Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy											Date: May 2021	
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 COMMAND AND CONTROL*							
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
Total Program Element	532.764	72.811	124.780	122.913	-	122.913	-	-	-	-	-	-
0486: *Tactical Support Center*	142.543	5.890	5.999	5.536	-	5.536	-	-	-	-	-	-
2343: *Tactical METOC Applications*	0.000	11.709	12.049	11.520	-	11.520	-	-	-	-	-	-
2345: *Fleet METOC Equipment*	0.000	0.142	2.619	0.562	-	0.562	-	-	-	-	-	-
2363: *Remote Sensing Capability Development*	0.000	5.433	7.519	4.442	-	4.442	-	-	-	-	-	-
3050: *Deployable JT Command and Control*	0.000	2.817	3.291	2.579	-	2.579	-	-	-	-	-	-
3260: *Naval Operations Business Logistics Enterprise (NOBLE)*	45.954	33.774	90.561	95.339	-	95.339	-	-	-	-	-	-
3323: *Maritime Tactical Command & Control (MTC2)*	84.447	10.270	0.000	0.000	-	0.000	-	-	-	-	-	-
3324: *Navy Air Operations Command and Control (NAOC2)*	15.853	0.681	0.517	0.717	-	0.717	-	-	-	-	-	-
9123: *FORCEnet*	243.967	2.095	2.225	2.218	-	2.218	-	-	-	-	-	-

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.

Programs will implement digital system-of-systems engineering by using tools such as Model Based System Engineering (MBSE) and Digital Twins to create adaptable digital models to optimize system engineering from design, development and testing to operations and sustainment. Programs will use Development, Security and Operations (DevSecOps) processes for continuous development, integration, testing and deployment, along with common platform services such as Agile Core Services (ACS), for faster fielding of capability. Overall program development efforts include the investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.

(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 (RSCD): 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) and the Environmental Satellite Receiver Processor (ESRP) project (2345), and the Remote Sensing Capability Development (RSCD) project (2363).

(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.

(Proj 3260) Naval Operational Business Logistics Enterprise (NOBLE) is the logistics information technology family of systems comprised of the Naval Operational Supply System (NOSS), the Naval Maintenance, Repair, and Overhaul (N-MRO), and an Integrated Data Environment (IDE). NOBLE enables combat lethality by generating and sustaining Navy and Marine Corps force readiness for operational commanders afloat and ashore, providing the foundational capability to keep ships driving, planes flying, and weapons firing from an equipment Operational Availability (Ao) perspective. NOBLE is the centerpiece of the Fleet's strategic imperative to improve Sailor, unit and group maintenance self-sufficiency combat operations in a communications and access-denied arena. NOBLE's mission is to provide the Navy and Marine Corps with an integrated, scalable, and cybersecure capability that supports the management of logistical information, material, and funds required to maintain and operate ships, submarines, and aircraft. The NOBLE FoS (Family of Systems) will provide direct support to warfighter readiness with maintenance, supply, and financial capabilities. 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 200,000. The NOBLE architecture will meet current and emerging demands for cyber security, enable Financial Improvement and Audit Readiness (FIAR), drive efficiency into Navy logistics and aviation and maritime maintenance mission requirements, and eliminate over 700 application/database servers. NOBLE FoS will deploy to the Consolidated Afloat Networks and Enterprise Services (CANES)/Agile Core Services (ACS) afloat, and Department of the Navy (DON) commercial cloud computing environments ashore.

(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 Kessel Run (Navy). Kessel Run (Navy) aligns with the Compile to Combat (C2C24) construct in providing Rapid, agile delivery of capabilities to the fleet by commercial cloud infrastructure using Development, Security, Operations (DevSecOps) cloud native applications. Kessel Run (Navy) is comprised of multiple tactical software applications that will provide continuous iterate delivery of software to shipboard and shore users. It will also align with the Joint C2 Reference Architecture (JC2RA) such as Consolidated Afloat Networks and Enterprise Services (CANES). Kessel Run (Navy) 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 is continuous and operates in parallel with the DevSecOps construct. Kessel Run (Navy) 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. Kessel Run (Navy) 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. Kessel Run (Navy) 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) making the transformation to a Distributed, Networked force; (b) achieving interoperability based on Architectures and Standards; and (c) experimenting with, evaluating, and employing 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy					Date: May 2021
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 COMMAND AND CONTROL*			
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	73.920	97.968	62.901	-	62.901
Current President's Budget	72.811	124.780	122.913	-	122.913
Total Adjustments	-1.109	26.812	60.012	-	60.012
• Congressional General Reductions	-	-0.116			
• Congressional Directed Reductions	-	-8.782			
• Congressional Rescissions	-	-			
• Congressional Adds	-	35.710			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.609	0.000			
• SBIR/STTR Transfer	-2.718	0.000			
• Program Adjustments	0.000	0.000	62.640	-	62.640
• Rate/Misc Adjustments	0.000	0.000	-2.628	-	-2.628

Change Summary Explanation

Technical: Not applicable.

SCHEDULE:

Tactical METOC Applications (Project 2343):
- Starting in FY2022, NITES-Next schedule is updated to reflect moving away from Build Decisions, Field Decisions and Fleet Capability Releases as NITES-Next migrates to more frequent software releases in accordance with transitioning to Adaptive Acquisition Framework, Software Acquisition Pathway (per DoDI 5000.02 of 23 Jan 20, Subj: Operation of the Adaptive Acquisition Framework) with annual Acquisition Strategy updates.

Remote Sensing Capability Development (RSCD) (Project 2363):
- Starting in FY22 RSCD schedule is updated to reflect going away from Algorithm Integration Decision (AID) and to System Acceptance Decision (AD) and System Integration Decisions (ID) in order to align with software versioning standards. Algorithm Fielding Decisions (AFD) will become System Fielding Decisions (FD) and will also align to software versioning standards.

Tactical Support Center (Project 0486): NAVAIR is designing and developing an interim P-8A Increment 3 ground station that will meet a subset of the TacMobile Increment 3 requirements. This interim solution will be recapitalized and incorporated into the full TacMobile Increment 3 design solution. Leveraging the NAVAIR interim solution will require some TacMobile redesign to achieve a smaller, lightweight, scalable Network-centric Services Oriented Architecture (SOA) configuration

FY2022 funding will support a Delta Preliminary Design Review (PDR) in preparation for an FY 24 Engineering Assessment and a Critical Design Review (CDR) planned for FY26.

Naval Operational Business Logistics Enterprise (NOBLE) (Project 3260):
In FY20 ASN RDA issued an Acquisition Decision Memorandum (ADM) impacting delivery of the NOBLE Family of Systems (FoS) which directed the designation of one maintenance, repair and overhaul capability into the Naval Maintenance, Repair, and Overhaul (N-MRO) Program Of Record (POR) in FY21. N-MRO is not a new capability or new start. In FY20 and prior, these requirements were captured under NAMS and NOME. Funds were realigned starting in FY21 from Naval Aviation Maintenance System (NAMS) and Naval Operational Maintenance Environment (NOME) sub-projects under PE 0604231N Project 3260. The schedule slip from Q4/FY21 to Q1/FY22 is due to the complexity of the Risk Management Framework (RMF) tool in obtaining multiple (10+) cybersecurity authorizations (ATOs) for the N-MRO, NOSS, and IDE unclassified and classified environments.

FUNDING:

Remote Sensing Capability Development (RSCD) (Project 2363):
- FY 2021 to FY 2022 decrease (-$3.077M) allows for completion of cloud based computing environment and data repository to test and evaluate, create performance metrics, and understand computational performance of algorithms and technologies that enhance the fleet's battle space awareness.

Naval Operational Business Logistics Enterprise (NOBLE) (Project 3260):
-In FY20 ASN RDA issued an Acquisition Decision Memorandum (ADM) impacting delivery of the NOBLE Family of Systems (FoS) which directed the designation of one maintenance, repair and overhaul capability into the Naval Maintenance, Repair, and Overhaul (N-MRO) Program Of Record (POR) in FY21. N-MRO is not a new capability or new start. In FY20 and prior, these requirements were funded under Naval Aviation Maintenance System (NAMS) and Naval Operational Maintenance Environment (NOME).

-Funds were realigned starting in FY21 from Naval Aviation Maintenance System (NAMS) and Naval Operational Maintenance Environment (NOME) sub-projects under PE 0604231N Project 3260.

-Increase in funding profile in FY22 provides additional resources to address wholesale and retail Ordnance Information System (OIS) capability and integration efforts with the N-MRO solution to provide a unified Organizational, Intermediate, and Depot maintenance program. This includes an increase in scope of capability to support deployment of NOSS and N-MRO Build 1 capability within the Classified CANES / ACS environments and IDE.

Naval Operational Supply System (NOSS): Investment required to complete Other Transaction Authority (OTA) Limited Deployment (LD) Build 1 prototyping and configuration of Commercial Off The Shelf (COTS) capabilities in preparation for Developmental/User Acceptance Testing and obtain Functional Manager

Certification (FMC) in FY22. Investment supports attainment of multiple Authorizations to Operate (ATOs), software licensing, site installation activities, data migration and validation, training development, testing and deployment of NOSS, capabilities. Investment includes license cost sharing for the CANES/ACS Afloat and Ashore Cloud Hosting/Integrated Data Environment (IDE) solution.

Naval Aviation Maintenance System (NAMS): Funding realigned to N-MRO starting in FY21 per ADM issued by ASN RDA.

Naval Operational Maintenance Environment (NOME): Funding realigned to N-MRO starting in FY21 per ADM issued by ASN RDA.

Naval Maintenance, Repair, and Overhaul (N-MRO): Funding realigned from NAMS and NOME starting in FY21 per ADM issued by ASN RDA. Investment required to complete OTA Aviation and Maritime LD Build 1 prototyping and configuration of COTS capabilities in preparation for Developmental/User Acceptance Testing and Functional Manager Certification (FMC) in FY22. Investment supports attainment of multiple ATOs, software licensing, site installation activities, data migration and validation, training development, testing & deployment of N-MRO capabilities. N-MRO has a unique set of operational and functional requirements for aviation and maritime sites; and investment will be required for license cost sharing for the CANES/ACS Afloat and Ashore Cloud Hosting/IDE solution.

FORCEnet (Project 9123): Decrease of $0.007M between FY 2021 and FY 2022 is attributed to additional support required to identify critical Portfolio Health Assessment(PHA)architectural dependencies that enable mission situational awareness.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy									Date: May 2021			
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*				Project (Number/Name) 0486 / *Tactical Support Center*			
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
0486: *Tactical Support Center*	142.543	5.890	5.999	5.536	-	5.536	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

TacMobile is the Ground Station that 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 that 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 development of future C4I support capabilities for the P-8A Poseidon Increment 3, Advanced Airborne Sensor (AAS), and potentially 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.

FY22: Funding supports core TacMobile systems engineering, design and development in preparation for a planned Fourth Quarter Increment 3 Critical Design Review (CDR). Activities include designing a full Increment 3 capability leveraging the NAVAIR P-8 Ground Station (PGS) interim solution to support P-8A operations. The TacMobile Inc 3 system must be aligned to support P-8A Inc 3 Block 2 ECP 6 (FR300) and ECP 7 (FR310) expeditionary operations, increase modularity, add additional security enclaves and reduce footprint to offset the size/weight/power/cooling (SWaP-C) to support Advanced Airborne Sensor (AAS) and emerging Maritime Patrol and

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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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-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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: TacMobile Increment 2.1	0.750	0.470	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2021 Plans: Continue development, integration and test of enhancements to Tactical Data Links (TADIL), Command, Control, Communications and Intelligence (C4I) (Common Operational Picture (COP), Integrated Broadcast Service (IBS)), and appropriate subsystem refreshes based on P-8A and MQ-4C collaborative efforts and make ready for fielding. These efforts include: INTEROPERABILITY: Analyze and assess options to better integrate cooperative partner P-8A mission planning with US mission planning and TCPED for enhanced flexibility and lethality. ***FY 2022 Base Plans:*** N/A ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** No FY22 funding for TacMobile Increment 2.1. Inc 2.1 development is complete and the Increment is in full sustainment only.					
Title: TacMobile Increment 3.0	5.140	5.529	5.536	0.000	5.536
Articles:	-	-	-	-	-
FY 2021 Plans: INTEROPERABILITY: Complete Engineering Development Model (EDM) design to include any changes to 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 and data strategy to maximize automation, Services Oriented Architecture					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
(SOA), and 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); Begin design and development for Multistatic Active Coherent (MAC) Enhancements (MAC-E) - (Inc 3.0); Complete TacMobile Increment 3.0 Data Strategy and Information Support Plan 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); 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); Finalize 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: Continue implementing fleet and engineering change requests into Inc 3 design - (Inc 3.0); Continue implementing 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 2022 Base Plans: INTEROPERABILITY: Conduct Preliminary Design Review Delta PDR incorporating and leveraging appropriate influences from PMA290 P-8 Ground Station (PGS) architecture and design decisions; Continue TacMobile Increment 3 Design, working towards an FY24 Engineering Assessment review, FY24-26 SECRET enclave Developmental Testing, and ultimately an FY26 Critical Design Review - (Inc 3.0); SYSTEM UPGRADES: Incorporate 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);					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
MODERNIZATION: Implement Size Weight Power and Cooling (SWaP-C) reductions into final EDM design and proposed TOC/MTOC design - (Inc 3.0) ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor FY22 funding increase for TacMobile Increment 3.0 development is due to increased facilities and labor costs associated with commencing Design for Systems Engineering Development of Top Secret (TS) Sensitive Compartmented Information (SCI) enclaves.					
Accomplishments/Planned Programs Subtotals	5.890	5.999	5.536	0.000	5.536

