DEPARTMENT OF THE NAVY
FISCAL YEAR (FY) 2021
BUDGET ESTIMATES

JUSTIFICATION OF ESTIMATES
FEBRUARY 2020

Navy Working Capital Fund (NWCF)

The estimated cost for this report for the Department of the Navy (DON) is $252,570.

The estimated total cost for supporting the DON budget justification material is approximately $2,970,459 for the 2020 fiscal year. This includes $82,977 in supplies and $2,887,482 in labor.

NAVY WORKING CAPITAL FUND

The Navy Working Capital Fund (NWCF) is a revolving fund that finances the Department of the Navy (DON) activities which provide products and services on a reimbursable basis. Unlike for-profit commercial businesses, whose financial goal is to maximize profit, the NWCF activities' financial goal is to break even over the budget cycle. The NWCF provides stabilized pricing to customers and acts as a shock-absorber to fluctuations in market prices during the year of execution; fluctuations are recovered from customers in future years. The wide range of goods and services provided by NWCF activities are crucial to restoring readiness, improving lethality, and modernization.

The NWCF activities are located in 27 sites across the country and over 120 detachments located globally. Below are the NWCF business areas:

- Supply Management: Performs inventory oversight functions that result in the sale of aviation and shipboard components, ship's store stock, repairables, and consumables to a wide variety of customers.
- Depot Maintenance: Provides worldwide maintenance, engineering, and logistics support through mobilization, repair of aircraft, engines, components, and weapons systems, and the manufacture of parts and assemblies.
- Transportation: Provides over-ocean movement of supplies and provisions to deployed forces, and maintains prepositioned equipment and supplies.
- Research and Development: Supports weapons systems, facilities and equipment for the air, land, sea, and space operating environments through development, engineering, acquisition, in-service support, and repair and maintenance.
- Base Support: Ensures facilities and installations have reliable access to utilities services such as electricity, water, steam, and natural gas, vehicle and equipment services, facility support contracting oversight, and building/facilities sustainment and recapitalization services. Base Support was realigned to the General Fund (GF) in FY 2020 but will continue to have outlays through FY 2021.

Consistent with the National Defense Strategy, the FY 2021 NWCF budget is reforming business structures and practices for greater performance and affordability. Navy business reform initiatives impacting the NWCF include:

- Conversion of Expeditionary Warfare Center (EXWC) from GF to NWCF to align with the model used by the other naval warfare centers and enable EXWC to achieve synergies in services

- Realignment of the Naval Information Warfare Systems Command (NAVWAR) Civilian Personnel from GF to NWCF to achieve organizational efficiencies and improve resource management.
- NWCF activities realigned overhead costs for Facilities, Sustainment, Restoration and Modernization; hazard waste; utilities; and Capital Investment Program Military Construction authority executed by Facilities Engineering Commands to Commander, Navy Installations Command (CNIC) GF.
- Navy Research Laboratory (NRL), Marine Corps Depot Maintenance Activity Group (MC DMAG), Marine Corps, Supply Management Activity Group (MC SMAG) and Fleet Readiness Centers (FRCs) will migrate from legacy financial systems to the Navy Enterprise Resource Program (ERP) in FY 2020 to standardized business processes and help produce auditable financial statements. This effort will improve the Navy's audit posture and simplify the financial system environment.
- Increase in NWCF Full Time Equivalents (FTEs) for Supply Management (SM) reform efforts to improve inventory accuracy.
- Transfers mission of receipt, storage, and issue/tactical distribution at six regional warehouses from Defense Logistics Agency (DLA) to the Navy. The transfer returns operations back to Naval Supply Systems Command (NAVSUP) and enables better mission sustainment through increased flexibility to support local Navy customers.

The FY 2021 NWCF budget request reflects the DON's continued focus on balancing demands to ensure the right blend of goods and services are provided at the right cost. The FY 2021 NWCF maintains a workforce of 80,964 civilian and 1,189 military personnel. The value of goods and services provided by NWCF activities in FY 2021 is projected to be approximately $32.3 billion, as shown in Figure 1. The increase of $1.2 billion from FY 2020 to FY 2021 is primarily attributable to increase in obligation authority for Supply Management enabling time-phased supply/spares depth improvements that will better align the Navy's supply system with Secretary of Defense priorities.

Figure 1 - Summary of NWCF Costs

Operating Costs *(Millions)*	**FY 2019**	**FY 2020**	**FY 2021**
Supply - Obligations	9,158.2	8,694.1	9,811.6
Depot Maintenance	3,095.1	3,047.9	3,092.3
Transportation	3,280.0	3,315.4	3,304.9
Research and Development	14,736.5	15,659.2	16,033.2
Base Support	3,430.2	328.2	29.6
Total NWCF Operating Costs	**33,699.9**	**31,044.7**	**32,271.5**

Supply Management

Supply Management is the central element assuring afloat and ashore operating forces and their equipment have the necessary supplies, spare parts, and components to conduct military engagements, various types of training, and any potential contingency. Ensuring the right material is provided where it matters, when it matters, and at the right cost is vital to equipping and sustaining Navy and Marine Corps warfighting units. Supply Management performs inventory oversight functions that result in the sale of aviation and shipboard components, ship's store stock, repairables, and consumables to a wide variety of customers. Supply Management also provides strong sailor and family support through contracting, resale, transportation, food service, and other quality of life programs. Costs related to supplying material to customers are recouped through stabilized rate recovery processes.

Depot Maintenance

The Fleet Readiness Centers (FRCs) and Marine Corps Depot Maintenance Activity Group (MC DMAG) perform depot maintenance functions to ensure repair, overhaul, and timely upgrades of the right types and quantities of aircraft, weapons systems, and support equipment in order to ensure our ability to rapidly respond to global crises. Work completed at the FRCs and Marine Corps Depots ensure deployed and next-to-deploy units have the battle-ready items they need to train, fight, and win today while supporting the force to win tomorrow. Forward-deployed individuals perform time-critical repair and upgrade functions in-theater, alongside the service members they support.

Since current demand for naval forces exceed supply, the FRCs are essential for mobilization; repair of aircraft, engines, and components; and the manufacture of associated parts and assemblies. Additionally, the FRCs overhaul and repair a wide range of equipment and components. They provide engineering services in the development of hardware design changes and furnish technical and other professional services on maintenance and logistics issues.

The Marine Corps Depots provide engineering, manufacturing, re-manufacturing, preservation, calibration, fabrication, technical evaluation, and other services required to maximize the readiness and sustainability of ground combat and combat support weapon systems, associated parts, assemblies, and subassemblies. Such quality products and responsive maintenance support services help maintain a core industrial base in support of Department of Defense (DoD) operating forces mobilization, surge, reset, and reconstitution requirements.

Transportation

Over-ocean movement of supplies and provisions to the deployed operating forces is a primary focus of this group; it also maintains prepositioned equipment and supplies as well as other special mission services. These combine to support the Navy and the Marine Corps in deterring potential threats and promptly responding to crises in the maritime crossroads.

Transportation is the responsibility of the Military Sealift Command (MSC) whose major clients include the Fleet Commanders for U.S. Pacific Fleet and U.S. Fleet Forces Command, and Naval Sea Systems Command. The programs budgeted by MSC through the NWCF are: 1) Combat Logistics Force which provides support utilizing civilian mariner manned non-combatant ships for material support including underway replenishment, commercial helicopter services and other direct fleet support to Navy ships worldwide; 2) Special Mission Ships which provide unique seagoing platforms, which support specialized scientific and technical missions for DoD sponsors; 3) Afloat Prepositioning Force Navy which deploys advance material for strategic lifts and at-sea staging around the world for the U.S. Navy and Marine Expeditionary Forces; and 4) Service Support which provides the Navy with towing, rescue and salvage, submarine support, floating medical facilities, as well as the Navy's 6th Fleet Flagship. Also included are Expeditionary Fast Transports (EPF), which provide rapid, intra-theater transport of conventional, or Special Forces and military equipment and supplies.

Research and Development

Research and Development (R&D) includes the Warfare Centers and the Naval Research Laboratory. The R&D activities are intrinsically involved in the development, engineering, acquisition, and in-service support of weapons systems and equipment for the air, land, sea, and space operating environments. These efforts are key to the success of DON and DoD operations now and in the future. The R&D activities make major contributions in battle-space awareness, net-centric operations (connectivity and interoperability), cyber warfighting capability, and command and control. Their contributions are evident through research, engineering, and testing efforts in the fields of space, aerial, surface, and sub-surface sensors, communications systems, multi-media data fusion, and battle management systems. The R&D activities are continuously innovating and implementing improvements focused on delivering additional and more lethal capability.

The R&D activities also provide specialized support logistics through the repair and maintenance of select items of operating forces weapons and equipment. This unique capability is leveraged when work is limited in scope, irregular in schedule and/or very specialized and, therefore, insufficient to warrant fully dedicated depot facilities or commercial source interests. Continued success by our Warfare Centers and Laboratories is vital to maintaining and improving upon the mission capabilities of the operating forces that sustain our global presence.

- Naval Information Warfare Center (NIWC) is the Navy acquisition command that develops, delivers and sustains communications and information warfare capabilities for warfighters, keeping them securely connected anytime, anywhere and rapidly delivers cyber warfighting capability from seabed to space.
- Naval Air Warfare Center (NAWC) provides R&D, engineering, test and evaluation of all Navy and Marine Corps aircraft, aircraft systems, weapons and weapon systems.
- Naval Surface Warfare Center (NSWC) cohesively and seamlessly operates the Navy's full spectrum research, development, test and evaluation, engineering, and fleet support centers for offensive and defensive systems associated with surface warfare and related areas of joint, homeland, and national defense systems from the sea.
- Naval Undersea Warfare Center (NUWC) operates the Navy's full-spectrum research, development, test and evaluation, engineering, and Fleet support center for

submarines, autonomous underwater systems, and offensive and defensive weapon systems associated with Undersea Warfare (USW) and related areas of homeland security and national defense.

- Naval Research Laboratory (NRL) operates as the Navy's full-spectrum corporate laboratory, conducting a broadly based multidisciplinary program of scientific research and advanced technological development directed toward maritime applications of new and improved materials, techniques, equipment, systems and ocean, atmospheric, and space sciences and related technologies.
- Naval Facilities Engineering and Expeditionary Warfare Center (EXWC) operates Navy's research, development, test and evaluation for support combatant capabilities and sustainable facilities through specialized engineering, technology development, and lifecycle logistics services.

Base Support

Effective FY 2020, the Base Support business area was removed from the NWCF but will continue to have outlays through FY 2021. The Base Support business area was comprised of the Facilities Engineering Commands (FECs) and the NWCF portion of EXWC. EXWC was realigned to R&D business area. The FEC's were realigned to mission funding this FY 2020 and will continue to provide a broad range of services by ensuring that DON and DoD facilities and installations have reliable access to utilities services such as electricity, water, steam, natural gas, vehicle and equipment services, facility support contracting oversight, and building/ facilities sustainment and recapitalization services.

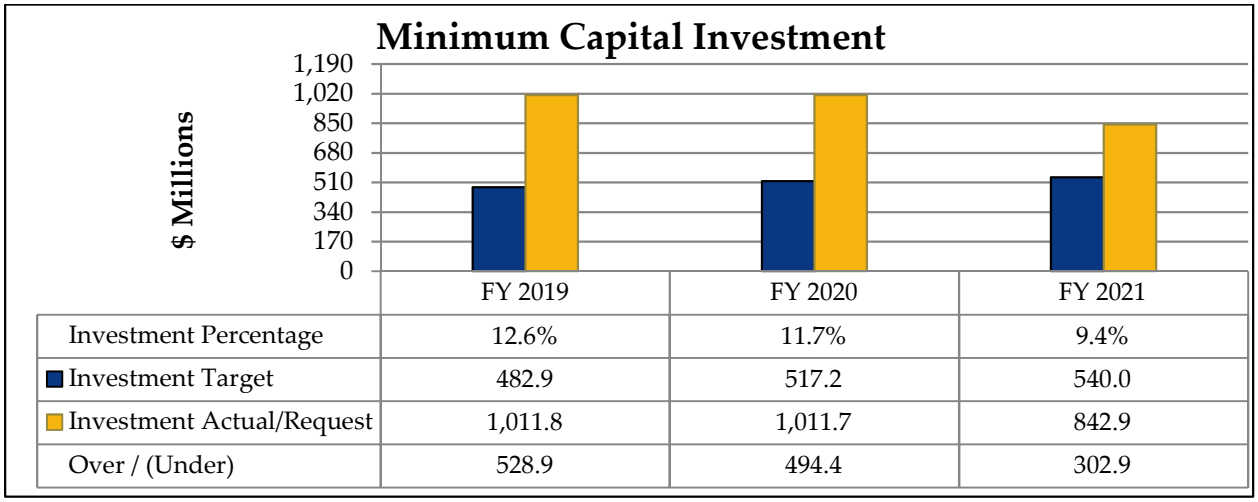
Depot Maintenance Six Percent Capital Investment Plan:

10 USC 2476 mandates that each fiscal year, DON invest in the depot capital budgets (facilities and equipment) a minimum of 6% of the average total combined maintenance, repair, and overhaul workload funded for the previous three fiscal years. The 6% percent threshold mandated by 10 USC 2476 is applicable at the DON level, to include both NWCF (Fleet Readiness Centers and USMC Depots) and appropriated fund (Shipyards) activities.

The FY 2021 request reflects the DON's continued commitment to sustain and recapitalize Depot Maintenance infrastructure and to maintain a relevant industrial base. The FY 2021 request exceeds the 6% requirement by $302.9 million as shipyards continue to make

strategic investments in their infrastructure to better serve their customers. Figure 2 reflects the DON's capital investment in depots.

Figure 2 - Depot Capital Investment



Financial Summary Tables:

New Orders: New orders are based on workload estimates coordinated with customers and historical trend analysis.

New Orders *(Millions)*	**FY 2019**	**FY 2020**	**FY 2021**
Supply - Navy	7,539.6	7,941.8	8,350.7
Supply - Marine Corps	104.2	80.6	108.3
Depot Maintenance - Aircraft	2,728.0	2,460.4	2,955.8
Depot Maintenance - Marine Corps	395.8	357.5	375.2
R&D - Air Warfare Center	5,296.0	5,304.6	5,510.5
R&D - Surface Warfare Center	4,712.8	4,881.6	5,279.3
R&D - Undersea Warfare Center	1,253.7	1,290.2	1,409.7
R&D - Naval Information Warfare Center	2,522.2	2,651.7	2,835.2
R&D - Naval Research Laboratory	1,009.2	958.8	1,007.7
R&D - EXWC (moved to R&D in FY 2020)	82.4	87.3	214.3
Transportation - MSC	3,160.7	3,570.5	3,372.3
Base Support - FECs	2,945.4	0.0	0.0
Total	**31,750.0**	**29,585.2**	**31,419.0**

Revenue: Reflects the income generated from sale of goods or services, or any other use of capital or assets, associated with the main operations before any costs or expenses are deducted.

Revenue *(Millions)*	**FY 2019**	**FY 2020**	**FY 2021**
Supply - Navy	7,502.9	8,272.4	8,874.5
Supply - Marine Corps	116.0	114.6	120.5
Depot Maintenance - Aircraft	2,648.0	2,588.8	2,977.4
Depot Maintenance - Marine Corps	395.3	416.6	407.2
R&D - Air Warfare Center	5,208.8	5,345.2	5,551.3
R&D - Surface Warfare Center	4,774.4	4,881.6	5,279.3
R&D - Undersea Warfare Center	1,265.0	1,284.1	1,392.8
R&D - Naval Information Warfare Center	2,423.8	2,628.0	2,822.3
R&D - Naval Research Laboratory	1,032.5	1,036.2	1,078.6
R&D - EXWC (moved to R&D in FY 2020)	80.9	86.9	214.4
Transportation - MSC	3,145.7	3,570.5	3,372.3
Base Support - FECs	2,960.5	43.7	29.6
Total	**31,553.7**	**30,268.5**	**32,120.0**

Operating Costs: Total operating obligations for supply functions and cost of goods and services sold for industrial functions are as follows:

Operating Costs (Millions)	**FY 2019**	**FY 2020**	**FY 2021**
Supply - Navy (Obligations)	9,075.5	8,580.8	9,701.0
Supply - Marine Corps (Obligations)	82.8	113.2	110.6
Depot Maintenance - Aircraft	2,668.6	2,625.5	2,710.3
Depot Maintenance - Marine Corps	426.5	422.5	382.0
R&D - Air Warfare Center	5,238.4	5,451.5	5,456.9
R&D - Surface Warfare Center	4,786.3	5,067.4	5,176.1
R&D - Undersea Warfare Center	1,248.8	1,340.7	1,358.0
R&D - Naval Information Warfare Center	2,434.6	2,670.8	2,747.4
R&D - Naval Research Laboratory	1,028.3	1,043.0	1,084.6
R&D - EXWC (moved to R&D in FY 2020)	87.4	85.8	210.2
Transportation - MSC	3,280.0	3,315.4	3,304.9
Base Support - FECs	3,342.9	328.2	29.6
Total	**33,700.0**	**31,044.7**	**32,271.5**

Net Operating Results: Revenue, excluding surcharge collections and extraordinary expenses, less the cost of goods and services sold to customers is as follows:

Net Operating Results *(Millions)*	**FY 2019**	**FY 2020**	**FY 2021**
Supply - Navy	(81.9)	(1.1)	(18.6)
Supply - Marine Corps	(4.0)	(12.1)	6.6
Depot Maintenance - Aircraft	(20.8)	(11.1)	267.1
Depot Maintenance - Marine Corps	(36.6)	(9.6)	25.2
R&D - Air Warfare Center	(46.8)	(66.7)	94.4
R&D - Surface Warfare Center	(27.2)	(187.2)	103.2
R&D - Undersea Warfare Center	15.9	(61.6)	34.8
R&D - Naval Information Warfare Center	(21.3)	(54.8)	61.9
R&D - Naval Research Laboratory	2.8	(6.8)	(6.0)
R&D - EXWC (moved to R&D in FY 2020)	(6.5)	1.1	4.2
Transportation - MSC	(134.3)	255.2	67.4
Base Support - FECs	(391.6)	(284.5)	0.0
Total	**(752.2)**	**(439.3)**	**640.1**

Accumulated Operating Results: Reflects the cumulative summation of Net Operating Results carried from fiscal year to fiscal year, since inception, and is as follows:

Accumulated Operating Results *(Millions)*	**FY 2019**	**FY 2020**	**FY 2021**
Supply - Navy	19.7	18.6	0.0
Supply - Marine Corps	5.6	(6.6)	0.0
Depot Maintenance - Aircraft	(256.0)	(267.1)	0.0
Depot Maintenance - Marine Corps	(13.0)	(25.2)	0.0
R&D - Air Warfare Center	(27.7)	(94.4)	0.0
R&D - Surface Warfare Center	86.4	(103.2)	0.0
R&D - Undersea Warfare Center	46.8	(34.8)	0.0
R&D - Naval Information Warfare Center	(7.1)	(61.9)	0.0
R&D - Naval Research Laboratory	12.8	6.0	0.0
R&D - EXWC (moved to R&D in FY 2020)	(5.4)	(4.2)	0.0
Transportation - MSC	(272.5)	(67.4)	0.0
Base Support - FECs	(92.9)	(499.7)	0.0
Total	**(503.3)**	**(1,139.8)**	**0.0**

Workload: Projections for workload are consistent with Navy force structure, support levels, and customer funding. The table below displays year-to-year percentage changes. Changes are indicated by gross sales for supply, per diem (ship days) for transportation, program costs for base support, and direct labor hours for all others.

Workload *(Percent Change)*	**FY 2020**	**FY 2021**
Supply - Navy	14.4%	7.0%
Supply - Marine Corps	-1.4%	5.2%
Depot Maintenance - Aircraft	5.0%	0.4%
Depot Maintenance - Marine Corps	7.4%	-10.0%
R&D - Air Warfare Center	0.6%	-1.2%
R&D - Surface Warfare Center	0.4%	1.4%
R&D - Undersea Warfare Center	4.6%	0.8%
R&D - SPAWAR Systems Center	1.6%	2.2%
R&D - Naval Research Laboratory	1.5%	-0.1%
R&D - EXWC (moved to R&D in FY 2020)	0.3%	96.1%
Transportation - MSC	-3.0%	1.8%
Base Support - FECs	-97.6%	-91.0%
Total	**-8.1%**	**1.3%**

NWCF Cash:

Definition of Cash: The Defense Working Capital Fund (DWCF) Fund Balance with Treasury, treasury account symbol 97X4930, is subdivided into five sub-numbered accounts. The Navy's account is 97X4930.002. The balance in this account is defined as cash balance which equals 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.

Cash Management Principles in Working Capital Funds: Unlike appropriated funds, the NWCF Fund Balance with Treasury 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, near term capital investment program disbursements, and any cost fluctuations and unplanned expenses due to customer demand changes. More specifically, the NWCF needs to have cash to:

- Support regular operational requirements including payments for supplies, labor, utilities, etc.;
- Cover costs not covered by stabilized rates due to commodity market cost increase, unexpectedly increased inflation, or other factors;
- Increase inventory investments to respond to customer demand changes;
- Pay overhead and fixed costs when actual workload is less than budgeted workload as these costs are allocated to workload levels estimated in the budget;
- Cover cyclical or seasonal patterns in cash disbursements and collections, as cash levels of certain business activities will typically be lower at specific times of the year such as the holiday season when depots often operate on a reduced work schedules;
- Cover budgeted cash losses when returning prior year gains by providing goods or services below cost to customers;
- Ensure funds are available to cover increases in payables that occur when multiple bills arrive earlier than expected, or decreases in collections because of other cash flow issues such as a third pay date within a given month.

The cash balance is primarily affected by cash generated from operations, but 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 gains and losses, and accurately projecting workload. Cost volatility and unexpected changes in customer orders are the prime concerns causing deviations from budget projections.

NWCF Cash Management: The DON's goal is to maintain the NWCF cash balance within the upper and lower operational range. The operational range is determined using the established DoD guidance for calculating cash requirements. Specifically, these are rate, range, risk mitigation, and reserves. The DON's NWCF cash requirement includes a forecast of collections and disbursements and considers cyclical timing of outlays. Cash requirements must also account for the greatest time between collections and disbursements to ensure auditability and accurate daily cash balances. Protecting customer programs by preserving their buying power in the year of execution to the levels of the original budget is a primary benefit of the NWCF. This benefit, however, can only be realized when sufficient cash balances are maintained throughout each cycle to absorb the impact of cost volatility and any unanticipated changes in customer workload. The FY 2020 DON NWCF budget includes $233.5M in Direct Appropriations for Naval Air Warfare Center – Weapons Division (NAWC-WD), Naval Surface Warfare Center – Panama City Division (NSWC-PC) and Depot Maintenance – Fleet Readiness Center, East (FRC, East) for expenses related to Hurricanes Michael and Florence flooding and earthquakes that occurred in fiscal year 2019. The FY 2020 cash reduction is primarily attributed to FEC residual outlays and civilian pay increase for pay raise and Federal Employees Retirement System (FERS). The decreasing upper operational range in FY 2020, as depicted below, is primarily due to the removal of the FECs from the NWCF and realignment to mission funding.

Treasury Cash *(Millions)*	**FY 2019**	**FY 2020**	**FY 2021**
Beginning Cash Balance	**2,523.1**	**1,495.0**	**339.8**
Disbursements	32,748.8	31,960.1	31,742.4
Collections	31,668.6	30,567.6	32,032.9
Direct Appropriation	0.0	233.5	0.0
Transfers In	52.1	3.8	1.2
Ending Cash Balance	**1,495.0**	**339.8**	**631.5**
Upper Operational Range	**2,600.0**	**2,400.0**	**2,400.0**
Lower Operational Range	**1,336.4**	**1,306.3**	**1,300.5**

Customer Rate Changes: Approved composite rate changes from FY 2018 to FY 2019 and from FY 2019 to FY 2020 are displayed below. Composite rate changes from FY 2020 to FY 2021, designed to achieve an Accumulated Operating Result of zero, are also displayed as follows:

Customer Rate Change *(Percent Change)*	**FY 2019**	**FY 2020**	**FY 2021**
Supply - Navy	-0.34%	2.06%	4.02%
Supply - Marine Corps	-9.46%	-8.10%	1.82%
Depot Maintenance - Aircraft	7.37%	-1.05%	18.76%
Depot Maintenance - Marine Corps	8.07%	-2.17%	14.95%
R&D - Air Warfare Center	0.89%	2.25%	4.94%
R&D - Surface Warfare Center	0.82%	1.63%	8.14%
R&D - Undersea Warfare Center	1.48%	-0.14%	9.23%
R&D - Naval Information Warfare Center	0.95%	1.77%	6.25%
R&D - Naval Research Laboratory	0.06%	7.39%	4.50%
R&D - EXWC (moved to R&D in FY 2020)	-7.45%	12.32%	1.77%
Transportation - MSC			
Combat Logistics Force	6.60%	10.30%	3.50%
Special Mission Ships	31.50%	30.40%	-12.20%
Afloat Prepositioning Ships	-1.50%	66.80%	-17.60%
Service Support Ships	2.20%	31.00%	-26.60%
Base Support - FECs	N/A	N/A	N/A

Unit Cost: Unit Cost is the method established to authorize and control costs. Unit cost goals allow activities to respond to workload changes in execution by encouraging reduced costs when workload declines and allowing appropriate increases in costs when their customers request additional services.

Unit Cost	FY 2019	FY 2020	FY 2021
Supply - Navy (cost per unit of sales):			
Wholesale	$1.24	$1.04	$1.10
Retail	$0.97	$1.00	$1.00
Supply - Marine Corps (cost per unit of sales):			
Wholesale	$0.72	$0.99	$0.91
Retail	($3.08)	$1.00	$1.00
Depot Maintenance - Aircraft ($/DLH)	$228.72	$214.30	$220.43
Depot Maintenance - Marine Corps ($/DLH)	$156.21	$143.71	$144.64
R&D - Air Warfare Center ($/DLH)	$113.68	$125.74	$121.60
R&D - Surface Warfare Center ($/DLH)	$108.36	$113.59	$115.00
R&D - Undersea Warfare Center ($/DLH)	$104.73	$112.00	$112.93
R&D - Naval Information Warfare Center ($/DLH)	$116.57	$119.54	$121.29
R&D - Naval Research Laboratory ($/DLH)	$164.08	$175.61	$183.02
R&D - EXWC (moved to R&D in FY 2020) ($/DLH)	$124.59	$120.86	$122.77
Transportation - MSC			
Combat Logistics Force ($/day)	$132,770	$136,151	$141,423
Special Mission Ships ($/day)	$53,936	$52,075	$47,932
Afloat Prepositioning Ships ($/day)	$53,334	$91,347	$80,490
Service Support Ships ($/day)	$56,768	$69,728	$61,646
Base Support - FECs Cost of Services	N/A	N/A	N/A

Staffing: Total civilian and military personnel employed at NWCF activities are displayed in the following tables.

Civilian End Strength	FY 2019	FY 2020	FY 2021
Supply - Navy	7,210	5,303	5,484
Supply - Marine Corps	26	26	26
Depot Maintenance - Aircraft	11,643	11,550	11,341
Depot Maintenance - Marine Corps	1,701	1,918	1,848
R&D - Air Warfare Center	16,779	16,785	16,578
R&D - Surface Warfare Center	21,258	21,282	21,437
R&D - Undersea Warfare Center	5,874	5,970	5,994
R&D - Naval Information Warfare Center	9,601	9,299	9,349
R&D - Naval Research Laboratory	2,655	2,620	2,604
R&D - EXWC (moved to R&D in FY 2020)	435	419	839
Transportation - MSC	6,623	6,840	6,903
Base Support - FECs	10,477	0	0
Total	**94,282**	**82,012**	**82,403**

Civilian Workyears	FY 2019	FY 2020	FY 2021
Supply - Navy	6,909	5,297	5,478
Supply - Marine Corps	19	24	24
Depot Maintenance - Aircraft	11,508	11,475	11,385
Depot Maintenance - Marine Corps	1,635	1,944	1,897
R&D - Air Warfare Center	16,819	16,635	16,464
R&D - Surface Warfare Center	20,245	20,560	20,705
R&D - Undersea Warfare Center	5,594	5,756	5,830
R&D - Naval Information Warfare Center	9,142	9,114	9,203
R&D - Naval Research Laboratory	2,579	2,555	2,539
R&D - EXWC (moved to R&D in FY 2020)	418	415	835
Transportation - MSC	8,710	6,374	6,604
Base Support - FECs	9,972	0	0
Total	**93,550**	**80,149**	**80,964**

Military End Strength	FY 2019	FY 2020	FY 2021
Supply - Navy	364	364	364
Supply - Marine Corps	0	0	0
Depot Maintenance - Aircraft	97	130	133
Depot Maintenance - Marine Corps	11	9	9
R&D - Air Warfare Center	224	201	201
R&D - Surface Warfare Center	155	172	172
R&D - Undersea Warfare Center	34	44	44
R&D - Naval Information Warfare Center	78	77	77
R&D - Naval Research Laboratory	64	61	66
R&D - EXWC (moved to R&D in FY 2020)	3	3	3
Transportation - MSC	174	165	165
Base Support - FECs	80	0	0
Total	**1,284**	**1,226**	**1,234**

Military Workyears	FY 2019	FY 2020	FY 2021
Supply - Navy	364	364	364
Supply - Marine Corps	0	0	0
Depot Maintenance - Aircraft	96	130	133
Depot Maintenance - Marine Corps	0	10	9
R&D - Air Warfare Center	162	168	168
R&D - Surface Warfare Center	160	172	172
R&D - Undersea Warfare Center	21	32	32
R&D - Naval Information Warfare Center	62	77	77
R&D - Naval Research Laboratory	63	61	66
R&D - EXWC (moved to R&D in FY 2020)	3	3	3
Transportation - MSC	162	165	165
Base Support - FECs	78	0	0
Total	**1,171**	**1,182**	**1,189**

Capital Investment Program: The Capital Investment Program (CIP) provides for the reinvestment in the infrastructure of NWCF business areas to improve product and service quality and timeliness, reduce costs, and foster state-of-the-art business operations. The CIP is used to purchase new or replace older, wornout or obsolete equipment, including: Automated Data Processing Equipment (ADPE); non-ADE; Automated Data Processing Software, whether internally or externally developed. In addition, the CIP program provides funding for Minor Construction projects. The capital budget justifies the purchase of assets that have a useful life of two or more years and have a unit cost of not less than $0.5 million for procurements by a major range and test facility installation or a science and technology reinvention laboratory (STRL) and not less than $0.25 million for procurements at all other facilities.

The table below shows a summary of the NWCF CIP budget.

Capital Investment Program *(Millions)*	**FY 2019**	**FY 2020**	**FY 2021**	**Chg FY 2020/2021**
Supply - Navy	8.2	16.3	16.7	0.4
Supply - Marine Corps	0.0	0.0	0.0	0.0
Depot Maintenance - Aircraft	42.0	40.1	44.6	4.5
Depot Maintenance - Marine Corps	8.1	8.3	6.0	(2.3)
R&D - Air Warfare Center	57.4	55.5	48.4	(7.1)
R&D - Surface Warfare Center	57.3	54.9	58.6	3.7
R&D - Undersea Warfare Center	26.7	26.4	21.1	(5.4)
R&D - Naval Information Warfare Center	20.2	19.3	20.9	1.6
R&D - Naval Research Laboratory	19.7	25.6	22.8	(2.8)
R&D - EXWC (moved to R&D in FY 2020)	0.0	0.0	0.0	0.0
Transportation - MSC	4.2	0.0	0.0	0.0
Base Support - FECs	20.8	0.0	0.0	0.0
Total	**264.7**	**246.3**	**239.0**	**(7.3)**

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1. Fleet Readiness Centers

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NARRATIVE
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE – FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Mission Statement / Overview:
The Fleet Readiness Centers (FRCs) produce quality airframes, engines, components and support equipment, and provide services that meet Naval Aviation Enterprise (NAE) goals. The FRCs provide responsive worldwide maintenance, engineering, and logistics to directly support the mission of the U.S. Navy and maintain a core industrial resource base essential for mobilization, repair of aircraft, engines, and components, and manufacture of parts and assemblies. The FRCs provide engineering services in the development of hardware design changes, and furnish technical and professional services on maintenance and logistics problems. Work completed at the FRCs ensure deployed and next-to-deploy units have the battle-ready items they need to train, fight, and win today while supporting the force to win tomorrow.

Activity Group Composition:

Activities	Location
FRC, EAST	Cherry Point, NC
FRC, SOUTHEAST	Jacksonville, FL
FRC, SOUTHWEST	San Diego, CA

Significant Changes since the FY 2020 President's Budget (PB): Significant changes impact FRC operations, Net Operating Results (NOR), New Orders, Revenue, Costs, End Strength and Work Year projections are:

- Unbudgeted costs incurred to comply with Title VIII (Subtitle I) of the 2019 NDAA which required the Navy to provide an Infrastructure Optimization Plan (IOP) report by 1 February 2019 to incorporate:
    - an engineering master plan reflecting the optimal placement and consolidation of facilities and major equipment needed to support depot level repair functions of government-owned and government-operated facilities
    - an investment strategy to address the facilities, major equipment, and infrastructure requirements at organic facilities
- Unbudgeted costs incurred to support Secretary of the Navy (SECNAV) directed Navy Sustainment System (NSS) initiatives to incorporate industry best practices to optimize aviation maintenance, readiness, and lethality
- Changes in Civilian Pay Raise
- NWCF Direct Appropriations for Hurricane impacts
- Starting in FY 2020, there is a significant change to migrate FRC's official financial system from the Defense Industrial Financial Management System to the Department of Navy Enterprise Resource Planning (DoN ERP) as its financial

system in support of Working Capital Fund (WCF) General Ledger (GL) Consolidation.

- Indirect costs incurred to support the execution of the FY 2019 hiring plan to establish end strength to support current and future forecasted workload requirements and work down prior year backlog.

Financial Profile:

Orders/Revenue/Expense/Operating Results ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Orders	$2,728.0	$2,460.4	$2,955.8
Revenue	$2,648.0	$2,588.8	$2,977.4
Expense	$2,668.6	$2,625.5	$2,710.3
Operating Results	($20.6)	($36.7)	$267.1
Capital Surcharge	($0.1)	$0.0	$0.0
NWCF Direct Appn - Hurricane loss recovery	$0.0	$25.6	$0.0
Net Operating Results (NOR)	($20.8)	($11.1)	$267.1
Prior Year AOR	($235.2)	($256.0)	($267.1)
Accumulated Operating Results (AOR)	($256.0)	($267.1)	$0.0

Some totals may not add due to rounding.

Orders, Revenue and Expense:

In order to achieve the goal of zero AOR in FY 2021, estimates were updated from the FY 2020 President's Budget to reflect all known pricing and workload assumptions. New Reimbursable Orders (RO) projections are consistent with FY 2019, FY 2020, and FY 2021 Revenue and Expense projections. FY 2021 orders increase due to the realignment of customer workload. Revenue for FY 2019, FY 2020, and FY 2021 is consistent with updated estimates of new RO and Direct Labor Hour (DLH) projections. Increase in FY 2021 revenue is associated with AOR recoupment due to costs noted above. FY 2021 costs are projected to increase largely due to IOP facility improvement expenses necessary to upgrade organic facilities/infrastructure and additional anticipated workload for the F/A-18 Super Hornets, H-60 Nighthawks/Seahawks, and trainer platforms. The FY 2021 NOR projection is positive due to AOR recoupment. FY 2021 rates are set to achieve zero AOR.

NARRATIVE
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE – FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Disbursements/Collections/Outlays ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Disbursements	$2,653.4	$2,606.8	$2,716.0
Collections	$2,764.0	$2,584.2	$2,975.4
Direct Appropriation	$0.0	$40.3	$0.0
Net Outlays	($110.6)	($17.7)	($259.4)

Some totals may not add due to rounding.

Current Net Outlay projections reflect workload changes, updated operating estimates, and Revenue, Cost, and Capital Investment Program (CIP) outlay estimates. FY 2020 includes NWCF Direct Appropriation of $40.3 million for Hurricane damage.

Workload:

Direct Labor Hours (DLH) (000):	**FY 2019**	**FY 2020**	**FY 2021**
Current Estimate	11,668	12,252	12,295

DLHs: Rates are based on DLHs required for stabilized workload. DLH increase in FY 2020 to account for the transition of FY 2018 and FY 2019 new hires from indirect to direct, as they progress through training, shift in hiring plan for Aircraft Maintenance/Components occupations, and the growth in engineering workload hours.

- Planned increase of 100k in each of the following commodities: Components, Airframes/Modifications, and Logistics.
- Additional increase of 250k hours in engineering support.

FY 2021 DLHs increase slightly due to the workload shifting of Industrial Engineering Technicians and Production Controllers to Direct Expense from Production Overhead Expense. The FY 2021 Workload Standards account for this change.

Performance Indicators: The primary performance indicator is unit cost, which represents the average cost of delivering goods and services to our customers

Unit Cost:	**FY 2019**	**FY 2020**	**FY 2021**
Total Stabilized Cost ($Millions)	$2,668.63	$2,625.50	$2,710.33
Workload (DLHs) (000)	11,668	12,252	12,295
Unit cost (per DLH)	$228.72	$214.30	$220.43

NARRATIVE
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE – FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Unit Cost is the method established to authorize and control costs. Unit cost goals allow activities to respond to workload changes in execution by encouraging reduced costs when workload declines and allowing appropriate increases in costs when customers request additional services.

Stabilized / Composite Rates:	**FY 2019**	**FY 2020**	**FY 2021**
Stabilized Rate	$227.83	$225.43	$267.72
Change from Prior Year		($2.40)	$42.29
Composite Rate Change		-1.05%	18.76%

Rates are based on DLHs required for anticipated workload. Customers are charged a predetermined rate per direct employee hour worked. The rate consists of direct and indirect labor and applied overhead. Unique direct non-labor costs are billed on a reimbursable basis to the customer. The composite rate decreases in FY 2020 due to the changes in workload noted in the sections above. The FY 2021 composite hourly rate reflects an increase of $42.29, which includes the recoupment losses of $35.87 for unbudgeted fact-of-life cost increases outlined in the change since Presidents Budget section.

Summary of Workload Indicators:	**FY 2019**	**FY 2020**	**FY 2021**
(Inducted Units)			
AIRFRAMES	**392**	**426**	**409**
O&M,N	352	392	360
O&M,NR	14	8	17
RDT&E	11	9	6
Other	15	17	26
ENGINES	**1,624**	**1,972**	**2,131**
O&M,N	1,557	1,894	2,062
O&M,NR	12	17	14
RDT&E	0	2	5
Other	55	59	50
COMPONENTS			
Working Capital Fund (NSF (7R)	35,751	35,816	35,816

NARRATIVE
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE – FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Staffing:

Civilian/Military ES & Workyears:	**FY 2019**	**FY 2020**	**FY 2021**
Civilian End Strength	11,643	11,550	11,341
Civilian Workyears (straight time)	11,508	11,475	11,385
Military End Strength	130	130	133
Military Workyears	130	130	133

Civilian Personnel: Civilian personnel staffing decreases in both FY 2020 and FY 2021 to maximize workload skillset and talent, and mitigate attrition for each fiscal year. Workyear projections are consistent with the workforce shaping required to account for the projected workload mix of full-time and part-time personnel required for optimal fleet support.

Military Personnel: The military personnel profile increases from FY 2020 to FY 2021 due to increased sailor integration into depot level maintenance for enhanced skill level exposure and training.

Capital Investment Program (CIP):

CIP Authority ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Equipment, Non-ADP / Telecom	$35.6	$30.2	$32.2
Equipment, ADPE / Telecom	$0.0	$0.0	$0.8
Software Development	$0.0	$0.0	$0.0
Minor Construction	$6.4	$9.9	$11.6
Total	$42.0	$40.1	$44.6

Some totals may not add due to rounding.

The CIP program assists the FRCs in achieving their mission by reinvesting in plant equipment and facilities. Included in the capital budget are the following types of assets: Automated Data Processing Equipment (ADPE); non-ADPE equipment; automated data processing software, internally or externally developed; and minor construction. Due to the age and current state of FRC facilities and equipment, the FRCs will need to exceed the DON's minimum 6% Depot Capital Investment target in the future. As mentioned above, investment costs will significantly increase consistent with IOP initiatives.

NARRATIVE
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE – FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
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Carryover Compliance (Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Net Carry-In	$1,210.6	$1,290.6	$1,162.3
Allowable Carryover	$1,002.1	$906.1	$1,043.7
OUSD(C) Approved Carryover Waiver	$123.8		
Calculated Actual Carryover	$991.7	$905.8	$891.6
Delta (Actual-Allowable): Above Ceiling (+)/Below Ceiling (-)	($10.4)	($0.3)	($152.1)

Some totals may not add due to rounding.

The FRCs requested a FY 2019 Carryover waiver for $123.8M, broken down as follows:

- $13.0M for crash damaged aircraft
- $73.4M for High Flight Hour (HFH) aircraft
- $15.6M for 4th Qtr non-Navy workload
- $21.8M for F/A-18 aircraft material delays/carcass constraints due to delays in the Joint Strike Fighter program.

The FRCs have implemented measures to mitigate Carryover such as decreasing the amount of projected New Orders accepted in FY 2020 and increasing Direct FTEs to support on-going efforts. Additionally, in FY 2020 and FY 2021, the FRCs have decreased the number of Indirect FTEs while subsequently increasing the execution of total DLHs and Direct Costs. Resultantly, Carryover is projected to be under the allowable ceiling for FY 2020 and FY 2021.

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
Revenue:			
Gross Sales			
Operations	2617.0	2550.1	2932.8
Capital Surcharges	0.1	0.0	0.0
Capital Investment Recovery	30.8	38.7	44.6
Other Income			
Total Income	2648.0	2588.8	2977.4
Expenses			
Cost of Materiel Sold from Inventory			
Salaries and Wages:			
Military Personnel Compensation & Benefits	11.3	11.4	11.9
Civilian Personnel Compensation & Benefits	1187.6	1232.6	1246.2
Travel and Transportation of Personnel	24.6	16.0	15.4
Material & Supplies (Internal Operations)	635.3	610.6	634.8
Equipment	340.7	358.1	371.7
Other Purchases from NWCF	32.3	25.8	22.4
Transportation of Things	4.1	3.4	3.4
Capital Investment Recovery	30.8	38.7	44.6
Printing and Reproduction	0.9	1.0	1.0
Advisory and Assistance Services	5.7	1.6	0.1
Rent, Communication, Utilities & Misc Charges	46.0	37.3	38.6
Other Purchased Services	349.8	292.7	322.5
Total Expenses	2669.3	2629.2	2712.4
Work in Process Adjustment	-0.3	-3.7	-2.0
Comp Work for Activity Retention Adjustment	-0.4	0.0	0.0
Cost of Goods Sold	2668.6	2625.5	2710.3
Operating Result	-20.6	-36.7	267.1
Adjustments Affecting NOR	-0.1	25.6	0.0
Capital Surcharges	-0.1	0.0	0.0
Extraordinary Expenses Unmatched	0.0	0.0	0.0
Other Changes Affecting NOR (All Others)	0.0	25.6	0.0
Net Operating Result	-20.8	-11.1	267.1
PY AOR	-235.2	-256.0	-267.1
TOTAL AOR	-256.0	-267.1	0.0
Non-Recoverable Adjustments impacting AOR	0.0	0.0	0.0
AOR for budget purposes	-256.0	-267.1	0.0

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
	---	---	---
1. New Orders	2,728.0	2,460.4	2,955.8
a. Orders from DoD Components:	1,823.6	1,716.9	2,071.4
Department of the Navy	1,729.2	1,628.8	1,984.3
O & M, Navy	1,384.8	1,297.8	1,630.7
O & M, Marine Corps	0.3	3.2	2.7
O & M, Navy Reserve	44.8	43.4	50.9
O & M, Marine Corp Reserve	0.0	0.0	0.0
Aircraft Procurement, Navy	260.6	252.4	270.4
Weapons Procurement, Navy	0.0	0.0	0.0
Ammunition Procurement, Navy/MC	1.1	1.1	1.5
Shipbuilding & Conversion, Navy	2.6	6.8	6.1
National Sea Base Deterrence Fund	0.0	0.0	0.0
Other Procurement, Navy	8.7	1.0	1.3
Procurement, Marine Corps	0.0	0.0	0.0
Family Housing, Navy/MC	0.0	0.0	0.0
Research, Dev., Test, & Eval., Navy	25.6	23.0	20.5
Military Construction, Navy	0.0	0.0	0.0
National Defense Sealift Fund	0.0	0.0	0.0
Foreign Cooperative Projects, Navy	0.2	0.0	0.0
Other Navy Appropriations	0.5	0.1	0.1
Other Marine Corps Appropriations	0.0	0.0	0.0
Department of the Army	2.1	2.9	3.5
Army Operation & Maintenance	1.7	1.8	2.2
Army Res, Dev, Test, Eval	0.0	0.2	0.3
Army Procurement	0.4	0.9	1.1
Army Other	0.0	0.0	0.0
Department of the Air Force	82.2	84.7	83.2
Air Force Operation & Maintenance	73.8	77.1	76.0
Air Force Res, Dev, Test, Eval	0.0	0.0	0.0
Air Force Procurement	8.4	7.6	7.2
Air Force Other	0.0	0.0	0.0
DOD Appropriation Accounts	10.0	0.5	0.4
Base Closure & Realignment	0.0	0.0	0.0
Operation & Maintenance Accounts	1.7	0.4	0.2
Res, Dev, Test & Eval Accounts	0.5	0.1	0.1
Procurement Accounts	7.8	0.0	0.0
Defense Emergency Relief Fund	0.0	0.0	0.0
DOD Other	0.0	0.0	0.0
b. Orders from other Fund Activity Groups	692.0	577.6	751.5
c. Total DoD	2,515.6	2,294.5	2,823.0
d. Other Orders:	212.4	165.9	132.8
Other Federal Agencies	0.5	1.7	2.1
Foreign Military Sales	46.4	20.5	30.5
Non Federal Agencies	165.6	143.7	100.2
2. Carry-In Orders	1,210.6	1,290.6	1,162.3
3. Total Gross Orders	3,938.6	3,751.1	4,118.0
a. Funded Carry-Over before Exclusions	1,290.6	1,162.3	1,140.6
4. Revenue(-)	2,648.0	2,588.8	2,977.4
5. End of Year Work-In-Process (-)	33.5	37.1	39.1
6. FMS, BRAC, Other Federal, Non-Federal orders, Inst. MRTFB (-), and waiver.	17.8	219.4	209.9
7. Funded Carryover	991.7	905.8	891.6

Note: Line 5 (End of Year Work-In-Process) is adjusted for Non-DOD BRAC, FMS, and Institutional MRTFB

CHANGES IN THE COSTS OF OPERATIONS
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	Costs
FY 2019 Estimated Actuals	**2,668.6**
FY 2020 President's Budget:	**2,395.6**
Estimated Impact in FY 2020 of Actual FY 2019 Experience:	**0.0**
Pricing Adjustments:	**38.5**
FY20 Pay change to CY20 to 2.6%; Increase 0.5% locality pay	26.1
FERS contribution Increase	12.3
Program Changes:	**190.2**
Airframes work (F5, Trainer, UASF UH1N & USAF CV-22)	48.7
Engines work (F414)	55.9
Components work (NSF)	33.2
Other Support work	-7.4
Modification work	10.7
Product Support work (Engineering & Logistics)	49.1
Other Changes:	**1.2**
Facilities Sustainment, Restoration & Modernization	0.2
Depreciation	-2.6
DFAS	0.0
General Materials & Supplies	3.3
Training/Tuition	3.5
General Contractual Services (ADP, Equipment Maintenance & Goods/Svcs Other Agencies, Hurricane Costs)	-3.2
FY 2020 Current Estimate:	**2,625.5**
Pricing Adjustments:	**50.8**
Annualization of Prior Year Pay Raises	**2.2**
Civilian Personnel	2.1
Military Personnel	0.1
FY 2020 Pay Raise	**13.2**
Civilian Personnel	12.9
Military Personnel	0.2
Fuel Price Changes	-0.1
FERS contribution Increase	12.5
General Purchase Inflation	23.1
Productivity Initiatives and Other Efficiencies:	**0.0**
Program Changes:	**-13.7**
Airframes work (V-22, H-53)	-23.0
Engines work (F402, T64)	7.3
Components work (NSF)	35.4
Other Support work	3.1
Modification work	1.8
Product Support work (Engineering & Logisitcs)	-38.3
Other Changes:	**47.7**
Depreciation	5.9
Facilities Sustainment, Restoration & Modernization	27.8
DFAS	0.1
Change in work days	-4.0
General Materials & Supplies	-1.7
Training/Tuition	-1.0
General Contractual Services (ADP, Equipment Maintenance & Goods/Svcs Other Agencies, Hurricane Costs)	20.5
FY 2021 Estimate:	**2,710.3**

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CAPITAL INVESTMENT SUMMARY
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

		FY 2019		FY 2020		FY 2021	
Line #	Description	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
1	**Non-ADPE and Telecom Equipment >= $.250M**	**21**	**$35.565**	**12**	**$30.221**	**15**	**$32.236**
	- Vehicles	0	$0.000	0	$0.000	0	$0.000
	- Material Handling	0	$0.000	0	$0.000	0	$0.000
	- Installation Security	0	$0.000	0	$0.000	1	$1.400
	- Quality Control/Testing	1	$2.291	1	$3.270	5	$13.050
	- Medical Equipment	0	$0.000	0	$0.000	0	$0.000
	- Machinery	7	$14.326	5	$12.920	1	$1.300
	- Support Equipment	13	$18.948	6	$14.031	8	$16.486
2	**ADPE and Telecom Equipment >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**1**	**$0.754**
	- Computer Hardware (Production)	0	$0.000	0	$0.000	0	$0.000
	- Computer Hardware (Network)	0	$0.000	0	$0.000	0	$0.000
	- Computer Software (Operating)	0	$0.000	0	$0.000	0	$0.000
	- Telecommunications	0	$0.000	0	$0.000	1	$0.754
	- Other Support Equipment	0	$0.000	0	$0.000	0	$0.000
3	**Software Development >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Internally Developed	0	$0.000	0	$0.000	0	$0.000
	- Externally Developed	0	$0.000	0	$0.000	0	$0.000
4	**Minor Construction (>= $.250M and <= $6.000M)**	**6**	**$6.405**	**4**	**$9.850**	**5**	**$11.600**
	- Replacement Capability	2	$3.490	1	$0.500	2	$7.300
	- New Construction	4	$2.915	3	$9.350	3	$4.300
	- Environmental Capability	0	$0.000	0	$0.000	0	$0.000
	Grand Total	**27**	**$41.971**	**16**	**$40.071**	**21**	**$44.591**
	Total Capital Outlays		**$22.207**		**$36.186**		**$41.562**
	Total Capital Investment Recovery		**$30.823**		**$38.693**		**$44.591**

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARUY 2020					
Department of the Navy/ Depot Maintenance	#001 - Non-ADPE						Fleet Readiness Centers		
	FY 2019			FY 2020			FY 2021		
Non-ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Vehicles	0	-	$0	0	-	$0	0	-	$0
Material Handling	0	-	$0	0	-	$0	0	-	$0
Installation Security	0	-	$0	0	-	$0	1	1,400	$1,400
Quality Control/ Testing	1	2,291	$2,291	1	3,270	$3,270	5	2,610	$13,050
Medical Equipment	0	-	$0	0	-	$0	0	-	$0
Machinery	7	2,047	$14,326	5	2,584	$12,920	1	1,300	$1,300
Support Equipment	13	1,458	$18,948	6	2,339	$14,031	8	16,486	$16,486
Total	21	1,694	$35,565	12	2,518	$30,221	15	2,149	$32,236

Justification:

As the Department of the Navy's provider of depot level maintenance, repair, overhaul, & upgrades for aircraft, the Fleet Readiness Centers (FRCs) depend heavily on the acquisition of capital assets through the Capital Investment Program (CIP) to accomplish its mission. CIP satisfies long range planning, programming objectives, and documented needs for capability to perform operational functions that cannot be performed as effectively or economically by the use of existing infrastructure, equipment, and/or facilities essential to accomplish mission requirements.

The acquisition of capital assets efficiently and effectively accomplishes the objective for which it is justified which are improved efficiency or effectiveness of operations; replacement of potentially unsafe, beyond economical repair, or inoperative and unusable assets; and environmental, hazardous waste reduction, or regulatory agency (state, local, or Federal) mandated requirements. Alternatives were considered for each project, but procurement is the most cost effective for the government.

Examples of Machinery purchases include:

Milling Machine
The purpose of this project is to replace the Olympia Milling Machine with a new milling machine in the same location located in the Machine Repair Power Plant Shop. The current machine is the sole source for H-53 Main Gear Box Housings that are worked at the FRC. This procurement is expected to utilize existing utilities and will require minor facilities modifications depending on the type of equipment that is chosen.

Autoclaves
The purpose of this project is to replace (2) existing jet fuel driven autoclaves, associated burners, and cooling towers with new electric power autoclaves controls and cooling tower for building 4224.

5-Axis Mill with Pallet Changer
The purpose of this project is to replace (2) existing 4-Axis Milling Machines located in Shop 93552, Manufacturing Machine Shop, in building 137. This procurement will employ existing utilities and will require minor facilities modifications. There are multiple benefiting shops throughout the FRC that are negatively affected by the condition of the existing 4-Axis Milling Machines. The replacements, the new 5-axis Milling Machines, will have a direct positive impact that will increase the manufacturing shops' capabilities and throughput capabilities.

Tool Cutter & Grinding Machine (Saacke)
The purpose of this project is replace the Saacke Computer Numerical Control (CNC) tool cutter and grinding machine as it is unable to keep up with the rapid growth of the F-35 platform, and other aircraft platforms at the FRC. Total machine downtime is rapidly increasing. The equipment has recently been down for 3 weeks, has caught on fire twice, and has had the motherboard replaced with no significant increase in the existing equipment useful life. Outsourcing the work during the current equipment downtime has had unfavorable results; outsourcing has resulted in damaged work product and additional unnecessary costs to the FRC. The completion of this project will ensure improved readiness and Turn-Around-Time (TAT).

Procure Vertical Machining Center/ Computer Numerical Control (CNC)
The purpose of this project is to **p**urchase a new HAAS VF-11/40 3 to 5 axis vertical machining center/CNC. The automated 3 to 5 axis vertical machining center facilitates production rates above and beyond current capabilities when storing complex specifications, reducing setup times, and providing maintenance/trouble/repair alerts.

Replace Lathe-grinders
The purpose of this project is to replace (3) aging vertical lathe-grinding machines with (2) new units. The new machines will modernize the shop to accommodate more complicated aircraft engine parts and will include current Occupational Safety and Health Administration (OSHA) guarding. The existing machines are becoming less reliable with holding required tolerances. Part processing time increases as the operator corrects for the increasing machine wear. The proposed units will be able to machine and measure parts to the required tolerances. They will also simplify fixturing, thus reducing set-up time. The existing machines will be 18 years old when the new machines are budgeted for replacement. The useful life of the existing machines is 10 years. If not replaced, operator compensation for machine wear will continue to increase, and parts will begin to be scrapped. Although alternatives have been contemplated, the best course of action has been determined to be replacement.

Rebuild Jig Borer
The purpose of this project is to rebuild an existing Mitsui Seiki Jig Boring machine that was procured in 1986. This is a precision machine tool and is utilized for the most accurate work requirements. The existing Jig Boring machine is the most precise machining tool in the Machine Shop. Due to its age, the electronics, controller, and motors can no longer be supported, which is expected to lead to greater down time in the future due to part obsolescence, procurement difficulties, and limited availability of suppliers.

Refurbish/Upgrade Jig Grinders
The purpose of this project is to refurbish (2) 50L Hauser-brand CNC Jig Grinders. These machines are critical to processing airframe mod kits, splices, brackets, tooling that bends the splices, formers, and other emergent-repair types of parts for the FA-18 program. While the basic platform of the machines are solid, this overhaul will upgrade the CNC program interface for compatibility with the plant-wide RDT&E network, future machine-health monitoring capabilities, and standardization of CELOS/Siemens-based controls. The overhaul will increase productivity by 80% without having to shift workload to other machines capable of the work but in service to other programs, avoid acquisition costs (both time and money) of new machines, and provide a turn-key solution to an existing production crisis. The new CELOS control systems also ensures compatibility and seamless file sharing between the like-new Hauser Jig Grinders and the planned installation of the DMG-Mori Manufacturing Cell at the FRC. There is no other viable, cost-effective solution to rebuilding these 20-year-old machines, which currently have an average of 1,639 hours of production time and an average of 900 hours of maintenance time logged against them.

CNC Mill Turn with Secondary Spindle and 18' Chuck
This project will replace a CNC mill turn machining center with counter spindles, and is needed to replace the existing CNC Slant Bed Lathe (SL65MC) for the Manufacturing Shop. The existing lathe is 20 years old and losing the ability to stay within the required tolerances. The SL65MC supports all programs at the FRC, producing bushings and other parts for

E-2/C-2, FA-18, H-53, and Ground Support Equipment. Approximately 6,000 parts are made on this machine yearly, with an average of 50 parts for each of the 120 part numbers (PNs) programed into the machine. The existing lathe is 20 years old and losing the ability to stay within required tolerances. This CNC machine is wearing out, causing delays in producing the required parts and adding strain on the 2 other machines capable of making these parts. The other 2 machines do not have the torque and capability the SL65MC has. As a result, making the same part on the either of the other 2 machines takes about 1.5 times longer. CNC mill-turn machining center with counter spindle will allow the FRC to manufacture complex parts, with added machine health monitoring capability.

Deep Draw Bladder Press
The purpose of this project is to procure a turnkey Deep Draw Bladder Press to manufacture machine-die formed parts in direct contribution to the FRC's overall modernization plan. The project will include the machine, secondary containment, a new foundation, and all modern safety features integrated into 1 complete system. Procuring this machine will reduce Environmental Footprint and increase shop efficiency and processing TAT. There is a monumental environmental burden with the use of toxic lead and kirksite alloys to produce currently-used foundry dies that will be reduced by 50%, replacing 3 machines with 1. The supported workloads are: all aircraft programs' exterior & structural parts: doublers, skins, stiffeners, and longerons, and channels. This machine will replace manufacture of small-to-medium sized die-formed part numbers within the plant. If not procured, artisans will continue to be unnecessarily exposed to toxic materials with mandatory Navy's Occ-Health Monitoring program. Environmental toxins would not be reduced in the workspace, and damage would continue to the foundation of the building. Benefits include: dies for the new machine will be built by Additive Manufacturing technology, which will reduce HAZMAT requirements, enable more artisans to be trained, resulting in a higher shop throughput and production levels.

Cleaning Line, Bldg. 4225
The purpose of this project is to upgrade the Cleaning Line located in the Blade/Vane Process Shop. This line is used to strip/clean various aircraft components from all engine platforms. A study will be required to determine the scope of the modifications required to upgrade the facility and utility systems. In addition to replacing a selection of tanks based on their condition, the PBC duct, exhaust fans, and test and balance system will need to be upgraded. Currently, the ducting is cracking and leaking and this condition is reducing the effectiveness of the ventilation system. This condition will cause additional problems and hazards in the future. The exhaust system is both aging and in poor condition. There are two exhaust fans that are over 25 years old; one for a scrubber system and another for a demister. There will be environment impacts to consider for this effort.

DMG-Mori 1850 Mill x2
The purpose of this project is to replace a machine that is 23 years old and cannot keep up with current workload demanding production of 100 fixtures annually for FA-18 and E-2 platforms. New machines will reduce manufacturing time by 40%, upgrade to modernized CNC controllers vice current floppy disk technology, and eliminate a current Single Point of Failure situation**.**

Examples of Quality Control/Testing purchases include:

Whirltower Motor Replacement
The purpose of this project is to replace the 2300 HP (horsepower) drive with a 4000 HP drive in the Whirltower facility at building 1792. There is also a power requirement to replace the transformer that services building 1792. Rotor blades for the following programs: H53 Main and Tail Blades (current workload covers E blades; there is a projected addition to workload of K blades). Due to the obsolescence of some of the equipment, there is a chance the drive could fail within three (3) years. With this procurement, the plan is to replace the drive and all controllers. In addition, the existing electrical service (transformer and switchgear) will be replaced. This would address the possibility that the drive may be underpowered for the motor.

F402 Inlet Condition Improvements
The purpose of this project is to correct negative inlet conditions. The plan is for the F402 Test Cell (65923046156) to be operational through 2030, and this project will add enhancements that will allow for the physical condition of the test facility to remain operational as planned by using solutions like bird screening, inlet guides, and physical concrete modifications as part of the solution.

F402 Major Instrumentation Reset
The purpose of this project is to upgrade the Data Acquisition and Controls System (DACS) and Test Program Set (TPS) software in the F402 test cell (65923046156). This upgrade will remove antiquated wiring and data transfer techniques. The upgrade will include modern electronics, wiring, and communication protocols that will improve readiness.

B770 Real-Time X-Ray System
The purpose of this project is to install a Real-Time X-Ray system to improve the unshielded FA-18 high flight hour inspections. The current process requires 7 barrio monitors and 5 artisans to manually align the shots, necessitating multiple shots before the desired results are achieved. This project will minimize the number of man-hours needed to conduct x-ray shots by replacing the manual task of aligning the tube-head with an automated system capable of delivering a real-time feed in addition to the added capability of digital radiography. This allows the artisans to view the image in real time before the shot is taken, subsequently reducing the image processing time as an instant digital image is produced. This project will reduce current man-hours from 3,712 to 896 per x-rayed aircraft, and required personnel from 12 to 8. Although alternatives have been considered, the current process is inefficient, and this proposed process would eliminate waste in several areas.

Multi-Spectral Targeting System (MTS) System Test Equipment
The purpose of this project is to procure an additional set of MTS-A/B system test equipment for electro-optical targeting system testing and troubleshooting. MTS turret repair workload is increasing and additional variants are coming to the FRC for repair. This additional set of system test equipment will alleviate capacity issues.

LFTA Test Bench
The purpose of this project is to purchase a Lateral & Longitudinal Feel Trim Actuator (LFTA) test bench. The existing test bench uses an outdated, broken, and difficult to replace XY plotter; has parts that wear out and are no longer manufactured; and only tests FA-18 A-D LFTAs. The new stand will take up less space, use modern testing equipment using LabVIEW, & test FA-18 E-G components.

