Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604231N *I Tactical Command System*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	546.263	37.609	54.300	77.232	-	77.232	73.081	53.427	47.032	47.987	Continuing	Continuing
0486: *Tactical Support Center*	134.630	4.780	4.645	6.092	-	6.092	5.991	5.722	5.837	5.952	Continuing	Continuing
2343: *Tactical METOC Applications*	0.000	0.000	0.000	12.198	-	12.198	12.052	12.644	13.913	14.196	Continuing	Continuing
2345: *Fleet METOC Equipment*	0.000	0.000	0.000	0.220	-	0.220	0.620	0.577	0.487	0.496	Continuing	Continuing
2363: *Remote Sensing Capability Development*	0.000	0.000	0.000	5.651	-	5.651	7.448	4.862	4.740	4.838	Continuing	Continuing
3032: *NTCSS (Naval Tactical Command Spt Sys)*	97.905	4.455	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	102.360
3050: *Deployable JT Command and Control*	0.000	0.000	0.000	3.159	-	3.159	3.225	3.299	3.363	3.431	Continuing	Continuing
3260: *Naval Operations Business Logistics Enterprise (NOBLE)*	0.000	12.656	34.491	38.366	-	38.366	32.249	14.276	6.346	6.480	Continuing	Continuing
3323: *Maritime Tactical Command & Control (MTC2)*	59.856	12.885	11.951	8.659	-	8.659	8.761	9.035	9.275	9.461	Continuing	Continuing
3324: *Navy Air Operations Command and Control (NAOC2)*	14.044	0.831	1.004	0.708	-	0.708	0.514	0.744	0.759	0.774	Continuing	Continuing
9123: *FORCEnet*	239.828	2.002	2.209	2.179	-	2.179	2.221	2.268	2.312	2.359	Continuing	Continuing

Note

To ensure resources are aligned to enable rapid capability delivery, funding has been realigned into PE 0604231N from the following Program Elements/Projects as part of the RDTEN PE Consolidation starting in FY20: PE 0604218N Project 2343, Tactical METOC Applications; PE 0604218N Project 2345, Fleet METOC Equipment; PE 0604218N Project 2363, Remote Sensing Capability Development; PE 0607700N Project 3050, Deployable JT Command and Control. There are no New Starts associated with PE Consolidation.

A. Mission Description and Budget Item Justification

The Tactical Command System upgrades the Navy's Command, Control, Communications, Computer and Intelligence (C4I) systems and processes C4I information for all warfare mission areas including planning, direction and reconstruction of missions for peacetime, wartime and times of crises.

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(Proj 0486) Tactical Support Center: The Tactical Mobile program provides agile evolutionary systems and equipment upgrades to support the Maritime Patrol and Reconnaissance Force Commanders with the capability to plan, direct and control the tactical operations of Maritime Patrol and Reconnaissance Aircraft and other assigned units within their respective area of responsibility. Looking ahead, TacMobile provides critical mission planning and reach-back capabilities between the Maritime Patrol and Reconnaissance Aircraft, primarily the P-8A/Poseidon, and MQ-4C/Triton, and the Maritime Intelligence Surveillance and Reconnaissance Enterprise. These operations include littoral, open ocean, and over land long-dwell surveillance, anti-surface warfare, over-the-horizon targeting, counter-drug operations, power projection, antisubmarine warfare, mining, search and rescue, indications and warning, realtime full motion video collection and streaming/ dissemination, and special operations. The missions are supported by Tactical Operations Centers, Mobile Tactical Operations Centers, and Fly Away Kits.

(Proj 2343,2345,2363) Tactical METOC Applications; Fleet METOC Equipment, and Remote Sensing Capability Development: The Air/Ocean Equipment Engineering (AOEE) projects provide new capabilities to support naval combat forces. This program engineers and developmentally tests organic and remote sensors, communication interfaces, and processing and display devices. This equipment is engineered to measure, ingest, store, process, distribute and display conditions of the physical environment that are essential to the optimum employment and performance of naval warfare systems. AOEE also engineers capabilities for shipboard and shore-based tactical systems. A major area of focus for the AOEE program is to provide the engineering development of specialized equipment and measurement capabilities that are intended to monitor specific conditions of the physical environment in hostile and remote areas in response to fleet demand signals for increased sensing capability and capacity to support battlespace collections and prediction on short to intermediate time scales. With such capabilities, the war fighters' situational awareness of the operational effects of the physical environment are made more certain. Efforts include investigation of emerging technologies through study, development, and associated testing for feasibility of program insertion.

Major emphasis areas include the Naval Integrated Tactical Environmental System Next Generation (NITES-Next) project (2343), Littoral Battlespace Sensors - Unmanned Undersea Vehicles (LBS-UUV) project (2345), and the Remote Sensing Capability Development (RSCD) project (2363).

(Proj 3032) Naval Tactical Command Support System (NTCSS): The NTCSS is a multi-function program designed to provide standard tactical support information systems to various afloat and associated shore-based fleet activities. The mission is to provide the Navy and Marine Corps with an integrated, scalable system that supports the management of logistical information, personnel, material and funds required to maintain and operate ships, submarines, and aircraft.

(Proj 3050) Deployable Joint Command and Control (DJC2) provides a self-contained, standardized, rapidly deployable, modular, scalable, and reconfigurable joint command and control (C2) capability to designated Geographic Combatant Commands (GCCs). DJC2 is the materiel solution to Defense Planning Guidance that called for the development of standing Joint Task Forces (JTFs) with a deployable C2 capability. DJC2 will ensure that Joint Force Commanders (JFC) are equipped, as well as trained and organized, to carry out their C2 responsibilities. DJC2 provides GCCs and JFCs a mission critical, integrated family of systems with which to plan, control, coordinate, execute, and assess operations. It is designed to deploy rapidly, set up within hours, and quickly provide necessary C2 mission and collaboration functionality across the full spectrum of JTF operations. The DJC2 has also been deployed in support of Humanitarian Assistance and Disaster Relief (HA/DR) efforts. The capability is intended for all levels of conflict and will be reconfigurable to meet specific GCC and JTF mission requirements. This capability is interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces.

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(Proj 3260) The Naval Operational Business Logistics Enterprise (NOBLE): family of programs will provide direct support to warfighter readiness with maintenance, supply, and personnel administration capabilities using an open architecture framework that incorporates business process re-engineering (BPR) allowing for the consolidation of over 23 standalone application systems. These capabilities include enhanced situational awareness, planning, execution, personnel administration, and management of maintenance and supply logistics and business functions to ships/submarines, aviation squadrons, shore operational sites, and expeditionary units with a total user base exceeding 150,000. NOBLE will meet current and emerging demands for cyber, Financial Improvement and Audit Readiness (FIAR), Navy logistics and maritime maintenance mission requirements, and eliminate over 700 application/database servers. NOBLE will deploy to Navy Enterprise Data Centers (NEDC) ashore, the Consolidated Afloat Networks and Enterprise Services (CANES) afloat, and Department of the Navy (DON) commercial cloud computing environments.

(Proj 3323) Maritime Tactical Command and Control (MTC2): is a next generation Command and Control (C2) software program that will deliver Battle Management Aids (BMA) and Maritime Planning Tools (MPT) to dynamically plan, direct, monitor, and assess maritime operations in support of Joint, Multi-Service, and Coalition Force planning. MTC2 will leverage a System of Services (SoServ) to deliver capabilities improving decision speed and dynamic synchronization of forces. BMAs / MPTs are small, capability-focused deliveries that can be rapidly developed, tested, and fielded. MTC2 will engage with the Office of the Chief of Naval Operations (OPNAV)-led and Fleet supported Requirements Governance Board (RGB) to define and prioritize the BMAs and MPTs that MTC2 will deliver and align to the Program Executive Office (PEO) Command, Control, Communications, and Intelligence (C4I) enterprise architecture Consolidated Afloat Network Enterprise Service (CANES), Agile Core Services (ACS)) for fielding to all echelons of command (Afloat and Ashore) within the Navy. The program's objective is to provide a suite of maritime applications (BMAs / MPTs) that enable planning, execution, monitoring, and assessment in support of operational and tactical level of war requirements. MTC2 will field BMAs / MPTs designed to provide automated and structured support for tactical and operational planning, decision-making, and execution. MTC2 will incorporate distributed data transfer capability for enhanced operational data exchange between command and control systems, combat systems, logistics, and intelligence systems for timely threat identification, location, and status alongside blue force data. MTC2 is the Navy's only solution to fulfill a portion of the Joint Global Force Management - Data Initiative (GFM-DI) Allocation requirements. GFM-DI is the Department-wide enterprise solution that enables visibility/accessibility/sharing of data applicable to the entire Department of Defense (DoD) force structure.

(Proj 3324) Navy Air Operations Command and Control (NAOC2): NAOC2 integrates and tests Air Force program of record systems that provide an integrated and scalable planning system for standardized, secure, and automated decision support for Air Force, Joint, and Allied commanders worldwide. These programs provide automated air operations planning, execution management and intelligence capabilities at the Force level to include fleet commanders, numbered fleet commanders, Commander Carrier Strike Groups, Commander Expeditionary Strike Groups, Commander Landing Forces, and Joint Task Force Commanders. NAOC2 includes Theater Battle Management Core System (TBMCS) and Command and Control Air Operations Suite - Command and Control Information Services (C2AOS-C2IS). C2AOS-C2IS is comprised of multiple projects incorporated into three Capability Packages and will deploy to a Service Oriented Architecture (SOA) enterprise environment that aligns with the Joint C2 Reference Architecture (JC2RA) such as Consolidated Afloat Networks and Enterprise Services (CANES). C2AOS-C2IS is not natively compatible with Navy Information Technology (IT) infrastructure, such as CANES, and requires a significant level of system integration. Continuation of Navy integration and test efforts will significantly enhance the ability of the Joint Force Air Component Commander and Combined Air Operations Center personnel to plan daily air operations including strike, airlift, offensive/defensive air, missile defense, and refueling missions in support of combat operations. Developmental Testing of the C2AOS-C2IS program will be continued for new technology insertion into Navy infrastructure network and hardware in support of Naval Air C2 and Net Enabled Weapons system integration. C2AOS-C2IS addresses the requirement of war fighter distributed planning and execution processes along with significantly improving

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Joint interoperability. TBMCS continues a hardware transition to CANES. Currently, TBMCS is the key system that is used to conduct real world air planning in the Joint and Navy environments. C2AOS-C2IS will replace TBMCS while bringing more flexibility to the war fighter.

(Proj 9123) FORCEnet: The mission of this effort is to deliver Information Dominance by (a) accelerating the transformation to a Distributed, Networked force; (b) achieve interoperability based on Architectures and Standards; and (c) Experiment with, evaluate and employ the enabling technologies. Effort is a non-acquisition program that is the operational instantiation of FORCEnet. The end-state is a distributed network of weapons, sensors, Command and Control (C2), platforms and warriors.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	55.695	57.688	58.544	-	58.544
Current President's Budget	37.609	54.300	77.232	-	77.232
Total Adjustments	-18.086	-3.388	18.688	-	18.688
• Congressional General Reductions	-	-0.087			
• Congressional Directed Reductions	-	-3.301			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.758	0.000			
• SBIR/STTR Transfer	-0.900	0.000			
• Program Adjustments	0.000	0.000	18.767	-	18.767
• Rate/Misc Adjustments	0.000	0.000	-0.079	-	-0.079
• Congressional General Reductions Adjustments	-0.172	-	-	-	-
• Congressional Directed Reductions Adjustments	-18.772	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

SCHEDULE:

Tactical Support Center (Project 0486):
FY2020 funding continues to support Systems Engineering and Primary Hardware Development as TacMobile conducts Critical Design Review (CDR) for Increment 3, to support ACAT I P-8A Increment 3 Developmental and Integrated Test events beginning in FY21. Specific efforts include integration of design upgrades to TacMobile capabilities for P-8A Applications Based Architecture (ABA) and incorporating design upgrades to the TacMobile Engineering Development Model with appropriate P-8A interfaces to enable Systems Integration Testing of net-ready applications, mission planning and post-flight test

threads; Systems Integration Testing of TacMobile interfaces for P-8A Anti-Submarine Warfare (ASW) Signals Intelligence (SIGINT); Systems Integration Testing of Multiple Security Level enclaves, and common solution interoperability with P-8A security interfaces. NAVAIR has assumed the lead systems integrator role for design and development of P-8A Increment 3, and therefore there will be heavy reliance upon TacMobile to align to and be an integral part of Developmental and Integrated test events for P-8A to meet critical aircraft integration and testing milestones.

Naval Tactical Command Support System (NTCSS) (Project 3032):
Beyond Capability of Maintenance Interdiction (BCM-I) / Global Individual Component Repair List (G-ICRL):
Developmental Test (DT) plan involved testing at three operational units; Marine Aviation Logistics Squadron 29 (MALS-26), Fleet Readiness Center Mid-Atlantic (FRCMA) Oceana; and the USS Bataan (LHA-5) in Q2 of FY17. Several software issues were discovered that required additional development work, resulting in a delay to the testing until Q3FY17. Successfully completed MALS-29 and FRCMA DT in Q4FY17, but due to the delayed start the USS Bataan had to be delayed until they returned in late Q1FY18 resulting in a Fielding decision in Q2FY18.

Table of Allowance & Personal Gear Issue (TOA/PGI):
Due to additional requirements for disconnected operations being identified by the fleet to support TOA/PGI operations, the Fielding Decision (FD) was delayed until Q3FY19 to support hardware procurements for mobile computing devices and additional time to configure the software to support those devices.

Naval Operational Business Logistics Enterprise (NOBLE) (Project 3260): Acquisition strategy changed to leveraging the FY-16 National Defense Authorization Act which allows DOD to use transactions other than contracts, cooperative agreements or grants to "carry out prototype projects that are directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or materials proposed to be acquired or developed." This strategy provides risk reduction by ensuring the vendor solution demonstrates the capability before the government enters into a production contract and will allow us to pull the NAMS and NOME schedules left in alignment with the NOSS schedule and accelerating delivery of the NOBLE Family of Systems (FoS) capabilities more rapidly.

Navy Air Operations Command and Control (NAOC2)(Project 3324):
Multi-Service Operational Test and Evaluation (MOT&E) Phase 2/Afloat Operational Test (OT) moved to the right one quarter to align with United States Air Force (USAF) schedule. Airspace Management Application/Airspace Information service (ASMA-ASIS) Battle Management Aid (BMA) development schedule adjusted because of delays in technical development schedule.

FUNDING:

Tactical METOC Applications (Project 2343):

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Funding has been realigned into PE 0604231N from PE 0604218N Project 2343 as part of RDTEN PE Consolidation starting in FY20, $12.198M. There are no New Starts associated with this realignment. FY2020 funding request was reduced in Project 2343 by ($2.398M) to account for availability of prior year balances.

Fleet METOC Equipment (Project 2345):
Funding has been realigned into PE 0604231N from PE 0604218N Project 2345 as part of RDTEN PE Consolidation starting in FY20, $.220M. The FY 2020 funding request was reduced by $0.478M to account for availability of prior year balances.

Remote Sensing Capability Development (RSCD) (Project 2363):
Funding has been realigned into PE 0604231N from PE 0604218N Project 2363 as part of RDTEN PE Consolidation starting in FY20, $5.651M. The FY2020 funding request was reduced by $1.266M to account for availability of prior year balances.

Naval Tactical Command Support System (NTCSS) (Project 3032):
Funding in Project 3032 ends in FY2018 as NTCSS transitioned development of tactical support information systems to the Naval Operational Business Logistics Enterprise (NOBLE).

Deployable JT Command and Control (Project 3050)
Funding has been realigned into PE 0604231N from PE 0607700N Project 3050 as part of RDTEN PE Consolidation starting in FY20, $3.159M.

Naval Operational Business Logistics Enterprise (NOBLE) (Project 3260):
FY2020 funding increase supports:
Naval Operational Supply System (NOSS) / Naval Aviation Maintenance System (NAMS) / Naval Operational Maintenance Enterprise (NOME): Increases are due to increased software development and engineering efforts associated with the Acquisition Testing & Deployment phase for the NOSS, NAMS and NOME capabilities. Each program has a unique set of requirements with NOSS being the most complex as it includes the Cloud Hosting/Integrated Data Environment (IDE) solution, followed by NAMS and with NOME being the least mature in the Acquisition Testing & Deployment phase. As such, funding has been allocated accordingly based on requirements and schedule.

Naval Administration and Personnel System (NAPS): FY2018 funding marked due to lack of requirements definition. Additional funding and efforts will be on hold pending the identification of resource sponsor to validate/fund program requirements.

Maritime Tactical Command and Control (MTC2) (Project 3323):
FY2019 to FY2020 funding for MTC2 decreases due to direction to align to the new program scope per the Strategic Shift Memo from the Office of the Chief of Naval Operations (OPNAV) dated 28 NOV 2016. In order to meet OPNAV's redirection, the program was required to re-baseline in order to focus on delivery of Battle Management Aids (BMA) / Maritime Planning Tools (MPT). Prototype development, integration, and testing for BMAs and MPTs extended one quarter due to revised completion date estimate for the Authority to Operate (ATO). Annual Delivery 2 (Capability Drop 2) was defined in the MTC2 Requirements Governance Board (RGB) Prioritized Focus Areas (signed 16 March 2018) to provide Navy Dynamic Organization to Joint GFM community. This capability drop

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has been accelerated to meet the DoD Joint GFM-DI Allocation mandate to Full Operational Capability (FOC) by FY20. Future annual deliveries shown in R-4 schedule are notional deliveries that will be defined in future RGBs.

FORCEnet (Project 9123):
From FY19 to FY20 funding decrease attributed to efficiencies identified while assessing Information Warfare capability/Science and Technology gaps in the context of assessed mission areas.

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COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
0486: *Tactical Support Center*	134.630	4.780	4.645	6.092	-	6.092	5.991	5.722	5.837	5.952	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

TacMobile brings Enterprise Command, Control, Communications, Computers and Intelligence, Surveillance and Reconnaissance (C4ISR) to the Maritime Patrol and Reconnaissance Force (MPRF) community.

TacMobile is a long-running, multi-year acquisition program which provides Command, Control, Communications, Computers, and Intelligence (C4I) for Navy's Maritime Patrol and Reconnaissance Force (MPRF). From within Tactical Operations Centers (TOC) at well-supported airfields, TacMobile provides theater Anti-Submarine Warfare (ASW) and Intelligence Surveillance Reconnaissance (ISR) commanders a common tactical picture while providing pre-flight and post-flight support to manned and unmanned MPRF aircraft. From within Mobile Tactical Operations Centers (MTOC), TacMobile supports manned MPRF aircraft at the tactical edge of operations. TacMobile Fly-Away Kits (FAK) support manned MPRF aircraft in short-duration expeditionary settings.

Services provided include analysis and correlation of diverse sensor information; data management support; command decision aids; rapid data communication; mission planning, evaluation and reach-back dissemination of surveillance data and threat alerts to operational users ashore and afloat, and to the Maritime Intelligence Surveillance and Reconnaissance Environment.

TOCs provide Command, Control, Communications, Computers and Intelligence (C4I) capability, air-ground, satellite and point-to-point communications systems; sensor analysis capabilities; avionics and weapons system interfaces and facilities equipment. MTOCs are scalable, mobile versions for operations from remote forward operating airfields. FAKs provide additional agility for expeditionary short-term duration aircraft detachments. This program assures that existing TOCs and MTOCs are interoperable to fulfill their operational requirements. TOC/MTOC will continue to provide the ground Command and Control missions, reach-back and C4I interfaces for the MPRF Family of Systems (FOS) aircraft and systems evolution including P-8A Multi-mission Maritime Aircraft (MMA) baseline and Increment 2, and the development of future C4I support capabilities for the P-8A Poseidon Increment 3, Advanced Airborne Sensor (AAS), and the MQ-4C TRITON Unmanned Aerial System.

The TacMobile program follows an Evolutionary Acquisition approach for adding capabilities that maintain and support MPRF weapons systems. Current requirements for TacMobile are to adapt to a smaller, lightweight, scalable Network-centric Services Oriented Architecture (SOA) configuration. Additional TacMobile requirements are to simplify and streamline the Pre-Flight Insertion Data (PID) process for mission aircraft, and to satisfy the need for sensor data sharing between aircraft and the Maritime Intelligence Surveillance and Reconnaissance Enterprise.

