Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy											Date: February 2020	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604757N *I Ship Self Def (Engage: Soft Kill/EW)*							
COST ($ in Millions)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
Total Program Element	574.782	124.769	95.282	89.373	-	89.373	40.516	41.001	36.278	36.995	Continuing	Continuing
0954: *Shipboard EW Improvement Program*	44.007	10.913	15.865	16.375	-	16.375	16.448	16.735	17.061	17.392	Continuing	Continuing
2190: *NULKA Decoy*	43.427	3.805	5.090	5.291	-	5.291	6.962	7.036	7.179	7.322	Continuing	Continuing
3316: *Advanced Offboard EW*	160.758	70.691	52.198	44.814	-	44.814	10.203	10.283	4.960	5.060	Continuing	Continuing
3321: *SEWIP Block 3*	326.590	39.360	22.129	22.893	-	22.893	6.903	6.947	7.078	7.221	Continuing	Continuing

A. Mission Description and Budget Item Justification

0954 - The Surface Electronic Warfare Improvement Program (SEWIP) is segmented into Block 1A, Block 1B, Block 2, Block 3 and Soft Kill Coordination System (SKCS). Block 1A upgraded the AN/SLQ-32 pulse-processing computers and the display consoles allowing the system to more quickly identify threats and better display the information to the operator. Block 1B added adjunct sensors for special signal intercept, including Specific Emitter Identification (SEI), and High Gain High Sensitivity (HGHS) (Block 1B3), a critical improvement for the threat correlation, situational awareness, and extending the battle space. Block 2 enhanced Surface Electronic Warfare (EW) and provided improved Anti-Ship Missile Defense (ASMD) and Situational Awareness (SA) through an improved Electronic Support (ES) receiver, antenna, and combat system interface. The addition of Block 2 to Block 1B3 forms the AN/SLQ-32 (V)6. Block 3 will provide an enhanced Electronic Attack (EA) capability to improve ASMD and counter-targeting. The addition of Block 3 to AN/SLQ-32 (V)6 forms the AN/SLQ-32(V)7 system. EW Rapid Capability Insertion Process (RCIP) identifies system and mission capability gaps by analyzing EW baseline and fleet requirements, prioritizes those gaps based on fleet input and critical technology maturity, and develops upgrades to the AN/SLQ-32(V) product line to address those gaps. The SKCS will provide SK weapon coordination and enhanced situational awareness to the AN/SLQ-32 (V)6 with EW/radar track association to support SK engagement decisions, including Radar Cued Engagements (RCE) and EA with both onboard EA, provided by AN/SLQ-32 (V)7, and off-board EA. RCIP also integrates Future Naval Capability (FNC) programs into SEWIP.

2190 - The Offboard Active Decoy (NULKA) is a joint cooperative program between the United States and Australia that developed an active offboard decoy that utilizes a broadband radio frequency repeater mounted atop a hovering rocket. NULKA counters a wide variety of present and future radar guided Anti-Ship Missiles (ASMs) by radiating a large radar cross section while flying a ship-like trajectory. The United States developed the electronic payload and fire control system, while Australia developed the hovering rocket. FY21 funding includes Decoy Launcher Processor (DLP) technology refresh to address obsolescence issues. This effort consists of development of the Decoy Launch Message Convertor (DLMC) and delivery of Engineering Development Models (EDMs) to support Factory Qualification Testing (FQT) and Environmental Qualification Testing (EQT) to improve employment of the NULKA system.

3316 - The Advanced Offboard EW (AOEW) program is for the development of long duration off-board decoys integrated with onboard systems for EW coordination to counter identified EW gaps (additional details classified) in response to an urgent operational need from the Fleet that has been approved by the CNO for execution. Currently no counter to the threat exists. In FY 2012, the program began with a Rapid Response Effort (RRE) which was completed in FY 2014. The RRE consisted of the evaluation and integration of commercially available decoys. The Decoy Development Effort (DDE) consists of the development and evaluation of a long duration, active electronic offboard decoy system (payload) integrated on an existing flight vehicle (MH-60R/MH-60S), integration with ship and air systems, and a government

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Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604757N *I Ship Self Def (Engage: Soft Kill/EW)*

software development effort to integrate AOEW into the Soft Kill Coordination System (SKCS) to gain maximum effectiveness from the decoy through coordination with an onboard system.

The DDE Preliminary Design contract was awarded Dec 2016 followed by a System Requirements Review (SRR)/System Functional Review (SFR) leading to a Preliminary Development Review (PDR) in Sep 2017. The Engineering Manufacturing and Development (EMD) Option was awarded in Sep 2017. The program schedule was revised to align with funding limitations in FY17 through FY20, however in FY21 the budget increases to support completion of critical technical tasking. The Factory Qualification Test (FQT) will be completed on the Engineering Development Models (EDMs) to support completion and delivery of the Technical Data Package (TDP) and developmental testing. As a result, developmental testing is scheduled to complete in FY22 and operational testing is scheduled to complete in FY23. Operational test results (Initial Operational Test & Evaluation) is planned to support the Full Rate Production (FRP) decision scheduled for FY23.

NAVAIR Avionics Operating Program (AOP) software development and Flight Certification are required to support fielding of the AOEW decoy. The AOP software supports integration of the AOEW decoy with the MH-60R/S airframe and is required for successful completion of Flight Certification. Flight Certification ensures operational Safety of Flight and is critical to successful decoy fielding. NAVAIR Flight Certification will complete in FY22.

3321 - SEWIP Block 3 is developing an Electronic Attack (EA) capability improvement required for the AN/SLQ-32(V) system to keep pace with the threat. SEWIP Block 3 will provide the AN/SLQ-32(V)7 system for all surface ships (CVN, DDG, LHD) outfitted with the active variant of the AN/SLQ-32, mainly the (V)3 and (V)4, as well as select new construction platforms.

The SEWIP Block 3 Acquisition leverages technology developed under the Office of Naval Research's (ONR) Integrated Topside (InTop) Science and Technology (S&T) effort. SEWIP Block 3 will continue to expand the integrated shipboard combat system by providing a new integrated EA transmitter, array, and associated EA techniques. The AN/SLQ-32(V)7 integrates the new EA countermeasure (SEWIP Block 3) with the AN/SLQ-32(V)6. The AN/SLQ-32(V)6 includes an Electronic Support(ES) receiver (SEWIP Block 2), a High Gain High Sensitivity (HGHS) receiver (SEWIP Block 1B3), a Specific Emitter Identifier (SEI) receiver (SEWIP Block 1B2), display console, and backend electronics. SEWIP Block 3 includes a government software development and integration effort for a SoftKill Coordinator (SKC) to manage EA engagements. SEWIP Block 3 is developing an Electronic Warfare Test Bed (EWTB) to validate system performance.

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy					Date: February 2020
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*			R-1 Program Element (Number/Name) PE 0604757N *I Ship Self Def (Engage: Soft Kill/EW)*		
B. Program Change Summary ($ in Millions)	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**
Previous President's Budget	120.210	97.363	111.380	-	111.380
Current President's Budget	124.769	95.282	89.373	-	89.373
Total Adjustments	4.559	-2.081	-22.007	-	-22.007
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.081			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	7.123	0.000			
• SBIR/STTR Transfer	-2.563	0.000			
• Program Adjustments	0.000	0.000	-22.274	-	-22.274
• Rate/Misc Adjustments	-0.001	0.000	0.267	-	0.267

Change Summary Explanation

FY2021 funding decrease of -$22.007M is due to an increase of $19.300 for the AOEW Program and other miscellaneous rate adjustments and a $41.574 reduction to SEWIP Block 4 for higher Navy priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 0954 / *Shipboard EW Improvement Program*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
0954: *Shipboard EW Improvement Program*	44.007	10.913	15.865	16.375	-	16.375	16.448	16.735	17.061	17.392	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

