Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604757N *I Ship Self Def (Engage: Soft Kill/EW)*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	448.945	126.037	120.210	97.363	-	97.363	111.380	80.616	71.048	61.160	Continuing	Continuing
0954: *Shipboard EW Improvement Program*	38.500	5.707	15.664	15.865	-	15.865	16.080	16.419	16.723	17.060	Continuing	Continuing
2190: *NULKA Decoy*	39.246	4.181	3.975	5.090	-	5.090	5.286	6.965	7.050	7.197	Continuing	Continuing
3316: *Advanced Offboard EW*	120.922	39.836	64.694	54.279	-	54.279	25.521	10.226	10.320	10.516	Continuing	Continuing
3321: *SEWIP Block 3*	250.277	76.313	35.877	22.129	-	22.129	22.893	6.906	6.955	7.087	Continuing	Continuing
3430: *SEWIP Block 4*	0.000	0.000	0.000	0.000	-	0.000	41.600	40.100	30.000	19.300	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, Block 4 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. SEWIP Block 4 provides improved ASMD and SA through Electro-Optical(EO)/Infrared (IR) to ES and EA countermeasures. 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 is designed to counter 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. Future efforts involve development of the capability for high value unit protection. Increased funding beginning in FY 2020 is required to support Decoy Launch Processor (DLP) technology refresh to address hardware obsolescence and support top side design, RCS analysis, the development of new tactics and fly-out tables for new ship class.

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604757N *I Ship Self Def (Engage: Soft Kill/EW)*

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) all in FY17. The Engineering Manufacturing and Development (EMD) Option was awarded in Sep 2017. Following the arrival of Engineering Development Model (EDMs) the Factory Qualification Test (FQT) will be completed to support development testing and NAVAIR flight certification. Initial Operational Test & Evaluation (IOT&E) is planned in FY 2022 to support the Full Rate Production (FRP) decision in FY 2022.

Due largely to program funding reductions in FY 2017 and FY 2018, the program schedule for DDE testing and MH-60R/S flight certification has been revised. Completion of developmental and operational testing has been delayed from FY 2019 to FY 2020 and FY 2021 to FY 2022, respectively.

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.

3430 - SEWIP Block 4 will provide an Electro-optic/Infrared (EO/IR), Electronic Support (ES) and Electronic Attack (EA) capability required for US Navy ships to keep pace with the threat. SEWIP Block 4 will provide a common EO/IR surveillance and countermeasure capability to all surface combatants and non-combatants outfitted with SEWIP variants AN/SLQ-32(V)6 and (V)7 as well as select new construction platforms.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy					Date: March 2019
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*			R-1 Program Element (Number/Name) PE 0604757N *I Ship Self Def (Engage: Soft Kill/EW)*		
B. Program Change Summary ($ in Millions)	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**
Previous President's Budget	103.391	120.507	97.029	-	97.029
Current President's Budget	126.037	120.210	97.363	-	97.363
Total Adjustments	22.646	-0.297	0.334	-	0.334
• Congressional General Reductions	-	-0.297			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	30.000	0.000			
• SBIR/STTR Transfer	-2.163	0.000			
• Program Adjustments	0.000	0.000	-0.565	-	-0.565
• Rate/Misc Adjustments	0.001	0.000	0.899	-	0.899
• Congressional General Reductions Adjustments	-0.192	-	-	-	-
• Congressional Directed Reductions Adjustments	-5.000	-	-	-	-