FY20: Funding supports core TacMobile systems engineering, development and testing of Increment 3, and Technical Refresh to Increment 2.1, to maintain interoperability with P-8A Poseidon and the MQ-4C Triton. Specifically this development is aligned to support P-8A Inc 3 Block 2 Integrated Testing beginning in FY20, increase modularity, establish additional security enclaves and reduce footprint to offset the size/weight/power/cooling (SWaP-C) of additional required aircraft interfaces developed to support P-8A Increment 3, Advanced Airborne Sensor (AAS) and emerging Maritime Patrol and Reconnaissance Aircraft operations. Network-centric Services Oriented Architecture (SOA) and airborne C4I integration efforts continue to ensure interoperability with emerging MPRF Aircraft and Sensors, streamline Pre-

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Flight Insertion Data (PID), facilitate the MPRF ISR and ASW data Processing - Exploitation - Dissemination (PED) process, and reduce TacMobile footprint, enhancing mobility capabilities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: TacMobile Increment 2.1	1.296	0.991	0.953	0.000	0.953
Articles:	-	-	-	-	-
FY 2019 Plans: Complete phased design and engineering of Technical refresh 2.1.2, including P-8A/Poseidon and MQ-4C/ Triton interoperability related communications upgrades (Global Broadcast System (GBS), Super High Frequency (SHF) and Tactical Data Links (TADIL); Command, Control, Communications and Intelligence (C4I) enhancements (Common Operational Picture (COP) and Integrated Broadcast Service (IBS)), and appropriate subsystem refreshes based on P-8A and MQ-4C collaborative efforts. These efforts include: INTEROPERABILITY: Complete Automated Digital Network System (ADNS) and Full Motion Video implementations following external stakeholder transition to ADNS Inc 3 infrastructure - (TR 2.1.1/2.1.2). SYSTEM UPGRADES: Continue design model development of automated TacMobile system functionality to reduce operator workload, increase agility with Size / Weight /Power/Cooling (SWaP-C) reductions, and offset increasing Maritime Patrol and Reconnaissance Force Intelligence Surveillance and Reconnaissance Mission/Function/Task - (TR 2.1.2); Implement fleet change requests into Technical Refresh 2.1.2 - (TR 2.1.2). MODERNIZATION: Integrate selected option for Global Broadcast System subsystem modernization - (TR 2.1.2); Integrate selected option for SHF subsystem modernization - (TR 2.1.2); Complete communications upgrade design/integration/development for P-8A interoperability and optimization: Common Data Link Upgrades, Broadcast Intelligence Analysis, Joint Range Extension, Third Party Targeting, High Frequency Internet Protocol, Link 16 updates, and Wideband SatCom design/technology implementation - (TR 2.1.2); Complete integration of selected solution to modernize or replace current generation Global Command and Control System Maritime - (TR 2.1.2); Integrate next generation Mass Storage solution - (TR 2.1.2).					
FY 2020 Base Plans: Complete development of Super High Frequency (SHF) and Tactical Data Links (TADIL), Command, Control, Communications and Intelligence (C4I) enhancements (Common Operational Picture (COP) and Integrated Broadcast Service (IBS)), and appropriate subsystem refreshes based on P-8A and MQ-4C collaborative efforts and made ready for fielding. These efforts include: INTEROPERABILITY: Complete Automated Digital Network System (ADNS) and PCDL Full Motion Video implementations TR 2.1.2.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
SYSTEM UPGRADES: Continue iterative design model development of automated TacMobile system functionality to be carried into Increment 3.0, to reduce operator workload, increase agility with Size / Weight / Power/Cooling (SWaP-C) reductions, and offset increasing Maritime Patrol and Reconnaissance Force Intelligence Surveillance and Reconnaissance Mission/Function/Task TR 2.1.2; Continue to incorporate fleet change requests into Technical Refresh 2.1.2 - (TR 2.1.2). MODERNIZATION: Complete integration of selected option for Global Broadcast System subsystem modernization - (TR 2.1.2); Complete integration and testing of selected option for SHF subsystem modernization - TR 2.1.2; Continue communications upgrade design/integration/development for P-8A interoperability and optimization: Common Data Link Upgrades, Broadcast Intelligence Analysis, Joint Range Extension, Third Party Targeting, High Frequency Internet Protocol, Link 16 updates, and Wideband SatCom design/technology implementation - (TR 2.1.2); Continue with integration and development of P8-A interoperability, C4I refresh, storage modernization, network refresh (including Cyber upgrades), and power distribution system upgrades. Complete integration of selected solution to modernize or replace current generation Global Command and Control System Maritime - (TR 2.1.2); Continue integration and development of the next generation Mass Storage solution - (TR 2.1.2). Analyze and assess options to defer integration of solutions to modernize or replace current generation Global Command and Control System Maritime from TR 2.1.2 to Inc 3. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Minor FY20 funding decrease for TacMobile Increment 2.1 development is due to reduction of effort associated with beginning ramp down /completion of TR 2.1.2 development/integration.					
Title: TacMobile Increment 3.0	3.484	3.654	5.139	0.000	5.139
Articles:	-	-	-	-	-
FY 2019 Plans: INTEROPERABILITY: Finalize Engineering Development Model (EDM) design to include appropriate interfaces for P-8A - (Inc 3.0); Finalize design for Multiple Security Level enclaves and joint system security architecture for P-8A interoperability - (Inc 3.0); Finalize EDM architecture to support Navy Tasking, Collection, Processing, Exploitation, and Dissemination CONOPS and data reach-back requirements for integrating the wide range of P-8A missions and Anti-Submarine Warfare and Intelligence Surveillance and Reconnaissance data elements with the Maritime Intelligence Surveillance and Reconnaissance Environment - (Inc 3.0); Finalize EDM design					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 0486 / *Tactical Support Center*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
and data strategy to maximize automation, Services Oriented Architecture (SOA), virtualization for increased interoperability and efficiency - (Inc 3.0); Finalize TacMobile design and implementation of metadata tagging and content management to align with Family of Systems Community of Interest data management model schema - (Inc 3.0); Continue maturing requirements development for Multistatic Active Coherent (MAC) Enhancements (MAC-E). Commence design and development of EDM upgrade for MAC-E integration. Integrate enhanced TacMobile data analysis tools and applications to support P-8A MAC-E interoperability - (Inc 3.0); Complete TacMobile Increment 3.0 Data Strategy and Information Support Plan to support Navy TCPED and Net-Centric strategies as well as to support P-8A Poseidon Inc 3, MQ-4C Triton Multi-INT, and Advanced Airborne Sensor (AAS) operations - (Inc 3.0); Finalize integration of Navy enterprise solutions for network services and Common Operational Picture (COP) management (in synch with Distributed Common Ground System Navy (DCGS-N), Undersea Warfare-Decision Support System (USW-DSS)) - (Inc 3.0); Finalize s/w development for sortie management and data services to interface with P-8A media build - (Inc 3.0); Conduct developmental testing to evaluate design and P-8A interfaces interoperability - (Inc 3.0); Conduct testing to achieve system Cybersecurity certifications and accreditations - (Inc 3.0). SYSTEM UPGRADES: Implement fleet and engineering change requests into Inc 3 design - (Inc 3.0); Implement hardware upgrades to address obsolescence and technological changes that do not impact system capability, - (Inc 3.0). MODERNIZATION: Implement Size Weight Power and Cooling (SWaP-C) reductions into final EDM design and proposed TOC/MTOC design - Inc 3.0). ***FY 2020 Base Plans:*** INTEROPERABILITY: Update Engineering Development Model (EDM) design to include any changes to appropriate interfaces for P-8A - (Inc 3.0); Update design for Multiple Security Level enclaves and joint system security architecture for P-8A interoperability - (Inc 3.0); Update EDM architecture to support Navy Tasking, Collection, Processing, Exploitation, and Dissemination CONOPS and data reach-back requirements for integrating the wide range of P-8A missions and Anti-Submarine Warfare and Intelligence Surveillance and Reconnaissance data elements with the Maritime Intelligence Surveillance and Reconnaissance Environment - (Inc 3.0); Update EDM design and data strategy to maximize automation, Services Oriented Architecture (SOA), and virtualization for increased interoperability and efficiency - (Inc 3.0); Update TacMobile design and implementation of metadata tagging and content management to align with Family of Systems Community of Interest data management model schema - (Inc 3.0); Continue maturing requirements development for Multistatic Active Coherent (MAC) Enhancements (MAC-E). Commence design and development of EDM					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 0486 / *Tactical Support Center*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
upgrade for MAC-E integration. Integrate enhanced TacMobile data analysis tools and applications to support P-8A MAC-E interoperability - (Inc 3.0); Complete TacMobile Increment 3.0 Data Strategy and Information Support Plan to support Navy TCPED and Net-Centric strategies as well as to support P-8A Poseidon Inc 3, MQ-4C Triton Multi-INT, and Advanced Airborne Sensor (AAS) operations - (Inc 3.0); Update integration of Navy enterprise solutions for network services and Common Operational Picture (COP) management (in synch with Distributed Common Ground System Navy (DCGS-N), Undersea Warfare-Decision Support System (USW-DSS)) - (Inc 3.0); Update software development for sortie management and data services to interface with P-8A media build - (Inc 3.0); Conduct system integration and developmental testing to evaluate design and P-8A interfaces interoperability - (Inc 3.0); Conduct testing to achieve system Cybersecurity certifications and accreditations - (Inc 3.0). SYSTEM UPGRADES: Implement fleet and engineering change requests into Inc 3 design - (Inc 3.0); Implement hardware upgrades to address obsolescence and technological changes that do not impact system capability, investigate emerging technologies through study, development, and associated testing for feasibility of program insertion - (Inc 3.0). MODERNIZATION: Implement Size Weight Power and Cooling (SWaP-C) reductions into final EDM design and proposed TOC/MTOC design - Inc 3.0). ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY20 funding increase for TacMobile Increment 3.0 development is due in transition from Systems Design to Systems Engineering Development, Updating Engineering Development Model (EDM) development, and commencing system integration and testing					
Accomplishments/Planned Programs Subtotals	4.780	4.645	6.092	0.000	6.092

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/2906: *TacMobile*	37.145	39.344	30.366	-	30.366	26.937	27.508	28.042	28.602	Continuing	Continuing

Remarks

Maritime Patrol & Reconnaissance Force (MPRF) Mission Support Systems

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 0486 / *Tactical Support Center*

D. Acquisition Strategy

Evolutionary Acquisition - Increment 2.0 provided enhanced Beyond Line of Sight (BLOS) Global Information Grid (GIG) reach back capability, and supports Maritime Situational Awareness connectivity enhancements for data exchange with Maritime Patrol and Reconnaissance Force (MPRF) aircraft and with Coalition data networks. It incorporated Anti-Submarine Warfare (ASW) acoustical analysis improvements and new P-3C aircraft ASW interfaces. Increment 2.1 supported migration to follow on Global Command and Control System - Maritime (GCCS-M) version 4.0.3 and introduction of the P-8A Poseidon. Tech Refresh 2.1.1 supports technical engineering changes associated with the introduction of P-8A Poseidon Increment 2, MQ-4C Triton, Advanced Airborne Sensor (AAS), migration to GCCS-M 4.1 Group Level, and transition to WIN10 baselines. Increment 3 will incorporate support for other Maritime Patrol and Reconnaissance Force (MPRF) Family of Systems (FOS) Aircraft Systems, as they transition to a Services Oriented Architecture (SOA).

E. Performance Metrics

The primary metrics utilized by the TacMobile program development process include achieving/maintaining all required Interface Exchange Requirements (IER's) and successful achievement of 100% of Key Performance Parameters for incremental upgrade threshold capabilities, as observed by Commander Operational Test Force representatives during Operational Evaluation. TacMobile Inc 2.1 development supported increased IER requirements of 486% from 112 to 544. Development to support these new IER's tapered off in FY-12 as the Increment entered the Operational Evaluation Phase. Development focus then shifted to efforts required to retain fielded IER's and update IER's to comply with emerging and evolving standards associated with P-8A Poseidon Increment 2, and the MQ-4C Triton Unmanned Aerial System (UAS), other Maritime Patrol and Reconnaissance Force (MPRF) Family of Systems (FOS) Aircraft and Systems, and evolving operational employment concepts. Increment 3 development will increase IER's by extending the TacMobile core to extend integrated capabilities into Higher Than SECRET enclaves and Services Oriented Architecture (SOA). The quantification of the increase in IER's will be dependent upon final requirements which are still being defined.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 0486 / *Tactical Support Center*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	SSC LANT; TAPESTRY; CENTURUM : Charleston; SC; Pax River, MD	11.645	1.485	Dec 2017	1.457	Dec 2018	1.802	Dec 2019	-		1.802	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	SSC LANT; TAPESTRY; CENTURM, BAH, Sentek : Charleston, SC; Pax River, MD; San Diego, CA	34.694	1.438	Dec 2017	1.378	Dec 2018	1.747	Dec 2019	-		1.747	Continuing	Continuing	Continuing
Training Development	C/CPFF	SSC LANT; TAPESTRY; CENTURUM, Sentek : Charleston, SC; Pax River, MD; San Diego, CA	3.461	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development	C/CPFF	SSC LANT, TAPESTRY, CENTURUM, BAH, Sentek : Charleston, SC; Pax River, MD; San Diego, CA	48.508	0.800	Dec 2017	0.700	Dec 2018	1.066	Dec 2019	-		1.066	Continuing	Continuing	Continuing
Integrated Logistics Support	C/CPFF	SSC LANT, TAPESTRY; CENTURUM : Charleston, SC; Pax River, MD	1.925	0.035	Dec 2017	0.035	Dec 2018	0.035	Dec 2019	-		0.035	Continuing	Continuing	Continuing
Configuration Management	C/CPFF	SSC LANT, TAPESTRY; CENTURUM : Charleston, SC; Pax River, MD	1.500	0.046	Dec 2017	0.023	Dec 2018	0.023	Dec 2019	-		0.023	Continuing	Continuing	Continuing
Technical Data	C/CPFF	SSC LANT, TAPESTRY; CENTURUM :	1.920	0.251	Dec 2017	0.251	Dec 2018	0.251	Dec 2019	-		0.251	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 0486 / *Tactical Support Center*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Charleston, SC; Pax River, MD													
Studies & Analyses	C/CPFF	SSC LANT, TAPESTRY, CENTURUM, Sentek : Pax River, MD; San Diego CA	1.125	0.015	Dec 2017	0.015	Dec 2018	0.015	Dec 2019	-		0.015	Continuing	Continuing	Continuing
		Subtotal	104.778	4.070		3.859		4.939		-		4.939	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/CPIF	SSC LANT; TAPESTRY; CENTURUM : Charleston, SC; Pax River, MD	3.456	0.336	Dec 2017	0.436	Dec 2018	0.803	Dec 2019	-		0.803	Continuing	Continuing	Continuing
Operational Test & Evaluation	MIPR	OPTEVFOR; SSC LANT; TAPESTRY; CENTURUM : Jacksonville, FL	6.177	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	9.633	0.336		0.436		0.803		-		0.803	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPIF	TAPESTRY; CENTURUM; BAH; Sentek : Pax River, MD; Charleston, SC; San Diego, CA	3.420	0.195	Dec 2017	0.195	Dec 2018	0.195	Dec 2019	-		0.195	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 0486 / *Tactical Support Center*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	SSC LANT : Charleston, SC	2.327	0.107	Dec 2017	0.107	Dec 2018	0.107	Dec 2019	-		0.107	Continuing	Continuing	Continuing
Program Management Support	C/CPIF	SSC LANT; PMW 750; BAH; TAPESTRY; CENTURUM; Sentek : Charleston, SC; San Diego, CA	14.190	0.047	Dec 2017	0.023	Dec 2018	0.023	Dec 2019	-		0.023	Continuing	Continuing	Continuing
Travel	WR	PMW750 : San Diego, CA	0.282	0.025	Dec 2017	0.025	Dec 2018	0.025	Dec 2019	-		0.025	Continuing	Continuing	Continuing
		Subtotal	20.219	0.374		0.350		0.350		-		0.350	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	134.630	4.780		4.645		6.092		-		6.092	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 0486 / *Tactical Support Center*

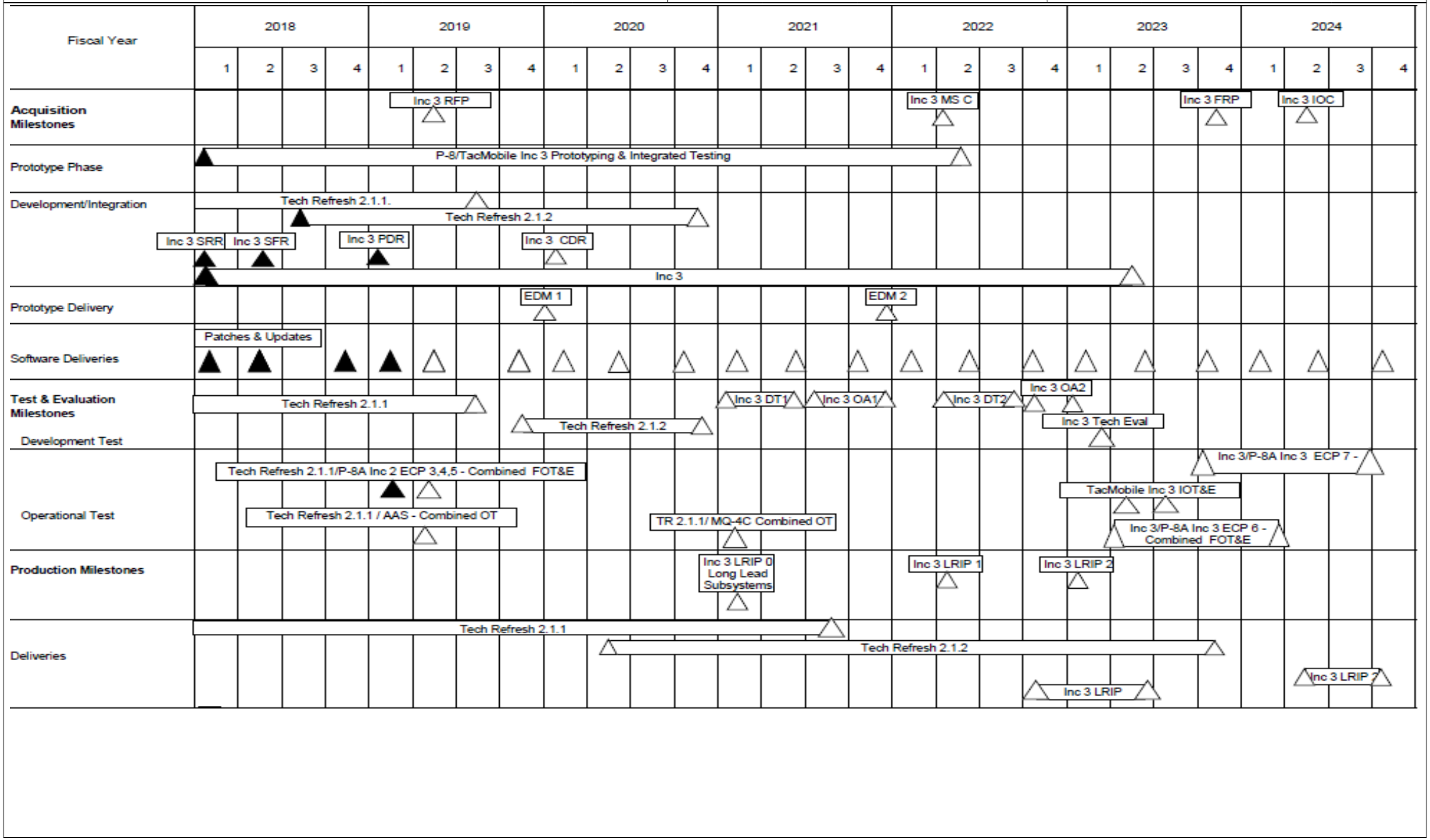


Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 0486 / *Tactical Support Center*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0486				
Software Delivery (Quarterly)	1	2018	4	2024
Tech Refresh Delivery (TR 2.1.1)	1	2018	3	2021
Tech Refresh Delivery (TR 2.1.2)	2	2020	4	2023
Combined Operational Test (Tech Refresh 2.1.1)	2	2019	1	2021
Development (TR 2.1.1)	1	2018	3	2019
Development (TR 2.1.2)	3	2018	4	2020
Developmental Test (Tech Refresh 2.1.1)	1	2018	3	2019
Developmental Test (Tech Refresh 2.1.2)	4	2019	4	2020
Prototyping & Integrated Testing (P-8/TacMobile) (Increment 3)	1	2018	2	2022
System Requirements Review (Increment 3)	1	2018	1	2018
System Functional Review (Increment 3)	2	2018	2	2018
Request for Proposal release (Increment 3)	2	2019	2	2019
Preliminary Design Review (Increment 3)	1	2019	1	2019
Critical Design Review (Increment 3)	1	2020	1	2020
Development (Increment 3)	1	2018	2	2023
Developmental Test (Increment 3)	1	2021	3	2022
Operational Assessment (Increment 3)	3	2021	1	2023
Full Rate Production (Increment 3)	4	2023	4	2023
Milestone C (Increment 3)	2	2022	2	2022
Low Rate Initial Production (Increment 3)	1	2021	1	2021
Low Rate Initial Production (Increment 3) 1	2	2022	2	2022
Low Rate Initial Production (Increment 3) 2	1	2023	1	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 0486 / *Tactical Support Center*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Developmental Test (Increment 3 Tech Eval)	1	2023	1	2023
Operational Test (Increment 3)	2	2023	3	2023
Increment 3 EDM Delivery	1	2020	4	2021
Increment 3 LRIP Delivery	4	2022	4	2024
Combined Operational Tests/Follow On Tests (Increment 3)	2	2023	1	2024
Increment 3 IOC	2	2024	2	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 2343 / *Tactical METOC Applications*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2343: *Tactical METOC Applications*	0.000	0.000	0.000	12.198	-	12.198	12.052	12.644	13.913	14.196	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding has been realigned into PE 0604231N from PE 0604218N Project 2343 as part of RDTEN PE Consolidation starting in FY20. There are no New Starts associated with this realignment. All budgeted efforts have been previously approved.