Motor-Driven Fan Test System
The purpose of this project is to purchase a Motor-Driven Fan Test System (MDFTS) for the Rotating Electric Shop. The shop currently uses an old, in-house-fabricated test system that does not produce printed results and does not have a breaker to protect the equipment. The new MDFTS produced by Boeing would solve these issues, make a safer testing environment, produce printed results, increase throughput, and decrease TAT.

Examples of Support Equipment purchases include:

270 CNC Gantry Machining Center #2
The purpose of this project is to replace (2) mills that are currently generating unacceptable levels of scrap and rework due to manual manipulation / loading of parts and machines going down mid-cycle. Backlog of up to 562 days to complete a part is also being experienced. By replacing these machines with the new enclosed 5-axis mill, scrap and rework will be drastically reduced and standard processing time will be reduced by 40%. This will allow current and future workload to be supported.

Coordinate Measurement Machine (CMM) x2
The purpose of this project is to increase shop productivity to check accuracy of machined parts by 35% over existing machines. Old machines are 27+ years old, technologically obsolete, require frequent calibration for accuracy, and cause immense delays in the manufacturing processing of new parts. Replacing with new machines will reduce TAT by 35% and save in corrective maintenance and downtime awaiting repair parts.

High Pressure Cold Spray System
The purpose of this project is to replace the legacy high-pressure cold spray equipment at the FRC. Weapons systems supported are: H-1, AV-8, H-53 and V-22. This project will not require any facilities modifications or extensive utilities work. This equipment has the capability to restore components by spraying metal powder to worn areas of parts and rebuilding the part. Vendor will integrate this system into the existing Cold Spray booth.

Waterjet Stripper
The purpose of this project is to upgrade the waterjet stripper located in the Engine Parts Repair Shop. This equipment was purchased in 2001 and has been operating for 15 years with multiple repairs and part replacements. This project will require very little support from the facility and utility team and no facility modification. There will be environmental impacts due to the waste by-product from stripping the components. This equipment will support engines for all aircraft platforms at the FRC.

Dust Collection System
The purpose of this project is to replace (3) High-Efficiency Particulate Air (HEPA) Dust Collection Systems. Each HEPA System will support a booth. Booth 1 is a manual metal spray system for plasma, combustion and wire. Booth 2 is a robotic metal spray system for plasma and combustion. Booth 3 is a robotic metal spray system for high velocity oxygen fuel (HVOF), plasma and combustion. The equipment procured for replacement will support various aircraft components from all aircraft platforms. There will be environmental impacts. This project will require facility and utility support and possible modification.

Hydrogen Fluoride Furnace
The purpose of this project is to replace a Hydrogen Fluoride (HF) furnace. Due to the use of HF gas in the cleaning process, several parts of the exposed machinery degrade over time. In the current configuration, these parts are routinely replaced during maintenance. Retorts in the system were not repaired as needed; therefore, the retort life was reduced. The auxiliary control panel has had several components retrofitted and is overdue for an updated operator panel with new data collection capability. The current furnace experiences excessive downtime, including a 1-year period where the machine was awaiting various repair parts. An estimated 75% of the brazing workload in building 4225 goes through this process. Due to the significant dependence on this machine, repair issues with the current equipment are causing negative impacts to readiness where additional cost must be incurred by contracting work out during current equipment downtime.

Allison Electrophoretic Coating System
The purpose of this project is to replace the Allison Electrophoretic (AEP) Coating System. This requirement consists of replacing the hydraulic pump, A/C unit, humidifier, computer, conveyors, bladder/membrane floor, electric cradle, two exhaust fans, and holding fixtures. It is a single point of failure. A controlled environment is currently not readily available, and the air conditioning unit and humidifier units are broken. If it gets too cold in the winter, static electricity can lead to an explosion of the nitromethane based coating tanks. The recommended temperature and humidity is 67 to 77 degrees Fahrenheit, 30 to 40% relative humidity. When the humidity is high, it contaminates the bath faster with water; thus leading to more frequent bath changes, which negatively impacts productivity. Water also impacts the coating, and the coating efficiency cannot be maintained with the current system. This project will provide the equipment to run this system more efficiently and provide the coating time calculations and electrical circuit parameters. The current system cannot provide data such as volts and time when the parts are processed. This system replacement will enable troubleshooting of the machine faults as well as provide more precise run parameters to input.

Furnace E
The purpose of this project is to replace one G-M Model SAR-3636-BL (Furnace E) electrically heated retort furnace located in building 4225. It is a bottom-loaded furnace used for gas cleaning, super alloy heat treating, and diffusing aluminide coatings. The shop has two identical hydrogen furnaces (Furnace E & F). Furnace F is operating at 50% capability while Furnace E is currently down for maintenance. There is a lack of retorts/bells for the furnace. Originally, each furnace was supplied with two retort bells, one for each furnace base. The shop is currently operating with one retort bell. The other available retort bell is inoperable due to cracks and has been waiting to be repaired for 6 months. Retorts should be replaced every 5 to 10 years based on usage. Retorts do not heat up uniformly. The furnace contains many elements surrounding the retort. Improper balancing of the heat on the retort causes the aging retorts to sag. In addition, the element zones can create either hot spots or cold spots in the furnace work zone, thus reducing the operating area for parts in the furnace.

Replace Automated Storage and Retrieval System (ASRS) Conveyor Equipment
The purpose of this project is to upgrade the existing Automated Storage and Retrieval System (ASRS), and replace all components with supportable equipment to ensure its function. The ASRS supports all engine program modules and components. Parts are housed in the ASRS until a complete a kit is available to be worked. The FA-18, Avionics, and T-44 programs also house components within the ASRS

Vacuum Furnace
The purpose of this project is to procure and install a new Vacuum Furnace in the Heat Treat and Weld Shop to eliminate a single point failure. Failure of the existing furnace would produce an additional cost to the Integrated Product Team (IPT). This cost would include transportation of units and artisans, delays in production, and risk of damaging a unit by mishandling through shipping.

3D Circuit Printer
The purpose of this project is to procure a 3D circuit board printer. The procurement will significantly reduce the time required to prototype Printed Circuit Boards (PCBs) from engineering design to test article. Current process takes 6 weeks on average to create a prototype PCB. The Additive Manufacturing printer will reduce the turnaround time from 6 weeks to 2 days, a better than 90% improvement.

Cross-Draft Paint Booth
The purpose of this project is to procure (1) large climate-controlled cross draft paint booth by removing (3) open cross draft spray booths (PT9, PT10, PT11) in 62723 Engine Finish shop. The current equipment age is 35 years old with maintenance hours totaling in excess of 436 hrs./year. The new booth will increase capacity to process larger parts, improve throughput and decrease rework.

Vapor Degreaser
The purpose of this project is to remove a non-functioning vapor degreaser and replace it with a new vapor degreaser. The current vapor degreaser, located in the 62721 cleaning shop, will be over 18 years old when replaced. The FRC has established capability of degreasing a plethora of components, which is crucial in processing components for many platforms. Projected workload will only increase the demand for the degreaser. The procurement will improve hazardous waste control reducing risk to the artisans and environment.

AN/AIC-14 RTCASS/D Offload
The purpose of this project is to re-host the AN/AIC-14 System from the AN/USM-449 (V) to the new RTCASS/D. The deficiency addressed by the project is that the AN/AIC-14 is currently run on AN/USM-449 which is antiquated. 2 out of 3 AN/USM-449 benches are down and cannot be repaired. If the remaining AN/USM-449 (V) bench goes hard down, the FRC will be unable to meet fleet requirements for AN/AIC-14 workload. When remaining 449 bench goes hard down, replacement costs will have to be expensed at that time for this effort with a lead time of 24 months for any re-host effort.

Fuel Flow Transmitter Test Stand (UF-7)
The purpose of this project is to procure a new test stand to prevent workload disruptions. This test stand is needed for the Hydraulic shop and will support major fuel components of the LM2500 engines, specifically the Fuel Transmitter. The existing test stand is old and has been down numerous times. The indicators on the flow meter stick and the power work intermittently.

Hydraulic System Components Test Stand
The purpose of this project is to procure a new test stand to prevent workload disruptions. This Test Stand is needed for the Hydraulic shop and the supported workload is major hydraulic components of the FA-18 and E-2/C-2 programs. The deficiency addressed by the project is that the existing test stand is old and has been down numerous times. The impacts to production if a new machine is not provided is the inability to support FA-18 and E-2/C-2 hydraulic components. In addition, the FRC would be unable to produce the current work in process to support the Fleet. Other impacts are long periods of down equipment time, inability to process workload, and inability to support customer requirements.

Main Turbojet Fuel Pump Test Stand (LF-17)
The purpose of this project is to remove the existing LF-17 test bench used to test Fuel Pump assemblies installed on FA-18 legacy models in support of Foreign Military Sales. This upgrade will include a larger test compartment & internal components to accommodate LM2500 fuel pumps previously tested exclusively on the excessed LF-15 bench. Replacing the LF-17 will increase program productivity and worker safety over the existing 32-year-old equipment. Replacement of this bench combines load testing capabilities of 2 similar

parts from 2 separate FRC programs into a single bench, properly designed for the combined workload, to include pressure & motor RPM step-down abilities to accommodate both platforms.

Optical Measurement and Inspection System (OMIS)
The purpose of this project is to procure a turnkey OMIS to measure and inspect machined parts. The system will include the inspection equipment along with an enclosure for the robot and all safety features integrated into one complete system. The OMIS will increase productivity and reduce inspection time when measuring large machined parts. Primarily, the FA-18 formers, spars, and longerons and LM 2500 Engine parts, but this machine will also be capable of measuring any machined components manufactured within the FRC. The existing method of measuring and inspecting is manual and labor intensive, whereas this new machine will automate much of the process by increasing the volumetric throughput of parts inspected. Slow inspection times will continue to cause a backlog of work requiring a second shift and overtime expenditures. This technology will provide faster inspection and will be industrial-connectivity ready.

Integral Quench Furnace (IQF)
The purpose of this project is to procure a new IQF needed for the Heat Treat Shop. The IQF is the only furnace that heat treats steel parts. Steel parts (bushings, rods, nuts, bolts, washers, etc.) are currently being sent out for heat treating. The IQF supports all of the programs at the FRC. The existing IQF is down and has been down for the better part of two years, requiring the FRC to send out steel parts for heat-treating. Last year it cost the FRC over $92K to send out a total of 277 steel parts for 58 different part numbers for heat treating. The new IQF will have a coupon port, so the artisan will be able to pull the coupon to test from the port and not have to open the front of the furnace.

Zinc Nickel Plating Line
The purpose of this project is to replace the existing Cadmium Plating line with a new Zinc Nickel Plating Line. The Cadmium plating line supports all of the programs at the FRC. The deficiency addressed by the project is that cadmium electroplates utilized to protect aerospace alloys from corrosion damage are classified as a toxic heavy metal requiring replacement per FRC SE INST 5103.15 and COMFRCISNT 5100.1. The impacts if the project is not provided are continued usage of hazardous materials (cadmium and chromium) Technology Enhancements include improved repair TAT via reduced routing for HE Bake, reduced usage of hazardous materials and heavy metals (Cr+6 and Cd), and improved corrosion performance with reduced rework benefiting total ownership cost.

Air Scrubber System
The purpose of this project is to replace an existing air scrubber to minimize production downtime within the plating shop of building 472, which primarily supports FA-18 and E-2/C-2 landing gear. The toxic Plating Line chemicals, such as Hexavalent Chrome, make this a monumental safety and environmental issue when the equipment is down; this triggers a production-halt of the entire Plating Line. A new system will also be more efficient and compliant to consistently more-restrictive CA-State environmental requirements, whereas current equipment is "grandfathered" due to the timeframe of when original Air Quality Permits were initially issued.

AVTRON Test Stand
The purpose of this project is to replace the existing K738AX Generator Test Stand for the repair and testing of the oil-cooled generators in support of the AV-8B Harrier and the V-22 Osprey aircraft platforms. The existing Test Stand is operating well beyond its normal life expectancy range at twenty-seven years. With future workload for the above-mentioned platforms, the situation poses a single point failure for the return-to-service testing of a broad range of aircraft generators. A new reliable Generator Test Stand is required to reduce test times, increase throughputs, and eliminate frequent breakdowns of the existing Test Stand. If this test bench is not replaced, frequent breakdowns will continue to cause further backlog of work as well as second shift and overtime expenditures to play "catch-up" with demand workloads. Other benefits to the FRC with a new test bench include connection to the FRC RDT&E Network for real-time progress monitoring, future expansion to support a wide range of future aircraft generators with adapter kits and software, and incorporation of AC motor/drive technology for improved system performance and lower long-term maintenance cost.

LM2500 Thrust Stand Overhaul, Cell #20
The purpose of this project is to overhaul Cell #20 for the LM2500 Thrust Stand, used to test & certify that dual-shaft turbine engines are within program specifications before sale to the Surface Fleet Forces (SURFOR) Navy. The existing overhead thrust stand is over thirty-five years old and repair parts are extremely hard to find, which causes repair delays

lasting weeks to months. The system is antiquated and is in desperate need of replacement, and a single point of failure for testing dual shaft turbines jeopardizing the readiness of the surface fleet. Additionally, later models of the LM2500 engine do not easily fit into the existing mounting brackets without modification which increases preparation time when an engine is mounted & unmounted, and presents a future safety hazard if one of the newer/larger engines comes loose while under full load testing.

Test Line Power
The purpose of this project is to replace (1) Unitron frequency power converter at the Aircraft Test Line facility, replace all degraded underground power cables from converters to individual turn-up pads, and install/build parapet type walls to divert surface water from manholes where it currently collects and pools. Additionally, plans also include replacement of (3) shelters housing all three-frequency power converters in this system for better weather protection of all equipment. There are (15) individual aircraft turn-up pads currently supporting a workload of approximately (70) FA-18 and E-2C aircraft annually; anticipated future workload expected to expand further in support of E-2D, V-22, and JSF programs. When power converters are in a hard-down situation, portable/trailer generators are temporarily employed but availability of these units is a limiting factor leading to backlog of planes unable to be tested before passing along to pilots for actual in-flight testing.

Universal Fuel and Control Test Stand (UF-239)
The purpose of this project is to remove and replace existing UF-2 Fuel Accessory & Control Test Stand, UF-3 Universal Fuel Test Stand and UF-9 Fuel Component Test Stand by combining (3) units into a single bench, and purchasing (2) units to eliminate a single point of failure. These benches collectively support E-2/C-2, FA-18, and Vertical Lift platforms and will increase reliability and modernize the existing equipment that is 47 years old on average. All (3) benches have been deemed critical pieces of machinery for replacement by the FRC leadership, despite limited production data due to long-term "down" periods. UF-2 is key to revitalizing and supporting the existing and future of the LM2500 program at the FRC; UF-3's expansive "down time" spanned 2012-2016 due to obsolescence and difficulty in obtaining suitable repair parts; UF-9 is designed for testing Fuel Float Valves used in E-2/C-2 Wing Fuel Tanks and the FRC is the only source of repair in the Navy. The (3) test stands produce, on average, four E-2/C-2 units per work year. These units are processed, repaired, and returned to service. Upgrading these (3) Tier-2 Critical benches by combining into a new one, built with solid-state parts and components, will increase reliability and production capacity.

Examples of Installation Security purchases include:

Access Control System (ACS)
The purpose of this project is to install new ACS (Access Control Systems) & IDS (Intrusion Detection Systems) on 22 of the FRC buildings, installing 229 individual card readers to provide improved physical security in accordance with current Navy-directed Anti-Terrorism / Force Protection measures. The current system has major technical vulnerabilities, and does not meet current Navy Physical Security Standards as dictated by NIST FIPS 201-2 (Aug 2013), UFC 4-021-02, (Oct 2013), and SECNAV 5510.36 (Jun 2006). The new ACS system will be DoD-accredited and has an Authority To Operate (ATO), which the current system does not. Components of the existing system are nearing the end of their current life cycle and will soon need replacement. This is a replacement to the current, partially working system and will incorporate more buildings into the overall system, providing wider and more flexible data management and reporting capabilities.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARUY 2020					
Department of the Navy/ Depot Maintenance	#002 - ADPE						Fleet Readiness Centers		
	FY 2019			FY 2020			FY 2021		
ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Computer Hardware (Production)	0	-	$0	0	-	$0	0	-	$0
Computer Hardware (Network)	0	-	$0	0	-	$0	0	-	$0
Computer Software (Operating System)	0	-	$0	0	-	$0	0	-	$0
Telecommunications	0	-	$0	0	-	$0	1	754	$754
Other Support Equipment	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	1	754	$754

Justification:

As the Department of the Navy's provider of depot level maintenance, repair, overhaul, & upgrades for aircraft, the Fleet Readiness Centers (FRCs) depend heavily on the acquisition of capital assets through Capital Investment Program to accomplish its mission. CIP satisfies long range planning, programming objectives, and documented needs for capability to perform operational functions that cannot be performed as effectively or economically by the use of existing infrastructure, equipment, and/or facilities essential to accomplish mission requirements.

The acquisition of the capital assets efficiently and effectively accomplishes the objective for which it is justified which are; improved efficiency or effectiveness of operations, beyond economical repair, or inoperative and unusable assets, or regulatory agency (state, local, or Federal) mandated requirements. Requested computer hardware, software, and networks will update and connect current systems to ensure IA (Information Assurance) compliance. For each project alternatives were considered, but the procurement is the most cost effective for the government.

Examples of Telecommunications purchases include:

Fiber Optic Upgrade
The purpose of this project is to provide additional fiber optic and telecommunication cable pathways for the FRC infrastructure. This procurement will provide infrastructure for telecommunications/data to support new facilities and existing underserved facilities. Current infrastructure has insufficient connectivity for access to existing FRC facilities for future planned facilities. This project will correct this deficiency in both areas of concern by increasing infrastructure connectivity and providing expanded pathways for connectivity.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARUY 2020					
Department of the Navy/ Depot Maintenance	#003 - Software Development						Fleet Readiness Centers		
	FY 2019			FY 2020			FY 2021		
Software	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Internally Developed	0	-	$0	0	-	$0	0	-	$0
Externally Developed	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	0	-	$0

Justification:

N/A

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARUY 2020					
Department of the Navy/ Depot Maintenance	#004 - Minor Construction						Fleet Readiness Centers		
	FY 2019			FY 2020			FY 2021		
Minor Construction	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Replacement	2	1,745	$3,490	1	500	$500	2	3,650	$7,300
New Construction	4	729	$2,915	3	3,117	$9,350	3	1,433	$4,300
Environmental Capability	0	-	$0	0	-	$0	0	-	$0
Total	6	1,068	$6,405	4	2,463	$9,850	5	2,320	$11,600

Justification:

As the Department of the Navy's provider of depot level maintenance, repair, overhaul, & upgrades for aircraft, the Fleet Readiness Centers (FRCs) depend heavily on the acquisition of capital assets through Capital Investment Program to accomplish its mission. CIP satisfies long range planning, programming objectives, and documented needs for capability to perform operational functions that cannot be performed as effectively or economically by the use of existing infrastructure and/or facilities essential to accomplish mission requirements. None of the projects in this budget exceed current MILCON thresholds.

Budgeted projects are for construction, expansion, or improvement of a complete and useable building, structure, or other real property.

Examples of Replacement Capability purchases include:

Construct - Calibration Lab
The purpose of this project is to design and construct a new clean room with mezzanine inside of building 4225. The construction will provide additional production space to the Calibration Labs. The existing Calibration Shops are in various locations throughout the plant. This project will co-locate all of the labs under one roof. The existing shops are spread out over a large area, negatively affecting product quality and TAT. With current workload increasing and projected new workload over the next 3-5 years, the lack of production space will continue to be a problem until this project is completed.

Design - Facility Addition, Bldg. 4841
The purpose of this project is to design a facility addition that will provide additional administrative space for the FRC readiness support personnel, associated accessible restrooms, entrances, and remediate water intrusion issues. This addition will address the major deficiency in support personnel space, water intrusion issues, and inaccessible restrooms.

Construct - Covered Storage for Aircraft Containers
The purpose of this project is to comply with NAVAIR Instruction 15-01-500, which addresses regulations on how containers are required to be maintained; as well as Unified Facilities Criteria (UFC) 2-000-5N regulations requiring a storage facility for containers. Currently containers for engines, gearboxes, blades, & rotor heads are stored in the open and are subject to weathering. This project will create a covered storage facility to meet these regulatory requirements and enable cost savings by preventing cost of reworking containers.

Construct Facility Addition, Bldg. 4841
The purpose of this project is to design a facility addition that will provide additional administrative space for the FRC readiness support personnel, associated accessible restrooms, entrances, and remediate water intrusion issues. This addition will address the major deficiency in support personnel space, water intrusion issues, and inaccessible restrooms.

Construct - Administrative Building (Ranger and Birmingham)
The purpose of this project is to create adequate support personnel space for engineering and logistics personnel at the FRC. This project will construct a modern professional facility on the same site as an existing trailer. The new facility will be approximately 3,000 sq. ft. and will accommodate 20 personnel. This project will solve the emergent need to house engineering and logistic personnel supporting all programs.

Examples of New Construction purchases include:

Construct - Equipment Support Building
The purpose of this project is to construct a new facility to consolidate the industrial operations into one complex, provide a more cost efficient facility, consolidate/optimize space utilization, and reduce future sustainment and energy costs. The FRC has experienced increased maintenance costs due to damage to machinery and tooling from moisture intrusion. The existing facilities were erected in the mid 1970's and have exceeded their life expectancy. The existing location and facility conditions are not suitable nor conducive for industrial operations. Environmental and safety concerns have always been paramount with location on the St. Johns River, to include the potential for unwanted drainage into the river.

Construct – Bldg. 168 Addition
The purpose of this project is to build an annex to building 168. FRC RADAR programs are increasing in workload, with some programs located in building 168 and some in building 101U. This project will allow co-location of all RADAR repair and testing to one site (building 168) and eliminate long travel between buildings. Moving all RADAR work to building 168 will open up 25% of the footprint in the overcrowded Countermeasures Shop in building 101U. This project will also provide capacity for increasing Joint Strike Fighter (JSF) Electro-Optical Targeting System (EOTS) workload in building 168, which will require an additional 1500 sq. ft. in 2021. This project will eliminate risk caused by travel of classified components between buildings for RADAR repair and testing. If the addition is not constructed, the FRC will run out of available footprint and will not be able to meet repair demand.

Design - Industrial Training Center
The purpose of this project is to construct a 5450 sq. ft. new industrial training center in the parking lot south of building 848. It will include a metal working lab, bathrooms, breakroom and an outdoor patio area. Also included are HVAC, NMCI/ telephone lines, electrical, fire protection, water/sewer, and compressed air utilities. The lack of training space for newly hired and existing artisans is addressed by this project.

Construct - Industrial Training Center
The purpose of this project is to construct a 5450 sq. ft. new industrial training center in the parking lot south of building 848. It will include a metal working lab, bathrooms, breakroom and an outdoor patio area. Also included are HVAC, NMCI/ telephone lines, electrical, fire protection, water/sewer, and compressed air utilities. The lack of training space for newly hired and existing artisans is addressed by this project.

Design - Ordnance Facility
The purpose of this project is to purchase and install a 3,700 sq. ft. ordnance storage facility near Black Point. This project requires a concrete pad foundation, new fencing to surround facility, temperature and humidity controls, and electrical utilities to be routed to building, new roadway to be built leading to facility with gated entry. This project will increase the FRC's Net Explosive Weight (NEW) approval limit.

Construct - Ordnance Facility
The purpose of this project is to purchase and install a 3,700 sq. ft. ordnance storage facility near Black Point. This project requires a concrete pad foundation, new fencing to surround facility, temperature and humidity controls, and electrical utilities to be routed to building, new roadway to be built leading to facility with gated entry. This project will increase the FRC's Net Explosive Weight (NEW) approval limit.

Construct - Security Processing & Ops Center
The purpose of this project is to create a replacement security facility for central housing and operational support for the FRC personnel and visitors. The new facility will house employee and visitor processing, IT security, and 24/7 building monitoring. Building will be located at the corner or Enterprise Ave. and Wasp St. The new facility will be approximately 4,000 sq. ft.

Fall Protection Canopy, Bldg. 868
The purpose of this project is to install an approximately 3,400 sq. ft. pre-engineered freestanding canopy next to building 868, wind rated for zone 3 (~120 mph). This freestanding canopy will also provide secure points for securing protection stands & rolling ladders during strong wind/hurricanes. This project will protect fall protection stands and rolling ladders from harmful U.V. rays and help secure them during strong wind/hurricanes.

Security Enhancement (Cecil Commerce Center)
The purpose of this project is to install 2,120 sq. ft. of tubular picket fencing around the perimeter of the complex (buildings 6201, 6206, 6210, & adjacent parking lot). The fence will increase/improve security by providing controlled access points to the complex. This will only allow authorized people to park in the adjacent parking and have access to the grounds. Tubular picket fencing is required by the Jacksonville city design guidelines. (5) turnstiles are required to maintain pedestrian accessibility. Additionally, (3) ABA swing gates will be placed at the primary entrances of 6201 and 6206. (8) vehicle gates are required to cover the entrances of the parking lot. These gates will be manually operated; however, the utility infrastructure to automate these gates will be placed during this project.

CAPITAL BUDGET EXECUTION
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2019	**1**	**Non ADP**		**$33.250**	**$35.565**	**$2.315**	
			Quality Control/Testing	$4.500	$2.291	($2.209)	1 new, 1 cancelled, 1 deferred
			Machinery	$5.800	$14.326	$8.526	1 cancelled, 2 increase, 4 new
			Support Equipment	$22.950	$18.948	($4.002)	3 cancelled, 1 decrease, 4 deferred, 1 increase, 9 new
	2	**ADP**		**$9.080**	**$0.000**	**($9.080)**	
			Computer Hardware (Production)	$5.805	$0.000	($5.805)	3 deferred
			Computer Hardware (Network)	$3.275	$0.000	($3.275)	1 cancelled, 1 deferred
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
	4	**Minor Construction**		**$1.100**	**$6.405**	**$5.305**	
			Replacement	$1.100	$3.490	$2.390	2 decrease, 1 new, 1 cancelled
			New Construction	$0.000	$2.915	$2.915	4 new, 1 decrease
TOTAL FY 2019 CIP Program				**$43.430**	**$41.971**	**($1.459)**	

FY	L.I.	Category	Capability/Project	I.R	C.P.R	A.C.	Explanation
2020	**1**	**Non ADP**		**$35.730**	**$30.221**	**($5.509)**	
			Quality Control/Testing	$9.000	$3.270	($5.730)	1 cancelled, 2 deferred, 1 increase
			Machinery	$13.620	$12.920	($0.700)	1 deferred, 2 new, 1 decrease
			Support Equipment	$13.110	$14.031	$0.921	2 cancelled, 2 decrease, 3 new
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
	4	**Minor Construction**		**$5.541**	**$9.850**	**$4.309**	
			Replacement	$3.541	$0.500	($3.041)	2 deferred, 1 new
			New Construction	$2.000	$9.350	$7.350	1 cancelled, 4 new
TOTAL FY 2020 CIP Program				**$41.271**	**$40.071**	**($1.200)**	

FY	L.I.	Category	Capability/Project	I.R	C.P.R	A.C.	Explanation
2021	**1**	**Non ADP**		**$32.236**	**$32.236**	**$0.000**	
			Installation Security	$1.400	$1.400	$0.000	
			Quality Control/Testing	$13.050	$13.050	$0.000	
			Machinery	$1.300	$1.300	$0.000	
			Support Equipment	$16.486	$16.486	$0.000	
	2	**ADP**		**$0.754**	**$0.754**	**$0.000**	
			Telecommunications	$0.754	$0.754	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
	4	**Minor Construction**		**$11.600**	**$11.600**	**$0.000**	
			Replacement	$7.300	$7.300	$0.000	
			New Construction	$4.300	$4.300	$0.000	
TOTAL FY 2021 CIP Program				**$44.591**	**$44.591**	**$0.000**	

CARRYOVER RECONCILIATION
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
Part 1			
1. Net Carry-In	1,210.6	1,290.6	1,162.3
2. Revenue	2,648.0	2,588.8	2,977.4
3. New Orders	2,728.0	2,460.4	2,955.8
4. Exclusions:			
Foreign Military Sales	46.4	20.5	30.5
Base Realignment and Closure	0.0	0.0	0.0
Foreign Cooperative Projects, Navy	0.2	0.0	0.0
Other Federal Department and Agencies	0.5	1.7	2.1
Non-Federal and Others	165.6	143.7	100.2
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
5. Orders for Carryover Calculation	2,515.4	2,294.5	2,823.0
6. Weighted Average Outlay Rate	64.8%	67.0%	68.0%
7. Carryover Rate	35.2%	33.0%	32.0%
8. Allowable Carryover	1,002.0	906.1	1,043.7
Allowable Carryover(First Year)	885.4	757.2	903.4
Allowable Carryover (Second Year Procurement-funded Orders)	116.6	148.9	140.3
Part II			
9. Balance of Customer Order at Year End	1,290.6	1,162.3	1,140.6
10. Work-in-progress	33.5	37.1	39.1
11. Exclusions:			
Foreign Military Sales	50.4	52.1	46.3
Base Realignment and Closure	0.0	0.0	0.0
Foreign Cooperative Projects, Navy	0.2	0.2	0.2
Other Federal Department and Agencies	0.4	0.9	0.9
Non-Federal and Others	90.7	166.2	162.6
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	123.8	0.0	0.0
12. Calculated Actuals Carryover	991.7	905.8	891.6

Some totals may not add due to rounding.

MATERIAL INVENTORY DATA
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

FY 2019

			----- Peacetime -----			
		Total	Mobilization		Operating	Other
Material Inventory BOP	$	16.0	$ 0.0	$	16.0	$ 0.0
Purchases						
A. Purchases to Support Customer Orders	$	976.1	$ 0.0	$	976.1	$ 0.0
B. Purchase of long lead items in advance		0.0	0.0		0.0	0.0
of customer orders		0.0				
C. Other Purchases (List)		0.0	0.0		0.0	0.0
D. Total Purchases	$	976.1	$ 0.0	$	976.1	$ 0.0
Material Inventory Adjustments						
A. Material Used in Maintenance	$	969.0	$ 0.0	$	969.0	$ 0.0
B. Disposals, theft, losses due to damages		0.0	0.0		0.0	0.0
C. Other reductions (List)		0.0	0.0		0.0	0.0
D. Total inventory adjustments	$	969.0	$ 0.0	$	969.0	$ 0.0
Material Inventory EOP	$	23.1	$ 0.0	$	23.1	$ 0.0

FY 2020

			----- Peacetime -----			
		Total	Mobilization		Operating	Other
Material Inventory BOP	$	23.1	$ 0.0	$	23.1	$ 0.0
Purchases						
A. Purchases to Support Customer Orders	$	968.8	$ 0.0	$	968.8	$ 0.0
B. Purchase of long lead items in advance		0.0	0.0		0.0	0.0
of customer orders		0.0				
C. Other Purchases		0.0	0.0		0.0	0.0
D. Total Purchases	$	968.8	$ 0.0	$	968.8	$ 0.0
Material Inventory Adjustments						
A. Material Used in Maintenance	$	964.6	$ 0.0	$	964.6	$ 0.0
B. Disposals, theft, losses due to damages		0.0	0.0		0.0	0.0
C. Other reductions		0.0	0.0		0.0	0.0
D. Total inventory adjustments	$	964.6	$ 0.0	$	964.6	$ 0.0
Material Inventory EOP	$	27.3	$ 0.0	$	27.3	$ 0.0

MATERIAL INVENTORY DATA
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

FY 2021

			----- Peacetime -----				
		Total		Mobilization		Operating	Other
Material Inventory BOP	$	27.3	$	0.0	$	27.3	$ 0.0
Purchases							
A. Purchases to Support Customer Orders	$	1,006.4	$	0.0	$	1,006.4	$ 0.0
B. Purchase of long lead items in advance of customer orders		0.0		0.0			0.0
C. Other Purchases		0.0		0.0		0.0	0.0
D. Total Purchases	$	1,006.4	$	0.0	$	1,006.4	$ 0.0
Material Inventory Adjustments							
A. Material Used in Maintenance	$	1,005.0	$	0.0	$	1,005.0	$ 0.0
B. Disposals, theft, losses due to damages		0.0		0.0		0.0	0.0
C. Other reductions		0.0		0.0		0.0	0.0
D. Total inventory adjustments	$	1,005.0	$	0.0	$	1,005.0	$ 0.0
Material Inventory EOP	$	28.7	$	0.0	$	28.7	$ 0.0

DEPOT MAINTENANCE SIX PERCENT CAPITAL INVESTMENT PLAN
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - FLEET READINESS CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	REVENUE (Maintenance, Repair, Overhaul) 3 year average			BUDGETED CAPITAL (Modernization, Efficiency)		
	FY 16-18	FY 17-19	FY 18-20	FY 2019	FY 2020	FY 2021
	2023.7	2207.7	2527.1			
	2207.7	2527.1	2648.0			
	2527.1	2648.0	2588.8			
Revenue (Avg)	2252.8	2460.9	2588.0			
Working Capital Fund (Avg)	2252.8	2460.9	2588.0			
Appropriations (Avg)	0.0	0.0	0.0			
Total Revenue (Avg)	2252.8	2460.9	2588.0			
WCF Depot Maintenance Capital Investment						
Facilities/ Work Environment				69.2	46.0	74.2
Equipment				35.6	30.2	33.0
Equipment (Non-Capital Investment Program)				25.9	14.2	15.9
Processes				0.0	0.0	0.0
Total WCF Investment				130.6	90.4	123.1
Appropriated Funding - List by Appropriation						
MILCON				4.4	111.4	0.0
Procurement				36.4	42.5	46.9
Operation & Maintenance				3.4	0.9	0.0
Total Appropriated Funding				44.2	154.8	46.9
Component Total				174.9	245.2	170.0
Minimum 6% Investment				135.2	147.7	155.3
Investment Over/Under Requirement				39.7	97.6	14.7
Projected Investment				**7.8%**	**10.0%**	**6.6%**

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2. Marine Corps Depots

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NARRATIVE
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Mission Statement / Overview:

The Marine Corps Depot Maintenance Activity Group (MC DMAG) provides innovative, worldwide, depot level and related maintenance, rebuild, modification, and repairs, to war fighting weapons systems for the Department of the Navy (DON), federal and non-federal. MC DMAG also provides engineering, manufacturing, remanufacturing, preservation, calibration, fabrication, technical evaluation, and other services required to maximize the readiness and sustainability of ground combat and combat support weapon systems, associated parts, assemblies, and subassemblies.

MC DMAG provides quality products and responsive maintenance support services that maintain a core industrial base in support of DoD operating forces mobilization, surge, reset, and reconstitution requirements. MC DMAG enables equipment readiness and operational availability by refurbishing equipment to a like new condition before returning it to the warfighter.

Activity Group Composition:

Activities	Location
Marine Depot Maintenance Command	Albany, GA
Marine Depot Maintenance Command	Barstow, CA

Significant Changes since the FY 2020 President's Budget:

MC DMAG's budget request reflects a significant increase in the Stabilized Rates for FY 2021. The rate increased at 14.95% from FY 2020 to FY 2021 due to the following reasons:

In FY 2019, MC DMAG workload was reduced by $44.5 million in the year of execution. There is $24.8 million workload reduction between FY 2019 and FY 2020, and an additional $41.4 million workload decreased FY 2021. The decrease includes reductions in funded Field Level Maintenance and 36 Amphibious Assault Vehicles. Starting in FY 2020, there is a significant change to migrate DMAG's official financial system to the Department of Navy Enterprise Resource Planning (DoN ERP) as its financial system in support of Working Capital Fund (WCF) General Ledger (GL) Consolidation of $7.0.

Additionally, this budget submission assumes a reduction in all contractor workforce beginning in March 2020 and continuing in FY 2021. Civilian term employees will be utilized to support surge capabilities.

NARRATIVE
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Financial Profile:

Orders/Revenue/Expense/Operating Results ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Orders	$395.8	$357.5	$375.2
Revenue	$395.3	$416.6	$407.2
Expense	$426.5	$422.5	$382.0
Operating Results	$-31.2	$-5.9	$25.2
Capital Surcharge	-$5.4	-$3.7	$0.0
Net Operating Results (NOR)	$-36.6	$-9.6	$25.2
Prior Year AOR	$23.6	-$13.0	-$25.2
Other Changes Affecting AOR	$0.0	$-2.6	$0.0
Accumulated Operating Results (AOR)	-$13.0	-$25.2	$0.0

Some totals may not add due to rounding.

Orders, Revenue and Expense:

Budgeting for workload from non-organic sources was based upon letters of intent from customers. Orders were reduced in FY 2019 due to the asset availability of Air Force Mine-Resistant Ambush Protected (MRAP). Additional workload reductions was experienced in Marine Corps Depot Maintenance organic; Marine Corps, Supply Management Activity Group (SMAG), depot level reparable, Army and Army National Guard. Actual revenue was $395.3 million for FY 2019. Revenue is budgeted at $416.6 million for FY 2020 and $407.2 million for FY 2021. FY 2020 revenue was reduced by $50.7 million from FY 2020 President Budget (PB-20) due to known workload reductions and natural disasters. FY 2021 expenses are projected to decrease due to contract cancellation.

Disbursements/Collections/Outlays ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Disbursements	$409.9	$442.4	$373.8
Collections	$398.2	$411.8	$396.7
Outlays	$11.7	$30.6	($22.9)

Some totals may not add due to rounding.

Current Net Outlay projections reflect workload changes, updated operating estimates, and Revenue, Cost, and Capital Investment Program (CIP) outlay estimates.

NARRATIVE
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Workload:

Direct Labor Hours (DLHs) (000):	**FY 2019**	**FY 2020**	**FY 2021**
Current Estimate	2,730	2,933	2,641

Reduced workload and contractor workforce not working full time 40-hour shifts caused a decrease in DLHs in FY 2019. DLH execution increases in FY 2020 attributed to Air Force MRAP workload, but projected to decrease again in FY 2021 as workload decreases.

Performance Indicators:
The primary performance indicator is unit cost, which represents the average cost of delivering goods and services to customers.

Unit Cost:	**FY 2019**	**FY 2020**	**FY 2021**
Total Stabilized Cost ($Millions)	$426.5	$421.5	$382.0
Workload (DLHs) (000)	2,730	2,933	2,641
Unit cost (per DLH)	$156.24	$143.71	$144.64

In FY 2020, MC DMAG projected to execute more DLHs with a decrease in FY 2021. The decrease in DLH and increase in cost will result in a higher unit cost per DLH.

Stabilized / Composite Rates:	**FY 2019**	**FY 2020**	**FY 2021**
Stabilized Rate	$142.14	$139.07	$159.86
Change from Prior Year		($2.67)	$20.79
Composite Rate Change		-2.16%	14.95%

Summary of Workload Indicators:

Performance Indicators:	**FY 2019**	**FY 2020**	**FY 2021**
Schedule Conformance	99.8%	99.8%	99.8%
Quality Deficiency Reports	0.1%	0.1%	0.1%
Inventory Turnover Ratio	5.8:1	5.9:1	6.3:1

It is MC DMAG's goal to always provide customers with affordable services that meet expected schedules.

NARRATIVE
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Staffing:

Civilian/Military ES & Workyears:	**FY 2019**	**FY 2020**	**FY 2021**
Civilian End Strength (ES)	1,701	1,918	1,848
Civilian Workyears (straight time)	1,635	1,944	1,897
Military End Strength	11	9	9
Military Workyears	11	9	9

Civilian Personnel: MC DMAG's civilian personnel budget reflects workforce levels necessary to accommodate planned workload without excessive use of overtime hours. Normally, MC DMAG utilizes contract artisans to supplement current workforce levels and to meet demand fluctuations in workload. However, this budget submission assumes a reduction in the all contractor workforce beginning in March 2020 and continuing in FY 2021. The civilian term employees will be utilized to support surge in workload.

Military Personnel: Military end-strength is expected to decrease from FY 2019 levels throughout the budget.

Capital Investment Program (CIP):

CIP Authority ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Equipment, Non-ADP / Telecom	$8.1	$7.3	$4.0
Minor Construction	$0.0	$1.0	$2.0
Total	$8.1	$8.3	$6.0

Some totals may not add due to rounding.

MC DMAG executed a capital surcharge in FY 2019 to support increased CIP authority for Depot 21st Century projects.

Carryover Compliance (Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Net Carry-In	$163.7	$164.3	$105.2
Allowable Carryover	$166.6	$144.3	$143.7
Calculated Actual Carryover	$156.1	$105.2	$72.6
Delta (Actual-Allowable): Above Ceiling (+)/Below Ceiling (-)	($10.5)	($39.1)	($71.1)

Some totals may not add due to rounding.

In FY 2019, MC DMAG remains under the allowable carryover ceiling and plans to be under the projected allowable carryover ceilings in both FY 2020 and FY 2021.

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
Revenue:			
Gross Sales			
Operations	383.6	406.1	400.7
Capital Surcharges	5.4	3.7	0.0
Capital Investment Recovery	6.2	6.8	6.5
Other Income			
Total Income	395.3	416.6	407.2
Expenses			
Cost of Materiel Sold from Inventory			
Salaries and Wages:			
Military Personnel Compensation & Benefits	0.9	0.7	0.7
Civilian Personnel Compensation & Benefits	172.8	203.0	201.7
Travel and Transportation of Personnel	5.4	4.3	4.1
Material & Supplies (Internal Operations)	109.1	100.8	91.3
Equipment	14.5	10.6	7.2
Other Purchases from NWCF	3.4	2.8	2.1
Transportation of Things	0.0	0.0	0.0
Capital Investment Recovery	6.2	6.8	6.5
Printing and Reproduction	0.2	0.2	0.2
Advisory and Assistance Services	0.0	0.0	0.0
Rent, Communication, Utilities & Misc Charges	10.7	9.0	9.1
Other Purchased Services	103.1	83.3	59.2
Total Expenses	426.5	421.5	382.0
Work in Process Adjustment	-0.1	1.0	0.0
Comp Work for Activity Retention Adjustment	0.0	0.0	0.0
Cost of Goods Sold	426.5	422.5	382.0
Operating Result	-31.2	-5.9	25.2
Adjustments Affecting NOR	-5.4	-3.7	0.0
Capital Surcharges	-5.4	-3.7	0.0
Extraordinary Expenses Unmatched	0.0	0.0	0.0
Other Changes Affecting NOR (All Others)	0.0	0.0	0.0
Net Operating Result	-36.6	-9.6	25.2
PY AOR	23.6	-13.0	-25.2
TOTAL AOR	-13.0	-22.6	0.0
Non-Recoverable Adjustments impacting AOR	0.0	-2.6	0.0
AOR for budget purposes	-13.0	-25.2	0.0

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
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1. New Orders	395.8	357.5	375.2
a. Orders from DoD Components:	376.7	326.0	344.4
Department of the Navy	349.1	293.3	313.1
O & M, Navy	3.6	8.0	9.2
O & M, Marine Corps	314.8	273.3	278.9
O & M, Navy Reserve	0.0	0.0	0.0
O & M, Marine Corp Reserve	6.4	6.3	18.4
Aircraft Procurement, Navy	2.7	0.0	0.0
Weapons Procurement, Navy	0.0	0.0	0.0
Ammunition Procurement, Navy/MC	0.0	0.0	0.0
Shipbuilding & Conversion, Navy	0.0	0.0	0.0
National Sea Base Deterrence Fund	0.0	0.0	0.0
Other Procurement, Navy	0.0	0.0	0.0
Procurement, Marine Corps	20.7	5.8	6.5
Family Housing, Navy/MC	0.0	0.0	0.0
Research, Dev., Test, & Eval., Navy	1.0	0.0	0.0
Military Construction, Navy	0.0	0.0	0.0
National Defense Sealift Fund	0.0	0.0	0.0
Foreign Cooperative Projects, Navy	0.0	0.0	0.0
Other Navy Appropriations	0.0	0.0	0.0
Other Marine Corps Appropriations	0.0	0.0	0.0
Department of the Army	2.07	0.21	0.14
Army Operation & Maintenance	0.01	0.21	0.14
Army Res, Dev, Test, Eval	2.49	0.00	0.00
Army Procurement	0.41	0.00	0.00
Army Other	0.00	0.00	0.00
Department of the Air Force	25.2	32.5	31.2
Air Force Operation & Maintenance	25.2	32.5	31.2
Air Force Res, Dev, Test, Eval	0.0	0.0	0.0
Air Force Procurement	0.0	0.0	0.0
Air Force Other	0.0	0.0	0.0
DOD Appropriation Accounts	0.2	0.0	0.0
Base Closure & Realignment	0.0	0.0	0.0
Operation & Maintenance Accounts	0.0	0.0	0.0
Res, Dev, Test & Eval Accounts	0.0	0.0	0.0
Procurement Accounts	0.2	0.0	0.0
Defense Emergency Relief Fund	0.0	0.0	0.0
DOD Other	0.0	0.0	0.0
b. Orders from other Fund Activity Groups	12.8	27.5	26.1
c. Total DoD	389.5	353.5	370.5
d. Other Orders:	6.3	4.0	4.8
Other Federal Agencies	0.6	2.3	2.9
Foreign Military Sales	5.6	1.7	1.9
Non Federal Agencies	0.2	0.0	0.0
2. Carry-In Orders	163.7	164.3	105.2
3. Total Gross Orders	559.6	521.8	480.5
a. Funded Carry-Over before Exclusions	164.3	105.2	73.3
4. Revenue(-)	395.3	416.6	407.2
5. End of Year Work-In-Process (-)	1.0	0.0	0.0
6. FMS, BRAC, Other Federal, Non-Federal orders, and Inst. MRTFB (-)	7.2	0.0	0.7
7. Funded Carryover	156.1	105.2	72.6

Note: Line 5 (End of Year Work-In-Process) is adjusted for Non-DOD BRAC, FMS, and Institutional MRTFB

CHANGES IN THE COSTS OF OPERATIONS
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	Costs
FY 2019 Estimated Actuals	**426.5**
FY 2020 President's Budget:	**411.4**
Estimated Impact in FY 2020 of Actual FY 2019 Experience:	**0.0**
Pricing Adjustments:	**-0.2**
Civilian Personnel	0.8
Fuel Price	-1.0
Program Changes:	**8.0**
Other Changes:	**3.3**
Capital Investment Recovery	0.0
Facilities Sustainment, Restoration & Modernization	0.0
Other (list)	3.3
Marine Depot Maintenance Command Consolidation	1.3
Indirect Labor	-4.2
Indirect Materiel	0.6
Depreciation	-0.2
Indirect Contract Services	4.3
VERA/VSIP	-0.7
RIF	0.0
WIPCH	1.0
Other	
Travel/Training	0.0
Miscellaneous/Real Property Maintenance	1.2
FY 2020 Current Estimate:	**422.5**
Pricing Adjustments:	**3.4**
Annualization of Prior Year Pay Raises	**0.4**
Civilian Personnel	0.4
Military Personnel	0.0
FY 2020 Pay Raise	**3.2**
Civilian Personnel	3.2
Military Personnel	0.0
Fuel Price Changes	0.0
General Purchase Inflation	-0.2
Other Price Changes (list)	**0.0**
Working Capital Fund Price Changes	0.0
Productivity Initiatives and Other Efficiencies:	**1.3**
Marine Depot Maintenance Command Consolidation	**1.3**
Program Changes:	**-21.8**
Direct Labor	**5.5**
Direct Materiel	**-19.0**
Direct Contract Services	**-8.1**
Direct Other Purchases	**-0.2**
Other Changes:	**-23.4**
Capital Investment Recovery	0.0
Facilities Sustainment, Restoration & Modernization	0.0
Change in work days	0.0
Civilian Equivalency Rate Changes	0.0
Civilian Equivalency Rate Changes	
Other (list)	
Indirect Labor	-7.6
Indirect Materiel	5.0
Depreciation	-0.3
Indirect Contract Services	-18.3
VERA/VSIP	0.0
RIF	0.0
Other	
Travel/Training	0.0
Miscellaneous/Real Property Maintenance	-2.2
FY 2021 Estimate:	**382.0**

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CAPITAL INVESTMENT SUMMARY
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

		FY 2019		FY 2020		FY 2021	
Line #	**Description**	**Quantity**	**Total Cost**	**Quantity**	**Total Cost**	**Quantity**	**Total Cost**
1	**Non-ADPE and Telecom Equipment >= $.250M**	**7**	**$8.137**	**5**	**$7.250**	**3**	**$4.000**
	- Vehicles	0	$0.000	0	$0.000	0	$0.000
	- Material Handling	0	$0.000	0	$0.000	0	$0.000
	- Installation Security	0	$0.000	0	$0.000	0	$0.000
	- Quality Control/Testing	0	$0.000	0	$0.000	0	$0.000
	- Medical Equipment	0	$0.000	0	$0.000	0	$0.000
	- Machinery	3	$3.915	0	$0.000	0	$0.000
	- Support Equipment	4	$4.222	5	$7.250	3	$4.000
2	**ADPE and Telecom Equipment >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Computer Hardware (Production)	0	$0.000	0	$0.000	0	$0.000
	- Computer Hardware (Network)	0	$0.000	0	$0.000	0	$0.000
	- Computer Software (Operating)	0	$0.000	0	$0.000	0	$0.000
	- Telecommunications	0	$0.000	0	$0.000	0	$0.000
	- Other Support Equipment	0	$0.000	0	$0.000	0	$0.000
3	**Software Development >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Internally Developed	0	$0.000	0	$0.000	0	$0.000
	- Externally Developed	0	$0.000	0	$0.000	0	$0.000
4	**Minor Construction (>= $.250M and <= $2.000M)**	**0**	**$0.000**	**1**	**$1.000**	**1**	**$2.000**
	- Replacement Capability	0	$0.000	0	$0.000	0	$0.000
	- New Construction	0	$0.000	1	$1.000	1	$2.000
	- Environmental Capability	0	$0.000	0	$0.000	0	$0.000
	Grand Total	**7**	**$8.137**	**6**	**$8.250**	**4**	**$6.000**
	Total Capital Outlays		**$5.381**		**$14.258**		**$4.925**
	Total Capital Investment Recovery		**$6.248**		**$6.777**		**$6.473**

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Depot Maintenance	#001 - Non-ADPE						Marine Corps Depots		
	FY 2019			FY 2020			FY 2021		
Non-ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Vehicles	0	-	$0	0	-	$0	0	-	$0
Material Handling	0	-	$0	0	-	$0	0	-	$0
Installation Security	0	-	$0	0	-	$0	0	-	$0
Quality Control/ Testing	0	-	$0	0	-	$0	0	-	$0
Medical Equipment	0	-	$0	0	-	$0	0	-	$0
Machinery	3	1,305	$3,915	0	-	$0	0	-	$0
Support Equipment	4	1,056	$4,222	5	1,450	$7,250	3	1,333	$4,000
Total	7	1,162	$8,137	5	1,450	$7,250	3	1,333	$4,000

Justification:

Machinery:
FY 2019:

Laser Cutting Machine (PPB) $1,300K- APPROVED CARRYOVER Production Plant Barstow (PPB) has instituted best business practices to improve production, scheduling, quality, and repair cycle time to support the Marine Corps' efforts to repair and overhaul systems returning from theater. The size of the assets range from small components from 2″ x 2″ to assemblies 5′ x 5′ to our smallest vehicle 10′ x 8′ to our largest vehicle 13′ x 32′. We are currently using outdated fabrication technology (Punch Press). The cost of process time it takes to set up Punch Press and post process parts in the Sheet Metal Shop would be dramatically reduced with the introduction of a new laser.

Additive Manufacturing Equipment - (PPA) - $2,615K Marine Depot Maintenance Command (MDMC) intends to procure and install metal 3D printing technology at Production Plant. This technology has the ability to reduce lost production time incurred while waiting on part deliveries. Material costs can also be reduced as we will be able to print many parts rather than purchasing through normal acquisition means. While the scale of this technology is increasing every day, MDMC intends to acquire a small, proven version of this capability. Our intent is to print some of the smaller parts that typically have long lead times and/or high costs. Having this technology in house will also enhance research & development capability as well as enable us to produce intricate parts that are impossible or time consuming to fabricate with conventional machining methods.

Support Equipment:

FY 2019:

Oven Expansion (PPB) $800K – The MDMC (PPB) has instituted best business practices to improve production scheduling, quality, and RCT with the state of the art technology as a part of the Depot of the 21 Century Initiatives. Workload has increased to support the Marine Corps operating forces war against terrorism and worldwide commitments requiring production areas to be optimized to meet and support requirements. Our existing paint curing ovens and single rail conveyor / monorail systems are not sufficient to keep up with production demands. Paint curing time is a bottleneck in the painting process, which adversely affects the paint shop's daily operations and their abilities to meet production schedules. The new industrial paint curing oven and monorail systems would enable the paint shop to increase throughput of components for AAV's, LAV's, LVSR's, MATV's, and MRAP vehicles along with other principle end items by 300 percent.

B2203 Transmission Dyno (PPA) $1,183K –The MDMC Production Plant Albany (PPA) has instituted best business practices to improve production scheduling, quality, and RCT. The proposed dynamometer will replace an older unit that is beyond its useful service life. Maintenance costs on the existing unit continue to increase and the antiquated control system is becoming more difficult to maintain due to obsolete parts.

Renovate Blast Booth B565 (PPB) $1,889K - Presently, MDMC PPB's Blast Booth facility; East and West Bay, are the largest vehicle blast booths, which are a critical part of the depot repair process for the Marine Corp's largest combat vehicles. Safety and health hazards exist in this facility that could expose PPB to unnecessary liabilities. Environmental hazards must be addressed to prevent leakage of blast media in the system. Each infraction from Mojave Air Quality Management District (MDAQMD) is at a minimum $25,000 per day. The Blast Booths have experienced extensive mechanical failure causing long delays and work stoppages. This negatively impacts our ability to meet schedule requirements of Marine Corps workload. Floor grates and augers are inadequate and damaged. They should be replaced with heavy duty industrial grade grates and augers. Elevator, blast pots and dust collectors need to be repaired or replaced. Air Compressors, plenums and dryers need to be overhauled to maintain optimum performance. Blast booth structures have been seriously degraded from heavy usage and in need of repair. Lighting is poor and should be upgraded to better illuminate work area. This upgrade to our B565 Blast Booth facility will increase the efficiency and the service life of the equipment, and will remedy the safety, environmental and productivity related issues.

Power Supply Tester (PPA) $350K – The MDMC PPA has instituted best business practices to improve production scheduling, quality, and RCT. The proposed equipment will accommodate operational testing and repair for power supplies and other electrical components for the AN/TRC-170 Communications System, as well as other secondary depot reparable master work schedule lines for the Marine Corps. MDMC currently has only one such tester and the master work schedule for these communication systems is doubling. A second unit is needed to maintain production and meet schedule. Production is already experiencing delays with components awaiting testing and creating a bottleneck in the repair process.

Support Equipment:

FY 2020:

Cold Spray Equipment (MDMC) $2,000K - The MDMC has instituted best business practices to improve production scheduling, quality, and RCT. MDMC is committed to employing the latest technologies and optimizing our production areas to offer the best value to the Marine Corps. MDMC intends to procure and install cold spray technology at PPA and PPB. This technology will allow MDMC to repair multiple parts that are typically thrown away and replaced with new parts. This technology has the ability to reduce lost production time incurred while waiting on part deliveries. Material costs can also be reduced as MDMC begins to repair many parts rather than discarding them and purchasing new parts through normal acquisition means. Cold spray technology allows the original physical and chemical properties of the material to remain intact as heating of the substrate is minimal. Advantages of this technology include uniform and high density/hardness of coatings, minimum surface preparation, low energy consumption and no toxic wastes. MDMC could benefit from this technology by using it to repair several parts on ground combat vehicles including, but not limited to several identified AAV parts that typically have corrosion damage.

Crossdrive Transmission Upgrade (PPB) $2,000K - The PPB's current and projected workloads for transmission dynamometer testing requires replacement of the Transmission Dynamometer Test Cell. Transmission Dynamometers that we currently have are 11 to 15 years old, thereby outliving their peak efficiency years. PPB is experiencing numerous breakdowns and that significantly affects our throughput and schedule. The current and projected transmission workloads demand a testing rate, which exceeds the overall productive output capacity of the current transmission dynamometer test facility. Replacement of Transmission Dynamometer's can increase throughput by 50%.

B566 Crane Modernization (PPB) $500K – The PPB has instituted best business practices to improve production scheduling, quality, and RCT. Work load has increased to support the Marine Corps effort for Enduring Freedom, the war against terrorism and worldwide commitments requiring production areas to be optimized to meet and support requirements. The existing bridge crane within Building 566 is not sufficient to keep up with production demands. When tested, this crane strains to lift its capacity load and is not always successful on its first attempt. Steps must be taken and plans made to replace the existing crane before it fails all together, impacting both safety and production schedules. A new crane system would enable Cost Work Center (CWC) 281 personnel to work safely while increasing throughput of larger end items which include, but are not limited to AAV's, LAV's, LVSR's, MATV's, and MRAP vehicles.

Powder Paint System (PPA) $1,500K – The current system requires 2 personnel a total of 4 hours to switch colors. The upgrade to newer system will allow the employees to change colors in 30 seconds, which will generate labor savings. The newer system with more efficient reclaim of powder will generate a ~25% material savings. The newer system will double the line speed and reduce rejects by 20 percent, therefore increasing production. The newer system will include an infrared oven to preheat parts before they enter the curing oven, and more energy efficient motors and pumps reducing energy costs by 50%, reducing operating costs. The new system will be more cost efficient for maintenance & repair of the equipment.

Phosphate Coating System Replacement (PPA) $1,250K – Replace existing phosphate coating system which has exceeded its cost effective life. Costs related to downtime (approx. 10% per year) include unproductive labor costs and increased costs of having to outsource this function. The costs associated with trying to rebuild and repair the existing system of tanks, piping and ventilation is excessive (based on repairs performed over the past 5 years). The proposed system will be automated as much as feasible to move parts through the process with minimal operator interaction to reduce labor involved per batch (from 3 hours to 2.5 hours).

Support Equipment:

FY 2021

Blast Booth Modernization B629 (PPB) - $500K - PPB has instituted best business practices to improve production, scheduling, quality, and repair cycle time. To support Marine Corps efforts to repair and overhaul systems returning from theatre is the number one priority. This requires production areas be optimized to meet all requirements to ensure the Marines Forces equipment will continue to play an important role in support the Marine Corps mission worldwide, this is the number-one factor supporting our business objectives/ requirements. The Blast Booth has become worn and needs to be reconditioned/renovated to acceptable working standards to support production demands. This negatively impacts our ability to meet schedule requirements of Marine Corps workload. Presently, MDMC Barstow's B629 Baby Blast Booth is a critical part of the depot repair process for the Marine Corp's large component blast process. Safety and health hazards exist in this facility that could expose PPB to unnecessary liabilities. Environmental hazards must be addressed to prevent leakage of blast media in the system. Each infraction from MDAQMD is at a minimum $25,000 per day. Floor grates and augers are inadequate and many are damaged. They should be replaced with heavy duty industrial grade grates and augers. Elevator, blast pots and dust collectors need to be repaired or replaced. Air Compressor and dryer need to be replaced. Lighting is poor and should be upgraded to better illuminate work area therefore improving work efficiencies and providing safer working conditions. This upgrade to our B629 Blast Booth will increase the efficiency and the service life of the equipment, and will remedy the safety, environmental and productivity related issues.

Welding Positioners (PPA – FF&E for P947) $2,500K - Ground combat vehicle hulls worked at PPA require positioning of the hull for various stages of the welding process. Hulls are brought to the weld shops on transport trailers and eventually must be removed by material handling personnel, transported to the main craneway to be flipped upside down and then returned to the weld shop. This process often has to be repeated more than once for the same hull. Even with this non-value added rigging labor, welding personnel still have to weld overhead and work off of platforms. The current "flipping" operation is dangerous to personnel and the hull. Recently awarded MILCON P-947 requires separately funded FF&E to include these welding positioners.

5-Axle Chassis Dyno (PPA) - $1,000K - PPA has instituted best business practices to improve production scheduling, quality and repair cycle time. Currently, many non-value added labor hours are spent removing power train components consisting of engines and transmissions from vehicles to be tested on individual engine and transmission dynamometers. Purchasing a Five Axel Chassis Dynamometer will provide a much more expedient means of verifying the power train performance of many vehicles including but not limited to LAV, MRAP, MATV and MTVR. Operators will be able to drive vehicle onto Dynamometer and test vehicle through the required torque and horse power requirements.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Depot Maintenance	#004 - Minor Construction						Marine Corps Depots		
	FY 2019			FY 2020			FY 2021		
Minor Construction	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Replacement	0	-	$0	0	-	$0	0	-	$0
New Construction	0	-	$0	1	1,000	$1,000	1	2,000	$2,000
Environmental Capability	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	1	1,000	$1,000	1	2,000	$2,000

Justification:

New Construction:
FY2020:
Paint Prep Clear Span (PPB) $1,000K - PPB has instituted best business practices to improve production, scheduling, quality, and RCT. To support Marine Corps efforts to repair and overhaul systems returning from theater. The size of the assets range from small components from 2″ x 2″ to assemblies 5′ x 5′ to our smallest vehicle 10′ x 8′ to our largest vehicle 13′ x 32′ 8′. Due to the size, maneuverability and number of the assets, it is currently staged in the elements with minimal coverage in 2 different locations (east side of B634 and west of B634). The size and location of the work area negatively affects the RCT and is a cause of rework and excessive unneeded movement. The work area has a limited amount of sunshades that are at the end of their useful life cycle. Furthermore, the minimum availability of adequate cover delays the completion of repair/installation tasks and ultimately the completion of the assets. The proposed site (west of B634) currently contains 15 sunshades. Given the extremely high temperatures (110˚F+) and monsoon rains during summer months, work is forced to slow/stop due to the extreme outdoor conditions for personnel limiting work that can be performed on assets/components/material. The covered area is not large enough to meet production demands and the old sun shades require routine maintenance to prevent them from becoming a safety hazard since they are exposed to the elements. The proposed structure will be constructed with pre-engineered steel framing and reinforced concrete support column footers and 6 bays. The structure will be equipped with high-bay LED lighting and utilities and provide approximately 4,800 SF of coverage.