0954 - The Surface Electronic Warfare Improvement Program (SEWIP) is segmented into Block 1A, Block 1B, Block 2, Block 3 and Soft Kill Coordination System (SKCS). Block 1A upgraded the AN/SLQ-32 pulse-processing computers and the display consoles allowing the system to more quickly identify threats and better display the information to the operator. Block 1B added adjunct sensors for special signal intercept, including Specific Emitter Identification (SEI), and High Gain High Sensitivity (HGHS) (Block 1B3), a critical improvement for the threat correlation, situational awareness, and extending the battle space. Block 2 enhanced Surface Electronic Warfare (EW) and provided improved Anti-Ship Missile Defense (ASMD) and situational awareness (SA) through an improved Electronic Support (ES) receiver, antenna, and combat system interface. The addition of Block 2 to Block 1B3 forms the AN/SLQ-32 (V)6. Block 3 will provide an enhanced electronic attack (EA) capability to improve ASMD and counter-targeting. The addition of Block 3 to AN/SLQ-32 (V)6 forms the AN/SLQ-32(V)7 system. EW Rapid Capability Insertion Process (RCIP) identifies system and mission capability gaps by analyzing EW baseline and fleet requirements, prioritizes those gaps based on fleet input and critical technology maturity, and develops upgrades to the AN/SLQ-32(V) product line to address those gaps. The SKCS will provide SK weapon coordination and enhanced situational awareness to the AN/SLQ-32 (V)6 with EW/radar track association to support SK engagement decisions, including Radar Cued Engagements (RCE) and EA with both onboard EA, provided by AN/SLQ-32 (V)7, and off-board EA. RCIP also integrates Future Naval Capability (FNC) programs into SEWIP.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Electronic Warfare Rapid Capability Insertion Process (EW RCIP)	10.913	15.865	16.375	0.000	16.375
Articles:	-	-	-	-	-
FY 2020 Plans: - Continue RCIP #4 SKCS efforts to address platform gaps for automatic and semi-automatic engagements using Nulka decoys, onboard Electronic Attack (EA) (AN/SLQ-32 (V)7), and offboard EA systems; Initiate and complete software development and system integration and testing activities for delivery of completed software builds with capabilities including Hard Kill (HK)/Softkill (SK) coordination and enhanced capabilities for onboard EA and offboard EA coordination, including automatic association and classification techniques; Continue integration and testing activities in support of AEGIS ACB 16 baseline by completing element certification in support of AEGIS ACB 16 Baseline 9.2.2 (Phase 2); Initiate integration and testing activities in support of AEGIS ACB 20 (Baseline 10); Complete SKCS FQT for a software build in support of AN/SLQ-32(V)6 Formal Qualification Testing (FQT), and continue to participate in system integration events with AN/SLQ-32(V)6, AN/					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 0954 / *Shipboard EW Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
SLQ-32(V)7 and Offboard EW; Continue Ship Self Defense System (SSDS) ACB 20, Off-Shore Patrol Cutter (OPC) and FFG(X) integration support efforts. - Continue the transition of the Future Naval Capability (FNC) program, Softkill Performance and Real-Time Assessment (SPARTA) into SKCS; Utilize developed algorithms to measure key features observed in Softkill (SK) engagements and EA effectiveness and perform real-time assessment of SK performance; Complete the development of improved fleet weapons coordination, informed HK/SK prioritization, weapons conservation, and enhanced operator battlespace awareness by continuing to contribute integral feedback regarding non-kinematic performance; Continue to develop and update the interface, architecture and algorithms required for full transition into SKCS, taking into account ongoing SKCS build and capability completions; Continue to assess the results and readiness of the SPARTA demonstration for transition into an SKCS Build. - Complete RCIP #5 improvements to increase EW Tactical Simulation (TACSIM) capabilities to include system integration with Ship Self Defense System (SSDS), SKCS, AEGIS ACB-16, and the onboard Surface Electronic Warfare Team Trainer (SEWTT); Complete the TACSIM Phase 3 software delivery; Complete the TACSIM Phase 4 effort, software integration and software delivery, including expansion of the Phase 3 technology to add SLQ-32(V)7 support and upgrade SEWTT software to support countermeasure training. - Continue SEWTT development of trainer enhancements including additional SKCS, Nulka, and Offboard EW capabilities; Continue testing, integration, and documentation of the enhanced trainer and update associated training materials. - Complete the development phase, which started in FY19, of additional threat simulators for FNC Surveillance and Response System (CESARS) program; Complete laboratory and at-sea test with actual systems and simulator to validate CESARS design requirements; Continue development of SKCS pre-design material to include CESARS capability; Continue to support the development and testing of the Multi-spectral EO/IR Countermeasures against Advanced Threats (MEIRCAT) major deliverable component of CESARS; Continue the interface, architecture, and ship integration for CESARS transition into the SEWIP program. - Complete the design, development, and testing of AN/SLQ-32(V)6 and AN/SLQ-32(V)7 Electronic Support (ES) system enhancements to provide advanced EW capabilities; Complete the development of techniques that address new evolving threats, including the capabilities to sense dynamic radio frequency (RF) environments and generate an improved response to enhance ship survivability; Continue development of the prototype to test the techniques, and demonstrate the technique effectiveness and readiness for integration with the ship's software. - Initiate development of methods to improve radio frequency sensor planning for the Propagation Channel Assessment and Prediction (PCAP) FNC, to allow for the ability to clearly convey to EW and other shipboard personnel how the current and expected RF propagation conditions are affecting the ship's passive RF sensors;					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 0954 / *Shipboard EW Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Initiate development of methods for predicting and monitoring AN/SLQ-32(V)6 detection range performance against emitters of interest for mission planning, daily operations planning, and real-time monitoring; Initiate development of methods for predicting the passive fix accuracy based on specific or predicted conditions, for multiple passive sensors including multiple AN/SLQ-32(V)6 equipped ships. - Identify additional EW technology shortfalls and capability gaps based on the current and emerging Anti-Ship Missile (ASM) threats and fleet requirements; Solicit industry, University Affiliate Research Centers or government activities for technical solutions; Evaluate and select RCIP technology candidates; Evaluate RCIP technologies production readiness; Develop execution plans for selected candidates based on evaluated readiness and countermeasure technology prioritization.					
FY 2021 Base Plans: - Continue RCIP #4 SKCS efforts to address platform gaps for automatic and semi-automatic engagements using Nulka decoys, onboard Electronic Attack (EA) (AN/SLQ-32 (V)7), and offboard EA systems; Initiate and complete software development and system integration and testing activities for delivery of completed software builds with capabilities including coordination of Nulka and combination engagements with AN/SLQ-32(V)6, AN/SLQ-32(V)7, and offboard EW for enhanced coordination technique deployment; Continue integration and testing activities in support of AEGIS ACB 20 (Baseline 10) by participating in AEGIS ACB 20 integration events and preparing a fully tested software build for element certification; Complete SKCS FQT for a software build in support of AN/SLQ-32(V)6 FQT, and continue to participate in system integration events with AN/ SLQ-32(V)6, AN/SLQ-32(V)7 and Offboard EW; Continue SSDS ACB 20, OPC, and FFG(X) integration support efforts. - Continue the transition of the Future Naval Capability (FNC) program, Softkill Performance and Real-Time Assessment (SPARTA) into SKCS; Utilize developed algorithms to measure and improve key features observed in Softkill (SK) engagements and EA effectiveness, and perform real-time assessment of SK performance; Continue to develop and update the interface, architecture and algorithms required for full transition into SKCS, taking into account ongoing SKCS build and capability completions; Initiate the transition of SPARTA into an SKCS Build for AEGIS ACB 20. - Complete SEWTT development of trainer enhancements including additional SKCS, Nulka, and Offboard EW capabilities; Complete testing, integration, and documentation of the enhanced trainer and update associated training materials. - Complete the prototype and demonstration of AN/SLQ-32(V)6 and AN/SLQ-32(V)7 Electronic Support (ES) system algorithm enhancements to provide advanced EW electronic sensing capabilities; Complete development activities for a new EA technique capable of addressing a new identified anti-ship missile (ASM) threat, including demonstration of the technique's effectiveness and readiness to be integrated into SEWIP.					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 0954 / *Shipboard EW Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Continue development of methods to improve radio frequency (RF) sensor planning for the Propagation Channel Assessment and Prediction (PCAP) FNC to add the capability to convey to EW and other shipboard personnel how the current and expected RF propagation conditions are affecting the ship's passive RF sensors; Conduct research to evaluate if the effects of both surface and evaporative ducting conditions on RF propagation are currently accurately captured; Perform initial software development activities for an AN/SLQ-32(V)6 Signal Nominal Range (SNR) Tool including coding of a Tactical Computer Software Configuration Item (CSCI) for the SEWIP program to include the SNR tool functionality into the EW operator and EW supervisor tactical interfaces. - Support the completion of final testing for CESARS component Multi-spectral EO/IR Countermeasures against Advanced Threats (MEIRCAT); Complete the interface, architecture, and ship integration for CESARS transition into the SEWIP program; Complete the SKCS pre-design material required to include CESARS capability. - Initiate RCIP #6 AN/SLQ-32 (V)6 Built In Test (BIT) improvements which focus on increasing the AN/SLQ-32(V)6 operator's tactical situational awareness and confidence in both system performance and the ability to successfully carry out shipboard repairs; Evaluate the current state of BIT effectiveness and analyze a candidate solution set to determine an optimal solution to be developed and released in two phases; Initiate the implementation, test, and release of the identified solution by: performing architecture and software code changes needed to support independent AN/SLQ-32(V)6 tactical and BIT development, testing on an engineering system, validating BIT improvements, and preparing the Phase 1 software delivery for verification and validation in a AN/SLQ-32(V)6 software test cycle and combat system (CS) testing. - Identify additional EW technology shortfalls and capability gaps based on the current and emerging Anti-Ship Missile (ASM) threats and fleet requirements; Solicit industry, University Affiliate Research Centers or government activities for technical solutions; Evaluate and select RCIP technology candidates; Evaluate RCIP technologies production readiness; Develop execution plans for selected candidates based on evaluated readiness and countermeasure technology prioritization. ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Increase in FY2021 due to minor program and rate adjustments.					
Accomplishments/Planned Programs Subtotals	10.913	15.865	16.375	0.000	16.375