A. Mission Description and Budget Item Justification

The Tactical Meteorology and Oceanography (METOC) Applications Project provides cyber secure operational effects decision aid capabilities for Navy and Marine Corps warfighters in the context of Joint Operations in a net-centric environment. This project funds the agile software development of the Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program of record. NITES-Next program identifies and transitions state-of-the-art decision support software technologies from the government and commercial industry's technology base, and then demonstrates and validates these capabilities before fielding. These software decision support tools provide platform, sensor, communications, and weapon systems performance assessments for warfighters in terms of their littoral and deep-strike battlespace environments. These assessments allow mission planners and warfighters, from Unit to Theater level, to optimize their sensor employment on airborne, surface, and subsurface platforms in support of Naval Composite Warfare mission areas including Undersea Warfare (USW), Anti-Submarine Warfare (ASW), Mine Warfare (MIW), Amphibious Warfare (AMW), Anti-Surface Warfare (ASUW), Anti-Air Warfare (AAW), Strike Warfare (STW), Expeditionary Warfare (EXW), Electronic Warfare (EW), Information Operations (IO), Intelligence Operations (INT), Non-Combat Operations (NCO), Command, Control, Communication (CCC), and Naval Special Warfare (NSW). Performance assessments leading to improvements in operational and tactical control are conducted through a two-tiered approach: 1) Meteorological and Oceanographic (METOC) Decision Aids and, 2) Operational Effects Decision Aids (OEDAs). METOC Decision Aides consist of a series of analysis tools which characterize the physical environment conditions of the battlespace based on the best set of physical environment data available at the time (i.e., some combination of historical and/or real-time (or near real-time) in-situ, and numerically modeled forecast data). OEDAs use the METOC Decision Aide information by fusing it with relevant, often-classified, sensor and target data to predict how weapons and sensor systems will perform. Performance results are displayed in tabular and graphic formats integrated into net-centric visualization tools for use by mission planners, and combat/weapon system operators to develop localization plans, USW/AAW/ASUW screens, STW profiles, and AMW ingress and egress points. METOC Decision Aides and OEDAs use data obtained through direct interfaces to Navy combat systems. Cyber secure capabilities are a current emphasis required to characterize and/or predict sensor and weapons system performance in the highly complex littoral environments in support of regional conflict scenarios. It addresses multi-warfare areas, particularly shallow water ASW, NSW, and missile and air defense/strike capabilities.

Funding supports development and integration efforts for Meteorological and Oceanographic (METOC) systems to generate and collect METOC data and fuse multiple intelligence inputs to more robustly characterize and predict tactical atmospheric and oceanographic conditions. This integrated METOC picture will support real-time battlespace awareness of propagation conditions affecting signals across the electromagnetic spectrum. METOC data will be fused with other intelligence data and automatically provided to shipboard combat systems to inform kinetic and non-kinetic fires.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*

Fiscal Year (FY) 2020 request provides for NITES-Next to conduct an Fleet Capability Release (FCR)-3 Field Technical Review (FTR) and seek to obtain an FCR-3 Fielding Decision (FD) to deliver the mobile variant and Electromagnetic (EM) Prediction capabilities. The program will also conduct an FCR-4 Build Technical Review (BTR) and seek to obtain an FCR-4 Build Decision (BD) from the Milestone Decision Authority (MDA). NITES-Next will begin initial software development of the FCR-4 capability, pending Requirements Governance Board (RGB) approval. The program will begin planning for the FCR-5 development and contracting activities (including initiating the update of all required documentation, Requirements Development Package (RDP), Cost Analysis Requirements Document (CARD), Program Life Cycle Cost Estimate (PLCCE) and Acquisition Program Baseline (APB). NITES-Next will plan for and conduct System Integration Test's (SITs) and Developmental Test& Evaluation (DT&E) for FCR-3. The program will update its Risk Management Framework (RMF) Authority to Operate (ATO) for FCR-3 software.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Naval Integrated Tactical Environmental System Next Generation (NITES-Next)	0.000	0.000	12.198	0.000	12.198
Articles:	-	-	-	-	-
FY 2019 Plans: FY19 Plans funded under PE 0604218N, Project 2343					
FY 2020 Base Plans: NITES-Next will conduct an FCR-3 FTR and seek to obtain an FCR-3 FD to deliver the mobile variant and Electromagnetic (EM) Prediction capabilities. The program will also conduct an FCR-4 BTR and seek to obtain an FCR-4 BD from the MDA. NITES-Next will begin initial software development of the FCR 4 capability, pending RGB approval. The program will begin planning for the FCR-5 development and contracting activities (including initiating the update of all required documentation, Requirements Development Package (RDP), and Acquisition Program Baseline (APB). The program will update its Risk Management Framework (RMF) Authority to Operate (ATO) for Fleet Capability Release FCR-3 software.					
FY 2020 OCO Plans: N/A					
FY 2019 to FY 2020 Increase/Decrease Statement: In FY19 funding under PE 0604218N, Project 2343 was $9.268M. Funding increases by $2.93M to $12.198M in FY20. Funding increase is attributed to DT&E of FCR-3, RMF update and the development of FCR-5.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	12.198	0.000	12.198

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/4226: *Meteorological Equipment*	21.000	21.072	14.687	-	14.687	14.876	13.366	13.814	13.357	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• RDTEN/0604218N/2343: *Tactical METOC Applications*	0.000	9.268	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.268
• RDTE/0603207N/2343: *Tactical METOC Applications*	11.448	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	175.172

Remarks

D. Acquisition Strategy

The NITES-Next program acquisition, management and contracting strategies are to support the Tactical Meteorology & Oceanography (METOC) Applications project to continue the development of state-of-the-art software capabilities that provide sensor, communication, and weapon system performance assessment capabilities for open ocean and littoral operating environments. The Department of the Navy (DoN) maintains management oversight of the NITES-Next program's acquisition and contracting strategies. The Department of the Navy (DoN) requirements for the NITES-Next program's acquisition and contracting strategies are based on approved Joint Capabilities Integration and Development System (JCIDS) documentation.

E. Performance Metrics

Goal: Field software decision aid capabilities for Navy and Marine Corps war fighters in order to facilitate the characterization and prediction of the physical environment in the battlespace.

Metric: Meet the performance metrics identified in approved Naval Integrated Tactical Environmental Next Generation (NITES-Next) Program's requirements documents (e.g., Concept Definition Document (CDD) and individual Requirements Definition Packages (RDPs).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 2343 / *Tactical METOC Applications*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NITES-Next	WR	SSC Pacific : San Diego, CA	0.000	0.000		0.000		2.761	Nov 2019	-		2.761	Continuing	Continuing	Continuing
NITES-Next	C/FP	SAIC : Virginia	0.000	0.000		0.000		2.252	Dec 2019	-		2.252	Continuing	Continuing	Continuing
NITES-Next	WR	SSC Atlantic : South Carolina	0.000	0.000		0.000		0.094	Oct 2019	-		0.094	Continuing	Continuing	Continuing
NITES-Next/Engineering	C/IDIQ	Various : Various	0.000	0.000		0.000		4.759	May 2020	-		4.759	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		9.866		-		9.866	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NITES-Next	C/FP	SAIC : Virginia	0.000	0.000		0.000		1.353	Dec 2019	-		1.353	0.000	1.353	-
		Subtotal	0.000	0.000		0.000		1.353		-		1.353	0.000	1.353	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NITES-Next	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		0.398	Nov 2019	-		0.398	0.000	0.398	-
NITES-Next	C/FP	BAH : San Diego CA	0.000	0.000		0.000		0.581	Dec 2019	-		0.581	0.000	0.581	-
		Subtotal	0.000	0.000		0.000		0.979		-		0.979	0.000	0.979	N/A

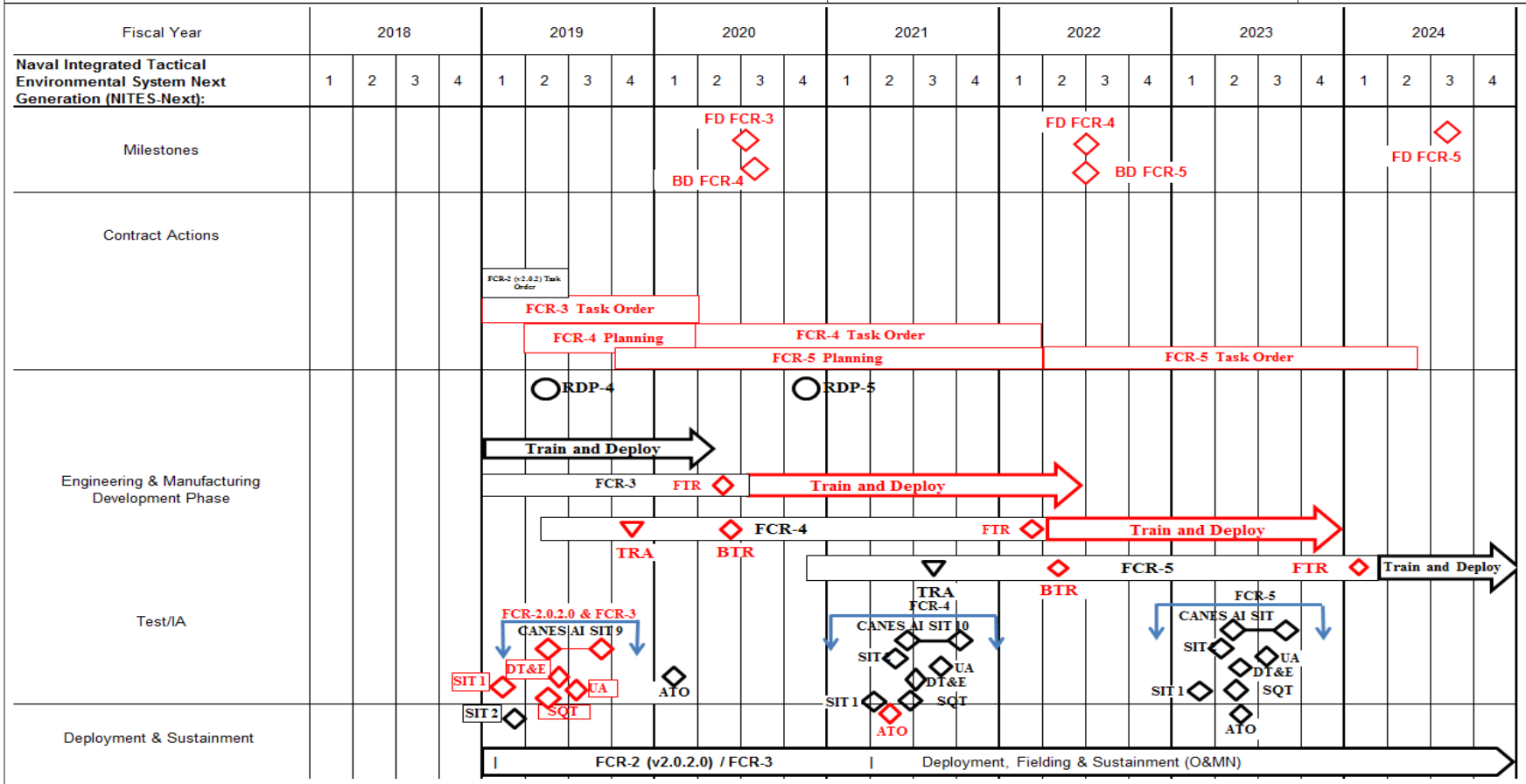
	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		12.198		-		12.198	Continuing	Continuing	N/A

Remarks

FY18 cost data is provided under PE 0603207N, Project 2343.

FY19 cost data is provided under PE 0604218N, Project 2343.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*



NOTE: FY19 funding was provided under PE 0604218N Project 2343

Acronyms: OTRR = Opertional Test Readiness Review. RDP = Requirements Definition Package. FCR = Fleet Capability Release. TRA = Technology Readiness Assessment. BD = Build Decision. FD = Fielding Decision. Limited Fielding Decision = LFD. IOC= Initial Operational Capability. IATO = Interim Authority to Operate. ATO = Authority to Operate. UA = User Assessment. BTR = Build Technical Review. Field Technical Reivew = FTR. SIT = System Integration Test. RALOT = Risk Assessment Level of Testing. DT&E = Developmental Test & Evaluation. ADM - Acquisition Decision Memorandum. SOVT = System Verification Operational Test. CANES = Consolidated Afloat Networks and Enterprise Services. AI = Application Integration.

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Naval Integrated Tactical Environmental System Next Generation (NITES-Next)				
Milestones: Build Decision (BD) Fleet Capability Release - 4	3	2020	3	2020
Milestones: Fielding Decision (FD) Fleet Capability Release - 3	3	2020	3	2020
Milestones: Fielding Decision (FD) Fleet Capability Release - 4	2	2022	2	2022
Milestones: Building Decision (BD) Fleet Capability Release - 5	3	2022	3	2022
Milestones: Fielding Decision (FD) Fleet Capability Release - 5	3	2024	3	2024
Contract Actions: FCR-3 Task Order	1	2020	2	2020
Contract Actions: FCR-4 Task Order	2	2020	1	2022
Contract Actions: FCR-4 Planning	1	2020	1	2020
Contract Actions: FCR-5 Planning	2	2020	2	2022
Contract Actions: FCR-5 Task Order	2	2022	2	2024
Engineering & Manufacturing Development Phase: Fleet Capability Release - 2 / Train Deploy	1	2020	2	2020
Engineering & Manufacturing Development Phase: Fleet Capability Release - 3 / Train Deploy	3	2020	2	2022
Engineering & Manufacturing Development Phase: Fleet Capability Release - 4 / Train and Deploy	2	2022	4	2023
Engineering & Manufacturing Development Phase: Fleet Capability Release - 3	1	2020	2	2020
Engineering & Manufacturing Development Phase: Fleet Capability Release - 4	1	2020	2	2022
Engineering & Manufacturing Development Phase: Fleet Capability Release - 5	4	2020	1	2024
Engineering & Manufacturing Development Phase: Requirements Definition Package - 5	4	2020	4	2020
Engineering & Manufacturing Development Phase: Build Technical Review FCR-4	2	2020	2	2020
Engineering & Manufacturing Development Phase: Build Technical Review FCR-5	2	2022	2	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Engineering & Manufacturing Development Phase: Technology Readiness Assessment - 5	3	2021	3	2021
Engineering & Manufacturing Development Phase: Field Technical Review FCR-3	2	2020	2	2020
Engineering & Manufacturing Development Phase: Field Technical Review FCR-4	1	2022	1	2022
Engineering & Manufacturing Development Phase: Field Technical Review FCR-5	1	2024	1	2024
Test/IA: Fleet Capability Release V 2.0.2.0	1	2019	4	2019
Test/IA: Fleet Capability Release - 3	1	2019	4	2019
Test/IA: Fleet Capability Release - 4	1	2021	4	2021
Test/IA: Fleet Capability Release - 5	4	2022	4	2023
Test/IA: System Integration Test - 1 (FCR-4)	2	2021	2	2021
Test/IA: System Integration Test - 2 (FCR-4)	2	2021	2	2021
Test/IA: System Integration Test - 1 (FCR-5)	1	2023	1	2023
Test/IA: System Integration Test - 2 (FCR-5)	2	2023	2	2023
Test/IA: Authority to Operate FCR-3	1	2020	1	2020
Test/IA: Authority to Operate FCR-4	2	2021	2	2021
Test/IA: Authority to Operate FCR-5	2	2023	2	2023
Test/IA: System Qualification Test FCR-4	2	2021	2	2021
Test/IA: System Qualification Test FCR-5	2	2023	2	2023
Test/IA: Developmental Test Fleet Capability Release - FCR 3	2	2019	2	2019
Test/IA: Developmental Test Fleet Capability Release - FCR-4	3	2021	3	2021
Test/IA: Developmental Test Fleet Capability Release - FCR-5	2	2023	2	2023
Test/IA: User Assessment FCR-4	3	2021	3	2021
Test/IA: User Assessment FCR-5	3	2023	3	2023
Test/IA: CANES AI SIT FCR-4	2	2021	4	2021
Test/IA: CANES AI SIT FCR-5	2	2023	3	2023
Test/IA: Deployment and Sustainment: Deployment, fielding and Sustainment (OMN)	1	2020	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*				Project (Number/Name) 2345 / *Fleet METOC Equipment*			
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
2345: *Fleet METOC Equipment*	0.000	0.000	0.000	0.220	-	0.220	0.620	0.577	0.487	0.496	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding has been realigned into PE 0604231N from PE 0604218N Project 2345 as part of RDTEN PE Consolidation starting in FY20. There are no New Starts associated with this realignment. All budgeted efforts have been previously approved.

A. Mission Description and Budget Item Justification

This project provides for the engineering and manufacturing development of sensors, communication interfaces, processing and display meteorological and oceanographic (METOC) equipment. This equipment is designed to provide future mission capabilities for war fighters to measure, ingest, store, process, distribute and display METOC parameters and derived products.

This project also exploits new government off-the-shelf/commercial off-the-shelf technologies, tactical sensors and web enablement for the Navy's computer-based tactical shipboard and shore capability used to predict and assess the operational effects of the physical environment on the performance of platforms, weapons and sensor systems. This project includes development of warfare specific mission planning modules to support unmanned systems with integration of data from environmental and tactical sensor systems, model forecast information and Geospatial Information & Services Databases. This project also supports development of autonomous environmental sensing systems for situational awareness and tactical decision aid/mission planner support, as well as iridium and advanced satellite communication integration in METOC sensor, vehicle control and mission planning systems that will be required to achieve Chief of Naval Operation objectives for information dominance and decision superiority.

Major emphasis areas include the Meteorological and Oceanographic Future Mission Capabilities (METOC FMC) project, Littoral Battlespace Sensors - Unmanned Undersea Vehicles (LBS-UUV) and the Environmental Satellite Receiver Processor (ESRP) program (comprised of AN/SMQ-11 (sea and shore configuration) and AN/FMQ-17 (shore configuration) systems).

