. Inventory EOP	1,984.4	1,984.4	0.0
STOCKPILE COSTS			
1. Storage	0.0		
2. Manage	0.0		
3. Maintenance/Other	0.0		
Total Costs	0.0		
WRM BUDGET REQUEST			
1. OBLIGATIONS AT COST			
a. Additional WRM Investment	79.6		
b. Replenishment/Repair WRM - Reinvestment	2.0		
c. Stock Rotation/Obsolescence	0.0		
d. Assemble/Disassemble	0.0		
e. Other	0.0		
Total Request	81.6		
AMC MOB	2.0		

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Supply Management

WAR RESERVE MATERIEL (WRM)
STOCKPILE ($ in Millions)

FY 2019	TOTAL	WRM Protected	WRM Other
1. Inventory BOP	1,984.4	1,984.4	0.0
2. Price Change	0.0	0.0	0.0
3. Reclassification	0.0	0.0	0.0
4. Inventory Changes			
a. Receipts		74.3	0.0
(1) Purchases	74.3	74.3	0.0
(2) Returns from Customer	0.0	0.0	0.0
b. Issues	(23.0)	(23.0)	0.0
(1) Sales	2.0	2.0	0.0
(2) Returns to Suppliers	0.0	0.0	0.0
(3) Disposals	(25.0)	(25.0)	0.0
c. Adjustments	10.5	10.5	0.0
(1) Capitalizations	(5.0)	(5.0)	0.0
(2) Gains and losses	0.0	0.0	0.0
(3) Other Adjustments	15.5	15.5	0.0
5. Inventory EOP	2,042.2	2,042.2	0.0
STOCKPILE COSTS			
1. Storage	0.0		
2. Manage	0.0		
3. Maintenance/Other	0.0		
Total Costs	0.0		
WRM BUDGET REQUEST			
1. OBLIGATIONS AT COST			
a. Additional WRM Investment	106.4		
b. Replenishment/Repair WRM - Reinvestment	2.0		
c. Stock Rotation/Obsolescence	0.0		
d. Assemble/Disassemble	0.0		
e. Other	0.0		
Total Request	108.4		
AMC MOB	2.0		

EXHIBIT SM-6
WAR RESERVE MATERIEL

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Supply Management

WAR RESERVE MATERIEL (WRM)
STOCKPILE ($ in Millions)

FY 2020	TOTAL	WRM Protected	WRM Other
1. Inventory BOP	2,042.2	2,042.2	0.0
2. Price Change	0.0	0.0	0.0
3. Reclassification	0.0	0.0	0.0
4. Inventory Changes			
a. Receipts	100.6	100.6	0.0
(1) Purchases	100.6	100.6	0.0
(2) Returns from Customer	0.0	0.0	0.0
b. Issues	(11.0)	(11.0)	0.0
(1) Sales	2.0	2.0	0.0
(2) Returns to Suppliers	0.0	0.0	0.0
(3) Disposals	(13.0)	(13.0)	0.0
c. Adjustments	(17.2)	(17.2)	0.0
(1) Capitalizations	(2.0)	(2.0)	0.0
(2) Gains and losses	0.0	0.0	0.0
(3) Other Adjustments	(15.2)	(15.2)	0.0
5. Inventory EOP	2,110.6	2,110.6	0.0
STOCKPILE COSTS			
1. Storage	0.0		
2. Manage	0.0		
3. Maintenance/Other	0.0		
Total Costs	0.0		
WRM BUDGET REQUEST			
1. OBLIGATIONS AT COST			
a. Additional WRM Investment	52.2		
b. Replenishment/Repair WRM - Reinvestment	2.0		
c. Stock Rotation/Obsolescence	0.0		
d. Assemble/Disassemble	0.0		
e. Other	0.0		
Total Request	54.2		
AMC MOB	2.0		

Industrial Operations Introduction

The Industrial Operations activity group is comprised of thirteen government-owned and operated installation activities, each with unique core competencies. Industrial Operations promotes business-like behavior by relying on revenue from customers instead of direct appropriations to finance continuing operations. Customers purchase services from Industrial Operations activities. These services include, but are not limited to, repairing and upgrading equipment, producing weapons and munitions, and storing and demilitarizing materiel. The goal for the Industrial Operations activity is to generate enough revenue to recover the full cost of operations while breaking even over the long term.

Mission:

- ***Provide an organic industrial capability to conduct depot level repair and upgrade***
- ***Produce munitions and large caliber weapons***
- ***Store, maintain, and demilitarize materiel for the Department of Defense***

The core financial measures for Industrial Operations are the net operating result (NOR) and accumulated operating result (AOR). The NOR measures the activity's gain or loss within a single fiscal year and is used to monitor how closely the activity performs compared to its budget. The AOR measures the activity's accumulated gains and losses since the fund's inception. Rates are set during budget development to break even by bringing the AOR to zero over a budget cycle. This method returns accumulated gains through reduced rates and recovers accumulated losses through increased rates. The rates are set to:

- Recover the activity's costs such as payroll, supplies, contracts, equipment, inventory, depreciation, and maintenance
- Maintain a sufficient cash corpus to cover operating disbursements and six months of capital disbursements
- Break even over time
- Maintain a stable and foreseeable cost of doing business
- Reduce large fluctuations to the customer

The Industrial Operations activity relies heavily on customers funded by direct appropriations to support its operations. The activity synchronizes rates and budget assumptions with the appropriated funding levels of its customers. Reductions to customer appropriated funding requests impact the business by adversely affecting workloading decisions and projected staffing levels and may also affect equipment readiness of supported customers.

Efficiencies and Business Process Improvements

Crane Army Ammunition Activity employees complete work on a Mark 84 bomb before shipping.

Cost efficiency is an inherent attribute of the AWCF. The revolving fund construct promotes total cost visibility, full cost recovery, and fosters a business-like, competitive atmosphere. In the same way that commercial businesses focus on their bottom line profit, Industrial Operations (IO) activities focus on their Net Operating Result and other indicators to gauge the efficiency of their operations. To increase efficiency and maintain their competitive edge, Industrial Operations activities have been fully engaged in cost-cutting and business process improvement initiatives for many years. Industrial Operations customers ultimately garner the benefit of these efficiencies through reduced turn-around times, lower prices, and increased throughput. Examples of these initiatives include:

- **Lean Six Sigma (LSS)**: LSS is a philosophy used in manufacturing to streamline and reduce variations in the production process. In FY 2018, Army Materiel Command (AMC) validated financial benefits from LSS type initiatives totaling $424.4 million. These benefits come in the form of hard savings from budgeted programs, cost avoidances, and increased capacity (e.g. throughput). IO activities either re-invest the financial benefits or pass them on to their customers in future budgets through lower rates. AMC currently has 25 Certified Master Black Belts which ensures the program is self-sufficient.

- **International Organization for Standardization (ISO)**: ISO is a worldwide federation of national standards bodies that independently audit and certify companies and organizations for conformance with established standards. The Industrial Operations activities currently hold ISO certifications for Quality Management Systems, International Aerospace Quality Systems, Environmental Management Systems, and Occupational Safety and Health Administration Systems. All IO activities are ISO 9000 certified at a minimum and many are pursuing higher levels of certification. Forty-seven ISO certifications have been issued to AMC organizations to date.

- **Adaptable Workforce Structure**: IO activities employ an adaptable workforce structure to maintain flexibility in response to shifting workload requirements. Activities adjust the size of their workforce through the use of contractor, term, and temporary personnel to accommodate changes in workload.

- **Safety Improvements**: Improving safety is a high priority throughout Army Materiel Command (AMC); it improves morale and productivity and reduces costs. Industrial Operations (IO) activities continue to participate in the Occupational Safety and Health Administration (OSHA) Voluntary Protection Program (VPP) and currently have four IO activities with an OSHA VPP Star[4] rating. These include Crane Army Ammunition Activity, Letterkenny Army Depot, McAlester Army Ammunition Plant, and Tobyhanna Army Depot. In addition, Red River Army Depot has merit status. VPP participants must maintain an effective safety and health management system that meets rigorous performance-based criteria. In addition, several IO activities are actively pursuing their OSHA Series 18001 (Safety Management System) Program certifications.

- **Enterprise Resource Planning (ERP) Solutions**: The Logistics Modernization Program (LMP), an ERP solution, provides AMC and the Army with new and improved capabilities for logistics management and better cost performance while setting the stage for auditability. It provides real time updates and improved visibility of maintenance, production, and financial data when compared with legacy batch processes. It streamlines material/parts requisitioning and asset movements between Defense Logistics Agency (DLA) and the depots, improves visibility and accountability for inventory, improves collaboration in program planning, and shortens the time to accept and negotiate programs between the Life Cycle Management Commands (LCMCs), depots, and customers.

- **Energy and Water Savings Programs**: AMC has instituted a command wide policy to identify performance standards to reduce consumption of energy and water resources, achieve energy security, and comply with DOD goals and objectives. Savings are being realized through the use of advanced metering programs, energy management and control systems, and implementation of energy conservation measures. Longer term energy savings are expected from renewable energy sources. IO activities use a variety of funding sources for energy projects which reduce energy consumption, improve energy efficiency, and increase energy security. Available funding sources include: AWCF IO, Energy

[4] The Star Program is designed for exemplary worksites with comprehensive, successful safety and health management systems. Companies in the Star Program have achieved injury and illness rates at or below the national average of the respective industries.

Conservation Investment Program (ECIP), and third-party financing via Energy Savings Performance Contracts (ESPC) and Utility Energy Services Contracts (UESC).

Functional Description

The AWCF Industrial Operations includes five depots, three arsenals, two munitions production facilities, and three storage sites. These sites perform the following mission functions:

- Provides depot level maintenance, repair, and modernization of weapon systems and component parts
- Manufactures, renovates, and demilitarizes materiel
- Produces munitions and large caliber weapons
- Performs a full range of ammunition maintenance services for DOD and U.S. allies
- Performs ammunition receipt, storage, and issue functions

In addition to the mission functions, ten of the thirteen activities provide installation base support for both internal operations and tenant activities. Corpus Christi Army Depot and Crane Army Ammunition Activity are tenants on Navy installations. The Rock Island Arsenal-Joint Manufacturing and Technology Center (RIA-JMTC) receives installation base support from the Army Installation Management Command.

An assembled Multi-Mission Launcher (MML).

Industrial Operations activities collaborate with the private sector through formal public-private partnership agreements to perform work or utilize facilities and equipment. Under authority granted by Title 10, United States Code, § 2474, these partnerships create opportunities for both the public and private sectors by capitalizing on each other's strengths and efficiencies. The benefits to the Army and its customers include: leveraging capacity; sustaining core maintenance capabilities; sharing of overhead costs; and enhancing technical expertise in the workforce. The benefits to private industry include access to specialized facilities, equipment and processes, and stimulating local economies. Current public-private partnership agreements are held with companies such as the Boeing Company, General Dynamics Land Systems, Sikorsky Aircraft Corporation, and Honeywell International.

The five hard-iron maintenance depots (Anniston, Corpus Christi, Letterkenny, Red River, and Tobyhanna) and Pine Bluff Arsenal, Rock Island Arsenal-Joint Manufacturing and Technology Center, Sierra Army Depot, Tooele Army Depot, and Watervliet Arsenal are designated as Centers of Industrial and Technical Excellence (CITE) for the performance of core[5] maintenance workload in support of DOD and foreign allies. The CITE designation provides authority under Title 10, United States Code, § 2474 to partner with and lease facilities to industry on programs relating to core maintenance and technical expertise.

The Shingo Prize, administered by the Jon M. Huntsman School of Business at Utah State University, is the premier award for operational excellence world-wide. Since FY 2005, the Army Materiel Command has received 32 Shingo Prizes for various programs at its depots and arsenals, including eight at Red River Army Depot, seven at Tobyhanna Army Depot, nine at Letterkenny Army Depot, three at the Rock Island Arsenal-Joint Manufacturing and Technology Center, two at Anniston Army Depot and one at Corpus Christi Army Depot. This award recognizes industry leaders who promote world-class business and manufacturing processes that enable on-time delivery and customer satisfaction.