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 0954 / *Shipboard EW Improvement Program*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• OPN/2312: *OPN BA-2 AN/SLQ-32(V)*	352.677	340.706	387.195	-	387.195	417.015	404.848	345.809	349.898	2,339.826	6,195.165
• 24575N & 72827N/1C1C: *OMN BA-1 AN/SLQ-32(V)*	7.102	6.122	4.524	-	4.524	4.719	4.883	5.033	5.145	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Rapid Capability Insertion Process (RCIP) is a process that identifies candidate capability gap/technology solution pairs, refines the value proposition description for each pair, prioritizes projects for funding and executes projects that result in improved capability transitioned to the fleet.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 0954 / *Shipboard EW Improvement Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RCIP #4 SKCS	SS/CPFF	APL : Laurel, MD	4.268	1.367	Dec 2018	2.010	Nov 2019	2.939	Dec 2020	-		2.939	Continuing	Continuing	Continuing
RCIP #4 SKCS	WR	NSWC Dahlgren : Dahlgren, VA	7.454	2.441	Nov 2018	4.947	Nov 2019	5.542	Nov 2020	-		5.542	Continuing	Continuing	Continuing
RCIP #5 TACSIM	WR	NSWC Dahlgren : Dahlgren, VA	3.527	1.144	Dec 2018	1.700	Nov 2019	0.000		-		0.000	Continuing	Continuing	Continuing
SEWTT Development	SS/CPFF	EWA : Fairmont, WV	0.359	0.306	Feb 2019	0.560	Nov 2019	0.300	Nov 2020	-		0.300	Continuing	Continuing	Continuing
CESARS	WR	NRL : Washington, DC	0.000	0.937	Dec 2018	1.781	Nov 2019	0.647	Nov 2020	-		0.647	0.000	3.365	-
PCAP	WR	NRL : Washington DC	0.000	0.000		0.557	Nov 2019	1.046	Nov 2020	-		1.046	0.000	1.603	-
RCIP #6 BIT and Processing Improvements	WR	NSWC Crane : Crane, IN	0.000	0.000		0.000	Nov 2020	1.431	Nov 2020	-		1.431	0.000	1.431	-
AN/SLQ-32(V)6 and (V)7 SW Algorithm Enhancements	MIPR	MIT : Hanscom AFB, MA	0.000	0.325	Jan 2019	0.301	Jan 2020	0.200	Jan 2021	-		0.200	0.000	0.826	-
		Subtotal	15.608	6.520		11.856		12.105		-		12.105	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 1 Government Engineering Support	WR	NSWC Dahlgren : Dahlgren, VA	6.990	0.607	Nov 2018	0.461	Nov 2019	0.440	Nov 2020	-		0.440	Continuing	Continuing	Continuing
Block 1 Government Engineering Support	WR	NSWC Crane : Crane, IN	5.295	0.533	Dec 2018	0.521	Nov 2019	0.502	Nov 2020	-		0.502	Continuing	Continuing	Continuing
Block 1 Government Engineering Support	WR	NRL : Washington, DC	3.962	0.344	Dec 2018	0.223	Nov 2019	0.000		-		0.000	0.000	4.529	Continuing
Block 1 Government Engineering Support	SS/CPFF	APL : Laurel, MD	2.865	0.635	Dec 2018	0.282	Nov 2019	0.495	Nov 2020	-		0.495	Continuing	Continuing	Continuing
Block 1 Government Engineering Support	MIPR	MIT : Hanscom AFB, MA	1.070	0.762	Dec 2018	0.802	Nov 2019	0.792	Nov 2020	-		0.792	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 0954 / *Shipboard EW Improvement Program*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 1 Government Engineering Support	MIPR	DISA : Fort Meade, MD	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	-
		Subtotal	20.232	2.881		2.289		2.229		-		2.229	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RCIP Test Planning/T&E Events	WR	NSWC Dahlgren : Dahlgren, VA	2.216	0.529	Nov 2018	0.448	Nov 2019	0.797	Nov 2020	-		0.797	Continuing	Continuing	Continuing
RCIP Test Planning/T&E Events	WR	NSWC Crane : Crane, IN	0.889	0.000		0.000		0.000		-		0.000	0.000	0.889	-
RCIP Test Planning/T&E Events	WR	NRL : Washington, DC	1.729	0.317	Dec 2018	0.446	Nov 2019	0.604	Nov 2020	-		0.604	Continuing	Continuing	Continuing
RCIP Test Planning/T&E Events	SS/CPFF	APL : Laurel, MD	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-
RCIP Test Planning/T&E Events	WR	COMOPTEVFOR : Norfolk, VA	0.104	0.000		0.000		0.000		-		0.000	0.000	0.104	-
		Subtotal	5.038	0.846		0.894		1.401		-		1.401	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 1 Program Management Support	C/CPIF	TMB (SEAPORT) : Washington, D.C.	0.794	0.221	Jan 2019	0.262	Nov 2019	0.200	Nov 2020	-		0.200	Continuing	Continuing	Continuing
Block 1 Program Management Support	C/CPIF	SPA : Washington, DC	0.743	0.221	Dec 2018	0.262	Nov 2019	0.200	Nov 2020	-		0.200	Continuing	Continuing	Continuing
Block 1 Program Managment Support	C/CPIF	CACI (SEAPORT) : Washington, DC	0.229	0.221	Jan 2019	0.262	Nov 2019	0.200	Nov 2020	-		0.200	0.000	0.912	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 0954 / *Shipboard EW Improvement Program*	

Management Services ($ in Millions)

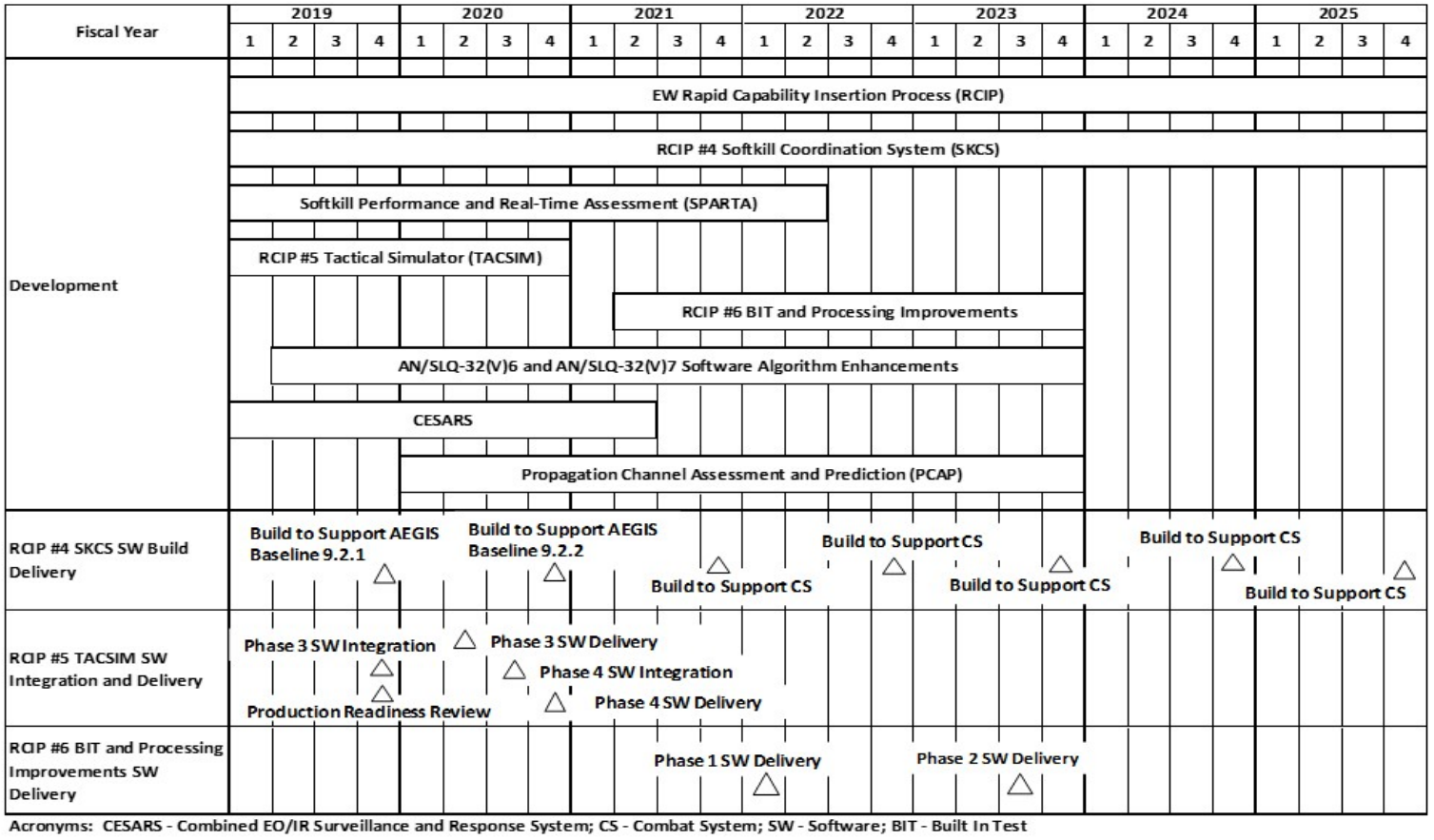
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 1 Travel	Sub Allot	NAVSEA Program Office Travel : Washington, DC	1.363	0.003	Dec 2018	0.040	Nov 2019	0.040	Nov 2020	-		0.040	Continuing	Continuing	Continuing
		Subtotal	3.129	0.666		0.826		0.640		-		0.640	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	44.007	10.913		15.865		16.375		-		16.375	Continuing	Continuing	N/A

Remarks

Since FY 2020 President's Budget request, FY19 funds were realigned to higher Navy priorities for SEWIP Block 3.