Change Summary Explanation

FY2018 funding increase of $30.000M for SEWIP Block 3 development.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 0954 / *Shipboard EW Improvement Program*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
0954: *Shipboard EW Improvement Program*	38.500	5.707	15.664	15.865	-	15.865	16.080	16.419	16.723	17.060	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, Block 4 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. SEWIP Block 4 provides improved ASMD and SA through Electro-Optical(EO)/Infrared (IR) to ES and EA countermeasures. 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Electronic Warfare Rapid Capability Insertion Process (EW RCIP)	5.707	15.664	15.865	0.000	15.865
Articles:	-	-	-	-	-
FY 2019 Plans: - Continue RCIP #4 SKCS integration efforts with AN/SLQ-32 to address platform gaps for automatic and semi-automatic engagements using Nulka decoys and the onboard Electronic Attack (EA) (AN/SLQ-32 (V)7) and offboard EA systems; Initiate and complete software development and system integration and testing activities to deliver software builds, which provide capabilities including early HK/SK coordination, enhanced offboard EW communication, and architecture updates to support compliance with new Aegis baselines; Continue integration and testing activities in support of AEGIS ACB 16 baseline by completing element certification in support of AEGIS ACB BL 9.2.1 (Phase 1), while starting Combat System (CS) integration with AEGIS ACB BL 9.2.2 (Phase 2) in support of the Baseline 9.2.2 demonstration; Complete SKCS Formal Qualification Testing (FQT)					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
for a software build in support of AN/SLQ-32(V)6 FQT, and participate in system integration events with AN/SLQ-32(V)6, AN/SLQ-32(V)7 and Offboard EW; Begin SSDS ACB 20 integration support efforts. - Continue the transition of the Future Naval Capability (FNC) program, Softkill Performance and Real-Time Assessment (SPARTA) into SKCS; Complete early requirements tracing and analysis. Develop algorithms to measure key features observed in Softkill (SK) engagements and measure EA effectiveness; Develop algorithms to provide real-time assessment of SK performance to SEWIP; Initiate the development of improved fleet weapons coordination, informed Hard Kill(HK)/SK prioritization, weapons conservation, and enhanced operator battlespace awareness by contributing integral feedback regarding non-kinematic performance; Develop and update the interface, architecture and algorithms required for transition into SKCS; Continue to assess the results and readiness of the SPARTA demonstration for transition into an SKCS Build. - Continue RCIP #5 improvements to increase EW Tactical Simulation (TACSIM) capabilities to include system integration with Ship Self Defense System (SSDS), SKCS, ACB-16, and the onboard Surface Electronic Warfare Team Trainer (SEWTT); Complete TACSIM Phase 3 effort by implementing the improvements through integration and testing, installation, and verification of completed upgrades. Complete the efforts to incorporate AN/SLQ-(V)6 Build 6 with SKCS, and the enhanced combat system simulation supporting training for SKCS scenarios with tracking and response tactics for incoming threats. Initiate TACSIM Phase 4 development efforts to integrate new EA systems into the tactical training programs. - Continue SEWTT development: enhance the trainer to include the systems engineering and development of additional SKCS, Nulka, and Offboard EW capabilities; Develop updated and enhanced SLQ-32 operator training to ensure effective countermeasure deployment against incoming threats. - Develop threat simulators with realistic front end to baseline FNC program Combined EO/IR Surveillance and Response System (CESARS) to support SEWIP EO/IR testing capability. Conduct laboratory and field test with actual systems and simulator to validate CESARS design requirement. Assess the results and technology level readiness of CESARS program to inform acquisition decision. Initiate the S&T effort with SKCS to ensure the software is developed in compliance with SKCS architecture. Initiate development of the interface, architecture, and ship integration for CESARS to support development of SEWIP capability improvements. - Initiate design and development of Electronic Support (ES) system enhancements for AN/SLQ-32(V)6 and AN/SLQ-32(V)7 to provide advanced EW capabilities; Develop techniques that address new evolving threats, including the capabilities to sense dynamic radio frequency environments and generate an improved response to enhance ship survivability; Initiate development of a prototype for technique testing and demonstration of the ability to integrate and perform with the ship's systems. - Identify additional EW technology shortfalls and capability gaps based on the current and emerging ASM threats and fleet requirements; solicit industry, University Affiliate Research Centers or government activities for					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
technical solutions; Evaluate and select RCIP technology candidates; Evaluate RCIP technologies production readiness. ***FY 2020 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 HK/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 BL 9.2.2 (Phase 2); 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 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 Hard Kill (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. - Continue RCIP #5 improvements to increase EW Tactical Simulation (TACSIM) capabilities to include system integration with Ship Self Defense System (SSDS), SKCS, ACB-16, and the onboard Surface Electronic Warfare Team Trainer (SEWTT); Complete the TACSIM Phase 4 effort, including expansion of the Phase 3 technology to add SLQ-32(V)7 support, add Advanced Offboard Electronic Warfare (AOEW) support, and upgrade Surface Electronic Warfare Team Trainer (SEWTT) software to support countermeasure training; Complete test and evaluation and integration with external stakeholders. Complete the implementation of developed improvements through integration and testing, installation, and verification of completed upgrades, delivering the final system for EW operator use on the Common Processing System (CPS)/Common Display System (CDS) station. - 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.					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
- Complete development of additional threat simulators for FNC CESARS program. Complete laboratory and at-sea test with actual systems and simulator to validate CESARS design requirements. Complete SKCS pre-design material to include CESARS capability. Finalize the interface, architecture, and ship integration for CESARS transition into the SEWIP program. - Complete the design, development, and testing of Electronic Support (ES) system enhancements for AN/SLQ-32(V)6 and AN/SLQ-32(V)7 to provide advanced EW capabilities; Complete the development of techniques that address new evolving threats, including the capabilities to sense dynamic radio frequency environments and generate an improved response to enhance ship survivability; Complete the prototype to test the techniques, and demonstrate the technique effectiveness and readiness for integration with the ship's software. - Identify additional EW technology shortfalls and capability gaps based on the current and emerging 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. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** - Increase in FY 2020 due to minor program and rate adjustments.					
Accomplishments/Planned Programs Subtotals	5.707	15.664	15.865	0.000	15.865

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/2312: *OPN BA-2 AN/SLQ-32(V)*	233.237	366.147	420.154	-	420.154	546.922	415.784	399.808	347.341	2,359.812	6,108.679
• 24575N & 72827N/1C1C: *OMN BA-1 AN/SLQ-32(V)*	7.827	6.622	6.115	-	6.115	5.156	5.253	5.359	5.464	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-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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*

E. Performance Metrics

Successfully identify RCIP capabilities.
Successfully identify and assess RCIP Science & Technology candidates.
Successfully demonstrate and validate RCIP capabilities.
Complete SKCS Builds in accordance with the Agile Software Development process.
Complete installation of TACSIM upgrades.
Transition the Future Naval Capability program Softkill Performance and Real-Time Assessment (SPARTA) into SKCS.
Complete ADEPT integration efforts with AN/SLQ-32(V)6 systems.
Complete AN/SLQ-32(V)6 and V(7) Software Algorithm Enhancements.
Successfully develop and demonstrate SEWTT capabilities.
Successfully demonstrate the readiness of CESARS for transition into SEWIP.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RCIP #4 SKCS	SS/CPFF	APL : Laurel, MD	2.896	1.372	Nov 2017	2.188	Dec 2018	2.150	Nov 2019	-		2.150	Continuing	Continuing	Continuing
RCIP #4 SKCS	WR	NSWC Dahlgren : Dahlgren, VA	6.548	0.906	Nov 2017	4.105	Nov 2018	4.239	Nov 2019	-		4.239	Continuing	Continuing	Continuing
RCIP #5 TACSIM	WR	NSWC Dahlgren : Dahlgren, VA	2.350	1.177	Nov 2017	2.297	Dec 2018	2.661	Nov 2019	-		2.661	Continuing	Continuing	Continuing
SEWTT Development	SS/CPFF	EWA : Fairmont, WV	0.100	0.259	Apr 2018	1.018	Dec 2018	0.900	Nov 2019	-		0.900	Continuing	Continuing	Continuing
ATRT	C/CPIF	Information Defense Technologies (IDT) : Arlington, VA	0.000	0.200	Jun 2018	0.000		0.000		-		0.000	0.000	0.200	-
CESARS	WR	NRL : Washington, DC	0.000	0.000		1.010	Dec 2018	1.805	Nov 2019	-		1.805	0.000	2.815	-
		Subtotal	11.894	3.914		10.618		11.755		-		11.755	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 1 Government Engineering Support	WR	NSWC Dahlgren : Dahlgren, VA	6.612	0.378	Nov 2017	0.649	Nov 2018	0.677	Nov 2019	-		0.677	Continuing	Continuing	Continuing
Block 1 Government Engineering Support	WR	NSWC Crane : Crane, IN	5.214	0.081	Nov 2017	0.565	Dec 2018	0.431	Nov 2019	-		0.431	Continuing	Continuing	Continuing
Block 1 Government Engineering Support	WR	NRL : Washington, DC	3.813	0.149	Nov 2017	0.376	Dec 2018	0.226	Nov 2019	-		0.226	Continuing	Continuing	Continuing
Block 1 Government Engineering Support	SS/CPFF	APL : Laurel, MD	2.865	0.000		0.670	Dec 2018	0.508	Nov 2019	-		0.508	Continuing	Continuing	Continuing
Block 1 Engineering and AN/SLQ-32(V)6 and (V)7 Software Algorithm Enhancements	MIPR	MIT : Hanscom AFB, MA	0.635	0.435	Jun 2018	1.188	Dec 2018	1.401	Nov 2019	-		1.401	Continuing	Continuing	Continuing
Block 1 Government Engineering Support	MIPR	DISA : Fort Meade, MD	0.000	0.050	May 2018	0.000		0.000		-		0.000	0.000	0.050	-
		Subtotal	19.139	1.093		3.448		3.243		-		3.243	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 0954 / *Shipboard EW Improvement Program*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RCIP Test Planning/T&E Events	WR	NSWC Dahlgren : Dahlgren, VA	1.896	0.320	Nov 2017	0.565	Nov 2018	0.282	Nov 2019	-		0.282	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	0.000		0.330	Dec 2018	0.230	Nov 2019	-		0.230	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	4.718	0.320		0.895		0.512		-		0.512	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 1 Program Management Support	C/CPIF	TMB (SEAPORT) : Washington, D.C.	0.761	0.033	Nov 2017	0.221	Jan 2019	0.105	Nov 2019	-		0.105	Continuing	Continuing	Continuing
Block 1 Program Management Support	C/CPIF	SPA : Washington, DC	0.500	0.243	Nov 2017	0.221	Dec 2018	0.105	Nov 2019	-		0.105	Continuing	Continuing	Continuing
Block 1 Program Managment Support	C/CPIF	CACI (SEAPORT) : Washington, DC	0.165	0.064	Nov 2017	0.221	Jan 2019	0.105	Nov 2019	-		0.105	0.000	0.555	-
Block 1 Travel	WR	NAVSEA Program Office Travel : Washington, DC	1.323	0.040	Nov 2017	0.040	Dec 2018	0.040	Nov 2019	-		0.040	Continuing	Continuing	Continuing
		Subtotal	2.749	0.380		0.703		0.355		-		0.355	Continuing	Continuing	N/A