On-site examiners conduct Shingo Prize evaluations and score the following areas:

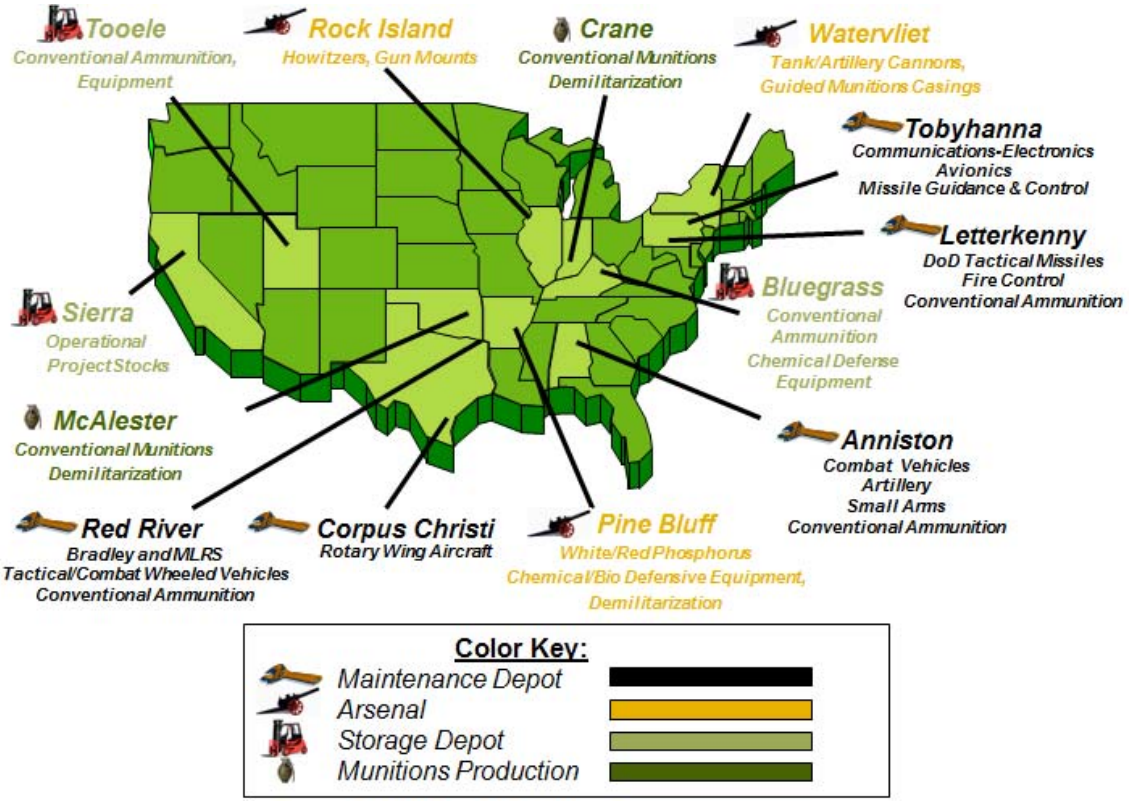
- Cost improvement
- Partnering practices
- Quality and results
- Innovation and development
- Environmental practices
- Vision and strategy
- Leadership & Empowerment
- Continuous improvement

A Mine-Resistant Ambush Protected (MRAP) vehicle being loaded on to railcars for shipping at Sierra Army Depot.

[5] Title 10, United States Code, § 2464. Core Logistics Capabilities - Government-owned and Government-operated equipment and facilities required to ensure a 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.

Activity Group Composition

Figure IO 1 - Industrial Operations Activity Group Composition



Army Materiel Command is located in Huntsville, Alabama and serves as the management command for the Industrial Operations activity group. Installations or activities in this group fall under the direct command and control of the Life Cycle Management Commands each aligned in accordance with the nature of its mission. The following are descriptions of the Industrial Operations activities and their major core mission functions.

Anniston Army Depot (ANAD)

Location: Anniston, Alabama
2018 Workforce: 2,785

Description: A vital part of the community since opening in 1941, the depot's annual economic impact is estimated to be $1.0 billion and indirectly supports over 25,000 jobs in the Anniston area. It is the only Army depot capable of performing maintenance on both heavy and light-tracked combat vehicles (with the exception of the Bradley), and their components. ANAD is the Center of Industrial and Technical Excellence (CITE) for ground combat vehicles, assault bridging, small arms as well as towed and

self-propelled artillery systems, and rail equipment and non-tactical generators. Combat vehicles include the M1 Abrams Tank, M113 Family of Vehicles (FOV), Stryker FOV, M109 Paladin, Field Artillery Ammunition Support Vehicle (FAASV), M88 Recovery Vehicles, Joint Assault Bridge (JAB), Assault Breacher Vehicle (ABV), Armored Vehicle Launched Bridge (AVLB), and M9 Armored Combat Earthmover. The depot is actively engaged in the Reset of equipment returning from operations in Southwest Asia, to include performing maintenance on individual and crew-served weapons. As an Army and Department of Defense leader in Public-Private Partnership efforts since 1993, the depot has established more than 80 different partnerships with industry leaders, utilizing agreements such as direct sales, work share, and facility use.

Blue Grass Army Depot (BGAD)

Location: Richmond, Kentucky
2018 Workforce: 819

Description: BGAD is a Strategic Mobility Power Projection ammunition depot with the mission to receive, store, issue, renovate, modify, maintain, and demilitarize conventional munitions for all DOD Services. BGAD stores and manages all Army Special Operations Forces ammunition. The depot is DOD's primary center for surveillance, receipt, storage, issue, testing, and minor repair of Individual Protection Chemical Defense Equipment. Additionally, BGAD maintains an Industrial Services capability providing receipt, storage, cutting, and fabrication of raw materials and metal parts for high visibility programs such as the Mine Resistant Ambush Protected (MRAP) family of vehicles. Anniston Munitions Center, located at Anniston Army Depot, is under the command and control of BGAD and serves as a multifunctional production facility, primary missile storage and maintenance depot, and as a storage and demilitarization depot for other conventional ammunition items.

Corpus Christi Army Depot (CCAD)

Location: Corpus Christi, Texas
2018 Workforce: 2,835

Description: CCAD returns Army rotary wing aircraft and components to full service with uncompromising quality, at the lowest cost possible in the shortest amount of time. CCAD supports the Joint Warfighter (Army, Marines, Navy, and Air Force) Department of Homeland Security and partner nations through the Department of State. CCAD leads the Army Aviation accident investigation processes with subject matter expertise and reliable laboratory analysis anywhere in the world by a team of highly skilled artisans who assess, evaluate and repair forward deployed aircraft and components to include depot forward capabilities. The depot supports Active, Reserve and National Guard Soldiers in their

maintenance skills development with hands-on experience under the watchful eyes of depot artisans. Designated as the Center of Industrial and Technical Excellence for rotary wing aircraft, CCAD supports the Apache, Black Hawk, Chinook, Kiowa, and Pave Hawk helicopters as well as Unmanned Aerial Vehicles (UAV).

Crane Army Ammunition Activity (CAAA)

Location: Crane, Indiana
2018 Workforce: 995

Description: CAAA is a Strategic Mobility Platform located in Crane, Indiana offering logistical support in receiving, storing, shipping, and surveillance of munitions. As a Munitions Center of Excellence, CAAA is the producer of pyrotechnic candle loads for mortar and artillery illumination in both the visible and infrared spectrums. CAAA supports the Navy with the production and renovation of advanced countermeasures for aircraft, and large caliber gun ammunition. Production and renovation capabilities include loading (cast and press) bombs and other munitions, missile warhead pressing, and a large variety of munitions components and assemblies. CAAA also has extensive demilitarization capabilities including steam out, high pressure washout, open burn/open detonation, and white phosphorous conversion. The CAAA machine center fabricates tools, dies, fixtures, gauges, production equipment and components. Commencing in FY 2018, rail operations at Naval Support Activity (NSA) Crane will be assumed by CAAA based on mission realignment. Letterkenny Munitions Center (LEMC), located on Letterkenny Army Depot in Chambersburg, Pennsylvania is under the command of CAAA. LEMC is also a Strategic Mobility Platform for both conventional ammunition and missile support. LEMC performs testing and minor repair for the Army Tactical Missile System and Guided Multiple Launch Rocket Missile systems, as well as several Air Force and Navy missile families. LEMC conducts demilitarization research and development, resource recovery and reutilization for missiles, container repair, and renovation of conventional munitions.

Letterkenny Army Depot (LEAD)

Location: Chambersburg, Pennsylvania
2018 Workforce: 1,436

Description: LEAD performs maintenance, modification, storage, and demilitarization operations on tactical missiles and ammunition. It has unique tactical missile repair capabilities supporting a variety of DOD missile systems including the Patriot and its ground support and radar equipment. LEAD is the designated Center of Industrial and Technical Excellence for air defense and tactical missile ground support equipment. In addition, it supports repair maintenance on a multitude of generators. LEAD also

supports integration of Force Provider Soldier Support systems and provides installation support to attached organizations and assigned operating facilities.

McAlester Army Ammunition Plant (MCAAP)

Location: McAlester, Oklahoma
2018 Workforce: 1,733

Description: MCAAP is located on 45,000 acres in southeastern Oklahoma. It has six ammunition production, maintenance and renovation complexes and is a major ammunition storage site for all branches of the Armed Forces. Additionally, the plant has nearly 2,300 storage magazines and six million square feet of covered explosive storage space. MCAAP produces and renovates conventional ammunition, bombs, warheads, rockets, missiles, and ammunition-related components; performs engineering and product assurance in support of production; and receives, stores, ships, demilitarizes, and disposes of conventional and missile ammunition and related items.

Pine Bluff Arsenal (PBA)

Location: Pine Bluff, Arkansas
2018 Workforce: 653

Description: With a local economic impact exceeding $140 million annually, PBA produces, renovates, and stores more than 70 different conventional ammunition products ranging in caliber from 40 mm to 175 mm. Specialties include production of munitions containing payloads for smoke, non-lethal, riot control, incendiary, illumination, and infrared uses. Designated the Center of Industrial and Technical Excellence for Chemical and Biological Defense Equipment, PBA provides maintenance, upgrade, storage, and mission support for various mobile and powered Soldier support systems. PBA has strengthened its expertise by forming Public-Private Partnerships with mission related entities in the ammunition and chemical biological defense business sectors.

Red River Army Depot (RRAD)

Location: Texarkana, Texas
2018 Workforce: 1,897

Description: RRAD's mission is to conduct ground combat and tactical systems sustainment maintenance operations, and related support services worldwide for the Army, other DOD components, and allied nations. RRAD is the Center of Industrial and Technical Excellence for the Bradley Fighting Vehicle (BFV), Multiple Launch Rocket System (MLRS), Tactical Wheeled Vehicles (light, medium, heavy, all

size trailers), Small Emplacement Excavator (SEE), and rubber products. Other supported systems include Army boats and bridges, cranes, material handling equipment, egress trainers, and a multitude of secondary items such as engines and transmissions. Red River Army Depot (RRAD) continues to support high levels of production for the Mine Resistant Ambush Protected (MRAP) All Terrain, Cougar, and MaxxPro vehicles to support fielding schedules for TACOM and the Marine Corps. RRAD specializes in forward deployment of maintenance operations in support of U.S. and allied military operations, and will project training and operations in support of Foreign Military Sales. The depot continuously engages in best business practices and process improvements designed to maximize quality throughput at optimal cost. RRAD supports operational transformation in alignment with its strategic plan with an eye to flexible solutions that will attract future business.

Rock Island Arsenal-Joint Manufacturing and Technology Center (RIA-JMTC)

Location: Rock Island Arsenal, Illinois
2018 Workforce: 1,015

Description: RIA-JMTC is a heavy-metal manufacturer that specializes in artillery, weapon components, armor and mobile maintenance systems. RIA-JMTC is currently producing the M997A3 Ambulance, Line of Communication Bridge (prototype), Metalworking and Machining Shop Set, and manufacturing artillery parts, gun mounts, recoil mechanisms, small arms repair parts, aircraft weapon sub-systems, and weapons simulators. Additionally, RIA-JMTC produces a host of spare and repair parts for DOD and commercial/private industry customers. RIA-JMTC is the only multi-purpose and vertically integrated metal manufacturer in DOD and is a designated Center for Industrial and Technical Excellence for mobile maintenance systems, Add-on-Armor design, development, and prototype fabrication, and foundry operations. The center possesses the unique technical expertise and equipment to manufacture high quality and sustainable products. RIA-JMTC strives to remain on the cutting edge of technological developments.

Sierra Army Depot (SIAD)

Location: Herlong, California
2018 Workforce: 1,167

Description: SIAD is a recognized multi-functional installation that provides rapid expeditionary logistics support and long-term sustainment solutions to the Army and the Joint Force. SIAD is designated by the Department of the Army as the Center for Industrial Technical Excellence (CITE) for all Petroleum and Water Distribution Systems (PAWS). In addition, SIAD is the redistribution point for containers of secondary items returning from Southwest Asia, and provides

equipment receipt and asset visibility for these items. SIAD has also been designated as the Army's main consolidation and redistribution center for the Clothing Management Office (CMO) to perform Brigade-level Organizational Clothing and Individual Equipment Reset operations. These unique operations clearly provide a readiness and operational value to the Army and the Nation through management and controlled redistribution of equipment to meet urgent demands and support to deploying Soldiers.

Tobyhanna Army Depot (TYAD)

Location: Tobyhanna, Pennsylvania
2018 Workforce: 2,904

Description: TYAD is designated as the Center of Industrial and Technical Excellence for Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR), electronics, avionics, and missile guidance and control. TYAD's capabilities include full-spectrum logistics support for electronics sustainment, overhaul and repair, fabrication and manufacturing, engineering design and development, systems integration, technology insertion, modification, Foreign Military Sales, and Global Field support to our Joint Warfighters. The depot is also actively engaged in the Reset of equipment returning from operations in Iraq and Afghanistan. It provides installation support to attached organizations and assigned operating facilities.

Tooele Army Depot (TEAD)

Location: Tooele, Utah
2018 Workforce: 476

Description: TEAD provides America's joint fighting forces with munitions and Ammunition Peculiar Equipment (APE) in support of military missions before, during, and after any contingency. The depot receives, stores, issues, renovates, modifies, maintains, and destroys conventional munitions for all of DOD. TEAD is designated as the Center of Industrial and Technical Excellence for APE. TEAD has assumed Command and Control over the APE function that is performed at McAlester, OK. This function will be a satellite of TEAD but remain located in McAlester and named Ammunition Equipment Satellite (AES). AES was integrated into LMP beginning in FY 2017. TEAD is the life cycle engineering depot for design, development, manufacturing and fielding of munitions systems and APE throughout the world.