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 0954 / *Shipboard EW Improvement Program*



Acronyms: CESARS - Combined EO/IR Surveillance and Response System; CS - Combat System; SW - Software; BIT - Built In Test

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 0954 / *Shipboard EW Improvement Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0954				
EW Rapid Capability Insertion Process (RCIP)	1	2019	4	2025
RCIP #4: SKCS	1	2019	4	2025
Softkill Performance and Real-Time Assessment (SPARTA)	1	2019	2	2022
RCIP #5 TACSIM	1	2019	4	2020
RCIP #6: BIT and Processing Improvements	2	2021	4	2023
AN/SLQ-32(V)6 and AN/SLQ-32(V)7 Software Algorithm Enhancements	2	2019	4	2023
Combined EO/IR Surveillance and Response System (CESARS)	1	2019	2	2021
Propagation Channel Assessment and Prediction	1	2020	4	2023
RCIP #4 SKCS SW Build Delivery	4	2019	4	2025
RCIP #5 TACSIM SW Integration and Delivery	4	2019	4	2020
RCIP #6 BIT and Processing Improvements SW Delivery	1	2022	3	2023

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 2190 / *NULKA Decoy*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
2190: *NULKA Decoy*	43.427	3.805	5.090	5.291	-	5.291	6.962	7.036	7.179	7.322	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Offboard Active Decoy (NULKA) is a joint cooperative program between the United States and Australia that developed an active offboard decoy that utilizes a broadband radio frequency repeater mounted atop a hovering rocket. NULKA counters a wide variety of present and future radar guided Anti-Ship Missiles (ASMs) by radiating a large radar cross section while flying a ship-like trajectory. The United States developed the electronic payload and fire control system, while Australia developed the hovering rocket. FY21 funding includes Decoy Launcher Processor (DLP) technology refresh to address obsolescence issues. This effort consists of development of the Decoy Launch Message Convertor (DLMC) and delivery of Engineering Development Models (EDMs) to support Factory Qualification Testing (FQT) and Environmental Qualification Testing (EQT) to improve employment of the NULKA system.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: NULKA Decoy Subsystem	3.805	5.090	5.291	0.000	5.291
Articles:	-	-	-	-	-
FY 2020 Plans: - Conduct engineering and effectiveness studies to evaluate new and existing threats; update Fly-Out Tactics table for specific platforms (as appropriate) - Develop NULKA-X/Y modeling and simulation tools and update lab equipment to support threat assessments - Continue Decoy Launch Processor (DLP) technology refresh to design and develop hardware obsolescence solutions - Deliver DLPP 6_8 software that will integrate with NULKA-X/Y - Commence development of DLPP 6_9 software that will integrate with SKCS and Advanced NULKA Decoy - Continue development of the Decoy Launch Message Convertor (DLMC) - Deliver DLMC Engineering Development Models (EDMs) to support Factory Qualification Testing (FQT) and Environmental Qualification Testing (EQT) to improve employment of the NULKA system - Commence planning for FQT/EQT					
FY 2021 Base Plans: - Continue engineering and effectiveness studies to evaluate new and existing threats; update Fly-Out Tactics table for specific platforms (as appropriate) - Continue Decoy Launch Processor (DLP) technology refresh to design and develop hardware obsolescence solutions					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 2190 / *NULKA Decoy*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Continue development and deliver DLPP 6_9 software that will integrate with SKCS and Advanced NULKA Decoy - Continue development of the Decoy Launch Message Convertor (DLMC) - Conduct DLMC FQT/EQT ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase in FY21 supports Factory Qualification Testing (FQT) and Environmental Qualification Testing (EQT).					
Accomplishments/Planned Programs Subtotals	3.805	5.090	5.291	0.000	5.291

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• OPN/5231: *Ship Missile Support Equipment*	30.278	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPN/5530: *Anti-Ship Missile Decoy System*	0.000	38.462	86.356	-	86.356	79.795	71.385	72.662	74.098	385.957	808.715
• OMN/11CD0 (1C1C): *NULKA*	5.776	6.155	7.058	-	7.058	7.828	8.012	8.220	8.149	Continuing	Continuing

Remarks

In FY20, NULKA OPN funds were realigned from BLI 5231 to BLI 5530.

D. Acquisition Strategy

NULKA is a joint cooperative program between United States and Australia.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 2190 / *NULKA Decoy*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NRL : Washington, DC	20.577	0.700	Dec 2018	1.689	Nov 2019	0.951	Nov 2020	-		0.951	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC Dahlgren : Dahlgren, VA	13.525	2.376	Dec 2018	1.678	Jan 2020	1.954	Nov 2020	-		1.954	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC Crane : IN	7.663	0.204	Dec 2018	1.275	Nov 2019	1.985	Nov 2020	-		1.985	Continuing	Continuing	Continuing
		Subtotal	41.765	3.280		4.642		4.890		-		4.890	Continuing	Continuing	N/A

Remarks

FY20 NRL increase is due to NULKA-X/Y modeling and simulation development as well as non-recurring hardware costs to update lab equipment to support threat assessments. FY20 Crane increase is due to DLMC development.

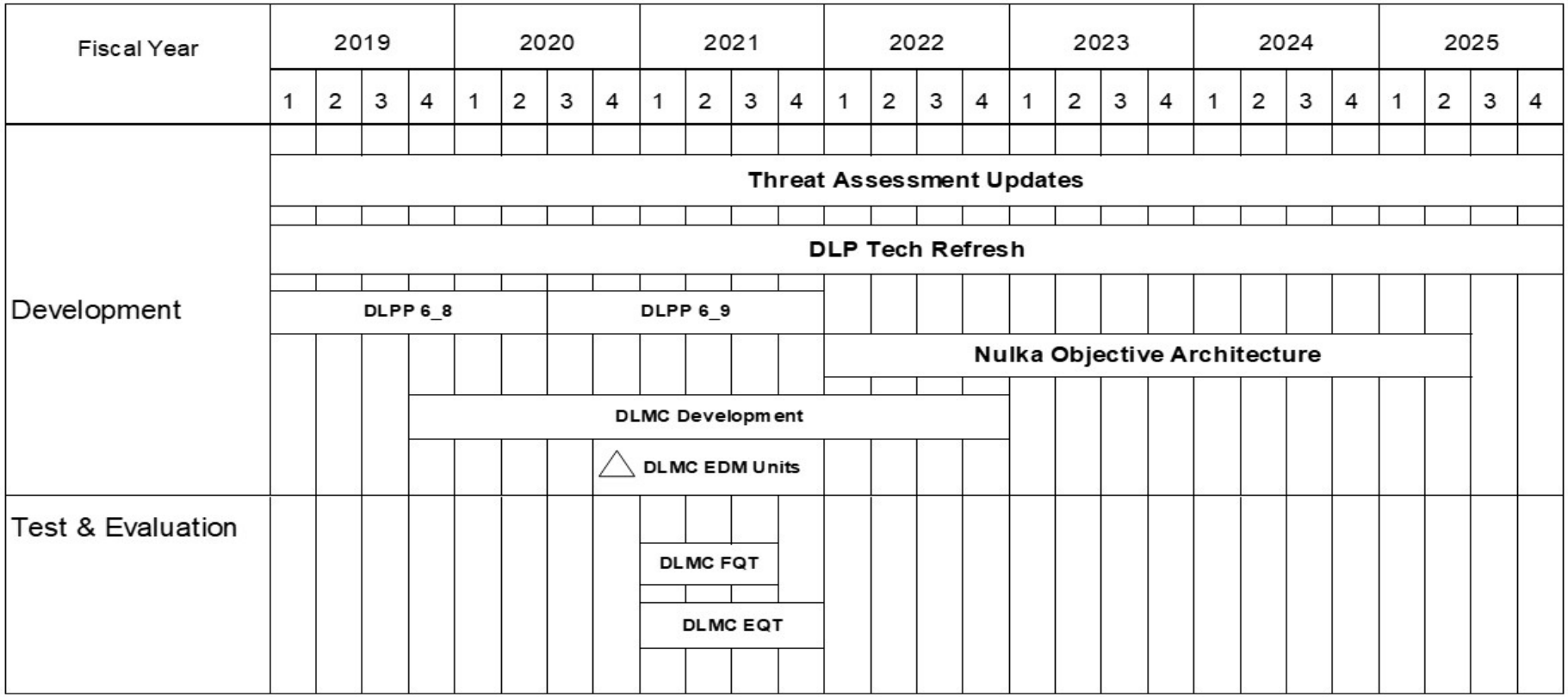
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPIF	ICI (SEAPORT) : Washington, DC	0.221	0.102	Jan 2019	0.000		0.000		-		0.000	0.000	0.323	-
Program Management Support	C/CPIF	TMB (SEAPORT) : Washington, DC	0.363	0.102	Jan 2019	0.106	Feb 2020	0.107	Nov 2020	-		0.107	Continuing	Continuing	Continuing
Program Management Support	C/CPIF	SPA : Washington, DC	0.395	0.306	Dec 2018	0.332	Feb 2020	0.284	Nov 2020	-		0.284	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA Program Office Travel : Washington, DC	0.683	0.015	Nov 2018	0.010	Nov 2019	0.010	Nov 2020	-		0.010	Continuing	Continuing	Continuing
		Subtotal	1.662	0.525		0.448		0.401		-		0.401	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.427	3.805		5.090		5.291		-		5.291	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 2190 / *NULKA Decoy*