Fiscal Year (FY) 20 request provides for the Littoral Battlespace Sensors - Gliders (LBS-G) and Littoral Battlespace Sensors - Autonomous Undersea Vehicles (LBS-AUV) engineering design studies. Develop system upgrades via Engineering Change Proposals (ECP's) and correct any identified software and/or hardware deficiencies. Continue investigating next generation propulsion technologies such as Hybrid Thruster, battery chemistry, thermal engines, and universal buoyancy engines for potential system upgrades. Also, investigating battery technology, bio-fouling solutions, afterbody solutions, and open architecture approaches.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)	0.000	0.000	0.072	0.000	0.072
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
FY 2019 Plans: FY19 Plans funded under PE 0604218N , Project 2345 ***FY 2020 Base Plans:*** Continue to conduct Littoral Battlespace Sensing-Gliders (LBS-G) and Littoral Battlespace Sensing-Autonomous Unmanned Vehicle (LBS-AUV) engineering design studies. Continue developing system upgrades via Engineering Change Proposals (ECP's) and correct any identified software and/or hardware deficiencies. Continue investigating next generation propulsion technologies such as Hybrid Thruster and universal buoyancy engines for potential system upgrades. Also, investigate new battery technologies, bio-fouling solutions, afterbody solutions, and open architecture approaches. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY19 funding under PE 0604218N Project 2345 was $0.358M for LBS-UUV. Funding decreased by $0.286M to $0.072M in FY20. Funding decrease is attributed to the availability of prior year balances.					
Title: Environmental Satellite Receiver Processor (ESRP)	0.000	0.000	0.148	0.000	0.148
Articles:	-	-	-	-	-
FY 2019 Plans: FY19 Plans funded under PE 0604218N, Project 2345. ***FY 2020 Base Plans:*** Continue to develop and test annual hardware and software upgrades to integrate new meteorological and oceanographic (METOC) Satellite Sensors available in the Geostationary Operational Environmental Satellites (GOES) and the Polar Orbiting Environmental Satellites (POES). Continue integration of Environmental Satellite Receiver Processor (ESRP) systems in support of Weather Satellite Follow-On (WSF-M), Operational Response Space (ORS)-8, GOES-16, GOES-17 and Europe Meteorology Satellites (EUMETSAT) satellites. Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
In FY19 funding under PE 0604218N, Project 2345 was $0.314M. Funding decreases by $0.166M to $0.148M in FY20. Funding decrease from FY19 to FY20 was to account for availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.220	0.000	0.220

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/4226: *Meteorological Equipment*	21.000	21.072	14.687	-	14.687	14.876	13.366	13.814	13.357	Continuing	Continuing
• RDTEN/0604218N/2345: *Fleet METOC Equipment*	0.755	0.672	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	66.036

Remarks

D. Acquisition Strategy

Acquisition, management and contracting strategies are to support engineering and manufacturing development by providing funds to Hydroid, Teledyne Brown and Naval Research Laboratory.

E. Performance Metrics

Goal: Develop and engineer equipment to acquire Meteorological and Oceanographic (METOC) data in order to improve the accuracy of global and regional scale METOC forecast models.

Metric: Tasks will address no less than 75% of applicable capability gaps and requirements, as identified by Resource and Requirements Sponsor(s). As tasks relate to exploitation of fleet sensors for METOC data (Through-the-Sensor), no less than 80% of approved initiatives will maintain cost, schedule, performance and transition risk analysis certification that will have been completed within the past 12 months.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 2345 / *Fleet METOC Equipment*	

Product Development ($ in Millions)

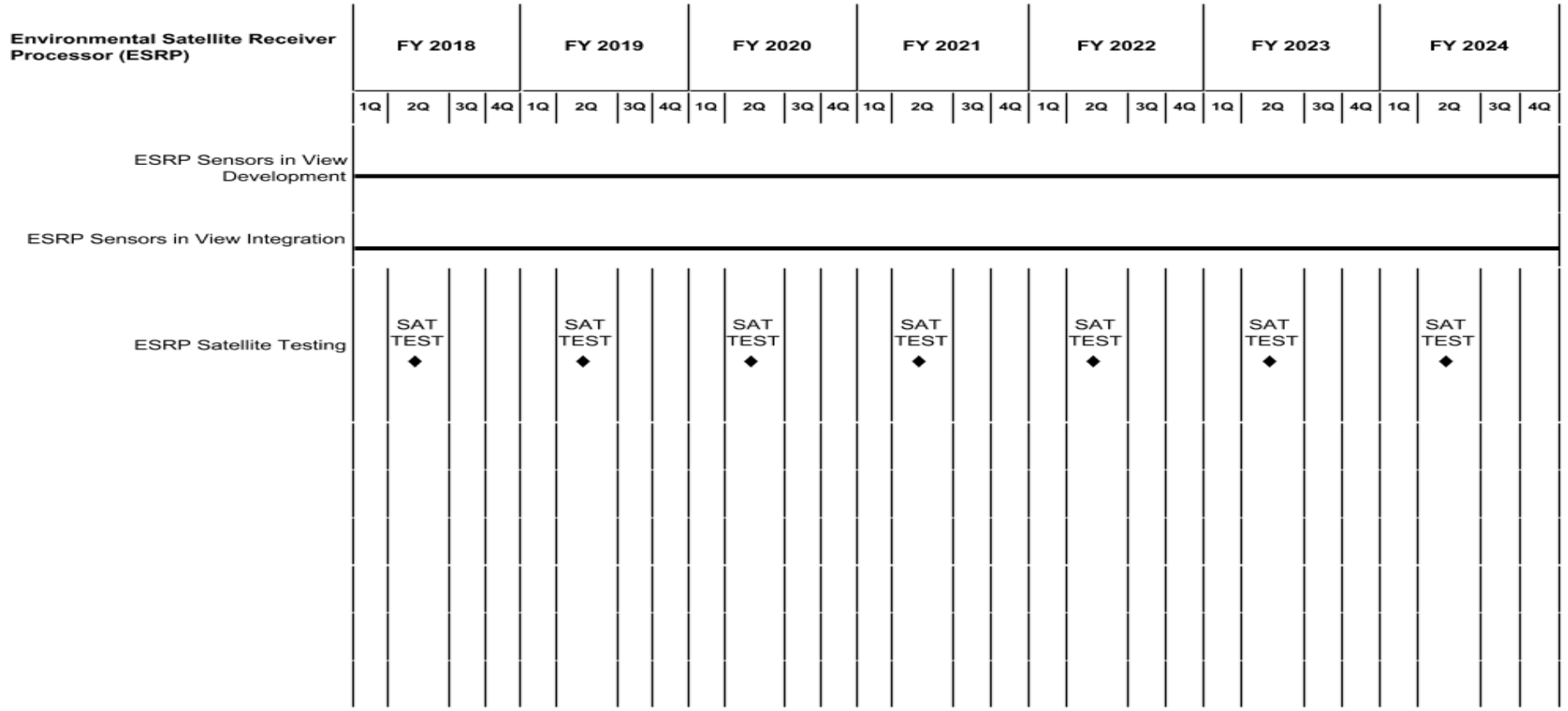
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC ESRP	SS/CPFF	RAYTHEON : Indianapolis	0.000	0.000		0.000		0.148	Feb 2020	-		0.148	Continuing	Continuing	Continuing
Littoral Battlespace Sensing - Gliders	C/CPIF	Teledyne Brown Engineering : Alabama	0.000	0.000		0.000		0.035	Mar 2020	-		0.035	Continuing	Continuing	Continuing
Littoral Battlespace Sensing - Autonomous Undersea Vehicle (Submarine)/Razorback	C/FP	Hydroid : Pocasset, MA	0.000	0.000		0.000		0.037	Mar 2020	-		0.037	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		0.220		-		0.220	Continuing	Continuing	N/A

	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		0.220		-		0.220	Continuing	Continuing	N/A

Remarks

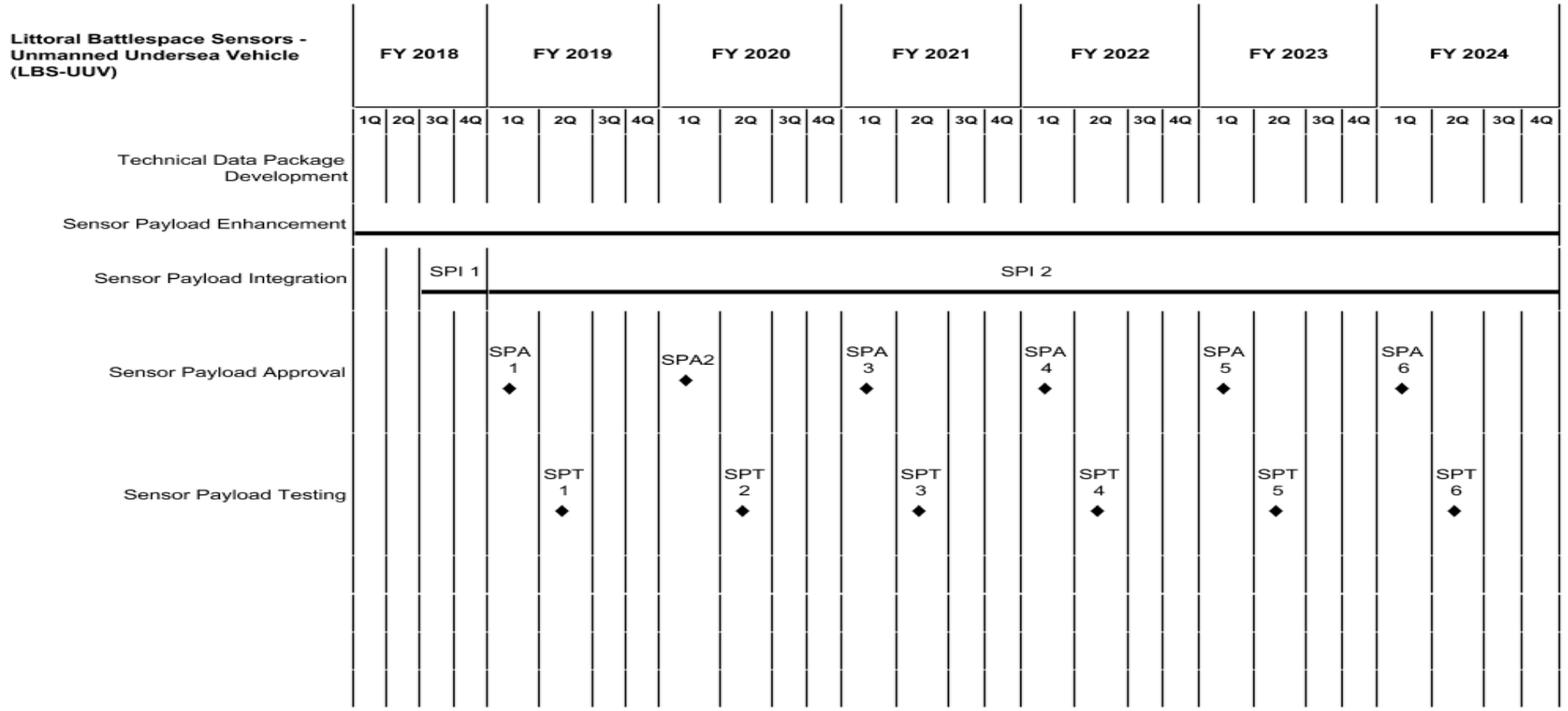
FY18 and FY19 cost data is provided under PE 0604218N Project 2345.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*



2020PB - 0604231N - 2345 NOTE: FY18 and FY19 funding was provided under PE 0604218N , Project 2345

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*



2020PB - 0604231N - 2345 NOTE: FY18 and FY19 funding was provided under PE 0604218N , Project 2345

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Environmental Satellite Receiver Processor (ESRP)				
ESRP Sensors in View Development: ESRP Sensors in View Development	1	2018	4	2024
ESRP Sensors in View Integration: ESRP Sensors in View Integration	1	2018	4	2024
ESRP Satellite Testing: ESRP Satellite Testing (FY18)	2	2018	2	2018
ESRP Satellite Testing: ESRP Satellite Testing (FY19)	2	2019	2	2019
ESRP Satellite Testing: ESRP Satellite Testing (FY20)	2	2020	2	2020
ESRP Satellite Testing: ESRP Satellite Testing (FY21)	2	2021	2	2021
ESRP Satellite Testing: ESRP Satellite Testing (FY22)	2	2022	2	2022
ESRP Satellite Testing: ESRP Satellite Testing (FY23)	2	2023	2	2023
ESRP Satellite Testing: ESRP Satellite Testing (FY24)	2	2024	2	2024
Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)				
Sensor Payload Enhancement:	1	2018	4	2024
Sensor Payload Integration: Sensor Payload Integration1	3	2018	4	2018
Sensor Payload Integration: Sensor Payload Integration2	1	2019	4	2024
Sensor Payload Approval: Sensor Payload Approval 1	1	2019	1	2019
Sensor Payload Approval: Sensor Payload Approval 2	1	2020	1	2020
Sensor Payload Approval: Sensor Payload Approval 3	1	2021	1	2021
Sensor Payload Approval: Sensor Payload Approval 4	1	2022	1	2022
Sensor Payload Approval: Sensor Payload Approval 5	1	2023	1	2023
Sensor Payload Approval: Sensor Payload Approval 6	1	2024	1	2024
Sensor Payload Testing: Sensor Payload Testing 1	2	2019	2	2019
Sensor Payload Testing: Sensor Payload Testing 2	2	2020	2	2020
Sensor Payload Testing: Sensor Payload Testing 3	2	2021	2	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Sensor Payload Testing: Sensor Payload Testing 4	2	2022	2	2022
Sensor Payload Testing: Sensor Payload Testing 5	2	2023	2	2023
Sensor Payload Testing: Sensor Payload Testing 6	2	2024	2	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 2363 / *Remote Sensing Capability Development*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2363: *Remote Sensing Capability Development*	0.000	0.000	0.000	5.651	-	5.651	7.448	4.862	4.740	4.838	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding has been realigned into PE 0604231N from PE 0604218N Project 2363 as part of RDTEN PE Consolidation starting in FY20. There are no New Starts associated with this realignment. All budgeted efforts have been previously approved.

A. Mission Description and Budget Item Justification

RSCD characterizes the ocean environment using a variety of remote sensing techniques that provide that capability to discriminate atypical oceanographic phenomena from the natural environment that will greatly improve undersea dominance capabilities. The Naval Oceanographic Office will employ oceanographic data to refine and extend environmental characterization of the phenomena and disseminate data to the Fleet. Efforts include investigation of emerging technologies through study, development, and associated testing for feasibility of program insertion.

Fiscal Year (FY) 2020 request provides for continued target data collection, enhancements on algorithms and continue to integrate algorithms for access over the network. Funding will also support a doubling of the requirements per resource sponsor direction. This requirements increase will cause the program to double the engineering team which will oversee the Test and Evaluation as well as the Validation and Verification of new and existing capabilities. Funds will also be used to begin to establish a cloud based computing environment and data repository.

FY 2020 funds will also develop and deliver algorithms in support of the RSCD project and will support Fleet Anti-Submarine Warfare (ASW) and Mine Warfare (MIW) missions.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Remote Sensing Capability Development	0.000	0.000	5.651	0.000	5.651
Articles:	-	-	-	-	-
FY 2019 Plans: FY19 Plans funded under PE 0604218N, Project 2363					
FY 2020 Base Plans: FY20 funding has been realigned to PE 0604231N Project 2363 as part of PE Consolidation Continue data collection in various weather and sea states to broaden the range of environmental conditions and reduce uncertainty in environmental prediction. Continue software algorithm performance analysis. Continue					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2363 / *Remote Sensing Capability Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
software algorithm enhancements to automatically detect oceanographic phenomena. Continue software algorithm enhancements and modifications to support transition to a new architecture. Continue to implement the algorithm performance assessment strategy as well as the test and evaluation plans. Document software algorithm test reports. Continue to integrate algorithms for access over the network. Continue development of training to provide the user community education on using the different tools and applications. Coordinate Task, Collect, Process, Exploit, Disseminate (TCPED) process amongst inter-agencies to support Navy Missions. Based on emerging threats, expand scope of the Seahorse project to include new surface detection algorithms. Continue to develop, enhance, and integrate, surface detection algorithm capabilities, and provide input to Fleet training and CONOPS development. Effort introduces rigor and standardization of target detection capabilities in support of CLUTCHSHOT. The program also begins the updating of the requirements Development Package (RDP) as a result of increased requirements per the Resource Sponsor (RS). The requirements increase causes the program to double the engineering team which will oversee the Test and Evaluation as well as the Validation and Verification of new and existing capabilities. Funds also begins the establishment of a cloud based computing environment and data repository in order to test and evaluate, create performance metrics, and understand computational performance of algorithms and technologies that enhance Maritime Domain Awareness (MDA). ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY19 funding under PE 0604218N, Project 2363 was $ 5.642 million. Funding increases by $.009 million to $5.651 million in FY20 allowing for additional cloud based computing environment and data repository in order to test and evaluate, create performance metrics, and understand computational performance of algorithms and technologies that enhance Maritime Domain Awareness (MDA). The FY2020 funding request for project 2363 was reduced by $1.248 million to account for the availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	5.651	0.000	5.651

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2363 / *Remote Sensing Capability Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• RDTEN/0604218N/2363: *Remote Sensing Capability Development*	0.000	5.642	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.642
• RDTEN/0603207N/2363: *Remote Sensing Capability Development*	3.816	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	13.116

Remarks

RDTEN/0603207N/2363 Funding is only in FY18 and prior year under BSO 39.

D. Acquisition Strategy

Remote Sensing Capability Development (RSCD) is being managed as a Program Executive Office (PEO) Project, via a Project Definition Document (PDD) construct for acquisition rigor and oversight.

E. Performance Metrics

Available in the Project's Requirements Definition Package (RDP).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 2363 / *Remote Sensing Capability Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remote Sensing Capability Development Data Collection	C/FFP	SAIC : Viriginia	0.000	0.000		0.000		0.866	Feb 2020	-		0.866	Continuing	Continuing	Continuing
Remote Sensing Capability Development Data Collection	WR	NRL : Washington, DC	0.000	0.000		0.000		1.347	Nov 2019	-		1.347	Continuing	Continuing	Continuing
Remote Sensing Capability Development Data Collection	C/FFP	Cubic : San Diego, CA	0.000	0.000		0.000		1.385	Apr 2020	-		1.385	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		3.598		-		3.598	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remote Sensing Capability Development Data Collection	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		0.849	Mar 2020	-		0.849	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		0.849		-		0.849	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

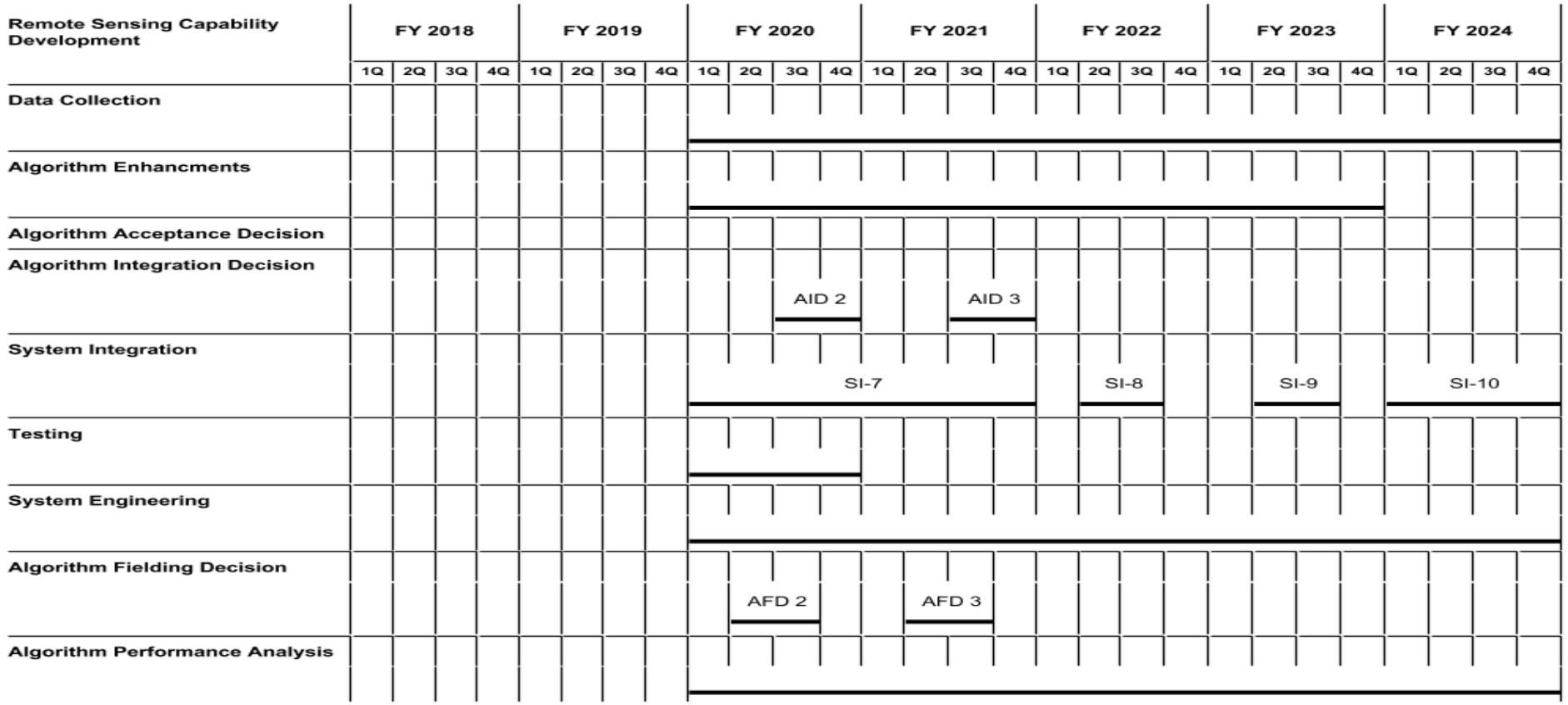
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remote Sensing Capability Development Data Collection	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		1.204	Mar 2020	-		1.204	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		1.204		-		1.204	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 2363 / *Remote Sensing Capability Development*	

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		5.651		-		5.651	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2363 / *Remote Sensing Capability Development*



2020PB - 0604231N - 2363

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 2363 / *Remote Sensing Capability Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Remote Sensing Capability Development				
Data Collection:	1	2020	4	2024
Algorithm Enhancments:	1	2020	4	2023
Algorithm Integration Decision: Algorithm Integration Decision 2	3	2020	4	2020
Algorithm Integration Decision: Algorithm Integration Decision 3	3	2021	4	2021
System Integration: System Integration 7	1	2020	4	2021
System Integration: System Integration 8	2	2022	3	2022
System Integration: System Integration 9	2	2023	3	2023
System Integration: System Integration 10	1	2024	4	2024
Testing:	1	2020	4	2020
System Engineering:	1	2020	4	2024
Algorithm Fielding Decision: Algorithm Fielding Decision 2	2	2020	3	2020
Algorithm Fielding Decision: Algorithm Fielding Decision 3	2	2021	3	2021
Algorithm Performance Analysis:	1	2020	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 3032 / *NTCSS (Naval Tactical Command Spt Sys)*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
3032: *NTCSS (Naval Tactical Command Spt Sys)*	97.905	4.455	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	102.360
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Naval Tactical Command Support System (NTCSS) is a multi-function program designed to provide standard tactical support information systems to various afloat and associated shore-based fleet activities. The mission is to provide the Navy and Marine Corps with an integrated, scalable system that supports the management of logistical information, personnel, material, and funds required to maintain and operate ships, submarines, and aircraft.