Watervliet Arsenal (WVA)

Location: Watervliet, New York
2018 Workforce: 667

Description: WVA produces armaments, mortars, recoilless rifles, howitzers and is recognized as the premier cannon-maker for the Army. This includes all life cycle support elements from research and development through prototype, manufacturing, testing support, legacy system support, and technical expertise. The guns manufactured at WVA provide the firepower for the Army's main battlefield tank, the M1A1 Abrams. WVA has established several unique and valuable partnerships with manufacturing industries resulting in increased workload, absorption of excess capacity, industry supplied capital improvements, cost sharing, and has recently gained American Bureau of Ship Building certification for WVA's forging process.

Budget Highlights

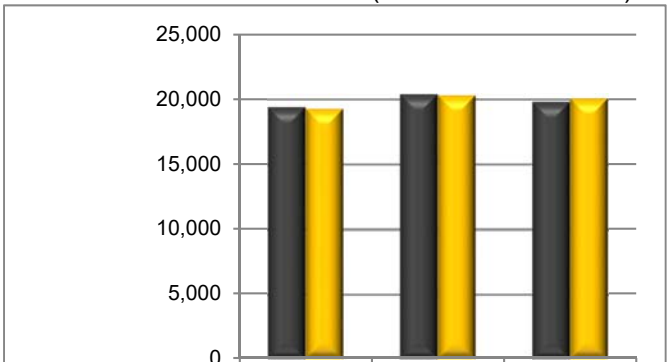
Assumptions

This submission represents a business plan that supports equipment readiness requirements and assumes continued efforts in Overseas Contingency Operations. The budget reflects workload assumptions developed in coordination with customers that support both baseline and Reset requirements and incorporates historical trend analysis when developing future workload requirements. However, as unit rotations and weapon system delivery schedules shift, annual projections can change significantly between when budgets are developed and actual maintenance occurs. To offset these risks, the Industrial Operations activity remains poised to increase or decrease output in order to accommodate customers' changing requirements.

Personnel

Civilian end-strength represents the number of personnel employed at the end of each fiscal year. Full time equivalents represent the manpower level of effort necessary to accomplish the projected workload on an annual basis. The Industrial Operations labor pool includes a mix of permanent, temporary, and

Chart IO 1 - Civilian Personnel (excludes contractors)



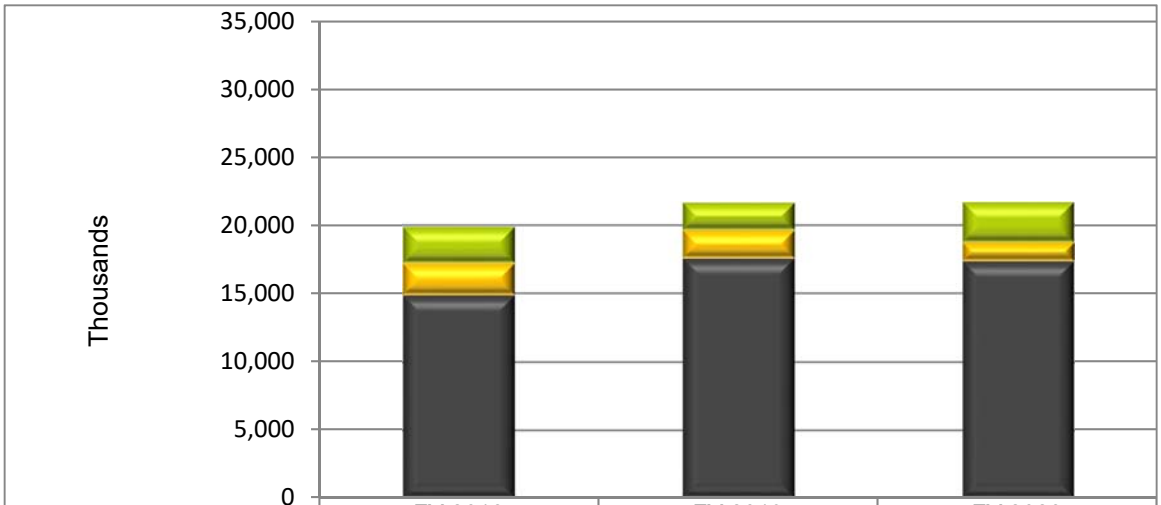
	FY 2018	FY 2019	FY 2020
End Strength	19,382	20,386	19,799
FTE	19,265	20,297	20,052

term-appointed employees, in addition to contract labor, which allow for workforce flexibility to accommodate changing requirements.

Maintaining a trained and ready workforce is critical to this labor intensive business. Industrial Operations activities engage in various workforce revitalization efforts to include interns, apprenticeship programs and a Pathways program which offers clear paths to Federal internships for students from high school through post-graduate school and to careers for recent graduates. There are currently 195 personnel enrolled in these programs. Due to the specialized nature of the work and skill level requirements, training may require two to three years before an employee is able to perform specific tasks without supervision. In addition to civilian personnel, 24 military personnel are assigned to Industrial Operations (IO) activities in FY 2020.

Direct Labor Hour (DLH)

Chart IO 2 - Direct Labor Hours



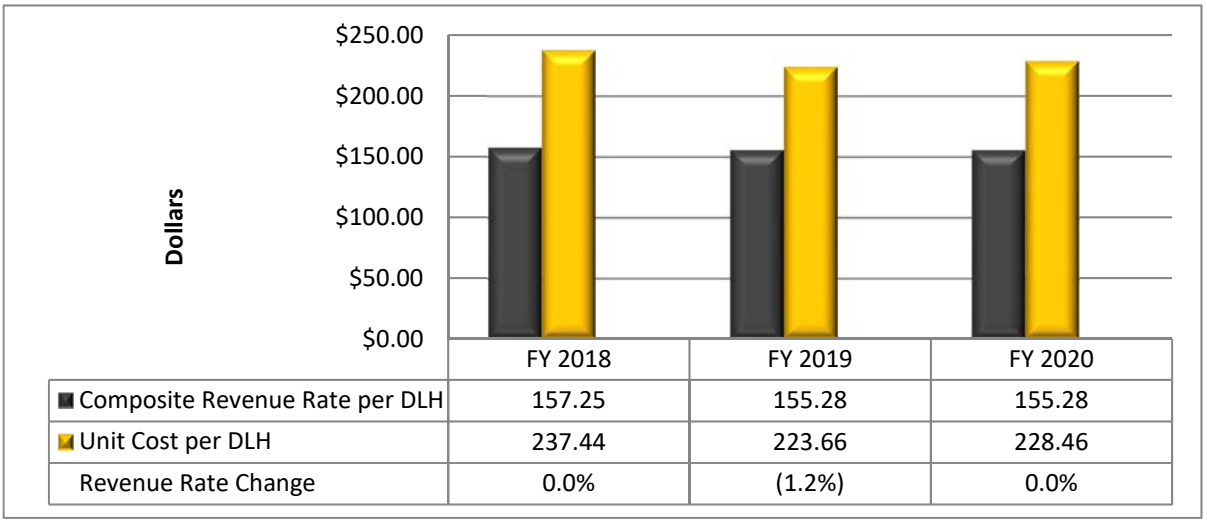
	FY 2018	FY 2019	FY 2020
Total DLH	19,839	21,614	21,654
Contractor DLH	2,668	2,020	2,960
Civilian DLH - Overtime	2,342	2,061	1,364
Civilian DLH - Regular	14,829	17,534	17,331

Total direct labor hours represent the number of hours required to complete the Industrial Operations direct mission workload. Direct labor hours increase slightly from year to year as workload received from previous years is completed. IO activities remain prepared to increase overtime and contractor DLHs in the event workload estimates increase.

Direct Labor Hour Rate

The composite revenue rate is an aggregate hourly rate established in the budget cycle and used to price rate-stabilized workload. It is comprised of direct labor and material costs, overhead costs (mission indirect and non-mission indirect costs), and accumulated operating result adjustments that are designed to return gains or recover losses. In contrast to rate-stabilized workload, cost reimbursable workload represents workload that is prototype in nature or has very little repair history. It is not included in the stabilized rate calculation until sufficient repair information has been established. Due to new weapon systems in the Armys inventory and modernization efforts the majority of the workload at the depots is cost reimbursable and not burdened with the return or gain of prior years profits or losses. The composite revenue rate calculation is complex and influenced by several factors: 1) commodity mix of the workload planned (labor intensive, material intensive or both); 2) the amount of gains to be returned or losses to be recovered over the budget years; 3) the amount of stabilized direct labor hours available to return gains or recover losses; and 4) the number of total direct labor hours available to distribute overhead cost (stabilized and non-stabilized workload). A change to the composite revenue rate directly affects the total revenue and new order values for the budget year. The FY 2020 composite revenue rate is $155.28 and is set to return $127.3 million of prior year accumulated operating result (AOR). Unlike the composite revenue rate, which is adjusted for AOR and applied to new rate stabilized workload, the unit cost per direct labor hour represents total costs of work performed on both prior year and current year orders. The unit cost does not include adjustments for AOR. The return of operating gains to customers causes the revenue rate to be lower than unit cost.

Chart IO 3 - Direct Labor Hour Rate

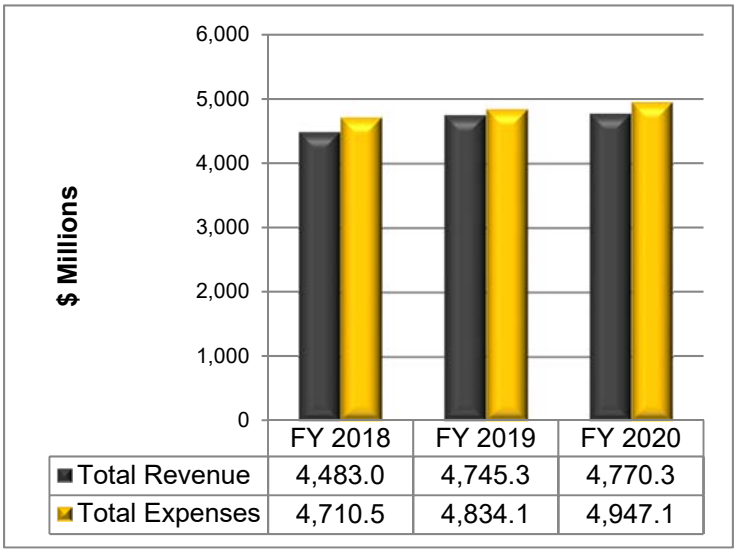


	FY 2018	FY 2019	FY 2020
Composite Revenue Rate per DLH	157.25	155.28	155.28
Unit Cost per DLH	237.44	223.66	228.46
Revenue Rate Change	0.0%	(1.2%)	0.0%

Revenue and Expenses

The Industrial Operations revenue amount represents earnings from work performed on customer equipment. Total expenses cover full costs, including material, labor, storage, and other direct or indirect costs associated with the products or services being provided. Revenue and expense projections in FY 2020 remain high as the installations work off prior year work as well as new orders. Revenue in each year reflects the return of operational gains back to customers. Revenue and expenses are displayed in more detail on Exhibit Fund 14, *Revenue and Costs*.

Chart IO 4 - Revenue and Costs



	FY 2018	FY 2019	FY 2020
Total Revenue	4,483.0	4,745.3	4,770.3
Total Expenses	4,710.5	4,834.1	4,947.1

Operating Result

The Net Operating Result (NOR) represents the difference between revenue and expenses within a fiscal year. The recoverable NOR in FY 2018 and FY 2019 includes $99 million in direct appropriations provided to maintain competitive rates at the three arsenals. In addition, in FY 2018, FY 2019 and FY 2020 the recoverable NOR includes $43.1 million, $59.0 million, and $57.5 million respectively for Industrial Mobilization Capacity (IMC) for costs associated with maintaining facilities to meet surge capacity needed for mobilization or war. The Accumulated Operating Result (AOR) represents the summation of all operating gains or losses since activity group inception along with any prior period adjustments. The Industrial Operations business received approval from the Office of the Under Secretary of Defense (OUSD) Comptroller to defer the return of $357 million of AOR for future rate stabilization when workload decreases. Without the direct appropriations mentioned above, the operational AOR at the end of FY 2020 is $54.8 million. The Recoverable NOR, Deferred AOR, and AOR are displayed in the following table and on Exhibit Fund 14, *Revenue and Costs*.

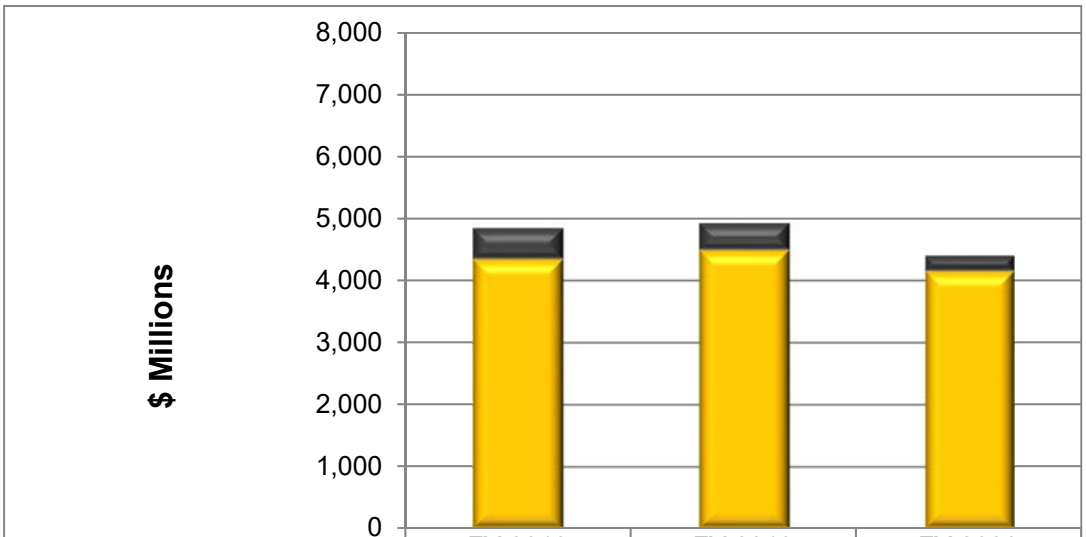
Table IO 1 - Operating Results

($ Millions)	FY 2018	FY 2019	FY 2020
Recoverable Net Operating Result	(161.5)	16.3	(127.3)
Deferred Accumulated Operating Result	0.0	0.0	(357.0)
Accumulated Operating Result	468.0	484.3	0.0

New Orders

Industrial Operations activities develop workload projections based on close coordination with customers and their delivery schedule requirements. With fluid requirments and fiscal uncertainty, accurately predicting workload two to three years in advance has proven difficult. This budget includes workload assumptions associated with base program requirements and anticipated Reset workload included in the Overseas Contingency Operations (OCO) request. The Reset program ensures Army equipment is restored to a level of combat capability commensurate with a unit's future mission. The projected workload in FY 2020 is commensurate with customer projections and budgeted depot maintenance requirements. Exhibit Fund 11, *Source of New Orders and Revenue*, displays total new order estimates by fund category.