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN/2906: *TacMobile*	30.158	20.493	16.868	-	16.868	-	-	-	-	-	-

Remarks

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).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	NIWC LANT; SRC; Charleston, SC; Pax River, MD : Charleston; SC; Pax River, MD	14.587	1.701	Dec 2019	1.700	Dec 2020	0.000		-		0.000	-	-	-
Systems Engineering	C/CPFF	NIWC LANT; SRC; Charleston, SC; Pax River, MD : Charleston, SC; Pax River, MD; San Diego, CA	37.386	1.646	Dec 2019	1.756	Dec 2020	3.070	Dec 2021	-		3.070	-	-	-
Training Development	C/CPFF	NIWC LANT; SRC; Charleston, SC; Pax River, MD : Charleston, SC; Pax River, MD; San Diego, CA	3.461	0.000		0.000		0.000		-		0.000	-	-	-
Software Development	C/CPFF	NIWC LANT; SRC; Charleston, SC; Pax River, MD : Charleston, SC; Pax River, MD; San Diego, CA	50.234	1.066	Dec 2019	1.066	Dec 2020	0.000		-		0.000	-	-	-
Integrated Logistics Support	C/CPFF	NIWC LANT; SRC; Charleston, SC; Pax River, MD : Charleston, SC; Pax River, MD	1.770	0.035	Dec 2019	0.035	Dec 2020	0.043	Dec 2021	-		0.043	-	-	-
Configuration Management	C/CPFF	NIWC LANT; SRC; Charleston, SC; Pax River, MD : Charleston, SC; Pax River, MD	1.394	0.023	Dec 2019	0.023	Dec 2020	0.044	Dec 2021	-		0.044	-	-	-
Technical Data	C/CPFF	NIWC LANT; SRC; Charleston, SC; Pax River, MD :	1.982	0.251	Dec 2019	0.251	Dec 2020	1.629	Dec 2021	-		1.629	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 0486 / *Tactical Support Center*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Charleston, SC; Pax River, MD													
Studies & Analyses	C/CPFF	NIWC LANT; SRC; Charleston, SC; Pax River, MD : Pax River, MD; San Diego CA	1.055	0.015	Dec 2019	0.015	Dec 2020	0.400	Dec 2021	-		0.400	-	-	-
		Subtotal	111.869	4.737		4.846		5.186		-		5.186	-	-	N/A

Remarks

FY22 funding increase in Technical Data and Systems Engineering is due to the incorporation of inherited design and documentation from NAVAIR interim solution, as well as documentation of the required redesign to achieve a smaller, lightweight, scalable Network-centric Services Oriented Architecture (SOA) configuration.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/CPIF	NIWC LANT; SRC; Charleston, SC; Pax River, MD : Charleston, SC; Pax River, MD	3.687	0.803	Dec 2019	0.803	Dec 2020	0.000		-		0.000	-	-	-
Operational Test & Evaluation	MIPR	OPTEVFOR; NIWC LANT; TAPESTRY : Jacksonville, FL	6.020	0.000		0.000		0.000		-		0.000	-	-	-
		Subtotal	9.707	0.803		0.803		0.000		-		0.000	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPIF	SRC; BAH; SENTEK:	3.810	0.195	Dec 2019	0.195	Dec 2020	0.195	Dec 2021	-		0.195	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 0486 / *Tactical Support Center*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Charleston, SC; Pax River, MD; S : Pax River, MD; Charleston, SC; San Diego, CA													
Government Engineering Support	WR	NIWC LANT : Charleston, SC; Pax River, MD	2.541	0.107	Dec 2019	0.107	Dec 2020	0.107	Dec 2021	-		0.107	-	-	-
Program Management Support	C/CPIF	NIWC LANT, PMW 750, SRC, BAH, SENTEK : Charleston, SC; San Diego, CA	14.284	0.023	Dec 2019	0.023	Dec 2020	0.023	Dec 2021	-		0.023	-	-	-
Travel	WR	PMW750 : San Diego, CA	0.332	0.025	Dec 2019	0.025	Dec 2020	0.025	Dec 2021	-		0.025	-	-	-
		Subtotal	20.967	0.350		0.350		0.350		-		0.350	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	142.543	5.890		5.999		5.536		-		5.536	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 0486 / *Tactical Support Center*

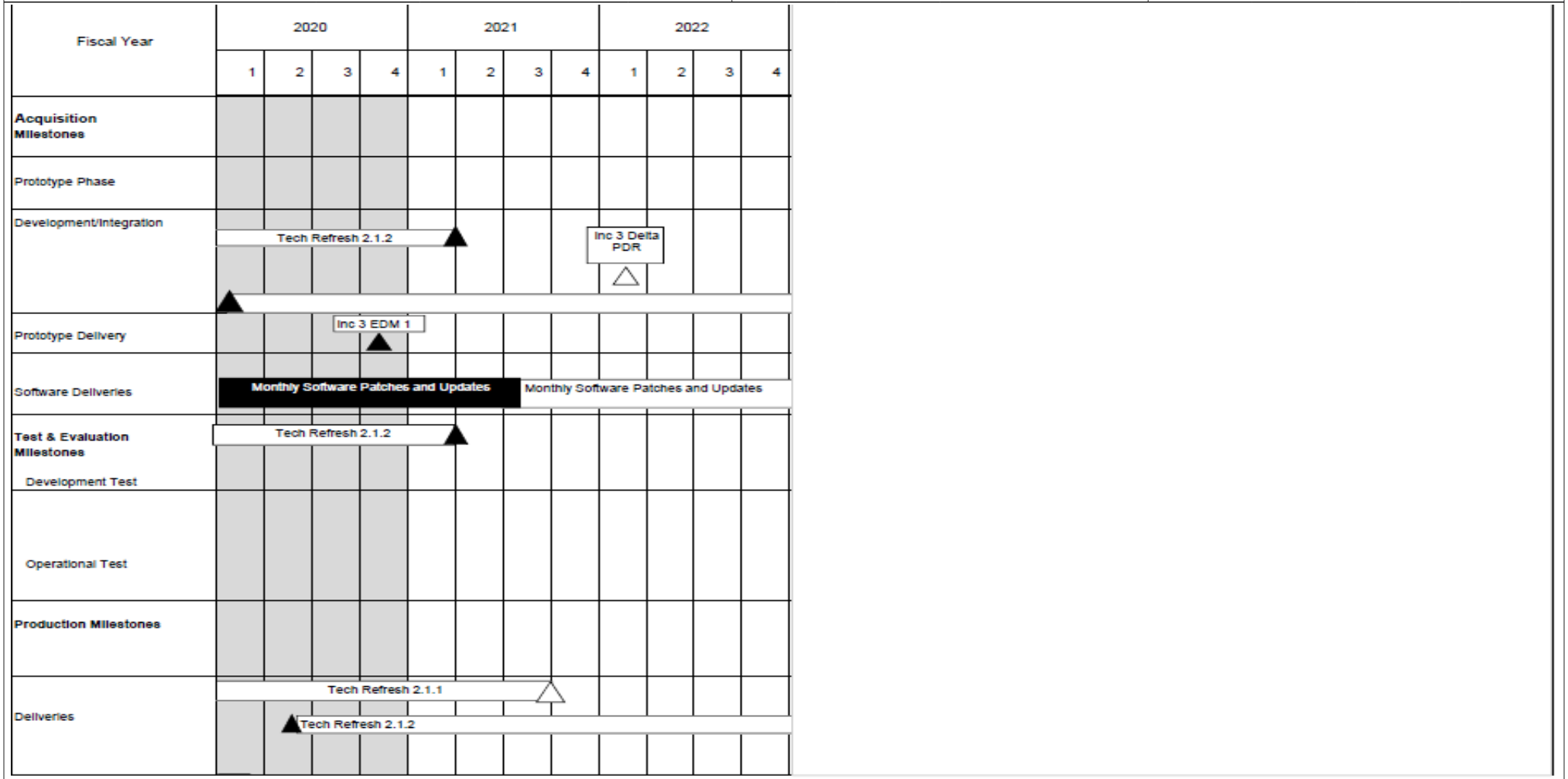


Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 0486 / *Tactical Support Center*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0486				
Tech Refresh Delivery (TR 2.1.1)	1	2020	3	2021
Tech Refresh Delivery (TR 2.1.2)	2	2020	4	2022
Development (TR 2.1.2)	1	2020	1	2021
Developmental Test (Tech Refresh 2.1.2)	1	2020	1	2021
INC 3 EDM 1	1	2022	1	2022
Preliminary Design Review (Increment 3)	1	2022	1	2022
Developmental Test (Increment 3)	1	2021	4	2022
Preliminary Design Review (Increment 3) (2)	4	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 2343 / *Tactical METOC Applications*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
2343: *Tactical METOC Applications*	0.000	11.709	12.049	11.520	-	11.520	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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) METOC Decision Aids and, 2) Operational Effects Decision Aids (OEDAs). METOC Decision Aids 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 Aid 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 Aids 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 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.

FY22 funding is for NITES-Next to conduct Fleet Capability Release (FCR-4) to deliver capabilities to provide Electo-Optical Sensor Performance Prediction, Surfzone forecasting, and littoral current characterization. The program will continue planning for the future development efforts and contracting activities. The program will continue to maintain and update its Risk Management Framework (RMF) Authorities to Operate (ATO).

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Naval Integrated Tactical Environmental System - Next Generation (NITES-Next)	11.709	12.049	11.520	0.000	11.520
Articles:	-	-	-	-	-
FY 2021 Plans: - NITES-Next continues to conduct development for FCR-4 to deliver capabilities to provide Electo-Optical Sensor Performance Prediction, Surfzone forecasting, and littoral current characterization. - The program is updating its Risk Management Framework (RMF), Authority to Operate (ATO), perform development, testing and evaluation (DT&E) for FCR-4 software. - The program continues planning for the FCR-5 development, contracting activities and Technology Readiness Assessment (TRA). - Participating in multiple Consolidated Afloat Networks and Enterprise Services (CANES) Application Integration (AI) System Integration Test (SIT) events throughout the fiscal year.					
FY 2022 Base Plans: - NITES-Next Build Decisions, Field Decisions and Fleet Capability Releases (i.e., FCR-4 & FCR-5) transition to Adaptive Acquisition Framework, Software Acquisition Pathway through an ongoing Development capability area. - Engage the Requirements Governance Board (RGB) to align with operational Fleet user requests. - Continue planning for RGB requirements through future iterative software development, annual acquisition strategy updates, and continuous engineering reviews. - Manage RMF ATOs and participate in multiple Consolidated Afloat Networks and Enterprise Services (CANES) Application Integration (AI) System Integration Test (SIT) events throughout the FY. The program is migrating to the Adaptive Acquisition Framework, Software Acquisition pathway and these activities are in alignment with that pathway.					
FY 2022 OCO Plans: N/A					
FY 2021 to FY 2022 Increase/Decrease Statement: Reduction of $0.529 from FY 2021 to FY 2022 will reduce software development capability efforts.					
Accomplishments/Planned Programs Subtotals	11.709	12.049	11.520	0.000	11.520

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN/4226: *Meteorological Equipment*	12.407	15.192	13.687	-	13.687	-	-	-	-	-	-

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 DoN requirements for the NITES-Next program's acquisition and contracting strategies are based on approved Joint Capabilities Integration and Development System (JCIDS) documentation.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 2343 / *Tactical METOC Applications*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NITES-Next Software Development	WR	NIWC Pacific : San Diego, CA	0.000	2.761	Nov 2019	2.669	Nov 2020	2.428	Nov 2021	-		2.428	-	-	-
NITES-Next Software Development	C/FP	SAIC : Virginia	0.000	2.063	Jan 2020	2.241	Jan 2021	2.241	Jan 2022	-		2.241	-	-	-
NITES-Next Software Development	WR	NIWC Atlantic : South Carolina	0.000	0.094	Oct 2019	0.094	Oct 2020	0.094	Oct 2021	-		0.094	-	-	-
NITES-Next Software Development	C/IDIQ	Various : Various	0.000	4.559	May 2020	4.725	May 2021	4.422	May 2022	-		4.422	-	-	-
		Subtotal	0.000	9.477		9.729		9.185		-		9.185	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NITES-Next Architecture	C/FP	SAIC : Virginia	0.000	1.253	Jan 2020	1.346	Jan 2021	1.355	Jan 2022	-		1.355	-	-	-
		Subtotal	0.000	1.253		1.346		1.355		-		1.355	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NITES-Next Government Technical Oversight	WR	NIWC PAC : San Diego, CA	0.000	0.398	Nov 2019	0.396	Nov 2020	0.400	Nov 2021	-		0.400	-	-	-
NITES-Next Program Management	C/FP	BAH : San Diego CA	0.000	0.581	Jan 2020	0.578	Jan 2021	0.580	Jan 2022	-		0.580	-	-	-
		Subtotal	0.000	0.979		0.974		0.980		-		0.980	-	-	N/A