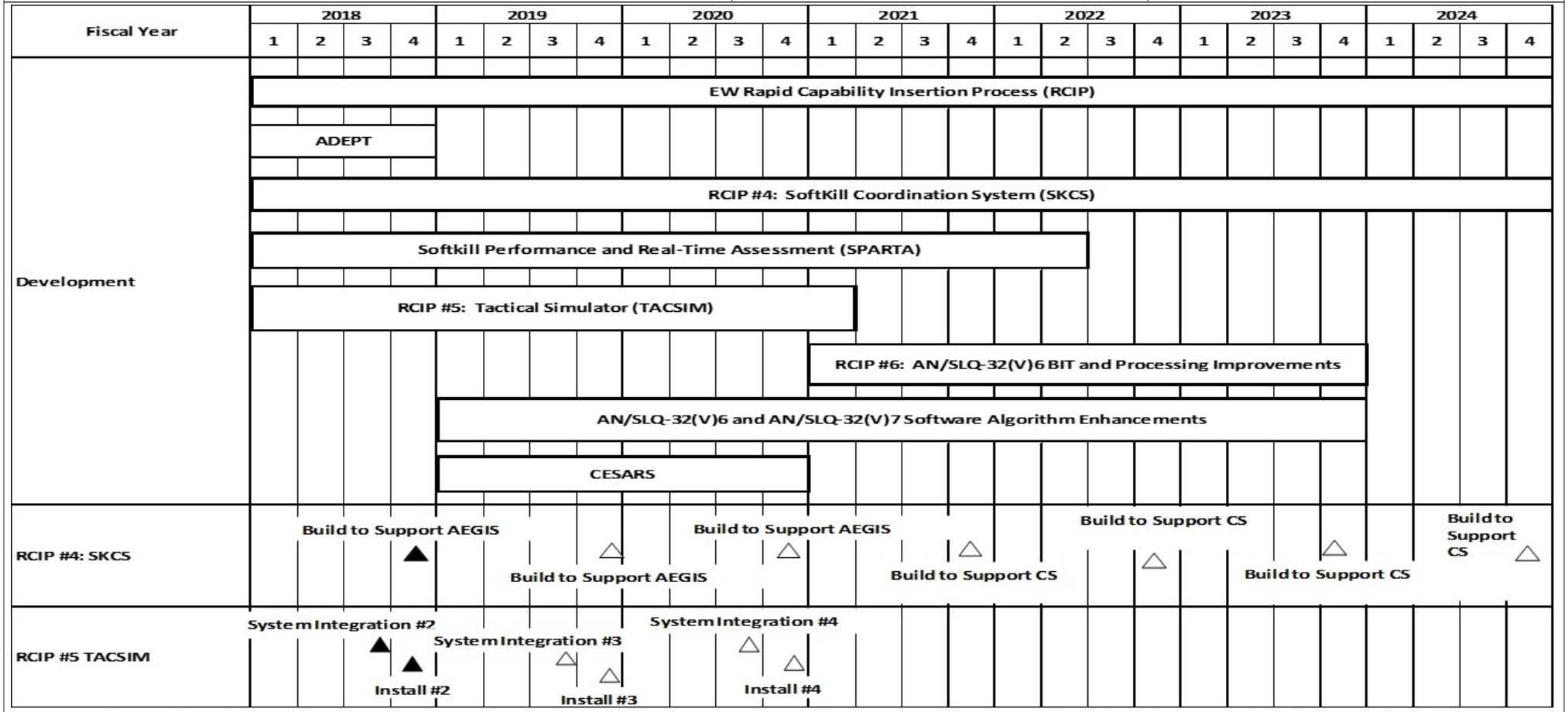
	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	38.500	5.707		15.664		15.865		-		15.865	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 0954 / *Shipboard EW Improvement Program*	

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 0954 / *Shipboard EW Improvement Program*



Acronyms: ADEPT - Algorithm Development of Enhanced Processing Techniques; CESARS - Combined EO/IR Surveillance and Response System; CS - Combat System

Note: RCIP #6 initiation was delayed from FY18 to FY21 due the realignment of $10M to SEWIP Block 3 (Project 3321) in 2018 and the addition of CESARS efforts in FY19-20.