FY2021:
Additive Manufacturing Center (PPB) $2,000K - Additive Manufacturing is current performed in multiple areas of PPB. This increases the amount of time it takes to produce a part from start to finish, movement waste (parts and people). The engineering technician has to physically take the computer design file to the building where it will be printed. Once printed, the part is then taken to a separate building for post processing (machining). Part is then returned to the printing area for validation prior to providing it to the customer. A major concern of the current configuration is the structure the existing metal printer is located in. The small metal structure is located outdoors and exposed directly to the elements. Several AC units are used to cool/maintain the temperature within the space, but cannot keep up with the extreme desert temperatures. Due to the tight temperature tolerances required for printer operations, our printer capability is limited. For approximately six months out of the year we are unable to perform multiple day builds due to the high temperatures, and only shorter builds can be completed at night when temperatures are lower. In addition to temperature issues, fluctuations in power/electricity cause the printer to stop in the middle of printing, resulting in scraping/disposing of the part. Due to the printing process, the machine is unable to restart where it left off. In these situation, we are unable to use additive manufacturing as a solution to avoid long lead times and obsolescence on required repair parts, thus impacting the overall return cycle time on production lines. A new Additive Manufacture Center will eliminate these issues.

CAPITAL BUDGET EXECUTION
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2019	**1**	**Non ADP**		**$8.137**	**$6.869**	**($1.268)**	
			Machinery	$3.915	$2.700	($1.215)	Laser Cutting Machine Project for $1.3M was approved for carryover into FY20. Portable Hull Rotator ($1.9M) was not awarded in FY19 and the project is no longer required. Oven Expansion Project awarded for $290K lower than planned. B2203 Trans Dyno Project awarded for $57K lower than planned. Renovate Blast Booth B565 Project awarded for $236K more than planned.
			Support Equipment	$4.222	$4.169	($0.053)	
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
	4	**Minor Construction**		**$0.000**	**$0.000**	**$0.000**	
TOTAL FY 2019 CIP Program				**$8.137**	**$6.869**	**($1.268)**	
FY	**L.I.**	**Category**	**Capability/Project**	**I.R**	**C.P.R**	**A.C.**	**Explanation**
2020	**1**	**Non ADP**		**$6.450**	**$7.250**	**$0.800**	
			Support Equipment	$6.450	$7.250	$0.800	Projects to include Cold Spray Equipment; Crossdrive Transmission Upgrade ; B566 Crane Modernization ; Powder Paint System; Phosphate Coating System Replacement to support current operating tempo and future requirements
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
	4	**Minor Construction**		**$2.000**	**$1.000**	**($1.000)**	
			New Construction	$2.000	$1.000	($1.000)	Paint Prep Clear Span to support current operating tempo and future requirements
TOTAL FY 2020 CIP Program				**$8.450**	**$8.250**	**($0.200)**	
FY	**L.I.**	**Category**	**Capability/Project**	**I.R**	**C.P.R**	**A.C.**	**Explanation**
2021	**1**	**Non ADP**		**$0.000**	**$4.000**	**$4.000**	
			Support Equipment	$0.000	$4.000	$4.000	Blast Booth Modernization, Welding Positioners, 5-Axle Chassis Dyno to support operating tempo and future requirements
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
	4	**Minor Construction**		**$0.000**	**$2.000**	**$2.000**	
			New Construction	$0.000	$2.000	$2.000	Additive Manufacturing Center to support operating tempo and future requirements
TOTAL FY 2021 CIP Program				**$0.000**	**$6.000**	**$6.000**	

CARRYOVER RECONCILIATION
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
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Part 1			
1. Net Carry-In	163.7	164.3	105.2
2. Revenue	395.3	416.6	407.2
3. New Orders	395.8	357.5	375.2
4. Exclusions:			
Foreign Military Sales	5.6	1.7	1.9
Base Realignment and Closure	0.0	0.0	0.0
Other Federal Department and Agencies	0.6	2.3	2.9
Non-Federal and Others	0.2	0.0	0.0
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
5. Orders for Carryover Calculation	389.5	353.5	370.5
6. Weighted Average Outlay Rate	58.5%	62.2%	61.9%
7. Carryover Rate	41.5%	37.8%	38.1%
8. Allowable Carryover	166.6	144.3	143.7
Allowable Carryover(First Year)	161.6	133.6	141.2
Allowable Carryover (Second Year Procurement-funded Orders)	5.0	10.7	2.6
Part II			
9. Balance of Customer Order at Year End	164.3	105.2	73.3
10. Work-in-progress	1.0	0.0	0.0
11. Exclusions:			
Foreign Military Sales	7.2	0.6	0.8
Base Realignment and Closure	0.0	0.0	0.0
Other Federal Department and Agencies	0.2	-0.5	0.1
Non-Federal and Others	-0.1	-0.1	-0.2
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
12. Calculated Actuals Carryover	156.1	105.2	72.6

Some totals may not add due to rounding.
EXWC,NSWC,NUWC,NAWCDIV,SPAWAR,NRL use RDTEN rates.

MATERIAL INVENTORY DATA
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

2019

			----- Peacetime -----			
		Total	Mobilization		Operating	Other
Material Inventory BOP	$	69.1	$ 0.0	$	69.1	$ 0.0
Purchases						
A. Purchases to Support Customer Orders	$	108.1	$ 0.0	$	108.1	$ 0.0
B. Purchase of long lead items in advance		0.0	0.0		0.0	0.0
of customer orders		0.0				
C. Other Purchases (List)		0.0	0.0		0.0	0.0
D. Total Purchases	$	108.1	$ 0.0	$	108.1	$ 0.0
Material Inventory Adjustments						
A. Material Used in Maintenance	$	97.2	$ 0.0	$	97.2	$ 0.0
B. Disposals, theft, losses due to damages		0.0	0.0		0.0	0.0
C. Other reductions (List)		0.0	0.0		0.0	0.0
D. Total inventory adjustments	$	97.2	$ 0.0	$	97.2	$ 0.0
Material Inventory EOP	$	80.0	$ 0.0	$	80.0	$ 0.0

2020

			----- Peacetime -----			
		Total	Mobilization		Operating	Other
Material Inventory BOP	$	80.0	$ 0.0	$	80.0	$ 0.0
Purchases						
A. Purchases to Support Customer Orders	$	96.2	$ 0.0	$	96.2	$ 0.0
B. Purchase of long lead items in advance		0.0	0.0		0.0	0.0
of customer orders		0.0				
C. Other Purchases		0.0	0.0		0.0	0.0
D. Total Purchases	$	96.2	$ 0.0	$	96.2	$ 0.0
Material Inventory Adjustments						
A. Material Used in Maintenance	$	110.6	$ 0.0	$	110.6	$ 0.0
B. Disposals, theft, losses due to damages		0.0	0.0		0.0	0.0
C. Other reductions		0.0	0.0		0.0	0.0
D. Total inventory adjustments	$	110.6	$ 0.0	$	110.6	$ 0.0
Material Inventory EOP	$	65.6	$ 0.0	$	65.6	$ 0.0

MATERIAL INVENTORY DATA
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

2021

			----- Peacetime -----		
		Total	Mobilization	Operating	Other
Material Inventory BOP	$	65.6	$ 0.0	$ 65.6	$ 0.0
Purchases					
A. Purchases to Support Customer Orders	$	77.2	$ 0.0	$ 77.2	$ 0.0
B. Purchase of long lead items in advance of customer orders		0.0	0.0		0.0
C. Other Purchases		0.0	0.0	0.0	0.0
D. Total Purchases	$	77.2	$ 0.0	$ 77.2	$ 0.0
Material Inventory Adjustments					
A. Material Used in Maintenance	$	87.1	$ 0.0	$ 87.1	$ 0.0
B. Disposals, theft, losses due to damages		0.0	0.0	0.0	0.0
C. Other reductions		0.0	0.0	0.0	0.0
D. Total inventory adjustments	$	87.1	$ 0.0	$ 87.1	$ 0.0
Material Inventory EOP	$	55.7	$ 0.0	$ 55.7	$ 0.0

DEPOT MAINTENANCE SIX PERCENT CAPITAL INVESTMENT PLAN
DEPARTMENT OF THE NAVY
DEPOT MAINTENANCE - MARINE CORPS DEPOTS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	REVENUE (Maintenance, Repair, Overhaul) 3 year average			BUDGETED CAPITAL (Modernization, Efficiency)		
	FY 16-18	**FY 17-19**	**FY 18-20**	**FY 2019**	**FY 2020**	**FY 2021**
	469.1	382.2	360.1			
	382.2	360.1	395.3			
	360.1	395.3	416.6			
Revenue (Avg)	403.8	379.2	390.7			
Working Capital Fund (Avg)	403.8	379.2	390.7			
Appropriations (Avg)	0.0	0.0	0.0			
Total Revenue (Avg)	403.8	379.2	390.7			
WCF Depot Maintenance Capital Investment						
Facilities/ Work Environment				17.2	8.2	9.1
Equipment				8.1	8.3	6.0
Equipment (Non-Capital Investment Program)				0.0	0.0	0.0
Processes				0.0	0.0	0.0
Total WCF Investment				25.3	16.5	15.1
Appropriated Funding - List by Appropriation						
MILCON				0.0	33.6	0.0
Procurement				5.5	0.0	0.0
Operation & Maintenance				19.3	0.0	8.7
Total Appropriated Funding				24.8	33.6	8.7
Component Total				50.1	50.1	23.8
Minimum 6% Investment				24.2	22.8	23.4
Investment Over/Under Requirement				25.9	27.4	0.4
Projected Investment				**12.4%**	**13.2%**	**6.1%**

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3. Naval Air Warfare Center

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NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL AIR WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBURARY 2020

Mission Statement / Overview:
The Naval Air Warfare Center (NAWC) provides Research, Development, Test, and Evaluation (RDT&E) as well as sustainment for all the Navy and Marine Corps aircraft and systems. NAWC also operates test ranges, test facilities, laboratories and aircraft in support of military operations worldwide. This includes a full spectrum RDT&E; in-service engineering; aircraft weapons integration; assigned airborne electronic warfare systems; naval aircraft engines; avionics; aircraft support systems; weapons systems associated with air warfare; missiles and missile subsystems; acquisition and life cycle support of training systems; and to maintain and operate the air, land, and sea test ranges complex. Major Range Test Facility Base (MRTFB) funding (RDT&E appropriation) is received by the NAWC to maintain and support designated range facilities.

Activity Group Composition:
The Warfare Center is comprised of two divisions whose operations and locations are described below.

NAWC, AIRCRAFT DIVISION (NAWCAD): Provides design, development, evaluation, verification, fielding and in-service engineering support for the Navy's Aircraft Launch and Recovery system and aircraft, target and weapon support equipment. This is the center for full spectrum RDT&E of Fleet Unmanned Aircraft Systems (UAS) platforms from Group 1 through 5 including launch and recovery, control systems, data and communications links, mission sensor packages, airspace integration, weapon integration, interoperability and autonomy. NAWCAD scientists and engineers provide the technical excellence to support the maritime engineering needs related to technology development, system acquisition, and product support of all naval aviation air vehicle engineering. The functional areas are air vehicle engineering, aeromechanics, structures, materials engineering, subsystems, and aerial vehicle engineering science and technology. NAWCAD's air vehicle modification and instrumentation division provides the Navy expert capability in design, production, prototype support and instrumentation systems for all naval air vehicles and airborne weapons systems. The United States Naval Test Pilot School trains the world's finest developmental test pilots, flight officers, engineers, industry and foreign partners in full spectrum test and evaluation of aircraft and aircraft systems. The primary location is Patuxent River, MD, and supporting operating sites in St. Inigoes, MD; Lakehurst, NJ; and Orlando, FL.

NAWC, WEAPONS DIVISION (NAWCWD): The Weapons Division is a center of excellence in weapons development for the Department of the Navy. NAWCWD delivers unparalleled weapons research, development, acquisition, test and evaluation for our nation's warfighters, and offers 24/7 warfighter support to ensure the on-the-ground service member has the support needed to defend our nation at home and at sea. NAWCWD operates in two locations: China Lake, CA and Point Mugu, CA. The China Lake, CA site operates more than 1.1 million acres of

land ranges and multiple weapons development laboratories for the Navy. The Point Mugu, CA site serves as the Navy's Electronic Warfare Technical Center.

Significant Changes Since the FY 2020 President's Budget:
The FY 2021 budget estimate includes decreases in the civilian workforce to match projected workload. Programmatic decreases include: Joint Strike Fighter STOVL, E2-D Advanced Hawkeye, Infrared Search and Track (IRST), P-8 Poseidon, Offensive Anti-Surface Warfare Weapon (OASuW) and Presidential Helicopter VH-92A. Navy Air Systems Command (NAVAIR), and NAWC by extension, began an organizational restructure to transform into a Mission Aligned Organization (MAO) in FY 2019. A MAO emphasizes a fundamental and necessary shift in focus from process to mission outcomes — increased lethality and readiness. NAWC will achieve these outcomes with increased responsiveness and speed through execution of our two primary mission areas: Capability Development and Sustainment.

Financial Profile:

Orders/Revenue/Expense/Operating Results ($Millions):	FY 2019	FY 2020	FY 2021
Orders	$5,296.0	$5,304.6	$5,510.5
Revenue	$5,208.8	$5,345.2	$5,551.3
Expense	$5,238.4	$5,451.5	$5,456.9
Operating Results	($29.6)	($106.4)	$94.4
Capital Surcharge	($9.4)	($7.1)	$0.0
Asset Adjustment	($7.8)	$0.0	$0.0
NWCF Direct Appropriation - Earthquake	$0.0	$46.8	$0.0
Net Operating Results (NOR)	($46.8)	($66.7)	$94.4
Prior Year AOR	$9.7	($27.7)	($94.4)
Other Changes Affecting AOR	$9.4	$0.0	$0.0
Accumulating Operating Result (AOR)	($27.7)	($94.4)	($0.0)

Some totals may not add due to rounding.

Orders, Revenue and Expense: Changes in orders from FY 2019 to FY 2021 are based on updated new orders estimates as coordinated with customers. Contributing to the change in revenue and expense from FY 2019 to FY 2021 are changes in civilian labor estimates required to support anticipated customer workload, inflation, and pricing. In addition, the capital surcharges in FY 2019 through FY 2020 support vital Capital Investment Program (CIP) projects and support additional Naval Innovative Science and Engineering (NISE) investments for Defense Laboratory Revitalization Program (LRP). The $46.8 million adjustment in FY 2020 for "NWCF Direct

Appropriation - Earthquake" reflects the recoupment of FY 2019 losses related to the China Lake, CA earthquakes via the direct appropriation received within the FY 2020 enactment.

Disbursements/Collections/Outlays ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Disbursements	$5,237.3	$5,434.8	$5,462.9
Collections	$5,161.9	$5,333.6	$5,557.6
Direct Appropriation	$0.0	$83.0	$0.0
Net Outlays	$75.4	$18.2	($94.7)

Some totals may not add due to rounding.

Budgeted collections and disbursements are based on revenue, cost, and Capital Investment Program (CIP) outlay estimates. The direct appropriation reflects the FY 2020 enactment and supports earthquake recovery efforts.

Workload:

Direct Labor Hours (000):	**FY 2019**	**FY 2020**	**FY 2021**
Current Estimate	21,793	21,918	21,648

Direct Labor Hours: The rates are based on Direct Labor Hours (DLHs) required for stabilized workload. The changes in direct labor hour estimates between FY 2020 and FY 2021 relate to decreases to direct workload efforts.

Performance Indicators: Unit cost serves as a primary performance indicator and represents the average cost of delivering goods and services to our customers.

Unit Cost:	**FY 2019**	**FY 2020**	**FY 2021**
Total Stabilized Cost ($Millions)	$2,132.8	$2,303.7	$2,219.2
Workload (DLHs) (000)	18,815	18,321	18,250
Unit cost (per DLH)	$113.36	$125.74	$121.60

Unit Cost is the method established to authorize and control costs. Unit cost goals allow activities to respond to workload changes in execution by encouraging reduced costs when workload declines and allowing appropriate increases in costs when customers request additional services.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL AIR WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
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Stabilized / Composite Rates:	**FY 2019**	**FY 2020**	**FY 2021**
Stabilized Rate	$113.36	$116.32	$126.91
Change from Prior Year		2.61%	9.11%
Composite Rate Change		2.25%	4.94%

Rates are based on the DLHs required for anticipated workload. The Stabilized Rate consists of direct labor and applied overhead. Unique direct non-labor costs are billed on a reimbursable basis to the customer. The composite rate change incorporates both the stabilized costs and the reimbursable costs. The composite rate change in FY 2021 reflects adjustments to direct workload, pricing, and increases in NISE funding.

Staffing:

Civilian/Military ES & Workyears:	**FY 2019**	**FY 2020**	**FY 2021**
Civilian End Strength	16,779	16,785	16,578
Civilian Workyears (straight time)	16,819	16,635	16,464
Military End Strength	224	201	201
Military Workyears	162	168	168

Civilian Personnel: Civilian strength levels, measured by both end strength and full-time equivalents (FTEs) decrease through FY 2021. This is a projection of civilian resources required to fulfill customers' orders. Civilian resource estimates have been adjusted to reflect a balanced program of civilian resources to funded workload.

Military Personnel: Projection of military personnel necessary to fulfill programming objectives and coordination with customers. Military resource estimates have been adjusted to reflect a balanced program of military resources to funded workload.

Capital Improvement Program (CIP) Authority	**FY 2019**	**FY 2020**	**FY 2021**
Equipment, Non-ADP / Telecom	$37.2	$26.4	$25.7
Equipment, ADPE / Telecom	$8.2	$4.8	$7.8
Software Development	$1.4	$0.0	$0.9
Minor Construction	$10.5	$24.3	$14.0
Total	$57.4	$55.5	$48.4

Some totals may not add due to rounding.

Investment in capital assets acquire affordable and technically efficient capabilities to support customer requirements. Minor construction includes projects meeting the criteria of the Defense Laboratory Revitalization Program (LRP). The projects replace aging temporary buildings and upgrade/expand lab capability to accommodate workload growth and increase efficiency. CIP

authority is budgeted in accordance with capital investment recovery guidelines; additionally, CIP funds have been realigned to support vital LRP projects.

Carryover Compliance ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Net Carry-In	$2,656.7	$2,743.9	$2,703.3
Allowable Carryover	$2,671.3	$2,716.9	$2,774.6
Calculated Actual Carryover	$2,275.8	$2,187.7	$2,128.5
Delta (Actual-Allowable): Above Ceiling (+)/Below Ceiling (-)	($395.5)	($529.2)	($646.1)

Some totals may not add due to rounding.

Carryover for each year is within the allowable ceiling target amount.

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL AIR WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
Revenue:			
Gross Sales			
Operations	5,165.1	5,285.0	5,497.7
Capital Surcharges	9.4	7.1	0.0
Capital Investment Recovery	34.4	53.0	53.6
Other Income			
Total Income	5,208.8	5,345.2	5,551.3
Expenses			
Cost of Materiel Sold from Inventory			
Salaries and Wages:			
Military Personnel Compensation & Benefits	16.7	14.4	14.9
Civilian Personnel Compensation & Benefits	2,435.0	2,533.0	2,554.4
Travel and Transportation of Personnel	90.7	75.2	74.3
Material & Supplies (Internal Operations)	566.5	582.0	575.3
Equipment	170.9	62.2	63.7
Other Purchases from NWCF	107.0	135.3	117.1
Transportation of Things	18.1	3.3	3.4
Capital Investment Recovery	34.4	53.0	53.6
Printing and Reproduction	0.1	0.9	1.0
Advisory and Assistance Services	0.2	0.2	0.2
Rent, Communication, Utilities & Misc Charges	57.7	69.3	66.2
Other Purchased Services	1,741.1	1,922.8	1,932.9
Total Expenses	5,238.4	5,451.5	5,456.9
Work in Process Adjustment	0.0	0.0	0.0
Comp Work for Activity Retention Adjustment	0.0	0.0	0.0
Cost of Goods Sold	5,238.4	5,451.5	5,456.9
Operating Result	-29.6	-106.4	94.4
Adjustments Affecting NOR	-17.2	39.7	0.0
Capital Surcharges	-9.4	-7.1	0.0
Extraordinary Expenses Unmatched	0.0	0.0	0.0
Other Changes Affecting NOR (All Others)	-7.8	46.8	0.0
Net Operating Result	-39.0	-113.5	94.4
PY AOR	9.7	-27.7	-94.4
TOTAL AOR	-27.7	-94.4	0.0
Non-Recoverable Adjustments impacting AOR	0.0	0.0	0.0
AOR for budget purposes	-27.7	-94.4	0.0

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL AIR WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
1. New Orders	5,296.0	5,304.6	5,510.5
a. Orders from DoD Components:	4,821.6	4,878.5	5,046.8
Department of the Navy	4,241.8	4,358.5	4,515.2
O & M, Navy	826.6	596.4	792.9
O & M, Marine Corps	34.0	7.5	6.0
O & M, Navy Reserve	2.3	0.1	0.1
O & M, Marine Corp Reserve	0.0	0.0	0.0
Aircraft Procurement, Navy	967.6	958.5	1,087.8
Weapons Procurement, Navy	68.5	73.7	77.2
Ammunition Procurement, Navy/MC	19.1	22.3	22.6
Shipbuilding & Conversion, Navy	122.0	96.6	306.2
National Sea Base Deterrence Fund	0.0	0.0	0.0
Other Procurement, Navy	271.4	232.4	269.1
Procurement, Marine Corps	16.1	1.1	1.1
Family Housing, Navy/MC	0.0	0.1	0.1
Research, Dev., Test, & Eval., Navy	1,906.7	2,369.3	1,951.6
Military Construction, Navy	0.0	0.5	0.5
National Defense Sealift Fund	0.4	0.0	0.0
Foreign Cooperative Projects, Navy	7.3	0.0	0.0
Other Navy Appropriations	0.3	0.0	0.0
Other Marine Corps Appropriations	0.1	0.0	0.0
Department of the Army	101.6	99.7	101.8
Army Operation & Maintenance	52.9	53.0	54.1
Army Res, Dev, Test, Eval	20.9	18.3	18.8
Army Procurement	27.6	27.6	28.2
Army Other	0.1	0.7	0.7
Department of the Air Force	208.9	191.4	195.8
Air Force Operation & Maintenance	43.4	40.3	41.2
Air Force Res, Dev, Test, Eval	95.6	85.8	87.8
Air Force Procurement	69.9	65.2	66.7
Air Force Other	0.0	0.0	0.0
DOD Appropriation Accounts	269.3	229.0	234.1
Base Closure & Realignment	0.0	0.0	0.0
Operation & Maintenance Accounts	65.1	48.3	49.3
Res, Dev, Test & Eval Accounts	140.3	120.6	123.5
Procurement Accounts	57.3	54.1	55.2
Defense Emergency Relief Fund	0.0	0.0	0.0
DOD Other	6.6	5.9	6.1
b. Orders from other Fund Activity Groups	108.7	98.2	119.0
c. Total DoD	4,930.3	4,976.7	5,165.8
d. Other Orders:	365.7	327.9	344.7
Other Federal Agencies	60.9	49.7	50.7
Foreign Military Sales	280.7	257.4	272.7
Non Federal Agencies	24.1	20.8	21.3
2. Carry-In Orders	2,656.7	2,743.9	2,703.3
3. Total Gross Orders	7,952.7	8,048.5	8,213.8
a. Funded Carry-Over before Exclusions	2,743.9	2,703.3	2,662.5
4. Revenue(-)	5,208.8	5,345.2	5,551.3
5. End of Year Work-In-Process (-)	0.0	0.0	0.0
6. FMS, BRAC, Other Federal, Non-Federal orders, and Inst. MRTFB (-)	468.1	515.6	534.0
7. Funded Carryover	2,275.8	2,187.7	2,128.5

Note: Line 5 (End of Year Work-In-Process) is adjusted for Non-DOD BRAC, FMS, and Institutional MRTFE

CHANGES IN THE COSTS OF OPERATIONS
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL AIR WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	Costs
FY 2019 Actual	**5,238.4**
FY 2020 President's Budget:	**5,042.7**
Estimated Impact in FY 2020 of Actual FY 2019 Experience:	**-15.1**
Pricing Adjustments:	**105.9**
Civilian Personnel	108.7
Fuel Price	-0.5
General Purchase Inflation	-2.2
Program Changes:	**320.6**
Joint Strike Fighter (JSF)	17.6
F/A-18/EA-18G	25.7
T&E Maint, Ops and I&M	5.3
ALRE	20.7
C-2/E-2	6.0
P-8 Poseidon	46.8
C-40 A	46.6
Air Systems Support	88.6
Next Generation Jammer (NGJ)	4.9
Common Ground Equipment	10.5
Various	19.1
Other Weapons Systems Support	28.8
Other Changes:	**-2.6**
Capital Investment Recovery	-7.1
Facilities Sustainment, Restoration & Modernization	0.2
Depreciation	4.7
FECA	-0.4
FY 2020 Current Estimate:	**5,451.5**
Pricing Adjustments:	**80.7**
Annualization of Prior Year Pay Raises	**6.8**
Civilian Personnel	6.8
Military Personnel	0.0
FY 2020 Pay Raise	**14.2**
Civilian Personnel	14.1
Military Personnel	0.1
Fuel Price Changes	-1.1
General Purchase Inflation	60.8
Productivity Initiatives and Other Efficiencies:	**0.0**
Program Changes:	**-51.5**
Joint Strike Fighter (JSF) STOVL	-9.9
E2-D Advanced Hawkeye	-9.2
Infrared Search and Track (IRST)	-6.5
P-8 Poseidon	-8.4
V-22	-2.3
H-1 Improvements	-1.9
JPALS	-2.2
Next Generation Jammer (NGJ)	-1.7
Offensive Anti-Surface Warfare (OASuW) Weapon	-3.6
HARM Mods	-2.4
Presidential Helicopter VH-92A	-3.4
Other Changes:	**-23.8**
Facilities Sustainment, Restoration & Modernization	2.9
Contracts Adjustment	-26.7
FY 2021 Estimate:	**5,456.9**

CAPITAL INVESTMENT SUMMARY
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL AIR WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBURARY 2020
(DOLLARS IN MILLIONS)

		FY 2019		FY 2020		FY 2021	
Line #	Description	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
1	**Non-ADPE and Telecom Equipment >= $.500M**	**31**	**$37.203**	**20**	**$26.456**	**17**	**$25.698**
	- Quality Control/Testing	16	$24.642	6	$14.957	7	$10.924
	- Machinery	2	$1.396	4	$0.583	2	$2.800
	- Support Equipment	13	$11.165	10	$10.916	8	$11.974
2	**ADPE and Telecom Equipment >= $.500M**	**8**	**$8.204**	**4**	**$4.750**	**4**	**$7.786**
	- Computer Hardware (Production)	1	$0.604	1	$0.646	2	$3.871
	- Computer Hardware (Network)	6	$5.900	3	$4.104	2	$3.915
	- Computer Software (Operating)	1	$1.700	0	$0.000	0	$0.000
3	**Software Development >= $.500M**	**2**	**$1.443**	**0**	**$0.000**	**1**	**$0.850**
	- Externally Developed	2	$1.443	0	$0.000	1	$0.850
4	**Minor Construction (>= $.500M and <= $6.000M)**	**3**	**$10.547**	**6**	**$24.284**	**3**	**$14.016**
	- New Construction	3	$10.547	6	$24.284	3	$14.016
	Grand Total	**44**	**$57.397**	**30**	**$55.490**	**25**	**$48.350**
	Total Capital Outlays		**$47.372**		**$37.505**		**$41.205**
	Total Capital Investment Recovery		**$34.351**		**$53.026**		**$53.627**

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#001 - Non-ADPE						Naval Air Warfare Center		
	FY 2019			FY 2020			FY 2021		
Non-ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Vehicles	0	-	$0	0	-	$0	0	-	$0
Material Handling	0	-	$0	0	-	$0	0	-	$0
Installation Security	0	-	$0	0	-	$0	0	-	$0
Quality Control/ Testing	16	1,540	$24,642	6	2,493	$14,957	7	1,561	$10,924
Medical Equipment	0	-	$0	0	-	$0	0	-	$0
Machinery	2	698	$1,396	4	146	$583	2	1,400	$2,800
Support Equipment	13	859	$11,165	10	1,092	$10,916	8	1,497	$11,974
Total	31	1,200	$37,203	20	1,323	$26,456	17	1,512	$25,698

Justification:

FY 2019 PROJECTS ABOVE $1M:

DISTRIBUTED ELECTRONIC WARFARE (EW) CAPABILITY - This project procures reliable Radio Frequency (RF) equipment for RF Targets. The weapons Division North range is the Navy's principal instrumented Test & Evaluation (T&E) range with RF radiating targets for live ordnance delivery and missile technology advancements. Advanced signal fidelity and remote control capability is required to meet the demand for testing the next generation of weapons.

CHEMICAL PILOT PLANT MODERNIZATION - This project modernizes the Chemical Pilot Plant at the Energetics Materials Research and Processing Branch, code 477100D. The purpose is to update our chemical synthesis and scale up capabilities, expanding the types and modalities of chemical processes that can be performed on a pilot scale.

RDT&E HIGH SPEED CORE NETWORK - This project implements a fundamental Weapons Division (WD) core Research Development Test & Evaluation (RDT&E) communication infrastructure upgrade at primary locations to meet current and future Integrated Warfare Capability /Live Virtual Construct (IWC/LVC) and Speed to Fleet communications requirements.

ADVANCED PROPULSION & COMBUSTION RESEARCH LAB – This project diversifies NAWC's applied propulsion and combustion R&D capabilities to support future technology development programs such as the solid fueled ramjet. It includes renovation to the flow facility at Bldg. 01371 to allow direct-connect and free-jet testing of advanced propulsion systems including cruise missile gas turbines, ramjets, and scramjets.

FARM GPS ANTI-JAM TESTING - This project procures an upgraded GPS simulator which will address new testing capability needs driven by DoD mandates. The NAWCAD Radar and Antenna Systems Division conducts measurements of the characteristics of antenna systems and avionics systems installed on partial to full-size airframes. These measurements are conducted from outdoor ranges at the Facilities for Antenna and RCS Measurements (FARM). The existing simulator is obsolete.

ENGINEERING PROTOTYPING FACILITY COMPUTER NUMERICAL CONTROL (CNC) LASER CUTTING MACHINE - This project procures a CNC Fiber Laser Cutting Machine for the NAWCAD Engineering Prototyping Facility to rapidly and efficiently produce parts for prototypes and sustainment of legacy systems.

HORIZONTAL ACCELERATOR BRAKING SLED - This project provides a new horizontal accelerator for the Navy's sole crash test lab at the NAWCAD Human Services Division to perform crash environment simulations. The existing horizontal accelerator is over 30 years old and needs of replacement.

X-RAY PHOTOELECTRON SPECTROSCOPY - This project provides a high-throughput X-ray photoelectron spectrometer to assist the NAWCAD Corrosion and Wear Laboratory in chemical surface analysis and characterization of current and emerging materials, including additive manufacturing (AM), batteries, and corrosion prevention materials.

ADVANCED DECK HANDLING TECHNOLOGY EVALUATION CENTER - This project procures Robotic Emulation equipment for the NAWCAD Robotics and Intelligence Systems Engineering Lab to use with Deck Handling Technologies (DHT), and provides new capabilities for testing of current and future generation DHT with relevant sized systems, in relative environment conditions/parameters, and interaction scenarios.

MOBILE ENVIRONMENTAL CHAMBERS (MEC) - This project provides the NAWCAD Electrical Power Systems Evaluation Facility (EPSEF) with 2 MEC's that will simulate altitude, temperature, and humidity conditions for qualification and reliability testing of rotating power system components according to MIL-G-21480 and MIL-STD-810 requirements.

SAIL NIFC-CA - This project will procures equipment with a new fire-control system, called Naval Integrated Fire Control – Counter Air (NIFC-CA) for the Surface/Aviation Interoperability Laboratory (SAIL) facility.

OCEAN HARVEST RADAR - This project procures a Contested Environment Radio Frequency Exploitation Research (CERFER) KeyRadar to support the Ocean Harvest capability and address a warfighting maritime surveillance capability gap. Ocean Harvest is an organically developed capability internal to NAWCAD that provides an integrated advanced software defined sensor package used to demonstrate new Naval Warfare capabilities and analyze threat capabilities. KeyRadar combines multiple bands with sophisticated processing and target detection/recognition to find concealed targets in the most challenging operational environments.

FY 2020 PROJECTS ABOVE $1M:

POINT MUGU BACKBONE NORTH - This effort replaces the current core data network that resides at NAWCWD Point Mugu. The current network does not adequately support current demand, technologies; repairs are difficult due to the age of the network. This effort increases the usable bandwidth and allows for timely repairs. The Point Mugu Cable plant currently supports all NAWCWD RDT&E Labs and Range connectivity on and off station, as well as, data transport for phone, alarm and video teleconference (VTC) across the site.

RDT&E HIGH SPEED CORE NETWORK - This project implements a fundamental Weapons Division (WD) core RDT&E communications infrastructure upgrade at primary locations to meet current and future Integrated Warfare Capability/Live Virtual Construct (IWC/LVC) and Speed to Fleet communications requirements.

CHEMICAL PILOT PLANT MODERNIZATION - This project modernizes the Chemical Pilot Plant at the Energetics Materials Research and Processing Branch, Code 477100D by updating chemical synthesis and scale up capabilities, and expanding the types and modalities of chemical processes that can be performed on a pilot scale.

WEBSTER FIELD OUTSIDE FIBER PLANT UPGRADE - This project builds out network capability at Webster Field by installing new duct-banks, fiber and equipment to existing test site facilities drastically improving mission network capabilities across the base. The current Webster Field Outside Plant (OSP) distribution system is an aged, damaged, and inadequate direct buried multi-mode fiber system that exceeds regulatory distance requirements necessary to support network throughput.

PAXSIL COMMON ACOUSTIC SIMULATION ENVIRONMENT (CASE) - This project procures a "deployable" CASE for the NAWCAD Pax System Integration Lab (SIL) systems integration and test lab which provides the capability to stimulate acoustics hardware.

LARGE SCALE MILL TURN MACHINE - This project will procure a new Mill Turn machine capable of meeting all of the current CDP terminal quantities and the new CSM requirements for the NAWCAD Prototype & Manufacturing Division. Production includes multiple sized terminals (1", 1-1/4", 1-7/16") which are a Navy Core Capability as well as the introduction of larger diameter Compact Swage Machine (CSM) terminals which started production in 2018.

CNC BENDING BRAKE - This project will procure a new bending brake capable of meeting mission needs. The NAWCAD Prototype & Manufacturing Division Metal Fabrication Shop currently has only one operational manual bending brake that is 35 years old and a second brake which is inoperable. Both bending brake machines are well beyond their useful life and parts/repairs are no longer supported by original manufacturers.

FY 2021 PROJECTS ABOVE $1M:

CASTING OVEN FACILITY – This project procures a casting oven facility to support many current R&D programs, especially with those that use larger rocket motors with High Level Grain (HLG) technology and programs that direct support of the fleet. The facility will address the need for preheating of assets prior to energetics cast, the need to cure energetic assets after cast, and assets where set up is very complex.

FOTS_PT MUGU_BACKBONE SOUTH - This effort replaces the current core data network that resides at NAWCWD Point Mugu. The current network does not adequately support current demand, technologies, and repairs are difficult due to age. This effort increases the usable bandwidth and allow for timely repairs as needed. The Point Mugu Cable plant currently supports all NAWCWD RDT&E Labs and Range connectivity on and off station, as well as, data transport for phone, alarm and VTC across the site.

T-RANGE: INTERSTAT TURBINE TEMPERATURE (ITT) BURNER & TANK REPLACEMENT – This project reactivates the T-Range so that NAWC can address the need to test air breathing technology. T-Range air supply was a large limiting factor along with its ability to perform a series of different testing from one test bay. In order for T-Range to become a fully operational site and enhance capability: instrumentation requires replacement along with necessary cabling, ITT burner nozzle requires an upgrade which includes redesign, fabrication, and installation, failed and uncertified unfired pressure vessels need replacement.

ANECHOIC CHAMBER REFURBISHMENT – This project refurbishes the anechoic chamber and replaces deteriorating absorber material so that NAWC can test all Federal Technology Service (FTS) antennas for Voltage Standing Wave Ratio (VSWR) and radiation patterns per RCC-319. Time and Global Positioning Satellite (GPS) antennas that are designed by Air Vehicle Modification and Instrumentation (AVMI) undergo pattern testing and VSWR to verify conformance to specifications. AVMI seeks to maintain this capability in testing conformal telemetry/flight termination/GPS antennas that radiate from P to C-Band.

ELECTRONIC INTELLIGENCE (ELINT) ANALYSIS WORKSTATION & MOBILE A2PATS – This project procures a High Fidelity Test Instrumentation Workstation to provide Textron Advanced Architecture Desktop Signal Generator (A2DSG) high fidelity signal generation with 2 SSIs, high fidelity signal analysis / measurement / verification.

SAIL Cooperative Engagement Capability (CEC) - This project procures the current version of the CEC to enable the Surface/Aviation Interoperability Laboratory (SAIL) facility to perform RDT&E missions. The CEC is a real-time, sensor-netting system that enables high-quality situational awareness and integrated fire control capability. The CEC increases Naval Air Defense capabilities by integrating sensors and weapon assets into a single, integrated, real-time network which expands the battlespace, enhances situational awareness, increases depth-of-fire, enables longer intercept ranges, and improves decision and reaction times.

SAIL Tactical Mobile (TacMobile) - This project procures the TacMobile system for the SAIL facility. TacMobile is a new high performance data terminal that supports long range, high data rate communications with airborne platforms equipped with a multitude of DOD standard Common Data Link (CDL) waveforms. With TacMobile, real time imagery, full-motion video, audio and other sensor data are instantly available to provide users with detailed information. This data may be networked into a variety of dissemination tools, or further distribution. Additionally Mantis III is to perform automatic calibration.

Aviation Cyber T&E Test Bench (ACTTB) - This project procures a test bench to place avionics into simulated flight with inputs that stimulate them to create an environment for testing cyber-attacks and solutions. ACTTB will meet the need for swift identification and remediation of cyber vulnerabilities in a secure environment.

Vertical Turning Center
This project procures a new vertical turning machine for the NAWCAD Prototype & Manufacturing Division Metal Fabrication Shop, which currently utilizes a 20 year old model that is beyond its useful life and lacks the ability to support vertical turning operations for extra large pieces of equipment.

Horizontal Milling Machine – This project procures a horizontal milling machine for the NAWCAD Prototype & Manufacturing Division Metal Fabrication Shop, which currently has one operational manual bending brake that is 33 years old and a second brake which is 28 years old and inoperable. Both bending brake machines are well beyond their useful life and parts/repairs are no longer supported by original manufacturers. These machines are primarily used to overhaul Low Loss Launch Valves that are considered flight safe (Critical Safety Item/Critical Application Item).

Naval Avionics Platform Integration Emulator (NAPIE) Capability Upgrade - This project upgrades and expands the NAPIE capabilities to support ever growing and changing needs of the naval forces. NAPIE is an organic capability that enables rapid prototyping and test and evaluation (T&E) of new technologies, which in turn speeds up transitions of those technologies into the Navy systems.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#002 - ADPE						Naval Air Warfare Center		
ADP Equipment	FY 2019			FY 2020			FY 2021		
	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Computer Hardware (Production)	1	604	$604	1	646	$646	2	1,936	$3,871
Computer Software (Operating System)	1	1,700	$1,700	0	-	$0	0	-	$0
Computer Hardware (Network)	6	983	$5,900	3	1,368	$4,104	2	1,958	$3,915
Telecommunications	0	-	$0	0	-	$0	0	-	$0
Other Support Equipment	0	-	$0	0	-	$0	0	-	$0
Total	8	1,026	$8,204	4	1,188	$4,750	4	1,947	$7,786

Justification:

FY 2019 PROJECTS ABOVE $1M:

EMW UNMANNED AERIAL VEHICLE (UAV) SIMULATION - The project funds EW UAV Simulation to leverage existing technologies for digital simulation of jammer resource optimization and allocation solutions as a potential Enterprise-Wide Optimization (EWO) aircrew/analyst training aide, while providing a proof-of–concept for the utility of UASs as a component in the IADS. The EW UAV SIM will leverage existing Government-owned technologies to provide Mission Level Simulation to explore the feasibility of Interoperability and improved Spectral Efficiency in the context of Integrated Air Defense. The EW UAV SIM project is coordinated with PMA-262 to implement an instantiation that aligns with MQ-4C Triton Integrated Functional Capability (IFC) developments to examine the feasibility of optimal EW sensor integration.

RDT&E KEY-GENERATING (KG) INFRASTRUCTURE - This project implements a fundamental WD core-RDT&E communications infrastructure upgrade. China Lake and Point Mugu will be able to meet current and future Integrated Warfare Center/Live Virtual Construct (IWC/LVC) and Speed to Fleet communications requirements. This proposal provides KG infrastructure necessary to increase the encryption rate and re-configuration capabilities of the RDT&E classified networks.

RDT&E SECURITY INCIDENT EVENT MANAGEMENT (SIEM) - This project provides the NAWCAD RDT&E Enterprise Network with a distributed Security Incident and Event Management (SIEM) tool capable of independent operation, and enterprise searching across all RDT&E devices from an operations center. Network infrastructure must meet DoD/DoN mandated logging and continuous monitoring requirements for IA Risk Management Framework (RMF) with a distributed / scalable / cohesive platform to perform continuous monitoring. Current capabilities operate independently but no centralized reporting/searching capabilities.

FY 2020 PROJECTS ABOVE $1M:

RDT&E NETWORK BACKUP SOLUTION - This CIP project provides a centralized backup/restore services for lab/customer assets and their stored data on the NAWCAD RDT&E Enterprise Network.

RDT&E CORE NETWORK UPGRADE - This project procures new equipment for the NAWCAD RDT&E Enterprise Network to support next-generation network needs, including IA requirements.

FY 2021 PROJECTS ABOVE $1M:

ASIPT MICHELSON LAB WING 1 FACILITY STANDUP – This project supports the Advanced Systems Integrated Project Team (ASIPT) move from Bldg. 31598 to Wing 1 of the Michelson Lab by building up integrated network and computer systems, which allow access to multiple networks at multiple classifications at the user's desk with a minimal of physical footprint and no physical storage or processing of data outside the server room. AISPT provides analysis and limited test rehearsal using Operator-in-the-Loop (OITL) techniques to assess the mission-level effects of proposed improvements to Navy weapons systems. FY16 & FY17 Capital Investment Program (CIP) projects enabled an OITL expansion that included F-35 simulators and equipment to enable multi-level security for OITL events.

RDT&E HYBRID CLOUD - This project provides the NAWCAD RDT&E Enterprise Network the capability to allow for the rapid provisioning of compute resources, storage, and application hosting capabilities for the RDT&E community, as well as providing high availability for existing enterprise services.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#003 - Software Development						Naval Air Warfare Center		
	FY 2019			FY 2020			FY 2021		
Software	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Internally Developed	0	-	$0	0	-	$0	0	-	$0
Externally Developed	2	722	$1,443	0	-	$0	1	850	$850
Total	2	722	$1,443	0	-	$0	1	850	$850

Justification:

PROJECTS ABOVE $1M:

N/A

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#004 - Minor Construction						Naval Air Warfare Center		
	FY 2019			FY 2020			FY 2021		
Minor Construction	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Replacement	0	-	$0	0	-	$0	0	-	$0
New Construction	3	3,516	$10,547	6	4,047	$24,284	3	4,672	$14,016
Environmental Capability	0	-	$0	0	-	$0	0	-	$0
Total	3	3,516	$10,547	6	4,047	$24,284	3	4,672	$14,016

Justification:

FY 2019 PROJECTS ABOVE $1M:

ENGINEERING SUPPORT LRP - This project constructs a new building to provide office space for engineering personnel. Existing facilities are expensive to maintain and have environmental and safety hazards.

CALIBRATION LAB B410 - This project constructs an addition to an existing facility to provide efficient reorganization of existing laboratory operations as well as provide space to execute calibration functions in accordance with DOD environmental standards and industry practice. The addition incorporates efficient process flows and improve geographically dispersed locations of associated functions;

FIBER OPTIC PATHWAY EXPANSION - This project addresses the need to increase the communications pathway infrastructure for the NAWCAD RDT&E Infrastructure Division. The current underground communications pathway backbone is at capacity and cannot support upcoming requirements.

FY 2020 PROJECTS ABOVE $1M:

WEAPONS & WARFIGHTING CONCEPTS DEVELOPMENT & PROTOTYPONG FACILITY –Project will construct an approximately 6,000 SF to 7,000 SF laboratory facility that meets the requirements of Initial Capabilities Document (ICD)-705. The facility increases the availability of secure laboratory space within the perimeter of the Michelson Laboratory compound and addresses the emergent need for multi-level security facility in support of emergent warfighting concepts requiring Sensitive Compartmented Information Facility (SCI) data in development & prototyping. NAWCWD transferred operating authority to contract authority, a process locally termed a "CIP surcharge", to execute this project in accordance with Title 10 U.S. Code 2363. It executes as a part of NAWCWD's Naval Innovative Science and Engineering (NISE) program.

TECHNIQUE DEVEILOPMENT & PROTOTYPING CENTER – The Technique Development and Prototyping Center (TDPC) project integrates all existing technique development efforts and prepares NAWCWD for the future of technique development against advanced threats while facilitating collaboration among multiple IPTs, such as JATO (Jamming Techniques Optimization), ASPO (Airborne Self Protect Optimization), IT Blk X, CEA (Collaborative Electronic Attack), F-35, NIFC-EW (Navy Integrated Fire Control - Electronic Warfare), and others. An additional 2,500 sq. ft. brings building total close to 15,000 sq. ft. meeting the required need.

ADVANCED MISSION SYSTEM INTEROPERABILITY (AMSI) LRP - This project constructs additional space for advanced mission systems products supporting Special Access Programs within the Integrated Battlespace Simulation and Test Department (IBST) Simulation Division.

IDENTIFICATION SYSTEM (IDS) LAB CONSOLIDATION LRP - This project constructs a new building that will address limitations in laboratory, production, software, development and test lab spaces at the NAWCAD Combat Integration & Identification Systems (CI&IDS) Division.

MINCON PLANNING AND DESIGN - MINCON Planning and Design will fund the design for NAWCAD construction projects.

FY 2021 PROJECTS ABOVE $1M:

ADVANCED MISSION SYSTEM INTEROPERABILITY (AMSI) LRP - This project constructs additional space for advanced mission systems products supporting Special Access Programs at the Integrated Battlespace Simulation and Test Department (IBST) Simulation Division.

IDENTIFICATION SYSTEM (IDS) LAB CONSOLIDATION LRP - This project constructs a new building to address limitations in laboratory, production, software, development and test lab spaces at the NAWCAD Combat Integration & Identification Systems (CI&IDS) Division.

MINCON PLANNING AND DESIGN - MINCON Planning and Design will fund the design for NAWCAD construction projects.

CAPITAL BUDGET EXECUTION
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL AIR WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2019	**1**	**Non ADP**		**$36.963**	**$37.203**	**$0.240**	
			Quality Control/Testing	$25.097	$24.642	-$0.455	Program restructure
			Machinery	$1.385	$1.396	$0.011	Program restructure
			Support Equipment	$10.481	$11.165	$0.684	Program restructure
	2	**ADP**		**$8.969**	**$8.204**	**-$0.765**	
			Computer Hardware (Production)	$1.369	$0.604	-$0.765	Program restructure
			Computer Hardware (Network)	$5.900	$5.900	$0.000	
			Computer Software (Operating)	$1.700	$1.700	$0.000	
	3	**Software**		**$2.623**	**$1.443**	**-$1.180**	
			Externally Developed	$2.623	$1.443	-$1.180	Program restructure
	4	**Minor Construction**		**$8.850**	**$10.547**	**$1.697**	
			New Construction	$8.850	$10.547	$1.697	Program restructure
TOTAL FY 2019 CIP Program				**$57.405**	**$57.397**	**-$0.008**	

FY	L.I.	Category	Capability/Project	I.R.	C.P.R.	A.C.	Explanation
2020	**1**	**Non ADP**		**$16.634**	**$26.456**	**$9.822**	
			Quality Control/Testing	$8.463	$14.957	$6.494	Program restructure
			Machinery	$0.700	$0.583	-$0.117	Program restructure
			Support Equipment	$7.471	$10.916	$3.445	Program restructure
	2	**ADP**		**$9.014**	**$4.750**	**-$4.264**	
			Computer Hardware (Production)	$2.874	$0.646	-$2.228	Program restructure
			Computer Hardware (Network)	$6.140	$4.104	-$2.036	Program restructure
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$22.702**	**$24.284**	**$1.582**	
			New Construction	$22.702	$24.284	$1.582	Program restructure and CIP Surcharge in support of NISE program execution
TOTAL FY 2020 CIP Program				**$48.350**	**$55.490**	**$7.140**	

FY	L.I.	Category	Capability/Project	I.R.	C.P.R.	A.C.	Explanation
2021	**1**	**Non ADP**		**$25.698**	**$25.698**	**$0.000**	
			Quality Control/Testing	$10.924	$10.924	$0.000	
			Machinery	$2.800	$2.800	$0.000	
			Support Equipment	$11.974	$11.974	$0.000	
	2	**ADP**		**$7.786**	**$7.786**	**$0.000**	
			Computer Hardware (Production)	$3.871	$3.871	$0.000	
			Computer Hardware (Network)	$3.915	$3.915	$0.000	
	3	**Software**		**$0.850**	**$0.850**	**$0.000**	
				$0.850	$0.850	$0.000	
	4	**Minor Construction**		**$14.016**	**$14.016**	**$0.000**	
			New Construction	$14.016	$14.016	$0.000	
TOTAL FY 2021 CIP Program				**$48.350**	**$48.350**	**$0.000**	

CARRYOVER RECONCILIATION
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL AIR WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
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Part 1			
1. Net Carry-In	2,656.7	2,743.9	2,703.3
2. Revenue	5,208.8	5,345.2	5,551.3
3. New Orders	5,296.0	5,304.6	5,510.5
4. Exclusions:			
Foreign Military Sales	280.7	257.4	272.7
Base Realignment and Closure	0.0	0.0	0.0
Other Federal Department and Agencies	60.9	49.7	50.7
Non-Federal and Others	24.1	20.8	21.3
Institutional Major Range & Test Facility Base	294.6	346.2	351.3
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
5. Orders for Carryover Calculation	4,635.7	4,630.4	4,814.4
6. Weighted Average Outlay Rate	51.5%	50.8%	51.1%
7. Carryover Rate	48.5%	49.2%	48.9%
8. Allowable Carryover	2,671.3	2,716.9	2,774.6
Allowable Carryover(First Year)	2,248.3	2,278.2	2,354.3
Allowable Carryover (Second Year Procurement-funded Orders)	422.9	438.7	420.3
Part II			
9. Balance of Customer Order at Year End	2,743.9	2,703.3	2,662.5
10. Work-in-progress	0.0	0.0	0.0
11. Exclusions:			
Foreign Military Sales	255.3	266.2	283.2
Base Realignment and Closure	0.1	0.1	0.1
Other Federal Department and Agencies	44.9	56.3	40.1
Non-Federal and Others	28.0	31.7	28.3
Institutional Major Range & Test Facility Base	139.8	161.4	182.2
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
12. Calculated Actuals Carryover	2,275.8	2,187.7	2,128.5

Some totals may not add due to rounding.
EXWC,NSWC,NUWC,NAWCDIV,SPAWAR,NRL use RDTEN rates.

4. Naval Surface Warfare Center

Back of Tab

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL SURFACE WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Mission Statement / Overview:
The Naval Surface Warfare Center (NSWC) provides Research, Development, Test and Evaluation (RDT&E); in-service engineering; and fleet and integrated logistic support for surface ship combat systems, surface and mine warfare combat systems, ordnance, explosive ordnance disposal technology, mines, amphibious warfare systems, mine countermeasures, special warfare and strategic systems, systems interfaces, weapon systems and subsystems, unique equipment and related expendable ordnance of the Navy surface fleet. In addition, they provide primary technical capability in energetics through engineering, fleet and operational support, manufacturing technology, limited production, industrial base support and research, development, test and evaluation for energetic materials, ordnance devices and components and related ordnance engineering standards. Central to our strategy is the sustainment and development of critical core capabilities that support legacy and emerging systems in the Fleet. Critical to our vision is the need to acquire, train, and retain top quality, diverse, scientists and engineers and to maintain the corresponding infrastructure necessary to support the Navy's future strategic requirements.

Activity Group Composition:
The Center is comprised of eight operating divisions whose operations and locations are described below.

CARDEROCK DIVISION: Provides RDT&E, acquisition support, in-service engineering, logistics and integration of surface and undersea vehicles and associated systems. Carderock Division also works to develop and apply science and technology associated with naval architecture and marine engineering, and provide support to the maritime industry. The division's primary operating site is located in Bethesda, MD, with supporting operating sites at Ft. Lauderdale, FL; Memphis, TN; Norfolk, VA; Bremerton, WA; and Bayview, ID.

CORONA DIVISION: Serves warfighters and program managers as the Navy's independent performance assessment agency throughout systems' lifecycles by gauging the Navy's warfighting capability within weapons and integrated combat systems, from unit to force level. This is accomplished by assessing those systems' performance, readiness, quality, supportability, and the adequacy of training. The division has one primary operating site, Corona, CA, with a small engineering sites in Seal Beach, CA and Fallbrook, CA.

CRANE DIVISION: Provides acquisition engineering, in-service engineering and technical support for sensors, electronics, electronic warfare and special warfare weapons. Crane Division also works to apply component and system-level product and industrial

engineering to surface sensors, strategic systems, special warfare devices and electronic warfare/information operations systems. The division has one primary operating site located in Crane, IN.

DAHLGREN DIVISION: Provides research, development, test and evaluation, analysis, systems engineering, integration and certification of complex naval warfare systems related to surface warfare, strategic systems, combat and weapons systems associated with surface warfare. Dahlgren Division also works to provide system integration and certification for weapons, combat systems and warfare systems. The division has two primary operating sites located in Dahlgren, VA and Dam Neck, VA.

INDIAN HEAD EXPLOSIVE ORDNANCE DISPOSAL (EOD) TECHNOLOGY DIVISION: Provides RDT&E, manufacturing, and in-service support of energetic systems and energetic materials (chemicals, propellants and explosives) for ordnance, warheads, propulsion systems, pyrotechnic devices, fuzing, electronic devices, Cartridge Actuated Devices (CADs) and Propellant Actuated Devices (PADs). Indian Head also provides Packaging, Handling, Storage, and Transportation (PHS&T), gun systems and special weapons for Navy, Joint Forces and the Nation. The division develops and delivers EOD technology, knowledge, tools and equipment and their life cycle support through an expeditionary work force which meets the needs of the Department of Defense, combatant commanders and our foreign and interagency partners. It also supports the Executive Manager for EOD Technology and Training. The primary site of operations is Indian Head, MD, with smaller operations at Rison, MD; MacAlester, OK; and Picatinny, NJ.

PANAMA CITY DIVISION: Conducts RDT&E and in-service support of mine warfare systems, mines, naval special warfare systems and other missions that occur primarily in coastal (littoral) regions. The primary operating site is Panama City, FL.

PHILADELPHIA DIVISION: Provides RDT&E, acquisition support, engineering, systems integration, in-service engineering and fleet support with cyber-security, comprehensive logistics, and life-cycle savings through commonality. These are provided for surface and undersea vehicle machinery, ship systems, equipment and material. The primary operating site is Philadelphia, PA.

PORT HUENEME DIVISION: Provides test and evaluation, systems engineering, integrated logistic support, in-service engineering and integration of surface ship weapons, combat systems and warfare systems. Port Hueneme Division also interfaces between the surface force and the Warfare Centers to coordinate in-service maintenance and engineering support. The primary operating site is Port Hueneme, CA with a detachment in Dam Neck, VA.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL SURFACE WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Significant Changes Since the FY 2020 President's Budget:
The FY 2021 budget estimate includes increases in the civilian workforce to match projected workload. These increases are primarily attributable to program growth in Electronic Warfare Systems, Cryptologic Warfare and Intelligence Systems, Direct Energy and High Velocity Projectile (HVP) solutions, Systems Engineering, and Surface and Expeditionary Combat Systems.

Financial Profile:

Orders/Revenue/Expense/Operating Results ($Millions):	FY 2019	FY 2020	FY 2021
Orders	$4,712.8	$4,881.6	$5,279.3
Revenue	$4,774.4	$4,881.6	$5,279.3
Expense	$4,786.3	$5,067.4	$5,176.1
Operating Results	($11.9)	($185.7)	$103.2
Capital Surcharge and Other	($14.6)	($1.5)	$0.0
Asset Adjustment	($0.7)	$0.0	$0.0
Net Operating Results (NOR)	($27.2)	($187.2)	$103.2
Prior Year AOR	$113.6	$86.4	($103.2)
NWCF Direct Appropriation - Hurricane	$0.0	$28.2	$0.0
Other Changes Affecting AOR	$0.0	($30.5)	$0.0
Accumulated Operating Results (AOR)	$86.4	($103.2)	($0.0)

Some totals may not add due to rounding.

Orders, Revenue and Expense: Changes in orders from FY 2019 to FY 2021 are based on updated new order estimates as coordinated with customers. Increases in expenses are a result of inflation, pricing, and increased workload for various programs as mentioned above. Revenue is set to achieve zero AOR in FY 2021. The Capital Surcharges in FY 2019 and FY 2020 reflect the transfer of operating authority to contract authority to execute these projects in accordance with Title 10 U.S. Code 2363. Execution is a part of NSWC's Naval Innovative Science and Engineering (NISE) program to invest in Laboratory Revitalization Projects (LRP).

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL SURFACE WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Disbursements/Collections/Outlays ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Disbursements	$4,782.8	$5,067.4	$5,145.9
Collections	$4,729.6	$4,881.6	$5,279.3
Direct Appropriation	$0.0	$110.2	$0.0
Net Outlays	$53.2	$75.5	($133.4)

Some totals may not add due to rounding.

Budgeted collections and disbursements are based on revenue, expense, Capital Investment Program (CIP) outlay estimates, anticipated changes in accounts payable/accrued labor expenses and accounts receivable. The direct appropriation reflects the FY 2020 enactment and supports hurricane recovery efforts.

Workload:

Direct Labor Hours (000):	**FY 2019**	**FY 2020**	**FY 2021**
Current Estimate	28,412	28,504	28,897

NSWC continues to size workload to support the customer's demand.

Performance Indicators: The NSWC produces scientific and engineering designs, developments, tests, evaluations, analyses and supports the fleet in NSWC assigned mission areas. The measure for these outputs are the direct labor hours worked for the customer. Customers are charged a predetermined stabilized billing rate per direct employee hour worked (revenue rate). The rate includes the salary and benefit costs of the performing employee (direct labor costs) and a share of the overhead costs of the NSWC, which includes both general and administrative support and the unique production overhead costs of the performing employee's cost center. Non-labor, non-overhead costs, such as customer required material and equipment purchases, travel expenses, and contractual services, are charged to the customer on a cost reimbursable basis based on actual cost, and are excluded from the NSWC stabilized pricing structure. The NSWC uses total stabilized cost per direct labor hour as the performance criterion.

Unit Cost:	**FY 2019**	**FY 2020**	**FY 2021**
Total Stabilized Cost ($Millions)	$3,073.2	$3,232.2	$3,311.4
Workload (DLHs) (000)	28,362	28,453	28,793
Unit cost (per DLH)	$108.36	$113.59	$115.00

Unit Cost is the method established to monitor costs. Unit cost goals allow activities to respond to workload changes by encouraging reduced costs when workload declines and allowing appropriate increases in costs when customers request additional services.

Stabilized / Composite Rates:	**FY 2019**	**FY 2020**	**FY 2021**
Stabilized Rate	$105.82	$107.26	$119.99
Change from Prior Year		1.36%	11.87%
Composite Rate Change		1.63%	8.14%

The Stabilized Rate consists of direct labor and applied overhead. Unique direct non-labor costs are billed on a reimbursable basis to the customer. The composite rate change incorporates both the stabilized costs and the reimbursable costs. The composite rate change in FY 2021 reflects adjustments in direct workload and pricing changes.

Staffing:

Civilian/Military ES & Workyears:	**FY 2019**	**FY 2020**	**FY 2021**
Civilian End Strength	21,258	21,282	21,437
Civilian Workyears (straight time)	20,244	20,560	20,705
Military End Strength	155	172	172
Military Workyears	160	172	172

Civilian Personnel: The civilian resource estimates are a baseline projection of civilian resources necessary to fulfill programming objectives and coordination with customers. Civilian resource estimates have been adjusted to reflect a balanced program of civilian resources to funded workload. FY 2021 workforce increased due to program growth in Electronic Warfare Systems, Cryptologic Warfare and Intelligence Systems, Direct Energy and High Velocity Projectile (HVP) solutions, Systems Engineering, and Surface and Expeditionary Combat Systems.

Military Personnel: The Military resource estimates are a baseline projection of military personnel necessary to fulfill programming objectives and coordination with customers. Military resource estimates have been adjusted to reflect a balanced program of military resources to funded workload.

Capital Investment Program (CIP): The Capital Investment Program allows the NWCF to achieve its mission by reinvesting in plant equipment and facilities. Included in the capital budget are the following types of assets: automated data processing equipment (ADPE); non-ADP equipment; automated data processing software, internally or

externally developed; and minor construction. Minor construction includes projects meeting the criteria of the Defense Laboratory Revitalization Program. The projects will replace aging temporary buildings and upgrade and expand lab capability to accommodate workload growth and increase efficiency.

CIP Authority ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Equipment, Non-ADP / Telecom	$27.4	$11.2	$5.7
Equipment, ADPE / Telecom	$2.6	$5.0	$8.3
Software Development	$0.0	$0.0	$0.0
Minor Construction	$27.4	$38.7	$44.6
Total	$57.3	$54.9	$58.6

Some totals may not add due to rounding.

Carryover Compliance ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Net Carry-In	$2,123.4	$2,061.8	$2,061.8
Allowable Carryover	$2,245.8	$2,292.1	$2,482.7
Calculated Actual Carryover	$1,709.6	$1,703.9	$1,688.6
Delta (Actual-Allowable): Above Ceiling (+)/Below Ceiling (-)	($536.2)	($588.2)	($794.1)

Some totals may not add due to rounding.

Carryover for each year is within the allowable carryover limit.