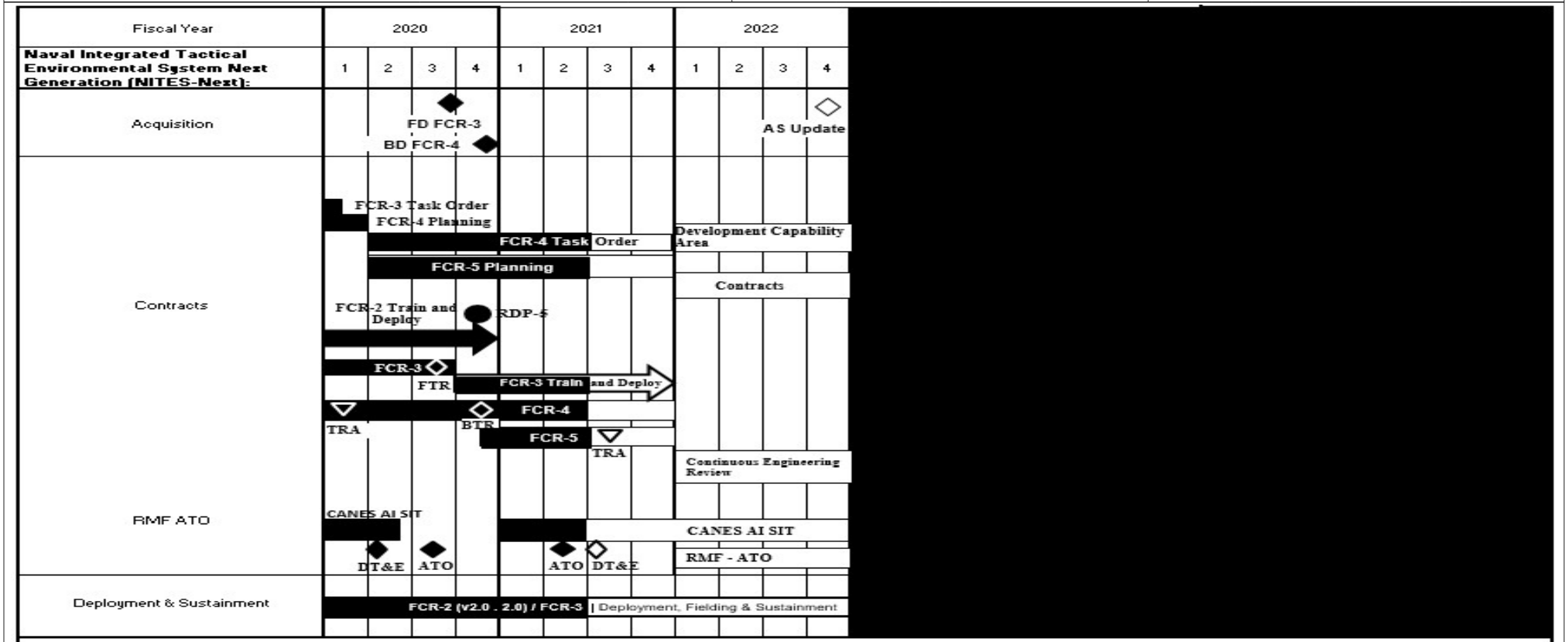
	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	11.709		12.049		11.520		-		11.520	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 2343 / *Tactical METOC Applications*	

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*



Acronyms: AS = Acquisition Strategy. RDP = Requirements Definition Package. FCR = Fleet Capability Release. TRA = Technology Readiness Assessment. BD = Build Decision. FD = Fielding Decision. ATO = Authority to Operate. FTR = Field Technical Review. DT&E = Developmental Test & Evaluation. CANES = Consolidated Afloat Networks and Enterprise Services. SIT = System Integration Test. AI = Application Integration. RMF = Risk Management Framework.

Notes: Starting in FY2022 NITES-Next schedule is updated to reflect moving away from Build Decisions, Field Decisions and Fleet Capability Releases and to an Acquisition Strategy Annual Update.

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**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)				
Acquisition: Fielding Decision (FD) Fleet Capability Release - 3	3	2020	3	2020
Acquisition: Build Decision (BD) Fleet Capability Release - 4	4	2020	4	2020
Acquisition: Acquisition Strategy Update 1	4	2022	4	2022
Contracts: FCR-3 Task Order	1	2020	1	2020
Contracts: FCR-4 Planning	1	2020	1	2020
Contracts: FCR-4 Task Order	2	2020	4	2021
Contracts: Development Capability Area	1	2022	4	2022
Contracts: FCR-5 Planning	2	2020	4	2021
Contracts: Contracts	1	2022	4	2022
Contracts: Fleet Capability Release - 2 / Train and Deploy	1	2020	4	2020
Contracts: Fleet Capability Release - 3 / Train and Deploy	4	2020	4	2021
Contracts: Fleet Capability Release - 3	1	2020	3	2020
Contracts: Fleet Capability Release - 4	1	2020	4	2021
Contracts: Fleet Capability Release - 5	4	2020	4	2021
Contracts: Requirements Definition Package - 5	4	2020	4	2020
Contracts: Build Technical Review FCR-4	4	2020	4	2020
Contracts: Technology Readiness Assessment - 4	1	2020	1	2020
Contracts: Technology Readiness Assessment - 5	3	2021	3	2021
Contracts: Field Technical Review FCR-3	3	2020	3	2020
Contracts: Continuous Engineering Review	1	2022	4	2022
RMF ATO: Authority to Operate FCR-3	3	2020	3	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
RMF ATO: Authority to Operate FCR-4	2	2021	2	2021
RMF ATO: Developmental Test Fleet Capability Release - FCR 3	2	2020	2	2020
RMF ATO: Developmental Test Fleet Capability Release - FCR-4	3	2021	3	2021
RMF ATO: CANES AI SIT FCR-3	1	2020	2	2020
RMF ATO: CANES AI SIT	1	2021	4	2022
RMF ATO: RMF - ATO	1	2022	4	2022
RMF ATO: Deployment and Sustainment: Deployment, fielding and Sustainment (OMN)	1	2020	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 2345 / *Fleet METOC Equipment*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
2345: *Fleet METOC Equipment*	0.000	0.142	2.619	0.562	-	0.562	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Littoral Battlespace Sensing - Unmanned Undersea Vehicles (LBS-UUV) 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 Littoral Battlespace Sensing - Unmanned Undersea Vehicles (LBS-UUV) and the Environmental Satellite Receiver Processor (ESRP) program (comprised of ESRP AFLOAT (formerly AN/SMQ-11) and ESRP ASHORE (formerly AN/FMQ-17) systems).

FY22 funding for the Littoral Battlespace Sensing - Gliders (LBS-G) and LBS - Autonomous Undersea Vehicles (LBS-AUV) will focus on engineering design studies. Efforts will develop system upgrades via Engineering Change Proposals (ECP's) and correct any identified software and/or hardware deficiencies. Continue investigating potential capability improvements, such as, but not limited to, endurance (e.g. battery technology), autonomy (precise navigation with obstacle avoidance), communications (at depth), and advanced sensors (CTD, optical clarity).

FY22 request continues integration of ESRP systems in support of WSF-M, EWS-G, GOES-15, GOES-16, GOES-17 and EUMETSAT satellites, and ensure systems continue to receive enhanced METOC data and imagery as satellite systems evolve.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Littoral Battlespace Sensing - Unmanned Undersea Vehicle (LBS-UUV)	0.000	0.205	0.186	0.000	0.186
Articles:	-	-	-	-	-
FY 2021 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
- Continue engineering design studies for the Littoral Battlespace Sensing - Gliders (LBS-G) and Littoral Battlespace Sensors - Autonomous Undersea Vehicles (LBS-AUV). - 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. - Continue investigating battery technology, bio-fouling solutions, afterbody solutions, and open architecture approaches. ***FY 2022 Base Plans:*** - Continue engineering design studies for the Littoral Battlespace Sensing - Gliders (LBS-G) and Littoral Battlespace Sensors - Autonomous Undersea Vehicles (LBS-AUV). - Develop system upgrades via Engineering Change Proposals (ECP's) and correct any identified software and/or hardware deficiencies. - Continue investigating potential capability improvements, such as, but not limited to, endurance (e.g. battery technology, bio-fouling), autonomy (precise navigation with obstacle avoidance), communications (comms at depth), and advanced sensors (CTD, optical clarity). ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** There are no significant changes from FY2021 to FY2022.					
Title: Environmental Satellite Receiver Processor (ESRP)	0.142	2.414	0.376	0.000	0.376
Articles:	-	-	-	-	-
FY 2021 Plans: - Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion. - Develop and test annual hardware and software upgrades to include new next generation 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 WSF-M, EWS-G, GOES-15, GOES-16, GOES-17 and Europe Meteorology Satellites (EUMETSAT) satellites.					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
- Conduct an Independent Technical Evaluation (ITE) to validate requirements for a follow-on system, and produce a prototype for a modernized ESRP Afloat system. ***FY 2022 Base Plans:*** - Continue integration of ESRP systems in support of WSF-M, EWS-G, GOES-15, GOES-16, GOES-17 and EUMETSAT satellites. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Environmental Satellite Receiver Processor (ESRP) decrease from FY 2021 to FY 2022 is due to the completion of ESRP Modernization design and test efforts.					
Accomplishments/Planned Programs Subtotals	0.142	2.619	0.562	0.000	0.562

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN/4226: *Meteorological Equipment*	12.407	15.192	13.687	-	13.687	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The Littoral Battlespace Sensing - Unmanned Undersea Vehicles (LBS-UUV) acquisition strategy is to 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*

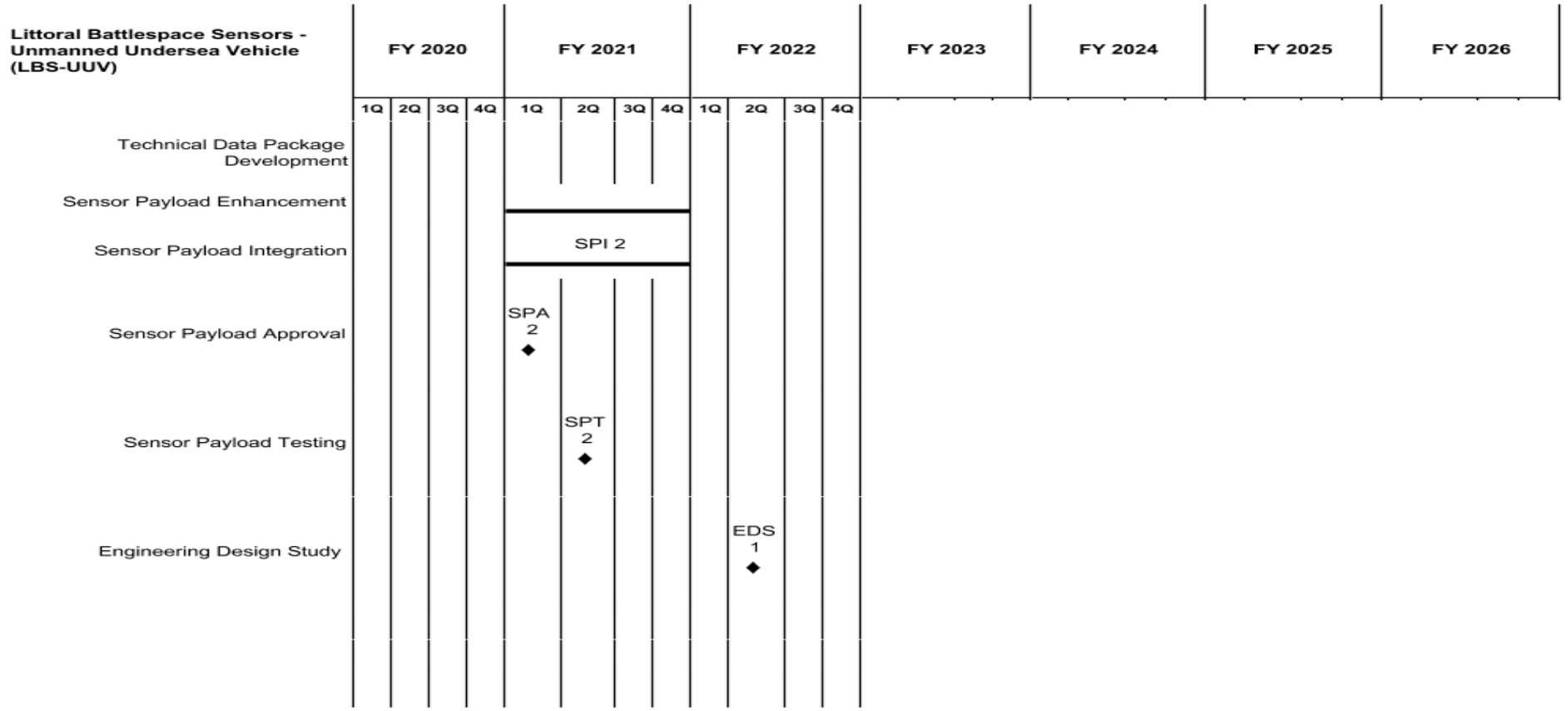
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Environmental Satellite Receiver Processor (ESRP) - Development	SS/CPFF	RAYTHEON : Indianapolis	0.000	0.142	Feb 2020	0.714	Feb 2021	0.376	Feb 2022	-		0.376	-	-	-
Littoral Battlespace Sensing - Gliders Development	C/CPIF	Teledyne Brown : Alabama	0.000	0.000		0.100	Mar 2021	0.093	Mar 2022	-		0.093	-	-	-
Littoral Battlespace Sensing - Autonomous Undersea Vehicle Development	C/FP	Hydroid : Pocasset, MA	0.000	0.000		0.105	Mar 2021	0.093	Mar 2022	-		0.093	-	-	-
Environmental Satellite Receiver Processor (ESRP) - Development	Various	The Mitre Corporation : Mc Lean Virginia	0.000	0.000		0.300	Jan 2021	0.000		-		0.000	-	-	-
Environmental Satellite Receiver Processor (ESRP) - Development	Various	TBD : Not Specified	0.000	0.000		1.400	Jun 2021	0.000		-		0.000	-	-	-
		Subtotal	0.000	0.142		2.619		0.562		-		0.562	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.142		2.619		0.562		-		0.562	-	-	N/A