Chart IO 5 - New Orders



	FY 2018	FY 2019	FY 2020
Total IO New Orders	4,838.9	4,920.4	4,397.9
IO OCO New Orders	499.8	434.9	251.4
IO Other New Orders	4,339.1	4,485.6	4,146.5

Note: Numbers may not add due to rounding.

Carryover

Carryover, or unfilled orders, represents the dollar value of the production orders (parts, labor, and overhead) that have been ordered and funded by customers but not completed by the industrial activities at the end of each fiscal year. Carryover leads to better planning, better decision making, and cost efficiencies at the depots and arsenals. It provides lead time to assemble necessary workforce skill sets, to establish supply chains, and to coordinate workload routing. Carryover also prevents production line stoppages and ensures the activities have funded work to provide a smooth transition between fiscal years.

The Army is focused on further reducing carryover by leveraging policy and process improvements aimed at increasing production, improving customer-provider communication, and strengthening controls over the acceptance of new orders. These initiatives were developed in response to the Government Accountability Office's FY 2013 carryover audit recommendations.[6] The policy for accepting new workload requires:

- The customer and the executing industrial activity to assess the availability of skilled labor to execute the workload
- The viability of the supply chain and availability of parts
- The availability of tools and equipment needed during production
- The availability of unserviceable assets
- The scheduled requirements per month
- The availability of funding to support the production

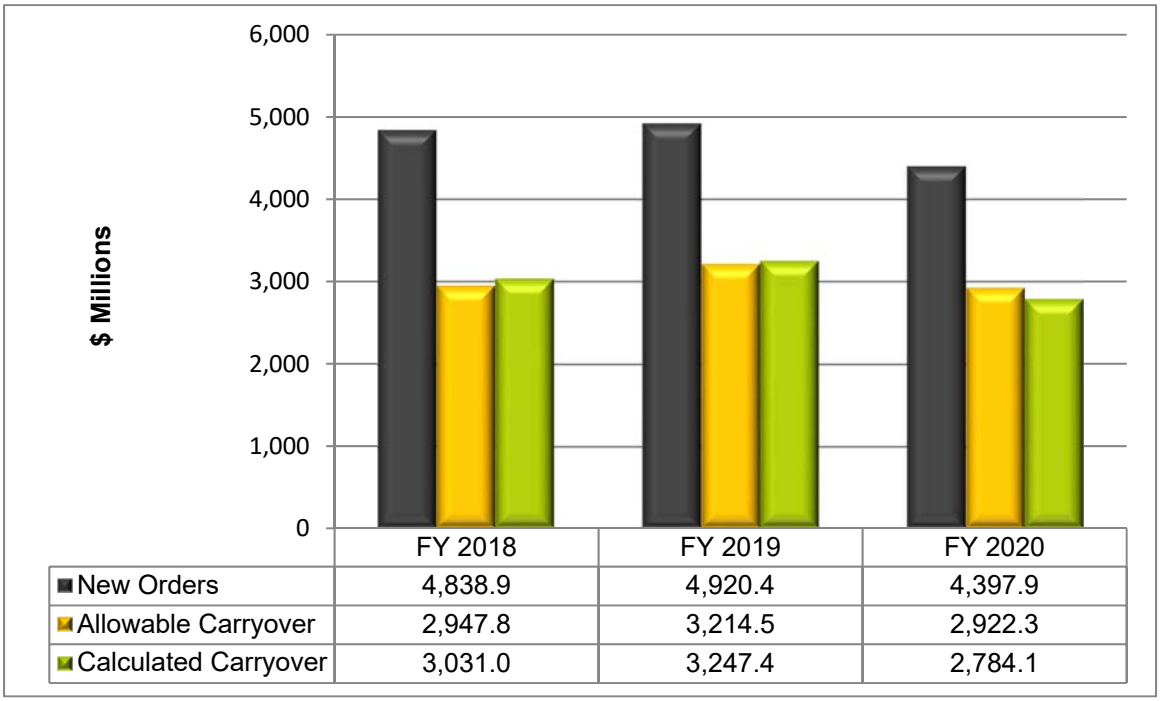
All AWCF activities have fully implemented and indoctrinated this criteria for accepting new orders.

Additionally, Army program acquisition managers are required to identify organic procurement funded requirements to the appropriate Life Cycle Management Command (LCMC) no later than the end of the first quarter of the year of execution. The Army's goal is to ensure procurement funded depot maintenance workloads are inducted into the depots no later than the end of the second quarter of the fiscal year. This will reduce orders placed late in the fiscal year that increase carryover.

Army leadership is committed to monitoring carryover and production goals on a recurring basis through senior leader forums and quarterly Organic Industrial Base Corporate Boards. The Army plans to reduce carryover by $541.7 million at the end of FY 2020. Carryover is displayed on Exhibit Fund 11, *Source of New Orders and Revenue*, and Exhibit Fund 11a, *Carryover Reconciliation*.

[6] U.S. Government Accountability Office, *Army Industrial Operations: Budgeting and Management of Carryover Could Be Improved*, GAO-13-499 (Washington, DC, 2013).

Chart IO 6 - New Orders and Carryover



	FY 2018	FY 2019	FY 2020
New Orders	4,838.9	4,920.4	4,397.9
Allowable Carryover	2,947.8	3,214.5	2,922.3
Calculated Carryover	3,031.0	3,247.4	2,784.1

Performance Measurements

Performance measurements and goals for the Industrial Operations activity group include Recoverable Net Operating Result (NOR) and Productive Yield. FY 2018 actual results and projections for FY 2019 and FY 2020 are shown in the following table.

Table IO 2 - Performance Measurements

Measurements/Goals	FY 2018	FY 2019	FY 2020
Recoverable Net Operating Result	(161.5)	16.3	(127.3)
Productive Yield	1,513	1,599	1,600

The customer rates in the budget return prior year gains, as reflected by the negative NOR, and also preserves $357 million of Accumulated Operating Result (AOR) for future rate stabilization.

Productive Yield represents the average number of regular direct labor hours for each full time equivalent position involved in production and is an indicator of whether direct labor employees can support projected workload. The historical goal for productive yield has been 1,615 direct labor hours per work position and represents total available work hours after holidays, leave, and training are removed. The productive yield projections for FY 2019 and FY 2020 are within expected parameters.

Appropriations

The Industrial Operations (IO) activity received Direct Appropriations of $99 million during FY 2018 to maintain competitive rates at the Army's arsenals and is expected ro receive another $99 million in FY 2019. In FY 2018, FY 2019, and FY 2020 the Army requests $43.1 million, $59.0 million, and $57.5 million for Industrial Mobilization Capacity for costs associated with maintaining facilities to meet surge capacity needed for mobilization or war. Industrial Mobilization Capacity (IMC) funding sustains industrial base equipment required for mobilization that is idle for more than 80% in any one month but used at least once during the year. Army Organic Industrial base (OIB) workload has steadily declined over the past ten years resulting in some equipment being utilized at these lower rates. The Army requires IMC funding to sustain this equipment, enabling the OIB to rapidly surge in support of a future mobilization.

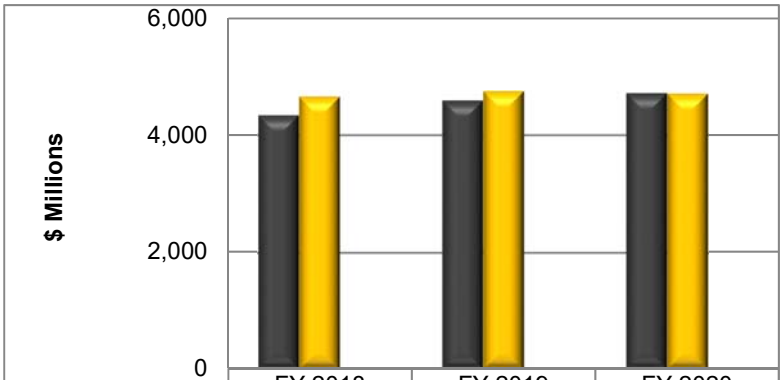
Table IO 3 – Appropriations

($ Millions)	FY 2018 Actuals	FY 2019 Appropriated	FY 2020 Request
Arsenal Sustainment Initiative	99.0	99.0	0.0
Industrial Mobilization Capacity	43.1	59.0	57.5
Total Appropriated Funds	**142.1**	**158.0**	**57.5**

Collections, Disbursements, and Outlays

Collections are calculated based on projected revenue and changes in accounts receivable. Disbursements are projected based on monthly operating expenses, changes in accounts payable, and Capital Investment Program obligations. Net outlays reflect the return of accumulated operating result to customers. Beginning in FY 2016, collections and disbursements between the Industrial Operations and Supply Management activity groups will process for all internal work performed.

Chart IO 7 - Cash Management

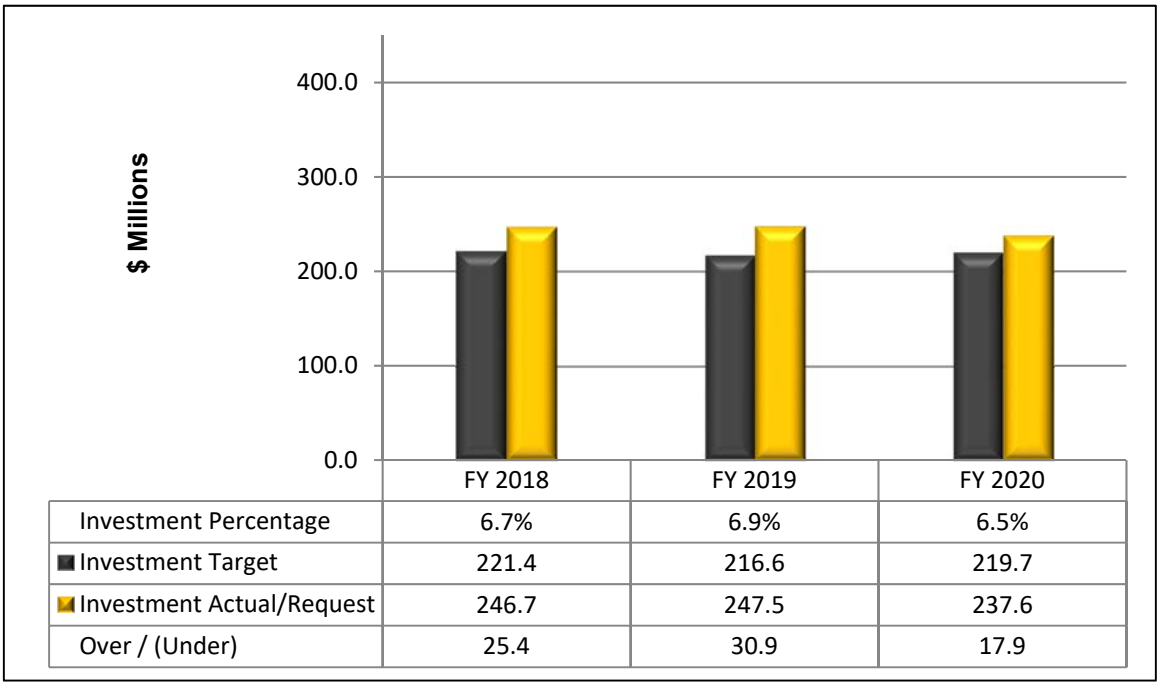


	FY 2018	FY 2019	FY 2020
Collections	4,334.3	4,587.3	4,712.9
Disbursements	4,653.6	4,750.4	4,703.2
Net Outlays	319.3	163.1	(9.7)

Minimum Capital Investment for Certain Depots and Arsenals

The National Defense Authorization Acts for FY 2007, FY 2009, and FY 2012 require the five Army maintenance depots (Anniston, Red River, Letterkenny, Tobyhanna, and Corpus Christi), the three arsenals (Rock Island, Pine Bluff, and Watervliet) and Tooele Army Depot to invest the equivalent of at least six percent of funded workload.