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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				
Algorithm Development of Enhanced Processing Techniques (ADEPT)	1	2018	4	2018
RCIP #5 TACSIM	1	2018	1	2021
Softkill Performance and Real-Time Assessment (SPARTA)	1	2018	2	2022
EW Rapid Capability Insertion Process (RCIP)	1	2018	4	2024
RCIP #4: SKCS	1	2018	4	2024
TACSIM System Integrations and Installs 2-4	3	2018	4	2020
SKCS SW Builds	4	2018	4	2024
Combined EO/IR Surveillance and Response System (CESARS)	1	2019	4	2020
AN/SLQ-32(V)6 and AN/SLQ-32(V)7 Software Algorithm Enhancements	1	2019	4	2023
RCIP #6: AN/SLQ-32(V)6 BIT and Processing Improvements	1	2021	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*				Project (Number/Name) 2190 / *NULKA Decoy*			
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
2190: *NULKA Decoy*	39.246	4.181	3.975	5.090	-	5.090	5.286	6.965	7.050	7.197	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 is designed to counter 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. Future efforts involve development of the capability for high value unit protection. Increased funding in FY 2020 required to support Decoy Launch Processor (DLP) technology refresh to address hardware obsolescence and support top side design, RCS analysis, the development of new tactics and fly-out tables for new ship class.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**
Title: NULKA Decoy Subsystem	4.181	3.975	5.090	0.000	5.090
Articles:	-	-	-	-	-
FY 2019 Plans: - Continue to evaluate intelligence on new and existing threats. - Continue to update Nulka Fly Out Tactics to maximize performance and effectiveness. - Continue Decoy Launch Processor (DLP) technology refresh to address obsolescence issues.					
FY 2020 Base Plans: - Continue to evaluate intelligence on new and existing threats. - Continue to update Nulka Fly Out Tactics to maximize performance and effectiveness. - Continue DLP technology refresh to address obsolescence issues. - Commence tactics development, top side design, RCS analysis and fly-out tables for new ship class Fast Frigate Guided Missile (FFGX).					
FY 2020 OCO Plans: N/A					
FY 2019 to FY 2020 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Increased funding in FY 2020 required to support Decoy Launch Processor (DLP) technology refresh to address hardware obsolescence and support top side design, RCS analysis, the development of new tactics and fly-out tables for new ship class.					
Accomplishments/Planned Programs Subtotals	4.181	3.975	5.090	0.000	5.090

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/5231: *Ship Missile Support Equipment*	65.922	30.278	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPN/5530: *Anti-Ship Missile Decoy System*	0.000	0.000	41.962	-	41.962	60.212	60.793	71.036	72.749	537.538	844.290
• OMN/11CD0 (1C1C): *Nulka*	5.972	5.975	0.000	-	0.000	6.098	6.914	7.053	7.204	Continuing	Continuing

Remarks

OPN Controls reflect the following Line Item 5231 and 5530 Project Units (PU's) under the 'ANTI-SHIP MISSILE DECOY SYSTEM' program: VV001, VV002, VV003, VV004, and VV830.
Starting in FY 2020, Nulka funds have been realigned from BLI:5231 to BLI:5530.
$2.000 million of FY 2018 RDT&E was realigned from Nulka to SEWIP BLK 3 in order to prevent a stop work pending receipt of the FY 2018 Above Threshold Reprogramming (ATR)

D. Acquisition Strategy

NULKA is a joint cooperative program between United States and Australia in full rate production.

E. Performance Metrics

Successfully complete Decoy Launch Processor (DLP) technology refresh.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NRL : Washington, DC	19.922	0.655	Jan 2018	0.700	Dec 2018	0.815	Nov 2019	-		0.815	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC Dahlgren : Dahlgren, VA	11.467	2.058	Nov 2017	2.551	Dec 2018	1.854	Nov 2019	-		1.854	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC Crane : IN	6.805	0.858	Nov 2017	0.204	Dec 2018	1.927	Nov 2019	-		1.927	Continuing	Continuing	Continuing
		Subtotal	38.194	3.571		3.455		4.596		-		4.596	Continuing	Continuing	N/A