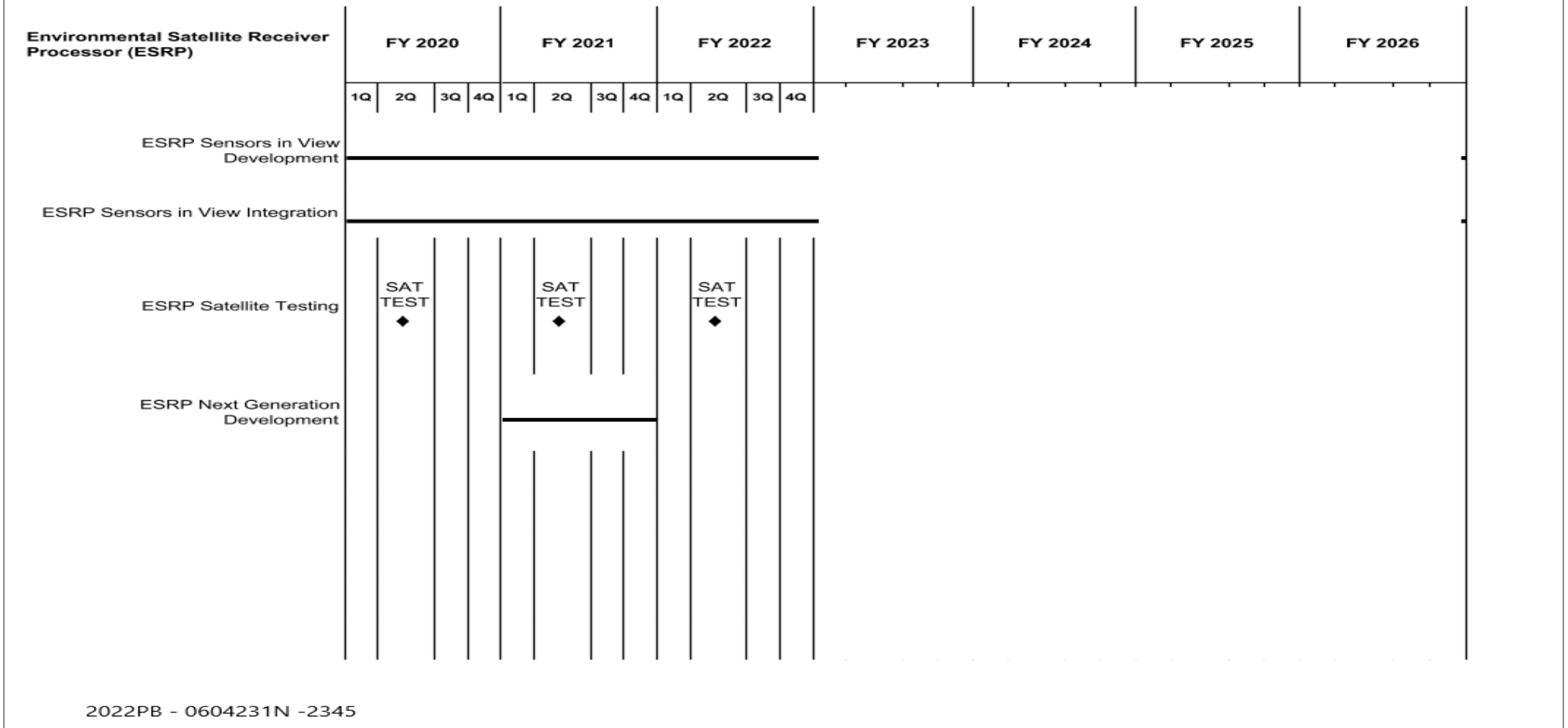
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*



2022PB - 0604231N -2345 No events planned in FY20 due to funds availability

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*



2022PB - 0604231N -2345

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2345 / *Fleet METOC Equipment*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)				
Sensor Payload Enhancement:	1	2021	4	2021
Sensor Payload Integration: Sensor Payload Integration2	1	2021	4	2021
Sensor Payload Approval: Sensor Payload Approval 2	1	2021	1	2021
Sensor Payload Testing: Sensor Payload Testing 2	2	2021	2	2021
Engineering Design Study: Engineering Design Study 1	2	2022	2	2022
Environmental Satellite Receiver Processor (ESRP)				
ESRP Sensors in View Development: ESRP Sensors in View Development	1	2020	4	2022
ESRP Sensors in View Integration: ESRP Sensors in View Integration	1	2020	4	2022
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 Next Generation Development: ESRP Next Generation Development	1	2021	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 2363 / *Remote Sensing Capability Development*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
2363: *Remote Sensing Capability Development*	0.000	5.433	7.519	4.442	-	4.442	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Remote Sensing Capabilities Development (RSCD) project integrates and fields capabilities to enhance maritime domain awareness using non-organic sensors under the Top Secret / Sensitive Compartmented Information (TS/SCI) SEAHORSE process. The system addresses Fleet Integrated Prioritized Capability List (IPCL) and capabilities gaps for increasing Battlespace Awareness and Intelligence Surveillance and Reconnaissance (ISR) capabilities to support Fleet Tasking, Collections, Processing, Exploitation, and Dissemination (TCPED) processes. RSCD employs automation concepts to produce intelligence with significantly less Fleet manpower than traditional processes. The project is also working to shorten and streamline the SEAHORSE TCPED cycle to meet speed of service and accuracy requirements. RSCD incorporates state of the art software in the form of machine/continuous learning technologies to achieve a significant reduction of false alarm rates. SEAHORSE is relied upon by INDOPACOM, CENTCOM, and EUCOM to provide intelligence solutions (detail held at a higher classification). RSCD supporting the transition of SEAHORSE to a fully integrated, cloud-based, operational system.

FY 2022 funding will continue the planned data collection, algorithm enhancement, algorithm performance assessment, and system integration activities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Remote Sensing Capability Development (RSCD)	5.433	7.519	4.442	0.000	4.442
Articles:	-	-	-	-	-
FY 2021 Plans: - Program will begin 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). - Continue to operationalize Seahorse by collecting data in various weather and sea states to broaden the range of environmental conditions, reduce uncertainty in environmental prediction, and generate training data sets for Machine Learning. - Continue to conduct software algorithm performance analysis and enhancements to automatically detect oceanographic phenomena to support transition to a new cloud-based architecture. - Continue to develop training documents to provide the user community education on using the different tools and applications.					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2363 / *Remote Sensing Capability Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
- Continue to coordinate Task, Collect, Process, Exploit, Disseminate (TCPED) process amongst inter-agencies to support Navy Missions. - Based on emerging threats, continue to expand scope of the Seahorse project to include new surface detection algorithms. - Program will develop, enhance, and integrate, surface detection algorithm capabilities, and provide input to Fleet training and CONOPS development. - Perform Test and Evaluation and Validation and Verification of new and existing capabilities. ***FY 2022 Base Plans:*** - Continue to collect data in various weather and sea states to broaden the range of environmental conditions, reduce uncertainty in environmental prediction, and generate training data sets for Machine Learning. - Continue to conduct software algorithm performance analysis and enhancements to automatically detect oceanographic phenomena and data repository to test and evaluate, create performance metrics, and understand computational performance of algorithms and technologies that enhance the fleet's battle space awareness. - Continue to conduct software algorithm enhancements to address improvements identified through performance analysis. - Continue to integrate software algorithm enhancements. - Continue to coordinate Task, Collect, Process, Exploit, Disseminate (TCPED) process amongst inter-agencies to support Navy Missions. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Remote Sensing Capability Development (RSCD) decrease from FY 2021 to FY 2022 is due to the completion of cloud based computing environment, training document development, and data repository to test and evaluate, create performance metrics, and understand computational performance of algorithms and technologies that enhance the fleet's battle space awareness.					
Accomplishments/Planned Programs Subtotals	5.433	7.519	4.442	0.000	4.442

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2363 / *Remote Sensing Capability Development*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

The Remote Sensing Capabilities Development (RSCD) acquisition strategy is being managed by the Program Executive Office Command, Control, Communications, Computers and Intelligence (PEO C4I) and Space, via a Project Definition Document (PDD) construct for acquisition rigor and oversight.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 2363 / *Remote Sensing Capability Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RSCD Software Development	C/FFP	SAIC : Viriginia	0.000	0.866	Feb 2020	1.153	Feb 2021	0.494	Feb 2022	-		0.494	-	-	-
RSCD Software Development	WR	NRL : Washington, DC	0.000	1.347	Nov 2019	1.794	Nov 2020	0.246	Nov 2021	-		0.246	-	-	-
RSCD Software Development	C/FFP	Cubic/Valiant : San Diego, CA	0.000	1.385	Apr 2020	1.838	Apr 2021	0.996	Apr 2022	-		0.996	-	-	-
RSCD Software Development	WR	NRL : Stennis Space Center, MS	0.000	0.000		0.000		0.243	Nov 2021	-		0.243	-	-	-
		Subtotal	0.000	3.598		4.785		1.979		-		1.979	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RSCD Architecture	WR	NIWC PAC : San Diego, CA	0.000	0.849	Mar 2020	1.131	Mar 2021	0.739	Nov 2021	-		0.739	-	-	-
		Subtotal	0.000	0.849		1.131		0.739		-		0.739	-	-	N/A

Test and Evaluation ($ in Millions)

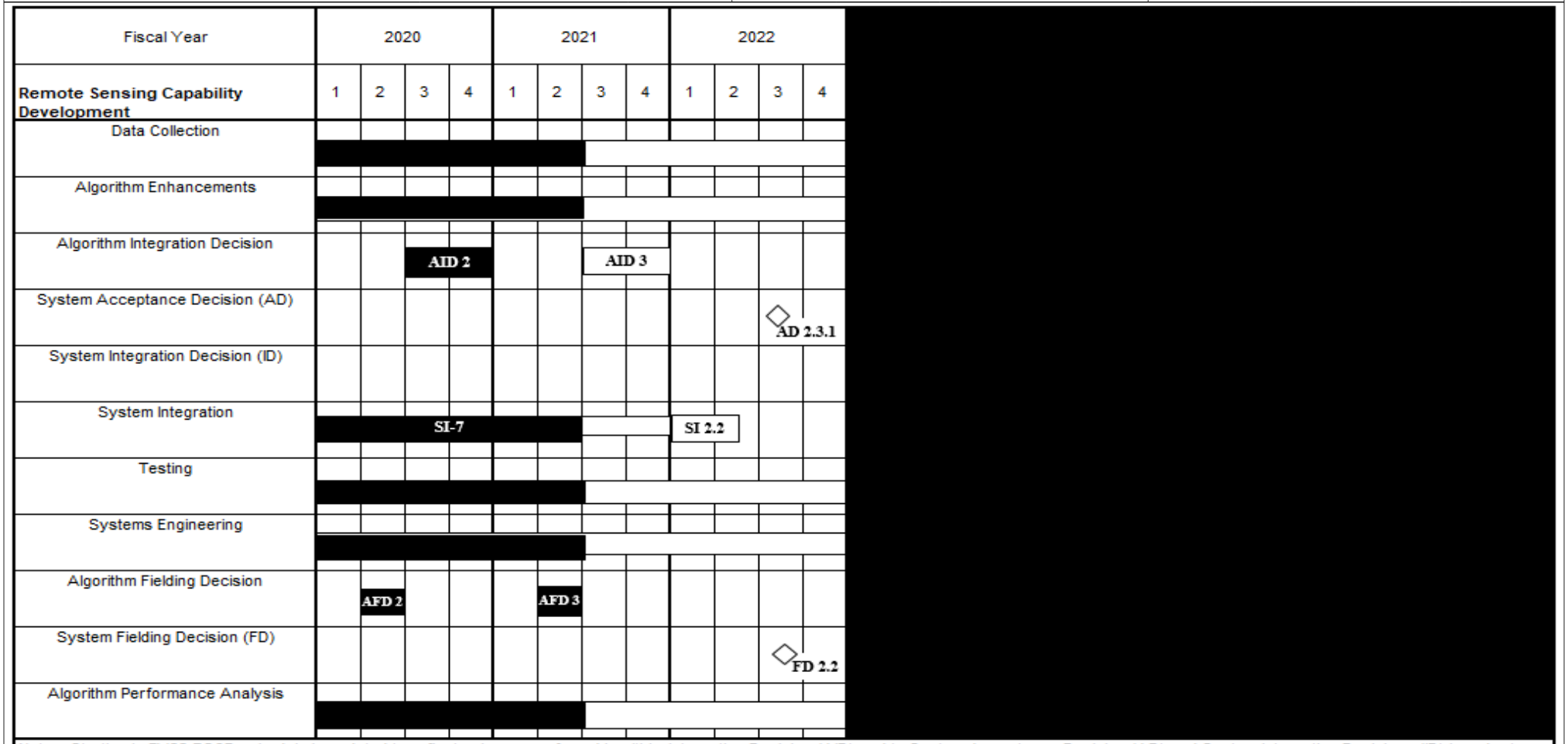
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RSCD Intgr, Assy & Test	WR	NIWC PAC : San Diego, CA	0.000	0.986	Mar 2020	1.603	Mar 2021	0.000		-		0.000	-	-	-
RSCD Intgr, Assy & Test	C/FFP	Cubic/Valiant : San Diego, CA	0.000	0.000		0.000		0.985	Apr 2022	-		0.985	-	-	-
RSCD Intgr, Assy & Test	WR	DOE : Albuquerque, NM	0.000	0.000		0.000		0.739	Nov 2021	-		0.739	-	-	-
		Subtotal	0.000	0.986		1.603		1.724		-		1.724	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 2363 / *Remote Sensing Capability Development*	

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	5.433		7.519		4.442		-		4.442	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 2363 / *Remote Sensing Capability Development*



Notes: Starting in FY22 RSCD schedule is updated to reflect going away from Algorithim Integration Decision (AID) and to System Acceptance Decision (AD) and System Integration Decisions (ID) in order to align with software versioning standards. Algorithm Fielding Decisions (AFD) will become System Fielding Decisions (FD) and will also align to software versioning standards.