Chart IO-8 – Minimum Capital Investment



	FY 2018	FY 2019	FY 2020
Investment Percentage	6.7%	6.9%	6.5%
Investment Target	221.4	216.6	219.7
Investment Actual/Request	246.7	247.5	237.6
Over / (Under)	25.4	30.9	17.9

The chart displays the total investment target and total investment amount planned. Since the minimum capital investment became law, the Army has invested over $3.7 billion, representing an average of 6.8 percent of revenue spent on capabilities and infrastructure. Industrial Operations (IO) activities review future production and infrastructure requirements and project return on investment when developing capital budgets. The Army is committed to investing six percent in each year. Exhibit Fund 6, *Depot Maintenance 6% Capital Investment* provides investment details by category for each activity.

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Revenue and Costs
($ in Millions)

	FY 2018	FY 2019	FY 2020
Revenue			
Gross Sales:	4,341.0	4,587.3	4,712.9
Operations	4,132.4	4,381.6	4,547.5
Depreciation excluding Major Construction	208.6	205.7	165.3
Other Income (DWCF Direct Appropriation)	142.1	158.0	57.5
Other Income (Other)	(0.1)	0.0	0.0
Total Income:	4,483.0	4,745.3	4,770.3
Costs			
Salaries and Wages:	1,832.1	1,917.8	1,888.1
Military Personnel Compensation & Benefits	5.9	3.5	3.5
Civilian Personnel Compensation & Benefits	1,826.2	1,914.4	1,884.6
Travel & Transportation of Personnel	31.1	32.2	31.3
Materials & Supplies (For Internal Operations)	1,666.5	1,577.2	1,850.2
Equipment	81.6	87.2	60.0
Other Purchases from Revolving Funds	100.2	90.1	85.1
Transportation of Things	11.4	9.8	9.5
Depreciation	208.6	205.7	165.3
Printing and Reproduction	0.8	1.1	1.1
Advisory and Assistance Services	34.0	32.7	29.7
Rent, Communication, Utilities, & Misc. Charges	98.5	107.1	103.4
Other Purchased Services	645.6	773.2	723.3
Total Costs:	4,710.5	4,834.1	4,947.1
Operating Result	(227.5)	(88.8)	(176.8)
Other Changes Affecting NOR:	66.0	105.1	49.5
Non-Recoverable Expenses (Unfunded Costs)	59.8	54.9	49.5
Non-Recoverable Expenses (FRM)	6.2	50.2	0.0
Recoverable Net Operating Result	(161.5)	16.3	(127.3)
Other Changes Affecting AOR			
a. AOR Beginning of Year (Unadjusted)	629.5	468.0	484.3
b. +/- Prior Year Adjustments			
c. Equals AOR BOY (Adjusted)	629.5	468.0	484.3
d. +/- Net Operating Result	(161.5)	16.3	(127.3)
e. Deferred AOR			(357.0)
f. Equals Recoverable AOR EOP	468.0	484.3	0.0

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Source of New Orders and Revenue
($ in Millions)

	FY 2018	FY 2019	FY 2020
1. New Orders			
a. Orders from DoD Components:			
Department of Army			
Operations & Maintenance, Army	1,569.2	1,584.8	1,350.8
Operations & Maintenance, ARNG	104.2	77.3	86.2
Operations & Maintenance, AR	30.4	48.9	45.9
Subtotal, O&M:	1,703.9	1,711.1	1,482.9
Aircraft Procurement	72.6	130.2	120.7
Missile Procurement	40.2	59.7	63.4
Weapons & Tracked Combat Vehicles	324.0	325.7	307.8
Procurement of Ammunition	188.2	211.8	130.9
Other Procurement	223.4	317.2	211.5
Subtotal, Procurement:	848.4	1,044.5	834.2
RDTE	45.4	32.0	94.8
BRAC	0.1	0.0	0.0
Family Housing	1.5	1.3	1.3
Military Construction	0.0	0.6	0.0
Chem Agents & Munitions Dest, Army	11.7	16.5	17.9
Other	1.2	0.2	0.1
Subtotal, Other Army:	59.8	50.6	114.2
Subtotal, Department of Army:	2,612.0	2,806.3	2,431.2
Department of Air Force O&M	83.2	129.6	106.5
Department of Air Force Investment	131.4	109.6	30.9
Department of Navy O&M	27.8	27.3	20.5
Department of Navy Investment	21.6	24.8	25.3
US Marines O&M	101.0	105.8	96.4
US Marines Investment	48.6	25.4	4.4
Other Department of Defense	68.7	145.9	155.4
Subtotal, Other DoD Services:	482.4	568.3	439.3

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Source of New Orders and Revenue
($ in Millions)

	FY 2018	FY 2019	FY 2020
b. DWCF:			
Industrial Operations, Army	30.5	18.0	13.7
Supply Management, Army	1,147.1	1,077.9	1,040.9
Supply Management, Air Force	51.0	49.9	39.2
Supply Management, Navy	39.2	47.4	36.7
Supply Management, Marine Corps	3.5	1.5	1.5
DECA	0.1	0.1	0.1
DFAS	0.5	0.5	0.5
DISA	1.3	0.1	0.1
DLA	53.9	51.0	25.2
TRANSCOM	0.0	3.1	3.0
Other	0.0	0.0	0.0
Subtotal, DWCF:	1,327.2	1,249.5	1,160.9
c. Total DoD	4,421.6	4,624.0	4,031.4
d. Other Orders:			
Other Federal Agencies	4.5	10.6	12.4
Foreign Military Sales	341.6	154.9	229.4
Nonappropriated	0.9	1.0	1.0
Non-Federal Agencies	70.2	129.9	123.7
Subtotal, Other Orders:	417.3	296.4	366.5
Total New Orders:	4,838.9	4,920.4	4,397.9
2. Net Carry-in Orders	3,306.6	3,586.3	3,692.6
3. Total Gross Orders	8,145.5	8,506.7	8,090.5
4. Revenue (-)	4,341.0	4,587.3	4,712.9
5. Accounting Adjustments to Unfilled Orders (-)	(0.0)	0.0	0.0
6. FMS, BRAC, Other Federal, and Non-Federal orders (-)	601.2	558.9	510.2
Crash Damage	42.1	2.7	0.0
4th Qtr Other Service Wkld	130.2	110.3	83.4
7. Funded Carry-over	3,031.0	3,247.4	2,784.1
8. Allowable Carry-over	2,947.8	3,214.5	2,922.3
9. Over/(Under) Allowable Carry-over	83.1	32.9	(138.2)

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Carryover Reconciliation
($ in Millions)

	FY 2018	FY 2019	FY 2020
1. Gross Carry-In	3,546.2	3,804.5	3,919.4
Adjustments to Prior Year Orders	(239.6)	(218.2)	(226.8)
Net Carry-In	3,306.6	3,586.3	3,692.6
2. Revenue (Gross Sales)	4,341.0	4,587.3	4,712.9
3. New Orders	4,838.9	4,920.4	4,397.9
4. Exclusions:			
FMS	341.6	154.9	229.4
BRAC	0.1	0.0	0.0
Other Federal Depts & Agencies	4.5	10.6	12.4
Non-Federal and Others	71.2	130.9	124.7
Crash Damage	10.9	0.0	0.0
4th Qtr Other Service Wkld	130.2	110.3	83.4
5. Orders for Carryover Calculation	4,280.4	4,513.7	3,948.0
2nd Yr Orders for Carryover Calculation	905.9	1,050.0	1,204.3
6. Weighted Composite Outlay Rate	42.6%	42.1%	43.0%
2nd Yr Weighted Composite Outlay Rate	45.6%	42.7%	44.1%
7. Carryover Rate	57.4%	57.9%	57.0%
2nd Yr Carryover Rate	54.4%	57.3%	55.9%
8. Allowable Carryover (1st Year Outlay Rate)	2,455.2	2,612.4	2,249.6
Prior Year 2nd Yr Outlay Rate	492.6	602.1	672.7
Total Allowable Carryover	2,947.8	3,214.5	2,922.3
9. Balance of Customer Orders at Year End	3,804.5	3,919.4	3,377.7
10. Exclusions:			
FMS	537.1	449.7	385.1
BRAC	0.1	0.1	0.1
Other Federal Depts & Agencies	8.3	13.0	20.8
Non-Federal and Others	55.8	96.1	104.2
Crash Damage	42.1	2.7	0.0
4th Qtr Other Service Wkld	130.2	110.3	83.4
11. Calculated Carryover	3,031.0	3,247.4	2,784.1

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Changes in the cost of Operations
($ in Millions)

		Costs
FY 2018 Actual		**4,710.5**
FY 2019 Estimate in President's Budget		**4,573.2**
Pricing Adjustments		**(25.3)**
FY 2019 Pay Raise	(32.8)	
-Civilian Personnel	(32.8)	
-Military Personnel	0.0	
Materials and Supplies	11.5	
Other	(4.1)	
Program Changes		**286.3**
Labor	230.2	
Travel	4.4	
Material	(107.8)	
Equipment	11.7	
Transportation	0.8	
Depreciation	17.6	
Advisory and Assistance Services	(47.4)	
Other Purchased Services	147.1	
Other	29.7	
FY 2019 Current Estimate		**4,834.1**
Pricing Adjustments		**54.1**
FY 2020 Pay Raise	0.1	
-Civilian Personnel	0.0	
-Military Personnel	0.1	
Materials and Supplies	31.5	
Other	22.5	
Program Changes		**58.9**
Labor	(29.8)	
Travel	(1.6)	
Material	241.4	
Equipment	(28.9)	
Transportation	(0.5)	
Depreciation	(40.4)	
Advisory and Assistance Services	(3.6)	
Other Purchased Services	(65.3)	
Other	(12.5)	
FY 2020 Budget Estimate		**4,947.1**

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Material Inventory Data
($ in Millions)

FY 2018	Total	Mobilization	Operating
Material Inventory BOP	809.1		809.1
Purchases			
A. Purchases to Support Customer Orders (+)	1,217.8		1,217.8
B. Purchase of long lead items in advance of customer orders (+)	47.9		47.9
C. Total Purchases	1,265.6		1,265.6
Material Inventory Adjustments			
A. Material Used in Maintenance (and billed/charged to customer orders) (-)	1,110.1		1,110.1
B. Disposals, theft, losses due to damages (-)	71.6		71.6
C. Other reductions (list) (-)	34.4		34.4
D. Total inventory adjustments	1,216.1		1,216.1
Material Inventory EOP	858.7		858.7

FY 2019	Total	Mobilization	Operating
Material Inventory BOP	858.7		858.7
Purchases			
A. Purchases to Support Customer Orders (+)	1,104.5		1,104.5
B. Purchase of long lead items in advance of customer orders (+)	76.2		76.2
C. Total Purchases	1,180.7		1,180.7
Material Inventory Adjustments			
A. Material Used in Maintenance (and billed/charged to customer orders) (-)	1,053.3		1,053.3
B. Disposals, theft, losses due to damages (-)	26.3		26.3
C. Other reductions (list) (-)	20.0		20.0
D. Total inventory adjustments	1,099.5		1,099.5
Material Inventory EOP	939.9		939.9

FY 2020	Total	Mobilization	Operating
Material Inventory BOP	939.9		939.9
Purchases			
A. Purchases to Support Customer Orders (+)	1,025.6		1,025.6
B. Purchase of long lead items in advance of customer orders (+)	60.4		60.4
C. Total Purchases	1,086.0		1,086.0
Material Inventory Adjustments			
A. Material Used in Maintenance (and billed/charged to customer orders) (-)	1,164.9		1,164.9
B. Disposals, theft, losses due to damages (-)	16.3		16.3
C. Other reductions (list) (-)	20.0		20.0
D. Total inventory adjustments	1,201.2		1,201.2
Material Inventory EOP	824.7		824.7

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Depot Maintenance 6% Capital Investment Plan
($ in Millions)

	FY 2018	FY 2019	FY 2020
Anniston Army Depot			
Average Revenue for Investment	634.9	680.8	770.6
WCF Capital Investment Program			
Facilities/Work Environment	1.0	0.6	2.3
Equipment Modernization	4.5	2.2	11.3
Processes	1.3	3.8	1.4
Capital Investment Program	6.8	6.5	15.0
Operating Funds Investments			
Facilities/Work Environment	14.1	4.6	2.3
Equipment Modernization	5.7	11.2	4.5
Processes	1.8	1.6	1.6
Total Operating Funds	21.5	17.4	8.5
Appropriated Funding			
MILCON	0.0	8.9	0.0
Procurement	0.0	12.0	0.0
Operations & Maintenance	1.4	12.6	0.0
Total Appropriated Funding	1.4	33.5	0.0
Actual/ Budgeted Investment	29.6	57.4	23.4
Required Investment	38.1	40.8	46.2
Investment Over / (Under) Required Amount	(8.4)	16.5	(22.8)
Corpus Christi Army Depot			
Average Revenue for Investment	868.8	842.6	823.7
WCF Capital Investment Program			
Facilities/Work Environment	1.0	0.0	1.0
Equipment Modernization	26.4	1.7	4.9
Processes	1.9	5.5	2.1
Capital Investment Program	29.3	7.2	8.0
Operating Funds Investments			
Facilities/Work Environment	0.7	13.1	15.4
Equipment Modernization	5.1	15.7	13.6
Processes	0.0	0.0	0.0
Total Operating Funds	5.8	28.8	29.0
Appropriated Funding			
MILCON	0.0	0.0	86.0
Procurement	0.0	0.0	0.0
Operations & Maintenance	27.6	9.8	7.4
Total Appropriated Funding	27.6	9.8	93.4
Actual/ Budgeted Investment	62.7	45.8	130.4
Required Investment	52.1	50.6	49.4
Investment Over / (Under) Required Amount	10.5	(4.8)	81.0