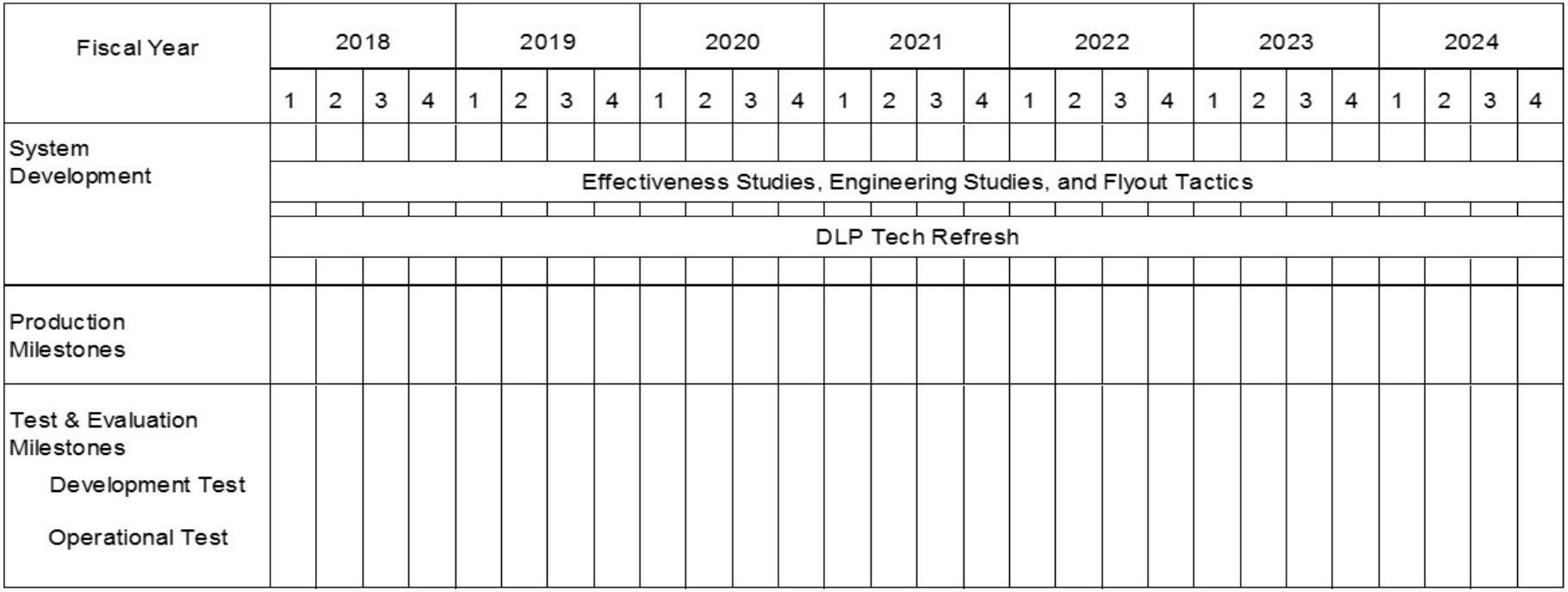
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPIF	ICI (SEAPORT) : Washington, DC	0.121	0.100	Feb 2018	0.102	Jan 2019	0.104	Nov 2019	-		0.104	0.000	0.427	-
Program Management Support	C/CPIF	TMB (SEAPORT) : Washington, DC	0.153	0.210	Feb 2018	0.102	Jan 2019	0.104	Nov 2019	-		0.104	0.000	0.569	-
Program Management Support	C/CPIF	SPA : Washington, DC	0.095	0.300	Dec 2018	0.306	Dec 2018	0.276	Nov 2019	-		0.276	0.000	0.977	-
Travel	WR	NAVSEA Program Office Travel : Washington, DC	0.683	0.000		0.010	Nov 2018	0.010	Nov 2019	-		0.010	Continuing	Continuing	Continuing
		Subtotal	1.052	0.610		0.520		0.494		-		0.494	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	39.246	4.181		3.975		5.090		-		5.090	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 2190 / *NULKA Decoy*



DLP - Decoy Launch Processor

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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				
Effectiveness Studies, Engineering Studies, and Flyout Tactics	1	2018	4	2024
DLP Tech Refresh	1	2018	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 3316 / *Advanced Offboard EW*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
3316: *Advanced Offboard EW*	120.922	39.836	64.694	54.279	-	54.279	25.521	10.226	10.320	10.516	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 FY 2017. The Engineering Manufacturing and Development (EMD) Option was awarded in Sep 2017. Following the arrival of Engineering Development Model (EDMs) the Factory Qualification Test (FQT) will be completed to support development testing and NAVAIR flight certification. Initial Operational Test & Evaluation (IOT&E) is planned in FY 2022 to support the Full Rate Production (FRP) decision in FY 2022.

Due largely to program funding reductions in FY17 and FY18, the program schedule for DDE testing and MH-60R/S flight certification has been revised. Completion of developmental and operational testing has been delayed from FY19 to FY20 and FY21 to FY22, respectively.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: AOEW - Decoy Development Effort (DDE) Government Engineering	16.501	25.509	40.967	0.000	40.967
Articles:	-	-	-	-	-
FY 2019 Plans: - Commence MS-C planning and documentation preparation - Conduct Integrated Logistics Assessment (ILA) - Conduct Technology Readiness Assessment (TRA) - Continue interoperability analysis to ensure all system of systems are compatible - Continue tactics analysis and development - Continue integration of ship and air interfaces - Continue SKCS development specific to AOEW					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
- Continue development 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 commence testing of AOEW, MH-60R/S, Combat Management System (CMS), Common Data Link Management System (CDLMS), SKCS, Link-16, and AOP - Continue sustainment and training plan development - Continue test and M&S plan development - Continue support for M&S development for Electronic Warfare Test Bed (EWTB) - Resume Surface Electronic Warfare Team Trainer (SEWTT) functionality development for the AOEW Decoy - Support Factory Qualification Test (FQT) planning - Commence support of DDE Test and Certification - Support AOP PDR - Support Developmental Test (DT) Assist planning - Conduct technique verification - Commence configuration management of Engineering Development Model (EDM) assets and baselines in support of programmatic needs - Complete Engineering Data Requirements Agreement Plan (EDRAP) Development - Commence NAVAIR MH-60R/S flight certification testing with mass models. 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 Test, Flight Test for Mission Performance / Spec Compliance Flight Test, Functional Software Test, and Decoy Fit and Egress Test - Commence update of Capability Development Document (CDD) - Conduct AEGIS integration planning to align program baselines - Commence support for Production Readiness Review (PRR) planning - Continue installation planning - Commence battery certification					
FY 2020 Base Plans: - Complete MS-C planning documentation preparation - Conduct MS-C - 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 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
- Continue SKCS development specific to AOEW - Complete development 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 - Complete integration planning and continue testing of AOEW MH-60R/S, CMS, CDLMS, SKCS, Link-16 and AOP - Continue sustainment and training plan development - Commence 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 - Support FQT - Continue support of DDE Test and Certification - Support DT Assist - Continue technique verification - Continue configuration management of Engineering Development Model (EDM) assets and baselines in support of programmatic needs - 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 CDD - Support Production Readiness Review (PRR) - Continue installation planning - Support LRIP production - Support and conduct Environmental/Electro Magnetic Interference (EMI) testing - Complete battery certification					
FY 2020 OCO Plans: N/A					
FY 2019 to FY 2020 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Increase in Government Engineering funding in FY20 is due to completion of test planning and the start of extensive Government developmental testing and Hardware/Software integration EDMs 1 through 4 in FY20.					
Title: AOEW - Decoy Development Effort (DDE) Development	23.335	39.185	13.312	0.000	13.312
Articles:	-	-	-	-	-
FY 2019 Plans: - Continue E&MD - Continue EDM Hardware and Software development and integration - Procure material for EDMs 1 through 4 - Commence assembly of EDMs 1 through 4 - Commence planning of Factory Qualification Test (FQT) of EDM 1 - Commence planning for Developmental Test (DT) Assist on EDM 1 - Commence planning of Factory Acceptance Test (FAT) on EDMs 2 through 4 - Continue to support integration planning and testing of AOEW, MH-60R/S, CMS, CDLMS, SKCS, Link-16, and AOP - Support NAVAIR flight certification testing. 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 - Commence Production Readiness Review (PRR) planning - Complete assembly and commence delivery of AOEW mass models 1 through 7 for NAVAIR testing - Continue to support AOP to update MH-60R/S software necessary for AOEW decoy and Helicopter Integration - Commence planning of Environmental/Electro Magnetic Interference (EMI) Testing - Support battery certification - Complete development and deliver AOEW Technique Generator					
FY 2020 Base Plans: - Continue E&MD - Complete EDM Hardware and Software development and integration - Conduct FQT on EDM 1 - Conduct DT Assist on EDM 1 - Conduct FAT on EDMs 2 through 4 - Continue to support integration planning and testing of AOEW, MH-60R/S, CMS, CDLMS, SKCS, Link-16, and AOP - Complete delivery of AOEW EDMs 1 through 4					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
- Procure material for EDMs 5 and 6 - Commence assembly of EDMs 5 and 6 - Continue to support NAVAIR flight certification testing. Flight certification is required by NAVAIR to ensure Safety of Flight and to certify the interoperability between the MH-60R/S and AOEW decoy - Complete planning and conduct PRR - Continue to support AOP to update MH-60R and MH-60S software necessary for AOEW decoy and Helicopter integration - Conduct Environmental/EMI Testing - Continue to support battery certification ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** The decrease in funding from FY 2019 to FY 2020 is primarily due to procurement of fewer EDMs.					
Accomplishments/Planned Programs Subtotals	39.836	64.694	54.279	0.000	54.279