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**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	2022
Algorithm Enhancments:	1	2020	4	2022
Algorithm Integration Decision: Algorithm Integration Decision 2	3	2020	4	2020
Algorithm Integration Decision: Algorithm Integration Decision 3	3	2021	4	2021
Algorithm Integration Decision: Algorithm Decision (AD): Algorithm Decision 2.3.1	3	2022	3	2022
System Integration: System Integration 7	1	2020	4	2021
System Integration: System Integration 2.2	1	2022	2	2022
Testing:	1	2020	4	2022
System Engineering:	1	2020	4	2022
Algorithm Fielding Decision: Algorithm Fielding Decision 2	2	2020	2	2020
Algorithm Fielding Decision: Algorithm Fielding Decision 3	2	2021	2	2021
Algorithm Fielding Decision: System Fielding Decision (FD): System Fielding Decision 2.2	3	2022	3	2022
Algorithm Performance Analysis:	1	2020	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 3050 / *Deployable JT Command and Control*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
3050: *Deployable JT Command and Control*	0.000	2.817	3.291	2.579	-	2.579	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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.

FY22 funding supports development efforts for systems engineering, integration, and DJC2 Test Bed. Focus areas include emerging cyber security technologies and cloud hosting environments.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Systems Engineering & Integration	1.264	1.484	1.163	0.000	1.163
Articles:	-	-	-	-	-
FY 2021 Plans: Developing system enhancements in support of information assurance and migration to a cloud hosting environment. Developing Agile Core Services for Shore with on-demand mission capabilities to include user and application data replication/synchronization, cloud patching, user to provision infrastructure, applications, and cloud based services.					
FY 2022 Base Plans: Expand capabilities of common infrastructure to increase speed to capability through containerization technologies and utilization of Development, Security, and Operations (DevSecOps) in order to rapidly deliver mission tailored applications and cloud based services. Develop Tier 1 capabilities to support multi-cloud environments and implement software defined wide area network (SD-WAN) technologies to increase cyber					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3050 / *Deployable JT Command and Control*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
posture. Evaluate technologies to support migration to Impact level 6 (IL6) and Impact Level 7 (IL7) cloud environments. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease from FY21 to FY22 is associated with a delay in evaluating technologies to support migration to Internet Protocol version 6 (IPv6) and 5G.					
Title: DJC2 RDT&E Test Bed	1.553	1.807	1.416	0.000	1.416
Articles:	-	-	-	-	-
FY 2021 Plans: Testing system enhancements in support of Information Assurance and migration to a Cloud hosting environment. Performing lab testing of Agile Core Services for Shore with on-demand mission capabilities to include user and application data replication/synchronization, cloud patching, and provisioning infrastructure, applications, and Cloud based services. ***FY 2022 Base Plans:*** Test technologies to support containerization of applications and services, as well as migration to Impact level 6 (IL6) and Impact Level 7 (IL7) cloud environments. Test Tier 1 capabilities to support multi-cloud environments and software defined wide area network (SD-WAN) technologies to increase cyber posture. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease from FY21 to FY22 is associated with a delay in testing technologies to support migration to Internet Protocol version 6 (IPv6) and 5G.					
Accomplishments/Planned Programs Subtotals	2.817	3.291	2.579	0.000	2.579

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN /2906: *Tactical/ Mobile C4I Systems/DJC2*	3.053	2.278	2.051	-	2.051	-	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3050 / *Deployable JT Command and Control*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost

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 Commercial Off the Shelf (COTS) and Government Off the Shelf (GOTS) technologies in support of information warfare and overall efforts required to pace the threat. This is accomplished via technical analysis 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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NSWC : Panama City, FL	0.000	0.392	Dec 2019	0.462	Dec 2020	0.363	Dec 2021	-		0.363	-	-	-
Hardware/Software Development	C/CPAF	GTRI : Atlanta, GA	0.000	0.669	Dec 2019	0.785	Dec 2020	0.612	Dec 2021	-		0.612	-	-	-
		Subtotal	0.000	1.061		1.247		0.975		-		0.975	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Integration	WR	NSWC : Panama City, FL	0.000	0.367	Dec 2019	0.428	Dec 2020	0.333	Dec 2021	-		0.333	-	-	-
		Subtotal	0.000	0.367		0.428		0.333		-		0.333	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test	WR	NSWC : Panama City, FL	0.000	0.794	Dec 2019	0.926	Dec 2020	0.724	Dec 2021	-		0.724	-	-	-
Operational Test	WR	NSWC : Panama City, FL	0.000	0.446	Dec 2019	0.521	Dec 2020	0.409	Dec 2021	-		0.409	-	-	-
		Subtotal	0.000	1.240		1.447		1.133		-		1.133	-	-	N/A

Management Services ($ in Millions)

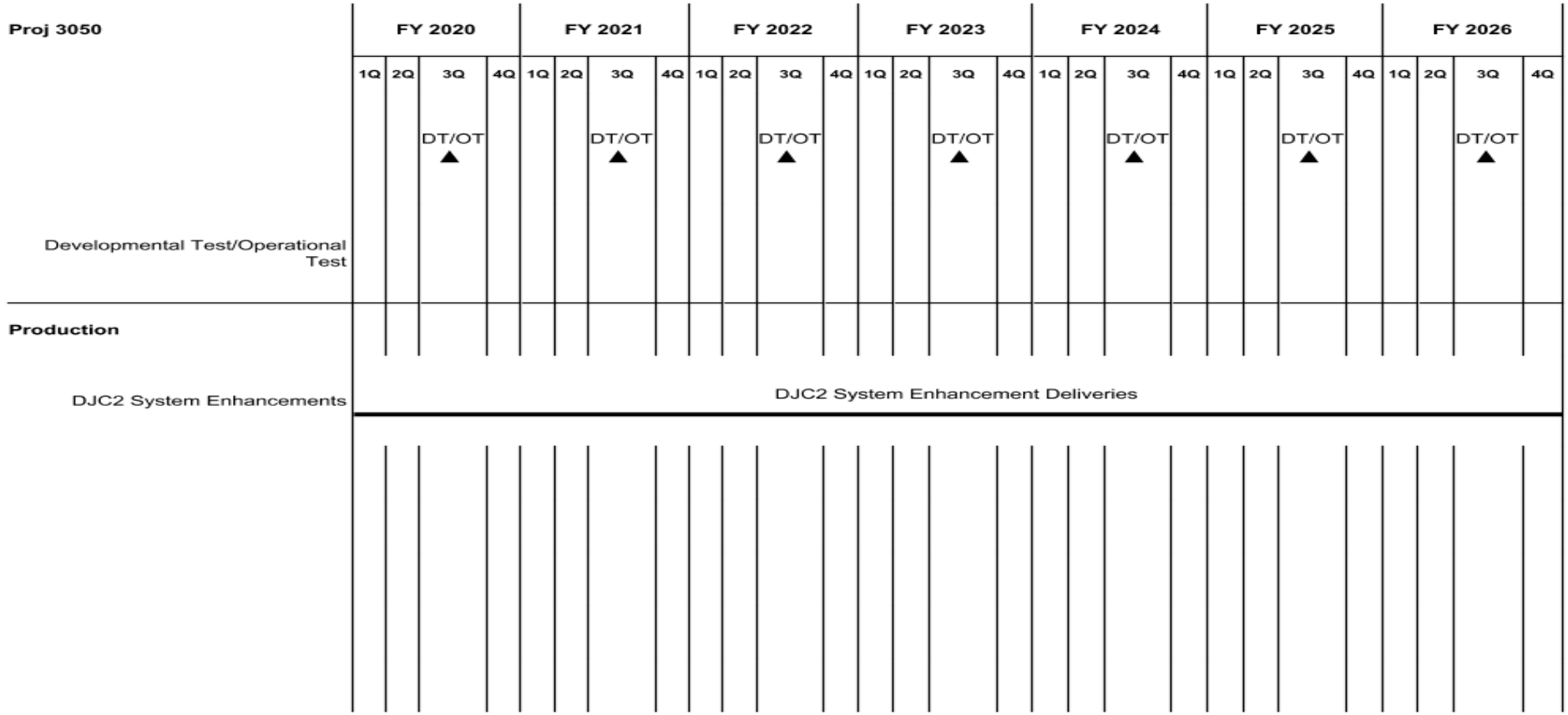
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NIWC PAC : San Diego, CA	0.000	0.149	Dec 2019	0.169	Dec 2020	0.138	Dec 2021	-		0.138	-	-	-
		Subtotal	0.000	0.149		0.169		0.138		-		0.138	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 3050 / *Deployable JT Command and Control*	

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	2.817		3.291		2.579		-		2.579	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3050 / *Deployable JT Command and Control*



2022PB - 0604231N - 3050

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3050 / *Deployable JT Command and Control*

Schedule Details

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

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
3260: *Naval Operations Business Logistics Enterprise (NOBLE)*	45.954	33.774	90.561	95.339	-	95.339	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Naval Operational Business Logistics Enterprise (NOBLE) is the logistics information technology family of systems comprised of the Naval Operational Supply System (NOSS), the Naval Maintenance, Repair, and Overhaul (N-MRO), and an Integrated Data Environment (IDE). NOBLE enables combat lethality by generating and sustaining Navy and Marine Corps force readiness for operational commanders afloat and ashore, providing the foundational capability to keep ships driving, planes flying, and weapons firing from an equipment Operational Availability (Ao) perspective. NOBLE is the centerpiece of the Fleet's strategic imperative to improve Sailor, unit and group maintenance self-sufficiency combat operations in a communications and access-denied arena.

NOBLE's mission is to provide the Navy and Marine Corps with an integrated, scalable , and cybersecure capability that supports the management of logistical information, material, and funds required to maintain and operate ships, submarines, and aircraft.