EXHIBIT FUND 6
DEPOT MAINTENANCE 6% CAPITAL INVESTMENT PLAN

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Depot Maintenance 6% Capital Investment Plan
($ in Millions)

	FY 2018	FY 2019	FY 2020
Letterkenny Army Depot			
Average Revenue for Investment	488.7	463.2	505.6
WCF Capital Investment Program			
Facilities/Work Environment	0.7	0.0	0.0
Equipment Modernization	6.1	0.0	1.4
Processes	0.9	2.8	1.1
Capital Investment Program	7.8	2.8	2.5
Operating Funds Investments			
Facilities/Work Environment	9.0	4.3	2.5
Equipment Modernization	4.2	2.4	2.3
Processes	2.4	0.0	0.0
Total Operating Funds	15.6	6.7	4.8
Appropriated Funding			
MILCON	0.0	0.0	0.0
Procurement	0.0	0.0	0.0
Operations & Maintenance	9.7	14.8	0.0
Total Appropriated Funding	9.7	14.8	0.0
Actual/ Budgeted Investment	33.1	24.2	7.2
Required Investment	29.3	27.8	30.3
Investment Over / (Under) Required Amount	3.7	(3.6)	(23.1)
Red River Army Depot			
Average Revenue for Investment	718.3	639.3	568.1
WCF Capital Investment Program			
Facilities/Work Environment	0.0	1.0	0.0
Equipment Modernization	6.2	3.4	0.0
Processes	0.9	2.8	1.1
Capital Investment Program	7.1	7.2	1.1
Operating Funds Investments			
Facilities/Work Environment	1.7	15.4	10.3
Equipment Modernization	7.3	8.4	4.6
Processes	0.0	0.0	0.0
Total Operating Funds	9.0	23.9	14.9
Appropriated Funding			
MILCON	0.0	0.0	0.0
Procurement	0.0	0.0	0.0
Operations & Maintenance	2.3	19.9	0.2
Total Appropriated Funding	2.3	19.9	0.2
Actual/ Budgeted Investment	18.4	50.9	16.2
Required Investment	43.1	38.4	34.1
Investment Over / (Under) Required Amount	(24.7)	12.5	(17.9)

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Depot Maintenance 6% Capital Investment Plan
($ in Millions)

	FY 2018	FY 2019	FY 2020
Tobyhanna Army Depot			
Average Revenue for Investment	596.0	582.3	550.1
WCF Capital Investment Program			
Facilities/Work Environment	0.9	0.0	0.7
Equipment Modernization	5.2	5.0	2.1
Processes	1.1	3.1	1.5
Capital Investment Program	7.2	8.2	4.3
Operating Funds Investments			
Facilities/Work Environment	4.3	3.8	7.4
Equipment Modernization	8.8	6.6	5.6
Processes	2.3	2.4	2.4
Total Operating Funds	15.4	12.9	15.5
Appropriated Funding			
MILCON	0.0	0.0	0.0
Procurement	0.0	0.0	0.0
Operations & Maintenance	33.5	5.7	0.0
Total Appropriated Funding	33.5	5.7	0.0
Actual/ Budgeted Investment	56.1	26.8	19.8
Required Investment	35.8	34.9	33.0
Investment Over / (Under) Required Amount	20.3	(8.2)	(13.2)
Pine Bluff Arsenal			
Average Revenue for Investment	110.5	113.8	123.1
WCF Capital Investment Program			
Facilities/Work Environment	0.0	0.0	0.0
Equipment Modernization	0.0	0.0	4.6
Processes	0.2	0.5	0.2
Capital Investment Program	0.2	0.5	4.8
Operating Funds Investments			
Facilities/Work Environment	6.6	0.0	5.0
Equipment Modernization	0.7	0.0	2.2
Processes	0.0	0.0	0.0
Total Operating Funds	7.2	0.0	7.2
Appropriated Funding			
MILCON	0.0	0.0	0.0
Procurement	0.0	0.0	0.0
Operations & Maintenance	0.0	2.5	0.0
Total Appropriated Funding	0.0	2.5	0.0
Actual/ Budgeted Investment	7.4	3.1	12.0
Required Investment	6.6	6.8	7.4
Investment Over / (Under) Required Amount	0.8	(3.8)	4.7

EXHIBIT FUND 6
DEPOT MAINTENANCE 6% CAPITAL INVESTMENT PLAN

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Depot Maintenance 6% Capital Investment Plan
($ in Millions)

	FY 2018	FY 2019	FY 2020
Rock Island Arsenal			
Average Revenue for Investment	157.5	169.1	172.6
WCF Capital Investment Program			
Facilities/Work Environment	0.0	0.0	0.0
Equipment Modernization	0.4	7.2	0.0
Processes	0.4	1.1	0.4
Capital Investment Program	0.7	8.3	0.4
Operating Funds Investments			
Facilities/Work Environment	8.6	11.3	7.6
Equipment Modernization	1.6	7.1	7.2
Processes	0.0	0.0	0.0
Total Operating Funds	10.2	18.4	14.9
Appropriated Funding			
MILCON	0.0	0.0	0.0
Procurement	0.0	0.0	0.0
Operations & Maintenance	0.0	0.0	0.0
Total Appropriated Funding	0.0	0.0	0.0
Actual/ Budgeted Investment	11.0	26.7	15.3
Required Investment	9.5	10.1	10.4
Investment Over / (Under) Required Amount	1.5	16.5	4.9
Watervliet Arsenal			
Average Revenue for Investment	56.0	63.1	88.7
WCF Capital Investment Program			
Facilities/Work Environment	0.0	1.0	1.9
Equipment Modernization	9.2	0.0	0.0
Processes	0.2	0.6	0.2
Capital Investment Program	9.3	1.5	2.1
Operating Funds Investments			
Facilities/Work Environment	4.6	6.0	6.0
Equipment Modernization	0.0	0.0	0.0
Processes	0.0	0.0	0.0
Total Operating Funds	4.6	6.0	6.0
Appropriated Funding			
MILCON	0.0	0.0	0.0
Procurement	0.0	0.0	0.0
Operations & Maintenance	1.5	5.0	0.0
Total Appropriated Funding	1.5	5.0	0.0
Actual/ Budgeted Investment	15.4	12.5	8.1
Required Investment	3.4	3.8	5.3
Investment Over / (Under) Required Amount	12.0	8.8	2.8

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Depot Maintenance 6% Capital Investment Plan
($ in Millions)

	FY 2018	FY 2019	FY 2020
Tooele Army Depot			
Average Revenue for Investment	58.7	56.7	58.5
WCF Capital Investment Program			
Facilities/Work Environment	0.0	0.0	0.0
Equipment Modernization	0.5	0.0	0.0
Processes	0.1	0.3	0.1
Capital Investment Program	0.6	0.3	0.1
Operating Funds Investments			
Facilities/Work Environment	0.5	0.0	0.1
Equipment Modernization	1.1	0.0	1.4
Processes	0.0	0.0	0.0
Total Operating Funds	1.5	0.0	1.5
Appropriated Funding			
MILCON	6.4	0.0	3.6
Procurement	0.0	0.0	0.0
Operations & Maintenance	4.5	0.0	0.0
Total Appropriated Funding	10.9	0.0	3.6
Actual/ Budgeted Investment	13.1	0.3	5.1
Required Investment	3.5	3.4	3.5
Investment Over / (Under) Required Amount	9.6	(3.1)	1.6
Total Army			
Average Revenue for Investment	**3,689.4**	**3,610.7**	**3,661.0**
WCF Capital Investment Program			
Facilities/Work Environment	**3.6**	**2.5**	**5.8**
Equipment Modernization	**58.5**	**19.5**	**24.3**
Processes	**6.9**	**20.5**	**8.1**
Capital Investment Program	**69.0**	**42.5**	**38.2**
Operating Funds Investments			
Facilities/Work Environment	**50.1**	**58.6**	**56.7**
Equipment Modernization	**34.4**	**51.4**	**41.4**
Processes	**6.5**	**4.0**	**4.1**
Total Operating Funds	**90.9**	**114.0**	**102.2**
Appropriated Funding			
MILCON	**6.4**	**8.9**	**89.6**
Procurement	**0.0**	**12.0**	**0.0**
Operations & Maintenance	**80.5**	**70.2**	**7.6**
Total Appropriated Funding	**86.9**	**91.1**	**97.2**
Actual/ Budgeted Investment	**246.7**	**247.5**	**237.6**
Required Investment	**221.4**	**216.6**	**219.7**
Investment Over / (Under) Required Amount	**25.4**	**30.9**	**17.9**
Investment Percentage	**6.7%**	**6.9%**	**6.5%**

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Fuel Data

FY 2018			
	FUEL PROCUREMENT		
PRODUCT	BARRELS (millions)	COST PER BARREL ($)	EXTENDED PRICE ($ millions)
AVGAS (CONUS)		$118.86	
AVGAS (OCONUS)		$467.88	
Diesel Fuel:			
Distillates- F76		$105.42	
High Sulfur- DF1	0.001	$104.58	0.125
Generic (High Sulfur)- DF2	0.000	$94.08	0.010
Ultra Low Sulfur- DS1	0.006	$107.52	0.637
Ultra Low Sulfur- DS2	0.015	$100.80	1.514
Burner Grade- FS1	0.002	$102.06	0.195
Burner Grade- FS2	0.004	$90.30	0.383
Biodiesel- BDI	0.002	$100.80	0.211
Jet Fuel:			
JP8 & JA1		$104.58	
JAA	0.015	$103.74	1.536
JP5		$105.84	
JPTS		$162.54	
Kerosene- KS1	0.000	$102.90	0.001
Motor Gasoline:			
Regular, Unleaded- MUR	0.009	$102.06	0.940
Midgrade, Unleaded- MUM	0.000	$107.94	0.052
Premium, Unleaded- MUP		$120.96	
Gasohol- GUM	0.000	$107.94	0.000
Ethanol- E85	0.001	$102.06	0.095
Residual:			
Burner Grade- FS4	0.001	$66.36	0.041
Residual (Burner Grade)- FS6		$52.50	
FOR		$39.48	
Bunkers Marine- MGO		$108.78	
Bunkers Intermediate Grade- 180, 380		$78.54	
Into Plane Jet Fuel- IAI, IAA, IAB, IP8		$118.86	
Local Purchase Jet Fuel- NA1, NAA	0.000	$127.68	0.033
Local Purchase Ground Fuel- NLS, NMU		$109.62	
Propane	0.002	$99.12	0.220
TOTAL	0.059		5.992

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Fuel Data

FY 2019			
	FUEL PROCUREMENT		
PRODUCT	BARRELS (millions)	COST PER BARREL ($)	EXTENDED PRICE ($ millions)
AVGAS (CONUS)		$141.96	
AVGAS (OCONUS)		$559.86	
Diesel Fuel:			
Distillates- F76		$126.00	
High Sulfur- DF1	0.002	$125.16	0.192
Generic (High Sulfur)- DF2	0.000	$112.56	0.008
Ultra Low Sulfur- DS1	0.004	$128.10	0.561
Ultra Low Sulfur- DS2	0.010	$120.96	1.266
Burner Grade- FS1	0.002	$122.64	0.253
Burner Grade- FS2	0.004	$108.36	0.462
Biodiesel- BDI	0.001	$121.38	0.089
Jet Fuel:			
JP8 & JA1		$125.16	
JAA	0.018	$124.32	2.257
JP5	0.000	$126.42	0.060
JPTS		$194.46	
Kerosene- KS1		$123.06	
Motor Gasoline:			
Regular, Unleaded- MUR	0.009	$122.64	1.151
Midgrade, Unleaded- MUM		$129.36	
Premium, Unleaded- MUP		$144.06	
Gasohol- GUM	0.000	$129.36	0.001
Ethanol- E85	0.002	$122.64	0.297
Residual:			
Burner Grade- FS4	0.000	$79.38	0.038
Residual (Burner Grade)- FS6		$63.00	
FOR		$39.90	
Bunkers Marine- MGO		$129.36	
Bunkers Intermediate Grade- 180, 380		$94.50	
Into Plane Jet Fuel- IAI, IAA, IAB, IP8		$141.96	
Local Purchase Jet Fuel- NA1, NAA		$153.30	
Local Purchase Ground Fuel- NLS, NMU		$131.04	
Propane	0.003	$125.16	0.392
TOTAL	0.058		7.025

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Fuel Data

FY 2020			
	FUEL PROCUREMENT		
PRODUCT	BARRELS (millions)	COST PER BARREL ($)	EXTENDED PRICE ($ millions)
AVGAS (CONUS)		$141.12	
AVGAS (OCONUS)		$556.08	
Diesel Fuel:			
Distillates- F76		$125.16	
High Sulfur- DF1	0.002	$124.32	0.190
Generic (High Sulfur)- DF2	0.000	$111.72	0.008
Ultra Low Sulfur- DS1	0.001	$127.26	0.135
Ultra Low Sulfur- DS2	0.017	$120.12	2.050
Burner Grade- FS1	0.002	$121.80	0.251
Burner Grade- FS2	0.006	$107.52	0.629
Biodiesel- BDI	0.001	$120.54	0.094
Jet Fuel:			
JP8 & JA1		$124.32	
JAA	0.023	$123.48	2.781
JP5	0.000	$125.58	0.060
JPTS		$193.20	
Kerosene- KS1		$122.22	
Motor Gasoline:			
Regular, Unleaded- MUR	0.009	$121.80	1.085
Midgrade, Unleaded- MUM		$128.52	
Premium, Unleaded- MUP		$143.22	
Gasohol- GUM	0.000	$128.52	0.001
Ethanol- E85	0.003	$121.80	0.424
Residual:			
Burner Grade- FS4	0.001	$78.96	0.091
Residual (Burner Grade)- FS6		$62.58	
FOR		$39.90	
Bunkers Marine- MGO		$128.52	
Bunkers Intermediate Grade- 180, 380		$93.66	
Into Plane Jet Fuel- IAI, IAA, IAB, IP8		$141.12	
Local Purchase Jet Fuel- NA1, NAA		$152.46	
Local Purchase Ground Fuel- NLS, NMU		$130.20	
Propane	0.003	$124.32	0.378
TOTAL	0.068		8.177

Capital Budget Introduction

The primary goal of the Capital Investment Program (CIP) within the AWCF is to establish a capability for reinvestment in the infrastructure of business areas to improve product and service quality and timeliness, reduce costs, and foster state-of-the-art business operations. The CIP provides the framework for planning, coordinating, and controlling AWCF resources and expenditures to obtain capital assets. Included in the capital budget are the following types of assets: automated data processing equipment (ADPE); non-ADPE equipment; automated data processing software, whether internally or externally developed; and minor construction. The capital budget justifies the purchase of assets with a unit cost that is greater than or equal to $250,000 and have a useful life of two or more years.