Acronyms: DLMC - Decoy Launch Message Convertor; DLP - Decoy Launch Processor; DLPP - Decoy Launch Processor Program; EDM - Engineering Development Models; EQT - Environmental Qualification Testing; FQT - Factory Qualification Testing;

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 2190 / *NULKA Decoy*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2190				
Threat Assessment Updates	1	2019	4	2025
Decoy Launch Processor (DLP) Tech Refresh	1	2019	4	2025
DLPP 6_8	1	2019	2	2020
DLPP 6_9	3	2020	4	2021
Decoy Launch Message Convertor (DLMC) Development	4	2019	4	2022
DLMC Engineering Development Model (EDM) Units	4	2020	4	2020
DLMC Facotry Qualification Testing (FQT)	1	2021	3	2021
DLMC Environmental Qualification Testing (EQT)	1	2021	4	2021
Nulka Objective Architecture	1	2022	2	2025

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 3316 / *Advanced Offboard EW*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
3316: *Advanced Offboard EW*	160.758	70.691	52.198	44.814	-	44.814	10.203	10.283	4.960	5.060	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

3316 - The Advanced Offboard EW (AOEW) program is for the development of long duration off-board decoys integrated with onboard systems for EW coordination to counter identified EW gaps (additional details classified) in response to an urgent operational need from the Fleet that has been approved by the CNO for execution. Currently no counter to the threat exists. In FY12, the program began with a Rapid Response Effort (RRE) which was completed in FY 2014. The RRE consisted of the evaluation and integration of commercially available decoys. The Decoy Development Effort (DDE) consists of the development and evaluation of a long duration, active electronic offboard decoy system (payload) integrated on an existing flight vehicle (MH-60R/MH-60S), integration with ship and air systems, and a government software development effort to integrate AOEW into the Soft Kill Coordination System (SKCS) to gain maximum effectiveness from the decoy through coordination with an onboard system.

The DDE Preliminary Design contract was awarded Dec 2016 followed by a System Requirements Review (SRR)/System Functional Review (SFR) leading to a Preliminary Development Review (PDR) in Sep 2017. The Engineering Manufacturing and Development (EMD) Option was awarded in Sep 2017. The program schedule was revised to align with funding limitations in FY17 through FY20, however in FY21 the budget increases to support completion of critical technical tasking. The Factory Qualification Test (FQT) will be completed on the Engineering Development Models (EDMs) to support completion and delivery of the Technical Data Package (TDP) and developmental testing. As a result, developmental testing is scheduled to complete in FY22 and operational testing is scheduled to complete in FY23. Operational test results (Initial Operational Test & Evaluation) is planned to support the Full Rate Production (FRP) decision scheduled for FY23.

NAVAIR Avionics Operating Program (AOP) software development and Flight Certification are required to support fielding of the AOEW decoy. The AOP software supports integration of the AOEW decoy with the MH-60R/S airframe and is required for successful completion of Flight Certification. Flight Certification ensures operational Safety of Flight and is critical to successful decoy fielding. NAVAIR Flight Certification will complete in FY22.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: AOEW - Decoy Development Effort (DDE) Government Engineering	20.710	19.898	23.645	0.000	23.645
Articles:	-	-	-	-	-
FY 2020 Plans: - Complete MS-C planning and documentation preparation - Conduct Integrated Logistics Assessment (ILA) - Conduct MS-C - Continue interoperability analysis to ensure all system of systems are compatible					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3316 / *Advanced Offboard EW*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Continue tactics analysis and development - Continue integration of ship and air interfaces - Continue SKCS development specific to AOEW - Continue development and testing of Avionics Operating Program (AOP) to update MH-60R/S software necessary for AOEW decoy and Helicopter Integration - Commence support of Trouble Report (TR) resolution for AOP software deliveries - Continue integration planning and testing of AOEW MH-60R/S, Combat Management System (CMS), SKCS, Command and Control Processor (C2P), and AOP - Continue sustainment and training plan development - Commence identification of and update of test assets needed to support Operational Testing - Continue test and Modeling & Simulation (M&S) development for Electronic Warfare Test Bed (EWTB) - Continue Surface Electronic Warfare Team Trainer (SEWTT) functionality development for the AOEW Decoy - Commence support of Factory Qualification Test (FQT) - Continue support of Test and Certification - Conduct Developmental Test (DT) Assist - Commence technique verification - Commence configuration management of Engineering Development Model (EDM) assets and baselines in support of programmatic needs - Continue Engineering Data Requirements Agreement Plan (EDRAP) Development - Continue NAVAIR MH-60R/S flight certification testing of EDMs. Flight certification is required by NAVAIR to ensure Safety of Flight and to certify the interoperability between the MH-60R/S and the AOEW decoy. Flight certification tests include: Ground and Flight Jettison, Flight Test for Mission Performance / Spec Compliance Flight Test, Functional Software Test, and Decoy Fit and Egress Test - Complete updates to the Capability Development Document (CDD) - Continue installation planning - Commence support of Security Software development - Commence support of Environmental/Electro Magnetic Interference (EMI) test planning - Commence and complete battery planning and certification					
FY 2021 Base Plans: - Continue interoperability analysis to ensure all system of systems are compatible - Continue tactics analysis and development - Continue integration of ship and air interfaces					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3316 / *Advanced Offboard EW*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Continue SKCS development specific to AOEW - Continue development and testing of AOP to update MH-60R/S software necessary for AOEW decoy and Helicopter Integration - Continue support of Trouble Report (TR) resolution for AOP software deliveries - Continue integration planning and testing of AOEW MH-60R/S, CMS, SKCS, C2P, and AOP - Continue sustainment and training plan development - Continue identification of and update of test assets needed to support Operational Testing - Continue test and M&S development for EWTB - Continue SEWTT functionality development for the AOEW Decoy - Continue support of FQT - Continue support of Test and Certification - Continue technique verification - Continue configuration management of EDM assets and baselines in support of programmatic needs - Continue EDRAP Development - Continue NAVAIR MH-60R/S flight certification testing of EDMs. Flight certification is required by NAVAIR to ensure Safety of Flight and to certify the interoperability between the MH-60R/S and the AOEW decoy. Flight certification tests include: Ground and Flight Jettison, Flight Test for Mission Performance / Spec Compliance Flight Test, Functional Software Test, and Decoy Fit and Egress Test - Commence Production Readiness Review (PRR) - Continue installation planning - Continue support of Security Software development - Commence support of Low Rate Initial Production (LRIP) - Continue support of Environmental/EMI test planning ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase of Government Engineering in FY21 is due to a re-start of effort following a partial slow down of effort in FY20, to remain within funding limitations.					
Title: AOEW - Decoy Development Effort (DDE) Development	49.981	32.300	21.169	0.000	21.169
Articles:	-	-	-	-	-
FY 2020 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Continue Engineering Development Model (EDM) Hardware and Software development and integration - Complete support of MS C planning and documentation preparation - Complete support of ILA - Complete support of MS C - Continue to support AOP to update MH-60R and MH-60S software necessary for AOEW decoy and Helicopter integration - Continue to support integration planning and testing of AOEW, MH-60R/S, CMS, SKCS, C2P, and AOP - Commence Factory Qualification Test (FQT) on an EDM - Continue to support NAVAIR flight certification testing of EDMs. Flight certification is required by NAVAIR to ensure Safety of Flight and to certify the interoperability between the MH-60R/S and AOEW decoy - Support Developmental Test (DT) Assist - Commence development of Security Software - Commence Environmental/EMI Test planning - Commence and complete support of battery planning and certification - Continue development of Technical Data Package (TDP) - Commence assembly of 4 EDMs					
FY 2021 Base Plans: - Continue EDM Hardware and Software development and integration - Continue assembly of 3 EDMs - Deliver 1 EDM - Continue to support AOP to update MH-60R and MH-60S software necessary for AOEW decoy and Helicopter integration - Continue to support integration planning and testing of AOEW, MH-60R/S, CMS, SKCS, C2P, and AOP - Continue FQT on an EDM - Continue to support NAVAIR flight certification testing of EDMs. Flight certification is required by NAVAIR to ensure Safety of Flight and to certify the interoperability between the MH-60R/S and AOEW decoy - Commence support of Production Readiness Review (PRR) - Continue Environmental/EMI Test planning - Complete development and deliver final TDP - Continue development of Security Software - Procure LRIP material					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3316 / *Advanced Offboard EW*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Commence Assembly of LRIP units ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of Development Engineering in FY21 is due to the completion of software development and antenna array development and testing.					
Accomplishments/Planned Programs Subtotals	70.691	52.198	44.814	0.000	44.814

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• OPN/5530: *Anti-ship Missile Decoy System*	0.000	0.000	32.671	-	32.671	18.906	0.000	0.000	0.000	0.000	51.577

Remarks

OPN Controls reflect the following Line Item 5530 Project Unit (PU) under the 'ANTI-SHIP MISSILE DECOY SYSTEM' program: VV500.