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL SURFACE WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
Revenue:			
Gross Sales			
Operations	4,731.5	4,826.6	5,220.7
Capital Surcharges	14.6	1.5	-
Capital Investment Recovery	28.3	53.5	58.6
Other Income			
Total Income	4,774.4	4,881.6	5,279.3
Expenses			
Cost of Materiel Sold from Inventory			
Salaries and Wages:			
Military Personnel Compensation & Benefits	14.9	13.5	13.8
Civilian Personnel Compensation & Benefits	2,929.0	3,083.1	3,163.3
Travel and Transportation of Personnel	153.4	136.7	138.6
Material & Supplies (Internal Operations)	299.4	266.5	271.8
Equipment	48.9	108.8	111.0
Other Purchases from NWCF	286.2	151.2	141.1
Transportation of Things	15.7	6.0	7.3
Capital Investment Recovery	28.3	53.5	58.6
Printing and Reproduction	0.6	2.4	2.5
Advisory and Assistance Services	-	-	-
Rent, Communication, Utilities & Misc Charges	80.0	75.2	66.5
Other Purchased Services	930.1	1,170.4	1,201.6
Total Expenses	4,786.5	5,067.4	5,176.1
Work in Process Adjustment	-	-	-
Comp Work for Activity Retention Adjustment	(0.1)	-	-
Cost of Goods Sold	4,786.3	5,067.4	5,176.1
Operating Result	(11.9)	(185.7)	103.2
Adjustments Affecting NOR	(15.3)	(1.5)	-
Capital Surcharges	(14.6)	(1.5)	-
Extraordinary Expenses Unmatched	-	-	-
Other Changes Affecting NOR (All Others)	(0.7)	-	-
Net Operating Result	(26.6)	(187.2)	103.2
PY AOR	113.6	86.4	(103.2)
TOTAL AOR	86.4	(100.9)	-
Non-Recoverable Adjustments impacting AOR	-	(2.3)	-
AOR for budget purposes	86.4	(103.2)	-

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL SURFACE WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
1. New Orders	4,712.8	4,881.6	5,279.3
a. Orders from DoD Components:	4,078.7	4,277.5	4,630.8
Department of the Navy	3,457.2	3,612.9	3,904.2
O & M, Navy	1,201.7	1,220.9	1,283.1
O & M, Marine Corps	74.9	87.5	97.2
O & M, Navy Reserve	2.1	2.3	2.5
O & M, Marine Corp Reserve	0.1	1.2	1.3
Aircraft Procurement, Navy	50.3	69.1	74.9
Weapons Procurement, Navy	94.1	86.8	91.6
Ammunition Procurement, Navy/MC	70.8	66.1	69.0
Shipbuilding & Conversion, Navy	378.5	449.0	477.6
National Sea Base Deterrence Fund	7.4	0.0	0.0
Other Procurement, Navy	464.1	459.5	503.5
Procurement, Marine Corps	31.5	43.0	47.2
Family Housing, Navy/MC	0.0	0.0	0.0
Research, Dev., Test, & Eval., Navy	1,070.7	1,126.7	1,255.5
Military Construction, Navy	0.0	0.0	0.0
National Defense Sealift Fund	0.1	0.7	0.8
Foreign Cooperative Projects, Navy	10.2	0.0	0.0
Other Navy Appropriations	0.8	0.0	0.0
Other Marine Corps Appropriations	0.0	0.0	0.0
Department of the Army	76.1	96.3	103.0
Army Operation & Maintenance	18.7	19.5	21.2
Army Res, Dev, Test, Eval	36.5	36.4	39.2
Army Procurement	21.1	28.2	29.2
Army Other	0.2	12.2	13.4
Department of the Air Force	112.1	128.6	137.7
Air Force Operation & Maintenance	34.4	50.7	54.5
Air Force Res, Dev, Test, Eval	36.8	33.3	36.1
Air Force Procurement	40.9	44.6	47.0
Air Force Other	0.0	0.0	0.0
DOD Appropriation Accounts	433.3	439.7	486.0
Base Closure & Realignment	0.0	0.0	0.0
Operation & Maintenance Accounts	83.7	94.2	105.2
Res, Dev, Test & Eval Accounts	272.3	271.8	299.5
Procurement Accounts	61.2	60.9	67.1
Defense Emergency Relief Fund	0.0	0.0	0.0
DOD Other	16.0	12.9	14.2
b. Orders from other Fund Activity Groups	365.4	326.8	350.9
c. Total DoD	4,444.1	4,604.3	4,981.7
d. Other Orders:	268.7	277.3	297.6
Other Federal Agencies	55.7	61.5	66.3
Foreign Military Sales	199.4	203.1	217.5
Non Federal Agencies	13.6	12.8	13.7
2. Carry-In Orders	2,123.4	2,061.8	2,061.8
3. Total Gross Orders	6,836.2	6,943.4	7,341.0
a. Funded Carry-Over before Exclusions	2,061.8	2,061.8	2,061.8
4. Revenue(-)	4,774.4	4,881.6	5,279.3
5. End of Year Work-In-Process (-)	0.0	0.0	0.0
6. FMS, BRAC, Other Federal, Non-Federal orders, and Inst. MRTFB (-)	347.6	353.3	368.6
7. Funded Carryover	1,709.6	1,703.9	1,688.6

Note: Line 5 (End of Year Work-In-Process) is adjusted for Non-DOD BRAC, FMS, and Institutional MRTFB

CHANGES IN THE COSTS OF OPERATIONS
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL SURFACE WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	Costs
FY 2019 Estimated Actuals	**4,786.5**
FY 2020 President's Budget:	**4,745.9**
Estimated Impact in FY 2020 of Actual FY 2019 Experience:	**40.4**
Pricing Adjustments:	**56.9**
Civilian Personnel	24.1
Fuel Price	-2.5
Non-Pay Inflation	35.2
Program Changes:	**225.6**
Various Weapons System Programs	
Other Changes:	**-1.5**
Capital Investment Recovery	-1.5
Facilities Sustainment, Restoration & Modernization	0.0
Other (list)	0.0
FY 2020 Current Estimate:	**5,067.4**
Pricing Adjustments:	**87.7**
Annualization of Prior Year Pay Raises	**3.7**
Civilian Personnel	3.6
Military Personnel	0.1
FY 2021 Pay Raise	**44.1**
Civilian Personnel	43.9
Military Personnel	0.3
Fuel Price Changes	0.0
General Purchase Inflation	35.3
Other Price Changes (list)	**4.6**
Working Capital Fund Price Changes	4.6
Productivity Initiatives and Other Efficiencies:	**-14.0**
Program Changes:	**52.4**
Electronic Warfare and Combat Systems Systems	10.5
Radar and Electro-Optic Systems (R&D, T&E, ISEA)	5.5
Directed Energy and HVP Solutions	4.5
Range Systems Engineering	3.2
Warfare Systems Performance Assessment	2.5
Strategic Systems Hardware	3.5
Surface and Undersea Design and Integration	3.5
Unmanned Systems	3.3
Various Weapons Systems Programs	3.5
Other Changes:	**-17.4**
Capital Investment Recovery	5.1
Facilities Sustainment, Restoration & Modernization	5.3
Change in work days	-9.9
Civilian Equivalency Rate Changes	0.0
NAVFAC Realignment	-22.2
Rebaseline NISE to 2% of Reimbursable Orders	4.3
FY 2021 Estimate:	**5,176.1**

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CAPITAL INVESTMENT SUMMARY
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL SURFACE WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

		FY 2019		FY 2020		FY 2021	
Line #	**Description**	**Quantity**	**Total Cost**	**Quantity**	**Total Cost**	**Quantity**	**Total Cost**
1	**Non-ADPE and Telecom Equipment >= $.500M**	**14**	**$27.416**	**12**	**$11.174**	**8**	**$5.706**
	- Vehicles	0	$0.000	0	$0.000	0	$0.000
	- Material Handling	0	$0.000	0	$0.000	0	$0.000
	- Installation Security	0	$0.000	0	$0.000	0	$0.000
	- Quality Control/Testing	9	$8.098	8	$4.785	3	$2.570
	- Medical Equipment	0	$0.000	0	$0.000	0	$0.000
	- Machinery	1	$3.205	0	$0.000	1	$0.590
	- Support Equipment	4	$16.113	4	$6.389	4	$2.546
2	**ADPE and Telecom Equipment >= $.500M**	**1**	**$2.553**	**5**	**$5.044**	**6**	**$8.280**
	- Computer Hardware (Production)	0	$0.000	0	$0.000	1	$0.800
	- Computer Hardware (Network)	1	$2.553	2	$2.000	3	$5.968
	- Computer Software (Operating)	0	$0.000	0	$0.000	0	$0.000
	- Telecommunications	0	$0.000	2	$1.482	2	$1.512
	- Other Support Equipment	0	$0.000	1	$1.562	0	$0.000
3	**Software Development >= $.500M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Internally Developed	0	$0.000	0	$0.000	0	$0.000
	- Externally Developed	0	$0.000	0	$0.000	0	$0.000
4	**Minor Construction (>= $.500M and <= $2.000M)**	**25**	**$27.362**	**25**	**$38.650**	**19**	**$44.611**
	- Replacement Capability	8	$4.476	5	$12.891	4	$4.436
	- New Construction	17	$22.886	19	$25.609	15	$40.175
	- Environmental Capability	0	$0.000	1	$0.150	0	$0.000
	Grand Total	**40**	**$57.331**	**42**	**$54.868**	**33**	**$58.597**
	Total Capital Outlays		**$45.464**		**$49.097**		**$53.455**
	Total Capital Investment Recovery		**$28.282**		**$53.528**		**$58.597**

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#001 - Non-ADPE						Naval Surface Warfare Center		
	FY 2019			FY 2020			FY 2021		
Non-ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Vehicles	0	-	$0.000	0	-	$0.000	0	-	$0.000
Material Handling	0	-	$0.000	0	-	$0.000	0	-	$0.000
Installation Security	0	-	$0.000	0	-	$0.000	0	-	$0.000
Quality Control/ Testing	9	$0.905	$8.098	8	$0.693	$4.785	3	$0.857	$2.570
Medical Equipment	0	-	$0.000	0	-	$0.000	0	-	$0.000
Machinery	1	$1.400	$3.205	0	-	$0.000	1	$0.590	$0.590
Support Equipment	4	$1.395	$16.113	4	$1.335	$6.389	4	$0.637	$2.546
Total	14	$1.081	$27.416	12	$0.907	$11.174	8	$0.713	$5.706

Pre-investment economic analyses were performed for all investments.

Justification:

MACHINERY

Procurements will support initiatives such as: advanced ballistics systems, next generation training & simulation systems, new shipboard technologies, hypervelocity penetrating weapons, kinetic energy weapons, and high performance tactical computing systems. Investing in machinery provides equipment to (1) support new mission areas, emerging ship-board technologies, and new test and evaluation techniques, (2) enable technology insertion and machinery integration into acquisition programs, and (3) allow for the deployment of machinery initiatives to the fleet. These investments support the Navy's Maritime strategy for maintaining readiness and building a relevant and future force for surface ships and their systems. Failure to make these investments will limit the warfare center's ability to perform critical research, test, and evaluation and hinder transition technology to the fleet. All non-ADPE Machinery projects have an estimated useful life of 10 years and an average payback period of 1.6 years.

QUALITY CONTROL/TESTING

Investments support diagnostic analysis, fault identification, failure analysis, testing and calibration for ship components. Products typically include electronic modules, circuit cards, power supplies, displays, assemblies and sub-assemblies of shipboard machinery and components. Quality Control/Assurance and Testing investments provide the Navy reliable processes and procedures to ensure technical specifications and functional requirements meet developed product/service standards. The identification of unit failures and poor service results in corrective action designed to improve the production or service process being measured to achieve the desired mission results. Investments provide for quality control/assurance and test results that are accurate and emulate shipboard environments, which eliminates the need to schedule ship board testing and quickens the retest of ships systems. Failure to make these investments may result in economically inefficient operations, unreliable test results, or human casualties. All non-ADPE Quality Control/Testing projects have an estimated useful life of 10 years and an average payback period of 4.8 years.

PROJECTS ABOVE $1M

FY21 Integrated Humidity Control System Replacement Building 1122 - Project will replace the Integrated Dehumidification Systems (IDS) currently installed at Building 1122 that is used for mixing and casting all units in the 150-gallon vertical mixer. The current IDS unit is beyond its service life; the manufacturer of this unit has stopped supporting the IDS and will not sell any parts needed for repairs. This has caused delay in production, and even when operational, the IDS has issues with maintaining consistent moisture levels. The payback period for this investment is 13 years.

SUPPORT EQUIPMENT

Equipment supports Warfare Center core equities including ship/ship systems, ship weapon systems, ship combat systems, ordnance, and littoral combat systems and ensures that research and development achieves proper and accurate test results. Equipment supporting this mission includes explosive detection equipment, ship hull test equipment, seafloor/sub-floor sonar imaging equipment, and test and evaluation equipment for various surface ship systems. The Naval Surface Warfare Center activities are responsible for new product testing as well as system in-service engineering. Failure to make these investments may result in work that produces obsolete results to the scientific community, economically inefficient operations and possible risk to human life. All non-ADPE support equipment projects have an estimated useful life of 10 years and the average payback period is 5.25 years.

PROJECTS ABOVE $1M

FY20 Building 544 Backup Power – Project will procure an automated source of backup power to all of Building 544 in order to mitigate power interruption. Building B544 houses 7 major programs (2 ACAT I programs) worth $60M annually, developing and supporting critical command and control systems for Navy and Marine warfighters, along with a 24/7/365 Mission Support Center (MSC). The current, temporary solution for power loss requires no-notice use of an expeditionary backup generator and HVAC temporarily connected to the MSC, which complicates security and powers and cools only 1 of 4 critical labs. The payback period for this investment is 2 years.

FY20 Medium Size UUV Battery Charging Facility – Project will procure and install a Modular, Demountable facility to safely charge Lithium Ion batteries (up to medium size) for Unmanned Underwater Vehicles (UUVs), 21 in diameter, 25 feet long. The project will leverage lessons learned from the PMS 406 Knifefish, PMS 408 MK 18 Mod 2 EOD UUV, and other programs to develop requirements and receive NOSSA approval to charge shore side. The payback period for this investment is 5 years.

FY20 Secure Space in a Box – Project will procure a fully functional collateral Secret workspace used in an open storage capacity available for use as a meeting space, work station or lab station with NIPRnet and SIPRnet connectivity. The space will include air conditioning, as well be enabled with all of the security requirements for collateral secret. The payback period for this investment is ~5 years. NSWC Corona transferred operating authority to contract authority, a process locally termed a “capital surcharge”, to execute this project in accordance with Title 10 U.S. Code 2363. It executes as a part of NSWC Corona’s Naval Innovative Science and Engineering (NISE) program.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#002 - ADPE						Naval Surface Warfare Center		
	FY 2019			FY 2020			FY 2021		
ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Computer Hardware (Production)	0	-	$0.000	0	-	$0.000	1	$0.800	$0.800
Computer Hardware (Network)	1	$2.533	$2.533	2	$1.000	$2.000	3	$1.989	$5.968
Computer Software (Operating System	0	-	$0.000	0	-	$0.000	0	-	$0.000
Telecommunications	0	-	$0.000	2	$0.741	$1.482	2	$0.756	$1.512
Other Support Equipment	0	-	$0.000	1	$1.562	$1.562	0	-	$0.000
Total	1	$2.533	$2.533	5	$1.009	$5.044	6	$1.380	$8.280

Pre-investment economic analyses were performed for all investments.

Justification:

ADP Equipment Computer Hardware (Production)

These investments ensure network connectivity to all Naval Warfare Center activities and procurement of hardware for mission essential research and development computing needs and centralized system hosting including: business system replacement, technical refresh of classified clusters, intrusion detection control systems, high speed computing, and research and development. Equipment also supports maritime modeling, simulation, and testing. Such investments provide technology tools for the research and development community and continuity of operations for standard business systems throughout the Warfare Center. ADP Equipment supporting the research and development community must remain on the cutting edge of technology to conduct complex simulations, harness advanced data analytics & machine learning capabilities, perform predictive analysis, and analyze surface ship system performance. Current equipment supporting mission essential systems will no longer be supported by the manufacturer. ADPE Computer Hardware Production projects have an estimated useful life of 10 years and the average payback period is 2 years.

ADP Equipment Computer Hardware (Network)

These investments ensure network connectivity to all Naval Warfare Center activities and procurement of hardware for mission essential research and development computing needs and centralized system hosting including: RDT&E upgrades and networks, fiber infrastructure, business system replacement, and high speed computing. Investments provide technology tools for the research and development community and continuity of operations for standard business systems throughout the Warfare Center. ADP Equipment supporting the research and development community must remain on the cutting edge of technology to conduct complex simulations, harness advanced data analytics & machine learning capabilities, perform predictive analysis, and analyze surface ship system performance. Current equipment supporting mission essential systems will no longer be supported by the manufacturer. Investments will include virtualized combat systems, advanced networking test beds, and cellular signal repeater systems. ADPE Computer Hardware Network projects have an estimated useful life of 10 years and the average payback period is 6 years.

PROJECTS ABOVE $1M

FY20 Installation Fiber/Cabling – Project will procure and install 12 pairs of single-mode fiber runs and 12 pairs of CAT-6 copper runs between Building 509 (future will be ADN) and 39 buildings at Naval Surface Warfare Center Corona Division, Detachment Norco. This infrastructure supports various networks such as Navy Marine Corps Intranet, various RDT&E, VoIP, Intrusion Detection Systems (IDS) and Fire Alarm systems. The payback period for this investment is 10 years.

FY21 Hybrid Cloud Computing Infrastructure – Project converts existing, on-base RDT&E computing assets into a scalable private cloud technology, improves external connection and integration with commercial cloud providers, and increases the internal network bandwidth to handle the new networked traffic. Procurement and installation includes new fiber to buildings, additional bandwidth through the telecom provider, and local cloud computing servers/equipment. This will provide a single service environment for RDT&E users that allows them to utilize a commercial and/or private cloud solution. The payback period for this investment is 3 years.

NREN (RDT&E Network Consolidation) – FY20 & FY21 – The NREN RDT&E consolidation project has identified a number of services that can be consolidated. The NREN network is currently consolidating those services to bring additional security and visibility to the RDT&E Network. This project will add additional hardware, software, storage and monitoring capabilities required to allow for the further consolidation of the RDT&E Network. The payback period for this investment is 5 years.

Telecommunications

These investments support telecommunications equipment for the surface ship research and development community. Investments provide secure public address systems and video teleconferencing upgrades that meet operational and cybersecurity requirements. Failure to make these investments subjects communication systems to cyber terrorism, espionage, or other threats; additionally, it will jeopardize the ability to mass communicate in the event of an emergency. Telecommunication projects have an estimated useful life of 10 years and the average payback period is 2.5 years.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#004 - Minor Construction						Naval Surface Warfare Center		
	FY 2019			FY 2020			FY 2021		
Minor Construction	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Replacement	8	$0.560	$4.476	5	$2.578	$12.891	4	$1.109	$4.436
New Construction	17	$1.346	$22.886	19	$1.348	$25.609	15	$2.678	$40.175
Environmental Capability	0	-	$0.000	1	$0.150	$0.150	0	-	$0.000
Total	25	$1.094	$27.362	25	$1.546	38.650	19	$2.348	$44.611

Pre-investment economic analyses were performed for all investments.

Justification:

Minor Construction projects replace obsolete facilities, consolidate operations for productivity increases, provide state of the art processing areas for new research & development missions, and correct environmental/safety deficiencies. Minor construction projects include all costs to deliver a complete and usable project. Minor Construction is used at the Naval Warfare Centers to: (1) modify existing spaces and construct new facilities to provide suitable space to design and test new equipment for the surface warfare community; (2) improve security measures and provide increase security for new initiatives; (3) reduce operating expenses by building or improving government owned facilities so that leased space, high maintenance space, or portable space may be vacated; (4) reduce energy consumption by installing energy efficient building systems; (6) modify existing systems to bring facilities up to current building, safety, or environmental codes. Failure to make these investments may render our infrastructure and facilities unable to support modern technologies and operational capabilities, pose environmental risks, and may result in human casualties in the event of structural collapse or some other unforeseen catastrophe. Minor Construction projects such as buildings and warehouses have an estimated useful life of 40 years; minor construction projects such as towers, wharves, and docks have an estimated useful life of 20 years. The average payback period is 13 years.

Replacement:

PROJECTS ABOVE $1M

FY20 Building 38 Advanced System Integration Facility (NSWC Crane Division/Crane, Indiana) – Project is required to address inadequate High Bay space for accomplishing the growing workload in Advanced System Integration for Expeditionary Command and Control, sensor fusion, and mobility integration programs. The payback period for this investment is 7 years.

FY20 Building 38 Phase 3 (NSWC Crane Division/Crane, Indiana) – Project is required to address inadequate office space for accomplishing the growing workload in Advanced System Integration for Expeditionary Command and Control, sensor fusion, and mobility integration programs. These projects will have functions in support of the integration work that will be performed in the High Bay space of the building. The payback period for this investment is 7 years.

FY20 Earth Covered Magazine (NSWC Port Hueneme/Port Hueneme, California) – Project will replace 1 Earth Covered Magazines with a new 25'x 80' earth covered ordnance magazine. The magazines shall have entrance doors that support vehicle access for offload and on load operations. The payback period for this investment is 3.3 years

New Construction:

PROJECTS ABOVE $1M

FY20 MINCON Bangor ISE Lab Construct (NSWC Carderock Division/Bethesda, Maryland) – Project will construct a 3,650 square foot (SF) in-service engineering lab addition to accommodate lab space needs to support submarine signature maintenance, fleet technical support, and advanced signature measurement technology development for the Virginia and Columbia Class, CVN, DDG-1000, Large Diameter UUV and Digital Twin. The payback period for this investment is 14 years.

FY21 MINCON V47 Basin Breakwater Pier Construct (NSWC Carderock Division/Bethesda, Maryland) – Project will construct a 200-linear foot vertical breakwater pier with mooring services included to protect the waterfront structures and moored craft at the V-47 Waterfront Facility on Norfolk Naval Station. This will improve wave conditions for vessel mooring. The payback period for this investment is 14 years.

FY21 Building 513 Expansion (NSWC Corona Division/Norco, California) – Project will construct collaborative work environment for all comptroller, legal, and small business personnel. Expansion and renovation of Bldg. 513 will create new office and conference room space and meet outyear personnel requirements. The payback period for this investment is 40 years.

FY21 Laboratory Infrastructure Network Communications System (C-LINCS) Phase 3 (NSWC Crane Division/Crane, Indiana) – Project will support the RDT&E network by providing base fiber to connect systems across base. NSWC Crane is out of available fiber and critically low in the downtown area. The first path is adding 288 strands of fiber in a buried duct bank capable of supporting over 3000 strands of fiber from Bldg. 3168 area to Bldg. 41 area. The second path adds 288 strands of fiber in a buried duct bank capable of supporting over 3000 strands of fiber from Bldg. 41 area to Bldg. 3395 area. The payback period for this investment is 20 years.

FY21 Strategic Systems Engineering Facility (NSWC Crane Division/Crane, Indiana) – Project will provide adequate space for meeting the growing workload in Strategic Systems Engineering. Construct approximately 9600 SF single story building that meets current office standards including heating, ventilation, and air conditioner (HVAC), electrical distribution, life safety and reconfigurable office spaces. Wireless fidelity will be available throughout the facility. Building designed to Open Secret classification level incorporating necessary Intrusion Detection Systems and access control systems. Facility is approximately 4530 SF lab/PHS&T, 3400 SF office, and 1670 SF support spaces (mechanical, restrooms, mess, etc.) The payback period for this investment is 6 years.

FY20 E3 Systems Integration Facility (NSWC Dahlgren Division/Dahlgren, Virginia) – Project will construct a controlled access facility (10,000 sq. ft.) to accommodate approximately 60 personnel. This is required to support E3 Systems Interoperability efforts for US Navy ships. Recent growth in the number and complexity of topside systems (including directed energy and unmanned systems), presents new operational scenarios with ever challenging saturated electromagnetic environments (EMEs). This has resulted in increased tasking for the E3 systems Integration Branch (B54). The payback period for this investment is 4 years.

FY20 B1470 Advanced Concepts Vault Expansion (NSWC Dahlgren Division/Dahlgren, Virginia) – Building 1470 Advanced Concepts Vault second floor expansion would involve construction of approximately 76′ x 55′ second floor facility with 14 labs that would be utilized for above-SECRET level work. This facility would expand the Building 1470 Room 1302 vault complex. Expansion of the existing facility takes advantage of the existing security, IT teams and procedures. The first floor expansion from the FY2012 capital investment program project was occupied with new programs within months of completion; more space is already needed. Numerous Science and Technology (S&T) projects across Departments currently share space, and personnel from all Departments utilize rooms within the 1302 vault facility. The payback period for this investment is 2 years.

FY21 Systems Integration Facility (NSWC Dahlgren Division/Dahlgren, Virginia) – Project will construct a shared multi-bay/high bay facility to support weapon systems development and integration. Facility will be 10,000 SF and will include electrical, water, sewer, crane rails to support a 20 ton crane, gravel parking lot, and storm water management. Provides a complex for weapons systems development and integration in a central location that can be expanded. The payback period for this investment is 2 years.

FY20 Top Secret Secure Facility Upgrade (NSWC Panama City Division/Panama City, Florida) – Project will create a classified space for secure meetings and Video Teleconferencing (VTCs) up to and including the TS-SCI level. Currently, the number of such secure spaces is limited which impacts response time to customers. Establishing a TS Secure Facility will increase collaboration opportunities with other NAVSEA Warfare Center Divisions. The payback period for this investment is 2 years.

FY20 Air Cushion Vehicle Depot Facility (NSWC Panama City Division/Panama City, Florida) – Project will fund a permanent facility for 10,000 sf for LCAC, LCAC 100 and other Expeditionary Systems ISEA Depot Support. This facility will consolidate personnel and support activities, enabling increased efficiency, and reducing the need for off-base facilities and the resulting costs ($7M). The payback period for this investment is 5 years.

FY21 ATF Pier Building and Mobile Platform (NSWC Panama City Division/Panama City, Florida) – Project will construct a facility to replace a 60+ year old building that serves as the instrumentation building for the Acoustic Test Facility (ATF) Pier. The Building will house precision positioning control instrumentation. The payback period for this investment is 6 years.

FY21 UxS Design & Innovation Facility (NSWC Panama City Division/Panama City, Florida) – Project is conversion/upgrade of existing space in building 147 to a collaborative space for UxV Systems Design and Innovation Center. The Center will include secure and unsecure office area, secure computer lab, and collaboration area for pre-mission briefs/hot-washes. This project will be completed in conjunction with renovations required due to Hurricane Michael (HM) impacts. The payback period for this investment is 5 years.

FY21 UxS Rapid Prototyping and Integration Center (NSWC Panama City Division/Panama City, Florida) – Project will construct an unmanned systems (UxS) rapid prototyping and integration facility in conjunction with repairs required due to Hurricane Michael. Facility will include a large lab for developing and integrating payloads with multi-domain unmanned systems. The payback period for this investment is 7 years.

FY20 Warfare Center Collaboration Facility (NSWC Port Hueneme/Port Hueneme, California) – This project converts a vacant warehouse facility into a waterfront operations support facility housing personnel from multiple Warfare Center Divisions, supporting multiple ship classes (DDG, LCS, Zumwalt) and combat system programs with pier-side engineering expertise for Aegis Modernization, Littoral Combat Ship T&E, Mission Package Support and Gun systems support. The payback period for this project is 2.6 years.

FY21 Advanced System Lab #1 (NSWC Port Hueneme/Port Hueneme, California) – Project will completely renovate functionally obsolete building PH1215 to provide space for an Advanced Systems Division for the technical departments. The new lab would support next generation life-cycle studies and analysis, Advanced Test & Evaluation Modeling and Simulation. The payback period for this project is 17 years.

CAPITAL BUDGET EXECUTION
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(DOLLARS IN MILLIONS)

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2019	**1**	**Non ADP**		**$22.223**	**$27.416**	**$5.193**	
			Vehicles	$0.000	$0.000	$0.000	
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$7.773	$8.098	$0.325	Program restructure
			Machinery	$1.600	$3.205	$1.605	Program restructure
			Support Equipment	$12.850	$16.113	$3.263	Program restructure
	2	**ADP**		**$3.559**	**$2.553**	**($1.006)**	
			Computer Hardware (Production)	$0.000	$0.000	$0.000	
			Computer Hardware (Network)	$1.630	$2.553	$0.923	Program restructure
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$1.929	$0.000	($1.929)	Program restructure
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.600**	**$0.000**	**($0.600)**	
			Internally Developed	$0.600	$0.000	($0.600)	Program restructure
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$30.968**	**$27.362**	**($3.606)**	
			Replacement	$6.189	$4.476	($1.713)	Program restructure
			New Construction	$24.779	$22.886	($1.893)	Program restructure
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2019 CIP Program				**$57.350**	**$57.331**	**($0.019)**	
FY	**L.I.**	**Category**	**Capability/Project**	**I.R**	**C.P.R**	**A.C.**	**Explanation**
2020	**1**	**Non ADP**		**$9.127**	**$11.174**	**$2.047**	
			Vehicles	$0.000	$0.000	$0.000	
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$5.820	$4.785	($1.035)	Program restructure
			Machinery	$1.683	$0.000	($1.683)	Program restructure
			Support Equipment	$1.624	$6.389	$4.765	Program restructure and CIP Surcharge in support of NISE program execution
	2	**ADP**		**$5.036**	**$5.044**	**$0.008**	
			Computer Hardware (Production)	$1.851	$0.000	($1.851)	Program restructure
			Computer Hardware (Network)	$2.000	$2.000	$0.000	
			Computer Software (Operating)	$0.585	$0.000	($0.585)	Program restructure
			Telecommunications	$0.600	$1.482	$0.882	Program restructure
			Other Support Equipment	$0.000	$1.562	$1.562	Program restructure
	3	**Software**		**$1.200**	**$0.000**	**($1.200)**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$1.200	$0.000	($1.200)	Program restructure
	4	**Minor Construction**		**$38.165**	**$38.650**	**$0.485**	
			Replacement	$10.517	$12.891	$2.374	Program restructure
			New Construction	$27.648	$25.609	($2.039)	Program restructure
			Environmental Capability	$0.000	$0.150	$0.150	Program restructure
TOTAL FY 2020 CIP Program				**$53.528**	**$54.868**	**$1.340**	
FY	**L.I.**	**Category**	**Capability/Project**	**I.R**	**C.P.R**	**A.C.**	**Explanation**
2021	**1**	**Non ADP**		**$5.706**	**$5.706**	**$0.000**	
			Vehicles	$0.000	$0.000	$0.000	
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$2.570	$2.570	$0.000	
			Machinery	$0.590	$0.590	$0.000	
			Support Equipment	$2.546	$2.546	$0.000	
	2	**ADP**		**$8.280**	**$8.280**	**$0.000**	
			Computer Hardware (Production)	$0.800	$0.800	$0.000	
			Computer Hardware (Network)	$5.968	$5.968	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$1.512	$1.512	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$44.611**	**$44.611**	**$0.000**	
			Replacement	$4.436	$4.436	$0.000	
			New Construction	$40.175	$40.175	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2021 CIP Program				**$58.597**	**$58.597**	**$0.000**	

CARRYOVER RECONCILIATION
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL SURFACE WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
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(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
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Part 1			
1. Net Carry-In	2,123.4	2,061.8	2,061.8
2. Revenue	4,774.4	4,881.6	5,279.3
3. New Orders	4,712.8	4,881.6	5,279.3
4. Exclusions:			
Foreign Military Sales	199.4	203.1	217.5
Base Realignment and Closure	0	0	0
Other Federal Department and Agencies	55.7	61.5	66.3
Non-Federal and Others	13.6	12.8	13.7
Institutional Major Range & Test Facility Base	0	0	0
OUSD(C) Approved Carryover Waiver	0	0	0
5. Orders for Carryover Calculation	4,444.1	4,604.2	4,981.8
6. Weighted Average Outlay Rate	55.6%	56.2%	56.1%
7. Carryover Rate	44.4%	43.8%	43.9%
8. Allowable Carryover	2245.8	2292.0	2482.7
Allowable Carryover(First Year)	1973.2	2016.6	2187.0
Allowable Carryover (Second Year Procurement-funded Orders)	272.6	275.4	295.7
Part II			
9. Balance of Customer Order at Year End	2,061.8	2,061.8	2,061.8
10. Work-in-progress	0	0	0
11. Exclusions:			
Foreign Military Sales	261.4	265.9	278.1
Base Realignment and Closure	0.1	0.1	0.2
Other Federal Department and Agencies	55.7	57.7	60.8
Non-Federal and Others	30.5	29.6	29.5
Institutional Major Range & Test Facility Base	0	0	0
OUSD(C) Approved Carryover Waiver	0	0	0
12. Calculated Actuals Carryover	1,709.6	1,703.9	1,688.6

Some totals may not add due to rounding.
EXWC,NSWC,NUWC,NAWCDIV,SPAWAR,NRL use RDTEN rates.

5. Naval Undersea Warfare Center

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Mission Statement / Overview:
The mission of the Naval Undersea Warfare Center (NUWC) is to operate the Navy's full spectrum Research, Development, Test and Evaluation (RDT&E), engineering and fleet support center for submarines, autonomous underwater systems and offensive and defensive weapon systems associated with Undersea Warfare (USW).

Activity Group Composition:
NUWC was established in January 1992, and is headquartered in Newport, RI. It is composed of two divisions, located in Newport, RI and Keyport, WA, each possessing several detachments.

NEWPORT DIVISION: Provides RDT&E; engineering; analysis and assessment; and fleet support capabilities for submarines, autonomous underwater systems, and offensive and defensive undersea weapon systems, and stewards existing and emerging technologies in support of undersea warfare. The primary operating site is in Newport, RI with supporting operations at West Palm Beach, FL, Andros Island Bahamas and Norfolk, VA.

KEYPORT DIVISION: Provides test and evaluation; in-service engineering, maintenance, and repair; Fleet readiness, and industrial-base support for undersea warfare systems, countermeasures, and sonar systems. The primary operating site is in Keyport WA, with detachments in Hawthorne, NV; San Diego, CA; Pearl Harbor/Ford Island, HI; Nanoose, British Columbia; and Mechanicsburg, PA.

Significant Changes since the FY 2020 President's Budget:
The FY 2021 budget estimate includes increases in the civilian workforce to match projected workload. These increases are due primarily to USW Combat Systems, Submarine Periscopes and USW Imaging Systems, USW Electronic Warfare, Signals Intelligence (SIGINT), Integrated optical (IO) Sensors and Systems Integration, USW Autonomous Vehicles, Torpedo and Sonar Defensive and Countermeasure Systems, Torpedoes and Undersea Weapons, Integrated product Support for Surface and Undersea Systems and Naval Sea Systems Command (NAVSEA) Operating, Materials and Supplies (OM&S) Management technical capabilities.

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Financial Profile:

Orders/Revenue/Expense/Operating Results ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Orders	$1,253.7	$1,290.2	$1,409.7
Revenue	$1,265.0	$1,284.1	$1,392.8
Expense	$1,248.8	$1,340.7	$1,358.0
Operating Results	$16.2	($56.6)	$34.8
Capital Surcharge and Other	($0.3)	($5.0)	$0.0
Net Operating Results (NOR)	$15.9	($61.6)	$34.8
Prior Year AOR	$30.9	$46.8	($34.8)
Other Changes Affecting AOR	$0.0	($20.0)	$0.0
Accumulated Operating Results (AOR)	$46.8	($34.8)	$0.0

Some totals may not add due to rounding.

Orders, Revenue and Expenses: Changes in orders from FY 2019 to FY 2021 are based on updated order estimates as coordinated with customers. Changes to revenue and expenses are a result of inflation and labor pricing. The FY21 rate is set to achieve zero AOR in FY 2021. The Capital Surcharge in FY 2020 reflects the transfer of operating authority to contract authority to execute this projects in accordance with Title 10 U.S. Code 2363. Execution is a part of NUWC's Naval Innovative Science and Engineering (NISE) program to invest in Laboratory Revitalization Projects (LRP).

Collections/Disbursements/Outlays ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Disbursements	$1,235.8	$1,334.4	$1,347.8
Collections	$1,272.1	$1,283.8	$1,393.0
Outlays	($36.2)	$50.6	($45.2)

Some totals may not add due to rounding.

Budgeted collections and disbursements are based on revenue, cost, Capital Investment Program (CIP) outlay estimates, anticipated changes in accounts payable/accrued labor expenses and accounts receivable.

Workload:

Direct Labor Hours (000):	**FY 2019**	**FY 2020**	**FY 2021**
Current Estimate	7,391	7,730	7,794

NUWC continues to size its workforce in order to support customers' workload demand.

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Performance Indicators: The NUWCs produces scientific and engineering designs, developments, test, evaluations, and analyses and supports the fleet in assigned mission areas. The measure for these outputs is the direct labor hour worked for a customer. Customers are charged a predetermined stabilized billing rate per direct employee hour worked (revenue rate). The rate includes the salary and benefits costs of the performing employee (direct labor costs) and a share of the overhead costs of the NUWC, both general and administrative support and the unique production overhead costs of the employee's cost center. Non-labor, non-overhead costs, such as customer required material and equipment purchases, travel expenses, and contractual services, are charged to the customer on an actual cost reimbursable basis, and are excluded from NUWC's stabilized pricing structure. The NUWC uses total stabilized cost per direct labor hour as their performance criterion.

Unit Cost:	**FY 2019**	**FY 2020**	**FY 2021**
Total Stabilized Cost ($Millions)	$738.6	$826.3	$840.4
Workload (DLHs) (000)	7,052	7,377	7,442
Unit cost (per DLH)	$104.73	$112.00	$112.93

Unit Cost is the method established to monitor costs. Unit cost goals allow activities to respond to workload changes by encouraging reduced costs when workload declines and allowing appropriate increases in costs when customers request additional services

Stabilized / Composite Rates:	**FY 2019**	**FY 2020**	**FY 2021**
Stabilized Rate	$106.27	$104.31	$118.74
Change from Prior Year		-1.84%	13.83%
Composite Rate Change		-0.14%	9.23%

The Stabilized Rate consists of direct labor and applied overhead. Unique direct non-labor costs are billed on a reimbursable basis to the customer. The composite rate change incorporates both the stabilized costs and the reimbursable costs. The composite rate change in FY 2021 reflects adjustments to direct workload and pricing changes.

Staffing:

Civilian/Military ES & Workyears:	**FY 2019**	**FY 2020**	**FY 2021**
Civilian End Strength	5,874	5,970	5,994
Civilian Workyears (straight time)	5,594	5,756	5,830
Military End Strength	34	44	44
Military Workyears	21	32	32

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Civilian Personnel: The civilian resource estimates are a baseline projection of civilian resources necessary to fulfill programming objectives coordination with customers. Civilian resource estimates have been adjusted to reflect a balanced program of civilian resources to funded workload.

Military Personnel: The Military resource estimates are a baseline projection of military personnel necessary to fulfill programming objectives and coordination with customers. Military resource estimates have been adjusted to reflect a balanced program of military resources to funded workload.

Capital Investment Program (CIP): The Capital Investment Program allows the NWCF to achieve its mission by reinvesting in plant equipment and facilities. Included in the capital budget are the following types of assets: automated data processing equipment (ADPE); non-ADPE equipment; automated data processing software, internally or externally developed; and minor construction. Minor construction includes projects meeting the criteria of the Defense Laboratory Revitalization Program. The projects will replace aging temporary buildings and upgrade and expand lab capability to accommodate workload growth and increase efficiency.

CIP Authority ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Equipment, Non-ADP / Telecom	$1.9	$4.0	$7.6
Equipment, ADPE / Telecom	$6.4	$5.0	$5.6
Software Development	$1.8	$1.6	$0.0
Minor Construction	$16.6	$15.8	$7.9
Total	$26.7	$26.4	$21.1

Some totals may not add due to rounding.

Carryover Compliance:	**FY 2019**	**FY 2020**	**FY 2021**
Net Carry-In	$677.0	$665.7	$671.8
Allowable Carryover	$562.7	$566.2	$622.9
Calculated Actual Carryover	$408.1	$413.8	$442.4
Delta (Actual-Allowable): Above Ceiling (+)/Below Ceiling (-)	($154.7)	($152.4)	($180.5)

Some totals may not add due to rounding.

Carryover for each budgeted year is within the allowable carryover limit.

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL UNDERSEA WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
Revenue:			
Gross Sales			
Operations	1,252.3	1,257.6	1,371.3
Capital Surcharges	0.0	5.0	0.0
Capital Investment Recovery	12.8	21.5	21.5
Other Income			
Total Income	1,265.0	1,284.1	1,392.8
Expenses			
Cost of Materiel Sold from Inventory			
Salaries and Wages:			
Military Personnel Compensation & Benefits	2.4	3.0	3.1
Civilian Personnel Compensation & Benefits	774.3	849.2	873.9
Travel and Transportation of Personnel	37.2	31.7	32.2
Material & Supplies (Internal Operations)	84.3	66.5	67.3
Equipment	4.0	4.0	4.0
Other Purchases from NWCF	84.8	84.8	85.8
Transportation of Things	6.2	2.1	2.2
Capital Investment Recovery	12.8	21.5	21.5
Printing and Reproduction	1.6	1.1	1.2
Advisory and Assistance Services	0.0	0.0	0.0
Rent, Communication, Utilities & Misc Charges	22.6	22.7	23.3
Other Purchased Services	219.0	254.0	243.6
Total Expenses	1,249.1	1,340.7	1,358.0
Work in Process Adjustment	0.0	0.0	0.0
Comp Work for Activity Retention Adjustment	-0.3	0.0	0.0
Cost of Goods Sold	1,248.8	1,340.7	1,358.0
Operating Result	16.2	-56.6	34.8
Adjustments Affecting NOR	-0.3	-5.0	0.0
Capital Surcharges	0.0	-5.0	0.0
Extraordinary Expenses Unmatched	0.0	0.0	0.0
Other Changes Affecting NOR (All Others)	-0.3	0.0	0.0
Net Operating Result	15.9	-61.6	34.8
PY AOR	30.9	46.8	-34.8
TOTAL AOR	46.8	-14.8	0.0
Non-Recoverable Adjustments impacting AOR	0.0	-20.0	0.0
AOR for budget purposes	46.8	-34.8	0.0

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL UNDERSEA WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
1. New Orders	1,253.7	1,290.2	1,409.7
a. Orders from DoD Components:	1,056.3	1,077.6	1,187.2
Department of the Navy	1,000.1	1,029.0	1,134.2
O & M, Navy	303.0	301.8	341.9
O & M, Marine Corps	2.2	1.4	1.4
O & M, Navy Reserve	0.6	0.7	0.8
O & M, Marine Corp Reserve	0.0	0.0	0.0
Aircraft Procurement, Navy	3.1	12.2	12.2
Weapons Procurement, Navy	70.6	79.0	87.2
Ammunition Procurement, Navy/MC	0.0	0.0	0.0
Shipbuilding & Conversion, Navy	95.0	94.8	104.7
National Sea Base Deterrence Fund	0.1	0.1	0.1
Other Procurement, Navy	175.4	178.8	198.8
Procurement, Marine Corps	0.6	1.5	1.5
Family Housing, Navy/MC	0.0	0.0	0.0
Research, Dev., Test, & Eval., Navy	349.4	358.1	385.0
Military Construction, Navy	0.0	0.0	0.0
National Defense Sealift Fund	0.0	0.5	0.5
Foreign Cooperative Projects, Navy	0.0	0.0	0.0
Other Navy Appropriations	0.0	0.1	0.1
Other Marine Corps Appropriations	0.0	0.0	0.0
Department of the Army	4.1	5.1	6.8
Army Operation & Maintenance	0.0	0.9	0.9
Army Res, Dev, Test, Eval	1.8	2.0	2.1
Army Procurement	2.2	2.2	3.7
Army Other	0.0	0.0	0.0
Department of the Air Force	2.6	2.9	3.0
Air Force Operation & Maintenance	0.0	1.4	1.4
Air Force Res, Dev, Test, Eval	2.1	0.9	0.9
Air Force Procurement	0.0	0.6	0.7
Air Force Other	0.6	0.0	0.0
DOD Appropriation Accounts	49.5	40.6	43.3
Base Closure & Realignment	0.0	0.0	0.0
Operation & Maintenance Accounts	5.3	3.4	3.5
Res, Dev, Test & Eval Accounts	41.8	33.5	35.8
Procurement Accounts	1.5	3.3	3.8
Defense Emergency Relief Fund	0.0	0.0	0.0
DOD Other	0.9	0.3	0.3
b. Orders from other Fund Activity Groups	92.3	89.4	94.0
c. Total DoD	1,148.6	1,167.0	1,281.2
d. Other Orders:	105.1	123.2	128.6
Other Federal Agencies	6.1	5.8	5.9
Foreign Military Sales	60.9	80.1	85.9
Non Federal Agencies	38.0	37.4	36.8
2. Carry-In Orders	677.0	665.7	671.8
3. Total Gross Orders	1,930.7	1,955.9	2,081.6
a. Funded Carry-Over before Exclusions	665.7	671.8	688.8
4. Revenue(-)	1,265.0	1,284.1	1,392.8
5. End of Year Work-In-Process (-)	0.0	0.0	0.0
6. FMS, BRAC, Other Federal, Non-Federal orders, and Inst. MRTFB (-)	257.6	258.0	246.4
7. Funded Carryover	408.1	413.8	442.4

Note: Line 5 (End of Year Work-In-Process) is adjusted for Non-DOD BRAC, FMS, and Institutional MRTFB

Exhibit Fund-11 Sources of New Orders Revenue

CHANGES IN THE COSTS OF OPERATIONS
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL UNDERSEA WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	Costs
FY 2019 Estimated Actuals	**1,248.8**
FY 2020 President's Budget:	**1,272.5**
Estimated Impact in FY 2020 of Actual FY 2019 Experience:	**-23.4**
Pricing Adjustments:	**18.7**
Civilian Personnel	9.8
Fuel Price	0.1
Non-Pay Inflation	8.8
Program Changes:	
Various USW Submarine, Sonar, Imaging and Weapons Systems	**65.7**
Other Changes:	**7.2**
Capital Investment Recovery	0.0
Facilities Sustainment, Restoration & Modernization	6.6
Rebaseline NISE Funding to 2% of Reimbursable Orders	0.6
FY 2020 Current Estimate:	**1,340.7**
Pricing Adjustments:	**14.9**
Annualization of Prior Year Pay Raises	**3.9**
Civilian Personnel	3.8
Military Personnel	0.0
FY 2021 Pay Raise	**0.0**
Civilian Personnel	0.0
Military Personnel	0.0
Fuel Price Changes	-0.2
General Purchase Inflation	**9.7**
Other Price Changes (list)	**1.5**
Working Capital Fund Price Changes	1.5
Productivity Initiatives and Other Efficiencies:	**-3.7**
Program Changes:	**11.3**
USW Weapons Systems	5.3
Unmanned Systems	3.5
Imaging Program	2.6
Other Changes:	**-5.2**
Capital Investment Recovery	0.0
NAVFAC Realignment	-4.9
Facilities Sustainment, Restoration & Modernization	1.6
Change in work days	-2.2
Rebaseline NISE Funding to 2% of Reimbursable Orders	0.3
FY 2021 Estimate:	**1,358.0**

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CAPITAL INVESTMENT SUMMARY
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL UNDERSEA WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

		FY 2019		FY 2020		FY 2021	
Line #	**Description**	**Quantity**	**Total Cost**	**Quantity**	**Total Cost**	**Quantity**	**Total Cost**
1	**Non-ADPE and Telecom Equipment >= $.500M**	**2**	**$1.893**	**4**	**$4.025**	**8**	**$7.625**
	- Vehicles	0	$0.000	0	$0.000	0	$0.000
	- Material Handling	0	$0.000	0	$0.000	0	$0.000
	- Installation Security	0	$0.000	0	$0.000	0	$0.000
	- Quality Control/Testing	1	$0.989	0	$0.000	3	$2.775
	- Medical Equipment	0	$0.000	0	$0.000	0	$0.000
	- Machinery	0	$0.000	1	$0.525	2	$1.750
	- Support Equipment	1	$0.904	3	$3.500	3	$3.100
2	**ADPE and Telecom Equipment >= $.500M**	**4**	**$6.363**	**4**	**$5.015**	**8**	**$5.550**
	- Computer Hardware (Production)	2	$1.606	1	$0.774	2	$1.400
	- Computer Hardware (Network)	0	$0.000	2	$3.641	3	$1.575
	- Computer Software (Operating)	0	$0.000	0	$0.000	1	$1.300
	- Telecommunications	0	$0.000	0	$0.000	0	$0.000
	- Other Support Equipment	2	$4.757	1	$0.600	2	$1.275
3	**Software Development >= $.500M**	**3**	**$1.846**	**2**	**$1.556**	**0**	**$0.000**
	- Internally Developed	2	$1.059	1	$0.510	0	$0.000
	- Externally Developed	1	$0.787	1	$1.046	0	$0.000
4	**Minor Construction (>= $.500M and <= $2.000M)**	**8**	**$16.599**	**14**	**$15.819**	**7**	**$7.875**
	- Replacement Capability	1	$4.347	2	$2.750	0	$0.000
	- New Construction	7	$12.252	12	$13.069	7	$7.875
	- Environmental Capability	0	$0.000	0	$0.000	0	$0.000
	Grand Total	**17**	**$26.701**	**24**	**$26.415**	**23**	**$21.050**
	Total Capital Outlays		**$8.820**		**$18.345**		**$18.022**
	Total Capital Investment Recovery		**$12.757**		**$21.501**		**$21.489**

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#001 - Non-ADPE						Naval Undersea Warfare Center		
	FY 2019			FY 2020			FY 2021		
Non-ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Vehicles	0	-	$0	0	-	$0	0	-	$0
Material Handling	0	-	$0	0	-	$0	0	-	$0
Installation Security	0	-	$0	0	-	$0	0	-	$0
Quality Control/ Testing	1	989	$989	0	-	$0	3	925	$2,775
Medical Equipment	0	-	$0	0	-	$0	0	-	$0
Machinery	0	-	$0	1	525	$525	2	875	$1,750
Support Equipment	1	904	$904	3	1,167	$3,500	3	1,033	$3,100
Total	2	947	$1,893	4	1,006	$4,025	8	953	$7,625

Justification:

These Non-ADP investments fund the acquisition of mission essential equipment that support research and development, test and evaluation of current and newly developed submarine and undersea systems. Investments include the replacement of equipment that is unsafe, beyond economical repair; technically obsolete; or otherwise unusable, as well as, support equipment for new capabilities. These investments support submarine and undersea warfare systems including advanced sonar and combat systems, autonomous vehicles, weapons system, sensors and payload integration, advanced launcher systems, communications/imaging systems, rangecraft, material depot, and range systems.

The Naval Undersea Warfare Center is the Navy's source for undersea systems expertise and technology providing the Navy with innovative, effective and affordable systems and services. If this equipment is not acquired, the Warfare Center will be unable to support and test critical undersea warfare components and provide the Navy with affordable, innovative capabilities to meet future fleet needs. The Warfare Center can expect to incur loss of personnel productivity, decreased customer satisfaction, rapidly escalating maintenance costs, reduced services to the technical community, and technical obsolescence. Not being able to test and evaluate systems early in the development phase will increase the cost to the Navy by increasing development time and at-sea testing. Consequently, the Warfare Center will be unable to protect the fleet and make the necessary contributions to prepare for the future. An economic analysis was performed on all projects equal to or greater than $1M. A cost comparison analysis was performed on all individual projects less than $1M. All non-ADPE projects have an estimated useful life of 10 years.

Additive Manufacturing System - FY20 $1,200K – This project will procure and install an additive manufacturing system (3D printer) which would widen the scope of designs that can be produced at the Division and would improve the Division's additive manufacturing capability. The payback period of this investment is 6.5 years for FY20.

Keyport/Bangor Dock Float System Upgrade - FY20 $1,350K – Mooring vessels to the existing degraded float system at the Keyport/Bangor (KB) Dock is a safety and operations concern for both vessels and personnel as the system degrades. This project will integrate the required upgrades to bring the dock into safety compliance including a ship-side utilities management system, attachments to pier piles, added cleats/bumpers, and restoring the integrity of the float. The payback period of this investment is 2.9 years in FY20.

Titanium Additive Manufacturing System – FY21 $1,310K – This project will procure and install an additive manufacturing system (3D printer) capable of producing metal parts which would widen the scope of designs that can be produced at the Division and would improve the Division's additive manufacturing capability. The payback period of this investment is 7 years for FY21.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#002 - ADPE						Naval Undersea Warfare Center		
	FY 2019			FY 2020			FY 2021		
ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Computer Hardware (Production)	2	803	$1,606	1	774	$774	2	700	$1,400
Computer Hardware (Network)	0	-	$0	2	1,821	$3,641	3	525	$1,575
Computer Software (Operating System	0	-	$0	0	-	$0	1	1,300	$1,300
Telecommunications	0	-	$0	0	-	$0	0	-	$0
Other Support Equipment	2	2,379	$4,757	1	600	$600	2	638	$1,275
Total	4	1,591	$6,363	4	1,254	$5,015	8	694	$5,550

Justification:

These investments will support the acquisition of automated data processing and telecommunications equipment for the undersea research and development. Funds will provide network/connectivity upgrades and procurement of hardware for mission essential research, development, test and evaluation and high speed computing needs.

In order to provide the necessary scientific computer resources at the Naval Undersea Warfare Center, adequate resources must be acquired to meet the research, development, test and evaluation needs. These computational engines, visualization engines and repositories of Department of Defense (DoD) high performance computer systems are required for engineers and scientists to develop innovative undersea warfare solutions. Replacement of obsolete computer equipment will provide the Warfare Center with more reliable and more cost effective resources, which will ensure that the technical areas have the capabilities they need to meet requirements. Increased reliability will reduce maintenance costs, increase overall efficiency, and enhance compatibility throughout the Warfare Center. Investment in equipment will also provide enhanced test and evaluation capabilities which will help the Warfare Center implement technologies and reach back capability that enables forward deployed technical resources to be more efficient and effective.

ADP Equipment supporting the research and development community must remain on the cutting edge of technology to conduct complex simulations, perform predictive analysis, and analyze undersea system performance. The capability to conduct cutting edge scientific computing within the research and development (R&D) community is in jeopardy if investments are not made. Current equipment supporting mission essential systems will no longer be supported by the manufacturer. Investment in network infrastructure to support research, development, test and evaluation (RDT&E) laboratories at the Warfare Center is required in order to support Fleet customers. Without a network infrastructure in place, the RDT&E laboratories will not be able to function, support their customers or allow the Warfare Center to pursue its mission. If these investments are not made the Navy will be limited in their capability for the shore-based development, integration and testing of new submarine sonar, combat and weapon systems.

An economic analysis was performed on all projects equal to or greater than $1M. A cost comparison analysis was performed on all individual projects less than $1M. ADPE Projects have an average useful life of 5 years.

Giant Voice SS2000 Federal Commander – FY19 $3,968K - This project will procure and install the SS2000 Federal Commander public address system (a.k.a "The Giant Voice") at Division Newport which will be capable of broadcasting clear, concise instructions throughout the Division campus. This control system will be used to disseminate critical disaster information in support of OPNAV Instruction 3400.12. The payback period of this investment is 3.8 years for FY19.

Storage Area Network Upgrade – FY20 $2,651K – This project will procure and integrate a Storage Area Network (SAN) solution that will provide departments across the Division with the required storage for data backup and sharing in both the classified and unclassified environments. This SAN would increase the cybersecurity posture and management of network shared data at the Division and relieve individual departments from those obligations. Current hardware will reach End of Support (EOS) in 2022. The payback period of this investment is 2.3 years for FY20.

Digital Business Transformation – FY21 $1,300K – This project will procure the virtual appliances (hardware) and software to modernize the way business processes are currently executed in the digital domain at Division Newport. When complete the Division will be compatible and available for transition to future state, hybrid and government commercial cloud environments. The payback period of this investment is 2 years in FY21.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#003 - Software Development						Naval Undersea Warfare Center		
	FY 2019			FY 2020			FY 2021		
Software	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Internally Developed	2	530	$1,059	1	510	$510	0	-	$0
Externally Developed	1	787	$787	1	1,046	$1,046	0	-	$0
Total	3	615	$1,846	2	778	$1,556	0	-	$0

Justification:

These investments will support the acquisition or development of software for the more effective and efficient operation of navy owned facilities/models.

These investments will directly support the transformation of the Warfare Centers to become a more agile support organization. These investments will improve the Navy's modeling and simulation capabilities and test and evaluation capabilities for submarine networks and systems. These modeling and simulation capabilities also enable the Warfare Centers to be more proactive in developing life-cycle solutions by providing the capability to model end-to-end mission/platform level naval engagements.
Without these investments, the warfare center will be unable to continue development, test and integration of submarine systems in a common, integrated fashion. Undersea warfare models need to be reviewed in light of modern computing architectures and futuristic anti-submarine warfare (ASW) concepts such as distributed netted systems (DNS) and improved, redesigned, or replaced as appropriate so that NUWC's mission-level undersea warfare (USW) modeling and analysis capability can be sustained for the next generation of analysis problems. Without these investments, the undersea simulation environment will not be fully equipped for high-level architecture (HLA) operation to support high fidelity Hardware in the Loop (HWIL) Synthetic Ocean for joint warfighting training operations. Furthermore, the simulation environment will not have the flexibility to tailor training scenarios to any realistic scenario future operational commanders need to intensively prepare for and strategic/tactical analysis. Without investments, programs will continue to invest in unique software solutions leading to higher costs and time to develop and integrate submarine systems into the Fleet.

An economic analysis was performed on all projects equal to or greater than $1M. A cost comparison analysis was performed on all individual projects less than $1M. The useful life for these projects is 5 years.

Business System Application Modernization for Cloud Migration, Phase II – FY20 $1,046K - This project will provide funding for the requisition, delivery and integration of the software required modernize several internal Division Newport applications for hosting on the cloud. Once complete this will put Division Newport in compliance with Department of the Navy Information Technology policies N2N6/2U15463 and N2N6BC/6U120266, which is required by the end of 2020. This project is endorsed by NAVSEA CIO. The payback period of this investment is 2.4 years for FY20.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#004 - Minor Construction						Naval Undersea Warfare Center		
	FY 2019			FY 2020			FY 2021		
Minor Construction	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Replacement	1	4,347	$4,347	2	1,375	$2,750	0	-	$0
New Construction	7	1,750	$12,252	12	1,089	$13,069	7	1,125	$7,875
Environmental Capability	0	-	$0	0	-	$0	0	-	$0
Total	8	2,075	$16,599	14	1,130	$15,819	7	1,125	$7,875

Justification:

Investments in Minor Construction enhance the Naval Warfare Center Mission by developing buildings, structures or other real property. Minor Construction projects will replace obsolete facilities, consolidate operations for productivity increases, provide state of the art processing areas for new research and development (R&D) missions, and correct environmental deficiencies. Minor construction projects include all costs to deliver a complete and usable project. Minor Construction projects meet the department of defense (DOD) capitalization criteria.

Minor Construction is used at the Naval Warfare Centers to:

- modify existing spaces and construct new facilities to provide suitable space to design and test new equipment for the surface warfare community.
- improve security measures and provide increase security for new initiatives
- reduce operating expenses by building or improving government owned facilities so that leased space, high maintenance space, or portable space may be vacated.
- reduce energy consumption by installing energy efficient building systems
- modify existing systems to bring facilities up to current building, safety, or environmental codes.

An economic analysis was performed on all projects equal to or greater than $1M. A cost comparison analysis was performed on all individual projects less than $1M. Projects have an average useful life of 20 years.

Building 1371 Addition – FY19 - $5,200K - Planned Lab Revitalization Project fund an addition to building 1371 at NUWC Newport in Newport RI that will provide the enhanced classified facilities needed to support submarine and undersea warfare (USW) customers. Reduction in overhead will be offset by increased CIP authority. The payback period of this investment is 17.2 years for FY19.

Building 1264 Towed Array Storage Facility – FY19 - $1,350K - This project will construct a 4700 square foot storage facility at NUWC Newport in Newport, RI to accommodate the storage of oil-filled towed array modules. The National Fire Protection Association currently limits the storage volume of combustible liquids and this construction of this facility will remediate a safety deficiency. The payback period of this investment is 9.9 years for FY19.

Building 1176 Land Based Test/Training Facility for Towed Array Handling System– FY19 $2,240K - This project will provide the land based test and training facility for the Thin Line Towed Array Handing System at NUWC Newport in Newport RI. This facility is necessary to conduct on-site evaluations of the handling system as well as intermediate and operational level training. The payback period of this investment is 9.3 years for FY19.

Building Restoration - North End Bldg 1 – FY19 - $4,348K - The facility is currently vacant due to it being unsafe and inoperative. This project will renovate and convert the north end of Bldg 1 at NUWC Keyport in Keyport WA to usable office space and will accommodate consolidation of the Weapon System Engineering Division and allow growth to the Obsolescence Management & In-Service Engineering Division. Facilities has assessed growth requirements and determined recapitalization of this building to be the most cost-effective option to support expanded functions. The payback period of this investment is 17.5 years for FY19.

Building 1320 Addition – FY20 $6,812K – Planned Lab Revitalization Project fund construction of an approximate 8400 square foot addition to building 1320 at NUWC Newport in Newport RI to support critical submarine/surface ship SONAR projects needed to support undersea warfare (USW) customers. The payback period of this investment is 9.5 years for FY20. NUWC transferred operating authority to contract authority, a process locally termed a "capital surcharge", to execute this project in accordance with Title 10 U.S. Code 2363. It executes as a part of NUWC's Naval Innovative Science and Engineering (NISE) program.

Future Submarine Radio Room Laboratory – FY20 $1,319 – Project will construct a laboratory space within building 1319 at NUWC Newport in Newport, RI to house a future submarine radio room required to support the shipboard arrangements required to perform form/fit/functional testing for future submarine radio room spaces. The payback period of this investment is 9.5 years for FY20.

Building 1 South End Restoration – FY20 $1,600K – The facility is currently vacant due to it being unsafe and inoperative. This project will renovate and convert the South end of Bldg 1 at NUWC Keyport in Keyport, WA to usable office space and will accommodate consolidation of the Weapon System Engineering Division and allow growth to the Obsolescence Management & In-Service Engineering Division. Facilities has assessed growth requirements and determined recapitalization of this building to be the most cost-effective option to support expanded functions. The payback period of this investment is 18 years for FY20.

Refurbish Zelatchet Point Pier – FY20 $1,150K – The current pier and boat ramp at NUWC Keyport in Keyport WA are not able to support test and evaluation (T&E) events that require Dabob Bay Range capability. Project will improve capability to launch, retrieve, and service unmanned undersea vehicles (UUV) and large diameter UUVs (LDUUVs); allow for timely transfer of personnel in case of traumatic injuries; provide ability to load equipment to/from range craft, resulting in extending time for on-water range testing. The payback period of this investment is 9.9 years for FY20.