Headquarters, Army Materiel Command conducts a thorough vetting process to ensure capital projects deliver a positive return on investment and comply with strategic plans for each industrial facility. Capital projects within the Industrial Operations enterprise focus primarily on replacing and upgrading equipment, while the Supply Management enterprise focuses solely on software development in support of the Logistics Modernization Program.

Capital budget obligation authority is displayed on the following exhibits: Fund 9a, *Capital Investment Summary*; Fund 9b, *Capital Purchase Justification*; and Fund 9c, *Capital Budget Execution*.

The following table shows the Supply Management capital budget and associated cash outlays.

Table CIP 1- Supply Management Capital Budget

($ Millions)	FY 2018	FY 2019	FY 2020
Software	24.4	58.1	21.7
Capital Cash Outlays	*25.7*	*40.9*	*36.5*

The following table shows categories and respective values of the Industrial Operations capital budget and the projected capital cash outlays.

Table CIP 2 - Industrial Operations Capital Budget

($ Millions)	FY 2018	FY 2019	FY 2020
Equipment	30.1	36.8	31.8
ADPE & Telecommunications	11.8	3.0	3.2
Software	10.5	24.6	9.7
Minor Construction	5.5	14.4	19.6
Total	57.8	78.8	64.3
Capital Cash Outlays	*40.4*	*62.0*	*72.3*

Army Working Capital Fund
Fiscal year (FY) 2020 Budget Estimates
Supply Management

Capital Investment Summary
($ in Millions)

Line No.	Item Description	FY 2018		FY 2019		FY 2020	
		QTY	Total Cost	QTY	Total Cost	QTY	Total Cost
	Software Development - Externally Developed	**2**	**24.384**	**2**	**58.107**	**1**	**21.696**
00-02	*Logistics Modernization Program*	1	24.384	1	54.707	1	21.696
16-01	*Army Price & Credit Tool*	1	0.000	1	3.400		0.000
	TOTAL OBLIGATIONS*		**24.384**		**58.107**		**21.696**
	Total Capital Outlays		25.689		40.856		36.529
	Total Depreciation Expense		48.148		44.815		24.611

*Note: FY 2018 total of $24.384 million does not include the following: FY 2014 LMP $1.351 million and FY 2016 LMP $0.019 million.

EXHIBIT FUND 9a
CAPITAL INVESTMENT SUMMARY

Army Working Capital Fund
Fiscal year (FY) 2020 Budget Estimates
Supply Management

Capital Purchase Justification
($ in Millions)

Line No. 00-02		**Software Development - Externally Developed**		
Supply Management		**Logistics Modernization Program (LMP)**		
Item Description		**FY 2018**	**FY 2019**	**FY 2020**
Logistics Modernization Program		24.384	54.707	21.696
	***Total**	**24.384**	**54.707**	**21.696**

*Note: FY 2018 total of $24.384 million does not include the following: FY 2014 LMP $1.351 million and FY 2016 LMP $0.019 million

Narrative Justification

LMP requires continued modernization enhancements to maintain superior supply chain functionality to support National Level Logistics. LMP Increment 1 was fully fielded in October 2010 and enhanced by LMP Increment 2's full deployment declaration in September 2016. These increments combine as LMP is used by approximately 21,000 users at more than 50 Army locations worldwide, but is not yet integrated into overarching Army transformation efforts. LMP is an enabler for the Army to achieve its commitment to having fully auditable AWCF financial statements. LMP continues to enhance the Enterprise Resource Planning (ERP) solution to achieve and meet compliance requirements and trading partner requirements seamlessly.

Failure to fund LMP would prohibit Army Materiel Command's (AMC) functional requirements from improving operations and put continuing financial compliance at risk. LMP will not be in compliance with Secretary of Defense directives. LMP may not be able to meet the all Federal, DOD, and Army milestones being developed in the Army Standard Line of Accounting implementation plan.

No Economic Analysis is required as this is a directed audit compliance requirement.

Army Working Capital Fund
Fiscal year (FY) 2020 Budget Estimates
Supply Management

Capital Purchase Justification
($ in Millions)

Line No. 16-01		Software Development - Externally Developed		
Supply Management			**Army Price & Credit Tool**	
Item Description		**FY 2018**	**FY 2019**	**FY 2020**
Army Price & Credit Tool		0.000	3.400	0.000
	Total	**0.000**	**3.400**	**0.000**

Narrative Justification

The Army Price & Credit Tool (APACT) will consolidate and establish an AMC owned process currently performed by contractors. AMC does not own the pricing database for 110,000 National Item Identification Numbers (NIINs) which require yearly price review and potential monthly updates. The Life Cycle Management Centers (LCMCs) have developed their own internal processes for reviewing and identifying price changes related to NIIN demand requirements for repair and replenishment. LCMC processes are not standardized nor adequately capture all required costing data for inclusion into budgets supporting Army customers for OPTEMPO pricing.

The APACT will provide re-engineered business process integrated into the Army ERP systems to support the price and credit process at AMC LCMCs, HQ AMC, and HQ Department of the Army. The APACT will reduce support contract requirements, error rates, and the associated man-hours for corrective actions, establishing a single repository for historical price data for Army managed items. This requirement is in support of the AESIP Enterprise Price and Credit Tool (EPiC) to have outbound Interfaces to Army Enterprise Systems Integrated Program (AESIP) and inbound data requirement from AESIP for Secondary items from LMP. The Enterprise Price and Credit Tool will be automated to have outbound interface to AESIP for the specific data elements and inbound data requirements from AESIP for Year of Execution (YOE) process.

This is an urgent requirement for both Inbound processing from AESIP and Outbound Interfaces to AESIP solution development and financial auditability in the Army Enterprise.

Impact:
-LMP not updating their inbound interface from AESIP prevents them from receiving current price and credit data from AESIP as AESIP is subsuming the current Calibre process. Calibre currently provides LMP with select data today.
-LMP not updating their outbound interfaces to AESIP prevents Army stakeholders from supporting the Program Objective Memorandum (POM) and YOE Processes to create and approve price and credit data for materiel that are sent forward and published in the Army Price and Credit Table Publication.

Failure to fund the APACT would continue a manually intensive, non-integrated, and error-prone process in the Army for determining the price and credit table.

An Economic Analysis has been performed and is available upon request.

Fiscal year (FY) 2020 Budget Estimates
Supply Management

Capital Budget Execution
($ in Millions)

FY	Major Category	Initial Request	Current Proj Cost	Approved Change	Explanation
2018	**Software Development**				
	Logistics Modernization Program	24.384	24.384	0.000	
	Army Price & Credit Tool	0.582	0.000	(0.582)	This Project will carry over to FY2019
	Total FY 2018	**24.966**	**24.384**	**(0.582)**	
2019	**Software Development**				
	Logistics Modernization Program	25.750	54.707	28.957	Increase was due to auditability requirements; Service NOW; TAV-C requirements moved into FY19 from FY20
	Army Price & Credit Tool	0.000	3.400	3.400	LMP costs identified to support the AESIP program
	Total FY 2019	**25.750**	**58.107**	**32.357**	
2020	**Software Development**				
	Logistics Modernization Program	21.696	21.696	0.000	
	Army Price & Credit Tool	0.000	0.000	0.000	
	Total FY 2020	**21.696**	**21.696**	**0.000**	

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Capital Investment Summary
($ in Millions)

Line No.	Item Description	FY 2018		FY 2019		FY 2020	
		QTY	Total Cost	QTY	Total Cost	QTY	Total Cost
05-13	**NON- ADPE EQUIPMENT CAPABILITIES**	**25**	**30.060**	**18**	**36.759**	**11**	**31.826**
	- Replacement	12	16.635	3	6.680	9	29.215
	- Productivity	12	12.539	15	30.079	2	2.611
	- Environmental	1	0.886	0	0.000	0	0.000
	ADPE & Telecommunications Equipment	**12**	**11.813**	**1**	**3.037**	**3**	**3.220**
18-01	*- ARUBA Wireless Network*	10	5.833	0	0.000	0	0.000
19-01	*- TYAD Zero Client*	0	0.000	1	3.037	0	0.000
19-05	*- Voice over Internet Protocol (VOIP)*	2	5.980	0	0.000	1	1.395
20-01	*- Storage Array*	0	0.000	0	0.000	1	1.270
20-02	*- Virtual Desktop Infrastructure Upgrade*	0	0.000	0	0.000	1	0.555
	Software Development - Externally Developed	**1**	**10.498**	**1**	**24.556**	**2**	**9.674**
00-02	*- Logistics Modernization Program*	1	10.498	1	24.556	1	9.390
20-03	*- Common IFF Test Rack Calibration Software*	0	0.000	0	0.000	1	0.284
05-26	**MINOR CONSTRUCTION CAPABILITIES**	**8**	**5.463**	**6**	**14.402**	**12**	**19.600**
	- Replacement	1	0.355	2	1.503	2	1.913
	- Productivity	7	5.108	4	12.899	10	17.687
	Total Obligations*	**46**	**57.834**	**26**	**78.754**	**28**	**64.320**
	Total Capital Outlays		40.441		62.039		72.327
	Total Depreciation Expense		148.787		150.798		115.799

*Note: FY 2018 total of $57.834 million does not include the following: FY 2010 Non-ADPE Equipment reprogramming ($0.750 million); FY 2012 PPBE and DoD Budget Formulation Non-ADPE Equipment reprogramming ($7.546 million); FY 2016 Non-ADPE Equipment ($1.070 million); FY 2017 Non-ADPE Equipment ($26.021 million); FY 2016 Minor Construction ($1.280 million), FY 2017 Minor Construction ($0.979 million).

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Capital Purchase Justification
($ in Millions)

Line No. 05-13 **Industrial Operations**			**Non - ADPE Equipment Capabilities** **Various Capital Equipment**	
Item Description		**FY 2018**	**FY 2019**	**FY 2020**
Various Capital Equipment - Replacement		16.635	6.680	29.215
Various Capital Equipment - Productivity		12.539	30.079	2.611
Various Capital Equipment - Environmental		0.886	0.000	0.000
	Total	**30.060**	**36.759**	**31.826**

Narrative Justification

This exhibit represents equipment purchases costing more than $250 thousand, which will improve the installations' efficiency or effectiveness through replacement, modification or addition of production and maintenance capability and compliance with new mission requirements. Equipment supports organic maintenance, overhaul, rebuild, reclamation, conversion, renovation, modification and repair programs.

Acquisition of this equipment improves productivity; increases capacity that cannot be met with current equipment; replaces unsafe, inoperable or unusable assets; and includes requirements for environmentally hazardous waste reduction or regulatory agency mandated requirements.

If not acquired, the impact would be reduced mission capability, cause failure to meet present and future workload requirements, increase man-hour expenditures, cause inability to meet production schedules, lead to excessive downtime, increase maintenance costs, and decrease accuracy and dependability.

Economic Analyses have been performed on individual projects when required and are available upon request.

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Capital Purchase Justification
($ in Millions)

Line No. 18-01		**ADPE & Telecommunications Equipment**		
Industrial Operations				**ARUBA Wireless Network**
Item Description		**FY 2018**	**FY 2019**	**FY 2020**
ARUBA Wireless Network		5.833	0.000	0.000
	Total	**5.833**	**0.000**	**0.000**

Narrative Justification

A wireless system is required to provide network connectivity to remote production and storage locations that are not hard wired to the computer network. Workers need this connectivity to access Logistics Modernization Program (LMP) for real-time reporting from the shop floor, storage areas and other mobile reporting locations. A portion of the wireless equipment currently used will no longer have manufacturer support after 31 October 2018. Without software updates and OEM support, components of the wireless system will no longer be certified by the Joint Interoperations Test Command (JITC).

The preferred alternative is to upgrade existing wireless networking equipment. All wireless equipment and software will comply with JITC requirements. Full wireless coverage in remote areas for LMP uses.

Failure to fund this would lead to non-compliant wireless equipment. Additionally, there would be no wireless connectivity to access LMP in production and storage areas

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Capital Purchase Justification
($ in Millions)

Line No. 19-01		**ADPE & Telecommunications Equipment**		
Industrial Operations				**TYAD Zero Client**
Item Description		**FY 2018**	**FY 2019**	**FY 2020**
Tobyhanna Army Depot (TYAD) Zero Client		0.000	3.037	0.000
	Total	**0.000**	**3.037**	**0.000**

Narrative Justification

Virtual desktop Infrastructure (VDI) replaces individual desktop PCs with zero-client hardware devices and includes the installation of a virtual desktop architecture in TYAD's network server room. Data storage capacity will be increased as will system memory and a virtual operating system installed. Throughout the depot, each desktop monitor and mouse are connected to a zero-client terminal which is connected to the network.