D. Acquisition Strategy

The AOEW DDE decoy is being competitively contracted and developed, and builds on technologies and concepts currently in development by ONR.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Concept Analysis and Integration Assessment	SS/CPFF	APL : Laurel, MD	11.707	0.000		0.000		0.000		-		0.000	0.000	11.707	Continuing
Concept Analysis and Technology Studies	WR	MIT-LL : Boston, MA	4.857	0.000		0.000		0.000		-		0.000	0.000	4.857	Continuing
Concept Development and Technology Studies	WR	NRL : Washington, D.C.	25.856	0.000		0.000		0.000		-		0.000	0.000	25.856	Continuing
Technology Development and Systems Requirements	WR	NSWC Dahlgren : Dahlgren, VA	14.595	0.000		0.000		0.000		-		0.000	0.000	14.595	Continuing
DDE Avionics Development	WR	NAVAIR : Patuxent River, MD	5.189	6.475	Dec 2018	6.725	Nov 2019	1.456	Nov 2020	-		1.456	Continuing	Continuing	Continuing
DDE Preliminary Design/ E&MD	C/CPIF	Lockheed Martin : Syracuse, NY	32.455	49.982	Oct 2018	32.300	Nov 2019	21.169	Nov 2020	-		21.169	Continuing	Continuing	Continuing
Ship Integration	WR	SPAWAR : San Diego, CA	0.975	0.000		0.000		0.000		-		0.000	0.000	0.975	-
Ship Integration	WR	NSWC Dahlgren : Dahlgren, VA	0.000	0.330	Dec 2018	0.000		0.000		-		0.000	0.000	0.330	-
		Subtotal	95.634	56.787		39.025		22.625		-		22.625	Continuing	Continuing	N/A

Remarks

Since FY 2020 President's Budget request, increase in Product Development funding in FY20 is required to support critical Lockheed Martin Milestone C Planning efforts and Engineering Development Model (EDM) assembly, integration and test. These efforts will continue in FY21.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Development Support	WR	NRL : Washington, DC	13.153	3.753	Jan 2019	2.977	Nov 2019	2.383	Nov 2020	-		2.383	Continuing	Continuing	Continuing
Government Development and Engineering Support	WR	NSWC Dahlgren : Dahlgren, VA	11.519	1.815	Dec 2018	1.240	Dec 2019	2.164	Nov 2020	-		2.164	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy			Date: February 2020
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NSWC Crane : Crane, IN	13.353	2.491	Nov 2018	2.622	Nov 2019	3.554	Nov 2020	-		3.554	Continuing	Continuing	Continuing
Logistics/Training	SS/CPFF	EWA : Fairmont, WV	0.866	0.750	Feb 2019	0.100	Nov 2019	0.800	Nov 2020	-		0.800	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC Carderock : Bethesda, MD	0.768	0.440	Feb 2019	0.050	Jan 2020	0.000		-		0.000	0.000	1.258	-
Systems Engineering Support	SS/CPFF	APL : Laurel, MD	5.822	1.564	Jan 2019	0.395	Jan 2020	0.395	Nov 2020	-		0.395	Continuing	Continuing	Continuing
Government Development Support	WR	NAVAIR : Patuxent River, MD	4.670	0.933	Dec 2018	1.536	Nov 2019	1.500	Nov 2020	-		1.500	Continuing	Continuing	Continuing
Systems Engineering Support	WR	MIT-LL : Boston, MA	0.034	0.000		0.000		0.000		-		0.000	0.000	0.034	-
Program Management Support	WR	DISA : Pensacola, FL	0.195	0.000		0.000		0.000		-		0.000	0.000	0.195	-
Installation Support	WR	Supship : Bath, ME	0.005	0.093	Feb 2019	0.025	Jan 2020	0.150	Nov 2020	-		0.150	Continuing	Continuing	Continuing
Integrated Logistics Assessment	WR	Corona : Norco, CA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Engineering Services	C/BA	Lockheed Martin : Syracuse, NY	0.000	0.000		0.000		0.100	Nov 2020	-		0.100	0.000	0.100	-
Battery Design	WR	NSWC Philadelphia : Philadelphia, PA	0.000	0.000		0.000		0.800	Nov 2020	-		0.800	0.000	0.800	-
		Subtotal	50.385	11.839		8.945		11.846		-		11.846	Continuing	Continuing	N/A

Remarks

Since FY 2020 President's Budget request, FY20 funding was realigned from Support to Product Development to execute critical Lockheed Martin Milestone C Planning efforts and Engineering Development Model (EDM) assembly, integration and test.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Planning and Development Testing	WR	NRL : Washington, DC	4.387	0.164	Jan 2019	2.625	Nov 2019	1.926	Nov 2020	-		1.926	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3316 / *Advanced Offboard EW*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Planning and Development Testing	WR	NSWC/Dahlgren : Dahlgren, VA	3.213	0.000		0.600	Dec 2019	0.564	Nov 2020	-		0.564	Continuing	Continuing	Continuing
Test Planning and Development Testing	WR	NSWC Crane : Crane, IN	1.386	0.040	Nov 2018	0.002	Nov 2019	0.200	Nov 2020	-		0.200	Continuing	Continuing	Continuing
Test Planning and Development Testing	WR	NAVAIR : Patuxent River, MD	1.095	1.829	Dec 2018	0.719	Nov 2019	7.191	Nov 2020	-		7.191	Continuing	Continuing	Continuing
Test Planning and Development Testing	WR	OPTEVFOR : Norfolk, VA	0.674	0.000		0.122	Nov 2019	0.122	Nov 2020	-		0.122	Continuing	Continuing	Continuing
Test Planning and Development Testing	SS/CPFF	APL : Laurel, MD	0.000	0.000		0.000		0.300	Nov 2020	-		0.300	Continuing	Continuing	Continuing
		Subtotal	10.755	2.033		4.068		10.303		-		10.303	Continuing	Continuing	N/A

Remarks

Since FY 2020 President's Budget request, FY20 funding was realigned from Test and Evaluation to Product Development to execute critical Lockheed Martin Milestone C Planning efforts and Engineering Development Model (EDM) assembly, integration and test. Funding in FY21 is required to execute critical developmental and NAVAIR Flight Certification testing.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPIF	CACI (SEAPORT) : Washington, DC	1.170	0.000		0.000		0.000		-		0.000	0.000	1.170	-
Program Management Support	C/CPIF	SPA : Washington, DC	0.821	0.000		0.000		0.000		-		0.000	0.000	0.821	-
Program Management Support	C/CPIF	TMB (SEAPORT) : Washington, DC	1.693	0.000		0.000		0.000		-		0.000	0.000	1.693	-
Program Management Support	C/CPIF	STRATEGIC INSIGHT (SEAPORT) : Washington, DC	0.058	0.000		0.000		0.000		-		0.000	0.000	0.058	-
Program Management Support	WR	NSWC Indian Head : Indian Head, MD	0.053	0.000		0.000		0.000		-		0.000	0.000	0.053	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3316 / *Advanced Offboard EW*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	NAVSEA Program Office Travel : Washington, DC	0.189	0.032	Dec 2018	0.040	Nov 2019	0.040	Nov 2020	-		0.040	Continuing	Continuing	Continuing
Cost Management Support	C/CPIF	CACI (SEAPORT) : Washington, DC	0.000	0.000		0.120	Nov 2019	0.000		-		0.000	0.000	0.120	-
		Subtotal	3.984	0.032		0.160		0.040		-		0.040	Continuing	Continuing	N/A