Funding provides for the completion of NOSS and N-MRO LD Build 1 prototyping and configuration, software licensing, site installation activities, data migration and validation, training development conduct of Development/User Acceptance Testing, and completion of Functional Manager Certification and operational testing, and deployment to the two (2) aviation squadrons (1 Navy and 1 Marine Corps), one (1) Marine Aviation Logistics Squadron (MALS), one (1) Aviation Fleet Readiness Center (FRC), and one (1) Unit Level (DDG) ship in FY22. The funding also provides for license cost sharing of the CANES/ACS Afloat and Ashore Cloud Hosting/ Integrated Data Environment (IDE) solution.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Naval Operational Supply System (NOSS)	13.650	30.628	34.609	0.000	34.609
Articles:	-	-	-	-	-
FY 2021 Plans: Continue the Acquisition Testing & Deployment phase of NOSS Build 1 software development to include agile sprint human centered design (HCD) and testing, Life Cycle Sustainment Planning, assess vulnerability to cyber attacks in support of obtaining an Authority To Operate (ATO) authorization, training development, commence initial Application Integration testing in the Consolidated Afloat Network and Enterprise Services (CANES) / Agile Core Services (ACS) environment, and commence initial integration with the Integrated Data Environment (IDE).					
FY 2022 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Complete NOSS Limited Deployment (LD) Build 1 configuration, site installation activities, data migration and validation, training development, development/functional and operational testing, and deployment to the two (2) aviation squadrons (1 Navy, 1 Marine Corps), one (1) Marine Aviation Logistics Squadron (MALS), one (1) Aviation Fleet Readiness Center (FRC), and one (1) Unit Level (DDG) ship in FY22. Commence Build 2/3 configuration addressing ordnance wholesale and retail capabilities. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in funding profile provides additional resources to address wholesale and retail Ordnance Information System (OIS) capability and integration efforts with the N-MRO solution to provide a unified Organizational, Intermediate, and Depot maintenance program. This includes an increase in scope of capability to support deployment of the NOSS Build 1 capability within the Classified CANES / ACS environments and IDE.					
Title: Naval Aviation Maintenance System (NAMS) ***Articles:*** ***FY 2021 Plans:*** Funding realigned to Naval Maintenance, Repair, and Overhaul (N-MRO) starting in FY21 per ADM issued by ASN RDA. ***FY 2022 Base Plans:*** Funding realigned to Naval Maintenance, Repair, and Overhaul (N-MRO) starting in FY21 per ADM issued by ASN RDA. ***FY 2022 OCO Plans:*** N/A	10.663 -	0.000 -	0.000 -	0.000 -	0.000 -
Title: Naval Operational Maintenance Enterprise (NOME) ***Articles:*** ***FY 2021 Plans:*** Funding realigned to Naval Maintenance, Repair, and Overhaul (N-MRO) starting in FY21 per ADM issued by ASN RDA. ***FY 2022 Base Plans:***	9.461 -	0.000 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Funding realigned to Naval Maintenance, Repair, and Overhaul (N-MRO) starting in FY21 per ADM issued by ASN RDA. ***FY 2022 OCO Plans:*** N/A					
Title: Naval Maintenance, Repair, and Overhaul (N-MRO) ***Articles:*** ***FY 2021 Plans:*** Continue the Acquisition Testing & Deployment phase of N-MRO Build 1 software development to include, agile sprint human centered design (HCD) and testing , Life Cycle Sustainment Planning, assess vulnerability to cyber attacks in support of obtaining an Authority To Operate (ATO) authorization, training development, commence initial Application Integration testing in the Consolidated Afloat Network and Enterprise Services (CANES) / Agile Core Services (ACS) environment, and commence initial integration with the Integrated Data Environment (IDE). ***FY 2022 Base Plans:*** Complete N-MRO Limited Deployment (LD) Build 1 configuration and Application integration testing in the CANES / ACS environment, complete end-to-end integration with the IDE, and conduct Functional Manager Certification (FMC). Complete site installation activities, data migration and validation, training development, user acceptance testing and operational testing, at two (2) aviation squadrons (1 Navy, 1 Marine Corps), one (1) Marine Aviation Logistics Squadron (MALS), one (1) Aviation Fleet Readiness Center (FRC), and one (1) Unit Level (DDG) ship in FY22. Commence Build 2/3 configuration addressing the remaining smart aircraft and training system interfaces. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in funding profile provides additional resources to address integration efforts with the NOSS solution to provide a unified Organizational, Intermediate, and Depot maintenance program. This includes an increase in scope of capability to support deployment of the N-MRO Build 1 capability within the Classified CANES / ACS environments and the IDE.	0.000 -	59.933 -	60.730 -	0.000 -	60.730 -
Accomplishments/Planned Programs Subtotals	33.774	90.561	95.339	0.000	95.339

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN/2611: *Naval Tact Cmd Supt Sys (NTCSS)*	15.062	15.385	14.439	-	14.439	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

NOBLE has employed the use of competitive Other Transaction Authority (OTA). Software development/configuration will be comprised of multiple builds to include the ability to utilize mobile computing devices, each with increasing net-centric services capability. NOBLE leverages Commercial Off The Shelf (COTS) software programs. 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NOME Software Development	MIPR	PEO STRI : Orlando, FL	5.000	1.011	Aug 2020	0.000		0.000		-		0.000	-	-	-
NOME Software Development/Infrastucture	C/CPFF	Palantir : Palo Alto, CA	0.000	3.500	Feb 2020	0.000		0.000		-		0.000	-	-	-
NAMS Software Development	MIPR	PEO STRI : Orlando, FL	2.699	2.213	Aug 2020	0.000		0.000		-		0.000	-	-	-
NOSS Software Development/Infrastucture	C/CPFF	Palantir : Palo Alto, CA	0.000	3.500	Feb 2020	0.643	Feb 2021	7.500	Feb 2022	-		7.500	-	-	-
NOSS Software Development	MIPR	PEO STRI : Orlando, FL	12.219	5.200	Aug 2020	23.586	Oct 2020	18.049	Oct 2021	-		18.049	-	-	-
NAMS Software Development/Infrastucture	C/CPFF	Palantir : Palo Alto, CA	0.000	3.500	Feb 2020	0.000		0.000		-		0.000	-	-	-
N-MRO Software Development	MIPR	PEO STRI : Orlando, FL	0.000	0.000		48.203	Oct 2020	36.762	Oct 2021	-		36.762	-	-	-
N-MRO Software Development/Infrastructure	C/CPFF	Palantir : Palo Alto, CA	0.000	0.000		4.082	Feb 2021	7.968	Feb 2022	-		7.968	-	-	-
NOME System Engineering	WR	NIWC Atlantic : Norfolk, VA	1.440	1.500	Oct 2019	0.000		0.000		-		0.000	-	-	-
NOSS System Engineering	WR	NIWC Atlantic : Norfolk, VA	2.144	1.500	Oct 2019	0.947	Oct 2020	3.000	Oct 2021	-		3.000	-	-	-
NOSS System Engineering	WR	USFFC : Norfolk, VA	1.746	0.000		0.000		0.000		-		0.000	-	-	-
N-MRO System Engineering	WR	NIWC Atlantic : Norfolk, VA	0.000	0.000		2.147	Oct 2020	5.000	Oct 2021	-		5.000	-	-	-
NAMS Detailed BPR	WR	NAVAIR : Patuxent River, MD	0.849	0.000		0.000		0.000		-		0.000	-	-	-
NAMS System Engineering	WR	NIWC Atlantic : Norfolk, VA	2.190	1.500	Oct 2019	0.000		0.000		-		0.000	-	-	-
N-MRO Detailed BPR	WR	NAVAIR : Patuxent River, MD	0.000	0.000		0.000		0.000		-		0.000	-	-	-
NAMS Analyis of Alternatives (AoA)	C/CPFF	Client Solution Architects LLC : San Diego, CA	0.537	0.000		0.000		0.000		-		0.000	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NAMS Analyis of Alternatives (AoA)	MIPR	WHQS : Washington DC	0.539	0.000		0.000		0.000		-		0.000	-	-	-
		Subtotal	29.363	23.424		79.608		78.279		-		78.279	-	-	N/A

Remarks

Variance in software development costs by program is driven by the unique set of requirements each application has and the associated application, and CANES/ACS and IDE license fees to support the N-MRO and NOSS Build 1 Limited Deployments. The increase in infrastructure costs is to support standing up the Impact Level (IL) 6 environment to support classified data to support Casualty Reporting (CASREP) and Naval Nuclear Propulsion Information (NNPI).

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NOME FMC Developmental Test & Evaluation	WR	NAVSEA : Washington, D.C.	0.200	0.200	Feb 2020	0.000		0.000		-		0.000	-	-	-
NOME Operational Test & Evaluation	WR	COTF : Norfolk, VA	0.200	0.000		0.000		0.000		-		0.000	-	-	-
NAMS FMC Developmental Test & Evaluation	WR	NAVAIR : Patuxent River, MD	0.250	0.200	Feb 2020	0.000		0.000		-		0.000	-	-	-
NAMS Operational Test & Evaluation	WR	COTF : Norfolk, VA	0.250	0.000		0.000		0.000		-		0.000	-	-	-
N-MRO FMC Developmental Test & Evaluation	WR	NAVAIR : Patuxent River, MD	0.000	0.000		0.500	Oct 2020	0.500	Oct 2021	-		0.500	-	-	-
N-MRO Operational Test & Evaluation	WR	COTF : Norfolk, VA	0.000	0.000		0.100	Oct 2020	0.500	Oct 2021	-		0.500	-	-	-
NOSS FMC Developmental Test & Evaluation	WR	NAVSUP : Mechanicsburg, PA	0.500	0.200	Feb 2020	0.200	Oct 2020	0.200	Oct 2021	-		0.200	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NOSS Operational Test & Evaluation (Documentation)	WR	COTF : Norfolk, VA	0.500	0.000		0.100	Oct 2020	0.500	Oct 2021	-		0.500	-	-	-
		Subtotal	1.900	0.600		0.900		1.700		-		1.700	-	-	N/A

Remarks

Increase in FY22 is due to Commander Operational Test and Evaluation Forces (COTF) conducting necessary Operational Test (OT) events vice the original plan which was for observation of test events only.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NOME System Engineering Support	WR	NIWC Pacific : San Diego, CA	1.120	1.500	Oct 2019	0.000		0.000		-		0.000	-	-	-
NOSS System Engineering Support	WR	NIWC Pacific : San Diego, CA	2.510	1.500	Oct 2019	2.830	Oct 2020	2.000	Oct 2021	-		2.000	-	-	-
NAMS System Engineering Support	WR	NIWC Pacific : San Diego, CA	1.370	1.500	Oct 2019	0.000		0.000		-		0.000	-	-	-
N-MRO Systems Engineering Support	WR	NIWC Pacific : San Diego, CA	0.000	0.000		2.153	Oct 2020	4.000	Oct 2021	-		4.000	-	-	-
NOSS Systems Engineering Support	C/CPFF	SENTEK Global : San Diego, CA	3.266	0.750	Jan 2020	1.128	Oct 2020	2.160	Jan 2022	-		2.160	-	-	-
NAMS Systems Engineering Support	C/CPFF	SENTEK Global : San Diego, CA	0.825	0.750	Jan 2020	0.000		0.000		-		0.000	-	-	-
NOME Systems Engineering Support	C/CPFF	SENTEK Global : San Diego, CA	0.600	0.750	Jan 2020	0.000		0.000		-		0.000	-	-	-
N-MRO Systems Engineering Support	C/CPFF	SENTEK Global : San Diego, CA	0.000	0.000		2.300	Jan 2021	3.500	Jan 2022	-		3.500	-	-	-
NOME Program Management Support	C/CPFF	Booz Allen Hamilton : San Diego, CA	1.000	1.000	Jan 2020	0.000		0.000		-		0.000	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NOSS Program Management Support	C/CPFF	Booz Allen Hamilton : San Diego, CA	2.000	1.000	Jan 2020	1.194	Oct 2020	1.200	Oct 2021	-		1.200	-	-	-
NAMS Program Management Support	C/CPFF	Booz Allen Hamilton : San Diego, CA	2.000	1.000	Jan 2020	0.000		0.000		-		0.000	-	-	-
N-MRO Program Management Support	C/CPFF	Booz Allen Hamilton : San Diego, CA	0.000	0.000		0.448	Oct 2020	2.500	Oct 2021	-		2.500	-	-	-
		Subtotal	14.691	9.750		10.053		15.360		-		15.360	-	-	N/A

Remarks

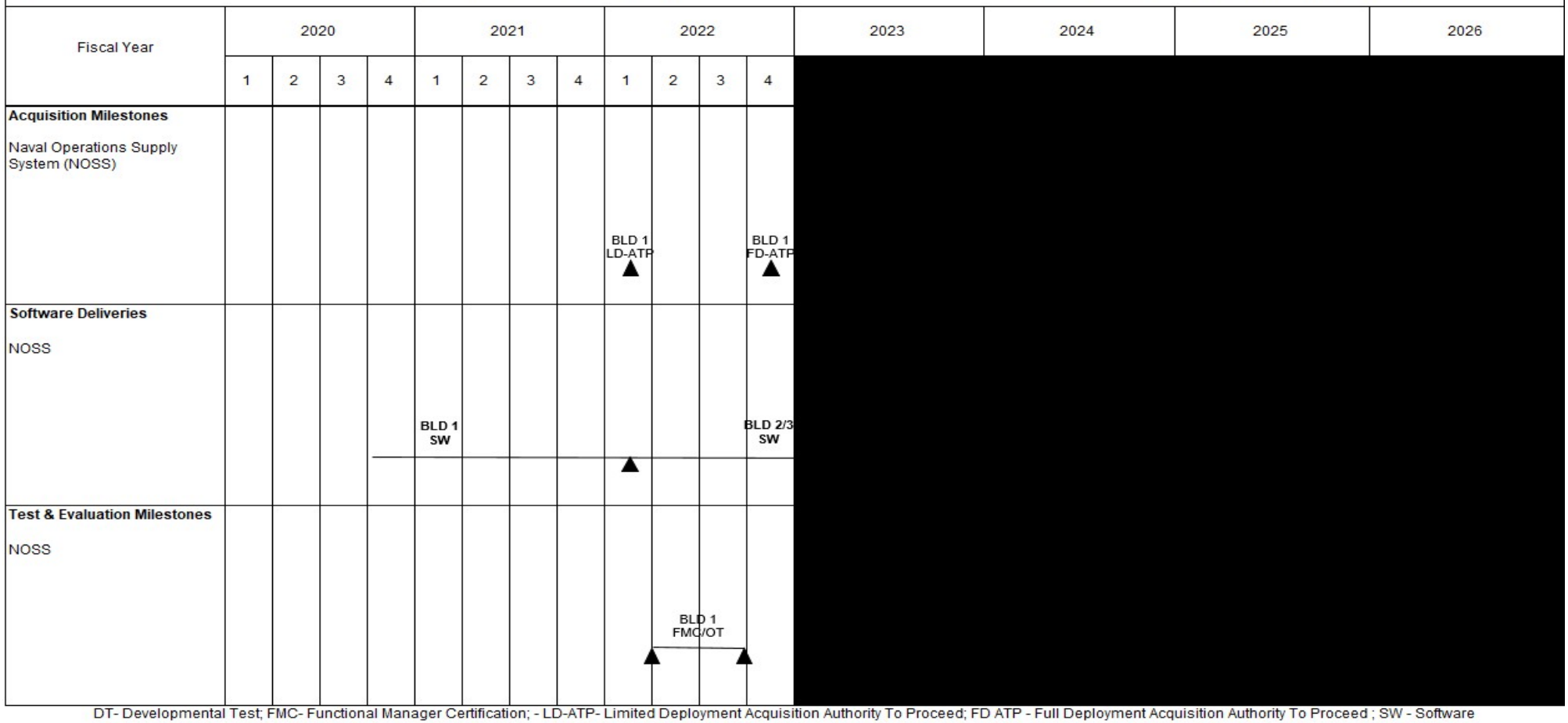
Increase in FY22 is due to additional engineering and management resources required to complete the standing up and accreditation of the Naval Research & Development Enterprise (NR&DE) as well as multiple accreditation packages required for both NOSS and N-MRO applications.