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/5530: *Anti-ship Missile Decoy System*	0.000	0.000	0.000	-	0.000	6.071	25.806	25.397	25.818	0.000	83.092

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.

E. Performance Metrics

Achieve Milestone (MS) C
Conduct Initial Operational Test and Evaluation (IOT&E)
Conduct Developmental Test (DT) Assist
Conduct DDE Test and Certification
Conduct Full Rate Production (FRP)/Decision Review (DR)

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3316 / *Advanced Offboard EW*

Conduct MH-60R/S Flight Certification
Define Autonomous Flight Vehicle Requirements
Conduct Follow-on Operational Test and Evaluation (FOT&E)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 3316 / *Advanced Offboard EW*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Concept Analysis and Integration Assessment	SS/CPFF	APL : Laurel, MD	11.707	0.000		0.000		1.667	Nov 2019	-		1.667	Continuing	Continuing	Continuing
Concept Analysis and Technology Studies	WR	MIT-LL : Boston, MA	4.857	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Concept Development and Technology Studies	WR	NRL : Washington, D.C.	25.856	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Technology Development and Systems Requirements	WR	NSWC Dahlgren : Dahlgren, VA	13.974	0.621	Nov 2017	0.000		4.333	Nov 2019	-		4.333	Continuing	Continuing	Continuing
DDE Avionics Development	WR	NAVAIR : Patuxent River, MD	3.193	1.996	Nov 2017	5.565	Dec 2018	6.893	Nov 2019	-		6.893	Continuing	Continuing	Continuing
DDE Preliminary Design/ E&MD	C/CPIF	Lockheed Martin : Syracuse, NY	9.013	23.335	Nov 2017	39.185	Oct 2018	13.312	Nov 2019	-		13.312	Continuing	Continuing	Continuing
Ship Integration	WR	SPAWAR : San Diego, CA	0.952	0.023	Jan 2018	0.000		0.000		-		0.000	0.000	0.975	-
Ship Integration	WR	NSWC Dahlgren : Dahlgren, VA	0.000	0.000		0.534	Jan 2019	0.000		-		0.000	0.000	0.534	-
		Subtotal	69.552	25.975		45.284		26.205		-		26.205	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Development Support	WR	NRL : Washington, DC	9.209	3.944	Nov 2017	5.334	Dec 2018	3.748	Nov 2019	-		3.748	Continuing	Continuing	Continuing
Government Development and Engineering Support	WR	NSWC Dahlgren : Dahlgren, VA	9.110	2.409	Nov 2017	2.090	Dec 2018	2.509	Nov 2019	-		2.509	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC Crane : Crane, IN	11.395	1.958	Nov 2017	3.254	Nov 2018	1.919	Nov 2019	-		1.919	Continuing	Continuing	Continuing
Logistics/Training	SS/CPFF	EWA : Fairmont, WV	0.767	0.099	Aug 2018	0.730	Jan 2019	0.100	Nov 2019	-		0.100	0.000	1.696	-
Government Engineering Support	WR	NSWC Carderock : Bethesda, MD	0.768	0.000		0.440	Jan 2019	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	**Project (Number/Name)** 3316 / *Advanced Offboard EW*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering Support	SS/CPFF	APL : Laurel, MD	3.743	2.079	Nov 2017	2.158	Jan 2019	1.646	Nov 2019	-		1.646	Continuing	Continuing	Continuing
Government Development Support	WR	NAVAIR : Patuxent River, MD	3.353	1.317	Nov 2017	1.300	Dec 2018	1.889	Nov 2019	-		1.889	Continuing	Continuing	Continuing
Systems Engineering Support	WR	MIT-LL : Boston, MA	0.000	0.034	Nov 2017	0.000		0.000		-		0.000	0.000	0.034	-
Program Management Support	WR	DISA : Pensacola, FL	0.055	0.140	Jun 2018	0.000		0.000		-		0.000	0.000	0.195	-
Installation Support	WR	Supship : Bath, ME	0.000	0.005	Jan 2019	0.153	Feb 2019	0.000		-		0.000	0.000	0.158	-
		Subtotal	38.400	11.985		15.459		11.811		-		11.811	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Planning and Development Testing	WR	NRL : Washington, DC	4.148	0.239	Nov 2017	0.250	Dec 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Test Planning and Development Testing	WR	NSWC/Dahlgren : Dahlgren, VA	3.213	0.000		0.000		5.876	Nov 2019	-		5.876	Continuing	Continuing	Continuing
Test Planning and Development Testing	WR	NSWC Crane : Crane, IN	1.239	0.147	Nov 2017	0.055	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Test Planning and Development Testing	WR	NAVAIR : Patuxent River, MD	0.489	0.606	Nov 2017	3.309	Dec 2018	7.110	Nov 2019	-		7.110	Continuing	Continuing	Continuing
Test Planning and Development Testing	WR	OPTEVFOR : Norfolk, VA	0.599	0.075	Jan 2018	0.305	Dec 2018	0.495	Nov 2019	-		0.495	Continuing	Continuing	Continuing
		Subtotal	9.688	1.067		3.919		13.481		-		13.481	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 3316 / *Advanced Offboard EW*	