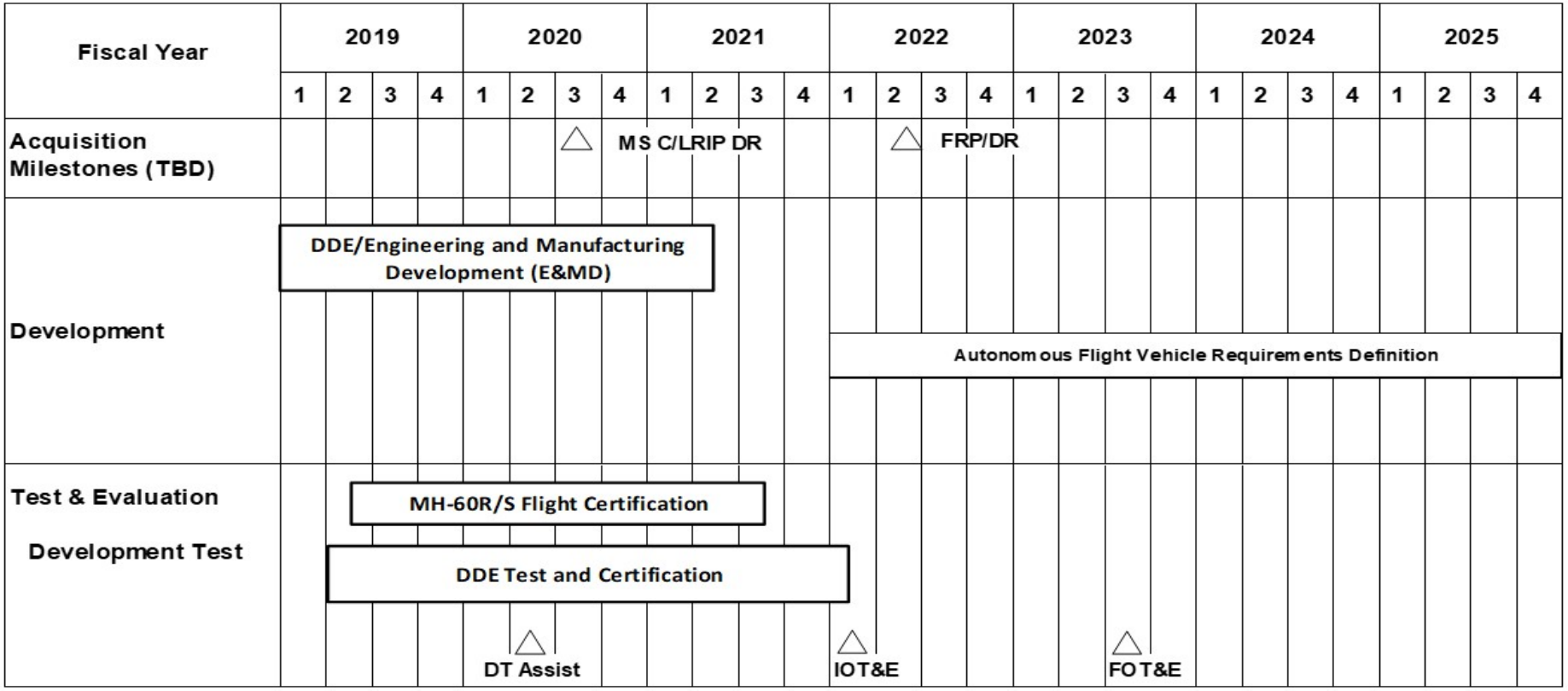
Remarks

Since FY 2020 President's Budget request, FY20 funding was realigned from Management Services to Product Development to execute critical Lockheed Martin Milestone C Planning efforts and Engineering Development Model (EDM) assembly, integration and test.

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	160.758	70.691		52.198		44.814		-		44.814	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3316 / *Advanced Offboard EW*



Acronyms: MS - Milestone; LRIP - Low Rate Initial Production; DR - Decision Review; FRP - Full Rate Production; DDE - Decoy Development Effort;
CDR - Critical Design Review; DT - Developmental Test; IOT&E - Initial Operational Test and Evaluation; FOT&E - Follow-on Operational

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3316 / *Advanced Offboard EW*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3316				
DDE / E&MD	1	2019	2	2021
MH60-R/S Flight Certification	2	2019	3	2021
DDE Test and Certification	2	2019	1	2022
Developmental Test (DT) Assist	2	2020	2	2020
Milestone (MS) C / LRIP DR	3	2020	3	2020
Initial Operational Test and Evaluation (IOT&E)	1	2022	1	2022
Autonomous Flight Vehicle Requirements Definition	1	2022	4	2025
Full Rate Production (FRP) / Decision Review (DR)	2	2022	2	2022
Follow-On Operational Test and Evaluation (FOT&E)	3	2023	3	2023

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 3321 / *SEWIP Block 3*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
3321: *SEWIP Block 3*	326.590	39.360	22.129	22.893	-	22.893	6.903	6.947	7.078	7.221	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

SEWIP Block 3 is developing an Electronic Attack (EA) capability to improve Anti-Ship Missile Defense (ASMD) and counter-targeting required for the AN/SLQ-32(V) system to keep pace with the threat. SEWIP Block 3 will provide the AN/SLQ-32(V)7 system for all surface ships (CVN, DDG, LHD) outfitted with the active variant of the AN/SLQ-32, mainly the (V)3 and (V)4, as well as select new construction platforms.

The SEWIP Block 3 Acquisition leverages technology developed under the Office of Naval Research's (ONR) Integrated Topside (InTop) Science and Technology (S&T) effort. SEWIP Block 3 will continue to expand the integrated shipboard combat system by providing new integrated EA transmitters, arrays, and associated EA techniques. The AN/SLQ-32(V)7 integrates the new EA countermeasure (SEWIP Block 3) with the AN/SLQ-32(V)6. The AN/SLQ-32(V)6 includes an Electronic Support (ES) receiver (SEWIP Block 2), a High Gain High Sensitivity (HGHS) receiver (SEWIP Block 1B3), a Specific Emitter Identifier (SEI) receiver (SEWIP Block 1B2), display console, and backend electronics. SEWIP Block 3 includes the government software development and integration effort for a SoftKill Coordinator (SKC) to manage EA engagements. SEWIP Block 3 is developing an Electronic Warfare Test Bed (EWTB) to validate system performance via modeling and simulation.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: SEWIP Block 3 Government Engineering	5.418	7.325	12.062	0.000	12.062
Articles:	-	-	-	-	-
FY 2020 Plans: - Complete support of Engineering Development Model (EDM) hardware and software development and integration. - Complete support of FQT. - Accept EDM delivery. - Commence support of Land Based test events at Wallops Island. - Continue EWTB model development and verification/validation of model performance. - Continue integrated topside design activities with DDG, CVN and LHD. - Continue test planning for IOT&E. - Continue planning & development of training curriculum. - Continue to support platform integration activities to ensure compatibility with Aegis and SSDS Combat Systems. - Support System Verification Review/Functional Configuration Audit (SVR/FCA).					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3321 / *SEWIP Block 3*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Complete development of test asset development and procurement. - Commence monitoring of software and hardware baseline upgrades. ***FY 2021 Base Plans:*** - Continue support of Land Based test events at Wallops Island. - Continue EWTB model development and verification/validation of model performance. - Continue integrated topside design activities with DDG, CVN and LHD. - Continue test planning for IOT&E. - Continue planning & development of training curriculum. - Continue to support platform integration activities to ensure compatibility with Aegis and SSDS Combat Systems. - Continue monitoring of SW & HW fixes/upgrades. ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Increase in FY 2021 is due to the conduct of Government testing with the Engineering Development Model (EDM) at Wallops Island Land Based Test (LBT) facility.					
Title: SEWIP Block 3 Development	33.942	14.804	10.831	0.000	10.831
Articles:	-	-	-	-	-
FY 2020 Plans: - Complete E&MD which includes completion of EDM hardware and software development and integration. - Conduct SVR/FCA and complete FQT. - Deliver the EDM. - Commence support of Land Based test events at Wallops Island. - Continue support for model and simulation development for EWTB. - Complete integrated topside design activities with DDGs. - Complete platform integration activities to ensure compatibility with Aegis Combat Systems. - Continue Surface Electronic Warfare Team Trainer (SEWTT) EA functionality development for AN/SLQ-32(V). - Commence upgrades of software and hardware baseline based on LBT results. ***FY 2021 Base Plans:*** - Continue upgrades of software and hardware baseline based on LBT results.					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3321 / *SEWIP Block 3*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Continue SEWTT EA functionality development for AN/SLQ-32(7)(EWA). - Continue support of Land Based test events at Wallops. - Continue support for model and simulation development for EWTB. ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Decrease in FY2021 is due to the completion of E&MD in FY2020.					
Accomplishments/Planned Programs Subtotals	39.360	22.129	22.893	0.000	22.893

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• OPN/2312: *AN/SLQ-32*	352.677	340.706	387.195	-	387.195	417.015	404.848	345.809	349.898	2,339.367	6,194.706

Remarks

D. Acquisition Strategy

SEWIP will develop block upgrades to SLQ-32 based on integrating technology advances and adding functional capabilities in an incremental fashion. Each block and sub-block will be developed and contracted in an individual yet coordinated and overlapping fashion. Specifically, SEWIP Block 3 involves the transitioning and leveraging of work performed under the Integrated Topside (INTOP) program sponsored by ONR, which focused on designing/architecting an integrated Electronic Attack (EA), Information Operations (IO), and Line of Site (LOS) Comms system for Naval Surface Platforms.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3321 / *SEWIP Block 3*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 3 SEWTT Development	SS/CPFF	EWA-GSI : Fairmont, WV	1.619	0.000	Dec 2018	0.150	Apr 2020	0.225	Dec 2020	-		0.225	Continuing	Continuing	Continuing
Block 3 Preliminary Design/E&MD	C/CPIF	Northrop Grumman : Baltimore, MD	210.897	33.942	Oct 2018	14.654	Oct 2019	10.606	Oct 2020	-		10.606	Continuing	Continuing	Continuing
		Subtotal	212.516	33.942		14.804		10.831		-		10.831	Continuing	Continuing	N/A