Submarine Undersea Warfare Communications Facility Upgrade – FY21 $2,400K - Project will construct a 4,000 square foot addition onto Building 1318 at NUWC Newport in Newport RI which will provide a classified production space for research, development, test and evaluation (RDT&E), new manufacturing, maintenance, support, upgrades, grooms, Pre-Installation & Test Check Out (PITCO) and Factory Acceptance Testing (FAT) for the entire suite of submarine communications antenna systems. The payback period of this investment is 14.3 years for FY21.

Intermediate Maintenance Activity (IMA) Expansion for Stored Chemical Energy Propulsion System (SCEPS) – FY21 $3,010K - This project will construct modifications to an existing facility at NUWC Keyport in Keyport WA to support IMA support for SCEPS undersea vehicles. The resultant facility will be able to support maintenance of Stored Chemical Energy Propulsion System (SCEPS) engines for any undersea vehicles, which currently does not exist and will allow support for future systems that are converting to a SCEPS engine solution. The payback period of this investment is 15 years for FY21.

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CAPITAL BUDGET EXECUTION
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL UNDERSEA WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2019	**1**	**Non ADP**		**$5.936**	**$1.893**	**($4.043)**	
			Vehicles	$0.000	$0.000	$0.000	
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$0.795	$0.989	$0.194	Program restructure - FY 2019 Actuals
			Machinery	$0.000	$0.000	$0.000	
			Support Equipment	$5.141	$0.904	($4.237)	Program restructure - FY 2019 Actuals
	2	**ADP**		**$5.128**	**$6.363**	**$1.235**	
			Computer Hardware (Production)	$2.705	$1.606	($1.099)	Program restructure - FY 2019 Actuals
			Computer Hardware (Network)	$1.301	$0.000	($1.301)	Program restructure - FY 2019 Actuals
			Computer Software (Operating)	$0.591	$0.000	($0.591)	Program restructure - FY 2019 Actuals
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.531	$4.757	$4.226	Program restructure - FY 2019 Actuals
	3	**Software**		**$1.848**	**$1.846**	**($0.002)**	
			Internally Developed	$1.060	$1.059	($0.001)	FY 2019 Actuals
			Externally Developed	$0.788	$0.787	($0.001)	FY 2019 Actuals
	4	**Minor Construction**		**$13.798**	**$16.599**	**$2.801**	
			Replacement	$4.348	$4.347	($0.001)	FY 2019 Actuals
			New Construction	$9.450	$12.252	$2.802	Program restructure - FY 2019 Actuals
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2019 CIP Program				**$26.710**	**$26.701**	**($0.009)**	
FY	**L.I.**	**Category**	**Capability/Project**	**I.R**	**C.P.R**	**A.C.**	**Explanation**
2020	**1**	**Non ADP**		**$8.991**	**$4.025**	**($4.966)**	
			Vehicles	$0.650	$0.000	($0.650)	Program restructure
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$0.000	$0.000	$0.000	
			Machinery	$0.525	$0.525	$0.000	
			Support Equipment	$7.816	$3.500	($4.316)	Program restructure
	2	**ADP**		**$5.149**	**$5.015**	**($0.134)**	
			Computer Hardware (Production)	$3.289	$0.774	($2.515)	Program restructure
			Computer Hardware (Network)	$1.260	$3.641	$2.381	Program restructure
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.600	$0.600	$0.000	
	3	**Software**		**$1.110**	**$1.556**	**$0.446**	
			Internally Developed	$1.110	$0.510	($0.600)	Program restructure
			Externally Developed	$0.000	$1.046	$1.046	Program restructure
	4	**Minor Construction**		**$11.165**	**$15.819**	**$4.654**	
			Replacement	$1.600	$2.750	$1.150	Program restructure
			New Construction	$8.820	$13.069	$4.249	Program restructure
			Environmental Capability	$0.745	$0.000	($0.745)	Program restructure
TOTAL FY 2020 CIP Program				**$26.415**	**$26.415**	**$0.000**	
FY	**L.I.**	**Category**	**Capability/Project**	**I.R**	**C.P.R**	**A.C.**	**Explanation**
2021	**1**	**Non ADP**		**$7.625**	**$7.625**	**$0.000**	
			Vehicles	$0.000	$0.000	$0.000	
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$2.775	$2.775	$0.000	
			Machinery	$1.750	$1.750	$0.000	
			Support Equipment	$3.100	$3.100	$0.000	
	2	**ADP**		**$5.550**	**$5.550**	**$0.000**	
			Computer Hardware (Production)	$1.400	$1.400	$0.000	
			Computer Hardware (Network)	$1.575	$1.575	$0.000	
			Computer Software (Operating)	$1.300	$1.300	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$1.275	$1.275	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$7.875**	**$7.875**	**$0.000**	
			Replacement	$0.000	$0.000	$0.000	
			New Construction	$7.875	$7.875	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2021 CIP Program				**$21.050**	**$21.050**	**$0.000**	

CARRYOVER RECONCILIATION
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL UNDERSEA WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
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Part 1			
1. Net Carry-In	677.0	665.7	671.8
2. Revenue	1265.0	1284.1	1392.8
3. New Orders	1253.7	1290.2	1409.7
4. Exclusions:			
Foreign Military Sales	60.9	80.1	85.9
Base Realignment and Closure	0.0	0.0	0.0
Other Federal Department and Agencies	6.1	5.8	5.9
Non-Federal and Others	38.0	37.4	36.8
Institutional Major Range & Test Facility Base	75.4	77.0	79.1
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
5. Orders for Carryover Calculation	1,073.3	1,090.0	1,202.0
6. Weighted Average Outlay Rate	54.9%	55.5%	55.5%
7. Carryover Rate	45.1%	44.5%	44.5%
8. Allowable Carryover	562.7	566.2	622.9
Allowable Carryover(First Year)	484.0	485.0	534.9
Allowable Carryover (Second Year Procurement-funded Orders)	78.7	81.2	88.0
Part II			
9. Balance of Customer Order at Year End	665.7	671.8	688.8
10. Work-in-progress	0.0	0.0	0.0
11. Exclusions:			
Foreign Military Sales	163.9	163.7	157.7
Base Realignment and Closure	0.0	0.0	0.0
Other Federal Department and Agencies	3.6	4.4	4.6
Non-Federal and Others	53.1	58.3	55.3
Institutional Major Range & Test Facility Base	36.9	31.7	28.8
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
12. Calculated Actuals Carryover	408.0	413.8	442.4

Some totals may not add due to rounding.
EXWC,NSWC,NUWC,NAWCDIV,SPAWAR,NRL use RDTEN rates.

6. Naval Information Warfare Center

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NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL INFORMATION WARFARE CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
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Mission Statement / Overview:
The Naval Information Warfare Centers (NIWCs), formerly Space and Naval Warfare Systems Centers, bring knowledge superiority to the warfighter. Their mission is to provide Naval, Joint, and National knowledge superiority through quality Research, Development, Test, and Evaluation (RDT&E); to rapidly deploy and provide full cycle support for sustainable, survivable, and interoperable Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR), Information Operations (IO), Enterprise Information Services (EIS) and space capabilities. The Naval Information Warfare Systems Command (NAVWAR), formerly Space and Naval Warfare Systems Command, is the Navy's information dominance systems command, and the NIWCs are NAVWAR's principal technical agent. Information dominance is the ability to seize and control the information domain high ground when, where, and however required for decisive competitive advantage across the range of Navy missions.

The NIWCs are the C4ISR providers of choice for hundreds of customers throughout Navy and Department of Defense (DoD), and play an important role in the support of related technologies for Homeland Security, the Federal Bureau of Investigation, Department of State, and other federal agencies. As such, the NIWCs must maintain innovative scientific and technical expertise, facilities, and the understanding of defense requirements to ensure that the Navy can develop, acquire, and maintain the systems needed to meet customer requirements at an acceptable price. The NIWCs provide cradle-to-grave products and services including:

- Warfare systems analysis
- Plan and conduct effective technology programs
- Cost conscious systems engineering and technical support to program managers in all phases of systems development and acquisition
- Test and evaluation support including RDT&E and measurement facilities
- Technical input to the development of operational tactics
- Electronics material support (technical and management) for systems and equipment
- Specialized technical support to the Fleet for quick-reaction requirements

Activity Group Composition:
The NIWCs are under the management of NAVWAR. This organizational structure facilitates the entire cycle of systems engineering from research and development through waterfront support. NIWC Pacific has its headquarters in San Diego, CA, with offices in Philadelphia, PA; Pearl Harbor, HI; Guam; and Japan. NIWC Atlantic has its headquarters in Charleston, SC, with offices in Norfolk, VA, and Washington, DC.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL INFORMATION WARFARE CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
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Significant Changes Since the FY 2020 President's Budget:
The FY 2021 budget estimates include increases to match projected workload primarily attributable to program growth in areas such as Tactical Command Support System; Data Center Services; Tactical Data Links; Cyber Development Support; Battlespace Awareness; and Expeditionary Intelligence Solutions. The FY 2021 budget estimates also include the realignment of the NIWC civilian personnel from General Fund to Navy Working Capital Fund (NWCF) that is part of the Navy's organizational efficiency initiatives designed to eliminate duplicate functions and allow for more efficient resource management.

Financial Profile:

Orders/Revenue/Expense/Operating Results ($Millions):

	FY 2019	FY 2020	FY 2021
Orders	$2,522.2	$2,651.7	$2,835.2
Revenue	$2,423.8	$2,628.0	$2,822.3
Expense	$2,434.6	$2,670.8	$2,747.4
Operating Results	($10.8)	($42.8)	$74.9
Capital Surcharge	($10.5)	($12.0)	($13.0)
Net Operating Results (NOR)	($21.3)	($54.8)	$61.9
Prior Year AOR	$14.2	($7.1)	($61.9)
Other Changes Affecting AOR	$0.0	$0.0	$0.0
Accumulated Operating Results (AOR)	($7.1)	($61.9)	$0.0

Some totals may not add due to rounding.

Orders, Revenue and Expense: Changes in orders from FY 2020 to FY 2021 are based on updated new orders estimates as coordinated with customers. Contributing to the change in revenue and expense from FY 2020 to FY 2021 are pricing changes, a 1% awards increase, and changes in civilian labor estimates required to support anticipated customer workload. In addition, the capital surcharges in FY 2019 through FY 2021 support vital Capital Investment Program (CIP) projects and support additional Naval Innovative Science and Engineering (NISE) investments for Defense Laboratory Revitalization Program (LRP).

Disbursements/Collections/Outlays ($Millions):	FY 2019	FY 2020	FY 2021
Disbursements	$2,513.9	$2,671.2	$2,735.6
Collections	$2,468.1	$2,629.8	$2,801.5
Outlays	$45.7	$41.4	($65.9)

Some totals may not add due to rounding.

Current net outlay projections reflect changes in workload and updated operating estimates.

Workload:

Direct Labor Hours (000):	**FY 2019**	**FY 2020**	**FY 2021**
Current Estimate	11,349	11,534	11,792

The rates are based on Direct Labor Hours (DLHs) required for stabilized workload. The changes in DLH estimates relate to supporting customer workload efforts like Tactical Mobile, Battlespace Awareness, and Expeditionary Intelligence Solutions.

Performance Indicators: The NIWCs' outputs are scientific and engineering designs, developments, tests, evaluations, analyses, installations, and fleet support for systems in their mission areas. The measure for these outputs is the direct labor hour worked for a customer. Customers are charged a predetermined stabilized billing rate per direct employee hour worked. The revenue rate includes the salary and benefits costs of the performing employee (direct labor costs) and a share of the overhead costs of the NIWCs, both general and administrative support and the unique production overhead costs of the performing employee's cost center. Non-labor, non-overhead costs, such as customer required material and equipment purchases, travel expenses, and contractual services, are charged to the customer on an actual cost reimbursable basis, and are excluded from the NIWCs' stabilized pricing structure. The NIWCs use total stabilized cost per direct labor hour as their performance criterion.

Unit Cost:	**FY 2019**	**FY 2020**	**FY 2021**
Total Stabilized Cost ($Millions)	$1,323.0	$1,378.8	$1,430.2
Workload (DLHs) (000)	11,349	11,534	11,792
Unit Cost (per DLH)	$116.57	$119.54	$121.29

The Unit Cost is the method established to authorize and control costs. Unit cost goals allow activities to respond to workload changes in execution by encouraging reduced costs when workload declines and allowing appropriate increases in costs when customers request additional services. FY 2021 unit cost reflects stabilized costs per associated stabilized hours as an expense rate.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL INFORMATION WARFARE CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
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Stabilized / Composite Rates:	**FY 2019**	**FY 2020**	**FY 2021**
Stabilized Rate	$114.72	$116.46	$128.29
Change from Prior Year		1.52%	10.15%
Composite Rate Change		1.77%	6.25%

The Stabilized Rate consists of direct labor and applied overhead. Unique direct non-labor costs are billed on a reimbursable basis to the customer. The composite rate change incorporates both the stabilized costs and the reimbursable costs. The composite rate change in FY 2021 reflects adjustments to direct workload, pricing changes, and includes NISE funding in compliance with 10 USC 2363.

Staffing:

Civilian/Military ES & Workyears:	**FY 2019**	**FY 2020**	**FY 2021**
Civilian End Strength	9,601	9,299	9,349
Civilian Workyears (straight time)	9,142	9,114	9,203
Military End Strength	78	77	77
Military Workyears	62	77	77

Civilian Personnel: Civilian strength levels, measured by both end strength and full-time equivalents increased mainly due to the realignment of the NIWC civilian personnel from General Fund to NWCF in FY 2021.

Military Personnel: The Military resource estimates are a baseline projection of military personnel necessary to fulfill programming objectives and coordination with customers. Military resource estimates have been adjusted to reflect a balanced program of military resources to funded workload and remain steady in FY 2021.

Capital Investment Program Authority ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Equipment, Non-ADP / Telecom	$0.0	$0.0	$0.0
Equipment, ADPE / Telecom	$1.2	$1.6	$2.0
Software Development	$1.5	$1.7	$0.0
Minor Construction	$17.5	$16.0	$18.9
Total:	$20.2	$19.3	$20.9

Some totals may not add due to rounding

CIP allows the NWCF to achieve its mission by reinvesting in plant equipment and facilities. Included in the capital budget are the following types of assets: Automated Data Processing Equipment (ADPE); non-ADP; automated data processing software, internally or externally developed; and minor construction. Minor construction includes projects meeting the criteria of the LRP. The projects will replace aging temporary buildings and upgrade and expand lab capability to accommodate workload growth and increase efficiency.

Carryover Compliance ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Net Carry-In	$1,202.7	$1,301.2	$1,324.9
Allowable Carryover	$1,139.1	$1,198.0	$1,287.0
Calculated Actual Carryover	$992.1	$903.4	$904.7
Delta (Actual-Allowable): Above Ceiling (+)/Below Ceiling (-)	($147.0)	($294.6)	($382.3)

Some totals may not add due to rounding.

Carryover for each year is within the allowable carryover ceiling.

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL INFORMATION WARFARE CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
Revenue:			
Gross Sales			
Operations	2,407.2	2,608.6	2,801.4
Capital Surcharges	10.5	12.0	13.0
Capital Investment Recovery	6.1	7.3	7.9
Other Income			
Total Income	2,423.8	2,628.0	2,822.3
Expenses			
Cost of Materiel Sold from Inventory			
Salaries and Wages:			
Military Personnel Compensation & Benefits	7.8	7.8	8.0
Civilian Personnel Compensation & Benefits	1,356.2	1,411.8	1,452.6
Travel and Transportation of Personnel	66.7	55.3	56.4
Material & Supplies (Internal Operations)	234.6	237.4	252.5
Equipment	142.8	153.1	157.5
Other Purchases from NWCF	22.4	20.9	21.3
Transportation of Things	6.8	5.7	5.9
Capital Investment Recovery	6.1	7.3	7.9
Printing and Reproduction	0.2	0.2	0.3
Advisory and Assistance Services	0.0	0.0	0.0
Rent, Communication, Utilities & Misc Charges	31.1	32.3	31.2
Other Purchased Services	559.9	738.8	753.8
Total Expenses	2,434.6	2,670.8	2,747.4
Work in Process Adjustment	0.0	0.0	0.0
Comp Work for Activity Retention Adjustment	0.0	0.0	0.0
Cost of Goods Sold	2,434.6	2,670.8	2,747.4
Operating Result	-10.8	-42.8	74.9
Adjustments Affecting NOR	-10.5	-12.0	-13.0
Capital Surcharges	-10.5	-12.0	-13.0
Extraordinary Expenses Unmatched	0.0	0.0	0.0
Other Changes Affecting NOR (All Others)	0.0	0.0	0.0
Net Operating Result	-21.3	-54.8	61.9
PY AOR	14.2	-7.1	-61.9
TOTAL AOR	-7.1	-61.9	0.0
Non-Recoverable Adjustments impacting AOR	0.0	0.0	0.0
AOR for budget purposes	-7.1	-61.9	0.0

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL INFORMATION WARFARE CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
1. New Orders	2,522.2	2,651.7	2,835.2
a. Orders from DoD Components:	2,108.1	2,272.2	2,454.7
Department of the Navy	1,645.3	1,771.0	1,970.4
O & M, Navy	544.3	588.9	665.7
O & M, Marine Corps	74.8	91.1	95.9
O & M, Navy Reserve	5.7	7.7	7.7
O & M, Marine Corp Reserve	0.2	0.2	0.2
Aircraft Procurement, Navy	8.5	11.5	12.7
Weapons Procurement, Navy	0.4	0.6	0.6
Ammunition Procurement, Navy/MC	0.0	0.0	0.0
Shipbuilding & Conversion, Navy	88.8	87.7	93.6
National Sea Base Deterrence Fund	0.0	0.0	0.0
Other Procurement, Navy	495.3	554.6	583.1
Procurement, Marine Corps	58.3	53.0	58.6
Family Housing, Navy/MC	1.0	0.8	0.9
Research, Dev., Test, & Eval., Navy	367.3	373.1	449.5
Military Construction, Navy	0.4	0.4	0.4
National Defense Sealift Fund	0.0	0.0	0.0
Foreign Cooperative Projects, Navy	0.0	0.0	0.0
Other Navy Appropriations	0.3	1.4	1.4
Other Marine Corps Appropriations	0.0	0.0	0.0
Department of the Army	44.9	47.6	60.6
Army Operation & Maintenance	9.9	12.5	18.8
Army Res, Dev, Test, Eval	13.9	10.4	15.6
Army Procurement	19.1	19.0	20.5
Army Other	1.9	5.7	5.7
Department of the Air Force	104.9	99.7	103.6
Air Force Operation & Maintenance	52.4	54.4	52.3
Air Force Res, Dev, Test, Eval	48.7	41.2	46.5
Air Force Procurement	3.9	4.1	4.7
Air Force Other	0.0	0.0	0.0
DOD Appropriation Accounts	312.9	354.0	320.2
Base Closure & Realignment	0.0	0.0	0.0
Operation & Maintenance Accounts	69.7	86.8	112.1
Res, Dev, Test & Eval Accounts	149.6	152.7	118.6
Procurement Accounts	33.6	37.4	23.0
Defense Emergency Relief Fund	0.0	0.0	0.0
DOD Other	60.1	77.1	66.4
b. Orders from other Fund Activity Groups	134.6	137.8	148.2
c. Total DoD	2,242.7	2,410.0	2,602.9
d. Other Orders:	279.5	241.7	232.3
Other Federal Agencies	171.5	144.6	139.3
Foreign Military Sales	69.1	66.8	63.4
Non Federal Agencies	39.0	30.3	29.7
2. Carry-In Orders	1,202.7	1,301.2	1,324.9
3. Total Gross Orders	3,724.9	3,952.9	4,160.1
a. Funded Carry-Over before Exclusions	1,301.2	1,324.9	1,337.8
4. Revenue(-)	2,423.8	2,628.0	2,822.3
5. End of Year Work-In-Process (-)	0.0	0.0	0.0
6. FMS, BRAC, Other Federal, Non-Federal orders, and Inst. MRTFB (-)	309.0	421.5	433.1
7. Funded Carryover	992.1	903.4	904.7

Note: Line 5 (End of Year Work-In-Process) is adjusted for Non-DOD BRAC, FMS, and Institutional MRTFB

CHANGES IN THE COSTS OF OPERATIONS
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL INFORMATION WARFARE CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	Costs
FY 2019 Actuals	**2,434.6**
FY 2020 President's Budget:	**2,600.2**
Estimated Impact in FY 2020 of Actual FY 2019 Experience:	**0.0**
Pricing Adjustments:	**55.5**
Civilian Personnel	55.5
Fuel Price	0.0
Program Changes:	**-5.7**
Tactical Mobile and Battlespace Awareness	9.0
Expeditionary Intelligence Solutions and Terrestrial/Human Intelligence	7.1
Command, Control, Communications, Computer and Intelligence	1.7
Force Protection Solutions and Afloat Transport Systems & Navigation	3.0
Signals Intelligence and Installations	-26.5
Other Changes:	**20.7**
Federal Employee Retirement System Government Contribution	22.2
Defense Finance and Accounting Services	0.2
Utilities	-0.6
Other	-1.1
FY 2020 Current Estimate:	**2,670.8**
Pricing Adjustments:	**47.7**
Annualization of Prior Year Pay Raises	**11.3**
Civilian Personnel	11.2
Military Personnel	0.1
FY 2021 Pay Raise	**10.6**
Civilian Personnel	10.5
Military Personnel	0.2
Fuel Price Changes	0.0
General Purchase Inflation	24.6
Other Price Changes (list)	**1.2**
Working Capital Fund Price Changes	1.2
Program Changes:	**37.4**
Navy Tactical Command Support System	14.9
Data Center Services and Tactical Data Links	14.5
Navy Cyber Development Support	2.2
Consolidated Emergency Response System	2.1
Expeditionary Intelligence Solutions	1.5
Integrated Physical Security System	1.3
Battlespace Awareness	0.9
Other Changes:	**-8.5**
Civilian Labor Reduction and Awards Increase	1.8
Capital Investment Recovery	0.6
Change in work days	-5.4
NAVFAC Realignment	-5.5
FY 2021 Estimate:	**2,747.4**

CAPITAL INVESTMENT SUMMARY
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL INFORMATION WARFARE CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
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(DOLLARS IN MILLIONS)

		FY 2019		FY 2020		FY 2021	
Line #	Description	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
1	**Non-ADPE and Telecom Equipment >= $.500M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Vehicles	0	$0.000	0	$0.000	0	$0.000
	- Material Handling	0	$0.000	0	$0.000	0	$0.000
	- Installation Security	0	$0.000	0	$0.000	0	$0.000
	- Quality Control/Testing	0	$0.000	0	$0.000	0	$0.000
	- Medical Equipment	0	$0.000	0	$0.000	0	$0.000
	- Machinery	0	$0.000	0	$0.000	0	$0.000
	- Support Equipment	0	$0.000	0	$0.000	0	$0.000
2	**ADPE and Telecom Equipment >= $.500M**	**1**	**$1.161**	**1**	**$1.600**	**1**	**$2.000**
	- Computer Hardware (Production)	0	$0.000	0	$0.000	0	$0.000
	- Computer Hardware (Network)	1	$1.161	1	$1.600	1	$2.000
	- Computer Software (Operating)	0	$0.000	0	$0.000	0	$0.000
	- Telecommunications	0	$0.000	0	$0.000	0	$0.000
	- Other Support Equipment	0	$0.000	0	$0.000	0	$0.000
3	**Software Development >= $.500M**	**1**	**$1.515**	**2**	**$1.700**	**0**	**$0.000**
	- Internally Developed	0	$0.000	0	$0.000	0	$0.000
	- Externally Developed	1	$1.515	2	$1.700	0	$0.000
4	**Minor Construction (>= $.500M and <= $6.000M)**	**5**	**$17.540**	**7**	**$16.019**	**6**	**$18.916**
	- Replacement Capability	3	$9.581	5	$8.948	3	$9.656
	- New Construction	2	$7.959	2	$7.071	3	$9.260
	- Environmental Capability	0	$0.000	0	$0.000	0	$0.000
	Grand Total	**7**	**$20.216**	**10**	**$19.319**	**7**	**$20.916**
	Total Capital Outlays		**$8.452**		**$9.469**		**$9.395**
	Total Capital Investment Recovery		**$6.058**		**$7.319**		**$7.916**

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#001 - Non-ADPE						Naval Information Warfare Centers		
	FY 2019			FY 2020			FY 2021		
Non-ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Vehicles	0	-	$0	0	-	$0	0	-	$0
Material Handling	0	-	$0	0	-	$0	0	-	$0
Installation Security	0	-	$0	0	-	$0	0	-	$0
Quality Control/ Testing	0	-	$0	0	-	$0	0	-	$0
Medical Equipment	0	-	$0	0	-	$0	0	-	$0
Machinery	0	-	$0	0	-	$0	0	-	$0
Support Equipment	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	0	-	$0

Justification:

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#002 - ADPE						Naval Information Warfare Centers		
	FY 2019			FY 2020			FY 2021		
ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Computer Hardware (Production)	0	-	$0	0	-	$0	0	-	$0
Computer Hardware (Network)	1	1,161	$1,161	1	1,600	$1,600	1	2,000	$2,000
Computer Software (Operating System	0	-	$0	0	-	$0	0	-	$0
Telecommunications	0	-	$0	0	-	$0	0	-	$0
Other Support Equipment	0	-	$0	0	-	$0	0	-	$0
Total	1	1,161	$1,161	1	1,600	$1,600	1	2,000	$2,000

Justification:

PROJECTS ABOVE $1M

The "**Secret Wide Area Network (SWAN) Crypto Refresh**" project in FY19 in the computer hardware (network) capability provides encryptors for the SWAN and the Secure Defense Research and Engineering Network (SDREN). The current encryptors do not support requirements because the encryptors are nearing their end of life and bandwidth is an issue. Therefore, the encryptors must be upgraded. A solution that will sustain network and security growth ten years into the future is required. An economic analysis has been performed. If this investment is not made, bandwidth growth will not be met, and network management of encryptors will remain as a time-intensive manual process.

The "**Research, Development, Test & Evaluation (RDT&E) Network Security Infrastructure Upgrade**" project in FY20 and FY21 in the computer hardware (network) capability will provide a tech refresh/upgrade of RDT&E network security infrastructure as well as the core infrastructure. Various network devices will be required to support advances in technology and expanded security requirements. The RDT&E network supports technical efforts, which support the warfighter. An economic analysis has been performed. If this investment is not made, the RDT&E network security infrastructure and core infrastructure would remain in its current state, which will cause increased maintenance costs and server outages that would put the network at risk.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#003 - Software Development						Naval Information Warfare Centers		
	FY 2019			FY 2020			FY 2021		
Software	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Internally Developed	0	-	$0	0	-	$0	0	-	$0
Externally Developed	1	1,515	$1,515	2	850	$1,700	0	-	$0
Total	1	1,515	$1,515	2	850	$1,700	0	-	$0

Justification:

PROJECTS UNDER $1M

The investment in the externally developed capability provides Systems, Application and Products in Data Processing Business Warehouse (SAP/ BW)/ 4TH Generation High-Performance Analytic Appliance (4HANA) licenses that are required to support the Business Intelligence Reporting and Analysis (BIRA) system. BIRA integrates finance, workforce, procurement, and logistic data from various authoritative sources to provide reporting, ad hoc query, graphical dashboard display of data, and financial tools. A cost analysis has been performed. If this investment is not made, the BIRA system will not meet on-going requirements.

PROJECTS ABOVE $1M

The "**Systems, Applications, and Products in Data Processing (SAP) High-Performance Analytic Appliance (HANA) Software Licenses**" project in FY19 provides software licenses to support the Business Intelligence Reporting and Analysis (BIRA) system as Navy ERP migrates to a cloud SAP HANA platform. BIRA integrates finance, workforce, procurement, and logistic data from various authoritative sources to provide reporting ad hoc query, graphical dashboard display of data and financial tools. A cost analysis has been performed. If this investment is not made, BIRA will not be operational and projects will have to use manual process resulting in loss of data integrity and increased workload.

The "**Facilities Integrated Work Management System (IWMS)**" project in FY20 will provide facilities focused digital transformation of data collection, processing, analysis, and decision support. Currently, each aspect of facilities data is managed through separate workflows, and each module has its own tracking system. The IWMS system will provide an integrated view of relevant facilities data sets in a timely fashion that will allow the workforce to accurately track tasks in modules, and tasks that are dependent on other facilities tasks that cross multiple modules over the life of the project. If this investment is not made, a manual process would be used to populate the database, affecting the rapid delivery of the product to the warfighter.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#004 - Minor Construction						Naval Information Warfare Centers		
	FY 2019			FY 2020			FY 2021		
Minor Construction	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Replacement	3	3,194	$9,581	5	1,790	$8,948	3	3,219	$9,656
New Construction	2	3,980	$7,959	2	3,536	$7,071	3	3,087	$9,260
Environmental Capability	0	-	$0	0	-	$0	0	-	$0
Total	5	3,508	$17,540	7	2,288	$16,019	6	3,153	$18,916

Justification:

All projects are within the $6 million threshold for minor construction afforded by the Laboratory Revitalization Program (LRP).

REPLACEMENT

PROJECTS UNDER $1M

The investment in the replacement capability will provide additional bathrooms to accommodate additional personnel and improve productivity. Without this investment, building occupants will continue to work with limited restroom facilities.

PROJECTS ABOVE $1M:

The **"Nanosat Integration Center of Excellence"** project is in FY19. Development of the Nanosat Integration Center of Excellence (COE) project will enable the Navy to rapidly respond to warfighter needs by designing and integrating nanosat payloads. Future nanosatellites will provide capabilities in communications, intelligence, surveillance, reconnaissance, environmental monitoring, and other missions. Nanosatellites make use of Commercial Off-The-Shelf (COTS) components with less complex modular designs, making them affordable. They can deliver capabilities at significantly lower development costs than conventional satellites. The nanosat modular designs afford more flexibility to the warfighter, enabling developers to quickly address rapidly evolving warfighter needs. Nanosats can be launched affordably in larger numbers. Integrating nanosatellites in-house will shorten development time, provide increased government oversight for improved cyber resiliency, and considerably reduce costs for the Navy and the warfighter. An economic analysis has been completed. Without this effort, continued use of off-site testing facilities will result in an increased cost to Navy/DoD sponsors. This project is part of the Lab Revitalization Program (LRP).

The "**Building 3458 Software Defined Radio Solutions (SDRS) Integrated Product Team (IPT) Laboratory Support**" project is in FY19. Building 3458 was constructed in 1918. Building 3458 houses personnel supporting several radio and Wideband Networking Waveform (WNW) programs. The project upgrades the building by installing two bathrooms, upgrading the fire protection system, Heating, Ventilation, and Air Conditioning (HVAC) system, electrical, communication system, and Information Technology (IT) infrastructure. An Americans with Disabilities Act (ADA) accessible ramp and parking space will also be installed. Additional improvements will include replacement of wall and floor surfaces, replacement of cable lighting, and other space improvements. Upgrades to the HVAC system will provide additional HVAC capacity and airflow distribution for associated spaces.

An economic analysis has been performed. Without the upgrades to the building, improved productivity as a result of these upgrades will not be realized. This project is part the Laboratory Revitalization Program (LRP).

The "**Building 3414 Special Security Office (SSO) Research, Development, Test and Evaluation (RDT&E) Laboratory Support**" project is in FY19. The project upgrades the building's interior spaces, to include electrical, mechanical, communications systems, and utility upgrades. Building 3414 is a Sensitive Compartmented Information Facilities (SCIF) that houses the Special Programs Oversight and Compliance Functions. An economic analysis has been performed. Without the upgrades, improved productivity as a result of these upgrades will not be realized. This project is part of the Lab Revitalization Program (LRP).

The **"Building 3113 Integrated Project Team (IPT) Engineering Space Renovation"** project is in FY20. The project will include upgrading the electrical, communications, Heating, Ventilation, and Air Conditioning (HVAC) systems and other space improvements. Building 3113 houses the IPT engineering personnel. An economic analysis has been performed. Without the upgrades to the existing facility enhanced efficiencies, capabilities, and improved productivity will not be realized. This project is part of the Lab Revitalization Program (LRP).

The "**Seaside Electrical Power/Heating, Ventilation and Air Conditioning (HVAC) Upgrade**" project is in FY20. This project will upgrade the HVAC in the Combined Test Bed (CTB) lab space to support the centralized computer room and planned systems for critical mission requirements. These upgrades are vital and are required to sustain and integrate new capabilities achieved by modernizing and optimizing laboratory equipment, functions, and operations. The power/HVAC upgrade will create an infrastructure that will reduce lab operating costs and optimize available equipment space. It will also allow for co-location of Command, Control, Communications, Computers and Intelligence (C4I) systems in a state of the art facility for integration, testing, system engineering, and technology demonstration. An economic analysis has been performed. If this investment is not made, the CTB lab space will not be able to integrate new capabilities and technology for critical mission requirements. This project is part of the Lab Revitalization Program (LRP).

The "**Building 600 Electrical Distribution Modernization**" project is in FY20. The existing interior electrical distribution system within Building 600 is in need of an upgrade. The current power distribution creates work schedule challenges for the projects within the building. Additionally, the entire building must be shut down for planned power outages. The project will upgrade the interior electrical distribution system re-distribute the power within the building. An economic analysis has been performed. Without the upgrades, the existing interior electrical distribution systems would continue to create work schedule challenges. This project is part of the Lab Revitalization Program (LRP).

The "**Lab 260 Modernization**" project is in FY20. The project will upgrade the existing lab infrastructure and configuration creating a space that will accommodate more personnel to support the program acquisition strategy. An economic analysis has been performed. Without the upgrade, the ability to accommodate additional personnel to support the program acquisition strategy will be impacted. This project is part of the Lab Revitalization Program (LRP).

The **"Building 3112 Common Submarine Radio Room (CSRR) Security Modernization"** project is in FY21. The project will include the upgrade of security requirements, Heating, Ventilation, and Air Conditioning (HVAC), plumbing, Information Technology (IT) infrastructure, lighting, electrical system, and handicap accessibility. Due to new security requirements set forth by the Secretary of Defense (SECDEF), security conditions and configuration of existing building requires improved physical and data security. The upgrades will increase the required higher security rating of Open-Secret in CSRR room 07 and lab 03 of building 3112. A cost analysis has been performed. Without these upgrades, the existing facility will not meet the new SECDEF security requirements and enhanced efficiencies will not be realized. This project is part of the Lab Revitalization Program (LRP).

The **"Building 171 Common Submarine Radio Room (CSRR) Security Modernization"** project is in FY21. The project will include the upgrade of security requirements, Heating, Ventilation, and Air Conditioning (HVAC), plumbing, Information Technology (IT) infrastructure, lighting, electrical system, and handicap accessibility. Additional improvements include new roof, exterior wall repairs, and other space improvements. Due to new security requirements set forth by the Secretary of Defense (SECDEF), security conditions and configuration of existing building requires improved physical and data security. The upgrades will increase the required higher security rating of Open-Secret in the entire space. The completion of the project will allow accommodation of greater number of higher level security projects and personnel. A cost analysis has been performed. Without these upgrades, the existing facility will not meet the new SECDEF security requirements and enhanced efficiencies will not be realized. This project is part of the Lab Revitalization Program (LRP).

The "**Building 605 Modernization**" project is in FY21. The project will upgrade the building infrastructure, electrical power, and Heating, Ventilation, and Air Conditioning (HVAC). A cost analysis has been performed. Without the upgrades, the existing facility will not be able to support research and development lab requirements. This project is part of the Lab Revitalization Program (LRP).

NEW CONSTRUCTION

No existing facilities currently support the necessary new mission capability. A cost/economic analysis has been performed for all projects.

PROJECTS ABOVE $1M:

The "**SPAWAR Atlantic Unmanned Systems Research (SAUSR) Range Network & Site Infrastructure Enhancements**" project is in FY19. This project establishes network, site infrastructure, and electrical power to the site that is required for the connection to numerous systems including the testing of flying autonomous vehicles. An economic analysis has been performed. If this investment is not made, the necessary land, air, space, telecom, and electrical required to support the Navy, DoD, and federal systems including autonomous systems would not be realized. This project is part of the Laboratory Revitalization Program (LRP).

The "**Advanced Intelligence, Surveillance, Reconnaissance (ISR) Lab"** project is in FY19. This project constructs a new building and substation. The new facility supports development and integration of advanced ISR payloads into Unmanned Aerial Vehicles (UAVs). There are no available facilities of sufficient size or capabilities that can support this increased requirement. An economic analysis has been performed. If this investment is not made, the ability to meet mission requirements in this area will be limited. The ability to provide warfighters with meaningful information and intelligence to allow them to make better decisions on a shorter timeline is critical to Naval information warfare. This project is part of the Laboratory Revitalization Program (LRP).

The **"Command, Control, Communication, Computers, Cyber-Defense and Combat Systems and Intelligence, Surveillance and Reconnaissance (C6ISR) Laboratory"** project is in FY20. It will replace the existing Building 3456 that was constructed as a warehouse in 1918 and was converted to a laboratory space. The facility is in need of a complete replacement due to its age, condition, and current configuration. This project will construct a Sensitive Compartmented Information Facility (SCIF) with administrative spaces and secret laboratory areas. Appropriate Heating, Ventilation, and Air Conditioning (HVAC), plumbing, lighting, and electrical systems will be included along with handicap accessibility throughout the building. Once the new facility is complete, building 3456 will be demolished. An economic analysis has been performed. Without replacement, the existing aged building, HVAC, plumbing, lighting, electrical systems, and current configuration will hinder the functionality necessary to support the laboratory projects in operation. This project is part of the Laboratory Revitalization Program (LRP).

The "**Hawaii Space Sustained Power and Extend Fence line"** project is in FY20. This project will provide additional controlled space, electrical power, and new concrete pads required for ground station support for emerging small satellite Research and Development (R&D) programs. The project will provide support to expand capabilities such as technology demonstrations, system integration, and operational and environmental testing to validate operational capabilities. A cost analysis has been performed. If this investment is not made, the existing facility will have limited space and power for ground station efforts and will not have the fencing needed to restrict access.

The **"Command, Control, Communication, Computers, Cyber-Defense and Combat Systems and Intelligence, Surveillance and Reconnaissance (C6ISR) Test and Evaluation Platform"** project is in FY21. The project will expand and replace the existing outdoor operations testing area and provide a properly configured staging and testing area within a fenced outdoor compound. It will include construction of a concrete pad for staging requirements, underground power service, and installation of external power and security fencing. The compound will include a 9,900 square feet (SF) Rubb building with shipping/receiving, assembly, storage rack, workbench areas, outdoor equipment staging areas, and correctly positioned concrete antenna pads. Once the outdoor compound and the Rubb building is completed, the existing staging area will be demolished. The Test and Evaluation Platform will provide adequate electronics test and integration space needed to support equipment development, programming, testing, rack integration, and deployable equipment construction by the C6ISR Integrated Project Team (IPT). The new compound and Rubb building will provide the lab space required to build, test, and evaluate C6ISR system operations. It will also provide space to store back-up antennas and related equipment. An economic analysis has been performed. Without the expansion and replacement, the

C6ISR system operations will be limited and the area will not be sufficient to house highly sensitive deployable equipment. This project is part of the Laboratory Revitalization Program (LRP).

The **"Communications Systems Laboratory"** project is in FY21. This project will provide communications systems laboratory space to conduct research, development, test, and evaluation in the areas of radio communication, instrumentation, satellite communication, electromagnetic propagation, radio antennas, underwater sound systems, optical systems (infrared), etc. An economic analysis has been performed. If this investment is not made, it could impact the ability to deliver current and next generation communication capabilities, products, and services required to meet mission requirements. This project is part of the Laboratory Revitalization Program (LRP).

The **"Automated Digital Network System (ADNS) Laboratory"** project is in FY21. The project will provide lab space for ADNS. ADNS is a critical system for the afloat, air, subsurface, and ashore warfighters and delivers critical capabilities, products, and services to the fleet. The lab space capacity for supporting ADNS is currently limited. An economic analysis has been performed. If this investment is not made, it will impact the ability to rapidly deliver current and next generation ADNS capabilities, products, and services to the fleet. This project is part of the Laboratory Revitalization Program (LRP).

CAPITAL BUDGET EXECUTION

DEPARTMENT OF THE NAVY

RESEARCH AND DEVELOPMENT - NAVAL INFORMATION WARFARE CENTERS

FISCAL YEAR (FY) 2021 BUDGET ESTIMATES

FEBRUARY 2020

(DOLLARS IN MILLIONS)

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2019	**1**	**Non ADP**		**$0.000**	**$0.000**	**$0.000**	
	2	**ADP**		**$2.400**	**$1.161**	**($1.239)**	
			Computer Hardware (Network)	$2.400	$1.161	($1.239)	The authority was realigned to reflect revised costs.
	3	**Software**		**$0.000**	**$1.515**	**$1.515**	
			Externally Developed	$0.000	$1.515	$1.515	The authority was realigned to reflect revised costs.
	4	**Minor Construction**		**$15.108**	**$17.540**	**$2.432**	
			Replacement	$7.672	$9.581	$1.909	The authority was realigned to reflect revised costs.
			New Construction	$7.436	$7.959	$0.523	The authority was realigned to reflect revised costs.
TOTAL FY 2019 CIP Program				**$17.508**	**$20.216**	**$2.708**	

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2020	**1**	**Non ADP**		**$0.000**	**$0.000**	**$0.000**	
	2	**ADP**		**$2.500**	**$1.600**	**($0.900)**	
			Computer Hardware (Network)	$2.500	$1.600	($0.900)	The authority is realigned to reflect revised costs.
	3	**Software**		**$0.000**	**$1.700**	**$1.700**	
			Externally Developed	$0.000	$1.700	$1.700	The authority is realigned to reflect revised costs.
	4	**Minor Construction**		**$16.819**	**$16.019**	**($0.800)**	
			Replacement	$4.119	$8.948	$4.829	The authority is realigned to reflect revised costs.
			New Construction	$12.700	$7.071	($5.629)	The authority is realigned to reflect revised costs.
TOTAL FY 2020 CIP Program				**$19.319**	**$19.319**	**$0.000**	

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2021	**1**	**Non ADP**		**$0.000**	**$0.000**	**$0.000**	
	2	**ADP**		**$2.000**	**$2.000**	**$0.000**	
			Computer Hardware (Network)	$2.000	$2.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
	4	**Minor Construction**		**$18.916**	**$18.916**	**$0.000**	
			Replacement	$9.656	$9.656	$0.000	
			New Construction	$9.260	$9.260	$0.000	
TOTAL FY 2021 CIP Program				**$20.916**	**$20.916**	**$0.000**	

CARRYOVER RECONCILIATION
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL INFORMATION WARFARE CENTERS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
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Part 1			
1. Net Carry-In	1,202.7	1,301.2	1,324.9
2. Revenue	2,423.8	2,628.0	2,822.3
3. New Orders	2,522.2	2,651.7	2,835.2
4. Exclusions:			
Foreign Military Sales	69.1	66.8	63.4
Base Realignment and Closure	0.0	0.0	0.0
Other Federal Department and Agencies	171.5	144.6	139.3
Non-Federal and Others	39.0	30.3	29.7
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
5. Orders for Carryover Calculation	2,242.7	2,410.0	2,602.9
6. Weighted Average Outlay Rate	55.1%	56.3%	56.6%
7. Carryover Rate	44.9%	43.7%	43.4%
8. Allowable Carryover	1,139.1	1,198.0	1,287.0
Allowable Carryover(First Year)	1,007.0	1,053.2	1,129.6
Allowable Carryover (Second Year Procurement-funded Orders)	132.1	144.8	157.4
Part II			
9. Balance of Customer Order at Year End	1,301.2	1,324.9	1,337.8
10. Work-in-progress	0.0	0.0	0.0
11. Exclusions:			
Foreign Military Sales	64.2	82.0	76.3
Base Realignment and Closure	0.5	0.5	0.5
Other Federal Department and Agencies	197.0	273.6	287.9
Non-Federal and Others	47.2	65.3	68.4
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
12. Calculated Actuals Carryover	992.1	903.4	904.7

Some totals may not add due to rounding.

7. Naval Research Laboratory

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NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL RESEARCH LABORATORY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Mission Statement / Overview:
The Naval Research Laboratory (NRL), the Navy's single, integrated corporate laboratory, provides the Navy with a broad foundation of in-house expertise from scientific through advanced development activity. Specific leadership responsibilities are assigned in the following areas: primary in-house research in the physical, engineering, space, and environmental sciences; broadly based exploratory and advanced development program in response to identified and anticipated Navy and Marine Corps needs; broad multidisciplinary support to the Naval Warfare Centers; and space systems technology development and support.

NRL operates as the Navy's full-spectrum corporate laboratory, conducting a broadly based multidisciplinary program of scientific research and advanced technological development directed toward maritime applications of new and improved materials, techniques, equipment, systems and ocean, atmospheric, and space sciences and related technologies. In fulfillment of this mission, NRL initiates and conducts broad scientific research of a basic and long-range nature in scientific areas of interest to the Navy; conducts exploratory and advanced technological development deriving from or appropriate to the scientific program areas; develops prototype systems applicable to specific projects; assumes responsibility as the Navy's principal research and development (R&D) activity in areas of unique professional competence upon designation from appropriate Navy or Department of Defense (DoD) authority; performs scientific R&D for other Navy activities and, where specifically qualified, for other agencies of the DoD and, in defense-related efforts, for other Government agencies; serves as the lead Navy activity for space technology and space systems development and support; and serves as the lead Navy activity for mapping, charting, and geodesy marine chemistry & geochemistry research and development for the National Geospatial-Intelligence Agency.

Activity Group Composition:
In addition to its Washington, D.C. campus of about 131 acres and 89 main buildings, NRL maintains 14 other research sites. The many diverse scientific and technological research and support facilities include a large facility located at the Stennis Space Center in Bay St. Louis, Mississippi, a facility at the Naval Support Activity, Monterey Bay in Monterey, California, the Chesapeake Bay Detachment in Maryland, and additional sites located in Maryland, Virginia, and Florida.

SCIENTIFIC DEVELOPMENT SQUADRON ONE (VXS-1): This division is located aboard the Patuxent River Naval Air Station in Lexington Park, Maryland, operates and maintains three uniquely configured P-3 Orion and one RC-12 Huron turboprop aircraft as airborne research platforms for worldwide scientific research operations.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL RESEARCH LABORATORY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

CHESAPEAKE BAY DETACHMENT: The detachment occupies a 168-acre site near Chesapeake Beach, Maryland, and provides facilities and support services for research in radar, electronic warfare, optical devices, materials, communications, and fire rescue. Because of its location high above the Chesapeake Bay on the western shore, unique experiments can be performed in conjunction with the Tilghman Island site 16 km across the bay.

NRL STENNIS SPACE CENTER (NRL-SSC): NRL-SSC is a tenant activity at NASA's Stennis Space Center. Other Navy tenants at the Stennis Space Center include the Naval Meteorology and Oceanography Command and the Naval Oceanographic Office, who are major operational users of the oceanographic and atmospheric research and development performed by the NRL. This unique concentration of operational and research oceanographies makes NRL-SSC the center of naval oceanography and the largest such grouping in the western world.

MARINE METEOROLOGY DIVISION: Located in Monterey, California, this division is a tenant activity of the Naval Support Activity, Monterey Bay, is collocated with the Fleet Numerical Meteorology and Oceanography Center to support development of numerical atmospheric prediction systems and related user products. This collocation allows easy access to a large vector classified supercomputer mainframe, providing real time as well as archived global atmospheric and oceanographic databases for research at Monterey and at other NRL locations.

Significant Changes Since the FY 2020 President's Budget:
The FY2021 budget estimates include increase in projected workload primarily attributable to Acoustic Research and Oceanography programs. NRL has increased its direct workforce from PB2020 to account for increased demand in scientific research and advanced technological development. Starting in FY 2020, there is a significant change to migrate NRL's official financial system from the Integrated Management/Processing System (IMPS) to the Department of Navy Enterprise Resource Planning (DoN ERP) as its financial system in FY2020 in support of Working Capital Fund (WCF) General Ledger (GL) Consolidation. This effort is to improve the Navy's audit posture and simplify the financial systems environment by migrating all Navy WCF activities to Navy ERP by 1 October 2020.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL RESEARCH LABORATORY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Financial Profile:

Orders/Revenue/Expense/Operating Results ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Orders	$1,009.2	$958.8	$1,007.7
Revenue	$1,032.5	$1,036.2	$1,078.6
Expense	$1,028.3	$1,043.0	$1,084.6
Operating Results	$4.2	($6.8)	($6.0)
Capital Surcharge and Other	($1.4)	$0.0	$0.0
Net Operating Results (NOR)	$2.8	($6.8)	($6.0)
Prior Year AOR	$9.9	$12.8	$6.0
Other Changes Affecting AOR	$0.0	$0.0	$0.0
Accumulated Operating Results (AOR)	$12.8	$6.0	$0.0

Some totals may not add due to rounding.

Orders, Revenue and Expense: Changes in orders from FY 2019 to FY 2021 are based on actuals and updated estimates in coordination with customers. Both revenue and expense are projected to increase compared to the FY 2020 President's Budget based on demand and workload that will require additional direct labor hours. The other portion of expense growth is attributed to increased restoration and modernization efforts supporting science and technology laboratories.

Disbursements/Collections/Outlays ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Disbursements	$1,002.3	$1,030.6	$1,080.3
Collections	$1,035.3	$1,033.9	$1,077.3
Outlays	($32.9)	($3.3)	$3.0

Some totals may not add due to rounding.

Fluctuations in net outlays reflect the timing of end-of-year billings and the impact of anticipated net operating results.

Workload:

Direct Labor Hours (000):	**FY 2019**	**FY 2020**	**FY 2021**
Current Estimates	3,096	3,141	3,137

The direct workforce of scientists and engineers remain relatively steady in FY 2021. Decrease in hours is due to one less workday in FY 2021.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL RESEARCH LABORATORY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
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Performance Indicators: The NRL outputs are scientific and engineering designs, developments, tests, evaluations, analyses and fleet support in NRL assigned mission areas. The measure for these outputs is the direct labor hour worked for a customer. Customers are charged a predetermined stabilized billing rate per direct employee hour worked (revenue rate). The rate includes the salary and benefits costs of the performing employee (direct labor costs) and a share of the overhead costs of NRL, both general and administrative support and the unique production overhead costs of the performing employee's cost center. Non-labor, non-overhead costs, such as customer required material and equipment purchases, travel expenses, and contractual services, are charged to the customer on an actual cost reimbursable basis, and are excluded from the NRL stabilized pricing structure. The NRL use total cost per direct labor hour as their performance criterion.

Unit Cost:	**FY 2019**	**FY 2020**	**FY 2021**
Total Stabilized Cost ($Millions)	$507.9	$551.6	$574.1
Workload (DLHs) (000)	3,096	3,141	3,137
Unit Cost (per DLH)	$164.08	$175.61	$183.02

The Unit Cost is an expense rate method established to authorize and control costs. Unit cost goals allow activities to respond to workload changes in execution by encouraging reduced costs when workload declines and allowing appropriate increases in costs when customers request additional services. FY 2021 unit cost reflects stabilized costs per associated stabilized hours as an expense rate.

Stabilized / Composite Rates:	**FY 2019**	**FY 2020**	**FY 2021**
Stabilized Rate	$151.04	$171.44	$184.14
Change from Prior Year		13.50%	7.41%
Composite Rate Change		7.39%	4.50%

The Stabilized Rate consists of direct labor and applied overhead. Unique direct non-labor costs are billed on a reimbursable basis to the customer. The composite rate change incorporates both the stabilized costs and the reimbursable costs. The composite rate change in FY 2021 reflects adjustments to direct workload, pricing changes, and increases in NISE funding to comply with 10 USC 2363.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL RESEARCH LABORATORY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Staffing:

Civilian/Military ES & Workyears:	**FY 2019**	**FY 2020**	**FY 2021**
Civilian End Strength	2,655	2,620	2,604
Civilian Workyears (straight time)	2,579	2,555	2,539
Military End Strength	64	61	66
Military Workyears	63	61	66

Civilian Personnel: Civilian strength levels are measured by both end strength (ES) and full-time equivalents (FTEs), the civilian resource estimates are a baseline projection of resources necessary to fulfill program objectives in coordination with customers. Adjustments from PB2020 reflect a balance program of civilian resources to meet projected workload.

Military Personnel: The Military resource estimates are a baseline projection of military personnel necessary to fulfill programming objectives and coordination with customers. Military resource estimates have been adjusted to reflect a balanced program of military resources with minor increase in funded workload FY 2021.

Capital Investment Program Authority ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Equipment, Non-ADP / Telecom	$12.6	$16.1	$14.3
Equipment, ADPE / Telecom	$3.2	$1.4	$2.6
Software Development	$0.0	$0.0	$0.0
Minor Construction	$3.9	$8.1	$6.0
Total:	$19.7	$25.6	$22.8

Some totals may not add due to rounding.

CIP allows the NWCF to achieve its mission by reinvesting in plant equipment and facilities. Included in the capital budget are the following types of assets: Automated Data Processing Equipment (ADPE); non-ADP equipment; automated data processing software, internally or externally developed; and minor construction. Minor construction includes projects meeting the criteria of the Defense Laboratory Revitalization Program (DLRP). The projects will replace aging buildings and upgrade and expand lab capability to accommodate workload growth and increase efficiency.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT – NAVAL RESEARCH LABORATORY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Carryover Compliance ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Net Carry-In	$524.8	$501.4	$424.1
Allowable Carryover	$480.4	$453.7	$475.3
Calculated Actual Carryover	$452.2	$393.3	$330.9
Delta (Actual-Allowable): Above Ceiling (+)/Below Ceiling (-)	($28.2)	($60.4)	($144.3)

Some totals may not add due to rounding.

Carryover for each year is within the allowable carryover limit.

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL RESEARCH LABORATORY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
Revenue:			
Gross Sales			
Operations	1,019.9	1,010.5	1,055.7
Capital Surcharges	0.0	0.0	0.0
Capital Investment Recovery	12.6	25.7	22.8
Other Income			
Total Income	1,032.5	1,036.2	1,078.6
Expenses			
Cost of Materiel Sold from Inventory			
Salaries and Wages:			
Military Personnel Compensation & Benefits	4.5	4.2	4.6
Civilian Personnel Compensation & Benefits	396.6	413.1	419.0
Travel and Transportation of Personnel	11.8	13.2	15.0
Material & Supplies (Internal Operations)	38.2	63.5	69.6
Equipment	55.0	50.7	51.3
Other Purchases from NWCF	7.8	18.3	18.8
Transportation of Things	0.7	1.8	1.8
Capital Investment Recovery	12.6	25.7	22.8
Printing and Reproduction	0.0	0.1	0.1
Advisory and Assistance Services	0.0	0.0	0.0
Rent, Communication, Utilities & Misc Charges	22.6	37.3	38.0
Other Purchased Services	479.2	415.2	443.7
Total Expenses	1,029.0	1,043.0	1,084.6
Work in Process Adjustment	-0.7	0.0	0.0
Comp Work for Activity Retention Adjustment	0.0	0.0	0.0
Cost of Goods Sold	1,028.3	1,043.0	1,084.6
Operating Result	4.2	-6.8	-6.0
Adjustments Affecting NOR	-1.4	0.0	0.0
Capital Surcharges	0.0	0.0	0.0
Extraordinary Expenses Unmatched	-1.4	0.0	0.0
Other Changes Affecting NOR (All Others)	0.0	0.0	0.0
Net Operating Result	2.8	-6.8	-6.0
PY AOR	9.943	12.772	6.004
TOTAL AOR	12.8	6.0	0.0
Non-Recoverable Adjustments impacting AOR	0.0	0.0	0.0
AOR for budget purposes	12.8	6.0	0.0

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL RESEARCH LABORATORY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
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1. New Orders	1,009.2	958.8	1,007.7
a. Orders from DoD Components:	933.1	892.4	938.0
Department of the Navy	547.1	557.5	586.3
O & M, Navy	37.7	31.2	32.8
O & M, Marine Corps	0.0	0.0	0.0
O & M, Navy Reserve	0.0	0.0	0.0
O & M, Marine Corp Reserve	0.0	0.0	0.0
Aircraft Procurement, Navy	0.9	0.9	1.0
Weapons Procurement, Navy	0.0	0.0	0.0
Ammunition Procurement, Navy/MC	0.0	0.0	0.0
Shipbuilding & Conversion, Navy	8.0	8.3	8.7
National Sea Base Deterrence Fund	0.0	0.0	0.0
Other Procurement, Navy	9.5	9.0	9.5
Procurement, Marine Corps	0.8	0.5	0.5
Family Housing, Navy/MC	0.0	0.0	0.0
Research, Dev., Test, & Eval., Navy	490.2	507.5	533.7
Military Construction, Navy	0.0	0.0	0.0
National Defense Sealift Fund	0.0	0.0	0.0
Foreign Cooperative Projects, Navy	0.0	0.0	0.0
Other Navy Appropriations	0.0	0.0	0.0
Other Marine Corps Appropriations	0.0	0.0	0.0
Department of the Army	11.0	8.9	9.4
Army Operation & Maintenance	1.1	1.0	1.0
Army Res, Dev, Test, Eval	9.9	7.9	8.3
Army Procurement	0.0	0.0	0.0
Army Other	0.0	0.0	0.0
Department of the Air Force	146.1	123.4	129.6
Air Force Operation & Maintenance	13.9	14.7	15.4
Air Force Res, Dev, Test, Eval	104.3	82.8	86.9
Air Force Procurement	27.9	25.9	27.2
Air Force Other	0.0	0.0	0.0
DOD Appropriation Accounts	229.0	202.6	212.7
Base Closure & Realignment	0.0	0.0	0.0
Operation & Maintenance Accounts	17.3	13.7	14.4
Res, Dev, Test & Eval Accounts	203.9	183.4	192.6
Procurement Accounts	5.0	4.2	4.4
Defense Emergency Relief Fund	0.0	0.0	0.0
DOD Other	2.7	1.2	1.3
b. Orders from other Fund Activity Groups	11.4	9.8	10.3
c. Total DoD	944.5	902.2	948.3
d. Other Orders:	64.7	56.6	59.5
Other Federal Agencies	57.8	50.4	53.0
Foreign Military Sales	0.1	0.1	0.1
Non Federal Agencies	6.8	6.1	6.4
2. Carry-In Orders	524.8	501.4	424.1
3. Total Gross Orders	1,534.0	1,460.2	1,431.8
a. Funded Carry-Over before Exclusions	501.4	424.1	353.2
4. Revenue(-)	1,032.5	1,036.2	1,078.6
5. End of Year Work-In-Process (-)	0.1	0.1	0.1
6. FMS, BRAC, Other Federal, Non-Federal orders, and Inst. MRTFB (-)	49.1	30.7	22.2
7. Funded Carryover	452.2	393.3	330.9

Note: Line 5 (End of Year Work-In-Process) is adjusted for Non-DOD BRAC, FMS, and Institutional MRTFB

CHANGES IN THE COSTS OF OPERATIONS
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL RESEARCH LABORATORY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	Costs
FY 2019 Estimated Actuals	**1,028.3**
FY 2020 President's Budget:	**982.7**
Estimated Impact in FY 2020 of Actual FY 2019 Experience:	**0.0**
Pricing Adjustments:	**20.6**
Civilian Personnel	21.2
General Purchase Inflation	-0.6
Program Changes:	**31.3**
Acoustic Research	**21.4**
Oceanography	**9.8**
Other Changes:	**8.4**
Federal Employees Retirement System (FERS) Contribution Increase	6.4
Facilities Sustainment, Restoration & Modernization	2.0
FY 2020 Current Estimate:	**1,043.0**
Pricing Adjustments:	**5.5**
Annualization of Prior Year Pay Raises	**3.3**
Civilian Personnel	3.3
Military Personnel	0.0
FY 2020 Pay Raise	**1.5**
Civilian Personnel	1.5
Military Personnel	0.0
Fuel Price Changes	0.0
General Purchase Inflation	0.7
Other Price Changes (list)	**0.0**
Working Capital Fund Price Changes	0.0
Productivity Initiatives and Other Efficiencies:	**0.0**
Program Changes:	**33.9**
Acoustic Research	23.9
Oceanography	10.0
Other Changes:	**2.2**
Capital Investment Recovery	-1.0
Facilities Sustainment, Restoration & Modernization	3.4
Change in work days	-0.2
Civilian Equivalency Rate Changes	0.0
FY 2021 Estimate:	**1,084.6**

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CAPITAL INVESTMENT SUMMARY
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL RESEARCH LABORATORY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

		FY 2019		FY 2020		FY 2021	
Line #	Description	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
1	**Non-ADPE and Telecom Equipment >= $.500M**	**16**	**$12.593**	**22**	**$16.116**	**12**	**$14.254**
	- Vehicles	0	$0.000	0	$0.000	0	$0.000
	- Material Handling	0	$0.000	0	$0.000	0	$0.000
	- Installation Security	0	$0.000	0	$0.000	0	$0.000
	- Quality Control/Testing	0	$0.000	0	$0.000	1	$0.679
	- Medical Equipment	0	$0.000	0	$0.000	0	$0.000
	- Machinery	0	$0.000	1	$0.511	0	$0.000
	- Support Equipment	16	$12.593	21	$15.605	11	$13.575
2	**ADPE and Telecom Equipment >= $.500M**	**3**	**$3.211**	**2**	**$1.372**	**3**	**$2.580**
	- Computer Hardware (Production)	2	$1.396	2	$1.372	2	$1.310
	- Computer Hardware (Network)	0	$0.000	0	$0.000	0	$0.000
	- Computer Software (Operating)	0	$0.000	0	$0.000	0	$0.000
	- Telecommunications	0	$0.000	0	$0.000	0	$0.000
	- Other Support Equipment	1	$1.815	0	$0.000	1	$1.270
3	**Software Development >= $.500M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Internally Developed	0	$0.000	0	$0.000	0	$0.000
	- Externally Developed	0	$0.000	0	$0.000	0	$0.000
4	**Minor Construction (>= $.500M and <= $6.000M)**	**3**	**$3.914**	**2**	**$8.094**	**1**	**$6.000**
	- Replacement Capability	0	$0.000	0	$0.000	0	$0.000
	- New Construction	3	$3.914	2	$8.094	1	$6.000
	- Environmental Capability	0	$0.000	0	$0.000	0	$0.000
	Grand Total	**22**	**$19.718**	**26**	**$25.582**	**16**	**$22.834**
	Total Capital Outlays		**$11.636**		**$25.682**		**$22.834**
	Total Capital Investment Recovery		**$12.608**		**$25.682**		**$22.834**

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#001 - Non-ADPE						Naval Research Laboratory		
	FY 2019			FY 2020			FY 2021		
Non-ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Vehicles	0	-	$0	0	-	$0	0	-	$0
Material Handling	0	-	$0	0	-	$0	0	-	$0
Installation Security	0	-	$0	0	-	$0	0	-	$0
Quality Control/ Testing	0	-	$0	0	-	$0	1	679	$679
Medical Equipment	0	-	$0	0	-	$0	0	-	$0
Machinery	0	-	$0	1	511	$511	0	-	$0
Support Equipment	16	787	$12,593	21	743	$15,605	11	1,234	$13,575
Total	16	787	$12,593	22	733	$16,116	12	1,188	$14,254

Justification:

Support Equipment

Capital investment in the support equipment capability will preserve, enhance and support requirements to maintain a technologically advanced, state-of-the-art laboratory and is tied directly to NRL's science and technology (S&T) mission. Investments cover a broadly based multi-disciplinary program of scientific research and advanced technological development directed toward maritime applications of new and improved materials, techniques, equipment, systems, and ocean, atmospheric and space sciences and related technologies.