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	45.954	33.774		90.561		95.339		-		95.339	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

APPROPRIATION/BUDGET ACTIVITY	R-1 PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
1319 / 05	PE 0604231N / Tactical Command System	3260 Naval Operations Business Logistics Enterprise (NOBLE)



DT- Developmental Test; FMC- Functional Manager Certification; - LD-ATP- Limited Deployment Acquisition Authority To Proceed; FD ATP - Full Deployment Acquisition Authority To Proceed ; SW - Software

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

APPROPRIATION/BUDGET ACTIVITY	R-1 PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
1319 / 05	PE 0604231N / Tactical Command System	3260 Naval Operations Business Logistics Enterprise (NOBLE)

Fiscal Year	2020				2021				2022				2023	2024	2025	2026
	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones Naval Operational Maintenance Environment (NOME)																
Software Deliveries NOME		BLD 1 SW		Follow-on OTA ▲												
Test & Evaluation Milestones NOME																

SW - Software; OTA - Other transaction authority

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

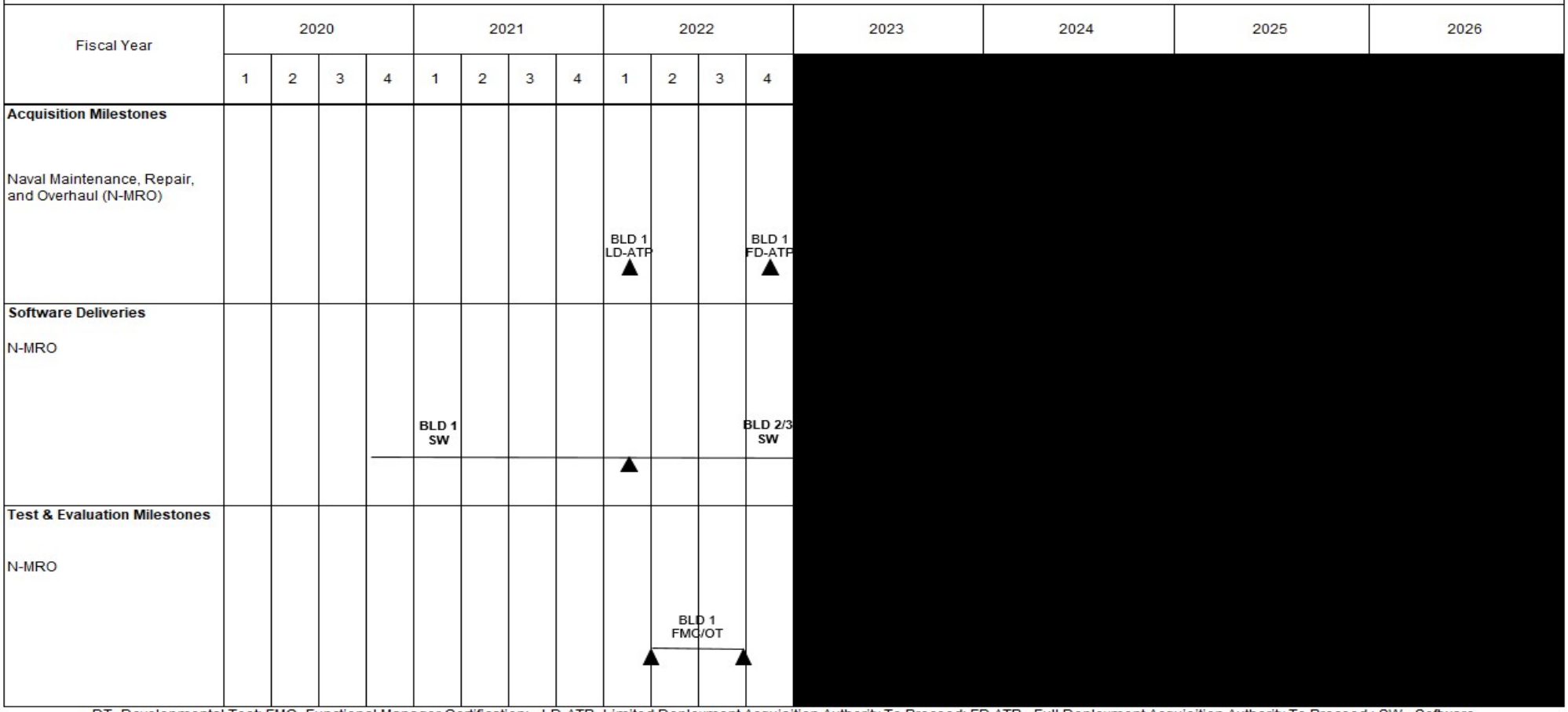
APPROPRIATION/BUDGET ACTIVITY	R-1 PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
1319 / 05	PE 0604231N / Tactical Command System	3260 Naval Operations Business Logistics Enterprise (NOBLE)

Fiscal Year	2020				2021				2022				2023	2024	2025	2026
	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones Naval Aviation Maintenance System (NAMS)																
Software Deliveries NAMS		BLD 1 SW	Follow-on OTA ▲													
Test & Evaluation Milestones NAMS																

SW - Software; OTA - Other transaction authority

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3260 / *Naval Operations Business Logistics Enterprise (NOBLE)*

APPROPRIATION/BUDGET ACTIVITY	R-1 PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
1319 / 05	PE 0604231N / Tactical Command System	3260 Naval Operations Business Logistics Enterprise (NOBLE)



DT- Developmental Test; FMC- Functional Manager Certification; - LD-ATP- Limited Deployment Acquisition Authority To Proceed; FD ATP - Full Deployment Acquisition Authority To Proceed ; SW - Software

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**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 Maintenance Enterprise (NOME) Build 1 Software Development	1	2020	4	2020
Naval Aviation Maintenance System (NAMS) Build 1 Software Development	1	2020	4	2020
Naval Operational Maintenance Enterprise (NOME) Follow-on OTA Contract Award	4	2020	4	2020
Naval Aviation Maintenance System (NAMS) Follow-on OTA Contract Award	4	2020	4	2020
Naval Operational Supply System (NOSS) Build 1 Software Development	4	2020	1	2022
Naval Maintenance, Repair, and Overhaul (N-MRO) Build 1 Software Development	4	2020	1	2022
Naval Operational Supply System (NOSS) Build 2/3 Software Development	1	2022	4	2022
Naval Maintenance, Repair, and Overhaul (N-MRO) Build 2/3 Software Development	1	2022	4	2022
NOSS Build 1 Limited Deployment ATP	1	2022	1	2022
N-MRO Build 1 Limited Deployment ATP	1	2022	1	2022
NOSS Build 1 Operational Test/Functional Manager Certification (OT/FMC)	2	2022	4	2022
N-MRO Build 1 Operational Test/Functional Manager Certification (OT/FMC)	2	2022	4	2022
NOSS Build 1 Full Deployment ATP	4	2022	4	2022
N-MRO Build 1 Full Deployment ATP	4	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 3323 / *Maritime Tactical Command & Control (MTC2)*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
3323: *Maritime Tactical Command & Control (MTC2)*	84.447	10.270	0.000	0.000	-	0.000	-	-	-	-	-	-
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.

Starting in FY2021, MTC2 budget controls have been realigned from Research, Development, Test & Evaluation (RDT&E) Program Element (PE) 0604231N Project Unit 3323 and Operations, Maintenance, Navy (OMN) PE 0204660N AGSAG 1C1C Project Unit 70100 and consolidated into a single Software & Digital Technology Pilot Program under a new Budget Activity (BA 8) as directed by Section 872 of the National Defense Authorization Act (NDAA) for FY 2018 (P.L. 115-91).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Maritime Tactical Command and Control (MTC2)	10.270	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2021 Plans: N/A					
FY 2022 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
N/A ***FY 2022 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	10.270	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• RDTEN/0608231N/3323: *Maritime Tactical Command & Control (MTC2)*	0.000	10.868	14.855	-	14.855	-	-	-	-	-	-

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 Naval Information Warfare Systems Command (NAVWAR) contracts. Naval Information Warfare Center - Pacific (NIWC-PAC), San Diego, CA will be the designated Software Support Activity (SSA).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NIWC : San Diego, CA	13.722	1.006	Dec 2019	0.000		0.000		-		0.000	-	-	-
Training Development	WR	NIWC : San Diego, CA	2.018	0.058	Dec 2019	0.000		0.000		-		0.000	-	-	-
Integration, Assembly & Test	WR	NIWC : San Diego, CA	30.805	0.775	Dec 2019	0.000		0.000		-		0.000	-	-	-
Studies & Design	MIPR	Various : Various	1.764	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	C/CPFF	Various : Various	15.208	1.492	Dec 2019	0.000		0.000		-		0.000	-	-	-
Software Development	WR	NIWC : San Diego, CA	13.824	6.367	Dec 2019	0.000		0.000		-		0.000	-	-	-
		Subtotal	77.341	9.698		0.000		0.000		-		0.000	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NIWC : Norfolk, VA/ San Diego, CA	0.276	0.048	Dec 2019	0.000		0.000		-		0.000	-	-	-
Integrated Logistics Support	C/CPFF	SeaPort : San Diego, CA	0.226	0.121	Dec 2019	0.000		0.000		-		0.000	-	-	-
		Subtotal	0.502	0.169		0.000		0.000		-		0.000	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	SeaPort : San Diego, CA	5.116	0.403	Dec 2019	0.000		0.000		-		0.000	-	-	-
Management Services Prior Year	Various	Various : Various	1.488	0.000		0.000		0.000		-		0.000	-	-	-
		Subtotal	6.604	0.403		0.000		0.000		-		0.000	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 3323 / *Maritime Tactical Command & Control (MTC2)*	

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	84.447	10.270		0.000		0.000		-		0.000	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

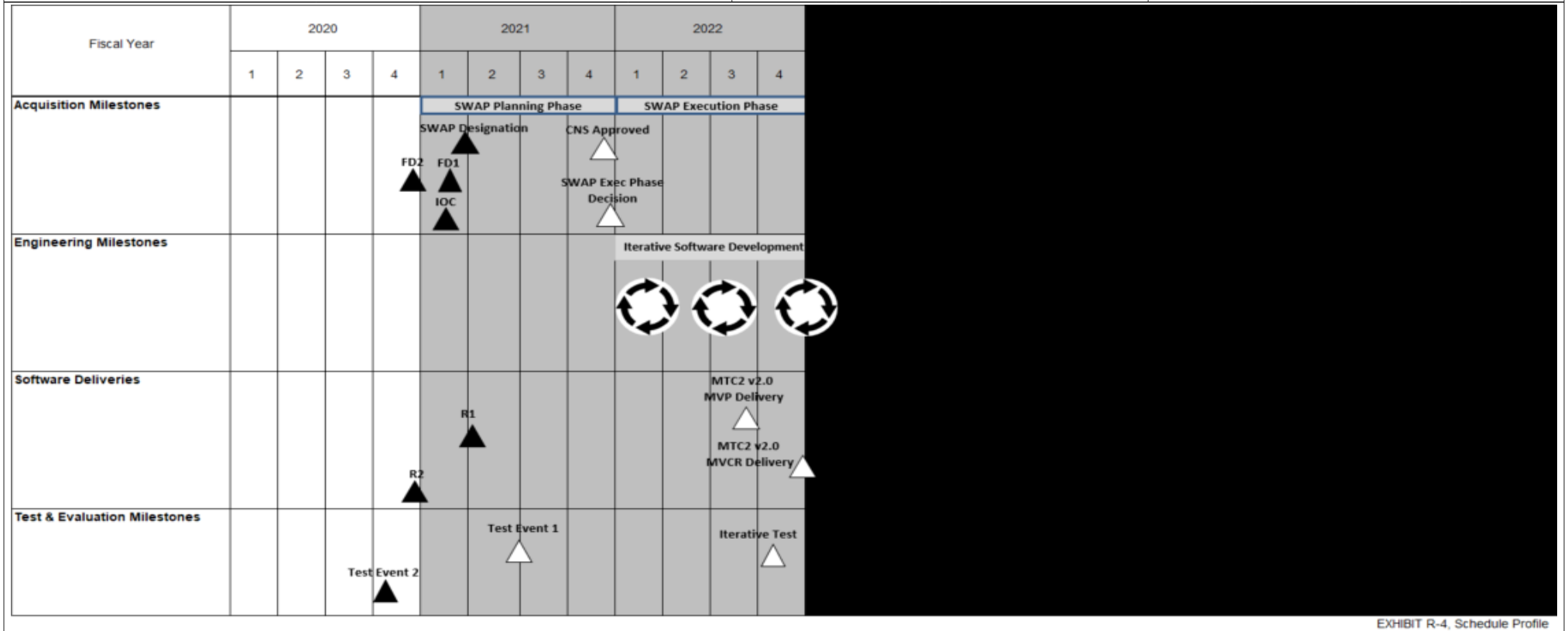


EXHIBIT R-4, Schedule Profile

NOTE: Starting in PB21 reference old BA05 PE 0604231N Project 3323 for prior year information. PB22 R-4 has been updated per ADM signed 12 January 2021, that transitions MTC2 to Software Acquisition Pathway (SWAP).