Funding provides for the design, development, and testing of NTCSS Open Architecture (OA) development efforts to include: Global Individual Component Repair List (G-ICRL); Beyond Capability of Maintenance Interdiction (BCM-I); Operational Supply (O-Supply), which includes Table of Allowance & Personal Gear Issue (TOA/PGI) and Total Material Visibility & Requisition Management (TMV/RM).

Funding also supports the transition of the current client-server architecture to a service-oriented architecture (SOA) and web-based services (NTCSS OA). This will align with the initiative to bring Navy systems into a common computing environment afloat, interface with Navy Enterprise Resource Planning (ERP) ashore, and provide a more flexible system platform with greater responsiveness to security, information assurance, functional, and system requirements and with greater speed to capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: NTCSS (Naval Tactical Command Spt Sys)	4.455	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Maintenance and Supply Management Capability					
FY 2019 Plans: Acquisition activities continue under project 3620.					
FY 2020 Base Plans: N/A					
FY 2020 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	4.455	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3032 / *NTCSS (Naval Tactical Command Spt Sys)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/2611: *Naval Tactical Command Support System*	10.570	10.991	15.154	-	15.154	15.211	16.187	17.750	18.102	Continuing	Continuing

Remarks

D. Acquisition Strategy

NTCSS Open Architecture (OA), Global Individual Component Repair List (G-ICRL) and Beyond Capability of Maintenance Interdiction (BCM-I), and O-Supply serve as the initial steps toward achieving the NTCSS OA "End-State" by introducing web-enabled technology, promoting data sharing with operational fleet forces, and utilization of Navy Data Centers to expose data and move workload ashore. This strategy provides the foundation for NTCSS to migrate to a full service-oriented architecture-based enterprise system.

E. Performance Metrics

NTCSS Open Architecture (OA), G-ICRL and BCM-I, eliminate documentation inefficiencies at the Fleet Readiness Centers (FRCs). O-Supply (Table of Allowance & Personal Gear Issue (TOA/PGI) and Total Material Visibility & Requisition Management (TMV/RM) provide centralized and standardized management of PGI and TOA material through the utilization of Navy Data Centers. O-Supply prevents millions of dollars in operational forces obligation losses through improved requisition management. SOA lowers system maintenance costs when compared to maintaining the current, client-server architecture.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3032 / *NTCSS (Naval Tactical Command Spt Sys)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	SSC : North Charleston, SC	0.668	0.000		0.000		0.000		-		0.000	0.000	0.668	0.668
Systems Engineering	C/CPFF	SeaPort : San Diego, CA	3.748	0.200	Nov 2017	0.000		0.000		-		0.000	0.000	3.948	3.948
Systems Engineering	WR	SSC : San Diego, CA	0.892	0.000		0.000		0.000		-		0.000	0.000	0.892	-
Licenses	Various	SSC : San Diego, CA	0.700	0.100	Nov 2017	0.000		0.000		-		0.000	0.000	0.800	0.700
Software Development	C/CPFF	SSC : SSC: Norfolk, VA	68.900	0.480	Nov 2017	0.000		0.000		-		0.000	0.000	69.380	69.380
Software Development	C/CPFF	Various : San Diego, CA	7.812	0.971	Sep 2018	0.000		0.000		-		0.000	0.000	8.783	7.812
Software Development	C/CPFF	DTIC : Fort Belvoir, VA	1.592	0.000		0.000		0.000		-		0.000	0.000	1.592	-
Software Development	C/CPFF	GTRI : Atlanta, GA	2.083	0.000		0.000		0.000		-		0.000	0.000	2.083	-
Analysis of Alternatives	Various	SSC : San Diego, CA	2.055	0.830	Oct 2017	0.000		0.000		-		0.000	0.000	2.885	-
Detailed Business Process Re-engineering	Various	NAVAIR : Pax River, CA	0.862	0.924	Oct 2017	0.000		0.000		-		0.000	0.000	1.786	-
Integrated Logistics Support	C/CPFF	SeaPort : San Diego, CA	1.355	0.400	Nov 2017	0.000		0.000		-		0.000	0.000	1.755	1.755
Configuration Management	WR	SSC : San Diego, CA	0.460	0.050	Nov 2017	0.000		0.000		-		0.000	0.000	0.510	0.460
Technical Data	WR	SSC : San Diego, CA	0.200	0.050	Nov 2017	0.000		0.000		-		0.000	0.000	0.250	0.200
		Subtotal	91.327	4.005		0.000		0.000		-		0.000	0.000	95.332	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC : Patuxent River, MD	1.374	0.000		0.000		0.000		-		0.000	0.000	1.374	1.374
Developmental Test & Evaluation	WR	SPAWAR FRD : San Diego, CA	0.420	0.000		0.000		0.000		-		0.000	0.000	0.420	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3032 / *NTCSS (Naval Tactical Command Spt Sys)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation Cyber	WR	SSC : San Diego, CA	1.426	0.200	Nov 2017	0.000		0.000		-		0.000	0.000	1.626	1.626
Developmental Test & Evaluation	WR	NAVSUP : Mechanicsburg, PA	0.000	0.050	Nov 2017	0.000		0.000		-		0.000	0.000	0.050	-
		Subtotal	3.220	0.250		0.000		0.000		-		0.000	0.000	3.470	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPFF	SeaPort : San Diego, CA	0.896	0.000		0.000		0.000		-		0.000	0.000	0.896	0.896
Government Engineering Support	WR	SSC : San Diego, CA	0.279	0.000		0.000		0.000		-		0.000	0.000	0.279	0.279
Program Management Support	C/CPFF	SeaPort : San Diego, CA	2.183	0.200	Nov 2017	0.000		0.000		-		0.000	0.000	2.383	2.383
		Subtotal	3.358	0.200		0.000		0.000		-		0.000	0.000	3.558	N/A

	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	97.905	4.455		0.000		0.000		-		0.000	0.000	102.360	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		**Date:** March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3032 / *NTCSS (Naval Tactical Command Spt Sys)*

Fiscal Year	2018				2019				2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones NTCSS Open Architecture (OA)		**Rel 1/2 FD** △					**Rel 3 FD** △																					
Engineering Milestones NTCSS OA Release 1 BCM-Interdiction																												
NTCSS OA Release 2 Global ICRL																												
NTCSS OA Release 3 Operational Supply (TOA/PGI)					**TRR RRR** △																							
NTCSS Web-Enabled (RSUP/OIMA/OOMA)																												
Test & Evaluation Milestones NTCSS OA	**Rel 1/2 DT** △					**Rel 3 DT** △																						
Software Deliveries NTCSS OA		**Rel 1/2** △					**Rel 3** △																					
NTCSS Web-Enabled																												

DT - Developmental Test
FD - Field Decision
OT - Operational Test
RRR - Release Readiness Review
TRR - Test Readiness Review

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3032 / *NTCSS (Naval Tactical Command Spt Sys)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3032				
NTCSS OA Build 1 - Development Test (DT)	1	2018	1	2018
NTCSS OA Build 2 - Development Test (DT)	1	2018	1	2018
NTCSS OA Build 1 - Field Decision	2	2018	2	2018
NTCSS OA Build 2 - Field Decision	2	2018	2	2018
NTCSS OA Build 1 - Software Delivery	2	2018	2	2018
NTCSS OA Build 2 - Software Delivery	2	2018	2	2018
NTCSS OA Build 3 - Test Readiness Review (TRR)	1	2019	1	2019
NTCSS OA Build 3 - Release Readiness Review (RRR)	1	2019	1	2019
NTCSS OA Build 3 - Development Test (DT)	2	2019	2	2019
NTCSS OA Build 3 - Field Decision	3	2019	3	2019
NTCSS OA Build 3 - Software Delivery	3	2019	3	2019

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 3050 / *Deployable JT Command and Control*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
3050: *Deployable JT Command and Control*	0.000	0.000	0.000	3.159	-	3.159	3.225	3.299	3.363	3.431	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding has been realigned into PE 0604231N from PE 0607700N Project 3050 as part of RDTEN PE Consolidation starting in FY20. There are no New Starts associated with this realignment. All budgeted efforts have been previously approved.

A. Mission Description and Budget Item Justification

Deployable Joint Command and Control (DJC2) provides a self-contained, standardized, rapidly deployable, modular, scalable, and reconfigurable joint command and control (C2) capability to designated Geographic Combatant Commands (GCCs). DJC2 is the materiel solution to Defense Planning Guidance that called for the development of standing Joint Task Forces (JTFs) with a deployable C2 capability. DJC2 will ensure that Joint Force Commanders (JFC) are equipped, as well as trained and organized, to carry out their C2 responsibilities. DJC2 provides GCCs and JFCs a mission critical, integrated family of systems with which to plan, control, coordinate, execute, and assess operations. It is designed to deploy rapidly, set up within hours, and quickly provide necessary C2 mission and collaboration functionality across the full spectrum of JTF operations. The DJC2 has also been deployed in support of Humanitarian Assistance and Disaster Relief (HA/DR) efforts. The capability is intended for all levels of conflict and will be reconfigurable to meet specific GCC and JTF mission requirements. This capability is interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces. Note that DJC2 is not a follow-on or replacement system for the Joint Global Command and Control Systems (GCCS-J); rather, DJC2 employs a GCCS in its suite of applications, ensuring interoperability with the worldwide-installed base of GCCS-J.

FY20 funding supports development of efforts for systems engineering, integration, and DJC2 Test Bed. Focus areas include development efforts of emerging cyber security technologies.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Systems Engineering & Integration	0.000	0.000	1.418	0.000	1.418
Articles:	-	-	-	-	-
FY 2019 Plans: FY19 Plans funded under PE 0607700N, Project 3050					
FY 2020 Base Plans: Continue to develop system enhancements in support of Information Assurance, Assured Command & Control, and Advanced Extremely High Frequency (A-EHF) voice and data solution to enhance Command & Control					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3050 / *Deployable JT Command and Control*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
capabilities in denied and degraded environments. Commence development efforts to incorporate Link 16, Virtual Secure Enclave, and Automated Network capabilities into DJC2. Continue efforts to a Mission Partner Environment (MPE) aligned common system architecture with Tactical Processing Node (TPN) capability via virtualized Software Defined Networks (SDN) with fine-grained application access and control. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY19 funding under PE 0607700N, Project 3050 was $1.398. Funding increase by $0.020M to $1.418M in FY20. Increase will support required testing and evaluation of system enhancements.					
Title: DJC2 RDT&E Test Bed ***Articles:*** ***FY 2019 Plans:*** FY19 Plans funded under PE 0607700N, Project 3050 ***FY 2020 Base Plans:*** Continue testing in support of enhanced Information Assurance to include Automated Cyber Security testing, automated system vulnerability patching download, and system micro-segmentation. Demonstrate Advanced Extremely High Frequency (A-EHF) voice and data solution to enhance Command & Control capabilities in denied and degraded environments. Demonstrate Link 16, Virtual Secure Enclave, and Automated Network capabilities. Demonstrate a Mission Partner Environment (MPE) aligned common system architecture with Tactical Processing Node (TPN) capability via virtualized Software Defined Networks (SDN) with fine-grained application access and control. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY19 funding under PE 0607700N, Project 3050 was $1.729. Funding increase by $0.012M to $1.741M in FY20. Increase will support required testing and evaluation of system enhancements.	0.000 -	0.000 -	1.741 -	0.000 -	1.741 -
Accomplishments/Planned Programs Subtotals	0.000	0.000	3.159	0.000	3.159

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3050 / *Deployable JT Command and Control*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN /2906: *DJC2*	2.934	2.666	5.860	-	5.860	2.293	2.068	2.110	2.152	Continuing	Continuing
• RDTEN/0607700N/3050: *DJC2*	3.093	3.127	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.054

Remarks

D. Acquisition Strategy

This RDT&E line supports an evolutionary acquisition strategy. The intent of this strategy is to: develop a system based upon a current understanding of joint requirements; rapidly field systems based upon those requirements; analyze operational utilization of the systems; and roll the results of the analysis into periodic upgrades of the systems to maintain currency and maximize operational effectiveness. Efforts include investigation of emerging technologies through study, development, and associated testing for feasibility of program insertion. The baseline configuration is based upon existing Command, Control, Communications, Computers, & Intelligence (C4I) systems, scaled to the Combatant Command level. The follow-on configurations will include newly developed capabilities based on emergent, joint requirements and operational feedback based upon utilization of earlier delivered systems. Ultimately, the goal is to perform quick and affordable integration of emergent transformational COTS and GOTS technologies in support of information warfare and overall efforts required to pace the threat. This is accomplished via technical analyses and engineering efforts associated with implementation of new technology to enable rapid introduction of new products and technology, prevent obsolescence, and end of support issues enhancements via incremental software & hardware upgrades delivered on annual build release

E. Performance Metrics

The Deployable Joint Command and Control (DJC2) program continues to identify, evaluate and test a minimum of 3 - 5 new technologies per year based on emergent / joint requirements for potential insertion into the DJC2 system upgrade plan.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 3050 / *Deployable JT Command and Control*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NSWC : PCD	0.000	0.000		0.000		0.440	Dec 2019	-		0.440	Continuing	Continuing	Continuing
Hardware/Software Development	C/CPAF	GTRI : Atlanta, GA	0.000	0.000		0.000		0.750	Dec 2019	-		0.750	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		1.190		-		1.190	Continuing	Continuing	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0607700N Project 3050

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Integration	WR	NSWC : PCD	0.000	0.000		0.000		0.411	Dec 2019	-		0.411	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		0.411		-		0.411	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test &	WR	NSWC : PCD	0.000	0.000		0.000		0.890	Dec 2019	-		0.890	Continuing	Continuing	Continuing
Operational Test &	WR	NSWC : PCD	0.000	0.000		0.000		0.500	Dec 2019	-		0.500	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		1.390		-		1.390	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		0.168	Dec 2019	-		0.168	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		0.168		-		0.168	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 3050 / *Deployable JT Command and Control*	

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		3.159		-		3.159	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3050 / *Deployable JT Command and Control*

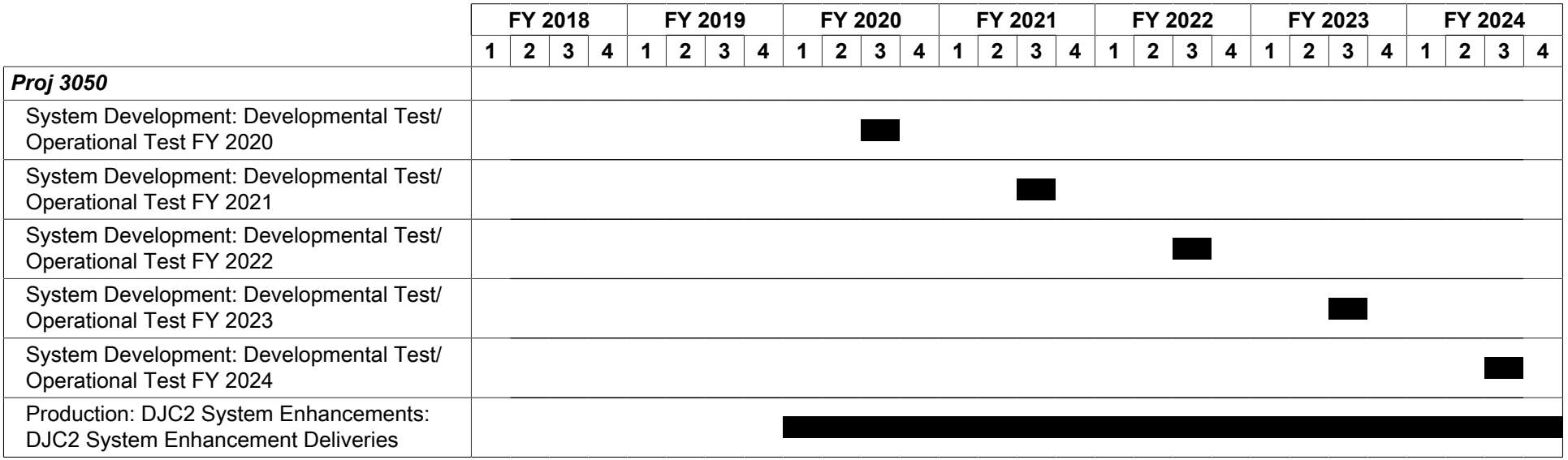


Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3050 / *Deployable JT Command and Control*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3050				
System Development: Developmental Test/Operational Test FY 2020	3	2020	3	2020
System Development: Developmental Test/Operational Test FY 2021	3	2021	3	2021
System Development: Developmental Test/Operational Test FY 2022	3	2022	3	2022
System Development: Developmental Test/Operational Test FY 2023	3	2023	3	2023
System Development: Developmental Test/Operational Test FY 2024	3	2024	3	2024
Production: DJC2 System Enhancements: DJC2 System Enhancement Deliveries	1	2020	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
3260: *Naval Operations Business Logistics Enterprise (NOBLE)*	0.000	12.656	34.491	38.366	-	38.366	32.249	14.276	6.346	6.480	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops and improves the Navy's tactical support information systems. It includes Naval Operational Supply System (NOSS), Naval Aviation Maintenance System (NAMS), Naval Operational Maintenance Enterprise (NOME), and Naval Administration and Personnel System (NAPS).

NOSS will provide enterprise-wide automation of supply, inventory, and financial functions to the Naval supply system. NOSS incorporates commercial best practices (e.g., Amazon, Wal-Mart, UPS, FedEx, etc.); NOSS will aggregate and analyze logistics data using business intelligence technologies, provide for total asset visibility, optimize business processes at the tactical echelon (field-level) and enterprise support activities, accelerate the ordering/re-ordering process, and permit monitoring of shipments. NOSS will maintain compliance with statutory, regulatory, and policy mandates of Financial Improvement Audit Requirements (FIAR). NOSS will aggregate and analyze operational data in a Business Intelligence (BI) framework to enable historical and predictive common operating pictures for logistics and readiness performance and requirements. FY2020 funding provides for the continuation of the Acquisition Testing & Development phase of software development culminating in obtaining Authority To Operate (ATO) accreditation and Functional Manager Certification (FMC).

NAMS will provide an enterprise-wide aviation maintenance support capability that services all levels of aviation maintenance (organizational, intermediate, and depot) for over 2,100 Navy and Marine Corps aircraft. NAMS will identify and assign aviation artisans, and track all levels of aviation maintenance to completion. Aircraft availability and mission-capable rates will increase with the elimination of current inefficiencies; there will be a reduction in total ownership costs. FY2020 funding provides for the continuation of the Acquisition Testing & Development phase of software development culminating in obtaining Authority To Operate (ATO) accreditation and Functional Manager Certification (FMC).