NRL's largest investments in FY 2020 will be the "**Software Radio Test System and Hypersonic Wind Tunnel Instrumentation**" both costing more than one million dollars each. The "**Software Radio Test System**" investment will include a radio frequency path simulator and signal sources as well as supporting hardware to allow the simulation in a laboratory environment of real world communications and collections scenarios. The "**Software Radio Test System**" allows the engineer to introduce delay, noise, multiple reflected copies of a signal, and other degrading effects into a controlled, simulated channel between a radio source and the receiver. Combined with the wide array of source types that can be generated by the included signal generator a wide variety of targets can be simulated in various conditions to allow testing and debugging of complex software radio systems. . The "**Hypersonic Wind Tunnel Instrumentation**" investment will support the study and engineering of vehicles that travel more than five times the speed of sound. With extremely high forces, moments, heat loads, temperatures, and dynamic instabilities abound in this regime of aerothermodynamics and propulsion engineering, requiring interdisciplinary treatment and analysis that spans theoretical, numerical, and empirical models and their correlation. The Naval Research Laboratory has the expertise and resources to accomplish the theoretical and numerical investigations into hypersonic systems, and an on-site scale model experimental facility would complete the resource pool for primary methods of analysis and verification.

NRL largest investments in FY 2021 are going to be "**Transmission TEM, Transmission Security (TRANSEC) Evaluation Laboratory, New High-Power Microwave (HPM) Test Capability for Emerging Threat Assessment and Defeat, and Airborne Lidar Sensor.**" All four projects cost more than a million dollars each.

The "**Transmission TEM**" investment will provide the capability to characterize the elemental composition and atomic structure of materials at scales of microns to the sub-nanometer. It is an essential tool for advancing materials and device development in support of NRL Core programs in Materials, Chemistry, Biomaterials, Electronics, Nanoscience, Optics, and operates as a Materials Division Facility that is open to researchers across the laboratory. Since transmission electron microscopy is a key tool for characterization of a broad range of materials, and the particular instrument requested is designed as an all-purpose work horse microscope, the programmatic demand is expected to be robust over decades-long time scales.

The "**Transmission Security (TRANSEC) Evaluation Laboratory**" investment will support the implementation within an existing laboratory space, as well as in an existing mobile platform. TRANSEC for communications systems is currently, and for the foreseeable future, one of the highest priorities for senior officials within DoD. This fact is evidenced by the DoD CIO -led formation of a Joint Service working group on TRANSEC. NSA has also listed TRANSEC as a top priority. All this interest is in response to growing adversarial Electronic Warfare (EW) and Signals Intelligence (SIGINT) threats. Despite all this interest, very few facilities exist with the capability of evaluating TRANSEC. A DoD-wide premier TRANSEC evaluation capability would allow the services to have their waveforms evaluated against emerging adversarial threats. The current threat climate suggests these evaluations are and will be necessary to protect US operations and service personnel.

The "**New High-Power Microwave (HPM) Test Capability for Emergent Threat Assessment and Defeat**" investment will support the capability for countering the critical emerging unmanned aerial system (UAS) threat, and for evaluating advanced counter electronics techniques. It consists of two components: 1) Upgrading the anechoic material in an existing anechoic chamber to handle high-average-power HPM waveforms, and 2) the purchase of a new wideband solid-state amplifier. This solid state amplifier will be used both as a stand-alone HPM source and as a driver for an NRL-developed (and patented) pulse compression cavity in order to create the necessary output power to counter the emerging UAS threat.

The "**Airborne Lidar Sensor**" investment will support Applied Optics Branch to expand its ISR focus from panchromatic, multispectral, and hyperspectral passive sensor technology to also include active sensing systems. Active sensing systems, such as lidar sensors, allow for day or night ISR, mapping and targeting in complex environments. In order to maintain the Branch's leading role in developing advanced sensor processing and multi-INT fusion relevant to modern multi-INT ISR systems, there is a strong need for an advanced lidar imaging system that can be used for field able airborne testing. In addition to providing 3-D airborne imaging lidar, and in particular tactical mapping for seeing through fog and other degraded environments by examining the impact of humidity, haze and fog within these three wavebands.

Pre-investment economic analyses were performed for all investments.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#002 - ADPE						Naval Research Laboratory		
	FY 2019			FY 2020			FY 2021		
ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Computer Hardware (Production)	2	698	$1,396	2	686	$1,372	2	655	$1,310
Computer Hardware (Network)	0	-	$0	0	-	$0	0	-	$0
Computer Software (Operating System	0	-	$0	0	-	$0	0	-	$0
Telecommunications	0	-	$0	0	-	$0	0	-	$0
Other Support Equipment	1	1,815	$1,815	0	-	$0	1	1,270	$1,270
Total	3	1,070	$3,211	2	686	$1,372	3	860	$2,580

Justification:

Computer Hardware (Production)
Several investments in computer hardware (production) are proposed for FY 2020 and FY 2021. In FY 2020, some of the investments will benefit the following areas: accelerate the development of improved materials, capture global meteorological satellite data for near real-time processing and remotely-sensed product algorithm development, improve computing power and performance, and design more robust thermal control systems for future spacecraft.

In FY 2020, the investments will benefit the Navy's high demands for the rapid transition of scientific innovations from the laboratory to the warfighter. This virtual computing architecture environment will provide scalable data storage, and will provide flexibility in sizing the processing environments for the simulation and post-processing workload. The ability to create these custom environments and return them when done, meets the need for rapidly adaptable computing environment that meets the ever-changing Navy requirements.

Other Support Equipment
NRL's largest investments in FY 2020 are the "**Virtualization Stack for Division Infrastructure and Multi-purpose PI Support and a Scalable Internet Simulator**". The **Virtualization Stack for Division Infrastructure and Multi-purpose PI Support** investment will maintain leadership at NRL in the development of secure and assured operational computational systems for DoD, the NRL Marine Meteorology Division (MMD) requires a new capability for rapidly provisioning flexible and reusable Navy application computing environments. Over the past decade, the Navy has increasingly selected virtualization for new application deployments, ensuring hardware independence and a much easier and affordable method of developing and fielding war fighting systems. This proposal uses Navy afloat and ashore production architectures as a reference implementation which includes multiple fully populated high performance blade server chassis, highly available 16GB fiber channel and Ethernet switches, 100TB of high speed SAN storage, and all the necessary connectors and adapters. An investment in the proposed CPP will also allow MMD to i) efficiently develop new and enhance existing techniques for Earth system modeling, data post-processing, and advanced METOC applications and TDAs; ii) continue as a leader in the development of secure and assured computational systems for use by the warfighter; and iii) compete for funding in new business areas.

The **"Scalable Internet Simulator"** investment will support NRL's Formal Methods Section performs research and development (R&D) of high assurance security technologies, providing information assurance (IA) to Navy and DoD systems. Traffic-secure routing and secure Internet communication technologies increase IA and provide mechanisms to exchange confidential Navy operational information and commands. The R&D involves modeling distributed networks and systems in order to understand the adversary's capabilities against specific IA technologies in realistic environments and to understand how to develop improvements to the Navy's communication networks in order to enhance the security of operational information.

Realistic and faithful network models are paramount in understanding the risks facing the Navy, in providing IA for mission-critical Navy applications, and in supporting NRL's science and technology mission. Realistic and faithful networks models are also a critical component of our base research agenda, allowing us to design, develop, and evaluate secure R&D algorithms and protocols that meaningfully reduce adversarial risk. In particular, we require the ability to model networks at Internet scale in order to perform the most realistic evaluations possible, to obtain realistic and statistically significant results, and to make meaningful conclusions regarding the effectiveness of our developed secure communication technologies at protecting Navy communication. Internet-scale simulations allow us to improve our understanding of how R&D algorithms and protocols perform on operational networks at scale before incurring the costs and risks associated with a full deployment on real Navy communication networks.

Pre-investment economic analyses were performed for all investments.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#003 - Software Development						Naval Research Laboratory		
	FY 2019			FY 2020			FY 2021		
Software	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Internally Developed	0	-	$0	0	-	$0	0	-	$0
Externally Developed	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	0	-	$0

Justification:

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Research and Development	#004 - Minor Construction						Naval Research Laboratory		
	FY 2019			FY 2020			FY 2021		
Minor Construction	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Replacement	0	-	$0	0	-	$0	0	-	$0
New Construction	3	1,304	$3,914	2	4,047	$8,094	1	6,000	$6,000
Environmental Capability	0	-	$0	0	-	$0	0	-	$0
Total	3	1,304	$3,914	2	4,047	$8,094	1	6,000	$6,000

Justification:

PROJECTS OVER $1M

During FY 2020, the "**Construct Multi-Use Perimeter Pathway**" investment project will construct a multi-use pathway for pedestrian connectivity among its various facilities. A multi-use path enhances quality of life by encouraging foot travel between buildings as well as allowing a safe means of walking around the NRL campus. Additionally, the path provides accessibility for maintenance and inspection of utilities along the fence, such as steam and electrical lines, as well as security patrols.

The second project over $1M in FY 2020, the "**Large Volume Research Facility at CBD to Replace Ex-Shadwell**" investment is to construct a Large Volume Fire Research Structure, a Control Room Building, and associated supporting facilities. These facilities will replace the well deck of the now-disposed ex-USS Shadwell (LSD 15) as NRL's only location for conducting full-scale, large volume testing and research of innovative fire suppression techniques.

During FY 2021, the "**Code 6800 Compound Semiconductor Processing Facility**" investment project provides a highly-specialized, 5385 sq. ft. Class 1,000 clean room environment. Research areas impacted by this facility include RF amplifiers for radar, communications, and electronic-warfare; power electronics for compact efficient power supplies and power distribution; and optoelectronic devices for multi-junction solar cells, infrared imaging, and far IR through extreme UV detectors. Within the CSPF clean room environment, tens of millions of dollars of sophisticated fabrication equipment will be used to pattern circuits with nanoscale lithography, deposit thin films of metals and insulators, and etch away material using chemicals, reactive gases, and controlled plasmas. Circuits and devices will also be annealed up to 1500 °C using various high-temperature furnaces, inspected and characterized using several types of microscopy, ellipsometry, and profilometry, and electrically tested using micro-probe stations. The CSPF will allow users to perform specialized wafer bonding techniques to create composite stacks of diverse materials. Wet chemical benches will be used for acids, base, and solvent treatments of samples. The specialized nature of the equipment and processes, and extremely small scale of the experiments, down to the nanometer-level, in these laboratories demands rigid environmental control, air cleanliness, and tightly coupled toxic gas safety requirements resulting in toxic gas exhaust, fume hoods, and infrastructure monitoring controls. Class 1,000 air cleanliness is required to ensure that airborne particulate counts are kept below a level needed to ensure suitable yield of electronic devices and circuits. (Since typical electronic devices are on the same size scale as single dust particles, if one particle from the ambient environment lands within a circuit, it will disable/destroy the operation of that circuit.) Specialized air filtration to reduce levels of corrosive gases from the ambient environment will also be required.

Additional, redundant cooling capacity to laboratories and clean rooms in Building A59 in the form of a water-cooled chiller with chilled water piping, ductwork, and appurtenances. This building "A59" is over 75 years old and requires modernization in order to meet its mission needs. One specific requirement is in the area of supplied cooled air (i.e. air conditioning), which is of the utmost importance regarding clean rooms. Without reliable conditioned air, all research, development, test and evaluation ceases. Furthermore, the Naval Center for Space Technology prepares payloads for space travel. In order to meet mission needs, all payloads must be fully tested within certain time frames in order reach their specific launch windows. Any delays in the development and test portions of payloads impact missions and tend to have a cascading effect where other payloads developed independently of NRL, as well as the rocket launches themselves, are also delayed.

Pre-investment economic analyses were performed for all investments.

CAPITAL BUDGET EXECUTION

DEPARTMENT OF THE NAVY

RESEARCH AND DEVELOPMENT - NAVAL RESEARCH LABORATORY

FISCAL YEAR (FY) 2021 BUDGET ESTIMATES

FEBRUARY 2020

(DOLLARS IN MILLIONS)

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2019	**1**	**Non ADP**		**$19.219**	**$12.593**	**($6.626)**	
			Vehicles	$0.000	$0.000	$0.000	
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$0.507	$0.000	($0.507)	Funding Adjusted; projects reprioritized
			Machinery	$0.369	$0.000	($0.369)	Funding Adjusted; projects reprioritized
			Support Equipment	$18.343	$12.593	($5.750)	Funding Adjusted; projects reprioritized
	2	**ADP**		**$2.509**	**$3.211**	**$0.702**	
			Computer Hardware (Production)	$1.854	$1.396	($0.458)	Funding Adjusted; projects reprioritized
			Computer Hardware (Network)	$0.655	$0.000	($0.655)	Funding Adjusted; projects reprioritized
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$1.815	$1.815	Funding Adjusted; projects reprioritized
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$6.000**	**$3.914**	**($2.086)**	
			Replacement	$0.000	$0.000	$0.000	
			New Construction	$6.014	$3.914	($2.100)	Funding Adjusted; projects reprioritized
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2019 CIP Program				**$27.728**	**$19.718**	**($8.010)**	

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2020	**1**	**Non ADP**		**$17.057**	**$16.116**	**($0.941)**	
			Vehicles	$0.000	$0.000	$0.000	
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$0.000	$0.000	$0.000	
			Machinery	$0.000	$0.511	$0.511	Funding Adjusted; projects reprioritized
			Support Equipment	$17.057	$15.605	($1.352)	Funding Adjusted; projects reprioritized
	2	**ADP**		**$0.625**	**$1.372**	**$0.747**	
			Computer Hardware (Production)	$0.625	$1.372	$0.747	Funding Adjusted; projects reprioritized
			Computer Hardware (Network)	$0.000	$0.000	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$8.000**	**$8.094**	**$0.094**	
			Replacement	$0.000	$0.000	$0.000	
			New Construction	$8.000	$8.094	$0.094	Funding Adjusted; projects reprioritized
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2020 CIP Program				**$25.682**	**$25.582**	**($0.100)**	

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2021	**1**	**Non ADP**		**$14.254**	**$14.254**	**$0.000**	
			Vehicles	$0.000	$0.000	$0.000	
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$0.679	$0.679	$0.000	
			Machinery	$0.000	$0.000	$0.000	
			Support Equipment	$13.575	$13.575	$0.000	
	2	**ADP**		**$2.580**	**$2.580**	**$0.000**	
			Computer Hardware (Production)	$1.310	$1.310	$0.000	
			Computer Hardware (Network)	$0.000	$0.000	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$1.270	$1.270	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$6.000**	**$6.000**	**$0.000**	
			Replacement	$0.000	$0.000	$0.000	
			New Construction	$6.000	$6.000	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2021 CIP Program				**$22.834**	**$22.834**	**$0.000**	

CARRYOVER RECONCILIATION
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL RESEARCH LABORATORY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
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Part 1			
1. Net Carry-In	524.8	501.4	424.1
2. Revenue	1,032.5	1,036.2	1,078.6
3. New Orders	1,009.2	958.8	1,007.7
4. Exclusions:			
Foreign Military Sales	0.1	0.1	0.1
Base Realignment and Closure	0.0	0.0	0.0
Other Federal Department and Agencies	57.8	50.4	53.0
Non-Federal and Others	6.8	6.1	6.4
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
5. Orders for Carryover Calculation	944.5	902.2	948.3
6. Weighted Average Outlay Rate	51.7%	51.4%	51.4%
7. Carryover Rate	48.3%	48.6%	48.6%
8. Allowable Carryover	480.4	453.7	475.2
Allowable Carryover(First Year)	456.2	438.5	460.9
Allowable Carryover (Second Year Procurement-funded Orders)	24.2	15.2	14.3
Part II			
9. Balance of Customer Order at Year End	501.4	424.1	353.2
10. Work-in-progress	0.1	0.1	0.1
11. Exclusions:			
Foreign Military Sales	0.3	0.1	0.0
Base Realignment and Closure	0.0	0.0	0.0
Other Federal Department and Agencies	44.3	27.5	19.9
Non-Federal and Others	4.5	3.1	2.3
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
12. Calculated Actuals Carryover	452.2	393.3	330.9

Some totals may not add due to rounding.

8. Expeditionary Warfare Center

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NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT
NAVAL FACILITIES ENGINEERING AND EXPEDITIONARY WARFARE CENTER (EXWC)
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Mission Statement / Overview:
The mission of the Naval Facilities Engineering and Expeditionary Warfare Center (EXWC) is to operate the Navy's research, development, and test and evaluation for support combatant capabilities and sustainable facilities through specialized engineering, technology development, and lifecycle logistics services. The EXWC delivers quality products and services in:

- Energy and Utilities
- Amphibious and Expeditionary Systems
- Environmental
- Ocean Facilities
- Shore and Waterfront Facilities

As a member of the Naval Facilities Engineering Command (NAVFAC) and a designated Science and Technology Reinvention Laboratory (STRL), EXWC provides worldwide support services to the Navy, Marine Corps and other Department of Defense (DoD) agencies. These support services provide solutions to problems through engineering; design; construction; consultation; test and evaluation; technology demonstration; implementation, and program management support. The EXWC uses existing technology where possible, identifies and adapts breakthrough technology when appropriate, and performs technology development when required.

Activity Group Composition:
EXWC headquarters site is located at Port Hueneme, California with an east coast detachment at the Washington Navy Yard, Washington DC. The EXWC is the principal Navy provider of specialized engineering services and products for shore and offshore facilities, energy and utilities, environmental support, and amphibious and expeditionary systems. The work performed is accomplished by mobilizing the proper mix of personnel expertise and other technological resources to address customer requirements. The center provides a synergism of expertise and practical experience to solve field activity and fleet needs.

Significant Changes Since the FY 2020 President's Budget:
The FY 2021 focuses on innovation, agility, and responsiveness to warfighter needs. To accomplish this, beginning in FY 2021, the NAVFAC Engineering and EXWC will realign the Warfare Center's mission-funded segment to a single Navy Working Capital Fund (NWCF) model. This conversion coupled with the STRL authorities, enable scientists, engineers and technicians to pivot, innovate and respond to international threats, and provide high velocity technical advancements in real time. A single NWCF model will provide a transparent platform to rapidly deliver technical innovations and strengthen military readiness.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT
NAVAL FACILITIES ENGINEERING AND EXPEDITIONARY WARFARE CENTER (EXWC)
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Starting in FY 2020, there is a significant change to migrate EXWC's official financial system from the Defense Working Capital System (DWAS) to the Department of Navy Enterprise Resource Planning (DoN ERP) as its financial system in FY2020 in support of Working Capital Fund (WCF) General Ledger (GL) Consolidation. This effort is to improve the Navy's audit posture and simplify the financial systems environment by migrating all Navy WCF activities to Navy ERP by 1 October 2020.

Financial Profile:

Revenue/Expense/Operating Result ($Millions):	**FY2019**	**FY2020**	**FY2021**
Orders	$82.4	$87.3	$214.3
Revenue	$80.9	$86.9	$214.4
Expense	$87.4	$85.8	$210.2
Operating Results	($6.5)	$1.1	$4.2
Capital Surcharge	$0.0	$0.0	$0.0
Net Operating Results (NOR)	($6.5)	$1.1	$4.2
Prior Year AOR	$1.2	($5.4)	($4.2)
Other Changes Affecting AOR	$0.0	$0.0	$0.0
Accumulated Operating Results (AOR)	($5.3)	($4.2)	$0.0

Some totals may not add due to rounding.

Orders, Revenue and Expense: The majority of the change in orders, revenue, and expense from FY 2020 to FY 2021 reflects the increase in customer demand resulting from the FY2021 plan to convert the EXWC mission funded segment to the EXWC NWCF model. Additionally, changes in revenue and expense between FY 2020 and FY 2021 are a result of the economic assumptions for inflation/pricing and includes Federal Employees' Retirement System (FERS) increase.

Disbursements/Collections/Outlays ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Disbursements	$88.1	$92.4	$215.3
Collections	$85.3	$95.1	$218.4
Outlays	$2.8	($2.7)	($3.1)

Some totals may not add due to rounding.

Disbursements and collections reflect expected revenue and expenses based on anticipated changes in accounts receivable and accounts payable/accrued labor expenses. Net Outlays are projected to remain relatively stable from FY 2019 to FY 2020.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT
NAVAL FACILITIES ENGINEERING AND EXPEDITIONARY WARFARE CENTER (EXWC)
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Workload:

Direct Labor Hours (000):	**FY 2019**	**FY 2020**	**FY 2021**
Current Estimate	550	552	1,082

Direct labor hours reflect demand for the EXWC specialized, engineering services. Each year, customer demand and required services are estimated and reviewed to ensure the command is correctly resourcing and leveraging engineering expertise needed to provide the right mix of engineering services and to maintain the correct level of organic capability to meet recurring customer demand. Change in FY2021 direct labor hours are attributable to the conversion of the EXWC mission segment to the EXWC NWCF model.

Performance Indicators: The EXWC outputs are scientific and engineering designs, developments, tests, evaluations, analyses and fleet support in EXWC assigned mission areas. The measure for these outputs is the direct labor hour worked for a customer. Customers are charged a predetermined stabilized billing rate per direct employee hour worked (revenue rate). The rate includes the salary and benefits costs of the performing employee (direct labor costs) and a share of the overhead costs of the EXWC, both general and administrative support and the unique production overhead costs of the performing employee. Non-labor, non-overhead costs, such as customer required material and equipment purchases, travel expenses, and contractual services, are charged to the customer on an actual cost reimbursable basis, and are excluded from the EXWC stabilized pricing structure. The primary performance indicator is unit cost, which represents the average cost of delivering goods and services to our customers.

Unit Cost:	**FY 2019**	**FY 2020**	**FY 2021**
Total Stabilized Cost ($Millions)	$68.5	$66.7	$132.8
Workload (DLHs) (000)	550	552	1,082
Unit cost (per DLH)	$124.59	$120.86	$122.77

Unit cost is the method established to authorize and control costs (expenses rate). Unit cost goals allow activities to respond to workload changes in execution by encouraging reduced costs when workload declines and allowing appropriate increases in costs when customers request additional services.

Stabilized / Composite Rates:	**FY 2019**	**FY 2020**	**FY 2021**
Stabilized Rate	$107.18	$124.95	$126.97
Change from Prior Year		16.58%	1.62%
Composite Rate Change		12.32%	1.77%

The stabilized rate consists of direct labor and applied overhead. Unique direct non-labor costs are billed on a reimbursable basis to the customer (revenue rate). The composite rate change incorporates both the stabilized costs and the reimbursable costs. The lower composite rate in FY 2021 reflects the conversion of the EXWC mission funded segment to the EXWC NWCF model, and inflation/pricing changes.

Staffing:

Civilian/Military ES & Workyears:	FY 2019	FY 2020	FY 2021
Civilian End Strength	435	419	839
Civilian Workyears (straight time)	418	415	835
Military End Strength	3	3	3
Military Workyears	3	3	3

Civilian Personnel: The EXWC management team maintains an optimal mix and quantity of personnel required to ensure effectiveness in providing quality products and services to our customers. Ultimately, EXWC continues to size the civilian workforce in response to mission and/or regulatory requirements. The FY 2021 reflects the personnel that will convert from mission funded to the NWCF model.

Military Personnel: Military end strength and workyears remain unchanged.

Capital Investment Program (CIP) Authority ($Millions):	FY 2019	FY 2020	FY 2021
Equipment, Non-ADP / Telecom	$0.0	$0.0	$0.0
Equipment, ADPE / Telecom	$0.0	$0.0	$0.0
Software Development	$0.0	$0.0	$0.0
Minor Construction	$0.0	$0.0	$0.0
Total	$0.0	$0.0	$0.0

The EXWC is not requesting CIP authority in FY 2021.

NARRATIVE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT
NAVAL FACILITIES ENGINEERING AND EXPEDITIONARY WARFARE CENTER (EXWC)
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Carryover Compliance ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Net Carry-In	$33.3	$34.8	$35.2
Allowable Carryover	$34.3	$30.9	$68.2
Calculated Actual Carryover	$32.0	$32.6	$32.9
Delta (Actual-Allowable): Above Ceiling (+)/Below Ceiling (-)	($2.3)	$1.7	($35.3)

Some totals may not add due to rounding.

Carryover for the budgeted year is within the allowable carryover limit.

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL FACILITIES ENGINEERING AND EXPEDITIONARY WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
Revenue:			
Gross Sales			
Operations	80.8	86.9	214.4
Capital Surcharges	0.0	0.0	0.0
Capital Investment Recovery	0.0	0.0	0.0
Other Income			
Total Income	80.9	86.9	214.4
Expenses			
Cost of Materiel Sold from Inventory			
Salaries and Wages:			
Military Personnel Compensation & Benefits	0.4	0.4	0.4
Civilian Personnel Compensation & Benefits	62.2	64.6	120.9
Travel and Transportation of Personnel	4.7	4.8	5.1
Material & Supplies (Internal Operations)	3.4	2.1	10.2
Equipment	2.0	1.0	1.0
Other Purchases from NWCF	0.4	0.8	1.0
Transportation of Things	0.3	0.3	1.3
Capital Investment Recovery	0.0	0.0	0.0
Printing and Reproduction	0.0	0.0	0.0
Advisory and Assistance Services	0.0	0.0	3.0
Rent, Communication, Utilities & Misc Charges	0.5	0.9	1.1
Other Purchased Services	13.4	10.9	66.0
Total Expenses	87.4	85.8	210.2
Work in Process Adjustment	0.0	0.0	0.0
Comp Work for Activity Retention Adjustment	0.0	0.0	0.0
Cost of Goods Sold	87.4	85.8	210.2
Operating Result	-6.5	1.1	4.2
Adjustments Affecting NOR	0.0	0.0	0.0
Capital Surcharges	0.0	0.0	0.0
Extraordinary Expenses Unmatched	0.0	0.0	0.0
Other Changes Affecting NOR (All Others)	0.0	0.0	0.0
Net Operating Result	-6.5	1.1	4.2
PY AOR	1.2	-5.4	-4.2
TOTAL AOR	-5.4	-4.2	0.0
Non-Recoverable Adjustments impacting AOR	0.0	0.0	0.0
AOR for budget purposes	-5.4	-4.2	0.0

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL FACILITIES ENGINEERING AND EXPEDITIONARY WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
1. New Orders	82.4	87.3	214.3
a. Orders from DoD Components:	76.8	75.4	203.9
Department of the Navy	68.1	64.7	193.3
O & M, Navy	38.6	38.9	129.8
O & M, Marine Corps	3.1	1.2	1.8
O & M, Navy Reserve	1.0	0.0	29.4
O & M, Marine Corp Reserve	0.1	0.0	0.0
Aircraft Procurement, Navy	0.0	0.0	0.0
Weapons Procurement, Navy	0.0	0.0	0.0
Ammunition Procurement, Navy/MC	0.0	0.0	0.0
Shipbuilding & Conversion, Navy	0.2	0.0	0.0
National Sea Base Deterrence Fund	0.0	0.0	0.0
Other Procurement, Navy	2.6	3.8	11.4
Procurement, Marine Corps	0.3	0.1	0.0
Family Housing, Navy/MC	0.0	0.0	0.0
Research, Dev., Test, & Eval., Navy	15.5	19.9	20.1
Military Construction, Navy	6.7	0.8	0.3
National Defense Sealift Fund	0.0	0.0	0.0
Foreign Cooperative Projects, Navy	0.0	0.0	0.0
Other Navy Appropriations	0.0	0.0	0.4
Other Marine Corps Appropriations	0.0	0.0	0.2
Department of the Army	2.5	4.3	4.1
Army Operation & Maintenance	2.0	2.2	3.4
Army Res, Dev, Test, Eval	0.5	2.1	0.7
Army Procurement	0.0	0.0	0.0
Army Other	0.0	0.0	0.0
Department of the Air Force	1.1	1.5	1.1
Air Force Operation & Maintenance	0.4	0.0	0.0
Air Force Res, Dev, Test, Eval	0.0	1.5	1.1
Air Force Procurement	0.0	0.0	0.0
Air Force Other	0.7	0.1	0.0
DOD Appropriation Accounts	5.1	4.8	5.4
Base Closure & Realignment	1.1	0.9	0.9
Operation & Maintenance Accounts	0.2	1.1	1.2
Res, Dev, Test & Eval Accounts	3.6	2.1	2.7
Procurement Accounts	0.1	0.2	0.2
Defense Emergency Relief Fund	0.0	0.0	0.0
DOD Other	0.2	0.5	0.4
b. Orders from other Fund Activity Groups	4.3	9.9	8.7
c. Total DoD	81.1	85.3	212.6
d. Other Orders:	1.3	2.0	1.7
Other Federal Agencies	1.2	1.5	1.1
Foreign Military Sales	0.1	0.3	0.3
Non Federal Agencies	0.1	0.3	0.3
2. Carry-In Orders	33.3	34.8	35.2
3. Total Gross Orders	115.7	122.1	249.5
a. Funded Carry-Over before Exclusions	34.8	35.2	35.1
4. Revenue(-)	80.9	86.9	214.4
5. End of Year Work-In-Process (-)	0.0	0.0	0.0
6. FMS, BRAC, Other Federal, Non-Federal orders, and Inst. MRTFB (-)	2.8	2.6	2.2
7. Funded Carryover	32.0	32.6	32.9

Note: Line 5 (End of Year Work-In-Process) is adjusted for Non-DOD BRAC, FMS, and Institutional MRTFB

CHANGES IN THE COSTS OF OPERATIONS
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL FACILITIES ENGINEERING AND EXPEDITIONARY WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	Costs
FY 2019 Estimated Actuals	**87.4**
FY 2020 President's Budget:	**83.5**
Estimated Impact in FY 2020 of Actual FY 2019 Experience:	**0.0**
Pricing Adjustments:	**1.4**
Civilian Personnel	1.4
General Inflation	0.0
Program Changes:	**3.6**
Increase of 11 end strength (ES) and 10 full time equivilants (FTEs). Positions were filled in the Ocean Facilities product line for Maritime Offshore Test Bed (MOTB), Port Security Barrier (PSB), and Surveillance Towed Array Sensor System (SURTASS)	1.4
Change in workforce mix and due to the enactment of H.J.Res.31 - Consolidated Appropriations Act, 2019, which includes a 1.9% pay raise for CY 2019	1.2
Increase due to CIVPERS Federal Employees Retirement System (FERS) Agency Contribution	1.0
Other Changes:	**-2.6**
Reduction in contract costs	-2.6
FY 2020 Current Estimate:	**85.8**
FY 2020 Current Estimate:	**85.8**
Pricing Adjustments:	**1.2**
Annualization of Prior Year Pay Raises	**0.5**
Civilian Personnel	0.5
Military Personnel	0.0
FY 2021 Pay Raise	**0.5**
Civilian Personnel	0.5
Military Personnel	0.0
Fuel Price Changes	0.0
General Purchase Inflation	0.2
Other Price Changes (list)	**0.0**
Working Capital Fund Price Changes	**0.0**
Productivity Initiatives and Other Efficiencies:	**0.0**
Program Changes:	**122.0**
Research and Development Contracts (RDCs)	2.4
Realignment of funding and civilian personnel (+429 ES/FTE) to improve innovation, agility, and responsiveness to warfighter needs. To accomplish this, beginning in FY 2021, the Naval Facilities Engineering Command (NAVFAC) Engineering and Expeditionary Warfare Center (EXWC) will convert the Warfare Center's mission-funded segment to a single Navy Working Capital Fund (NWCF) model. This conversion coupled with the Science and Technology Reinvention Laboratory (STRL) authorities, enable scientists, engineers and technicians to pivot, innovate and respond to international threats, provide high velocity technical advancements in real time. The change will align the Command's funding model with the model used by the other naval warfare centers and STRLs. After this change, funding traditionally provided as mission funds will flow via NWCF reimbursable transactions. A single NWCF model will provide a transparent platform to rapidly deliver technical innovations and strengthen military readiness.	119.6
Align Enterprise Resource Planning (ERP) sustainment costs to direct reimbursable	0.6
Reduce indirect costs to align ERP sustainment costs to direct reimbursable	-0.6
Other Changes:	**1.1**
Change in work days due to one less paid day	-0.2
Increase to civilian personnel costs for directed employer Federal Employees' Retirement System (FERS) contributions	1.8
Increase to civilliam personnel performance awards	0.8
Reduction of overhead civillian personnel (-9 ES/FTE)	-1.3
FY 2021 Estimate:	**210.2**

CAPITAL INVESTMENT SUMMARY
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL FACILITIES ENGINEERING AND EXPEDITIONARY WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

		FY 2019		FY 2020		FY 2021	
Line #	Description	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
1	**Non-ADPE and Telecom Equipment >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Vehicles	0	$0.000	0	$0.000	0	$0.000
	- Material Handling	0	$0.000	0	$0.000	0	$0.000
	- Installation Security	0	$0.000	0	$0.000	0	$0.000
	- Quality Control/Testing	0	$0.000	0	$0.000	0	$0.000
	- Medical Equipment	0	$0.000	0	$0.000	0	$0.000
	- Machinery	0	$0.000	0	$0.000	0	$0.000
	- Support Equipment	0	$0.000	0	$0.000	0	$0.000
2	**ADPE and Telecom Equipment >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Computer Hardware (Production)	0	$0.000	0	$0.000	0	$0.000
	- Computer Hardware (Network)	0	$0.000	0	$0.000	0	$0.000
	- Computer Software (Operating)	0	$0.000	0	$0.000	0	$0.000
	- Telecommunications	0	$0.000	0	$0.000	0	$0.000
	- Other Support Equipment	0	$0.000	0	$0.000	0	$0.000
3	**Software Development >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Internally Developed	0	$0.000	0	$0.000	0	$0.000
	- Externally Developed	0	$0.000	0	$0.000	0	$0.000
4	**Minor Construction (>= $.250M and <= $2.000M)**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Replacement Capability	0	$0.000	0	$0.000	0	$0.000
	- New Construction	0	$0.000	0	$0.000	0	$0.000
	- Environmental Capability	0	$0.000	0	$0.000	0	$0.000
	Grand Total	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	Total Capital Outlays		**$0.000**		**$0.000**		**$0.000**
	Total Capital Investment Recovery		**$0.036**		**$0.038**		**$0.038**

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 PROGRAM / BUDGET SUBMISSION TO OSD / OMB					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Base Support	#001 - Non-ADPE						Naval Facilities Engineering and Expeditionary Warfare		
	FY 2019			FY 2020			FY 2021		
Non-ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Vehicles	0	-	$0	0	-	$0	0	-	$0
Material Handling	0	-	$0	0	-	$0	0	-	$0
Installation Security	0	-	$0	0	-	$0	0	-	$0
Quality Control/ Testing	0	-	$0	0	-	$0	0	-	$0
Medical Equipment	0	-	$0	0	-	$0	0	-	$0
Machinery	0	-	$0	0	-	$0	0	-	$0
Support Equipment	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	0	-	$0

Justification:

No FY2020 or FY2021 NWCF CIP Programs

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 PROGRAM / BUDGET SUBMISSION TO OSD / OMB					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Base Support	#002 - ADPE						Naval Facilities Engineering and Expeditionary Warfare Center		
	FY 2019			FY 2020			2021		
ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Computer Hardware (Production)	0	-	$0	0	-	$0	0	-	$0
Computer Hardware (Network)	0	-	$0	0	-	$0	0	-	$0
Computer Software (Operating System	0	-	$0	0	-	$0	0	-	$0
Telecommunications	0	-	$0	0	-	$0	0	-	$0
Other Support Equipment	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	0	-	$0

Justification:
No FY2020 or FY2021 NWCF CIP Programs

CAPITAL INVESTMENT JUSTIFICATION	FISCAL YEAR (FY) 2021 PROGRAM / BUDGET SUBMISSION TO OSD / OMB
(DOLLARS IN THOUSANDS)	FEBRUARY 2020

Select Business Area	#003 - Software Development						Facilities Engineering Commands		
	FY 2019			FY 2020			FY 2021		
Software	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Internally Developed	0	-	$0	0	-	$0	0	-	$0
Externally Developed	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	0	-	$0

Justification:

No FY2020 or FY2021 NWCF CIP Programs

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 PROGRAM / BUDGET SUBMISSION TO OSD / OMB					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Base Support	#004 - Minor Construction						Naval Facilities Engineering and Expeditionary Warfare Center		
	FY 2019			FY 2020			FY 2021		
Minor Construction	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Replacement	0	-	$0	0	-	$0	0	-	$0
New Construction	0	-	$0	0	-	$0	0	-	$0
Environmental Capability	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	0	-	$0

Justification:

No FY2020 or FY2021 NWCF CIP Programs

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CAPITAL BUDGET EXECUTION
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL FACILITIES ENGINEERING AND EXPEDITIONARY WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2019	**1**	**Non ADP**		**$1.400**	**$0.000**	**($1.400)**	
			Vehicles	$0.000	$0.000	$0.000	
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$1.400	$0.000	($1.400)	$1.4M Authority reprogrammed to FEC via FY19 1st Qtr Reprogramming Request.
			Machinery	$0.000	$0.000	$0.000	
			Support Equipment		$0.000	$0.000	
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
			Computer Hardware (Production)	$0.000	$0.000	$0.000	
			Computer Hardware (Network)	$0.000	$0.000	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$0.000**	**$0.000**	**$0.000**	
			Replacement	$0.000	$0.000	$0.000	
			New Construction	$0.000	$0.000	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2019 CIP Program				**$1.400**	**$0.000**	**($1.400)**	
FY	**L.I.**	**Category**	**Capability/Project**	**I.R**	**C.P.R**	**A.C.**	**Explanation**
2020	**1**	**Non ADP**		**$0.000**	**$0.000**	**$0.000**	
			Vehicles	$0.000	$0.000	$0.000	
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$0.000	$0.000	$0.000	
			Machinery	$0.000	$0.000	$0.000	
			Support Equipment	$0.000	$0.000	$0.000	
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
			Computer Hardware (Production)	$0.000	$0.000	$0.000	
			Computer Hardware (Network)	$0.000	$0.000	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$0.000**	**$0.000**	**$0.000**	
			Replacement	$0.000	$0.000	$0.000	
			New Construction	$0.000	$0.000	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2020 CIP Program				**$0.000**	**$0.000**	**$0.000**	**NO FY2020 CIP AUTHORITY**
FY	**L.I.**	**Category**	**Capability/Project**	**I.R**	**C.P.R**	**A.C.**	**Explanation**
2021	**1**	**Non ADP**		**$0.000**	**$0.000**	**$0.000**	
			Vehicles	$0.000	$0.000	$0.000	
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$0.000	$0.000	$0.000	
			Machinery	$0.000	$0.000	$0.000	
			Support Equipment	$0.000	$0.000	$0.000	
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
			Computer Hardware (Production)	$0.000	$0.000	$0.000	
			Computer Hardware (Network)	$0.000	$0.000	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$0.000**	**$0.000**	**$0.000**	
			Replacement	$0.000	$0.000	$0.000	
			New Construction	$0.000	$0.000	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2021 CIP Program				**$0.000**	**$0.000**	**$0.000**	**NO FY2021 CIP AUTHORITY**

CARRYOVER RECONCILIATION
DEPARTMENT OF THE NAVY
RESEARCH AND DEVELOPMENT - NAVAL FACILITIES ENGINEERING AND EXPEDITIONARY WARFARE CENTER
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
Part 1			
1. Net Carry-In	33.3	34.8	35.2
2. Revenue	80.9	86.9	214.4
3. New Orders	82.4	87.3	214.3
4. Exclusions:			
Foreign Military Sales	0.1	0.3	0.3
Base Realignment and Closure	1.1	0.9	0.9
Other Federal Department and Agencies	1.2	1.5	1.1
Non-Federal and Others	0.1	0.3	0.3
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
5. Orders for Carryover Calculation	80.0	84.4	211.7
6. Weighted Average Outlay Rate	58.4%	64.1%	68.2%
7. Carryover Rate	41.6%	35.9%	31.8%
8. Allowable Carryover	34.3	30.9	68.2
Allowable Carryover(First Year)	33.3	30.3	67.3
Allowable Carryover (Second Year Procurement-funded Orders)	1.0	0.7	0.8
Part II			
9. Balance of Customer Order at Year End	34.8	35.2	35.1
10. Work-in-progress	0.0	0.0	0.0
11. Exclusions:			
Foreign Military Sales	0.0	0.0	0.1
Base Realignment and Closure	1.84	1.79	1.712
Other Federal Department and Agencies	0.9	0.8	0.4
Non-Federal and Others	0.1	0.0	0.0
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
12. Calculated Actuals Carryover	32.0	32.6	32.9

Some totals may not add due to rounding.

9. Military Sealift Command

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NARRATIVE
DEPARTMENT OF THE NAVY
TRANSPORTATION – MILITARY SEALIFT COMMAND
FISCAL YEAR (FY) 2021 PROGRAM / BUDGET ESTIMATES
FEBRUARY 2020

Mission Statement / Overview:
The Military Sealift Command (MSC) is the single manager-operating agency for sealift services. The primary focuses of MSC include over-ocean movement of supplies and provisions to the deployed operating forces, maintaining prepositioned equipment and supplies, and other special mission services. These services combine to support the Department of the Navy (DON) in deterring potential threats and promptly responding to crisis in the maritime crossroads. MSC provides support to Naval Fleet Commanders (FLTCOMs) and Department of Defense (DoD) activities by providing unique vessels and programs. Ships and crews ready for tasking and fully interoperable with the Fleet and joint force is the metric for evaluating mission performance in support of MSC customers.

Activity Group Composition:
MSC supports the United States Pacific Fleet (USPACFLT), the U.S. Fleet Forces Command (USFFC), the Naval Sea Systems Command (NAVSEA), the Naval Information Warfare Systems Command (NAVWAR), the Strategic Systems Programs (SSP), the Missile Defense Agency (MDA) and the U.S. Air Force, with unique vessels and programs.

The four programs budgeted through the Navy Working Capital Fund (NWCF) are:

Combat Logistics Force (CLF): Provides support utilizing civilian mariner manned non-combatant ships for material support including underway replenishment, commercial helicopter services and other direct fleet support to Navy ships worldwide.

Special Mission Ships (SMS): Provides unique seagoing platforms, which support specialized scientific and technical missions for DoD sponsors. Missions include ocean surveillance, oceanographic survey, cable laying, missile telemetry collection, submarine support and navigation test support.

Afloat Prepositioning Force-Navy (APF-N): Deploys advance material for strategic lifts and at-sea staging around the world for the U.S. Navy and Marine Expeditionary Forces. This program also contains the Expeditionary Transfer Dock (ESD) and Expeditionary Sea Base (ESB) ship classes, which are highly flexible platforms, utilized across a broad range of military operations supporting the deployment and sustainment of forces and prepositioned supplies and equipment.

Service Support Ships (SSS): Provides the Navy with towing, rescue and salvage, submarine support, floating medical facilities, as well as the Navy's 6th Fleet Flagship. Also included are Expeditionary Fast Transports (EPF), which provide rapid, intra-theater transport of conventional, or Special Forces and military equipment and supplies. Support ships include Fleet Ocean Tugs, Rescue and Salvage Ships, Hospital Ships, Submarine

Tenders, Command Ship, High Speed Transport Vessels, the contracted Harbor Tugs and Tows, and Motor Vessels (MVs).

Significant Changes Since the FY 2020 President's Budget:

CLF – USNS JOHN LEWIS (T-AO-205) expected to be operational in FY 2021. Pre-delivery funding has been identified for USNS JOHN LEWIS (T-AO-205), T-AOX 2 and T-AOX 3 and post-delivery funding has been identified for T-AOX 2 and T-AOX 3.

SMS – No major changes.

APF-N – USS CURTIS will operate in FY 2021 as the alternate to SS WRIGHT from FY 2020. USNS JOHN GLENN will operate with reduced operating status (ROS) in order to accommodate necessary training and exercises.

SSS – USNS SIOUX's decommissioning was delayed and it will operate 365 per diem days in FY 2021 due to delay in construction of T-ATS vessels. USNS NAVAJO (T-ATS 6) is scheduled to deliver in FY 2021 and requires pre-delivery costs. Additionally, SSS program increase supports the USNS NEWPORT (T-EPF 12) operating a full year, Offshore Supply Vessel (OSV) lease in support of Vertical Launching System and High Speed Transport 2 (HST 2) ship. USNS SPEARHEAD (T-EPF-1) has been placed in reduced operating states (ROS-45) for 182 days and FOS 183 days in support of two operational deployments. USNS CHOCTAW COUNTY (T-EPF-2) is placed in a ROS-45 in FY 2021.

Financial Profile:

Orders/Revenue/Expense/Operating Results ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Revenue	$3,145.7	$3,570.5	$3,372.3
Expense	$3,280.0	$3,315.4	$3,304.9
Operating Results	($134.3)	$255.1	$67.4
Capital Surcharge	$0.0	$0.0	$0.0
Net Operating Results (NOR)	($134.3)	$255.1	$67.4
Prior Year AOR	($138.3)	($272.5)	($67.4)
Other Changes Affecting AOR	$0.0	($50.0)	$0.0
Accumulated Operating Results (AOR)	($272.5)	($67.4)	$0.0

Some totals may not add due to rounding.

NARRATIVE
DEPARTMENT OF THE NAVY
TRANSPORTATION – MILITARY SEALIFT COMMAND
FISCAL YEAR (FY) 2021 PROGRAM / BUDGET ESTIMATES
FEBRUARY 2020

Orders, Revenue and Expense: The variations in revenue and expense from year-to-year are associated with the changes in ship fleet as discussed in the previous section.

Net Operating Result (NOR): The FY 2020 current estimate of $255.1 is a result of fuel price changes, non-pay inflation across the ship classes, Navy directed $50M deferred AOR and PY AOR recovery. All changes have been incorporated and are anticipated to be recovered in the FY 2021 rates.

Disbursements/Collections/Outlays ($Millions)	FY2019	FY2020	FY2021
Disbursements	$3,214.6	$3,316.9	$3,304.4
Collections	$3,085.7	$3,570.5	$3,372.3
Outlays	$128.9	($253.7)	($67.9)

Some totals may not add due to rounding.

Disbursements: FY 2019 (actuals), FY 2020 and FY 2021 represent budgeted expenses and Capital Investment Program (CIP) outlays adjusted for changes in accounts payable.

Collections: FY 2019 (actuals), FY 2020 and FY 2021 reflect expected revenue based on current estimates adjusted for changes in accounts receivable.

Workload:	FY 2019	FY 2020	FY 2021
CLF	11,315	11,346	11,472
SMS	7,300	7,320	7,300
APF-N	6,027	6,222	6,205
SSS	8,957	9,467	10,007

Workload for MSC refers to the number of per diem days associated with each of the four MSC programs. FY 2021 decease in workdays due to one less day in FY 2021. Other changes in workload are associated with the changes in ship fleet which include: APF manning change of USNS JOHN GLENN; CLF manning of USNS JOHN LEWIS; SSS increase due to USNS NEWPORT operating a full year of per diem, addition of both the OSV ship lease and HST-2, and the scheduled delivery of USNS NAVAJO.

Reimbursable Orders ($ Millions):	FY 2019	FY 2020	FY 2021
Current Estimate	$3,160.7	$3,570.5	$3,372.3

Orders for MSC will equate to revenue. Variances are due to changes in per diem days, fuel price changes, and requirement to attain zero AOR in FY 2021.

NARRATIVE
DEPARTMENT OF THE NAVY
TRANSPORTATION – MILITARY SEALIFT COMMAND
FISCAL YEAR (FY) 2021 PROGRAM / BUDGET ESTIMATES
FEBRUARY 2020

Direct Labor Hours (000):	**FY 2019**	**FY 2020**	**FY 2021**
Current Estimate	18,755	17,149	18,028

FY 2019 labor hours reflects an increase in manning requirements aboard the Combat Logistics Force (CLF) ships from three station to five station, in addition to, an increase in manning requirements aboard the hospital ships. The increase in FY 2021 is due to additional workload for new vessels being delivered in FY 2021 associated with the changes in ship fleet.

Performance Indicators: Program Performance is measured by ship availability days comparing actual days that ships are ready for tasking (available to perform the function for which they were intended) against planned ship days. Any change in ship operations, such as Full Operating Status (ready to deploy or deployed) to Reduced Operating Status (e.g. ROS-15, ROS-30 or ROS-45 day), or moving or transiting ships temporarily or permanently between various locations both CONUS and OCONUS, is coordinated in collaboration with the respective MSC customer.

Unit Cost:	**FY 2019**	**FY 2020**	**FY 2021**
CLF	$132,770	$136,151	$141,423
SMS	$53,936	$52,075	$47,932
APF-N	$53,334	$91,347	$80,490
SSS	$56,768	$69,728	$61,646

Unit Cost: The unit cost is the method established to authorize and control costs. This method allows activities to appropriately respond to changes in workload by increasing or decreasing costs based on fluctuations in requirements. MSC operates under four distinct unit cost goals - one for each of its programs. All programs have cost/per day as the unit cost basis (costs include only per diem expenses in the annual operating budget (AOB). Ship inventory levels by ship class and ship availability status including FOS, ROS, deployment or undergoing shipyard maintenance and repair impacts unit cost levels. Costs in all years are primarily a function of approved escalation, fuel, Civilian Mariner salaries, and Maintenance and Repair.

Performance Rate Change From Prior Year:	**FY 2019**	**FY 2020**	**FY 2021**
CLF	6.6%	10.3%	3.5%
SMS	31.5%	30.4%	-12.2%
APF-N	-1.5%	66.8%	-17.6%
SSS	2.2%	31.0%	-26.6%

Percentages reflect the change in unit cost from year to year and reflect changes in ship inventory by ship class and availability as stated in the significant changes section. The overall increase in unit cost in FY 2020 is primarily due to the initial and support costs of new ships coming online and AOR recovery. The overall decrease in unit cost in FY 2021 is due to stabilized rates to achieve zero AOR.

Staffing:

Civilian/Military ES & Workyears:	FY 2019	FY 2020	FY 2021
Civilian End Strength	6,623	6,840	6,903
Civilian Workyears (straight time)	8,710	6,374	6,604
Military End Strength	174	165	165
Military Workyears	162	165	165

Civilian Personnel: End Strength changes are mainly due to new ships coming on and off line. The Workyear decrease in the FY 2020, is due to the adjustment for the Civilian Mariners Full Time Equivalent (FTE) to be calculated using 2,920 hours vice the previously used 2,080 hours. This change more accurately reflect the CIVMAR daily ship work schedule of a 7-day workweek vice the traditional 5-day workweek.

Military Personnel: Military End Strength varies due to the onboard and departure timing of Military Personnel.

Capital Investment Program (CIP):

CIP Authority ($Millions):	FY 2019	FY 2020	FY 2021
Equipment, Non-ADP / Telecom	$0.0	$0.0	$0.0
Equipment, ADPE / Telecom	$2.2	$0.0	$0.0
Software Development	$0.0	$0.0	$0.0
Minor Construction	$1.9	$0.0	$0.0
Total	$4.2	$0.0	$0.0

Information Technology efforts represent the predominant share of CIP authority. These efforts include migration to a paperless environment, secure storage of engineering materials, Automated Data Processing Equipment (ADPE) for Shipboard local area networks (LANs), systems development efforts – (e.g., mandated travel system, financial management system), migration of civilian mariner (CIVMAR) pay function to Defense Finance and Accounting Service, and Next Generation Wideband. Information

Technology represents MSC requirements to implement unclassified and classified Local Area Networks (LANS) at all ships, offices, area command, and headquarters world-wide.

Minor Construction efforts consist of adding approximately 2750 square footage of workspace to MSC Headquarter (Building SP 64) in the form of a one-story addition, installation of a back-up generator to power the building and buildout of classified space-SCIF.

There are no FY 2020 and FY 2021 Capital Investments planned for MSC as future projects have been identified as most appropriate in a different Navy Appropriations.

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
TRANSPORTATION - MILITARY SEALIFT COMMAND
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
Revenue:			
Gross Sales			
Operations	3,145.6	3,570.5	3,370.3
Capital Surcharges	-	-	-
Capital Investment Recovery	0.1	-	2.0
Other Income			
Total Income	3,145.7	3,570.5	3,372.3
Expenses			
Cost of Materiel Sold from Inventory			
Salaries and Wages:			
Military Personnel Compensation & Benefits	16.1	16.1	16.4
Civilian Personnel Compensation & Benefits	862.0	878.7	903.4
Travel and Transportation of Personnel	41.1	44.7	51.2
Material & Supplies (Internal Operations)	526.2	602.3	532.6
Equipment	81.5	108.3	112.1
Other Purchases from NWCF	2.2	2.5	2.6
Transportation of Things	12.3	11.6	12.1
Capital Investment Recovery	0.1	-	2.0
Printing and Reproduction	0.4	0.4	0.4
Advisory and Assistance Services	-	-	-
Rent, Communication, Utilities & Misc Charges	531.3	419.4	431.1
Other Purchased Services	1,206.9	1,231.3	1,241.1
Total Expenses	3,280.0	3,315.4	3,304.9
Work in Process Adjustment	-	-	-
Comp Work for Activity Retention Adjustment	-	-	-
Cost of Goods Sold	3,280.0	3,315.4	3,304.9
Operating Result	-134.3	255.2	67.4
Adjustments Affecting NOR	-	-	-
Capital Surcharges	-	-	-
Extraordinary Expenses Unmatched	-	-	-
Other Changes Affecting NOR (All Others)	-	-	-
Net Operating Result	-134.3	255.2	67.4
PY AOR	-138.3	-272.5	-67.4
TOTAL AOR	-272.5	-17.4	-
Non-Recoverable Adjustments impacting AOR	-	-50.0	-
AOR for budget purposes	-272.5	-67.4	-

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
TRANSPORTATION - MILITARY SEALIFT COMMAND
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
	---	---	---
1. New Orders	3,160.7	3,570.5	3,372.3
a. Orders from DoD Components:	3,151.8	3,561.6	3,365.1
Department of the Navy	3,047.2	3,379.6	3,256.3
O & M, Navy	3,005.1	3,343.1	3,195.2
O & M, Marine Corps	31.8	26.1	26.9
O & M, Navy Reserve	-	-	-
O & M, Marine Corp Reserve	-	-	-
Aircraft Procurement, Navy	-	-	-
Weapons Procurement, Navy	-	-	-
Ammunition Procurement, Navy/MC	-	-	-
Shipbuilding & Conversion, Navy	-	-	-
National Sea Base Deterrence Fund	-	-	-
Other Procurement, Navy	10.3	10.4	34.2
Procurement, Marine Corps	-	-	-
Family Housing, Navy/MC	-	-	-
Research, Dev., Test, & Eval., Navy	-	-	-
Military Construction, Navy	-	-	-
National Defense Sealift Fund	-	-	-
Foreign Cooperative Projects, Navy	-	-	-
Other Navy Appropriations	-	-	-
Other Marine Corps Appropriations	-	-	-
Department of the Army	-	-	-
Army Operation & Maintenance	-	-	-
Army Res, Dev, Test, Eval	-	-	-
Army Procurement	-	-	-
Army Other	-	-	-
Department of the Air Force	24.0	48.0	40.7
Air Force Operation & Maintenance	24.0	48.0	40.7
Air Force Res, Dev, Test, Eval	-	-	-
Air Force Procurement	-	-	-
Air Force Other	-	-	-
DOD Appropriation Accounts	80.6	134.0	68.1
Base Closure & Realignment	-	-	-
Operation & Maintenance Accounts	36.9	37.1	29.1
Res, Dev, Test & Eval Accounts	43.7	96.9	39.0
Procurement Accounts	-	-	-
Defense Emergency Relief Fund	-	-	-
DOD Other	-	-	-
b. Orders from other Fund Activity Groups	8.9	9.0	7.2
c. Total DoD	3,160.7	3,570.5	3,372.3
d. Other Orders:	-	-	-
Other Federal Agencies	-	-	-
Foreign Military Sales	-	-	-
Non Federal Agencies	-	-	-
2. Carry-In Orders	372.0	387.0	387.0
3. Total Gross Orders	3,532.7	3,957.6	3,759.3
a. Funded Carry-Over before Exclusions	387.0	387.0	387.0
4. Revenue(-)	3,145.7	3,570.5	3,372.3
5. End of Year Work-In-Process (-)	-	-	-
6. FMS, BRAC, Other Federal, Non-Federal orders, and Inst. MRTFB (-)	-	-	-
7. Funded Carryover	382.2	382.2	382.2

Note: Line 5 (End of Year Work-In-Process) is adjusted for Non-DOD BRAC, FMS, and Institutional MRTFB

CHANGES IN THE COSTS OF OPERATIONS
DEPARTMENT OF THE NAVY
TRANSPORTATION- MILITARY SEALIFT COMMAND
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	Costs
FY 2019 Estimated Actuals	**3,279.9**
FY 2020 President's Budget:	**3,314.3**
Estimated Impact in FY 2020 of Actual FY 2019 Experience:	**0.0**
Pricing Adjustments:	**26.2**
Civilian Personnel	27.9
Fuel Price	0.0
General Purchase Inflation	-1.7
Program Changes:	**-25.2**
Emory S Land ROH shift to FY21	**-25.2**
Other Changes:	**0.0**
Capital Investment Recovery	0.0
Facilities Sustainment, Restoration & Modernization	0.0
Other (list)	0.0
FY 2020 Current Estimate:	**3,315.3**
Pricing Adjustments:	**34.5**
Annualization of Prior Year Pay Raises	**18.0**
Civilian Personnel	18.0
Military Personnel	0.0
FY 2020 Pay Raise	**1.7**
Civilian Personnel	1.7
Military Personnel	0.0
Fuel Price Changes	-25.8
General Purchase Inflation	40.6
Other Price Changes (list)	**0.0**
Working Capital Fund Price Changes	0.0
Productivity Initiatives and Other Efficiencies:	**0.0**
Program Changes:	**-45.2**
Salvage Tow OSV ship lease iso Vertical Launching Systems	12.0
EPF-1 and EPF-2 reduced to ROS-45 status 182 days/365 days and sustainment	-29.2
T-ESD 2 USNS JOHN GLENN placed in ROS status	-8.0
MSC C41	-24.1
NAVFAC Realignment COA2 Overhead Cost	-4.8
Increase in Ship Charter for MPF class ships for crew size	8.9
Other Changes:	**0.3**
Capital Investment Recovery	0.0
Facilities Sustainment, Restoration & Modernization	0.3
Change in work days	0.0
Civilian Equivalency Rate Changes	0.0
FY 2021 Estimate:	**3,304.9**

Exhibit Fund-2 Changes in the Costs of Operations

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CAPITAL INVESTMENT SUMMARY
DEPARTMENT OF THE NAVY
TRANSPORTATION- MILITARY SEALIFT COMMAND
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

		FY 2019		FY 2020		FY 2021	
Line #	Description	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
1	**Non-ADPE and Telecom Equipment >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Vehicles	0	$0.000	0	$0.000	0	$0.000
	- Material Handling	0	$0.000	0	$0.000	0	$0.000
	- Installation Security	0	$0.000	0	$0.000	0	$0.000
	- Quality Control/Testing	0	$0.000	0	$0.000	0	$0.000
	- Medical Equipment	0	$0.000	0	$0.000	0	$0.000
	- Machinery	0	$0.000	0	$0.000	0	$0.000
	- Support Equipment	0	$0.000	0	$0.000	0	$0.000
2	**ADPE and Telecom Equipment >= $.250M**	**0**	**$2.242**	**0**	**$0.000**	**0**	**$0.000**
	- Computer Hardware (Production)	0	$2.242	0	$0.000	0	$0.000
	- Computer Hardware (Network)	0	$0.000	0	$0.000	0	$0.000
	- Computer Software (Operating)	0	$0.000	0	$0.000	0	$0.000
	- Telecommunications	0	$0.000	0	$0.000	0	$0.000
	- Other Support Equipment	0	$0.000	0	$0.000	0	$0.000
3	**Software Development >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Internally Developed	0	$0.000	0	$0.000	0	$0.000
	- Externally Developed	0	$0.000	0	$0.000	0	$0.000
4	**Minor Construction (>= $.250M and <= $2.000M)**	**0**	**$1.935**	**0**	**$0.000**	**0**	**$0.000**
	- Replacement Capability	0	$0.000	0	$0.000	0	$0.000
	- New Construction	0	$1.935	0	$0.000	0	$0.000
	- Environmental Capability	0	$0.000	0	$0.000	0	$0.000
	Grand Total	**0**	**$4.177**	**0**	**$0.000**	**0**	**$0.000**
	Total Capital Outlays		**$6.984**		**$1.500**		**$1.500**
	Total Capital Investment Recovery		**$0.051**		**$0.000**		**$2.000**

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Transportation	#001 - Non-ADPE						Military Sealift Command		
	FY 2019			FY 2020			FY 2021		
Non-ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Vehicles	0	-	$0	0	-	$0	0	-	$0
Material Handling	0	-	$0	0	-	$0	0	-	$0
Installation Security	0	-	$0	0	-	$0	0	-	$0
Quality Control/ Testing	0	-	$0	0	-	$0	0	-	$0
Medical Equipment	0	-	$0	0	-	$0	0	-	$0
Machinery	0	-	$0	0	-	$0	0	-	$0
Support Equipment	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	0	-	$0

Justification:

(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Transportation	#002 - ADPE						Military Sealift Command		
	FY 2019			FY 2020			FY 2021		
ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Computer Hardware (Production)	1	2,242	$2,242	0	$ -	$0	0	-	$0
Computer Hardware (Network)	0	-	$0	0	-	$0	0	-	$0
Computer Software (Operating System	0	-	$0	0	-	$0	0	-	$0
Telecommunications	0	-	$0	0	-	$0	0	-	$0
Other Support Equipment	0	-	$0	0	-	$0	0	-	$0
Total	1	2,242	$2,242	0	-	$0	0	-	$0

Justification:

Consolidated Afloat Network Enterprise Services (CANES)
The above represents MSC requirements to implement unclassified and classified LANS at all ships, offices, area command, and headquarters worldwide.
DOD and DON CIO have directed the eradication of Windows XP on all networks. Consolidated Afloat Network Enterprise Services (CANES) is the Navy's next generation Windows 7 (WIN7) based afloat tactical network for all enclaves, which will replace the Integrated Shipboard Network Systems (ISNS) Program of Record (POR). To ensure compliance for MSC's ISNS-based platforms, the Naval Information Warfare Systems Command has been enlisted to develop a MSC-specific variant of CANES that will be a permanent solution providing network infrastructure, information services and access to the DISN Wide Area Network (SIPRNET and NIPRNET) and hosted Command and Control (C2) applications.