Legend:

FD - Field Decision
IOC - Initial Operational Capability
R- Release
SWAP - Software Acquisition Pathway
CNS - Capability Needs Statement
MVP - Minimum Viable Product
MVCR - Minimum Viable Capability Release

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3323				
Test Event 2	4	2020	4	2020
Field Decision (FD) 2	4	2020	4	2020
Release 2	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy											Date: May 2021	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*				Project (Number/Name) 3324 / *Navy Air Operations Command and Control (NAOC2)*			
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
3324: *Navy Air Operations Command and Control (NAOC2)*	15.853	0.681	0.517	0.717	-	0.717	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Navy Air Operations Command and Control (NAOC2): NAOC2 tests and integrates US Air Force program of record systems - Theater Battle Management Core System (TBMCS) and its replacement Kessel Run which provide an integrated and scalable planning system for standardized, secure, and automated decision support for Air Force, Joint, and Allied commanders worldwide - to operate in the Navy enterprise network environment such as Consolidated Afloat Networks and Enterprise Services (CANES). These programs provide automated air operations planning, execution management and intelligence capabilities for fleet commanders, Commander Carrier Strike Groups, Commander Expeditionary Strike Groups, Commander Landing Forces, and Joint Task Force Commanders. Kessel Run (Navy) aligns with the Compile to Combat (C2C24) construct in providing rapid, agile delivery of capabilities to the fleet by commercial cloud infrastructure using Development, Security, Operations (DevSecOps) cloud native applications. Kessel Run (Navy) is comprised of multiple tactical software applications that will provide continuous iterate delivery of software to shipboard and shore users. It will also align with the Joint C2 Reference Architecture (JC2RA) such as CANES. Kessel Run (Navy) 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 is continuous and operates in parallel with the DevSecOps construct. Kessel Run (Navy) 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. Kessel Run (Navy) 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. Kessel Run (Navy) will replace TBMCS while bringing more flexibility to the war fighter.

FY22 funding supports Kessel Run (KR) software integration as a Battle Management Aid (BMA) with Maritime Tactical Command and Control (MTC2), integrating and developing Kubernetes based containers from the USAF into the CANES environment, and developing COMOPTEVFOR, USAF, AFOTEC KR joint testing and certification plan.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Title: Kessel Run (Navy) Integration and Testing	0.681	0.517	0.717	0.000	0.717
Articles:	-	-	-	-	-
FY 2021 Plans: Begin Navy requirements analysis, and A4 Platform Services synchronization and integration with Kessel Run (Navy). Develop software application testing. Begin engineering Theater Battle Management Core System					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3324 / *Navy Air Operations Command and Control (NAOC2)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
(TBMCS)-Kessel Run (KR) software integration as a Battle Management Aid (BMA) with MTC2. Integrate and develop Kubernetes based containers from the USAF into the Consolidated Afloat Networks and Enterprise Services CANES/ACS environment. Integrate KR containers into the RedHat ACS environment as a hosted system. Develop joint testing and certification plan for Commander Operational Test & Evaluation Force (COMOPTEVFOR), USAF, Air Force Operational Test and Evaluation Center (AFOTEC) KR. ***FY 2022 Base Plans:*** Continue engineering TBMCS-Kessel Run (KR) software integration as a Battle Management Aid (BMA) with MTC2. Continue integration and development of Kubernetes based containers from the USAF into the CANES/ ACS environment. Continue Integration of KR containers into the RedHat ACS environment as a hosted system. Continue development of joint testing and certification plan for COMOPTEVFOR, USAF, AFOTEC KR. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The $200K increase in FY22 will provide additional resources to support increased integration and testing efforts for Kessel Run (KR) related to containerizing KR applications and configuring with Agile Core Services (ACS), as well as increased development and integration of Kubernetes-based containers from the USAF into the CANES environment.					
Accomplishments/Planned Programs Subtotals	0.681	0.517	0.717	0.000	0.717

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Theater Battle Management Core System (TBMCS) and Kessel Run (Navy) 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 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering/ Training DevelopmentText/ Configuration Management	WR	NIWC Pacific : San Diego, CA	3.892	0.091	Nov 2019	0.040	Nov 2020	0.095	Nov 2021	-		0.095	-	-	-
Integration and Testing	MIPR	CECOM/MITRE : San Diego, CA	0.207	0.160	Nov 2019	0.110	Nov 2020	0.169	Nov 2021	-		0.169	-	-	-
Integration and Testing	WR	NIWC Pacific : San Diego, CA	4.581	0.430	Nov 2019	0.321	Nov 2020	0.378	Nov 2021	-		0.378	-	-	-
NAOC2 Product Development	Various	VARIOUS : VARIOUS	2.512	0.000		0.000		0.000		-		0.000	-	-	-
		Subtotal	11.192	0.681		0.471		0.642		-		0.642	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-	-	-
		Subtotal	0.538	0.000		0.000		0.000		-		0.000	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	WR	COMOPTEVFOR : Norfolk, VA	0.404	0.000	Nov 2019	0.046	Nov 2020	0.075	Nov 2021	-		0.075	-	-	-
Developmental Test & Evaluation	WR	NIWC Pacific : San Diego, CA	2.651	0.000		0.000		0.000		-		0.000	-	-	-
		Subtotal	3.055	0.000		0.046		0.075		-		0.075	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3324 / *Navy Air Operations Command and Control (NAOC2)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-	-	-
		Subtotal	1.068	0.000		0.000		0.000		-		0.000	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.853	0.681		0.517		0.717		-		0.717	-	-	N/A

Remarks

The $200K increase in FY22 will provide additional resources to support increased integration and testing efforts for Kessel Run (KR) related to containerizing KR applications and configuring with Agile Core Services (ACS), as well as increased development and integration of Kubernetes-based containers from the USAF into the CANES environment

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 3324 / *Navy Air Operations Command and Control (NAOC2)*

Exhibit R-4, RDT&E Schedule Profile: PB 2022													Date: April 2021
Appropriation/Budget Activity RDT&E,N 1319 / 05					**R-1 Program Element (Number/Name)** PE 0604231N / Tactical Command System								**Project (Number/Name)** 3324/Navy Air Operations Command and Control (NAOC2)
Fiscal Year	2020				2021				2022				[redacted]
	1	2	3	4	1	2	3	4	1	2	3	4	
Kessel Run Integration and Test	[redacted]				Continuous Software Application - Agile Testing and Development								

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**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				
Kessel Run Integration and Test	1	2020	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / *COMMAND AND CONTROL*	Project (Number/Name) 9123 / *FORCEnet*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
9123: *FORCEnet*	243.967	2.095	2.225	2.218	-	2.218	-	-	-	-	-	-
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: FORCEnet	2.095	2.225	2.218	0.000	2.218
Articles:	-	-	-	-	-
FY 2021 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 SoS engineering assessments identifying integration and interoperability gaps, trades, and solutions for sponsor related equities. -Continue to identify Navy mission area gaps in IW capabilities to prioritize 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 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 2022 Base Plans: -Continue to expand upon System of Systems (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.					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 9123 / *FORCEnet*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
-Continue to utilize and study Navy mission areas in support of 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 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $0.007M between FY 2021 and FY 2022 is attributed to reduced support required to identify critical Portfolio Health Assessment(PHA) architectural dependencies that enable mission situational awareness.					
Accomplishments/Planned Programs Subtotals	2.095	2.225	2.218	0.000	2.218

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 9123 / *FORCEnet*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-	-	-
		Subtotal	4.331	0.000		0.000		0.000		-		0.000	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-	-	-
Information Warfare Roadmaps and Analysis	C/CPFF	Metron : Reston, VA	13.856	1.677	May 2020	1.710	May 2021	1.738	May 2022	-		1.738	-	-	-
Information Warfare Roadmaps and Analysis	WR	NIWC PAC : San Diego, CA	3.334	0.418	May 2020	0.515	May 2021	0.480	May 2022	-		0.480	-	-	-
Information Warfare Roadmaps and Analysis	C/CPFF	BAH : McLean, VA	0.651	0.000		0.000		0.000		-		0.000	-	-	-
		Subtotal	154.683	2.095		2.225		2.218		-		2.218	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-	-	-
		Subtotal	77.271	0.000		0.000		0.000		-		0.000	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 9123 / *FORCEnet*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-	-	-
		Subtotal	7.682	0.000		0.000		0.000		-		0.000	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	243.967	2.095		2.225		2.218		-		2.218	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 9123 / *FORCEnet*

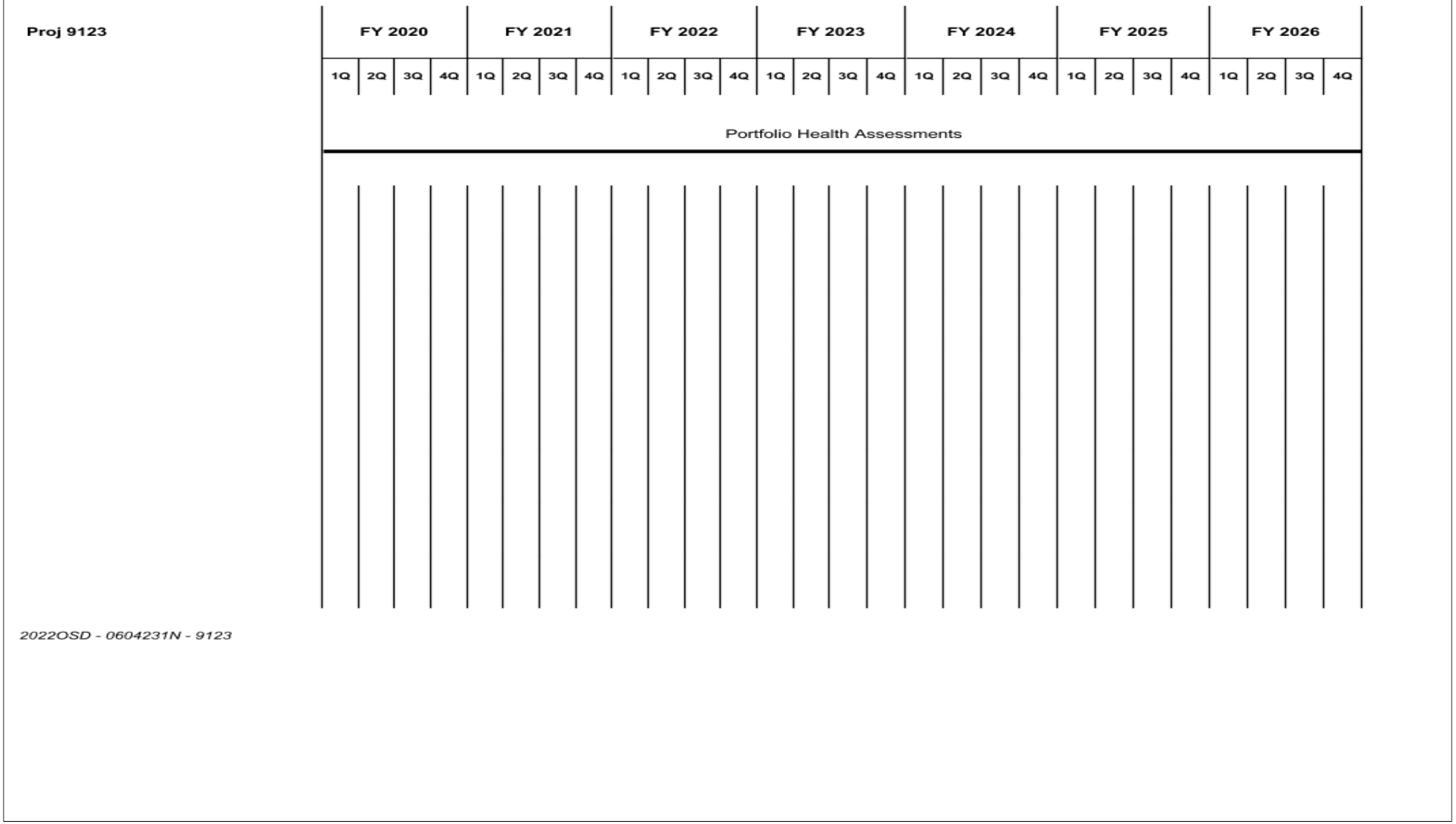


Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604231N / *COMMAND AND CONTROL*	**Project (Number/Name)** 9123 / *FORCEnet*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9123				
Portfolio Health Assessments	1	2020	4	2022