NOME will provide standardized operational business processes for afloat maritime maintenance activities to all naval ships. NOME will provide end-to-end component tracking, reduce administration time by identifying and assigning artisans to repair shipboard equipment, support moving major repair work ashore, and enable exploitation of embedded sensors in weapon systems that will trigger repair action notification. FY2020 funding provides for the continuation of the Acquisition Testing & Development phase of software development culminating in obtaining Authority To Operate (ATO) accreditation and Functional Manager Certification (FMC).

NAPS will provide Navy-wide personnel and administration data sharing across shipboard and shore-based information systems. This will eliminate redundant personnel data entry, reduce total ownership costs, and standardize the way personnel and administration data are shared across the Navy. NAPS provides for the efficient use of maintenance personnel with better job/task and personnel skill matching.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Naval Operational Supply System (NOSS)	8.506	17.572	17.436	0.000	17.436
Articles:	-	-	-	-	-
FY 2019 Plans: Award an OTA and conduct testing and evaluation of NOSS prototype to include testing supply functional requirements and establishment of a Department of the Navy (DON) commercial cloud computing environment and Integrated Data Environment. If the prototype is successful conduct an Acquisition Authority to Proceed (A-ATP) to support a production contract and commence the Acquisition Testing & Deployment phase for NOSS capabilities.					
FY 2020 Base Plans: Continue the Acquisition Testing & Deployment phase of NOSS software development to include, Test & Evaluation Master Plan (TEMP) development, Life Cycle Sustainment Planning, assess vulnerability to cyber attacks in support of obtaining an Authority To Operate (ATO) accreditation, validate production requirements, training development, conduct Application Integration testing in the Consolidated Afloat Network and Enterprise Services (CANES) and Agile Core Services (ACS) environment, and conduct Functional Manager Certification (FMC). Continue NOSS software development effort to develop/design an Integrated Data Environment (IDE), which will be leveraged by NAMS and NOME. NOSS will subsume 14 legacy applications and support approximately 1000 sites.					
FY 2020 OCO Plans: N/A					
FY 2019 to FY 2020 Increase/Decrease Statement: Increase in funding for NOSS due to ramp up in training development, and conduct Application Integration testing in the Consolidated Afloat Network and Enterprise Services (CANES) and Agile Core Services (ACS) environment.					
Title: Naval Aviation Maintenance System (NAMS)	4.150	7.359	11.090	0.000	11.090
Articles:	-	-	-	-	-
FY 2019 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Award an OTA and conduct testing and evaluation of NAMS prototype and if successful conduct an Acquisition Authority to Proceed (A-ATP) to support a production contract and commence the Acquisition Testing & Deployment phase for NAMS capabilities. ***FY 2020 Base Plans:*** Continue the Acquisition Testing & Deployment phase of NAMS software development to include, Test & Evaluation Master Plan (TEMP) development, Life Cycle Sustainment Planning, assess vulnerability to cyber attacks in support of obtaining an Authority To Operate (ATO) accreditation, validation of production requirements, training development, integration efforts with the Aviation Logistics Environment (ALE), conduct Application Integration testing in the Consolidated Afloat Network and Enterprise Services (CANES) and Agile Core Services (ACS) environment, and conduct Functional Manager Certification (FMC). NAMS will subsume 2 legacy applications and will support 338 sites. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase in funding for NAMS due to ramp up in training development, integration efforts with the Aviation Logistics Environment (ALE), and conducting Application Integration testing in the Consolidated Afloat Network and Enterprise Services (CANES) and Agile Core Services (ACS) environment.					
Title: Naval Operational Maintenance Enterprise (NOME) ***Articles:*** ***FY 2019 Plans:*** Prepare/develop acquisition documentation in support of a Request For Solution (RFS) and award of an Other Transaction Agreement (OTA) to prototype vendor software to meet NOME capability requirements. Conduct an Acquisition Authority to Proceed (A-ATP) to support a production contract and commence the Acquisition Testing & Deployment phase for NOME capabilities. ***FY 2020 Base Plans:*** Continue the Acquisition Testing & Deployment phase of NOME software development to include, Test & Evaluation Master Plan (TEMP) development, Life Cycle Sustainment Planning, assess vulnerability to cyber attacks in support of obtaining an Authority To Operate (ATO) accreditation, validate production requirements, training development, conduct Application	0.000 -	9.560 -	9.840 -	0.000 -	9.840 -

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Integration testing in the Consolidated Afloat Network and Enterprise Services (CANES) and Agile Core Services (ACS) environment, and conduct Functional Manager Certification (FMC). NOME will subsume 2 legacy applications and will support 260 sites. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase in funding for NOME due to ramp up in training development, and conducting Application Integration testing in the Consolidated Afloat Network and Enterprise Services (CANES) and Agile Core Services (ACS) environment.					
Accomplishments/Planned Programs Subtotals	12.656	34.491	38.366	0.000	38.366

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/2611: *Naval Tactical Command Support System*	10.570	10.991	15.154	-	15.154	15.211	16.187	17.750	18.102	Continuing	Continuing

Remarks

D. Acquisition Strategy

NOBLE will employ an evolutionary acquisition strategy. Software development will be comprised of multiple builds, each with increasing net-centric services capability. NOBLE is planned as a software-only program, dependent on the Navy Common Computing Environment (CCE). Hardware infrastructure will be provided by CANES, Integrated Shipboard Network System (ISNS), Navy Marine Corps Intranet (NMCI), Next Generation Enterprise Network (NGEN), OneNET (the OCONUS (outside of continental United States) network), and the Department of Navy commercial cloud computing environments. NOBLE's primary contracting method for software development will be competitive award.

E. Performance Metrics

Successfully achieve Acquisition Authority To Proceed (A-ATP) and Full Deployment ATP (FDATP) for NOSS, NAMS and NOME.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NOME Software Development	C/CPFF	PEO STRI : Orlando, FL	0.000	0.000		5.000	Dec 2018	4.590	Oct 2019	-		4.590	Continuing	Continuing	Continuing
NAMS Software Development	C/CPFF	PEO STRI : Orlando, FL	0.000	0.000		2.699	Dec 2018	5.840	Oct 2019	-		5.840	Continuing	Continuing	Continuing
NOSS Software Development	C/CPFF	PEO STRI : Orlando, FL	0.000	1.500	Sep 2018	11.912	Dec 2018	11.186	Oct 2019	-		11.186	Continuing	Continuing	Continuing
NOME System Engineering	WR	SPAWARSYSCEN LANT : Norfolk, VA	0.000	0.000		1.440	Dec 2018	1.500	Oct 2019	-		1.500	Continuing	Continuing	Continuing
NOSS System Engineering	WR	SPAWARSYSCEN LANT : Norfolk, VA	0.000	0.704	Oct 2017	1.440	Oct 2018	1.500	Oct 2019	-		1.500	Continuing	Continuing	Continuing
NOSS System Engineering	WR	USFFC : Norfolk, VA	0.000	0.746	Dec 2017	1.000	Dec 2018	1.000	Dec 2019	-		1.000	Continuing	Continuing	Continuing
NAMS Detailed BPR	C/CPFF	NAVAIR : Patuxent River, MD	0.000	0.849	Oct 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
NAMS System Engineering	WR	SPAWARSYSCEN LANT : Norfolk, VA	0.000	0.750	Oct 2017	1.440	Oct 2018	1.500	Oct 2019	-		1.500	Continuing	Continuing	Continuing
NAMS Analyis of Alternatives (AoA)	C/CPFF	SeaPort : San Diego, CA	0.000	0.537	Oct 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
NAMS Analyis of Alternatives (AoA)	C/CPFF	WHQS : Washington DC	0.000	0.539	Oct 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	5.625		24.931		27.116		-		27.116	Continuing	Continuing	N/A

Remarks

FY20 product development increase is due to increased software development and engineering efforts across the NOBLE portfolio.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NOME Developmental Test & Evaluation	WR	NAVSEA : Washington, D.C.	0.000	0.000		0.200	Dec 2018	0.250	Oct 2019	-		0.250	Continuing	Continuing	Continuing
NOME Operational Test & Evaluation	WR	COTF : Norfolk, VA	0.000	0.000		0.200	Mar 2019	0.250	Oct 2019	-		0.250	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NAMS Developmental Test & Evaluation	WR	NAVAIR : Patuxent River, MD	0.000	0.000		0.250	Oct 2018	0.250	Oct 2019	-		0.250	Continuing	Continuing	Continuing
NAMS Operational Test & Evaluation	WR	COTF : Norfolk, VA	0.000	0.000		0.250	Mar 2019	0.250	Oct 2019	-		0.250	Continuing	Continuing	Continuing
NOSS Developmental Test & Evaluation (Documentation)	WR	NAVSUP : Mechanicsburg, PA	0.000	0.250	Oct 2017	0.250	Oct 2018	0.250	Oct 2019	-		0.250	Continuing	Continuing	Continuing
NOSS Operational Test & Evaluation (Documentation)	WR	COTF : Norfolk, VA	0.000	0.250	Oct 2017	0.250	Mar 2019	0.250	Oct 2019	-		0.250	Continuing	Continuing	Continuing
		Subtotal	0.000	0.500		1.400		1.500		-		1.500	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NOME System Engineering Support	WR	SPAWARSYSCEN PAC : San Diego, CA	0.000	0.000		1.120	Dec 2018	1.500	Oct 2019	-		1.500	Continuing	Continuing	Continuing
NOSS System Engineering Support	WR	SPAWARSYSCEN PAC : San Diego, CA	0.000	1.390	Oct 2017	1.120	Oct 2018	1.500	Oct 2019	-		1.500	Continuing	Continuing	Continuing
NAMS System Engineering Support	WR	SPAWARSYSCEN PAC : San Diego, CA	0.000	0.250	Oct 2017	1.120	Oct 2018	1.500	Oct 2019	-		1.500	Continuing	Continuing	Continuing
NOSS Systems Engineering Support	C/CPFF	SeaPort : San Diego, CA	0.000	2.666	Oct 2017	0.600	Dec 2018	0.750	Oct 2019	-		0.750	Continuing	Continuing	Continuing
NAMS Systems Engineering Support	C/CPFF	SeaPort : San Diego, CA	0.000	0.225	Oct 2017	0.600	Dec 2018	0.750	Oct 2019	-		0.750	Continuing	Continuing	Continuing
NOME Systems Engineering Support	C/CPFF	SeaPort : San Diego, CA	0.000	0.000		0.600	Dec 2018	0.750	Oct 2019	-		0.750	Continuing	Continuing	Continuing
NOME Program Management Support	C/CPFF	SeaPort : San Diego, CA	0.000	0.000		1.000	Dec 2018	1.000	Oct 2019	-		1.000	Continuing	Continuing	Continuing
NOSS Program Management Support	C/CPFF	SeaPort : San Diego, CA	0.000	1.000	Nov 2017	1.000	Dec 2018	1.000	Oct 2019	-		1.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

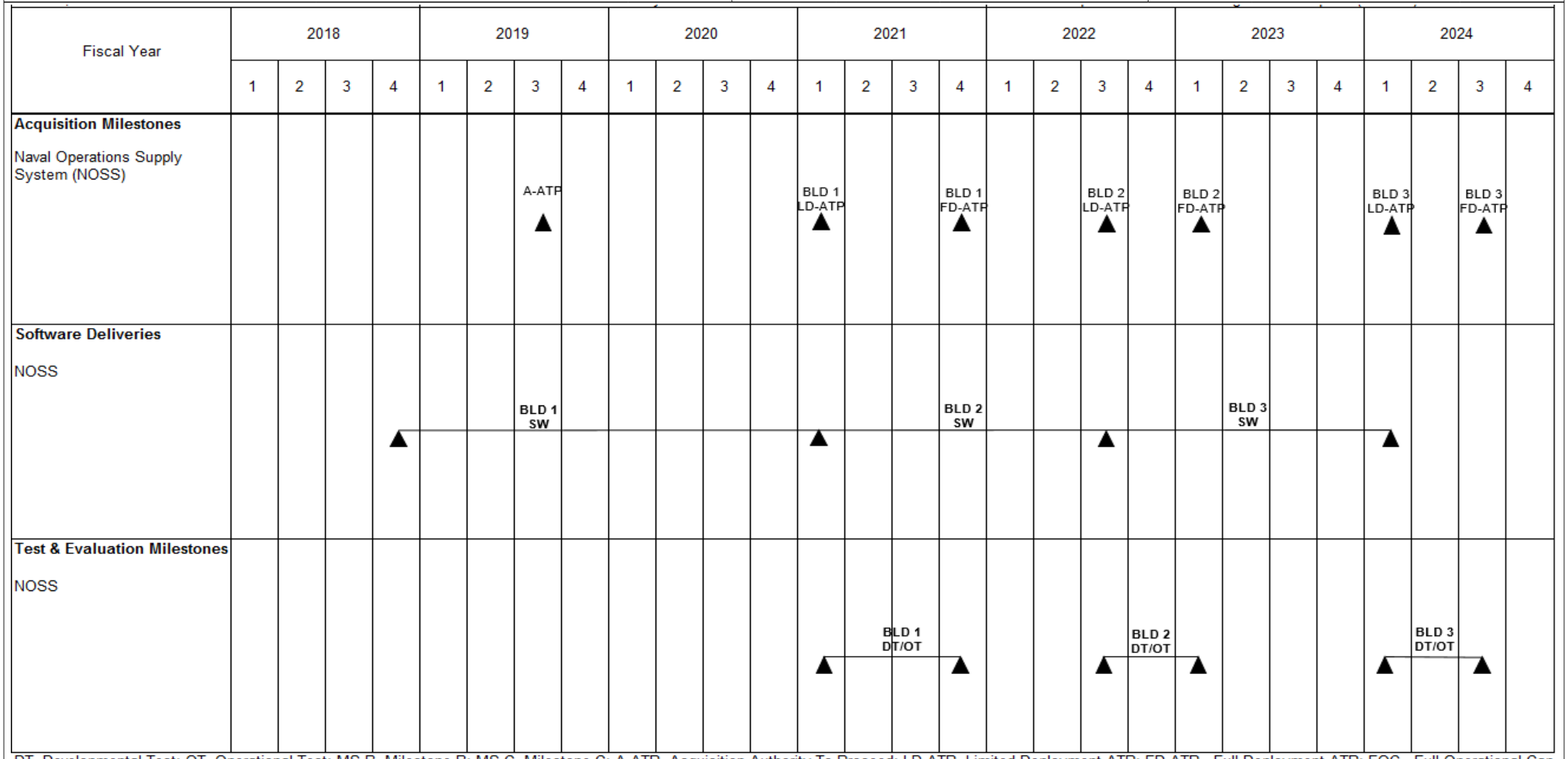
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NAMS Program Management Support	C/CPFF	SeaPort : San Diego, CA	0.000	1.000	Nov 2017	1.000	Dec 2018	1.000	Oct 2019	-		1.000	Continuing	Continuing	Continuing
		Subtotal	0.000	6.531		8.160		9.750		-		9.750	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	12.656		34.491		38.366		-		38.366	Continuing	Continuing	N/A

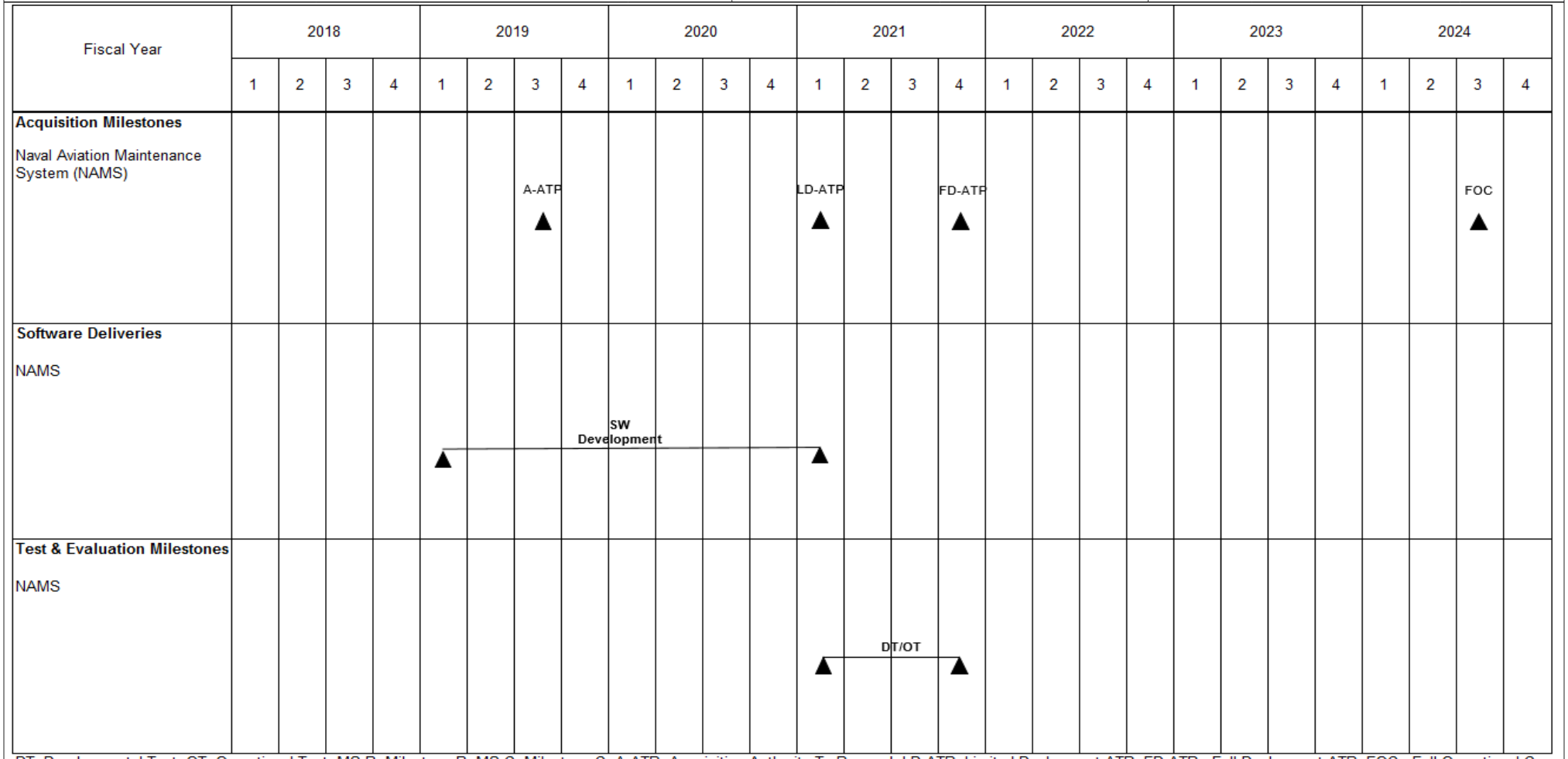
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*