Zero-client - including the data room virtual operating system - costs less than desktop PCs, requires very little maintenance on either end, is extremely secure (for the most part immune to viruses), has individual terminals on personnel desks that consume significantly less energy than a desktop PC, and requires significantly less desk space than a PC.

Since everything is managed, stored and secured centrally, from the data center, thin clients eliminate the issues of installing, updating and patching applications, backing up files, or scanning for viruses on individual computers. Perhaps the most significant benefit of a zero-client architecture at TYAD is the elimination of a major concern for network security.

Without the investment in the zero-client, virtual desktop infrastructure, TYAD will continue to refresh individual desktop PC systems and associated operating systems and application software per the standard four-to-five year cycle, continually expend the time and expense to install and update software patches on individual desktop PCs along with continually scanning for viruses and backing up files, and will sustain the ever-present, ever-increasing concern for network security associated with desktop PC’s.

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Capital Purchase Justification
($ in Millions)

Line No. 19-05 **Industrial Operations**		**ADPE & Telecommunications Equipment** **Voice over Internet Protocol (VOIP)**		
Item description		**FY 2018**	**FY 2019**	**FY 2020**
Voice over Internet Protocol (VOIP)		5.980	0.000	1.395
	Total	**5.980**	**0.000**	**1.395**

Narrative Justification

A Subscriber Loop Carrier (SLC) is a system that allows one phone line, to carry multiple conversations. McAlester Army Ammunition Plant (MCAAP) currently operates 14 SLC systems. Each system extends 96 analog voice lines over four strands of single mode fiber to all areas of MCAAP. The current SLC96 systems at MCAAP are non-compliant with DOD Directive 8330.01, which ensures Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS). This discrepancy will lead to DSN network disconnection when the installation is evaluated by the DOD Information Assurance Certification and Accreditation Process (DIACAP).

Army Regulation 25–13, Army Telecommunications and Unified Capabilities, terminates further investment in legacy voice-switching equipment and reduces/eliminates voice-switching circuits. The regulation requires local call capability to transition to an IP solution (VOIP).

The preferred alternative is to replace all existing equipment with JITC certified replacement. The recommended JITC certified VOIP equipment (Voice Over Internet Protocol) will maintain telephone traffic to all areas and keep MCAAP compliant with all DOD policies and directives.

When the current SLC96 systems can no longer be maintained, voice services will be progressively lost over the entire installation. Production and storage building utilizing phone service as fire department notification in the absence of a fire alarm system will shut down per National Fire Protection Association code NFPA-1, Paragraphs 13.7.1.4.11.2 & 3. Non-compliance with DOD Directives may also lead to DSN network disconnection by the Defense Information Systems Agency (DISA).

An Economic Analysis has been performed and is available upon request.

Capital Purchase Justification
($ in Millions)

Line No. 20-01 Industrial Operations				**ADPE & Telecommunications Equipment Storage Array**
Item Description		**FY 2018**	**FY 2019**	**FY 2020**
Storage Array		0.000	0.000	1.270
	Total	**0.000**	**0.000**	**1.270**

Narrative Justification

Corpus Christi Army Depot (CCAD) has two primary storage solutions within the data center for all of CCAD's data. These storage systems have reached their end of lifecycle and are no longer supported by the manufacturer. An additional storage system is located in a separate building that provides a hot site backup. This storage system has reached its end of lifecycle and will no longer be supported by the manufacturer after 2019. All data residing within the data center is automatically replicated to the hot site.

CCAD has a new requirement to expand video storage requirements for our Security Video Monitoring System (SVMS). Video is now stored on the same storage system as all other data. Given the technological advances in cameras and video technology, such as high definition, the storage requirement has increased dramatically. Currently, video can only be saved for approximately five days before it is overwritten. This is not adequate to meet our Security Division's requirement. If video is only saved for five days, by the time Security is notified of a possible investigation requirement, it is likely that the video no longer exists. Therefore, Security is requesting video be retained for 30 days. With the sensitive nature of the video, and its potential to be used in legal proceedings, it is necessary to ensure the integrity of potential evidence. In order to meet this requirement a separate storage system is required.

The preferred alternative involves the purchase, installation, and configuration of three storage solutions. The two storage solutions currently within the data center would be replaced by one lifecycle storage solution, the hot site storage would undergo a lifecycle replacement, and a new storage solution would be acquired to support SVMS. Without these solutions, CCAD would be in conflict with Risk Management Framework security controls as well as increased risk of data loss.

An Economic Analysis has been performed and is available upon request.

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Capital Purchase Justification
($ in Millions)

Line No. 20-02				**ADPE & Telecommunication Equipment**
Industrial Operations				**Virtual Desktop Infrastructure Upgrade**
Item Description		**FY 2018**	**FY 2019**	**FY 2020**
Virtual Desktop Infrastructure Upgrade		0.000	0.000	0.555
	Total	**0.000**	**0.000**	**0.555**

Narrative Justification

The Corpus Christi Army Depot (CCAD) hosts a Virtual Desktop Infrastructure (VDI) Environment providing end users wit h a virtual desktop accessing all servers that reside in CCAD's data center. Each virtual desktop consists of the latest Army Gold Master (AGM) running Microsoft (MS) Windows 7 with two Gigabytes (GB) of Random Access Memory (RAM) and required standard application software. The VDI provides failover capability, in the event of a failure, all VDI users would lose their existing virtual desktop. Logging in again would establish a new session on a different server and possibly at CCAD's hot site depending on the extent of the failure. CCAD must ensure compliance with all Information Assurance Vulnerability Alerts (IAVA) released by the United States Cyber Command (USCYBERCOM). CCAD is currently tracking 437 IAVAs that have been released in Fiscal Year 2017. The current VDI will not support the 7th-signal command requirement to implement Windows X64 bit architecture to support Windows 10 due to an increased requirement of three GB of RAM as opposed to an existing capability of two GB of RAM.

The preferred alternative will provide the memory resources to support the required X64 bit Windows 10 operating sy stem. This alternative also increases CCAD's Information Technology security posture given the efficient method of applying require security patches.

Without the approved upgrade CCAD would be forced to reduce the number of personnel utilizing the VDI by approximately 1,000 end users. This would in turn require purchasing an equal amount of personal computers, which would increase the man hours required to maintain IAVA compliance and support the additional computers.

An Economic Analysis has been performed and is available upon request.

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Capital Purchase Justification
($ in Millions)

Line No. 00-02		**Software Development - Externally Developed**		
Industrial Operations		**Logistics Modernization Program (LMP)**		
Item Description		**FY 2018**	**FY 2019**	**FY 2020**
Logistics Modernization Program		10.498	24.556	9.390
	Total	**10.498**	**24.556**	**9.390**

Narrative Justification

LMP requires continued modernization enhancements to maintain superior supply chain functionality to support National Level Logistics. LMP Increment 1 was fully fielded in October 2010 and enhanced by LMP Increment 2's full deployment declaration in September 2016. These increments combine as the current LMP capability and is currently used by approximately 21,000 users at more than 50 Army locations worldwide, but is not yet integrated into overarching Army transformation efforts. LMP is an enabler for the Army to achieve its commitment to having fully auditable AWCF financial statements. The LMP continues to enhance the Enterprise Resource Planning (ERP) solution to achieve and meet compliance requirements and trading partner requirements seamlessly.

Failure to fund LMP would prohibit Army Materiel Command's (AMC) functional requirements from improving operations and put continuing financial compliance at risk. LMP will not be in compliance with Secretary of Defense directives. LMP may not be able to meet the all Federal, DOD, and Army milestones being developed in the Army Standard Line of Accounting implementation plan.

In FY2017 - FY2019, LMP will design and develop improvements to the existing workload planning and reporting processes to close gaps and weaknesses identified by auditors to include the Government Accountability Office (GAO-14-266). Full Deployment Capability Date: 4Q FY 2019.

No Economic Analysis is required as this is a directed audit compliance requirement.

Capital Capital Purchase Justification
($ in Millions)

Line No. 20-03	**Software Development - Externally Developed**		
Industrial Operations	**Common IFF Test Rack Calibration Software**		
Item Description	**FY 2018**	**FY 2019**	**FY 2020**
Common IFF Test Rack Calibration Software	0.000	0.000	0.284
Total	**0.000**	**0.000**	**0.284**

Narrative Justification

The Common Identification Friend or Foe (IFF) Test Rack is used in combination with the Virtual Deficiency Analysis and Tracking System (VDATS) test equipment (as a system) to test the functioning of the AN/APX-118, 123 and 124 transponders. The workload is performed in the Transponder Section, Avionics Branch, Avionics & Sensors Division, D/C4ISR employing a Common IFF Test Rack and VDATS Airborne Test Equipment (ATE) system. A requirement for the instruments that make up the Common IFF Test Rack is to calibrate the instruments annually.

Currently, the only means to perform the calibration is to disassemble the test rack by removing all the interconnecting cables and wires between the instruments and the test fixture and replace the instruments with a “floater” set of calibrated instruments. The floater set of instruments is regularly transported to the Calibration Laboratory where they are manually calibrated and set aside in reserve until instruments in an IFF rack again require calibration.

Manually calibrating the instruments is not only time-consuming in and of itself, but removing the interconnecting wires and cables leaves open the possibility that the wires and cables will be re-installed incorrectly, causing technicians to spend time troubleshooting potential reasons for equipment malfunctions. This process also leaves assets vulnerable to damage during transit, the manual calibration process or the test rack instrument replacement procedure.

Purchase of the calibration software algorithm will benefit the process of calibrating the instruments in the IFF Test Rack in the following ways:

1.) Automate the process in conjunction with the Portable Automated Test Equipment Calibrator (PATEC) and VDATS, with very little manual intervention

2.) Perform the calibration in significantly less time than the current process of replacing uncalibrated instruments with ones that are calibrated for test purposes.

Tobyhanna Army Depot (TYAD) has already purchased a set of “floater” instruments so that regardless of how many Common IFF Rack/VDAT setups are in operation (in 2019 there will be three), there will always be a set of calibrated instruments in standby mode. However, over the course of the life of the project, instruments will fail and need to be replaced. Pursuing the new software will allow TYAD to use the existing standby “floater” set of instruments (costing more than the new software) as replacements/spares for those that fail during the normal course of operation of the test systems. Without the software, the Common IFF Test Rack will have to be disassembled to replace the uncalibrated instruments with the floater set and, these expensive instruments will still fail over time and will have to be replaced at some point during the duration of the transponder workload.

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Capital Purchase Justification
($ in Millions)

Line No. 05-26				**Minor Construction Capabilities**
Industrial Operations				**Various Minor Construction <$2M**
Item Description		**FY 2018**	**FY 2019**	**FY 2020**
Various Minor Construction Capabilities				
-Replacement		0.355	1.503	1.913
-Productivity		5.108	12.899	17.687
	Total	**5.463**	**14.402**	**19.600**

Narrative Justification

Various minor construction projects costing less than $2 million will improve the efficiency of the Industrial Operations through new, modernized additions to renovate existing facilities. The construction projects are additions or modifications to meet mission needs and improve the quality of life (safety/environmental concerns).

The projects will increase productivity and allow for quality of life improvements. Specifically, the efficiency of the mission work will improve with better plant layout, better electrical distribution, and improved lighting, heating, ventilation and air conditioning. The projects specific to quality of life improvements will improve worker morale and eliminate potential health and safety concerns.

If not approved, facility conditions will continue to decline, worker morale will decline, the work environment will erode, and worker safety and health will continue to be a major concern.

Economic Analyses have been performed on individual projects when required and are available upon request.

Army Working Capital Fund
Fiscal Year (FY) 2020 Budget Estimates
Industrial Operations

Capital Budget Execution
($ in Millions)

FY	Major Category	Initial Request	Current Projected Cost	Approved Change	Explanation
2018	**Non-ADPE**	76.967	30.060	(46.907)	Review of planned capital investments against capability resulted in the cancellation of various projects. Prior year obs of $26.869 million not included in this total.
	ADPE and Telcom	2.047	11.813	9.766	Cost increase of ARUBA Wireless Network due to inclusion of 10 installations; previously only included 2.
	Software	10.450	10.498	0.048	Prior year cleanup caused slight increase.
	Minor Construction	14.046	5.463	(8.583)	Review of planned capital investments against capability required to support future customer orders resulted in the cancellation or reprogramming of various projects. $1.250 million will carry over to FY19.
	Total FY 2018	**103.510**	**57.834**	**(45.676)**	
2019	**Non-ADPE**	38.400	36.759	(1.641)	Review of planned capital investments against capability resulted in the cancellation of various projects.
	ADPE and Telcom	5.744	3.037	(2.707)	Two ADPE projects cancelled.
	Software Development	11.036	24.556	13.520	IO LMP - Increase due to audit compliance requirements.
	Minor Construction	8.275	14.402	6.127	Review of planned capital investments against capability resulted in moving back or forward of various minor construction projects.
	Total FY 2019	**63.455**	**78.754**	**15.299**	
2020	**Non-ADPE**	31.826	31.826	0.000	
	ADPE and Telcom	3.220	3.220	0.000	
	Software Development	9.674	9.674	0.000	
	Minor Construction	19.600	19.600	0.000	
	Total FY 2020	**64.320**	**64.320**	**0.000**	

The Army Values