Remarks

FY2019 SEWIP Block 3 Development funding increased since FY 2020 President's Budget Request. $4.182M realigned from SEWIP Block 1 RCIP due to increased EMD Integration & Test complexity. Additionally, $3.376M re-allocated from Government Engineering due to realization of technical assumptions in the Original Equipment Manufacturer's (OEM) original proposal related to hardware ruggedization and software complexity.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 3 Integrated Logistics Support	WR	NSWC Crane : Crane, IN	9.698	0.018	Nov 2018	0.000		0.000		-		0.000	0.000	9.716	Continuing
Block 3 Integrated Logistics Support	WR	NSWC Corona : Corona, CA	0.023	0.000		0.000		0.000		-		0.000	0.000	0.023	-
Block 3 Government Engineering Support	WR	NSWC Dahlgren : Dahlgren, VA	22.453	0.277	Nov 2018	0.382	Nov 2019	0.200	Nov 2020	-		0.200	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	WR	NSWC Crane : Crane, IN	8.329	0.243	Nov 2018	0.344	Nov 2019	0.255	Nov 2020	-		0.255	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	WR	NRL : Washington, DC	21.238	1.002	Dec 2018	0.806	Nov 2019	0.395	Nov 2020	-		0.395	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	SS/CPFF	APL : Laurel, MD	24.540	0.299	Dec 2018	0.293	Nov 2019	0.150	Nov 2020	-		0.150	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	WR	MIT-LL : Cambridge, MA	4.794	0.000		0.000		0.000		-		0.000	0.000	4.794	Continuing
Block 3 Feasibility Studies	WR	BIW : Bath, ME	0.510	0.000		0.000		0.000		-		0.000	0.000	0.510	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3321 / *SEWIP Block 3*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 3 Platform Integration Studies	WR	Norfolk Naval Shipyard (NNSY) : Norfolk, VA	0.040	0.000		0.000		0.000		-		0.000	0.000	0.040	-
Block 3 Platform Integration Studies	WR	SUPSHIP Gulf Coast : Pascagoula, MS	0.062	0.000		0.000		0.000		-		0.000	0.000	0.062	-
Block 3 Platform Integration Studies	WR	NSWC Philadelphia : Philadelphia, PA	0.212	0.000		0.000		0.000		-		0.000	0.000	0.212	-
Block 3 Platform Integration Studies	WR	NAVSEA 05 (Alion) : Washington, DC	0.297	0.000		0.000		0.000		-		0.000	0.000	0.297	-
Block 3 Platform Integration Studies	WR	NAVSEA 05 (CSRA) : Washington, DC	0.149	0.000		0.000		0.000		-		0.000	0.000	0.149	-
Block 3 Platform Integration Studies	WR	Lockheed Martin : Moorstown, NJ	0.202	0.000		0.000		0.000		-		0.000	0.000	0.202	-
		Subtotal	92.547	1.839		1.825		1.000		-		1.000	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 3 Test Planning/T&E Events	WR	NSWC Dahlgren : Dahlgren, VA	4.329	0.010	Nov 2018	0.685	Nov 2019	1.160	Nov 2020	-		1.160	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	WR	NSWC Crane : Crane, IN	2.603	0.015	Nov 2018	0.650	Nov 2019	1.160	Nov 2020	-		1.160	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	WR	NRL : Washington, DC	10.149	0.850	Dec 2018	1.673	Nov 2019	5.017	Nov 2020	-		5.017	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	SS/CPFF	APL : Laurel, MD	0.772	0.320	Jan 2019	0.390	Nov 2019	1.080	Nov 2020	-		1.080	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	WR	COMOPTEVFOR : Norfolk, VA	0.267	0.107	Dec 2018	0.200	Nov 2019	0.450	Nov 2020	-		0.450	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3321 / *SEWIP Block 3*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 3 Test Planning/T&E Events	WR	Surface Combat Systems Center : Wallops Island, VA	0.356	1.737	Nov 2018	1.544	Nov 2019	1.827	Nov 2020	-		1.827	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	WR	USACE (DREN) : Wallops Island, VA	0.690	0.076	Jun 2019	0.083	Nov 2019	0.088	Nov 2020	-		0.088	Continuing	Continuing	Continuing
NAVFAC	WR	NAVFAC Mid-Atlantic : Norfolk, VA	0.000	0.192	Nov 2018	0.000		0.000		-		0.000	0.000	0.192	-
		Subtotal	19.166	3.307		5.225		10.782		-		10.782	Continuing	Continuing	N/A

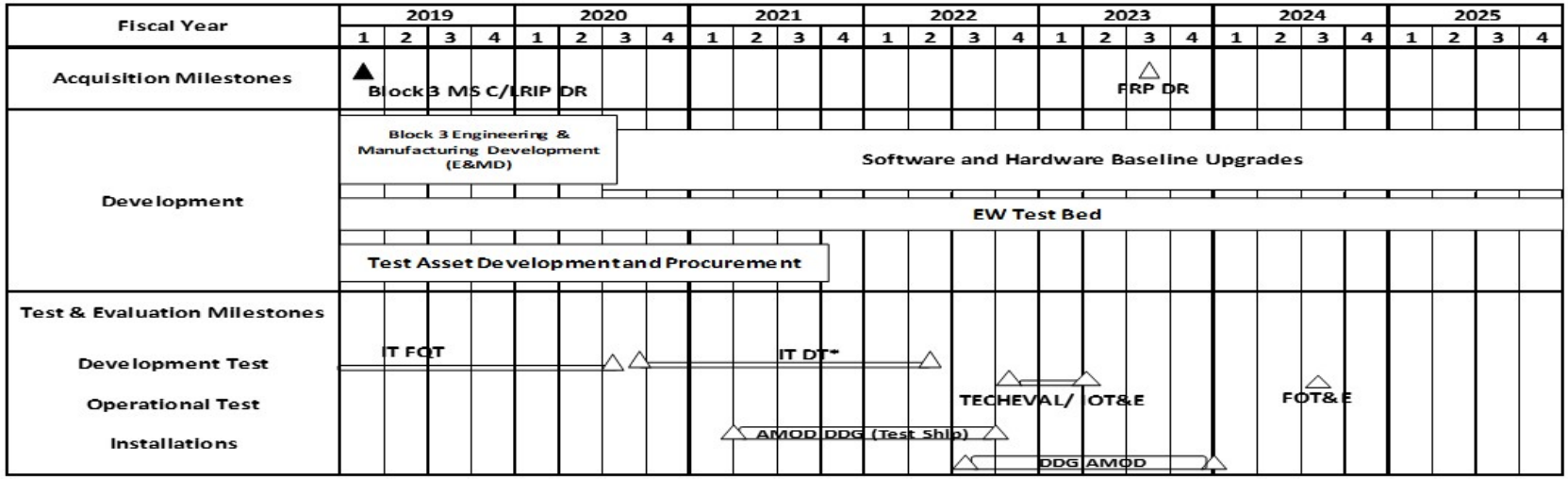
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 3 Program Management Support	C/CPIF	TMB (SEAPORT) : Washington, DC	1.431	0.040	Jan 2019	0.070	Nov 2019	0.070	Nov 2020	-		0.070	Continuing	Continuing	Continuing
Block 3 Program Management Support	C/CPIF	CACI (SEAPORT) : Washington, DC	0.422	0.127	Jan 2019	0.100	Nov 2019	0.100	Nov 2020	-		0.100	Continuing	Continuing	Continuing
Block 3 Program Management Support	C/CPIF	SPA : Washington, DC	0.146	0.055	Dec 2018	0.055	Nov 2019	0.060	Nov 2020	-		0.060	Continuing	Continuing	Continuing
Block 3 Travel	Sub Allot	NAVSEA Program Office : Washington, DC	0.362	0.050	Dec 2018	0.050	Nov 2019	0.050	Nov 2020	-		0.050	Continuing	Continuing	Continuing
		Subtotal	2.361	0.272		0.275		0.280		-		0.280	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	326.590	39.360		22.129		22.893		-		22.893	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3321 / *SEWIP Block 3*



* Includes the following test events: Land Test-Block 3 Stand-Alone Operation, Flight Test-Threat Engagements (over water), IA / Maint Demo (Dry Run), CMS Integration (Aegis), DDG-51 Combat System Certification (Aegis Integration), Environment, EMI, RCS, and Shock Tests

Acronyms: DR-Decision Review; DT-Developmental Test; EDM - Engineering Development Modle; FOT&E - Follow-on Operational Test & Evaluation; FQT-Formal Qualification Testing; FRP-Full Rate Production; IOT&E-Initial Operational Test & Evaluation; IT-Integrated Testing; LRIP-Low Rate Initial Production; MS-Milestone;

Note 1: E&MD and associated IT-FQT extended from Q1FY2020 to Q3FY2020 due to increased Engineering Development Model (EDM) integration and test complexity and late EDM Material receipt from suppliers delaying manufacturing and integration.

Note 2: IT-DT completion moved from Q1FY2022 to Q2FY2022 due to IT-FQT extension impacting IT-DT start.

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3321 / *SEWIP Block 3*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3321.L24				
Block 3 Engineering and Manufacturing Development (E&MD)	1	2019	3	2020
EW Testbed	1	2019	4	2025
Test Asset Development and Procurement	1	2019	4	2021
Block 3 MS C/LRIP DR	1	2019	1	2019
IT-FQT	1	2019	3	2020
IT-DT	3	2020	2	2022
Software and Hardware Baseline Upgrades	3	2020	4	2025
AMOD DDG (Test Ship)	2	2021	4	2022
AMOD DDG	3	2022	4	2023
Block 3 TECHEVAL and IOT&E	4	2022	1	2023
Block 3 FRP DR	3	2023	3	2023
Block 3 FOT&E	3	2024	3	2024