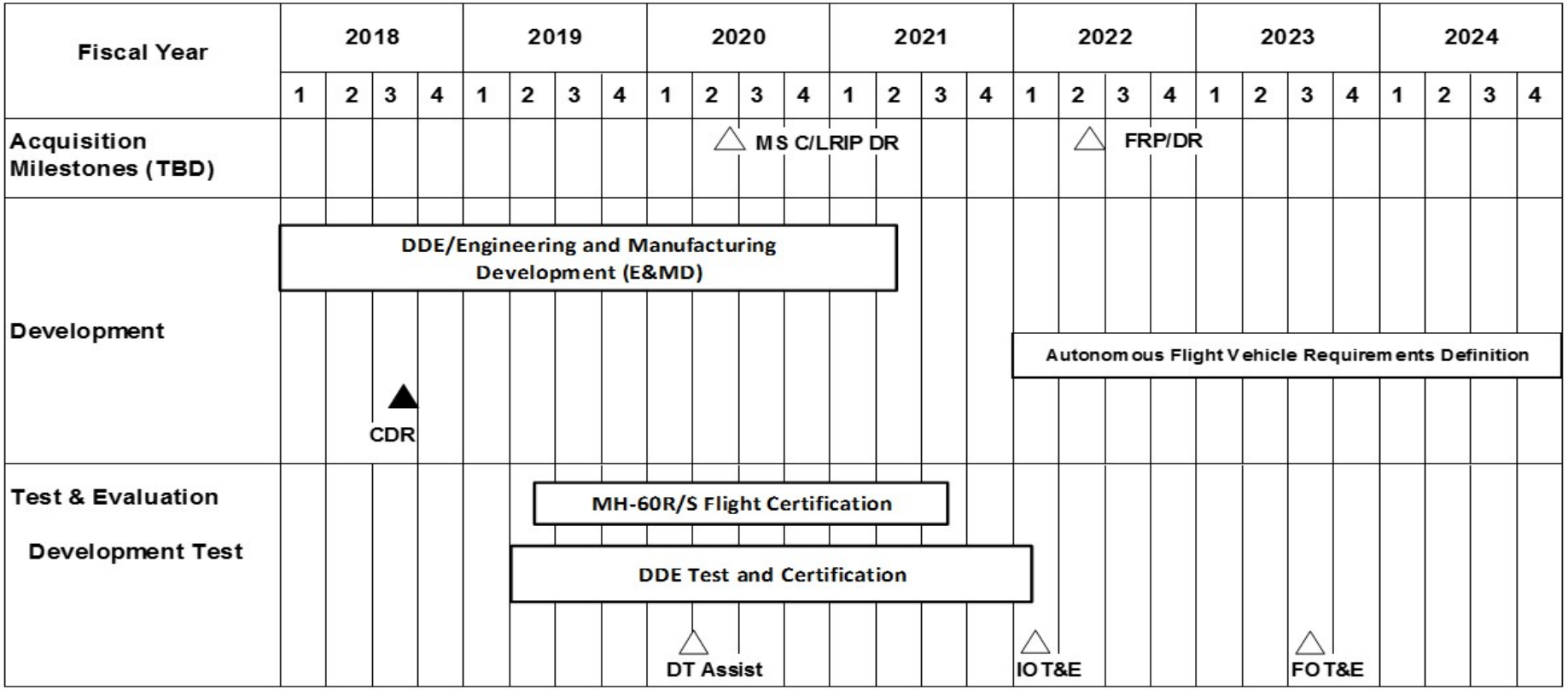
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPIF	CACI (SEAPORT) : Washington, DC	0.858	0.312	Jan 2018	0.000		0.456	Nov 2019	-		0.456	0.000	1.626	-
Program Management Support	C/CPIF	SPA : Washington, DC	0.821	0.000		0.000		1.418	Nov 2019	-		1.418	0.000	2.239	-
Program Management Support	C/CPIF	TMB (SEAPORT) : Washington, DC	1.403	0.290	Jan 2018	0.000		0.821	Nov 2019	-		0.821	0.000	2.514	-
Program Management Support	C/CPIF	STRATEGIC INSIGHT (SEAPORT) : Washington, DC	0.041	0.017	Jan 2018	0.000		0.017	Nov 2019	-		0.017	0.000	0.075	-
Program Management Support	WR	NSWC Indian Head : Indian Head, MD	0.000	0.150	Jun 2018	0.000		0.000		-		0.000	0.000	0.150	-
Travel	WR	NAVSEA Program Office Travel : Washington, DC	0.159	0.040	Jan 2018	0.032	Dec 2018	0.070	Nov 2019	-		0.070	Continuing	Continuing	Continuing
		Subtotal	3.282	0.809		0.032		2.782		-		2.782	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	120.922	39.836		64.694		54.279		-		54.279	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 Test and Evaluation