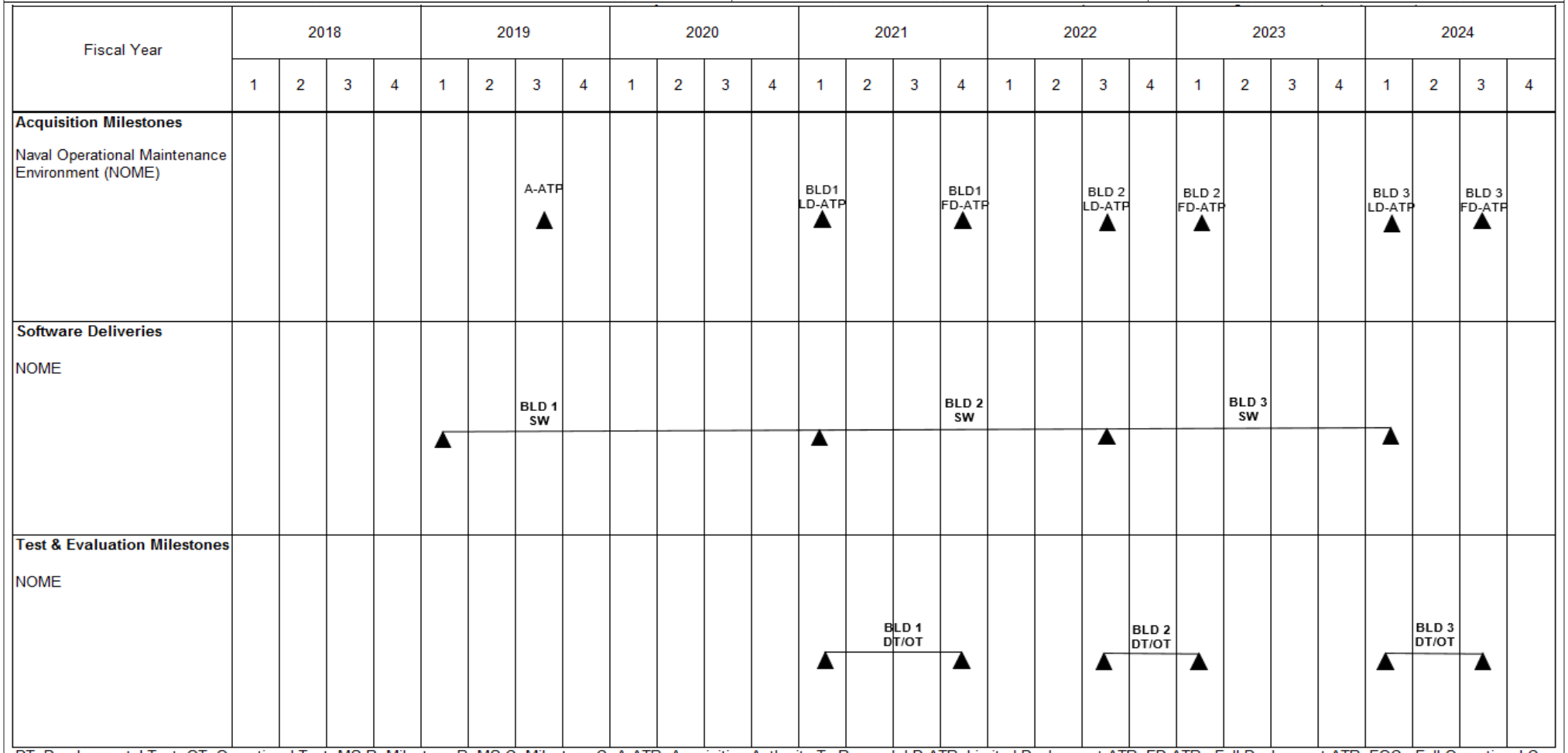
DT- Developmental Test; OT- Operational Test; MS B- Milestone B; MS C- Milestone C; A-ATP- Acquisition Authority To Proceed; LD-ATP- Limited Deployment ATP; FD ATP - Full Deployment ATP; FOC - Full Operational Cap

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*



DT- Developmental Test; OT- Operational Test; MS B- Milestone B; MS C- Milestone C; A-ATP- Acquisition Authority To Proceed; LD-ATP- Limited Deployment ATP; FD ATP - Full Deployment ATP; FOC - Full Operational Cap

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*



DT- Developmental Test; OT- Operational Test; MS B- Milestone B; MS C- Milestone C; A-ATP- Acquisition Authority To Proceed; LD-ATP- Limited Deployment ATP; FD ATP - Full Deployment ATP; FOC - Full Operational Cap

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3260				
Naval Operational Supply System (NOSS) Build 1 Software Development	4	2018	1	2021
Naval Operational Supply System (NOSS) Build 2 Software Development	1	2021	3	2022
Naval Operational Supply System (NOSS) Build 3 Software Development	3	2022	1	2024
Naval Operational Maintenance Enterprise (NOME) Build 1 Software Development	1	2019	1	2021
Naval Operational Maintenance Enterprise (NOME) Build 2 Software Development	1	2021	3	2022
Naval Operational Maintenance Enterprise (NOME) Build 3 Software Development	3	2022	1	2024
Naval Aviation Maintenance System (NAMS) Software Development	1	2019	1	2021
NOSS Acquisition Authority To Proceed (A-ATP)	3	2019	3	2019
NAMS Acquisition Authority To Proceed (A-ATP)	3	2019	3	2019
NOME Acquisition Authority To Proceed (A-ATP)	3	2019	3	2019
NOSS Build 1 Limited Deployment ATP	1	2021	1	2021
NOSS Build 2 Limited Deployment ATP	3	2022	3	2022
NOSS Build 3 Limited Deployment ATP	1	2024	1	2024
NAMS Limited Deployment ATP	1	2021	1	2021
NOME Build 1 Limited Deployment ATP	1	2021	1	2021
NOME Build 2 Limited Deployment ATP	3	2022	3	2022
NOME Build 3 Limited Deployment ATP	1	2024	1	2024
NOSS Build 1 Developmental Test/Operational Test (DT/OT)	1	2021	4	2021
NOSS Build 2 Developmental Test/Operational Test (DT/OT)	3	2022	1	2023
NOSS Build 3 Developmental Test/Operational Test (DT/OT)	1	2024	3	2024
NAMS Developmental Test/Operational Test (DT/OT)	1	2021	4	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
NOME Build 1 Developmental Test/Operational Test (DT/OT)	1	2021	4	2021
NOME Build 2 Developmental Test/Operational Test (DT/OT)	3	2022	1	2023
NOME Build 3 Developmental Test/Operational Test (DT/OT)	1	2024	3	2024
NOSS Build 1 Full Deployment ATP	4	2021	4	2021
NOSS Build 2 Full Deployment ATP	1	2023	1	2023
NOSS Build 3 Full Deployment ATP	3	2024	3	2024
NAMS Full Deployment ATP	4	2021	4	2021
NOME Build 1 Full Deployment ATP	4	2021	4	2021
NOME Build 2 Full Deployment ATP	1	2023	1	2023
NOME Build 3 Full Deployment ATP	3	2024	3	2024
NAMS Full Operational Capability (FOC)	3	2024	3	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 3323 / *Maritime Tactical Command & Control (MTC2)*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
3323: *Maritime Tactical Command & Control (MTC2)*	59.856	12.885	11.951	8.659	-	8.659	8.761	9.035	9.275	9.461	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Maritime Tactical Command and Control (MTC2) is a next generation Command and Control (C2) software program that will deliver Battle Management Aids (BMA) and Maritime Planning Tools (MPT) to dynamically plan, direct, monitor, and assess maritime operations in support of Joint, Multi-Service, and Coalition Force planning. MTC2 will leverage a System of Services (SoServ) to deliver capabilities improving decision speed and dynamic synchronization of forces. BMAs / MPTs are small, capability-focused deliveries that can be rapidly developed, tested, and fielded. MTC2 will leverage Science and Technology (S&T) investments and will engage with the Navy Requirements Governance Board (RGB) to define and prioritize the BMAs and MPTs that MTC2 will deliver and align to the Program Executive Office (PEO) Command, Control, Communications, and Intelligence (C4I) enterprise architecture (Consolidated Afloat Network Enterprise Service (CANES), Agile Core Services (ACS)) for fielding to all echelons of command (Afloat and Ashore) within the Navy. The program's objective is to provide a suite of maritime applications (BMAs / MPTs) that enable planning, execution, monitoring, and assessment in support of operational and tactical level of war requirements. MTC2 will field BMAs / MPTs designed to provide automated and structured support for tactical and operational planning, decision-making, and execution. As a software-only program that leverages enterprise infrastructure, MTC2 will provide new and improved capabilities to include an Operational Planning Tool (OPT), an improved browser enabled map visualization that will enable the warfighter to associate tracks to relevant data, past and predicted movements, ingest Meteorology and Oceanography information, and operational overlays. MTC2's updated architecture will enable future composable C2 capabilities to respond with a more rapid pace in changes in threats and technology. MTC2 is the Navy's solution to Global Force Management - Data Initiative (GFM-DI) which is Department of Defense (DoD) -wide enterprise solution that enables visibility/accessibility/ sharing of data applicable to the entire DoD force structure. MTC2 will incorporate distributed data transfer capability for enhanced operational data exchange between command and control systems, combat systems, logistics, and intelligence systems for timely threat identification, location, and status alongside blue force data.

FY 2020 funding will provide development, integration and testing, certification to include Risk Management Framework (RMF), and fielding of additional capabilities (BMAs / MPTs) and support the Navy's allocation requirement to the DoD Joint GFM effort on the MTC2 Secure Internet Protocol Router Network (SIPRNET) Development Environment. OPT will provide capability for a Carrier Strike Group (CSG) and be extended to include Maritime Operations Center (MOC) scheduling, to create cohesive operations plans/schedules. The Navy Wave BMA will provide collaborative service that allows users to see other distributed planners' edits in real-time, and works in disconnected, intermittent, and limited (DIL) environments. The MTC2 SIPRNET Development Environment will be available to fleet users to enable rapid, real-time feedback on improvements to BMAs / MPTs. MTC2 project prototype baseline comprised of OPT, Navy Wave BMAs / MPTs will be demonstrated at Trident Warrior (TW) 20. In FY 2020, MTC2 will begin to field OPT and Navy Wave capabilities to a Aircraft Carrier, Fixed Wing, Nuclear Powered (CVN) to achieve Initial Operational Capability (IOC) and will field GFM capability to meet the Navy's allocation requirement to support DoD Joint GFM.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Maritime Tactical Command and Control (MTC2)	12.885	11.951	8.659	0.000	8.659

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Articles:	-	-	-	-	-
FY 2019 Plans: MTC2 will deliver Ashore/Afloat prototype of the program of record capability to a Carrier Strike Group (CSG) and/or Maritime Operations Center (MOC); continue development to align to PEO C4I enterprise architecture (CANES / ACS). MTC2 will continue working with fleet users for development, integration, and testing for additional capabilities (BMAs / MPT) to include the Maintain Naval Force Status capability. MTC2 will develop, test, and integrate multiple data feeds and interfaces to summarize unit network and communication status, unit readiness, and unit equipment status. Data that is integrated into MTC2 will be displayed simultaneously in a capabilities and characteristics status display known as the "Baseball Card", which will require Human Factors Engineering (HFE) in addition to development, integration, and test. MTC2 will host fleet users in working sessions and incorporate HFE and development updates for BMA / MPT improvements. MTC2 will demonstrate capabilities at TW 19. MTC2 will continue integration and testing of Global Force Management - Data Initiative (GFM-DI) capabilities for transition into the MTC2 prototype software baseline for fielding. MTC2 was selected as the Navy's Program of Record (PoR) system to support the "National Defense Authorization Act (NDAA) FY18 Section (SEC) 874 Software Development Pilot Program Using Agile Best Practices" with the results of the pilot to enable the Department of Defense (DoD) to capture lessons learned; identify and eliminate road blocks; and inform policy, guidance, training, and workforce development. The pilot will focus on the GFM-DI capability related to the scheduling of Naval group compositions, such as CSG or (Amphibious Ready Group) ARG. MTC2 will leverage agile development best practices for this effort with an initial delivery to United States Fleet Forces (USFF). MTC2 will collect user feedback which will be added to the PoR backlog to be incorporated into future software releases.					
FY 2020 Base Plans: MTC2 will begin initial fielding Ashore/Afloat of the Program of Record (PoR) capability to a Carrier Strike Group (CSG) and/or Maritime Operations Center (MOC); continue development aligned to Program Executive Office (PEO) Command, Control, Communications, and Intelligence (C4I) enterprise architecture (CANES / ACS) updates, changes and modifications. MTC2 will continue to receive feedback from fleet users for development, integration, and testing of additional capabilities/enhancements (Battle Management Aids (BMAs) / Maritime Planning Tools (MPT)) to inform the annual build decision. MTC2 will develop, test, and integrate additional data feeds and interfaces as needed for machine-to-machine planning. Data feeds integrated into MTC2 will be displayed seamlessly on a single display for fleet users which will require ongoing Human Factors Engineering (HFE) in addition to development, integration, and test. MTC2 will continue to host fleet users in working sessions and incorporate HFE and development updates for BMA / MPT improvements. MTC2 will					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
target demonstrations of capabilities at Trident Warrior (TW) 20. MTC2 will continue integration and testing of Global Force Management - Data Initiative (GFM-DI) capabilities for transition into the MTC2 software baseline for fielding. Annual Delivery 2 (Capability Drop 2) was defined in the MTC2 Requirements Governance Board (RGB) Prioritized Focus Areas (signed 16 March 2018) to provide Navy Dynamic Organization to Joint Global Force Management (GFM) community. This capability drop has been accelerated to meet the Joint Global Force Management - Data Initiative (GFM-DI) Allocation mandate to Full Operational Capability (FOC) by FY 2020. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2019 to FY 2020 funding for MTC2 decreases due to direction to align to the new program scope per the Strategic Shift Memo from the Office of the Chief of Naval Operations (OPNAV) dated 28 November 2016.					
Accomplishments/Planned Programs Subtotals	12.885	11.951	8.659	0.000	8.659

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

MTC2 acquisition strategy will align to DoDI 5000.02 Model 3 Incrementally Deployed Software Intensive Program. MTC2 will execute an agile software development acquisition strategy that is responsive to the fleet needs. Instead of a single Milestone C, software development will be comprised of multiple software releases defined by Capability Drops (CDs) of increasing levels of net-centric services capability, with separate Annual Build Decisions. MTC2 will be software only requiring the information technology infrastructure network and hardware provided by other network centric programs. MTC2's primary contracting method for software development will utilize Space and Naval Warfare (SPAWAR) Systems Command contracts. SPAWAR Systems Center - Pacific (SSC-PAC), San Diego, CA will be the designated Software Support Activity (SSA).

E. Performance Metrics

MTC2 will implement the complementary Integrated Product Controls (IPC) and Agile Metrics to measure progress against the plan with SSC PAC as approved during Milestone B in FY 2018.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 3323 / *Maritime Tactical Command & Control (MTC2)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	SSC : San Diego, CA	9.817	0.996	Dec 2017	2.909	Dec 2018	1.006	Dec 2019	-		1.006	Continuing	Continuing	Continuing
Training Development	WR	SSC : San Diego, CA	1.940	0.000		0.078	Dec 2018	0.058	Dec 2019	-		0.058	Continuing	Continuing	Continuing
Integration, Assembly & Test	WR	SSC : San Diego, CA	26.649	1.147	Dec 2017	3.009	Dec 2018	0.775	Dec 2019	-		0.775	Continuing	Continuing	Continuing
Studies & Design	MIPR	Various : Various	1.764	0.000		0.000		0.000		-		0.000	0.000	1.764	1.764
Systems Engineering	C/CPFF	Various : Various	12.287	1.066	Dec 2017	1.855	Dec 2018	1.312	Dec 2019	-		1.312	Continuing	Continuing	Continuing
Software Development	WR	SSC : San Diego, CA	1.384	9.546	Dec 2017	3.139	Dec 2018	4.936	Dec 2019	-		4.936	Continuing	Continuing	Continuing
		Subtotal	53.841	12.755		10.990		8.087		-		8.087	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	SSC : Norfolk, VA/ San Diego, CA	0.135	0.063	Dec 2017	0.078	Dec 2018	0.048	Dec 2019	-		0.048	Continuing	Continuing	Continuing
Integrated Logistics Support	C/CPFF	SeaPort : San Diego, CA	0.061	0.017	Dec 2017	0.148	Dec 2018	0.121	Dec 2019	-		0.121	Continuing	Continuing	Continuing
		Subtotal	0.196	0.080		0.226		0.169		-		0.169	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	SeaPort : San Diego, CA	4.331	0.050	Dec 2017	0.735	Dec 2018	0.403	Dec 2019	-		0.403	Continuing	Continuing	Continuing
Management Services Prior Year	Various	Various : Various	1.488	0.000		0.000		0.000		-		0.000	0.000	1.488	-
		Subtotal	5.819	0.050		0.735		0.403		-		0.403	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 3323 / *Maritime Tactical Command & Control (MTC2)*	

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	59.856	12.885		11.951		8.659		-		8.659	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

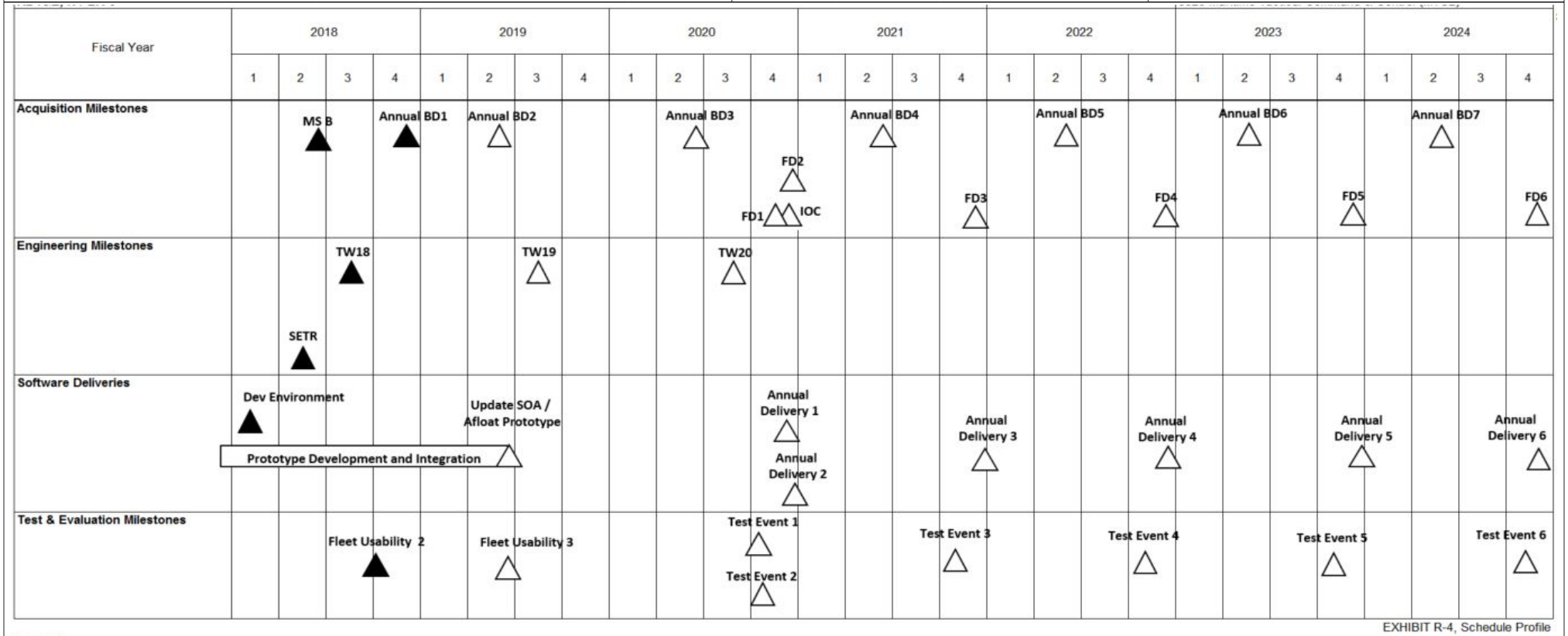


EXHIBIT R-4, Schedule Profile

Legend:

BD - Build Decision
Dev - Development
FD - Field Decision
IOC - Initial Operational Capability
MS - Milestone
SETR - Systems Engineering Technical Review
SOA - Service Oriented Architecture
TW - Trident Warrior