There are no CIP requirements beyond FY 2019.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Transportation	#003 - Software Development						Military Sealift Command		
	FY 2019			FY 2020			FY 2021		
Software	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Internally Developed	0	-	$0	0	-	$0	0	-	$0
Externally Developed	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	0	-	$0

Justification:

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Transportation	#004 - Minor Construction						Military Sealift Command		
	FY 2019			FY 2020			FY 2021		
Minor Construction	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Replacement	0	-	$0	0	-	$0	0	-	$0
New Construction	1	1.935	$1,935	0	-	$0	0	-	$0
Environmental Capability	0	-	$0	0	-	$0	0	-	$0
Total	1	1.935	$1,935	0	-	$0	0	-	$0

Justification:
The below three FY 2019 capital investments center on new construction projects for MSC's Building SP64.

"Building SP64 Addition"
This investment consists of building a single-story addition on the rear of Building SP64 (approx. 2700 sq. ft.). This addition will permit seating for 25 personnel and additionally house a 15-person computer-based training facility. Due to the growth of MSC to meet the needs of the Navy, it was identified that additional headquarters space for administrative personnel was key to MSC's ability to operate globally.

"Building SP64 Backup Generator"
The backup generator will ensure continuous electrical service to MSC Headquarters allowing it to remain online and mission ready to support MSC operations worldwide. The impact: Power losses (from any cause) for an extended period can affect MSC's mission continuity and prompt justification for temporarily relocate Flag to a sustainable location. Mission information systems and the ability to communicate electronically would also suffer impact in the event of an extended power outage.

"Building SP64 Buildout of Classified Space - Sensitive Compartmented Information Facility (SCIRF)"
This project will provide a structural roof tie-in and rerouting of existing ductwork and conduit, secured security package, and enable an improved communication design to ensure the integrity of information pass-through.

MSC continues to be the leading provider of ocean transportation for the Navy and the rest of the Department of Defense. The impact if these projects are not completed includes the reduction of mission readiness and would result in the delay of crucial services to the Navy.

There are no CIP requirements beyond FY 2019.

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CAPITAL BUDGET EXECUTION
DEPARTMENT OF THE NAVY
TRANSPORTATION- MILITARY SEALIFT COMMAND
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2019	**1**	**Non ADP**		**$0.000**	**$0.000**	**$0.000**	
	2	**ADP**		**$4.000**	**$2.242**	**($1.758)**	
			Computer Hardware (Production)	$4.000	$2.242	($1.758)	Investment executed under estimated cost.
			Computer Hardware (Network)	$0.000	$0.000	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
	4	**Minor Construction**		**$1.424**	**$1.935**	**$0.511**	
			Replacement	$0.000	$0.000	$0.000	
			New Construction	$1.424	$1.935	$0.511	Reprogrammed as projects were reprioritized
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2019 CIP Program				**$5.424**	**$4.177**	**($1.247)**	
FY	**L.I.**	**Category**	**Capability/Project**	**I.R**	**C.P.R**	**A.C.**	**Explanation**
2020	**1**	**Non ADP**		**$0.000**	**$0.000**	**$0.000**	
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
			Computer Hardware (Production)	$0.000	$0.000	$0.000	
			Computer Hardware (Network)	$0.000	$0.000	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
	4	**Minor Construction**		**$0.000**	**$0.000**	**$0.000**	
			Replacement	$0.000	$0.000	$0.000	
			New Construction	$0.000	$0.000	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2020 CIP Program				**$0.000**	**$0.000**	**$0.000**	
FY	**L.I.**	**Category**	**Capability/Project**	**I.R**	**C.P.R**	**A.C.**	**Explanation**
2021	**1**	**Non ADP**		**$0.000**	**$0.000**	**$0.000**	
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
			Computer Hardware (Production)	$0.000	$0.000	$0.000	
			Computer Hardware (Network)	$0.000	$0.000	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
	4	**Minor Construction**		**$0.000**	**$0.000**	**$0.000**	
			Replacement	$0.000	$0.000	$0.000	
			New Construction	$0.000	$0.000	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2021 CIP Program				**$0.000**	**$0.000**	**$0.000**	

CARRYOVER RECONCILIATION
DEPARTMENT OF THE NAVY
TRANSPORTATION - MILITARY SEALIFT COMMAND
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
	---	---	---
Part 1			
1. Net Carry-In	372.0	387.0	387.0
2. Revenue	3,145.7	3,570.5	3,372.3
3. New Orders	3,160.7	3,570.5	3,372.3
4. Exclusions:			
Foreign Military Sales	-	-	-
Base Realignment and Closure	-	-	-
Other Federal Department and Agencies	-	-	-
Non-Federal and Others	-	-	-
Institutional Major Range & Test Facility Base	-	-	-
OUSD(C) Approved Carryover Waiver	-	-	-
5. Orders for Carryover Calculation	3,160.7	3,570.5	3,372.3
6. Weighted Average Outlay Rate	70.9%	73.4%	73.4%
7. Carryover Rate	29.1%	26.6%	26.6%
8. Allowable Carryover	923.3	954.1	901.4
Allowable Carryover(First Year)	919.8	949.8	897.0
Allowable Carryover (Second Year Procurement-funded Orders)	3.5	4.3	4.4
Part II			
9. Balance of Customer Order at Year End	387.0	387.0	387.0
10. Work-in-progress	-	-	-
11. Exclusions:			
Foreign Military Sales	4.8	4.8	4.8
Base Realignment and Closure	-	-	-
Other Federal Department and Agencies	-	-	-
Non-Federal and Others	-	-	-
Institutional Major Range & Test Facility Base	-	-	-
OUSD(C) Approved Carryover Waiver	-	-	-
12. Calculated Actuals Carryover	382.2	382.2	382.2

Some totals may not add due to rounding.

10. Facilities Engineering Commands

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NARRATIVE
DEPARTMENT OF THE NAVY
BASE SUPPORT - FACILITIES ENGINEERING COMMANDS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Mission Statement / Overview:
The mission of the Facilities Engineering Commands (FECs) is to provide facility services and construction acquisition and oversight, utility services, facilities sustainment, transportation support, engineering services and environmental services required by Navy Installation Command activities, Marine Corps Installation Command activities, and afloat, ashore operating forces and other activities. As a member of the Naval Facilities Engineering Command (NAVFAC), the FECs strengthen the Navy and Marine Corps readiness through work across the facility lifecycle.

The FY 2021 plan focuses on residual workload related to consolidating support structures and streamlining processes to obtain greater effectiveness and efficiency across the enterprise and improve military readiness. To accomplish this, beginning in FY 2020, the FECs will transition their base support products and services out of the Navy Working Capital Fund (NWCF) to a mission funded model consistent with other NAVFAC service delivery models. In this matter, funding traditionally provided to the FECs through NWCF reimbursable transactions will be realigned to Commander, Navy Installations Command (CNIC) who will provide direct funding authority to the NAVFAC to execute base support and maintenance functions. By streamlining and consolidating NAVFAC and the FECs into a mission funded model and aligning funding with CNIC, the Navy will have a focused voice for the shore enterprise to provide greater accountability, consistency, and innovation aimed to ultimately strengthen military readiness.

Activity Group Composition:

Activity	Location
FEC Europe - Africa - Southwest Asia	Naples, Italy
FEC Far East	Yokosuka, Japan
FEC Marianas	Agana, Guam, Marianas Islands
FEC Hawaii	Pearl Harbor, Hawaii
FEC Mid-Atlantic	Norfolk, Virginia
FEC Northwest	Silverdale, Washington
FEC Southeast	Jacksonville, Florida
FEC Southwest	San Diego, California
FEC Washington	Washington, D.C.

Base Support Products and Services include:

- Utilities and Energy Management.
- Utilities Operations and Sustainment.
- Maintenance and Repair.
- Transportation.

- Facility Support Contract Management and Facility Services (FMFS).

Significant Changes Since the FY 2020 President's Budget:

In FY 2020, the FEC transfered from NWCF to mission funding. As a mission funded activity, funding traditionally provided to the FECs through NWCF reimbursable transactions was realigned to CNIC who provides direct funding authority to NAVFAC to execute base support and maintenance functions that were previously purchased by customers through NWCF. Where direct funding authority was not provided from customers to NAVFAC, cost recovery methods will be applied to recover costs.

Civilian labor actuals in FY 2019 are higher than previously budgeted due to recent successes in filling positions. This has allowed work to be restored to in-house performance in those instances where it had been diverted to contractor.

The FY 2020 and FY 2021 budget estimates include residual cost of $328.2M and $29.6M for contract carryover and work carried in from FY 2019.

Financial Profile:

Revenue/Expense/Operating Results ($Millions):	FY 2019	FY 2020	FY 2021
Orders	$2,945.4	$0.0	$0.0
Revenue	$2,960.5	$43.7	$29.6
Expense	$3,342.9	$328.2	$29.6
Operating Results	($382.4)	($284.5)	$0.0
Capital Surcharge	($9.2)	$0.0	$0.0
Net Operating Results (NOR)	($391.6)	($284.5)	$0.0
Prior Year AOR	$298.8	($92.9)	($499.7)
Other Changes Affecting AOR	$0.0	($122.3)	$499.7
Accumulated Operating Results (AOR)	($92.9)	($499.7)	$0.0

Some totals may not add due to rounding.

Orders, Revenue and Expense: The changes in revenue and expense in FY 2021 are due to the transition of FECs from NWCF to mission funding. FEC will continue to have residual costs and outlays through FY2021.

NARRATIVE
DEPARTMENT OF THE NAVY
BASE SUPPORT - FACILITIES ENGINEERING COMMANDS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Disbursements/Collections/Outlays ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Disbursements	$3,289.9	$620.2	$170.9
Collections	$2,998.0	$301.0	$0.0
Outlays	$291.9	$319.2	$170.9

Some totals may not add due to rounding.

Collections: FY 2019 reflects actual execution and anticipated increase in sales and the ability to collect aged accounts receivable.

Disbursements: FY 2019 reflects actual execution through the end of fiscal year. FY 2020 and FY 2021 represents budgeted expenses, and closing out prior period obligations.

Foreign Currency Issues: Impact FEC Europe - Africa - Southwest Asia and FEC Far East's operating and outlay results. The following shows impacted FEC costs:

Costs Subject to Foreign Currency ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Costs to be Paid in EUROS	$73.5	n/a	n/a
Costs to be Paid in YEN	$180.7	n/a	n/a
Total Costs to be Paid in Foreign Currency	$254.2	n/a	n/a

Some totals may not add due to rounding.

Workload:

Direct Labor Hours (000):	**FY 2019**	**FY 2020**	**FY 2021**
Current Estimate	13,573	n/a	n/a

Direct labor hours are driven by workload and mission requirements, as such, the workforce continues to be sized in accordance with funded workload. The changes in direct labor hours are estimated based on supporting customer workload, and efforts in filling positions.

Unit Cost: The FEC's specific outputs and associated unit costs are identified in the following table.

NARRATIVE
DEPARTMENT OF THE NAVY
BASE SUPPORT - FACILITIES ENGINEERING COMMANDS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

PRODUCT/SERVICE	UNIT OF MEASURE	UNIT COST FY 2019	UNIT COST FY 2020	UNIT COST FY 2021
UTILITY SERVICES				
ELECTRICITY	MWH	166.91	n/a	n/a
POTABLE WATER	KGAL	12.44	n/a	n/a
SALT/RIVER WATER	KGAL	1.65	n/a	n/a
STEAM	MBTU	52.36	n/a	n/a
SEWAGE	KGAL	15.29	n/a	n/a
NATURAL GAS	MBTU	7.59	n/a	n/a
COMPRESSED AIR	KCF	1.70	n/a	n/a
SANITATION SERVICES				
REFUSE COLL & DISPOSAL I	CUYD	17.88	n/a	n/a
REFUSE COLL & DISPOSAL II	TONS	391.80	n/a	n/a
PEST CONTROL	HOURS	61.96	n/a	n/a
HAZ WASTE I	GAL	1.10	n/a	n/a
HAZ WASTE II	LBS	1.67	n/a	n/a
INDUST WASTE	KGAL	134.81	n/a	n/a
ENVIRONMENTAL ENG	HOURS	101.69	n/a	n/a
ENVIRONMENTAL LAB	TEST	7.81	n/a	n/a
TRANSPORTATION SERVICES				
EQUIP RENTAL	HOURS	3.42	n/a	n/a
VEHICLE OPS	HOURS	65.05	n/a	n/a
VEHICLE MAINTENANCE	SRO	160.92	n/a	n/a
MAINTENANCE & REPAIR	DLH	88.22	n/a	n/a

The FEC's units used in determining unit cost above are identified in the following table.

PRODUCT/SERVICE	UNIT OF MEASURE	UNITS FY 2019	UNITS FY 2020	UNITS FY 2021
UTILITY SERVICES				
ELECTRICITY	MWH	7,015,523	n/a	n/a
POTABLE WATER	KGAL	19,686,119	n/a	n/a
SALT/RIVER WATER	KGAL	10,111,320	n/a	n/a
STEAM	MBTU	5,181,034	n/a	n/a
SEWAGE	KGAL	14,385,570	n/a	n/a
NATURAL GAS	MBTU	3,586,312	n/a	n/a

COMPRESSED AIR	KCF	16,112,969	n/a	n/a
SANITATION SERVICES				
REFUSE COLL & DISPOSAL I	CUYD	816,564	n/a	n/a
REFUSE COLL & DISPOSAL II	TONS	33,753	n/a	n/a
PEST CONTROL	HOURS	69,921	n/a	n/a
HAZ WASTE I	GAL	650,930	n/a	n/a
HAZ WASTE II	LBS	25,333,370	n/a	n/a
INDUST WASTE	KGAL	193,082	n/a	n/a
ENVIRONMENTAL ENG	HOURS	56,306	n/a	n/a
ENVIRONMENTAL LAB	TEST	771,615	n/a	n/a
TRANSPORTATION SERVICES				
EQUIP RENTAL	HOURS	59,828,410	n/a	n/a
VEHICLE OPS	HOURS	933,932	n/a	n/a
VEHICLE MAINTENANCE	SRO	85,076	n/a	n/a
MAINTENANCE & REPAIR	DLH	5,551,816	n/a	n/a

Units of Measure Acronym List

MBTU	Million British Thermal Units	MWH	Mega Watt Hour
CUYD	Cubic Yard	SRO	Shop Repair Order
KCF	Thousand Cubic Feet	LBS	Pounds
KGAL	Thousand Gallons	TONS	Tons
DLH	Direct Labor Hours		

Stabilized/Composite Rates:	**FY 2019**	**FY 2020**	**FY 2021**
Composite Rate	-1.96%	n/a	n/a
Utilities	-1.86%	n/a	n/a
Sanitation Services and Other Base Support	-2.12%	n/a	n/a

Rate Changes	**FY 2019**	**FY 2020**	**FY 2021**
East Coast Utilities	1.52%	n/a	n/a
West Coast Utilities	-5.05%	n/a	n/a
East Coast Other	-3.43%	n/a	n/a
West Cost Other	-0.73%	n/a	n/a

Performance Indicators: Among the key financial indicators for the FECs are operating results, annual rate changes, and unit costs. Other key corporate performance measures include timeliness, workforce safety, and client satisfaction. Timeliness is an extremely important client

satisfaction indicator in the area of facilities sustainment. The Emergency Work Response Time – Schedule Adherence metric represents the percent of time that emergency work crews arrive on-scene within prescribed timelines. Another metric, Service/Minor/Specific Work Completion Date – Schedule Adherence, reflects the percent of time that work is completed on schedule. The minimum goal in either case is 90% as identified in the measures below.

Performance Measures (Schedule Adherence):	**FY 2019**	**FY 2020**	**FY 2021**
Emergency Work Response	90.0%	n/a	n/a
Service/Minor/Specific Work Completion Date	90.0%	n/a	n/a

Staffing:

Civilian/Military ES & Workyears:	**FY 2019**	**FY 2020**	**FY 2021**
Civilian End Strength	10,477	n/a	n/a
Civilian Workyears (straight time)	9,972	n/a	n/a
Military End Strength	80	n/a	n/a
Military Workyears	78	n/a	n/a

Civilian Personnel: Personnel resources are one of the most valuable assets to the FEC organization. The FEC management team continues to focus on the optimal mix and quantity of personnel required to ensure effectiveness in providing quality products and services to our customers. Beginning in FY 2020, the FEC workforce of 9,972 FTEs are realigned out of the NWCF to mission funding in the Operation and Maintenance, Navy (O&M,N) appropriation.

Military Personnel: Military end strength remains stable.

Capital Investment Program (CIP) Authority ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Equipment, Non-ADP / Telecom	$12.9	n/a	n/a
Equipment, ADPE / Telecom	$0.0	n/a	n/a
Software Development	$0.0	n/a	n/a
Minor Construction	$7.9	n/a	n/a
Total CIP Authority	$20.8	n/a	n/a

Some totals may not add due to rounding.

Capital investments for the FECs are an important element of successful operations that reflect required investments in facilities and infrastructure. FEC's CIP will acquire affordable and efficient capabilities to support customer requirements. Beginning in FY 2020, the FEC

investment requirements are realigned out of the NWCF to mission funding in the Other Procurement, Navy (OPN) appropriation.

Carryover Compliance ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Net Carry-In	$88.3	$73.2	$29.5
Allowable Carryover	$782.1	$0.7	$0.0
Calculated Actual Carryover	$48.7	$13.9	$0.0
Delta (Actual-Allowable): Above Ceiling (+)/Below Ceiling (-)	($733.4)	$13.2	$0.0

Some totals may not add due to rounding.

Carryover reflects residual workload in FY 2020 and FY 2021 estimates.

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
BASE SUPPORT - FACILITIES ENGINEERING COMMANDS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
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Revenue:			
Gross Sales			
Operations	2,946.2	43.7	29.6
Capital Surcharges	0.0	0.0	0.0
Capital Investment Recovery	14.2	0.0	0.0
Other Income			
Total Income	2,960.5	43.7	29.6
Expenses			
Cost of Materiel Sold from Inventory			
Salaries and Wages:			
Military Personnel Compensation & Benefits	11.5	0.0	0.0
Civilian Personnel Compensation & Benefits	878.3	0.0	0.0
Travel and Transportation of Personnel	14.9	0.0	0.0
Material & Supplies (Internal Operations)	305.9	0.0	0.0
Equipment	66.3	0.0	0.0
Other Purchases from NWCF	87.4	0.0	0.0
Transportation of Things	4.7	0.0	0.0
Capital Investment Recovery	14.2	0.0	0.0
Printing and Reproduction	1.5	0.0	0.0
Advisory and Assistance Services	0.1	0.0	0.0
Rent, Communication, Utilities & Misc Charges	1,107.9	0.0	0.0
Other Purchased Services	850.0	328.2	29.6
Total Expenses	3,342.9	328.2	29.6
Work in Process Adjustment	0.0	0.0	0.0
Comp Work for Activity Retention Adjustment	0.0	0.0	0.0
Cost of Goods Sold	3,342.9	328.2	29.6
Operating Result	-382.4	-284.5	0.0
Adjustments Affecting NOR	-9.2	0.0	0.0
Capital Surcharges	0.0	0.0	0.0
Extraordinary Expenses Unmatched	0.0	0.0	0.0
Other Changes Affecting NOR (All Others)	-9.2	0.0	0.0
Net Operating Result	-391.6	-284.5	0.0
PY AOR	298.8	-92.9	-499.7
TOTAL AOR	-84.7	-377.4	-499.7
Non-Recoverable Adjustments impacting AOR	-8.2	-122.3	499.7
AOR for budget purposes	-92.9	-499.7	0.0

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
BASE SUPPORT - FACILITIES ENGINEERING COMMANDS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
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1. New Orders	2,945.4	0.0	0.0
a. Orders from DoD Components:	2,184.3	0.0	0.0
Department of the Navy	1,999.0	0.0	0.0
O & M, Navy	1,880.1	0.0	0.0
O & M, Marine Corps	40.3	0.0	0.0
O & M, Navy Reserve	23.0	0.0	0.0
O & M, Marine Corp Reserve	1.3	0.0	0.0
Aircraft Procurement, Navy	0.0	0.0	0.0
Weapons Procurement, Navy	0.0	0.0	0.0
Ammunition Procurement, Navy/MC	0.0	0.0	0.0
Shipbuilding & Conversion, Navy	1.3	0.0	0.0
National Sea Base Deterrence Fund	0.0	0.0	0.0
Other Procurement, Navy	0.3	0.0	0.0
Procurement, Marine Corps	0.0	0.0	0.0
Family Housing, Navy/MC	43.2	0.0	0.0
Research, Dev., Test, & Eval., Navy	0.2	0.0	0.0
Military Construction, Navy	0.3	0.0	0.0
National Defense Sealift Fund	0.0	0.0	0.0
Foreign Cooperative Projects, Navy	0.0	0.0	0.0
Other Navy Appropriations	9.1	0.0	0.0
Other Marine Corps Appropriations	0.0	0.0	0.0
Department of the Army	25.4	0.0	0.0
Army Operation & Maintenance	22.4	0.0	0.0
Army Res, Dev, Test, Eval	0.0	0.0	0.0
Army Procurement	0.0	0.0	0.0
Army Other	3.0	0.0	0.0
Department of the Air Force	14.1	0.0	0.0
Air Force Operation & Maintenance	9.1	0.0	0.0
Air Force Res, Dev, Test, Eval	0.0	0.0	0.0
Air Force Procurement	0.0	0.0	0.0
Air Force Other	5.0	0.0	0.0
DOD Appropriation Accounts	145.7	0.0	0.0
Base Closure & Realignment	0.7	0.0	0.0
Operation & Maintenance Accounts	61.2	0.0	0.0
Res, Dev, Test & Eval Accounts	1.0	0.0	0.0
Procurement Accounts	0.0	0.0	0.0
Defense Emergency Relief Fund	0.0	0.0	0.0
DOD Other	82.8	0.0	0.0
b. Orders from other Fund Activity Groups	476.9	0.0	0.0
c. Total DoD	2,661.2	0.0	0.0
d. Other Orders:	284.2	0.0	0.0
Other Federal Agencies	21.1	0.0	0.0
Foreign Military Sales	0.2	0.0	0.0
Non Federal Agencies	262.8	0.0	0.0
2. Carry-In Orders	88.3	73.2	29.6
3. Total Gross Orders	3,033.7	73.2	29.6
a. Funded Carry-Over before Exclusions	73.2	29.6	0.0
4. Revenue(-)	2,960.5	43.7	29.6
5. End of Year Work-In-Process (-)	0.0	0.0	0.0
6. FMS, BRAC, Other Federal, Non-Federal orders, and Inst. MRTFB (-)	24.5	15.7	0.0
7. Funded Carryover	48.7	13.9	0.0

Note: Line 5 (End of Year Work-In-Process) is adjusted for Non-DOD BRAC, FMS, and Institutional MRTFB

CHANGES IN THE COSTS OF OPERATIONS
DEPARTMENT OF THE NAVY
BASE SUPPORT - FACILITIES ENGINEERING COMMANDS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	Costs
FY 2019 Estimated Actuals	**3,342.9**
FY 2020 President's Budget:	**165.9**
Estimated Impact in FY 2020 of Actual FY 2019 Experience:	**0.0**
Pricing Adjustments:	**0.0**
Civilian Personnel	0.0
Fuel Price	0.0
Program Changes:	**0.0**
Other Changes:	**162.3**
Capital Investment Recovery	0.0
Residual FEC Facilities Sustainment, Restoration & Modernization	162.3
Other	0.0
FY 2020 Current Estimate:	**328.2**
Pricing Adjustments:	**6.6**
Annualization of Prior Year Pay Raises	**0.0**
Civilian Personnel	0.0
Military Personnel	0.0
FY 2021 Pay Raise	**0.0**
Civilian Personnel	0.0
Military Personnel	0.0
Fuel Price Changes	0.0
General Purchase Inflation	6.6
Other Price Changes (list)	**0.0**
Working Capital Fund Price Changes	0.0
Productivity Initiatives and Other Efficiencies:	**0.0**
Program Changes:	**-305.2**
Residual FEC NWCF Workload	-305.2
Other Changes:	**0.0**
	0.0
FY 2021 Estimate:	**29.6**

CAPITAL INVESTMENT SUMMARY
DEPARTMENT OF THE NAVY
BASE SUPPORT - FACILITIES ENGINEERING COMMANDS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

		FY 2019		FY 2020		FY 2021	
Line #	Description	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
1	**Non-ADPE and Telecom Equipment >= $.250M**	**16**	**$12.870**	**0**	**$0.000**	**0**	**$0.000**
	- Vehicles	**4**	$0.777	0	$0.000	0	$0.000
	- Material Handling	**9**	$10.562	0	$0.000	0	$0.000
	- Installation Security	0	$0.000	0	$0.000	0	$0.000
	- Quality Control/Testing	0	$0.000	0	$0.000	0	$0.000
	- Medical Equipment	0	$0.000	0	$0.000	0	$0.000
	- Machinery	0	$0.000	0	$0.000	0	$0.000
	- Support Equipment	**3**	$1.531	0	$0.000	0	$0.000
2	**ADPE and Telecom Equipment >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Computer Hardware (Production)	0	$0.000	0	$0.000	0	$0.000
	- Computer Hardware (Network)	0	$0.000	0	$0.000	0	$0.000
	- Computer Software (Operating)	0	$0.000	0	$0.000	0	$0.000
	- Telecommunications	0	$0.000	0	$0.000	0	$0.000
	- Other Support Equipment	0	$0.000	0	$0.000	0	$0.000
3	**Software Development >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Internally Developed	0	$0.000	0	$0.000	0	$0.000
	- Externally Developed	0	$0.000	0	$0.000	0	$0.000
4	**Minor Construction (>= $.250M and <= $2.000M)**	**9**	**$7.931**	**0**	**$0.000**	**0**	**$0.000**
	- Replacement Capability	3	$2.713	0	$0.000	0	$0.000
	- New Construction	5	$4.690	0	$0.000	0	$0.000
	- Environmental Capability	1	$0.528	0	$0.000	0	$0.000
	Grand Total	**25**	**$20.801**	**0**	**$0.000**	**0**	**$0.000**
	Total Capital Outlays		**$11.664**		**$13.299**		**$6.905**
	Total Capital Investment Recovery		**$14.240**		**$0.000**		**$0.000**

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRURARY 2020					
Department of the Navy/ Base Support	#001 - Non-ADPE						Facilities Engineering Commands		
	FY 2019			FY 2020			FY 2021		
Non-ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Vehicles	4	194	$777	0	-	$0	0	-	$0
Material Handling	9	1174	$10,562	0	-	$0	0	-	$0
Installation Security	0	0	$0	0	-	$0	0	-	$0
Quality Control/ Testing	0	0	$0	0	-	$0	0	-	$0
Medical Equipment	0	0	$0	0	-	$0	0	-	$0
Machinery	0	0	$0	0	-	$0	0	-	$0
Support Equipment	3	510	$1,531	0	-	$0	0	-	$0
Total	16	1,878	$12,870	0	-	$0	0	-	$0

Justification:

REFLECTS FY 2019 EXECUTION, BASE OPERATING SUPPORT (BOS) NWCF ALIGNED TO GENERAL FUND FINANCIAL MODEL IN FY 2020

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Base Support	#002 - ADPE						Facilities Engineering Commands		
	FY 2019			FY 2020			FY 2021		
ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Computer Hardware (Production)	0	-	$0	0	-	$0	0	-	$0
Computer Hardware (Network)	0	-	$0	0	-	$0	0	-	$0
Computer Software (Operating System)	0	-	$0	0	-	$0	0	-	$0
Telecommunications	0	-	$0	0	-	$0	0	-	$0
Other Support Equipment	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	0	-	$0

Justification: N/A

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Base Support	#003 - Software Development						Facilities Engineering Commands		
	FY 2019			FY 2020			FY 2021		
Software	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Internally Developed	0	-	$0	0	-	$0	0	-	$0
Externally Developed	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$0	0	-	$0	0	-	$0

Justification: N/A

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Base Support	#004 - Minor Construction						Facilities Engineering Commands		
	FY 2019			FY 2020			FY 2021		
Minor Construction	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Replacement	3	904	$2,713	0	-	$0	0	-	$0
New Construction	5	938	$4,690	0	-	$0	0	-	$0
Environmental Capability	1	528	$528	0	-	$0	0	-	$0
Total	9	881	$7,931	0	-	$0	0	-	$0

Justification:

REFLECTS FY 2019 EXECUTION, BOS NWCF ALIGNED TO GENERAL FUND FINANCIAL MODEL in FY

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CAPITAL BUDGET EXECUTION
DEPARTMENT OF THE NAVY
BASE SUPPORT - FACILITIES ENGINEERING COMMANDS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2019	**1**	**Non ADP**		**$12.419**	**$12.870**	**$0.451**	
			Vehicles	$1.000	$0.777	($0.223)	Project change
			Material Handling	$8.470	$10.562	$2.092	Project Change
			Quality Control/Testing	$0.000	$0.000	$0.000	
			Machinery	$1.400	$0.000	($1.400)	**Reprogrammed from EXWC to FEC**
			Support Equipment	$1.549	$1.531	($0.018)	Project Change
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
			Computer Hardware (Production)	$0.000	$0.000	$0.000	
			Computer Hardware (Network)	$0.000	$0.000	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$11.931**	**$7.931**	**($4.000)**	
			Replacement	$2.267	$2.713	$0.446	Adjust capability
			New Construction	$9.084	$4.690	($4.394)	Project Change
			Environmental Capability	$0.580	$0.528	($0.052)	
TOTAL FY 2019 CIP Program				**$24.350**	**$20.801**	**($3.549)**	**-$20K Upward Ob**

FY	L.I.	Category	Capability/Project	I.R	C.P.R	A.C.	Explanation
2020	**1**	**Non ADP**		**$0.000**	**$0.000**	**$0.000**	
			Vehicles	$0.000	$0.000	$0.000	Transition of Facilities Engineering Command (FEC) from Navy Working Capital Fund (NWCF) to General Funding in FY 2020
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$0.000	$0.000	$0.000	
			Machinery	$0.000	$0.000	$0.000	
			Support Equipment	$0.000	$0.000	$0.000	
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
			Computer Hardware (Production)	$0.000	$0.000	$0.000	Transition of Facilities Engineering Command (FEC) from Navy Working Capital Fund (NWCF) to General Funding in FY 2020
			Computer Hardware (Network)	$0.000	$0.000	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	Transition of Facilities Engineering Command (FEC)
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$0.000**	**$0.000**	**$0.000**	
			Replacement	$0.000	$0.000	$0.000	Transition of Facilities Engineering Command (FEC) from Navy Working Capital
			New Construction	$0.000	$0.000	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2020 CIP Program				**$0.000**	**$0.000**	**$0.000**	

FY	L.I.	Category	Capability/Project	I.R	C.P.R	A.C.	Explanation
2021	**1**	**Non ADP**		**$0.000**	**$0.000**	**$0.000**	
			Vehicles	$0.000	$0.000	$0.000	Transition of Facilities Engineering Command (FEC) from Navy Working Capital Fund (NWCF) to General Funding in FY 2020
			Material Handling	$0.000	$0.000	$0.000	
			Quality Control/Testing	$0.000	$0.000	$0.000	
			Machinery	$0.000	$0.000	$0.000	
			Support Equipment	$0.000	$0.000	$0.000	
	2	**ADP**		**$0.000**	**$0.000**	**$0.000**	
			Computer Hardware (Production)	$0.000	$0.000	$0.000	Transition of Facilities Engineering Command (FEC) from Navy Working Capital Fund (NWCF) to General Funding in FY 2020
			Computer Hardware (Network)	$0.000	$0.000	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	Transition of Facilities Engineering Command (FEC) from Navy Working Capital Fund (NWCF) to General Funding in FY 2020
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$0.000**	**$0.000**	**$0.000**	
			Replacement	$0.000	$0.000	$0.000	Transition of Facilities Engineering Command (FEC) from Navy Working Capital
			New Construction	$0.000	$0.000	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2021 CIP Program				**$0.000**	**$0.000**	**$0.000**	

CARRYOVER RECONCILIATION
DEPARTMENT OF THE NAVY
BASE SUPPORT - FACILITIES ENGINEERING COMMANDS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
	---	---	---
Part 1			
1. Net Carry-In	88.3	73.2	29.5
2. Revenue	2,960.5	43.7	29.6
3. New Orders	2,945.4	0.0	0.0
4. Exclusions:			
Foreign Military Sales	0.2	0.0	0.0
Base Realignment and Closure	0.7	0.0	0.0
Other Federal Department and Agencies	21.1	0.0	0.0
Non-Federal and Others	262.8	0.0	0.0
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
5. Orders for Carryover Calculation	2,660.5	0.0	0.0
6. Weighted Average Outlay Rate	70.7%	0.0%	0.0%
7. Carryover Rate	29.3%	100.0%	100.0%
8. Allowable Carryover	782.1	0.7	0.0
Allowable Carryover(First Year)	779.5	0.0	0.0
Allowable Carryover (Second Year Procurement-funded Orders)	2.6	0.7	0.0
Part II			
9. Balance of Customer Order at Year End	73.2	29.5	0.0
10. Work-in-progress	0.0	0.0	0.0
11. Exclusions:			
Foreign Military Sales	0.2	0.0	0.0
Base Realignment and Closure	0.4	0.1	0.0
Other Federal Department and Agencies	8.6	8.6	0.0
Non-Federal and Others	15.3	7.0	0.0
Institutional Major Range & Test Facility Base	0.0	0.0	0.0
OUSD(C) Approved Carryover Waiver	0.0	0.0	0.0
12. Calculated Actuals Carryover	48.7	13.9	0.0

Some totals may not add due to rounding.

11. Navy Supply Management

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NARRATIVE
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Mission Statement/Overview:

Naval Supply Systems Command (NAVSUP) directly supports the Department of Navy (DON) Title 10 U.S.C. § 5013 duty to man, train, and equip the Fleet. NAVSUP provides critical supply support required to maintain the equipment readiness of Navy's Weapon systems.

NAVSUP maintains a worldwide presence to provide supplies, services, and quality-of-life support to the Navy and Joint warfighter. The NAVSUP business lines play an imperative role within each phase of the Optimized Fleet Response Plan (O-FRP) by providing integrated supply support to Navy's operational and industrial activities. At each step, the NAVSUP enterprise is consistently evaluating business processes and performance to maximize up-stream readiness and forces available for operational tasking. NAVSUP also provides strong sailor and family support through contracting, resale, transportation, food service, and other quality-of-life programs. As a global Enterprise, NAVSUP directly engages and supports customers through these demands.

Five major Activity Groups of the NAVSUP Enterprise include:

- Headquarters (HQ) provides policy and oversight for managing end-to-end supply chain logistics, controlling, financing, and accounting for the acquisition and sale of secondary items supporting naval weapon systems. HQ also ensures financial reporting is conducted in accordance with generally accepted accounting principles and internal controls support DoD audit goals.
- Weapon Systems Support (WSS) provides Fleet and program supply support for naval weapon systems and propulsion plants. WSS specializes in lifecycle support, procurement of reusable material, and stock positioning. Leveraging Working Capital Fund authority, WSS procures and repairs reusable parts a lead-time in advance so material is available in time for customer operational needs.
- Business Systems Center (BSC) is Navy's IT provider with responsibility to design, develop, and maintain information-systems supporting activities in the functional areas of logistics, supply chain management, transportation, finance, and accounting. BSC integrates next generation technological advances into every supply chain process, investing in high-value technologies to improve processes and leveraging data analytics to fulfill naval force requirements.
- Navy Exchange Command (NEXCOM) supports personnel readiness through Navy quality-of-life programs and overseas NEX Retail stores and services, such as the Ships Store Program.
- NAVSUP also has eight globally positioned FLCs providing a full range of military operations and quality-of-life program support to maximize our reach to the Fleet.

NARRATIVE
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Navy Working Capital Fund-Supply Management (NWCF-SM) is the DON's readiness enabler, ensuring NAVSUP provides the right material where required, when needed, at the best cost, which is vital to arming and sustaining the Navy and Marine Corps warfighting units. The NAVSUP mission is to perform supply chain management functions resulting in sufficient levels of inventory to support established readiness goals. One key tenet of this mission is financial management, which requires NAVSUP recovery of all costs associated with the investment of NWCF-SM material managed by NAVSUP. Financial solvency (maintaining a level of cash in the NWCF-SM account) is dependent upon sales of aviation and maritime repairable components, ships' store stock, and consumables to a wide variety of customers, including DON shore activities, Army, Air Force, Defense Agencies, other government agencies, and foreign governments.

What makes NWCF-SM unique is Contract Authority (CA), which allows obligation of funds an acquisition lead-time prior to future customer requisitions. The outlay or payment resulting from obligations does not usually occur until material is delivered in the future, sometimes several years later. There are cases where incremental payments are negotiated prior to receipt of material, typically for small business orders and Performance Based Logistics (PBL) contracts, which affect the net cash outlay financial solvency profile. Through planning and modeling, the NAVSUP budget aligns with the anticipated customer demands early enough to allow for material production and delivery times, having inventory available when the customer orders are received. The resulting collections from the sale of delivered material allows NAVSUP to reinvest, or replenish, inventory for future customer orders. NAVSUP's execution of their unique CA enables responsive procurement, repair, upgrades, and prepositioning of essential supplies in direct support of Navy's enhanced lethality, supporting critical weapon systems.

NAVSUP manages the following Budget Projects (BPs) in order to organize the financial operations of NWCF-SM:

	Budget Project
Wholesale	
Aviation Consumables	BP34
Ship Repairables and Consumables	BP81
Aviation Repairables	BP85
Retail	
Ships' Stores	BP21
General Consumables	BP28
Operations	
Operations and Reimbursables	BP91

NARRATIVE
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Activity Group Composition:	**Location**
NAVSUP Headquarters	Mechanicsburg, Pennsylvania
NAVSUP Weapon Systems Support (Maritime)	Mechanicsburg, Pennsylvania
NAVSUP Weapon Systems Support (Aviation)	Philadelphia, Pennsylvania
NAVSUP Business Systems Center	Mechanicsburg, Pennsylvania
Navy Exchange Command	Norfolk, Virginia
NAVSUP Fleet Logistics Center	San Diego, California
NAVSUP Fleet Logistics Center	Jacksonville, Florida
NAVSUP Fleet Logistics Center	Norfolk, Virginia
NAVSUP Fleet Logistics Center	Pearl Harbor, Hawaii
NAVSUP Fleet Logistics Center	Puget Sound, Washington
NAVSUP Fleet Logistics Center	Yokosuka, Japan
NAVSUP Fleet Logistics Center	Sigonella, Italy
NAVSUP Fleet Logistics Center	Manama, Bahrain

Significant changes since the FY 2020 President's Budget:
Changes in anticipated customer demand is a key component to a NWCF-SM budget. NAVSUP closely aligns budget to future customer demand to ensure supplies are placed on contract an acquisition lead-time in advance of the warfighter requirement.

Aviation Summary: The Naval Sustainment System (NSS) for F/A-18 E/F and EA-18G Mission Capable (MC) goals of 341+93, respectively, have been the focus throughout FY 2019 and continues throughout the budget horizon. This goal requires wholesale spares to be increased in order to sustain an increased level of mission capability, resulting in demand revenue increases from the Flying Hour Program(FHP) O&M, N and APN funding. Traditionally, NWCF-SM has supported an average of 260 MC F/A-18 E/F aircraft. Navy's desire to operate 341 MC F/A-18 E/F aircraft is expected to result in increased material demands driven by the additional aircraft maintenance.

FY 2019 aviation awarded 96% of the CA allotted. The main cause for not executing to the full plan was due to negotiation challenges with our industry partners, which resulted in award delays. The most impacted aviation weapon systems were the F/A-18A-D (Hornet) and F/A-18E-G (Rhino/Growler). These requirements carried over into FY 2020 and FY2021. The CA ($210 million) was reprogrammed to fulfill maritime contracts ready to award.

Maritime Summary: FY 2019 ended the year approximately $210 million over PB-2020 to support emergent requirements. This increase was self-financed by reprograming CA from aviation wholesale requirements at risk of not executing due to delays in negotiations.

NARRATIVE
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Cost Reductions:
There were no significant cost reductions since PB-2020.

Logistics Reassignment / Consumable Item Transfer (CIT):
Logistics Reassignment (LR) occurs when NAVSUP transfers management of design-stable consumable material from within DON to Defense Logistics Agency (DLA). In accordance with the Financial Management Regulation (FMR), all Services may request reimbursement from DLA for the value of inventory due in from procurement at the time of each LR transfer out. NAVSUP collected $52.1 million dollars in CIT reimbursement in FY 2019. FY 2020 and FY 2021 projected reimbursements are $3.8 million and $1.2 million, respectively.

Financial Profile:

Revenue/Expense/Operating Results ($Millions):	FY 2019	FY 2020	FY 2021
Net Revenue	$7,502.9	$8,272.4	$8,874.5
Expense	$7,584.3	$8,265.7	$8,886.7
Operating Results	($81.4)	$6.7	($12.2)
Less Capital Surcharge	$0.5	$7.8	$6.3
Net Operating Results (NOR)	($81.9)	($1.1)	($18.6)
Prior Year AOR	$208.2	$19.7	$18.6
Other Changes Affecting AOR	($106.6)	$0.0	$0.0
Accumulated Operating Results (AOR)	$19.7	$18.6	$0.0

Note: Amounts may not add due to rounding

Revenue and Expense: Revenue is a direct result of NAVSUP's Net Sales of wholesale and retail material. NAVSUP requested deferring $106.6M in AOR resulting from FY 2019 execution in order to stabilize the FY 2021 rate and maintain cash solvency.

Revenue increased in FY2020-2021 due to anticipated Air Force customer demand increases, predominately from the V-22 platform, based on FY 2019 execution. Another major contributor is an increase in Aviation Outfitting Allowance (AOA) appropriated buy-out funding levels, increasing to 100% in FY 2020 over a historical funding level of 88% of the outfitting requirement over the past five years. The FY 2021 revenue growth over FY 2020 is attributed to prior-year obligation increases expected to both deliver and sell in FY 2021.

NARRATIVE
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Obligation Authority ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Wholesale	$6,914.2	$6,437.5	$7,524.6
Retail	$864.5	$928.8	$943.6
Operating	$1,296.7	$1,214.5	$1,232.8
Capital Improvement Program (CIP)	$6.9	$16.3	$16.7
Total	$9,082.4	$8,597.1	$9,717.7

Note: Amounts may not add due to rounding

Wholesale: Increase in Obligation Authority in FY 2021 supports time-phased supply/spares depth improvements that will better align the Navy's supply system with Secretary of Defense priorities. Procurement and repair of wholesale material constitutes the majority of NAVSUP's business. Wholesale material consists of repairable and design un-stable consumables with lead-times averaging 12 to 24 months. Repairable material typically consists of critical weapon systems and propulsion plant secondary items managed by WSS. The current outline for wholesale obligations will support a mix of both new and old systems and platforms. Life-cycle extensions and further investment in Aviation Consolidated Allowance List (AVCAL) and Consolidated Shipboard Allowance List (COSAL) levels are included to support fleet and warfighter readiness. Examples of platforms affected include: P-8A Poseidon, F/A-18 series, Gerald R. Ford Class carriers, Littoral Combat Ships (LCS), DDG-51 and DDG-1000 Class destroyers, C-2A Greyhounds, and Patrol Coastal and Mine Countermeasure ships. These combined efforts ultimately sustain O-FRP and the Navy's ability to provide the required capabilities to assigned missions and readiness supported by the Secretary of Defense's Guidance. Wholesale supply is a key component to "strengthen our foundation" and to ensure ships and aircraft are maintained and modernized so they provide a "full measure of combat power."

Retail: There are no significant changes in forecasted obligations between FY 2020 and FY 2021.

Operating: There are no significant changes in operating authority between FY2020 and FY2021.

NARRATIVE
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Disbursements/Collections/Outlays ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Disbursements	$8,194.9	$9,213.5	$9,047.6
Collections	$7,536.0	$8,314.1	$8,864.9
Transfers (CIT Reimbursement)	$52.1	$3.8	$1.2
Transfers (Navy Cash Realignment)	$0.0	$0.0	$0.0
Outlays (Incorporates Transfers)	$606.8	$895.6	$181.5

Note: Amounts may not add due to rounding.

Disbursements/Collections: As a primary consideration of this budget, NAVSUP has carefully balanced cash concerns, impacts of potential changes to customer rates, and customer support effectiveness. Current net outlay projections reflect changes in workload and updated operating costs. Since PB-20, outlays have increased. The increases are due to sales falling short of projections in FY 2019 and revisions to the timing of upcoming operations expenditures relative to anticipated collections in FY 2020.

The significant increase in FY 2020 disbursements is a result of NAVSUP's action to prudently reduce risk with several wholesale inventory initiatives to improve future fleet support and surge capabilities. Inventory investments made in FY 2017 and FY 2018 started delivering in FY 2019, but most are expected to deliver in FY 2020. These initiatives have included increased safety levels, updated production and repair administrative lead times, and NSOs, all of which influence the amount of wholesale inventory required. These investments will rebuild a portion of wholesale inventory levels and as a result, sales are not expected to offset associated expenditures planned for late FY 2019 continuing throughout FY 2020. This will result in a significant drop in FY 2020's cash balance.

Sales:

Gross Sales ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Wholesale	$6,584.2	$7,630.1	$8,215.1
Retail	$895.4	$928.1	$942.8
Total	$7,479.7	$8,558.2	$9,157.9

Note: Amounts may not add due to rounding

Wholesale: Gross sales are directly linked to customer demands and funding profiles, as well as WSS's ability to fill orders utilizing in-stock material when a customer requisition is received. The FY 2019 $214.9 million wholesale gross sales decrease is a direct result of not experiencing the anticipated demand increases expected from the upward adjustments in O&M,N customer funding. FY 2020 gross sales increase from PB-20 as described in the Revenue section above.

NARRATIVE
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Retail: Retail sales remain consistent with the PB-20 submission.

Metrics: Metrics provide information on the scope of work performed by NWCF-SM. Adjustments have been made to align future metrics with current obligations and sales projections. Items managed represents the number of wholesale NIINs managed by NAVSUP. Requisitions received represent incoming customer orders for wholesale material. Receipts represent material delivered from contracts due-in or customer returns into the supply system. Issues represent material released to fill customer requisitions received. Contracts executed are awarded documents obligating CA, including both new and modifications to prior awards.

Metrics:	FY 2019	FY 2020	FY 2021
Items Managed	446,844	468,788	486,891
Requisitions Received*	580,698	596,759	614,570
Receipts*	477,248	490,831	526,606
Issues*	1,020,447	1,051,022	1,108,824
Contracts Executed*	25,603	28,890	25,500

*Note: *Document count.*

Undelivered Orders (UDOs) ($Millions): UDOs represent contracts or orders for goods in which a liability has not accrued. The liability is reported to the NWCF-SM account when the material delivers from a vendor. The accrual of liability creates an outlay requirement, which has been accounted for in NWCF-SM cash projections. The delivery of material creates the liability and the related disbursement from NWCF-SM cash account. Long lead-time items continue to contribute to a higher level of UDOs.

	FY 2019	FY 2020	FY 2021
Undelivered Orders ($Millions):	$10,860.9	$10,244.4	$10,914.5

War Reserve Material (WRM): War Reserve funding supports the procurement, replenishment, reconstitution, stock, and contracted asset availability guarantee of consumable and repairable items deemed necessary for war reserve. No contract authority is required during this budget cycle.

Performance Indicators: Performance indicators establish the expected level of performance for supply management. Beginning in FY 2018, CASREPs for Navigation, Damage Control Equipment, Propulsion and Steering Control were upgraded to the C3/C4 category, resulting in a notable increase to this metric. Goals are under review for possible adjustment in FY 2020.

NARRATIVE
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

	FY 2019	FY 2020	FY 2021
Customer Wait Time (CWT) in days	24	16	16
Ship Operating Percentage of Time Free (POTF) of C3/C4 Casualty Reports (CASREPs)			
Deployed	33%	25%	25%
Non-deployed	45%	28%	28%
Aircraft Non-Mission Capable Supply			
Deployed	16%	10%	10%
Non-Deployed	20%	10%	10%
Supply Material Availability	87%	85%	85%

Note: FY 2019 are EOY actuals. FY 2020 and FY 2021 are goals established by OPNAV.

Unit Cost: The cost per unit sold is ratio of total obligated costs and total gross sales. Wholesale unit cost increases from PB-20 are driven by significant increases in obligations not directly tied to same-year sales, and have not increased proportionally.

Unit Cost	FY 2019	FY 2020	FY 2021
Wholesale	$ 1.24	$ 1.04	$ 1.10
Retail	$ 0.97	$ 1.00	$ 1.00

Composite Rates	FY 2019	FY 2020	FY 2021
Annual Price Change (APC)	-0.34%	2.06%	4.02%
Composite Cost Recovery Rate (CRR)	10.88%	16.18%	18.43%

Staffing:

Civilian/Military End Strength & Workyears:	FY 2019	FY 2020	FY 2021
Civilian End Strength	7,210	5,303	5,484
Civilian Workyears	6,909	5,297	5,478
Military End Strength	364	364	364
Military Workyears	364	364	364

Civilian Personnel: FY 2019 to FY 2020 civilian decreases are due to NAVSUP Reimbursable Work Order (RWO) Reform. NAVSUP's removal of FLC and BSC internal RWO arrangements moves NWCF civilian costs from O&M,N non-labor to O&M,N labor funding. The FY 2021 net increase of 181 civilian Full Time Equivalent (FTE) is comprised of; increase of 91 Civilian FTE for

NARRATIVE
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

NAVSUP Reform Efforts and Inventory Accuracy; increase of 181 Civilian FTE transfer of DLA Warehouse Mission and Personnel to Navy; transfer out of 16 Civilian FTE Business Process Material Support to Naval Facilities Engineering Command for the Southwest Region; and reduction of 75 Civilian FTE due to workforce reshaping.

Military Personnel: No change.

Capital Investment Program (CIP): The Capital Investment Program sustains NAVSUP in mission achievement by reinvesting in plant equipment, cranes, information technology (IT), and facilities. Assets included in the capital budget are listed below. Changes between FY 2019 and FY 2020 reflect increased information technology investment to enhance analytical capabilities and inventory accuracy. Also reflected are FY 2019 through FY 2021 increases to replace aged testing equipment.

CIP Authority ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Equipment, Non-ADPE* / Telecom	$1.8	$5.5	$7.5
Equipment, ADPE / Telecom	$5.3	$9.8	$8.2
Software Development	$0.0	$0.0	$0.0
Minor Construction	$1.2	$1.0	$1.0
Total	$8.3	$16.3	$16.7

**Automatic Data Processing Equipment (ADPE)*
Note: Amounts may not add due to rounding

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
	---	---	---
Revenue:			
Gross Sales			
Operations	7,472.7	8,541.9	9,141.3
Capital Surcharges	0.5	7.8	6.3
Capital Investment Recovery except Maj Const	6.5	8.5	10.3
Total Gross Sales	7,479.7	8,558.2	9,157.9
Major Construction Dep	0.0	0.0	0.0
Other Income	422.1	186.9	190.7
Refunds/Discounts (- Credit Sales)	-398.9	-472.7	-474.1
Total Income	7,502.9	8,272.4	8,874.5
Expenses:			
Cost of Materiel Sold from Inventory:			
Navy Managed (412)	5,447.6	6,182.0	6,768.1
DLA Managed (415)	800.0	826.8	840.9
GSA Managed (416)	33.5	34.0	34.5
Total Cost of Materiel Sold from Inventory	6,281.1	7,042.7	7,643.5
Salaries and Wages:			
Military Personnel Compensation & Benefits	35.4	32.8	33.4
Civilian Personnel Compensation & Benefits	628.7	493.1	533.2
Travel and Transportation of Personnel	13.7	8.4	8.5
Material & Supplies (Internal Operations)	14.4	20.0	20.4
Equipment	20.4	23.0	23.4
Other Purchases from NWCF	360.1	240.8	245.7
Transportation of Things	53.8	133.2	105.3
Capital Investment Recovery	6.5	8.5	10.3
Printing and Reproduction	1.3	4.5	4.6
Advisory and Assistance Services	60.4	67.8	69.1
Rent, Communication, Utilities & Misc Charges	67.1	74.4	72.4
Other Purchased Services	41.3	116.7	116.9
Total Expenses	7,584.3	8,265.7	8,886.7
Operating Result	-81.4	6.7	-12.2
Less Capital Surcharge reservation	0.5	7.8	6.3
Plus Appro Affecting NOR/AOR	0.0	0.0	0.0
Plus Other Changes Affecting NOR	0.0	0.0	0.0
Net Operating Result	-81.9	-1.1	-18.6
Prior Year AOR	208.2	19.7	18.6
Other Changes Affecting AOR	-106.6	0.0	0.0
Accumulated Operating Result	19.7	18.6	0.0
Non-Recoverable Adjustments impacting AOR	0.0	0.0	0.0
AOR for budget purposes	19.7	18.6	0.0

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
1. New Orders	7,539.6	7,941.8	8,350.7
a. Orders from DoD Components:	7,407.7	7,802.9	8,204.7
Department of the Navy	6,500.0	6,846.8	7,199.3
O & M, Navy	4,613.3	4,859.4	5,109.6
O & M, Marine Corps	1.8	1.9	2.0
O & M, Navy Reserve	86.6	91.3	96.0
O & M, Marine Corp Reserve	0.0	0.0	0.0
Reserve Personnel, Navy	0.0	0.0	0.0
Military Personnel, Navy	0.8	0.9	0.9
Military Personnel, Marine Corp	0.0	0.0	0.0
Aircraft Procurement, Navy	1,361.8	1,434.5	1,508.4
Weapons Procurement, Navy	2.3	2.4	2.5
Shipbuilding & Conversion, Navy	79.4	83.7	88.0
Other Procurement, Navy	76.1	80.2	84.3
Procurement, Marine Corps	3.5	3.7	3.9
Research, Dev., Test, & Eval., Navy	1.3	1.3	1.4
National Defense Sealift Fund	0.0	0.0	0.0
Other Navy Appropriations	58.4	61.5	64.7
Other Marine Corps Appropriations	0.0	0.0	0.0
Navy Working Capital Fund	214.6	226.1	237.7
Orders from Other DoD Components	907.7	956.1	1,005.3
Department of the Army	20.2	21.2	22.3
Department of the Air Force	862.1	908.2	955.0
DoD Other	25.5	26.7	28.1
b. Orders from other Fund Activity Groups	0.0	0.0	0.0
Distribution Depots, Navy	0.0	0.0	0.0
Logistics Support, Navy	0.0	0.0	0.0
c. Total DoD	7,407.7	7,802.9	8,204.7
d. Other Orders:	131.8	138.9	146.0
Other Federal Agencies	0.0	0.0	0.0
Trust Fund	0.0	0.0	0.0
Foreign Military Sales	131.8	138.9	146.0
Non Federal Agencies*	0.0	0.0	0.0
Total New Orders	7,539.6	7,941.8	8,350.7
2. Carry-In Orders	1,877.8	1,937.7	1,321.3
3. Total Gross Orders	9,417.4	9,879.5	9,672.0
4. Carry-Out Orders	1,937.7	1,321.3	514.1
5. Gross Sales	7,479.7	8,558.2	9,157.9
Reimbursable Orders (BP 91)	422.1	186.9	190.7
6. Credit (-)	398.9	472.7	474.1
7. Net Sales	7,502.9	8,272.4	8,874.5

* Non-federal agencies line includes cash sales

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CAPITAL INVESTMENT SUMMARY
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

		FY 2019		FY 2020		FY 2021	
Line #	Description	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
1	**Non-ADPE and Telecom Equipment >= $.250M**	**0**	**$1.800**	**0**	**$5.500**	**0**	**$7.500**
	- Vehicles	0	$0.000	0	$0.500	0	$0.500
	- Material Handling	0	$1.800	0	$2.500	0	$2.000
	- Installation Security	0	$0.000	0	$0.000	0	$0.000
	- Quality Control/Testing	0	$0.000	0	$2.000	0	$4.500
	- Medical Equipment	0	$0.000	0	$0.000	0	$0.000
	- Machinery	0	$0.000	0	$0.500	0	$0.500
	- Support Equipment	0	$0.000	0	$0.000	0	$0.000
2	**ADPE and Telecom Equipment >= $.250M**	**0**	**$5.250**	**0**	**$9.750**	**0**	**$8.150**
	- Computer Hardware (Production)	0	$4.600	0	$9.100	0	$7.500
	- Computer Hardware (Network)	0	$0.650	0	$0.650	0	$0.650
	- Computer Software (Operating)	0	$0.000	0	$0.000	0	$0.000
	- Telecommunications	0	$0.000	0	$0.000	0	$0.000
	- Other Support Equipment	0	$0.000	0	$0.000	0	$0.000
3	**Software Development >= $.250M**	**0**	**$0.000**	**0**	**$0.000**	**0**	**$0.000**
	- Internally Developed	0	$0.000	0	$0.000	0	$0.000
	- Externally Developed	0	$0.000	0	$0.000	0	$0.000
4	**Minor Construction (>= $.250M and <= $2.000M)**	**0**	**$1.164**	**0**	**$1.000**	**0**	**$1.000**
	- Replacement Capability	0	$1.164	0	$1.000	0	$1.000
	- New Construction	0	$0.000	0	$0.000	0	$0.000
	- Environmental Capability	0	$0.000	0	$0.000	0	$0.000
	Grand Total	**0**	**$8.214**	**0**	**$16.250**	**0**	**$16.650**
	Total Capital Outlays		**$8.874**		**$11.700**		**$11.990**
	Total Capital Investment Recovery		**$6.472**		**$8.460**		**$10.318**

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Supply	#001 - Non-ADPE						Supply Management - Navy		
	FY 2019			FY 2020			FY 2021		
Non-ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Vehicles	0	-	$0	0	-	$500	0	-	$500
Material Handling	0	-	$1,800	0	-	$2,500	0	-	$2,000
Installation Security	0	-	$0	0	-	$0	0	-	$0
Quality Control/ Testing	0	-	$0	0	-	$2,000	0	-	$4,500
Medical Equipment	0	-	$0	0	-	$0	0	-	$0
Machinery	0	-	$0	0	-	$500	0	-	$500
Support Equipment	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$1,800	0	-	$5,500	0	-	$7,500

Justification:

This program funds the procurement of new/initial outfitting and replacement of Material Handling Equipment (MHE) and Automated Material Handling Systems (AMHS) to satisfy operational requirements within the Navy Supply System. Replacement MHE is for over aged non-repairable equipment used in material handling operations at various activities. With a large inventory of equipment at the various Fleet Logistics Centers (FLCs) there will always be units eligible for replacement through procurement. If fully supported, this funding will allow the Navy to develop the right mix of new procurements, resulting in overall requirement reductions, and resolving the problem of trying to maintain old equipment at high maintenance cost and reduced state of readiness. MHE funding limitations in past years has precluded the purchase of required MHE planned for issue. We cannot emphasize enough that this is a continuing program and one year builds on the next. Delaying any funding only postpones the inevitable requirement to procure a new unit at a higher cost. Supply readiness and logistical support are dependent upon the availability of reliable MHE. Non-repairable equipment is not cost effective to maintain for continued operation, and repair parts are difficult to obtain. Replacement of non-repairable equipment with new and more efficient models will reduce excessive costs attributed to repair/overhaul, downtime and maintenance. New equipment will enhance productivity and enable users to meet handling and logistics requirements in an efficient and effective manner. For these reasons it is essential to maintain funding to cover procurement of new equipment as required.
Naval Supply Systems Command (NAVSUP) is also responsible for replacing and maintaining aging Civil Engineering Support Equipment (CESE) necessary for fuel depot operations throughout the Navy. This equipment is necessary to maintain and improve the working conditions and assist NAVSUP operations employees. Safety, reliability, maintenance cost and customer support are directly impacted by age and condition of this equipment. Economic analysis is not provided since equipment is only replaced as useful life has been exceeded due to age and or usage. Dollar values are established by NAVFAC procuring activity in Port Hueneme, CA. Examples: Tanker truck, 20 ton semi-trailer stake 2 axle, 20 ton semi-trailer van 2 axle. Also reflected are FY 2020 and 2021 increases to replace aged testing equipment.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Supply	#002 - ADPE						Supply Management - Navy		
	FY 2019			FY 2020			FY 2021		
ADP Equipment	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Computer Hardware (Production)	0	-	$4,600	0	-	$9,100	0	-	$7,500
Computer Hardware (Network)	0	-	$650	0	-	$650	0	-	$650
Computer Software (Operating System	0	-	$0	0	-	$0	0	-	$0
Telecommunications	0	-	$0	0	-	$0	0	-	$0
Other Support Equipment	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$5,250	0	-	$9,750	0	-	$8,150

Justification:

NAVSUP Business Systems Center (BSC) - Funds provide support to the BSC Legacy/Non-Navy/Marine Corps Intranet (NMCI) Network Plan. As part of the plan, NAVSUP BSC is continually upgrading its NETWARCOM approved legacy network, which will replace obsolete non-NMCI ADP equipment to provide an environment for client/server development. A variety of PC hardware platforms currently exists in NAVSUP BSC that prevents deployment of the development tools needed to maintain its competitiveness. Upgrading and standardizing hardware infrastructure will allow NAVSUP BSC to use the network to deploy the latest legacy/non-NMCI software products. As NAVSUP moves forward with reducing system and Information Technology (IT) costs and improving business processes, a critical area identified for analysis is Allowancing. In order to optimize the allowance systems and align with key Enterprise efforts such as Navy ERP and Single Supply Baseline (SSB), NAVSUP continues to streamline current Readiness Suite and Re-Engineering Maritime Allowance Development (ReMAD) systems via merging the associated databases, standardizing data validations rules and leveraging synergies resulting from combining the platforms. This effort will position NAVSUP to respond to future Enterprise integration/transition requirements. Changes between FY 2019 and FY 2021 reflect increased information technology investment to enhance analytical capabilities and inventory accuracy.

CAPITAL INVESTMENT JUSTIFICATION				FISCAL YEAR (FY) 2021 BUDGET ESTIMATES					
(DOLLARS IN THOUSANDS)				FEBRUARY 2020					
Department of the Navy/ Supply	#004 - Minor Construction						Supply Management - Navy		
	FY 2019			FY 2020			FY 2021		
Minor Construction	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost	Quant	Unit Cost	Total Cost
Replacement	0	-	$1,164	0	-	$1,000	0	-	$1,000
New Construction	0	-	$0	0	-	$0	0	-	$0
Environmental Capability	0	-	$0	0	-	$0	0	-	$0
Total	0	-	$1,164	0	-	$1,000	0	-	$1,000

Justification:

Minor Construction: NAVSUP, as the maintenance UIC for all facilities occupied and operated by NAVSUP employees, is responsible for Real Property Maintenance (Minor Construction portion) of facilities occupied and operated. These NWCF Supply Management projects are necessary to maintain and improve the working conditions for NAVSUP employees. Projects include Minor Construction requirements of facilities as well as Quality of Life and correction of Safety deficiencies. Minor Construction funding requested supports the overall RPM objectives of the NAVFAC recommended spending limits of between 2% to 4% annually based on the associated property values. Economic analysis are not performed since Minor Construction funding limits keep investment percentage to such a small percentage of the total facility value. Cost savings if identified are provided as part of the project documentation developed. No minor construction project exceeds the current MILCON threshold.

CAPITAL BUDGET EXECUTION
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2020 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

FY	Line Item	Category	Capability/Project	Initial Request	Current Proj Cost	Approved Change	Explanation
2019	**1**	**Non ADP**		**$3.500**	**$1.800**	**($1.700)**	
			Vehicles	$0.500	$0.000	($0.500)	CIP Reprogramming-Feb/Jun
			Material Handling	$2.500	$1.800	($0.700)	CIP Reprogramming-June
			Quality Control/Testing	$0.000	$0.000	$0.000	
			Machinery	$0.500	$0.000	($0.500)	CIP Reprogramming-February
			Support Equipment	$0.000	$0.000	$0.000	
	2	**ADP**		**$3.750**	**$5.250**	**$1.500**	
			Computer Hardware (Production)	$3.750	$4.600	$0.850	CIP Reprogramming-June
			Computer Hardware (Network)	$0.000	$0.650	$0.650	CIP Reprogramming-February
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$1.000**	**$1.164**	**$0.164**	
			Replacement	$1.000	$1.164	$0.164	Actual Execution
			New Construction	$0.000	$0.000	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2019 CIP Program				**$8.250**	**$8.214**	**($0.036)**	

FY	L.I.	Category	Capability/Project	I.R	C.P.R	A.C.	Explanation
2020	**1**	**Non ADP**		**$3.500**	**$5.500**	**$2.000**	**Emergent requirements**
			Vehicles	$0.500	$0.500	$0.000	
			Material Handling	$2.500	$2.500	$0.000	
			Quality Control/Testing	$0.000	$2.000	$2.000	
			Machinery	$0.500	$0.500	$0.000	
			Support Equipment	$0.000	$0.000	$0.000	
	2	**ADP**		**$3.750**	**$9.750**	**$6.000**	**Emergent requirements**
			Computer Hardware (Production)	$3.750	$9.100	$5.350	
			Computer Hardware (Network)	$0.000	$0.650	$0.650	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$1.000**	**$1.000**	**$0.000**	
			Replacement	$1.000	$1.000	$0.000	
			New Construction	$0.000	$0.000	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2020 CIP Program				**$8.250**	**$16.250**	**$8.000**	**Emergent requirements**

FY	L.I.	Category	Capability/Project	I.R	C.P.R	A.C.	Explanation
2021	**1**	**Non ADP**		**$7.500**	**$7.500**	**$0.000**	
			Vehicles	$0.500	$0.500	$0.000	
			Material Handling	$2.000	$2.000	$0.000	
			Quality Control/Testing	$4.500	$4.500	$0.000	
			Machinery	$0.500	$0.500	$0.000	
			Support Equipment	$0.000	$0.000	$0.000	
	2	**ADP**		**$8.150**	**$8.150**	**$0.000**	
			Computer Hardware (Production)	$7.500	$7.500	$0.000	
			Computer Hardware (Network)	$0.650	$0.650	$0.000	
			Computer Software (Operating)	$0.000	$0.000	$0.000	
			Telecommunications	$0.000	$0.000	$0.000	
			Other Support Equipment	$0.000	$0.000	$0.000	
	3	**Software**		**$0.000**	**$0.000**	**$0.000**	
			Internally Developed	$0.000	$0.000	$0.000	
			Externally Developed	$0.000	$0.000	$0.000	
	4	**Minor Construction**		**$1.000**	**$1.000**	**$0.000**	
			Replacement	$1.000	$1.000	$0.000	
			New Construction	$0.000	$0.000	$0.000	
			Environmental Capability	$0.000	$0.000	$0.000	
TOTAL FY 2021 CIP Program				**$16.650**	**$16.650**	**$0.000**	

SUPPLY MANAGEMENT SUMMARY
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

DIVISION	NET CUSTOMER ORDERS	NET SALES	OPERATING	MOBILIZATION	TOTAL OBLIGATIONS	VARIABILITY TARGET	TARGET TOTAL	CAPITAL IMRPROVEMENT PROGRAM	CREDIT SALES
BP21									
FY19	60.9	60.9	59.9	0.0	59.9	0.0	59.9	0.0	0.0
FY20	66.3	66.3	67.0	0.0	67.0	0.0	67.0	0.0	0.0
FY21	66.3	66.3	67.0	0.0	67.0	0.0	67.0	0.0	0.0
BP25									
FY19	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BP28									
FY19	834.5	834.5	804.7	0.0	804.7	0.0	804.7	0.0	0.0
FY20	861.8	861.8	861.8	0.0	861.8	0.0	861.8	0.0	0.0
FY21	876.6	876.6	876.6	0.0	876.6	0.0	876.6	0.0	0.0
BP34									
FY19	202.7	201.3	119.2	0.0	119.2	0.0	119.2	0.0	0.0
FY20	215.9	216.5	54.3	0.0	54.3	13.0	67.3	0.0	0.1
FY21	227.9	229.7	60.2	0.0	60.2	13.0	73.2	0.0	0.1
BP81									
FY19	1,208.6	1,232.4	1,413.9	0.0	1,413.9	0.0	1,413.9	0.0	7.6
FY20	1,362.4	1,400.4	1,183.4	0.0	1,183.4	176.0	1,359.4	0.0	10.0
FY21	1,600.7	1,616.1	1,300.0	0.0	1,300.0	176.0	1,476.0	0.0	10.0
BP85									
FY19	4,833.8	4,751.6	5,381.1	0.0	5,381.1	0.0	5,381.1	0.0	391.3
FY20	4,962.6	5,540.4	5,199.8	0.0	5,199.8	636.0	5,835.8	0.0	462.7
FY21	5,105.1	5,895.2	6,164.4	0.0	6,164.4	636.0	6,800.4	0.0	464.0
BP91									
FY19	0.0	422.1	1,296.7	0.0	1,296.7	0.0	1,296.7	6.9	0.0
FY20	0.0	186.9	1,214.5	0.0	1,214.5	0.0	1,214.5	16.3	0.0
FY21	0.0	190.7	1,232.8	0.0	1,232.8	0.0	1,232.8	16.7	0.0
TOTAL									
FY19	7,140.6	7,502.9	9,075.4	0.0	9,075.4	0.0	9,075.4	6.9	398.9
FY20	7,469.0	8,272.4	8,580.8	0.0	8,580.8	825.0	9,405.8	16.3	472.7
FY21	7,876.6	8,874.5	9,701.0	0.0	9,701.0	825.0	10,526.0	16.7	474.1

OPERATING REQUIREMENTS BY WEAPON SYSTEM
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
BP 34
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)
FY 2019

Weapon System	NMCS Rates[1]	Outfitting	Special Programs	Basic Replen	Total
F/A-18 / EA-18G	17.4/18.1	5.5	0.0	40.4	45.9
AV-8B / T-45	18.7/18.1	0.4	0.0	3.1	3.5
E-2 / C-2	21.4/14.1	1.3	0.0	1.0	2.3
EA-6B	9.2	0.0	0.0	0.1	0.1
RQ-21 UASI	n/a	0.0	0.0	0.0	0.0
V-22	27.9	0.1	0.0	0.0	0.2
C-130	25.8	0.0	0.0	0.0	0.0
P-3	17.9	0.0	0.0	0.4	0.4
P-8	13.0	2.3	0.0	0.1	2.4
H-1	28.8	1.4	0.0	0.3	1.7
H-53	27.1	0.8	6.2	1.7	8.7
H-60	16.7	2.0	0.0	1.1	3.2
VTUAV	n/a	0.0	0.0	2.4	2.4
Common Avionics	n/a	10.2	0.0	7.9	18.1
Aircraft Engines	n/a	0.0	0.0	3.5	3.5
Aviation Support Systems	n/a	1.2	0.0	25.8	26.9
Total		25.1	6.2	87.9	119.2

[1]Not Mission Capable Supply (NMCS) - Percentage of time aircraft are Not Mission Capable due to a supply shortage. Used in conjunction with Not Mission Capable Maintenance (NMCM) to determine total Not Mission Capable rate (inverse of MC). NMCS is computed only for weapon systems. NMCS is not computed for weapon system parts, such as engines. Data Source: NAVAIR Deckplate (Moving Average Status reflecting FY19 Qtr4 data). Provided by: OPNAV-N43

OPERATING REQUIREMENTS BY WEAPON SYSTEM
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
BP 34
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)
FY 2020

Weapon System	NMCS Rates[1]	Outfitting	Special Programs	Basic Replen	Total
F/A-18 / EA-18G	17.4/18.1	1.6	0.0	10.0	11.6
AV-8B / T-45	18.7/18.1	0.0	0.0	3.5	3.5
E-2 / C-2	21.4/14.1	1.9	0.0	0.1	2.0
EA-6B	9.2	0.0	0.0	0.0	0.0
RQ-21 UASI	n/a	0.0	0.0	0.0	0.0
V-22	27.9	4.7	0.0	0.5	5.2
C-130	25.8	0.1	0.0	0.3	0.3
P-3	17.9	0.0	0.0	0.4	0.4
P-8	13.0	0.0	0.0	1.6	1.6
H-1	28.8	1.4	0.0	0.2	1.7
H-53	27.1	0.0	0.0	2.5	2.5
H-60	16.7	0.9	0.0	0.2	1.1
VTUAV	n/a	3.5	0.0	2.4	5.8
Common Avionics	n/a	4.5	0.0	4.0	8.5
Aircraft Engines	n/a	0.4	0.0	1.4	1.8
Aviation Support Systems	n/a	1.2	0.0	7.0	8.1
Total		20.2	0.0	34.2	54.3

[1]Not Mission Capable Supply (NMCS) - Percentage of time aircraft are Not Mission Capable due to a supply shortage. Used in conjunction with Not Mission Capable Maintenance (NMCM) to determine total Not Mission Capable rate (inverse of MC). NMCS is computed only for weapon systems. NMCS is not computed for weapon system parts, such as engines. Data Source: NAVAIR Deckplate (Moving Average Status reflecting FY19 Qtr4 data). Provided by: OPNAV-N43

OPERATING REQUIREMENTS BY WEAPON SYSTEM
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
BP 34
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)
FY 2021

Weapon System	NMCS Rates[1]	Outfitting	Special Programs	Basic Replen	Total
F/A-18 / EA-18G	17.4/18.1	0.5	0.0	11.9	12.4
AV-8B / T-45	18.7/18.1	0.0	0.0	3.8	3.8
E-2 / C-2	21.4/14.1	2.0	0.0	0.4	2.4
EA-6B	9.2	0.0	0.0	0.0	0.0
RQ-21 UASI	n/a	0.0	0.0	0.0	0.0
V-22	27.9	2.9	0.0	0.5	3.4
C-130	25.8	0.1	0.0	0.2	0.2
P-3	17.9	0.0	0.0	0.7	0.7
P-8	13.0	0.3	0.0	2.9	3.2
H-1	28.8	0.0	0.0	0.4	0.4
H-53	27.1	0.0	0.0	2.2	2.3
H-60	16.7	1.0	0.0	0.3	1.3
VTUAV	n/a	11.6	0.0	0.7	12.3
Common Avionics	n/a	2.6	0.0	1.2	3.8
Aircraft Engines	n/a	0.4	0.0	1.7	2.1
Aviation Support Systems	n/a	1.5	0.0	10.6	12.0
Total		22.8	0.0	37.4	60.2

[1]Not Mission Capable Supply (NMCS) - Percentage of time aircraft are Not Mission Capable due to a supply shortage. Used in conjunction with Not Mission Capable Maintenance (NMCM) to determine total Not Mission Capable rate (inverse of MC). NMCS is computed only for weapon systems. NMCS is not computed for weapon system parts, such as engines. Data Source: NAVAIR Deckplate (Moving Average Status reflecting FY19 Qtr4 data). Provided by: OPNAV-N43

OPERATING REQUIREMENTS BY WEAPON SYSTEM
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
BP 81
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)
FY 2019

Weapon System Name	Basic Replen	Outfitting	Special Programs	Repair	Total
AMPHIBIOUS	5.5	1.3	2.3	4.5	13.6
NUCLEAR	103.3	32.6	0.0	2.1	138.0
SUBSAFE LI/ASDS/DSSP	20.8	0.0	36.7	25.5	83.0
EXPEDITIONARY	2.7	0.7	5.9	5.3	14.5
COMMON ELECTRONIC	89.8	25.3	29.8	191.8	336.8
COMMON HM&E	72.4	6.6	117.7	63.5	260.3
CRUDES	94.0	13.0	46.9	147.7	301.6
LITTORAL	6.9	2.3	8.7	9.9	27.9
SUBMARINE	67.5	4.0	40.3	74.6	186.5
CVN	10.0	1.4	25.9	14.6	51.8
Gross Requirement	472.9	87.3	314.1	539.6	1,413.9

Platform	FY19 POTF *
AIRCRAFT CARRIERS	49%
AMPHIBIOUS WARFARE	20%
COMBAT LOGISTICS SHIPS	47%
MINE WARFARE SHIPS	16%
SUBMARINES (SSN)	88%
SUBMARINES (SSBN)	100%
SUBMARINES (SSGN)	90%
LITTORAL	19%
SURFACE COMBATANTS	20%
MISCELLANEOUS	71%
ACROSS ALL PLATFORMS	26%

* POTF (Percentage of Time Free) is an accepted Department of Defense readiness metric and is used in assessing ship and submarine readiness vice NMCS (aviation metric). It measures the percentage of operating time free of mission-degrading casualties for active ships in all fleets (i.e. the percentage of operating time that a platform has no C3/C4 casualty reports (CASREPs). POTF is measured by platform. There is no means of obtaining POTF data at the Weapon System level.

FY19 POTF is based on 4th Quarter Actuals.

OPERATING REQUIREMENTS BY WEAPON SYSTEM
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
BP 81
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
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(DOLLARS IN MILLIONS)
FY 2020

Weapon System Name	Basic Replen	Outfitting	Special Programs	Repair	Total
AMPHIBIOUS	7.1	0.6	4.2	7.4	19.2
NUCLEAR	69.5	22.8	14.0	3.0	109.2
SUBSAFE LI/ASDS/DSSP	26.8	0.0	14.6	45.3	86.6
EXPEDITIONARY	1.3	0.0	8.4	5.5	15.3
COMMON ELECTRONIC	64.3	27.0	8.3	172.6	272.2
COMMON HM&E	51.9	3.9	29.7	24.9	110.4
CRUDES	108.2	10.7	73.2	194.1	386.2
LITTORAL	2.6	4.6	11.4	7.6	26.4
SUBMARINE	65.4	3.3	17.2	41.5	127.4
CVN	8.1	0.0	8.3	14.1	30.5
Gross Requirement	405.2	73.0	189.2	516.0	1,183.4

Platform	FY20 POTF *
AIRCRAFT CARRIERS	49%
AMPHIBIOUS WARFARE	20%
COMBAT LOGISTICS SHIPS	47%
MINE WARFARE SHIPS	16%
SUBMARINES (SSN)	88%
SUBMARINES (SSBN)	100%
SUBMARINES (SSGN)	90%
LITTORAL	19%
SURFACE COMBATANTS	20%
MISCELLANEOUS	71%
ACROSS ALL PLATFORMS	26%

* POTF (Percentage of Time Free) is an accepted Department of Defense readiness metric and is used in assessing ship and submarine readiness vice NMCS (aviation metric). It measures the percentage of operating time free of mission-degrading casualties for active ships in all fleets (i.e. the percentage of operating time that a platform has no C3/C4 casualty reports (CASREPs). POTF is measured by platform. There is no means of obtaining POTF data at the Weapon System level.

FY20 POTF is based on FY19 4th Quarter Actuals.

OPERATING REQUIREMENTS BY WEAPON SYSTEM
DEPARTMENT OF THE NAVY
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FEBRUARY 2020
(DOLLARS IN MILLIONS)
FY 2021

Weapon System Name	Basic Replen	Outfitting	Special Programs	Repair	Total
AMPHIBIOUS	4.3	1.5	8.2	15.1	29.1
NUCLEAR	60.9	23.3	22.1	3.0	109.2
SUBSAFE LI/ASDS/DSSP	19.2	0.0	55.2	63.7	138.0
EXPEDITIONARY	0.7	0.0	7.0	6.3	14.1
COMMON ELECTRONIC	39.9	23.1	38.3	106.6	207.9
COMMON HM&E	50.8	6.4	34.6	74.1	165.8
CRUDES	163.1	10.7	6.7	208.7	389.3
LITTORAL	1.5	7.3	12.6	13.7	35.1
SUBMARINE	64.0	0.7	13.8	74.8	153.4
CVN	1.5	4.0	26.0	26.7	58.2
Gross Requirement	405.8	77.0	224.6	592.6	1,300.0

Platform	FY21 POTF *
AIRCRAFT CARRIERS	49%
AMPHIBIOUS WARFARE	20%
COMBAT LOGISTICS SHIPS	47%
MINE WARFARE SHIPS	16%
SUBMARINES (SSN)	88%
SUBMARINES (SSBN)	100%
SUBMARINES (SSGN)	90%
LITTORAL	19%
SURFACE COMBATANTS	20%
MISCELLANEOUS	71%
ACROSS ALL PLATFORMS	26%

* POTF (Percentage of Time Free) is an accepted Department of Defense readiness metric and is used in assessing ship and submarine readiness vice NMCS (aviation metric). It measures the percentage of operating time free of mission-degrading casualties for active ships in all fleets (i.e. the percentage of operating time that a platform has no C3/C4 casualty reports (CASREPs). POTF is measured by platform. There is no means of obtaining POTF data at the Weapon System level.

FY21 POTF is based on FY19 4th Quarter Actuals.

OPERATING REQUIREMENTS BY WEAPON SYSTEM
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
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Weapon System	NMCS Rates[1]	Outfitting	Special Programs	Basic Replen	Repair	Total
F/A-18 A-D / F/A-18 E-G	17.4/18.1	169.8	225.5	268.1	569.4	1,232.8
AV-8B / T-45	18.7/18.1	9.2	0.0	76.2	103.4	188.9
E-2 / C-2	21.4/14.1	46.8	0.0	129.2	115.0	291.1
EA-6B	9.2	0.0	0.0	9.6	27.5	37.1
RQ-21 UASI	n/a	0.0	0.0	0.0	0.0	0.0
V-22	27.9	109.8	23.1	38.8	457.3	628.9
C-130	25.8	1.2	0.0	72.6	37.9	111.7
P-3	17.9	0.3	0.0	1.7	45.0	47.0
P-8	13.0	117.9	0.0	35.0	53.2	206.0
H-1	28.8	4.6	0.0	110.8	194.7	310.1
H-53	27.1	19.1	0.0	47.1	260.8	327.0
H-60	16.7	80.1	0.0	132.8	341.2	554.1
VTUAV	n/a	200.9	0.0	0.0	7.5	208.3
Common Avionics	n/a	24.5	5.7	15.0	147.2	192.4
Aircraft Engines	n/a	0.0	79.1	45.3	757.7	882.1
Aviation Support Systems	n/a	26.1	0.0	31.4	106.2	163.7
Total		810.2	333.5	1,013.5	3,223.9	5,381.1

[1]Not Mission Capable Supply (NMCS) - Percentage of time aircraft are Not Mission Capable due to a supply shortage. Used in conjunction with Not Mission Capable Maintenance (NMCM) to determine total Not Mission Capable rate (inverse of MC). NMCS is computed only for weapon systems. NMCS is not computed for weapon system parts, such as engines. Data Source: NAVAIR Deckplate (Moving Average Status reflecting FY19 Qtr4 data). Provided by: OPNAV-N43

OPERATING REQUIREMENTS BY WEAPON SYSTEM
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SUPPLY MANAGEMENT - NAVY
BP 85
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FY 2020

Weapon System	NMCS Rates[1]	Outfitting	Special Programs	Basic Replen	Repair	Total
F/A-18 / EA-18G	17.4/18.1	136.1	404.6	169.1	707.3	1,417.1
AV-8B / T-45	18.7/18.1	0.0	0.0	41.7	76.4	118.1
E-2 / C-2	21.4/14.1	41.9	0.0	65.2	83.7	190.8
EA-6B	9.2	0.0	0.0	0.0	0.0	0.0
RQ-21 UASI	n/a	0.0	0.0	0.0	0.0	0.0
V-22	27.9	61.3	42.3	14.7	525.5	643.8
C-130	25.8	1.5	0.0	24.9	54.1	80.5
P-3	17.9	0.4	0.0	8.8	33.4	42.6
P-8	13.0	0.0	0.0	44.5	47.3	91.8
H-1	28.8	33.9	0.0	14.0	235.2	283.1
H-53	27.1	0.0	4.5	25.6	292.2	322.3
H-60	16.7	18.3	0.0	14.9	392.9	426.2
VTUAV	n/a	81.4	0.0	11.4	3.2	96.1
Common Avionics	n/a	89.9	0.0	73.6	116.1	279.6
Aircraft Engines	n/a	0.0	78.8	74.4	890.2	1,043.3
Aviation Support Systems	n/a	26.7	0.0	29.8	108.1	164.6
Total		491.4	530.1	612.8	3,565.5	5,199.8

[1]Not Mission Capable Supply (NMCS) - Percentage of time aircraft are Not Mission Capable due to a supply shortage. Used in conjunction with Not Mission Capable Maintenance (NMCM) to determine total Not Mission Capable rate (inverse of MC). NMCS is computed only for weapon systems. NMCS is not computed for weapon system parts, such as engines. Data Source: NAVAIR Deckplate (Moving Average Status reflecting FY19 Qtr4 data). Provided by: OPNAV-N43

OPERATING REQUIREMENTS BY WEAPON SYSTEM
DEPARTMENT OF THE NAVY
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FY 2021

Weapon System	NMCS Rates[1]	Outfitting	Special Programs	Basic Replen	Repair	Total
F/A-18 / EA-18G	17.4/18.1	94.3	252.8	341.6	1,088.7	1,777.4
AV-8B / T-45	18.7/18.1	0.0	0.0	106.3	57.5	163.8
E-2 / C-2	21.4/14.1	42.9	0.0	215.0	107.9	365.8
EA-6B	9.2	0.0	0.0	0.0	16.0	16.0
RQ-21 UASI	n/a	0.0	0.0	0.0	0.0	0.0
V-22	27.9	11.8	0.0	135.3	614.7	761.9
C-130	25.8	1.5	0.0	22.2	35.8	59.6
P-3	17.9	0.0	0.0	13.2	34.2	47.4
P-8	13.0	7.4	0.0	26.2	35.4	69.1
H-1	28.8	0.0	0.0	60.4	300.5	360.9
H-53	27.1	0.0	4.5	45.5	288.0	338.0
H-60	16.7	19.5	0.0	13.8	502.1	535.4
VTUAV	n/a	277.8	0.0	9.7	0.0	287.5
Common Avionics	n/a	44.9	0.0	27.5	116.7	189.1
Aircraft Engines	n/a	0.0	78.8	124.7	844.5	1,048.0
Aviation Support Systems	n/a	33.8	0.0	31.1	79.8	144.7
Total		534.0	336.0	1,172.5	4,121.9	6,164.4

[1]Not Mission Capable Supply (NMCS) - Percentage of time aircraft are Not Mission Capable due to a supply shortage. Used in conjunction with Not Mission Capable Maintenance (NMCM) to determine total Not Mission Capable rate (inverse of MC). NMCS is computed only for weapon systems. NMCS is not computed for weapon system parts, such as engines. Data Source: NAVAIR Deckplate (Moving Average Status reflecting FY19 Qtr4 data). Provided by: OPNAV-N43

INVENTORY STATUS
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - NAVY
BUDGET PROJECT SUMMARY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)
FY 2019

			---Peacetime---	
	Total	Mobilization	Operating	Other
1. INVENTORY BOP	62,731.0	0.0	32,987.9	29,743.1
2. BOP INVENTORY ADJUSTMENTS	22.6	0.0	113.0	(90.4)
A. RECLASSIFICATION CHANGE (memo)	0.0	0.0	163.7	(163.7)
B. PRICE CHANGE AMOUNT (memo)	22.6	0.0	(50.7)	73.3
C. INVENTORY RECLASSIFIED AND REPRICED	62,753.5	0.0	33,100.9	29,652.7
3. RECEIPTS AT STANDARD	4,108.9	0.0	4,085.9	23.0
4. SALES AT STANDARD	7,479.7	0.0	7,479.7	0.0
5. INVENTORY ADJUSTMENTS				
A. CAPITALIZATIONS + or (-)	1,857.7	0.0	1,702.0	155.7
B. RETURNS FROM CUSTOMERS FOR CREDIT	398.9	0.0	394.5	4.4
C. RETURNS FROM CUSTOMERS, NO CREDIT	9,272.8	0.0	7,225.7	2,047.1
D. RETURNS TO SUPPLIERS (-)	0.0	0.0	0.0	0.0
E. TRANSFERS TO PROP. DISPOSAL (-)	(4,090.4)	0.0	(16.1)	(4,074.4)
F. ISSUES/RECEIPTS WITHOUT REIMBURSEMENT + or (-)	(57.5)	0.0	(2.5)	(55.1)
G. OTHER (listed in Section 9)	(8,238.9)	0.0	(8,234.0)	(4.9)
H. TOTAL ADJUSTMENTS	(857.5)	0.0	1,069.7	(1,927.1)
6. INVENTORY EOP	58,525.3	0.0	30,776.7	27,748.5
7. INVENTORY EOP (REVALUED)	39,533.8	0.0	21,836.0	17,697.8
A. APPROVED ACQUISITION OBJECTIVE (memo)				16,601.7
B. ECONOMIC RETENTION (memo)				619.1
C. CONTINGENCY RETENTION (memo)				427.1
D. POTENTIAL DOD REUTILIZATION (memo)				49.9
8. INVENTORY ON ORDER EOP (memo)	4,113.9	0.0	4,113.9	0.0
9. NARRATIVE:				
Other adjustments (Total posted to line 5g):				
Other Gains/Losses	443.1	0.0	428.1	15.0
Strata Transfers	0.0	0.0	(59.8)	59.8
Net/Standard Difference	(8,682.0)	0.0	(8,602.3)	(79.6)
Total	(8,238.9)	0.0	(8,234.0)	(4.9)

INVENTORY STATUS
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			---Peacetime---	
	Total	Mobilization	Operating	Other
1. INVENTORY BOP	58,525.3	0.0	30,776.7	27,748.5
2. BOP INVENTORY ADJUSTMENTS	1,269.2	0.0	1,185.6	83.6
A. RECLASSIFICATION CHANGE (memo)	0.0	0.0	163.7	(163.7)
B. PRICE CHANGE AMOUNT (memo)	1,269.2	0.0	1,021.9	247.3
C. INVENTORY RECLASSIFIED AND REPRICED	59,794.5	0.0	31,962.3	27,832.1
3. RECEIPTS AT STANDARD	4,472.0	0.0	4,467.4	4.5
4. SALES AT STANDARD	8,558.2	0.0	8,558.2	0.0
5. INVENTORY ADJUSTMENTS				
A. CAPITALIZATIONS + or (-)	1,840.5	0.0	1,725.0	115.6
B. RETURNS FROM CUSTOMERS FOR CREDIT	472.7	0.0	468.3	4.5
C. RETURNS FROM CUSTOMERS, NO CREDIT	14,938.7	0.0	12,935.4	2,003.3
D. RETURNS TO SUPPLIERS (-)	0.0	0.0	0.0	0.0
E. TRANSFERS TO PROP. DISPOSAL (-)	(4,433.0)	0.0	(12.8)	(4,420.2)
F. ISSUES/RECEIPTS WITHOUT REIMBURSEMENT + or (-)	(60.4)	0.0	(2.5)	(57.8)
G. OTHER (listed in Section 9)	(13,328.9)	0.0	(13,109.5)	(219.4)
H. TOTAL ADJUSTMENTS	(570.3)	0.0	2,003.8	(2,574.1)
6. INVENTORY EOP	55,137.9	0.0	29,875.4	25,262.5
7. INVENTORY EOP (REVALUED)	31,832.9	0.0	18,148.2	13,684.7
A. APPROVED ACQUISITION OBJECTIVE (memo)				12,668.9
B. ECONOMIC RETENTION (memo)				575.0
C. CONTINGENCY RETENTION (memo)				399.4
D. POTENTIAL DOD REUTILIZATION (memo)				41.4
8. INVENTORY ON ORDER EOP (memo)	4,215.1	0.0	4,215.1	0.0
9. NARRATIVE:				
Other adjustments (Total posted to line 5g):				
Other Gains/Losses	464.5	0.0	430.4	34.1
Strata Transfers	0.0	0.0	253.5	(253.5)
Net/Standard Difference	(13,793.4)	0.0	(13,793.4)	0.0
Total	(13,328.9)	0.0	(13,109.5)	(219.4)

INVENTORY STATUS
DEPARTMENT OF THE NAVY
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			---Peacetime---	
	Total	Mobilization	Operating	Other
1. INVENTORY BOP	55,137.9	0.0	29,875.4	25,262.5
2. BOP INVENTORY ADJUSTMENTS	920.6	0.0	994.5	(73.9)
A. RECLASSIFICATION CHANGE (memo)	0.0	0.0	163.7	(163.7)
B. PRICE CHANGE AMOUNT (memo)	920.6	0.0	830.8	89.8
C. INVENTORY RECLASSIFIED AND REPRICED	56,058.5	0.0	30,869.8	25,188.7
3. RECEIPTS AT STANDARD	5,123.1	0.0	5,119.0	4.1
4. SALES AT STANDARD	9,157.9	0.0	9,157.9	0.0
5. INVENTORY ADJUSTMENTS				
A. CAPITALIZATIONS + or (-)	1,940.0	0.0	1,819.3	120.7
B. RETURNS FROM CUSTOMERS FOR CREDIT	474.1	0.0	466.5	7.6
C. RETURNS FROM CUSTOMERS, NO CREDIT	16,099.3	0.0	14,180.2	1,919.1
D. RETURNS TO SUPPLIERS (-)	(0.0)	0.0	(0.0)	0.0
E. TRANSFERS TO PROP. DISPOSAL (-)	(4,602.3)	0.0	(10.3)	(4,592.0)
F. ISSUES/RECEIPTS WITHOUT REIMBURSEMENT + or (-)	(63.3)	0.0	(2.6)	(60.7)
G. OTHER (listed in Section 9)	(14,761.6)	0.0	(14,538.2)	(223.4)
H. TOTAL ADJUSTMENTS	(913.8)	0.0	1,915.0	(2,828.8)
6. INVENTORY EOP	51,109.9	0.0	28,745.9	22,363.9
7. INVENTORY EOP (REVALUED)	31,053.3	0.0	18,296.4	12,756.9
A. APPROVED ACQUISITION OBJECTIVE (memo)				11,818.4
B. ECONOMIC RETENTION (memo)				531.1
C. CONTINGENCY RETENTION (memo)				366.9
D. POTENTIAL DOD REUTILIZATION (memo)				40.6
8. INVENTORY ON ORDER EOP (memo)	4,700.3	0.0	4,700.3	0.0
9. NARRATIVE:				
Other adjustments (Total posted to line 5g):				
Other Gains/Losses	500.0	0.0	469.9	30.1
Strata Transfers	0.0	0.0	253.5	(253.5)
Net/Standard Difference	(15,261.6)	0.0	(15,261.6)	0.0
Total	(14,761.6)	0.0	(14,538.2)	(223.4)

12. Marine Corps Supply

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DEPARTMENT OF THE NAVY
NAYV WORKING CAPITAL FUND
SUPPLY MANAGEMENT – MARINE CORPS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
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Mission Statement/Overview:

The Marine Corps, Supply Management Activity Group (MC SMAG) performs inventory management functions that result in the sale of consumable and reparable items to support Department of Defense (DoD), federal, and non-federal war fighting weapon systems supply needs. Costs related to providing such inventory (material) support to customers are recouped through the application of stabilized rates that include recovery for cost elements such as oversight/inventory management and cost required to stock, store, receive, and issue such assets. MC SMAG is divided into three Budget Projects (BP) to organize the financial operation of the fund.

	Budget Project
Wholesale	
Depot Level Reparables	BP84
Retail	BP28
Consumable Retail Centrally Managed	
Operations	BP91
Cost of Operations	

Activity Group Composition:	**Location**
Marine Corps Inventory Control Point	Albany, GA

Significant Changes Since the FY 2020 President's Budget:

The MC SMAG retail operations gross sales and obligations declined in Fiscal Year (FY) 2019 through FY 2021 due to the Marine Corps transitioning the majority of its retail supply operation functions to the General Services Administration (GSA) via the Fourth Party Logistics (4PL) process. This process aims to preserve all capabilities previously provided by the Marine Corps while utilizing GSA's knowledge and expertise in supply management. The transition has significantly reduced MC SMAG's future retail Obligation Authority (OA) requirement leaving only the Retail Centrally Managed (RCM) program. The RCM program operations have also declined in FY 2019 through FY 2021 due to a high volume of returns through the Material Returns Program (MRP).

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NAYV WORKING CAPITAL FUND
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Starting in FY 2020, there is a significant change to migrate MC SMAG official financial system to the Department of Navy Enterprise Resource Planning (DoN ERP) as its financial system in FY2020 in support of Working Capital Fund (WCF) General Ledger (GL) Consolidation. This effort is to improve the Department of Navy's audit posture and simplify the financial systems environment by migrating all Navy WCF activities to Navy ERP by 1 October 2020.

Financial Profile:

Revenue/Expense/Operating Results ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Net Revenue	$116.0	$114.6	$120.5
Expense	$120.0	$126.7	$113.9
Operating Results	($4.0)	($12.1)	$6.6
Capital Surcharge	$0.0	$0.0	$0.0
Net Operating Results (NOR)	($4.0)	($12.1)	$6.6
Prior Year AOR	$9.6	$5.6	($6.6)
Other changes Affecting AOR	$0.0	$0.0	$0.0
Accumulated Operating Results (AOR)	$5.6	($6.6)	$0.0

Amounts may not add due to rounding.

Revenue and Expenses: Annual revenue and expenses fluctuate from FY 2019 to FY 2021 based on projected demand from the operating forces. Net Operating Result fluctuates across the budget years due to changes in operating tempo and the projected demand pattern from our customers. The net result is a balanced budget that achieves a zero AOR in FY 2021.

Obligation Authority ($Millions):	**FY 2019**	**FY 2020**	**FY 2021**
Wholesale	$84.1	$112.7	$109.8
Retail	-$1.3	$0.5	$0.4
Total	$82.8	$113.2	$110.2

Note: Amounts may not add due to rounding.

Wholesale: Obligation Authority (OA) supports the acquisition and repair of spare parts as well as the cost of operating the SMAG wholesale enterprise. The budget increases are due to the focus on maintenance and the establishment of long term contracts to build stock levels for those

items with known demand. The implementation and sustainment of Navy ERP overhead costs is another factor in the increase.

Retail: OA for retail operations reflects a negative balance in FY 2019 due to receipt of credits from excess material returned to the Source of Supply (SOS).

Disbursements/Collections/Outlay ($Millions)	FY 2019	FY 2020	FY 2021
Disbursements	$99.8	$129.4	$111.7
Collections	$104.6	$99.9	$96.5
Transfers (CIT Reimbursement)	$0.0	$0.0	$0.0
Outlays (Incorporates CIT)	($4.8)	$29.5	$15.2

Note: Amounts may not add due to rounding.

Disbursements/Collections: Collections decrease due to the reduction to the cost recovery rate. Disbursements increase due to an increase budget requirements.

Gross Sales ($Millions):	FY 2019	FY 2020	FY 2021
Wholesale	$115.8	$114.2	$120.1
Retail	$0.5	$0.5	$0.5
Total (Less Provisioning)	$116.3	$114.7	$120.6

Note: Amounts may not add due to rounding.

Wholesale: The increase to FY 2021 is a stabilization of sales following the release of prior year backorders.

Retail: Sales from retail operations decline across the budget due to completion of the GSA transition. In FY 2020 and FY 2021, the sales reflect only the RCM program anticipated demands.

Metrics: Metrics provide information on the scope of work performed by USMC-SM. Adjustments have been made to align metrics with current obligations and sales projections.

DEPARTMENT OF THE NAVY
NAYV WORKING CAPITAL FUND
SUPPLY MANAGEMENT – MARINE CORPS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
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	FY 2019	FY 2020	FY 2021
Items Managed	5,592	5,647	5,704
Requisitions Received	5,784	5,502	5,557
Receipts	1,189	1,125	1,136
Issues	7,291	7,356	7,430
Contracts Executed	165	156	159

Undelivered Orders: Undelivered orders represent contracts or orders for goods for which a liability has not yet accrued. The accrual of the liability creates an outlay requirement.

	FY 2019	FY 2020	FY 2021
Undelivered Orders ($Millions):	$72.2	$38.1	$25.6

War Reserve Material (WRM): WRM funding supports the procurement, replenishment, stock and contracted asset availability guarantee of consumable and reparable items deemed necessary for war reserve. No OA or direct appropriations are required during this budget cycle.

Performance Indicators: In addition to core metrics such as net and accumulated operating results, Supply Chain Channel Fill Rates measures the capacity of the supply chain to respond to customer demand.

	FY 2019	FY 2020	FY 2021
Supply Material Availability	55%	60%	65%
Report of Discrepancy Processing Time	55	55	55

Unit Cost: The cost per unit sold is based on total cost and total anticipated gross sales. Unit cost can change in the year of execution based on the relationship between obligations and sales.

Unit Cost:	FY 2019	FY 2020	FY 2021
Wholesale	0.72	0.99	0.91
Retail	-3.08	1.00	1.00

DEPARTMENT OF THE NAVY
NAYV WORKING CAPITAL FUND
SUPPLY MANAGEMENT – MARINE CORPS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020

Composite Rates:	**FY 2019**	**FY 2020**	**FY 2021**
Annual Price Change (APC)	-2.25%	-10.08%	1.82%
Composite Cost Recovery Rate (CRR)	14.17%	4.09%	5.97%

Cost categories within the CRR include civilian pay, distribution depot costs, transportation costs, other Department of Defense bills associated with supply operations, and costs to recoup Accumulated Operating Results (AOR) gains or losses. The CRR is tied to customer funding and Marine Corps Weapons Systems Support's ability to fill customer orders.

Staffing:

Civilian/Military ES & Workyears:	**FY 2019**	**FY 2020**	**FY 2021**
Civilian End Strength	26	26	26
Civilian Workyears	19	24	24
Military End Strength	0	0	0
Military Workyears	0	0	0

Civilian staffing remains stable and provides continuous support.

Capital Investment Program (CIP): MC SMAG does not have a CIP budget request.

REVENUE AND EXPENSES
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - MARINE CORPS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
	---	---	---
Revenue:			
Gross Sales			
Operations	116.3	114.7	120.6
Capital Surcharges	0.0	0.0	0.0
Capital Investment Recovery except Maj Const	0.0	0.0	0.0
Total Gross Sales	116.3	114.7	120.6
Major Construction Dep	0.0	0.0	0.0
Other Income	0.0	0.0	0.0
Refunds/Discounts (- Credit Sales)	-0.4	-0.1	-0.1
Total Income	116.0	114.6	120.5
Expenses:			
Cost of Materiel Sold from Inventory	100.9	108.4	98.2
Salaries and Wages:			
Military Personnel Compensation & Benefits	0.0	0.0	0.0
Civilian Personnel Compensation & Benefits	2.0	2.5	2.4
Travel and Transportation of Personnel	0.0	0.1	0.1
Material & Supplies (Internal Operations)	0.0	0.0	0.0
Equipment	0.0	0.0	0.0
Other Purchases from NWCF	0.0	0.0	0.0
Transportation of Things	0.1	0.1	0.1
Capital Investment Recovery	0.0	0.0	0.0
Printing and Reproduction	0.0	0.0	0.0
Advisory and Assistance Services	0.0	0.0	0.0
Rent, Communication, Utilities & Misc Charges	0.0	0.0	0.0
Other Purchased Services	17.0	15.7	13.2
Total Expenses	120.0	126.7	114.0
Operating Result	-4.0	-12.1	6.6
Less Capital Surcharge reservation	0.0	0.0	0.0
Plus Appro Affecting NOR/AOR	0.0	0.0	0.0
Plus Other Changes Affecting NOR	0.0	0.0	0.0
Net Operating Result	-4.0	-12.1	6.6
Prior Year AOR	9.6	5.6	-6.6
Other Changes Affecting AOR	0.0	0.0	0.0
Accumulated Operating Result	5.6	-6.6	0.0
Non-Recoverable Adjustments impacting AOR	0.0	0.0	0.0
AOR for budget purposes	5.6	-6.6	0.0

SOURCES OF NEW ORDERS & REVENUE
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - MARINE CORPS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

	FY 2019	FY 2020	FY 2021
1. New Orders	104.2	80.6	108.3
a. Orders from DoD Components:	63.1	59.4	83.8
Department of the Navy	0.0	0.0	0.0
O & M, Navy	0.5	0.4	0.3
O & M, Marine Corps	46.2	41.6	67.3
O & M, Navy Reserve	0.0	0.0	0.0
O & M, Marine Corp Reserve	0.0	0.0	0.0
Reserve Personnel, Navy	0.0	0.0	0.0
Military Personnel, Navy	0.0	0.0	0.0
Military Personnel, Marine Corp	0.0	0.0	0.0
Aircraft Procurement, Navy	0.0	0.0	0.0
Weapons Procurement, Navy	0.0	0.0	0.0
Shipbuilding & Conversion, Navy	0.0	0.0	0.0
Other Procurement, Navy	0.0	0.0	0.0
Procurement, Marine Corps	0.0	0.0	0.0
Research, Dev., Test, & Eval., Navy	0.0	0.0	0.0
National Defense Sealift Fund	0.0	0.0	0.0
Other Navy Appropriations	0.0	0.0	0.0
Other Marine Corps Appropriations	0.0	0.0	0.0
Navy Working Capital Fund	16.4	17.5	16.3
Orders from Other DoD Components			
Department of the Army	9.5	8.0	8.3
Department of the Air Force	0.1	0.1	0.1
DoD Other	0.0	0.0	2.8
b. Orders from other Fund Activity Groups	16.5	12.6	13.3
Distribution Depots, Navy	16.5	12.6	13.3
Logistics Support, Navy	0.0	0.0	0.0
c. Total DoD	89.1	80.1	108.3
d. Other Orders:	15.0	0.5	0.0
Other Federal Agencies	0.0	0.0	0.0
Trust Fund	0.0	0.0	0.0
Foreign Military Sales	15.0	0.5	0.0
Non Federal Agencies*	0.0	0.0	0.0
Total New Orders	104.2	80.6	108.3
2. Carry-In Orders	84.4	72.2	38.1
3. Total Gross Orders	167.0	139.4	161.2
4. Carry-Out Orders	72.2	38.1	25.6
5. Gross Sales	116.3	114.7	120.6
Reimbursable Orders (BP 91)	0.0	0.0	0.0
6. Credit (-)	0.4	0.1	0.1
7. Net Sales	116.0	114.6	120.5

* Non-federal agencies line includes cash sales

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SUPPLY MANAGEMENT SUMMARY
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - MARINE CORPS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

DIVISION	NET CUSTOMER ORDERS	NET SALES	OPERATING	MOBILIZATION	TOTAL OBLIGATIONS	VARIABILITY TARGET	TARGET TOTAL	CAPITAL IMRPROVEMENT PROGRAM	CREDIT SALES
BP 28 RCM									
FY19	1.8	0.4	-1.2	0.0	-1.2	0.0	-1.2	0.0	0.0
FY20	-1.0	0.5	0.5	0.0	0.5	0.0	0.5	0.0	0.0
FY21	0.3	0.4	0.4	0.0	0.4	0.0	0.4	0.0	0.0
BP 84									
FY19	102.4	115.6	64.3	0.0	64.3	0.0	63.9	0.0	0.4
FY20	81.6	114.1	94.4	0.0	94.4	0.0	94.3	0.0	0.1
FY21	108.0	120.1	94.0	0.0	94.0	0.0	93.9	0.0	0.1
BP 91									
FY19	0.0	0.0	19.7	0.0	19.7	0.0	19.7	0.0	0.0
FY20	0.0	0.0	18.3	0.0	18.3	0.0	18.3	0.0	0.0
FY21	0.0	0.0	15.8	0.0	15.8	0.0	15.8	0.0	0.0
TOTAL									
FY19	104.2	116.0	82.8	0.0	82.8	0.0	82.4	0.0	0.4
FY20	80.6	114.6	113.2	0.0	113.2	0.0	113.1	0.0	0.1
FY21	108.3	120.5	110.2	0.0	110.2	0.0	110.1	0.0	0.1

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OPERATING REQUIREMENTS BY WEAPON SYSTEM
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - MARINE CORPS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)

FY 2019

Weapon System Name	NMCRS Rates*	Basic Replen	Outfitting	Special Programs	Rework	Total
COMMUNICATION/SURVEILLANCE	0.5%	9.124	0.000	0.000	43.500	6.688
ORDNANCE TANK AUTOMOTIVE	1.5%	1.950	0.000	0.000	11.500	3.322
GUIDED MISSILES AND EQUIPMENT	0.1%	2.960	0.000	0.000	0.272	-0.208
ENGINEER SUPPORT AND CONST	0.0%	2.284	0.000	0.000	0.690	7.474
GENERAL PROPERTY	0.1%	9.547	0.000	0.000	7.500	40.810
TOTAL		25.865	0.000	0.000	63.462	89.327

*Not Mission Capable Supply (NMCS) - Percentage of time aircraft are Not Mission Capable due to a supply shortage.

FY 2020

Weapon System Name	NMCRS Rates*	Basic Replen	Outfitting	Special Programs	Rework	Total
COMMUNICATION/SURVEILLANCE	0.5%	9.150	0.000	0.000	45.515	54.665
ORDNANCE TANK AUTOMOTIVE	1.5%	3.475	0.000	0.000	12.500	15.975
GUIDED MISSILES AND EQUIPMENT	0.1%	3.000	0.000	0.000	0.275	3.275
ENGINEER SUPPORT AND CONST	0.0%	2.250	0.000	0.000	0.690	2.940
GENERAL PROPERTY	0.1%	9.500	0.000	0.000	8.565	18.065
TOTAL		27.375	0.000	0.000	79.495	94.920

*Not Mission Capable Supply (NMCS) - Percentage of time aircraft are Not Mission Capable due to a supply shortage.

FY 2021

Weapon System Name	NMCRS Rates*	Basic Replen	Outfitting	Special Programs	Rework	Total
COMMUNICATION/SURVEILLANCE	0.5%	9.150	0.000	0.000	45.515	54.665
ORDNANCE TANK AUTOMOTIVE	1.5%	3.355	0.000	0.000	12.500	15.855
GUIDED MISSILES AND EQUIPMENT	0.1%	3.000	0.000	0.000	0.275	3.275
ENGINEER SUPPORT AND CONST	0.0%	2.250	0.000	0.000	0.690	2.940
GENERAL PROPERTY	0.1%	9.500	0.000	0.000	8.565	18.065
TOTAL		27.255	0.000	0.000	67.545	94.800

*Not Mission Capable Supply (NMCS) - Percentage of time aircraft are Not Mission Capable due to a supply shortage.

INVENTORY STATUS
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - MARINE CORPS
BP 84
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
February 2020
(DOLLARS IN MILLIONS)
FY 2019

			---Peacetime---	
	Total	Mobilization	Operating	Other
1. INVENTORY BOP	1,347.3	26.6	1,024.2	296.5
2. BOP INVENTORY ADJUSTMENTS	0.0	0.0	0.0	0.0
A. RECLASSIFICATION CHANGE (memo)	0.0	0.0	0.0	0.0
B. PRICE CHANGE AMOUNT (memo)	0.0	0.0	0.0	0.0
C. INVENTORY RECLASSIFIED AND REPRICED	1,347.3	26.6	1,024.2	296.5
3. RECEIPTS AT STANDARD	49.0	0.0	49.0	0.0
4. SALES AT STANDARD	210.2	31.2	179.0	0.0
5. INVENTORY ADJUSTMENTS				
A. CAPITALIZATIONS + or (-)	10.9	0.0	10.9	0.0
B. RETURNS FROM CUSTOMERS FOR CREDIT	0.4	0.0	0.4	0.0
C. RETURNS FROM CUSTOMERS, NO CREDIT	320.6	0.0	320.6	0.0
D. RETURNS TO SUPPLIERS (-)	(31.5)	0.0	(31.5)	0.0
E. TRANSFERS TO PROP. DISPOSAL (-)	(79.7)	0.0	(79.7)	0.0
F. ISSUES/RECEIPTS WITHOUT REIMBURSEMENT + or (-)	(15.0)	(0.1)	(14.9)	0.0
G. OTHER (listed in Section 9)	(121.1)	0.1	(121.2)	0.0
H. TOTAL ADJUSTMENTS	84.4	(0.0)	84.4	0.0
6. INVENTORY EOP	1,301.6	26.5	978.6	296.5
7. INVENTORY EOP (REVALUED)	947.2	21.8	710.8	214.6
A. APPROVED ACQUISITION OBJECTIVE (memo)				0.0
B. ECONOMIC RETENTION (memo)				0.2
C. CONTINGENCY RETENTION (memo)				0.1
D. POTENTIAL DOD REUTILIZATION (memo)				0.0
8. INVENTORY ON ORDER EOP (memo)	0.1	0.0	0.1	0.0
9. NARRATIVE:				
Other adjustments (Total posted to line 5g):				
Other Gains/Losses	(129.7)	(1.0)	(128.7)	0.0
Strata Transfers	0.0	0.0	0.0	0.0
Net/Standard Difference	0.0	0.0	0.0	0.0
Total	(129.7)	(1.0)	(128.7)	0.0

INVENTORY STATUS
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - MARINE CORPS
BP 84
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
February 2020
(DOLLARS IN MILLIONS)
FY 2020

			---Peacetime---	
	Total	Mobilization	Operating	Other
1. INVENTORY BOP	1,301.6	26.5	978.6	296.5
2. BOP INVENTORY ADJUSTMENTS	0.0	0.0	0.0	0.0
A. RECLASSIFICATION CHANGE (memo)	0.0	0.0	0.0	0.0
B. PRICE CHANGE AMOUNT (memo)	(30.9)	0.3	(24.8)	(6.4)
C. INVENTORY RECLASSIFIED AND REPRICED	1,380.3	25.8	1,064.3	290.1
3. RECEIPTS AT STANDARD	28.5	0.0	28.5	0.0
4. SALES AT STANDARD	185.5	0.0	185.5	0.0
5. INVENTORY ADJUSTMENTS				
A. CAPITALIZATIONS + or (-)	(1.0)	0.0	(1.0)	0.0
B. RETURNS FROM CUSTOMERS FOR CREDIT	0.1	0.0	95.0	0.0
C. RETURNS FROM CUSTOMERS, NO CREDIT	295.1	0.0	295.1	0.0
D. RETURNS TO SUPPLIERS (-)	(4.7)	0.0	(4.7)	0.0
E. TRANSFERS TO PROP. DISPOSAL (-)	(65.4)	0.0	(65.4)	0.0
F. ISSUES/RECEIPTS WITHOUT REIMBURSEMENT + or (-)	0.0	0.0	0.0	0.0
G. OTHER (listed in Section 9)	1.9	0.0	1.9	0.0
H. TOTAL ADJUSTMENTS	226.0	0.0	226.0	0.0
6. INVENTORY EOP	1,449.2	25.8	1,133.3	290.1
7. INVENTORY EOP (REVALUED)	1,096.1	24.1	851.9	220.1
A. APPROVED ACQUISITION OBJECTIVE (memo)				0.0
B. ECONOMIC RETENTION (memo)				0.2
C. CONTINGENCY RETENTION (memo)				0.1
D. POTENTIAL DOD REUTILIZATION (memo)				0.0
8. INVENTORY ON ORDER EOP (memo)	0.1	0.0	0.1	0.0
9. NARRATIVE:				
Other adjustments (Total posted to line 5g):				
Other Gains/Losses	1.9	0.0	1.9	0.0
Strata Transfers	0.0	0.0	0.0	0.0
Net/Standard Difference	0.0	0.0	0.0	0.0
Total	1.9	0.0	1.9	0.0

INVENTORY STATUS
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - MARINE CORPS
BP 84
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
February 2020
(DOLLARS IN MILLIONS)
FY 2021

			---Peacetime---	
	Total	Mobilization	Operating	Other
1. INVENTORY BOP	1,449.2	25.8	1,133.3	290.1
2. BOP INVENTORY ADJUSTMENTS	0.0	0.0	0.0	0.0
A. RECLASSIFICATION CHANGE (memo)	0.0	0.0	0.0	0.0
B. PRICE CHANGE AMOUNT (memo)	(29.0)	0.4	(23.7)	(5.7)
C. INVENTORY RECLASSIFIED AND REPRICED	1,420.2	26.2	1,109.6	284.5
3. RECEIPTS AT STANDARD	28.1	0.0	28.1	0.0
4. SALES AT STANDARD	166.9	0.0	166.9	0.0
5. INVENTORY ADJUSTMENTS				
A. CAPITALIZATIONS + or (-)	(1.0)	0.0	(1.0)	0.0
B. RETURNS FROM CUSTOMERS FOR CREDIT	0.1	0.0	0.1	0.0
C. RETURNS FROM CUSTOMERS, NO CREDIT	295.1	0.0	295.1	0.0
D. RETURNS TO SUPPLIERS (-)	(4.7)	0.0	(4.7)	0.0
E. TRANSFERS TO PROP. DISPOSAL (-)	(65.4)	0.0	(65.4)	0.0
F. ISSUES/RECEIPTS WITHOUT REIMBURSEMENT + or (-)	3.8	0.0	3.8	0.0
G. OTHER (listed in Section 9)	(2.3)	0.0	(2.3)	0.0
H. TOTAL ADJUSTMENTS	225.6	0.0	225.6	0.0
6. INVENTORY EOP	1,507.0	26.2	1,196.4	284.5
7. INVENTORY EOP (REVALUED)	1,172.1	24.1	926.1	221.9
A. APPROVED ACQUISITION OBJECTIVE (memo)				0.0
B. ECONOMIC RETENTION (memo)				0.2
C. CONTINGENCY RETENTION (memo)				0.0
D. POTENTIAL DOD REUTILIZATION (memo)				0.0
8. INVENTORY ON ORDER EOP (memo)	0.1	0.0	0.1	0.0
9. NARRATIVE:				
Other adjustments (Total posted to line 5g):				
Other Gains/Losses	(2.3)	0.0	(2.3)	0.0
Strata Transfers	0.0	0.0	0.0	0.0
Net/Standard Difference	0.0	0.0	0.0	0.0
Total	(2.3)	0.0	(2.3)	0.0

WAR RESERVE MATERIAL
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - MARINE CORPS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)
FY 2019

Stockpile Status			
	Total	WRM Protected	WRM Other
1. Inventory BOP @ std	0.0	26.6	0.0
2. Price Change	0.0	0.0	0.0
3. Reclassification	0.0	0.0	0.0
Inventory Changes			
a. Receipts @ std	0.0	0.0	0.0
(1). Purchases	0.0	0.0	0.0
(2). Returns from customers	0.0	0.0	0.0
b. Issues @ std	0.0	0.0	0.0
(1). Sales	0.0	0.0	0.0
(2). Returns to suppliers	0.0	0.0	0.0
(3). Disposals	0.0	0.0	0.0
c. Adjustments @ std	0.0	0.0	0.0
(1). Capitalizations	0.0	0.0	0.0
(2). Gains and losses	0.0	0.0	0.0
(3). Other	0.0	0.0	0.0
Inventory EOP	0.0	26.5	0.0
Stockpile Costs			
1. Storage	0.0	0.0	0.0
2. Management	0.0	0.0	0.0
3. Maintenance/Other	0.0	0.0	0.0
Total Cost	0.0	0.0	0.0
WRM Budget Request			
1. Obligations @ cost			
a. Additional WRM Investment	0.0	0.0	0.0
b. Replen./Repair WRM Reinvest.	0.0	0.0	0.0
c. Stock Rotation/Obsolescence	0.0	0.0	0.0
d. Assemble/Disassemble	0.0	0.0	0.0
e. Other	0.0	0.0	0.0
Total Request	0.0	0.0	0.0

WAR RESERVE MATERIAL
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - MARINE CORPS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)
FY 2020

Stockpile Status			
	Total	WRM Protected	WRM Other
1. Inventory BOP @ std	0.0	26.5	0.0
2. Price Change	0.0	0.0	0.0
3. Reclassification	0.0	0.0	0.0
Inventory Changes			
a. Receipts @ std	0.0	0.0	0.0
(1). Purchases	0.0	0.0	0.0
(2). Returns from customers	0.0	0.0	0.0
b. Issues @ std	0.0	0.0	0.0
(1). Sales	0.0	0.0	0.0
(2). Returns to suppliers	0.0	0.0	0.0
(3). Disposals	0.0	0.0	0.0
c. Adjustments @ std	0.0	0.0	0.0
(1). Capitalizations	0.0	0.0	0.0
(2). Gains and losses	0.0	0.0	0.0
(3). Other	0.0	0.0	0.0
Inventory EOP	0.0	26.5	0.0
Stockpile Costs			
1. Storage	0.0	0.0	0.0
2. Management	0.0	0.0	0.0
3. Maintenance/Other	0.0	0.0	0.0
Total Cost	0.0	0.0	0.0
WRM Budget Request			
1. Obligations @ cost			
a. Additional WRM Investment	0.0	0.0	0.0
b. Replen./Repair WRM Reinvest.	0.0	0.0	0.0
c. Stock Rotation/Obsolescence	0.0	0.0	0.0
d. Assemble/Disassemble	0.0	0.0	0.0
e. Other	0.0	0.0	0.0
Total Request	0.0	0.0	0.0

WAR RESERVE MATERIAL
DEPARTMENT OF THE NAVY
SUPPLY MANAGEMENT - MARINE CORPS
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLIONS)
FY 2021

Stockpile Status			
	Total	WRM Protected	WRM Other
1. Inventory BOP @ std	0.0	26.5	0.0
2. Price Change	0.0	0.0	0.0
3. Reclassification	0.0	0.0	0.0
Inventory Changes			
a. Receipts @ std	0.0	0.0	0.0
(1). Purchases	0.0	0.0	0.0
(2). Returns from customers	0.0	0.0	0.0
b. Issues @ std	0.0	0.0	0.0
(1). Sales	0.0	0.0	0.0
(2). Returns to suppliers	0.0	0.0	0.0
(3). Disposals	0.0	0.0	0.0
c. Adjustments @ std	0.0	0.0	0.0
(1). Capitalizations	0.0	0.0	0.0
(2). Gains and losses	0.0	0.0	0.0
(3). Other	0.0	0.0	0.0
Inventory EOP	0.0	26.5	0.0
Stockpile Costs			
1. Storage	0.0	0.0	0.0
2. Management	0.0	0.0	0.0
3. Maintenance/Other	0.0	0.0	0.0
Total Cost	0.0	0.0	0.0
WRM Budget Request			
1. Obligations @ cost			
a. Additional WRM Investment	0.0	0.0	0.0
b. Replen./Repair WRM Reinvest.	0.0	0.0	0.0
c. Stock Rotation/Obsolescence	0.0	0.0	0.0
d. Assemble/Disassemble	0.0	0.0	0.0
e. Other	0.0	0.0	0.0
Total Request	0.0	0.0	0.0

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13. 6% Depot Capital Investment

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DEPOT MAINTENANCE SIX PERCENT CAPITAL INVESTMENT PLAN
DEPARTMENT OF THE NAVY
FISCAL YEAR (FY) 2021 BUDGET ESTIMATES
FEBRUARY 2020
(DOLLARS IN MILLONS)

	REVENUE (Maintenance, Repair, Overhaul) 3 year average			BUDGETED CAPITAL (Modernization, Efficiency)		
	FY 16-18	FY 17-19	FY 18-20	FY 2019	FY 2020	FY 2021
	7,406.0	7,961.4	8,778.7			
	7,961.4	8,778.7	9,121.1			
	8,778.7	9,121.1	9,098.1			
Revenue (Avg)	8,048.7	8,620.4	8,999.3			
Working Capital Fund	2,656.6	2,840.1	2,978.6			
Appropriations (if applicable)	5,392.1	5,780.3	6,020.7			
Total Revenue	8,048.7	8,620.4	8,999.3			
WCF Depot Maintenance Capital Investment						
Facilities/ Work Environment				114.3	54.3	83.3
Equipment				43.7	38.5	39.0
Equipment (Non-Capital Investment Program)				25.9	14.2	15.9
Processes				0.0	0.0	0.0
Total WCF Investment				183.9	107.0	138.2
Appropriated Funding						
MILCON				173.7	249.6	160.0
Procurement				314.2	216.2	246.6
Operation & Maintenance				340.0	438.9	298.1
Total Appropriated Funding				827.9	904.7	704.7
Component Total				1,011.8	1,011.7	842.9
Minimum 6% Investment				482.9	517.2	540.0
Investment Over/Under Requirement				528.9	494.4	302.9
Projected Investment				**12.57%**	**11.74%**	**9.37%**

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