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3323				
Prototype Development and Integration	1	2018	2	2019
Development Environment	1	2018	1	2018
System Engineering Technical Review (SETR)	2	2018	2	2018
Milestone B	2	2018	2	2018
Trident Warrior Fiscal Year 2018 (TW)	3	2018	3	2018
Fleet Usability 2	4	2018	4	2018
Annual Build Decision (BD) 1	4	2018	4	2018
Annual Build Decision (BD) 2	2	2019	2	2019
Update Service Oriented Architecture (SOA) / Afloat Prototype	2	2019	2	2019
Fleet Usability 3	2	2019	2	2019
Trident Warrior Fiscal Year 2019 (TW)	3	2019	3	2019
Annual Build Decision (BD) 3	2	2020	2	2020
Trident Warrior Fiscal Year 2020 (TW)	3	2020	3	2020
Test Event 1	4	2020	4	2020
Test Event 2	4	2020	4	2020
Fielding Decision (FD) 1	4	2020	4	2020
Annual Delivery 1	4	2020	4	2020
Initial Operational Capability (IOC)	4	2020	4	2020
Fielding Decision (FD) 2	4	2020	4	2020
Annual Delivery 2	4	2020	4	2020
Annual Build Decision (BD) 4	2	2021	2	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test Event 3	4	2021	4	2021
Fielding Decision (FD) 3	4	2021	4	2021
Annual Delivery 3	4	2021	4	2021
Annual Build Decision (BD) 5	2	2022	2	2022
Test Event 4	4	2022	4	2022
Fielding Decision (FD) 4	4	2022	4	2022
Annual Delivery 4	4	2022	4	2022
Annual Build Decision (BD) 6	2	2023	2	2023
Test Event 5	4	2023	4	2023
Fielding Decision (FD) 5	4	2023	4	2023
Annual Delivery 5	4	2023	4	2023
Annual Build Decision (BD) 7	2	2024	2	2024
Test Event 6	4	2024	4	2024
Annual Delivery 6	4	2024	4	2024
Fielding Decision (FD) 6	4	2024	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 3324 / *Navy Air Operations Command and Control (NAOC2)*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
3324: *Navy Air Operations Command and Control (NAOC2)*	14.044	0.831	1.004	0.708	-	0.708	0.514	0.744	0.759	0.774	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Navy Air Operations Command and Control (NAOC2): NAOC2 integrates and tests Air Force program of record systems that provide an integrated and scalable planning system for standardized, secure, and automated decision support for Air Force, Joint, and Allied commanders worldwide. These programs provide automated air operations planning, execution management and intelligence capabilities at the Force level to include fleet commanders, numbered fleet commanders, Commander Carrier Strike Groups, Commander Expeditionary Strike Groups, Commander Landing Forces, and Joint Task Force Commanders. NAOC2 includes Theater Battle Management Core System (TBMCS) and Command and Control Air Operations Suite - Command and Control Information Services (C2AOS-C2IS). C2AOS-C2IS is comprised of multiple projects incorporated into three Capability Packages (CPs) and will deploy to a Service Oriented Architecture (SOA) enterprise environment that aligns with the Joint C2 Reference Architecture (JC2RA) such as Consolidated Afloat Networks and Enterprise Services (CANES). C2AOS-C2IS is not natively compatible with Navy Information Technology (IT) infrastructure, such as CANES, and requires a significant level of system integration. Continuation of Navy integration and test efforts will significantly enhance the ability of the Joint Force Air Component Commander and Combined Air Operations Center personnel to plan daily air operations including strike, airlift, offensive/defensive air, missile defense, and refueling missions in support of combat operations. Developmental Testing of the C2AOS-C2IS program will be continued for new technology insertion into Navy infrastructure network and hardware in support of Naval Air C2 and Net Enabled Weapons system integration. C2AOS-C2IS addresses the requirement of war fighter distributed planning and execution processes along with significantly improving Joint interoperability. TBMCS continues a hardware transition to CANES. Currently, TBMCS is the key system that is used to conduct real world air planning in the Joint and Navy environments. C2AOS-C2IS will replace TBMCS while bringing more flexibility to the war fighter. In FY 2020, the program will continue Navy CANES integration/ testing for Air Force developed C2AOS-C2IS CPs and Command and Control Software Baseline (C2SB), and support Navy operational test agency execution during multi-service test events.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Command and Control Air and Space Operations Suite - Command and Control Information Services (C2AOS-C2IS) Integration and Testing	0.831	1.004	0.708	0.000	0.708
Articles:	-	-	-	-	-
FY 2019 Plans: Conduct application integration, produce installation documentation, and execute testing of Command and Control Air and Space Operations Suite - Command and Control Information Services (C2AOS-C2IS) Capability Packages (CPs) and Command and Control Software Baseline (C2SB) within a Consolidated Afloat Networks and Enterprise Services (CANES) System Integration Test (SIT) event. Continue Multi-Service Operational Test					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
and Evaluation (MOT&E) preparatory testing to ensure product compatibility with Navy infrastructure and allow execution of MOT&E. Support operational test agency execution of MOT&E at the Maritime Operations Center (MOC). ***FY 2020 Base Plans:*** Conduct Operational Testing onboard a U.S. Navy asset to support the joint MOT&E and inform Navy afloat fielding decision, as well as integration and test activities for C2AOS-C2IS in preparation for fielding and Initial Operational Capability in FY 2020. The MOT&E activities include conducting the following Test and Evaluation (T&E) activities: Integration and Developmental Testing of CP1 - CP3 and C2SB in Two (2) Application Integration (AI) SITs, an Operational and Cyber Test in AI SIT 10, and a shipboard Initial Operation Test & Evaluation (IOT&E) and cyber test event. C2AOS-C2IS will commence transition and development of Airspace Management Application/Airspace Information service (ASMA-ASIS) as a Battle Management Aid (BMA), that will deliver performance at the speed of relevance for Command, Control, Communication, Computers, Information, Surveillance, Reconnaissance (C4ISR) and enhance joint lethality in contested environments. Furthermore, it will improve combat readiness with an intuitive user interface. Additionally, C2AOS-C2IS will develop and integrate Global Command and Control System - Joint (GCCS-J) 6.0 baseline to support Modernized Integrated Database (MIDB) capability. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** RDTE funding decrease in FY 2020 due to a reduction in testing efforts and initiation of C2AOS-C2IS simultaneous fielding.					
Accomplishments/Planned Programs Subtotals	0.831	1.004	0.708	0.000	0.708

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Theater Battle Management Core System (TBMCS) and Command and Control Air Operations Suite - Command and Control Information Services (C2AOS-C2IS) are designed, developed, and delivered by the Air Force and will be integrated for a Navy Common Computing Environment (CCE) such as Consolidated Afloat Network

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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and Enterprise Services (CANES). As a Joint interest program, this approach satisfies the current validated requirements, supports the accelerated retirement of legacy hardware, and reduces overall risk to the program.

E. Performance Metrics

Theater Battle Management Core System (TBMCS) and Command and Control Air Operations Suite - Command and Control Information Services (C2AOS-C2IS) are designed, developed, and delivered by the Air Force. This leverage reduces integration and testing costs associated with each capability module. The solutions will reside on Navy Common Computing Environment (CCE)/Consolidated Afloat Network and Enterprise Services (CANES) architecture. These software-only solutions eliminate hardware procurement, installation, and reduce sustainment costs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 3324 / *Navy Air Operations Command and Control (NAOC2)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering/ Training DevelopmentText/ Configuration Management	WR	SSC Pacific : San Diego, CA	3.766	0.050	Jan 2018	0.083	Nov 2018	0.058	Nov 2019	-		0.058	Continuing	Continuing	Continuing
Integration and Testing	WR	SSC Pacific : San Diego, CA	3.122	0.764	Jan 2018	0.737	Nov 2018	0.520	Nov 2019	-		0.520	Continuing	Continuing	Continuing
NAOC2 Product Development	Various	VARIOUS : VARIOUS	2.512	0.000		0.000		0.000		-		0.000	0.000	2.512	2.512
		Subtotal	9.400	0.814		0.820		0.578		-		0.578	Continuing	Continuing	N/A

Remarks

RDTE product development efforts decrease in FY 2020 due to a reduction in testing efforts and initiation of C2AOS-C2IS simultaneous fielding.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development/ILS Support	WR	VARIOUS : VARIOUS	0.538	0.000		0.000		0.000		-		0.000	0.000	0.538	0.538
		Subtotal	0.538	0.000		0.000		0.000		-		0.000	0.000	0.538	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	MIPR	COMOPTEVFOR : Norfolk, VA	0.387	0.017	Dec 2017	0.184	Nov 2018	0.130	Nov 2019	-		0.130	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	SSC Pacific : San Diego, CA	2.651	0.000		0.000		0.000		-		0.000	0.000	2.651	2.340
		Subtotal	3.038	0.017		0.184		0.130		-		0.130	Continuing	Continuing	N/A

Remarks

FY 2020 RDTE test and evaluation efforts to support Multi-Service Operational Test & Evaluation (MOT&E) (OT Phase 2).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
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Management Services ($ in Millions)

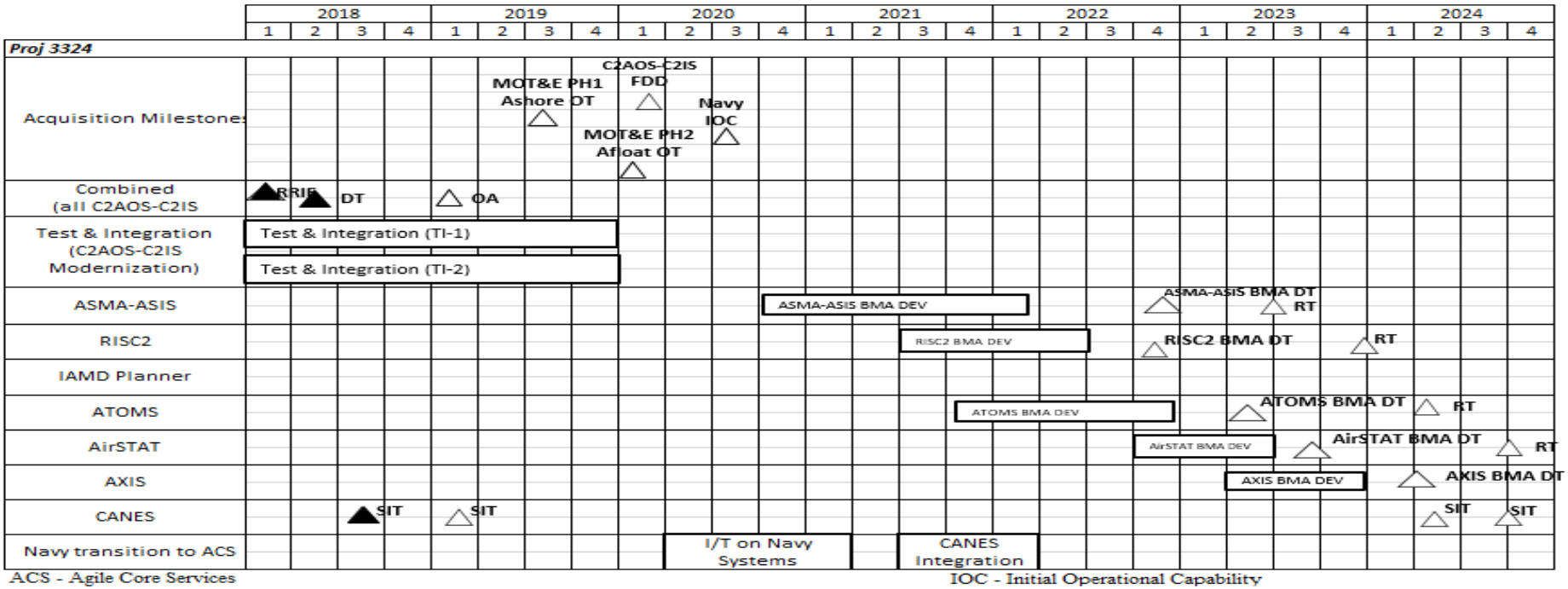
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering and Program Management Support	C/CPFF	Various : San Diego, CA	1.068	0.000		0.000		0.000		-		0.000	0.000	1.068	1.068
		Subtotal	1.068	0.000		0.000		0.000		-		0.000	0.000	1.068	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	14.044	0.831		1.004		0.708		-		0.708	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3324 / *Navy Air Operations Command and Control (NAOC2)*

Exhibit R-4, RDT&E Schedule Profile: BES 2020 Navy		Date: August 2018
Appropriation/Budget 1319 / 05	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3324 / *Navy Air Operations Command and Control (NAOC2)*



ACS - Agile Core Services
AirSTAT - Air Status *[CP-1 project]*
ASMA-ASIS - Airspace Management Application/Airspace Information service *[CP-2 project]*
ATOMS - Air Tasking Order Management System *[CP-1 project]*
AXIS - Air Execution Information System *[CP-3 project]*
BMA - Battle Management Aid
C2AOS-C2IS - Command and Control Air Operations Suite - Command and Control Information Services
CANES - Consolidated Afloat Network and Enterprise Services
CP - Capability Package
DEV - Development
DT - Developmental Test
FDD - Full Deployment Decision
IOC - Initial Operational Capability
I/T - Integration and Testing
IAMD - Integrated Air and Missile Defense *[CP-2 project]*
MOT&E - Multi-Service Operational Test & Evaluation
OA - Operational Assessment
OT - Operational Test
PH - Phase
RISC2 - Request Information Services for Command and Control *[CP-1 project]*
RRIE - Risk Reduction Integration Event
RT - Regression Test
SIT - System Integration Test
TI - Test and Integration

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3324 / *Navy Air Operations Command and Control (NAOC2)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3324				
Combined Command and Control Air Operations Suite - Command and Control Information Services (C2AOS-C2IS) Risk Reduction Integration Event (RRIE)	1	2018	1	2018
C2AOS-C2IS Modernization Test & Integration (TI-1)	1	2018	4	2019
C2AOS-C2IS Modernization Test & Integration (TI-2)	1	2018	4	2019
Combined C2AOS-C2IS Developmental Test (DT)	2	2018	2	2018
Consolidated Afloat Network and Enterprise Services (CANES) System Integration Test (SIT) FY 2018	3	2018	3	2018
CANES SIT FY 2019	1	2019	1	2019
Operational Assessment (OA)	1	2019	1	2019
Multi-Service Operational Test & Evaluation (MOT&E) (OT Phase 1)	3	2019	3	2019
MOT&E (OT Phase 2)	1	2020	1	2020
C2AOS-C2IS Full Deployment Decision (FDD)	1	2020	1	2020
Integration and Testing (I/T) on Navy Systems	2	2020	1	2021
Navy Initial Operational Capability (IOC)	3	2020	3	2020
Airspace Management Application/Airspace Information service (ASMA-ASIS) Battle Management Aid (BMA) Development (Dev)	4	2020	1	2022
Request Information Services for Command and Control (RISC2) BMA Dev	3	2021	2	2022
CANES Integration	3	2021	1	2022
Air Tasking Order Management System (ATOMS) BMA Dev	4	2021	4	2022
ASMA-ASIS BMA DT	4	2022	4	2022
RISC2 BMA DT	4	2022	4	2022
Air Status (AirSTAT) BMA Dev	4	2022	2	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 3324 / *Navy Air Operations Command and Control (NAOC2)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AXIS BMA Dev	2	2023	4	2023
ASMA-ASIS Regression Test (RT)	2	2023	3	2023
ATOMS BMA DT	2	2023	2	2023
AirSTAT BMA DT	3	2023	4	2023
RISC2 RT	4	2023	1	2024
AXIS BMA DT	1	2024	2	2024
ATOMS RT	2	2024	2	2024
CANES SIT FY 2024 (I)	2	2024	2	2024
AirSTAT RT	3	2024	4	2024
CANES SIT FY 2024 (II)	3	2024	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*				Project (Number/Name) 9123 / *FORCEnet*			
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
9123: *FORCEnet*	239.828	2.002	2.209	2.179	-	2.179	2.221	2.268	2.312	2.359	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

FORCEnet is the Navy and Marine Corps initiative to deliver Information Warfare (IW) and achieve Department of the Navy (DoN)/Department of Defense (DoD) Transformation, Joint/Allied/Coalition Interoperability, implementing Maritime Domain Awareness (MDA), and Net-Centric Operations/Warfare (NCO/W). Chief of Naval Operations (CNO) IW effort focuses prioritization and organizational responsibility for IW, cyber, intelligence and sensors resulting in increased scope of systems, platforms and mission areas. FORCEnet is a foundation of Sea Power 21, Naval Power 21, which is the Naval Operating Concept (NOC) for Joint Operations, and the DoN's Naval Transformation Roadmap.

Funding supports IW Portfolio Health Assessments (PHAs) of Navy mission areas and identifies gaps in IW capabilities in the context of assessed mission areas. Funds support vignettes, technical baselines, architecture products, and briefings developed to support sponsor decision making processes.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**
Title: FORCEnet	2.002	2.209	2.179	0.000	2.179
Articles:	-	-	-	-	-
FY 2019 Plans: -Continue to expand upon SoS mission engineering analyses and ongoing experimentation to iteratively mature the findings and outcomes, while increasing the support to a development of a Limited Operational Capability. -Continue to utilize and study Navy mission areas in support of System of Systems (SoS) engineering assessments identifying integration and interoperability gaps, trades, and solutions for sponsor related equities. -Continue to identify Navy mission area gaps in Information Warfare (IW) capabilities to prioritize Science and Technology (S&T) efforts for future budget decisions. Continue to identify critical architectural dependencies that enable mission situational awareness, which is a key component of the Portfolio Health Assessments (PHAs). -Continue to assess tradespace and solutions, ensuring Force level capability and SoS integration and interoperability in studied mission areas. -Continue to package assessments to support sponsor decision-making processes.					
FY 2020 Base Plans: -Continue to expand upon SoS mission engineering analyses and ongoing experimentation to iteratively mature the findings and outcomes, while increasing the support to a development of a Limited Operational Capability. -Continue to utilize and study Navy mission areas in support of System of Systems (SoS) engineering assessments identifying integration and interoperability gaps, trades, and solutions for sponsor related equities.					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 9123 / *FORCEnet*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
-Continue to identify Navy mission area gaps in Information Warfare (IW) capabilities to prioritize Science and Technology (S&T) efforts for future budget decisions. Continue to identify critical architectural dependencies that enable mission situational awareness, which is a key component of the Portfolio Health Assessments (PHAs). -Continue to assess tradespace and solutions, ensuring Force level capability and SoS integration and interoperability in studied mission areas. -Continue to package assessments to support sponsor decision-making processes. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** The $30K decrease to FORCEnet is attributed to efficiencies identified while assessing Information Warfare capability/Science and Technology gaps in the context of assessed mission areas.					
Accomplishments/Planned Programs Subtotals	2.002	2.209	2.179	0.000	2.179

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

FORCEnet is a non-acquisition effort that informs and matures Navy decisions, which in turn impacts acquisition programs. Activities include acquiring intellectual capital in emerging technical areas through contracts providing technical engineering expertise and surge capacity for emerging tasks.

E. Performance Metrics

Goal: Chief of Naval Operations (CNO) strategic planning and supporting acquisition of classified efforts.
Metric: Echelon I response to emergent strategic needs and classified warfighting capability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 9123 / *FORCEnet*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development and Systems Engineering	Various	Various : Various	4.331	0.000		0.000		0.000		-		0.000	0.000	4.331	-
		Subtotal	4.331	0.000		0.000		0.000		-		0.000	0.000	4.331	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development and Logistics Support	Various	Various : Various	136.842	0.000		0.000		0.000		-		0.000	0.000	136.842	-
Information Warfare Roadmaps and Analysis	C/CPFF	SAIC : McLean, VA	10.695	1.504	Mar 2018	1.712	Mar 2019	1.677	Mar 2020	-		1.677	Continuing	Continuing	Continuing
Information Warfare Roadmaps and Analysis	WR	SSC LANT : Charleston, NC	2.545	0.309	Mar 2018	0.497	Mar 2019	0.502	Mar 2020	-		0.502	Continuing	Continuing	Continuing
Information Warfare Roadmaps and Analysis	C/CPFF	BAH : McLean, VA	0.462	0.189	Mar 2018	0.000		0.000		-		0.000	0.000	0.651	-
		Subtotal	150.544	2.002		2.209		2.179		-		2.179	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Accelerating Joint Warfighting Capability	Various	Various : Various	77.271	0.000		0.000		0.000		-		0.000	0.000	77.271	-
		Subtotal	77.271	0.000		0.000		0.000		-		0.000	0.000	77.271	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Support	Various	Various : Various	7.682	0.000		0.000		0.000		-		0.000	0.000	7.682	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *Tactical Command System*	Project (Number/Name) 9123 / *FORCEnet*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			7.682	0.000		0.000		0.000		-		0.000	0.000	7.682	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	239.828	2.002		2.209		2.179		-		2.179	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 9123 / *FORCEnet*

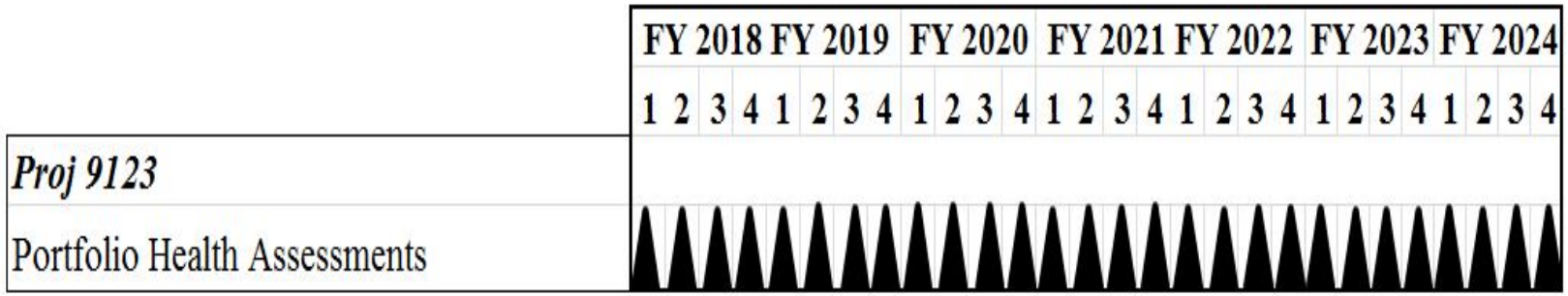


Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *Tactical Command System*	**Project (Number/Name)** 9123 / *FORCEnet*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9123				
Naval Information Warfare Enterprise	1	2018	4	2024