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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	2018	2	2021
Critical Design Review (CDR)	3	2018	3	2018
DDE Test and Certification	2	2019	1	2022
MH60-R/S Flight Certification	2	2019	3	2021
Developmental Test (DT) Assist	2	2020	2	2020
Milestone (MS) C / LRIP DR	2	2020	2	2020
Initial Operational Test and Evaluation (IOT&E)	1	2022	1	2022
Autonomous Flight Vehicle Requirements Definition	1	2022	4	2024
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 2020 Navy			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
3321: *SEWIP Block 3*	250.277	76.313	35.877	22.129	-	22.129	22.893	6.906	6.955	7.087	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SEWIP Block 3 Government Engineering	3.955	9.493	11.447	0.000	11.447
Articles:	-	-	-	-	-
FY 2019 Plans: - Continue supporting Engineering Development Model (EDM) hardware and software development and integration. - Continue to support of Formal Qualification Testing (FQT). - Continue Electronic Warfare Test Bed (EWTB) model development and verification/validation of model performance. - Continue integrated topside design activities with DDGs. Resume platform integration studies for large deck installations (CVN/LHDs). - Continue test planning for Initial Operational Test & Evaluation (IOT&E). - Continue planning & development of training curriculum. - Continue to support platform integration activities to ensure compatibility with Aegis Combat Systems. Resume integration studies for SSDS Combat Systems. - Continue to support SKC integration with EA functionality builds.					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
- Support Production Readiness Review (PRR). FY 2019 Government Engineering funding increased due to the planning and support of FQT. ***FY 2020 Base Plans:*** - Complete supporting Engineering Development Model (EDM) hardware and software development and integration; accept EDM. - Complete support of FQT. - Commence support of Land Based test events at Wallops. - Continue EWTB model development and verification/validation of model performance. - Continue integrated topside design activities with DDG, CVN, 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). ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** - Increase in FY 2020 is due to the planning and conduct of Government testing of the Engineering Development Model (EDM) at Wallops Land Based Test (LBT) facility.					
Title: SEWIP Block 3 Development	72.358	26.384	10.682	0.000	10.682
Articles:	-	-	-	-	-
FY 2019 Plans: - Continue EDM hardware and software development and integration. - Commence FQT. - Continue support for model and simulation development for EWTB. - Continue integrated topside design activities with DDGs. - Continue platform integration activities to ensure compatibility with Aegis Combat Systems. - Conduct PRR. - Commence Surface Electronic Warfare Team Trainer (SEWTT) EA functionality development for AN/SLQ-32(V).					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
- Decrease in FY 2019 since PB 2019 is due to ramp down of E&MD activities towards completion in Q2 FY 2020. ***FY 2020 Base Plans:*** - Complete EDM hardware and software development and integration. - Complete FQT - Commence support Land Based test events at Wallops. - 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. - Complete Surface Electronic Warfare Team Trainer (SEWTT) EA functionality development for AN/SLQ-32(V). - Conduct SVR/FCA. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** - Decrease in FY 2020 is due to the completion of E&MD.					
Accomplishments/Planned Programs Subtotals	76.313	35.877	22.129	0.000	22.129

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/2312: *AN/SLQ-32*	233.237	366.147	420.154	-	420.154	546.922	415.784	399.808	347.341	2,359.812	6,108.679

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-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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*

E. Performance Metrics

Complete Engineering & Manufacturing Development (E&MD).
Complete DT Assist.
Complete Production Readiness Review (PRR).
Achieve Block 3 MS C / Low Rate Initial Production (LRIP) Decision Review (DR).
Complete Formal Qualification Test (FQT).
Complete TECHEVAL.
Complete Initial Operational Test & Evaluation (IOT&E).
Achieve Block 3 Full Rate Production (FRP) DR.
Complete Follow-on Operational Test & Evaluation (FOT&E).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 3 SEWTT Development	SS/CPFF	EWA-GSI : Fairmont, WV	1.619	0.000		0.000	Dec 2018	0.100	Dec 2019	-		0.100	Continuing	Continuing	Continuing
Block 3 Preliminary Design/E&MD	C/CPIF	Northrop Grumman : Baltimore, MD	138.539	72.358	Oct 2017	26.384	Oct 2018	10.582	Oct 2019	-		10.582	Continuing	Continuing	Continuing
		Subtotal	140.158	72.358		26.384		10.682		-		10.682	Continuing	Continuing	N/A

Remarks

FY18 system development increase due to antenna design complexity and higher volume and cost of materials than originally planned.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 3 Integrated Logistics Support	WR	NSWC Crane : Crane, IN	9.552	0.146	Nov 2017	0.200	Nov 2018	0.419	Nov 2019	-		0.419	Continuing	Continuing	Continuing
Block 3 Integrated Logistics Support	WR	NSWC Corona : Corona, CA	0.000	0.023	Nov 2017	0.000		0.000		-		0.000	0.000	0.023	-
Block 3 Government Engineering Support	WR	NSWC Dahlgren : Dahlgren, VA	22.082	0.371	Nov 2017	0.400	Nov 2018	0.468	Nov 2019	-		0.468	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	WR	NSWC Crane : Crane, IN	7.982	0.347	Nov 2017	0.586	Nov 2018	0.300	Nov 2019	-		0.300	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	WR	NRL : Washington, DC	19.877	1.361	Nov 2017	1.500	Dec 2018	1.526	Nov 2019	-		1.526	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	SS/CPFF	APL : Laurel, MD	23.958	0.582	Mar 2018	1.196	Dec 2018	0.650	Nov 2019	-		0.650	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	WR	MIT-LL : Cambridge, MA	4.794	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Block 3 Feasibility Studies	WR	BIW : Bath, ME	0.510	0.000		0.000		0.000		-		0.000	0.000	0.510	-
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	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
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	0.139	0.073	Mar 2018	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	89.644	2.903		3.882		3.363		-		3.363	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 3 Test Planning/T&E Events	WR	NSWC Dahlgren : Dahlgren, VA	4.194	0.135	Nov 2017	0.300	Nov 2018	2.250	Nov 2019	-		2.250	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	WR	NSWC Crane : Crane, IN	2.591	0.012	Mar 2018	0.348	Nov 2018	1.000	Nov 2019	-		1.000	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	WR	NRL : Washington, DC	10.008	0.141	Nov 2017	1.122	Dec 2018	2.233	Nov 2019	-		2.233	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	SS/CPFF	APL : Laurel, MD	0.749	0.023	Nov 2017	0.665	Jan 2019	1.500	Nov 2019	-		1.500	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	WR	COMOPTEVFOR : Norfolk, VA	0.176	0.091	Aug 2018	0.257	Dec 2018	0.337	Nov 2019	-		0.337	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	WR	Surface Combat Systems Center : Wallops Island, VA	0.356	0.000		2.186	Nov 2018	0.250	Nov 2019	-		0.250	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NAVFAC	WR	NAVFAC Mid-Atlantic : Norfolk, VA	0.167	0.523	Jun 2018	0.415	Nov 2018	0.250	Nov 2019	-		0.250	Continuing	Continuing	Continuing
		Subtotal	18.241	0.925		5.293		7.820		-		7.820	Continuing	Continuing	N/A

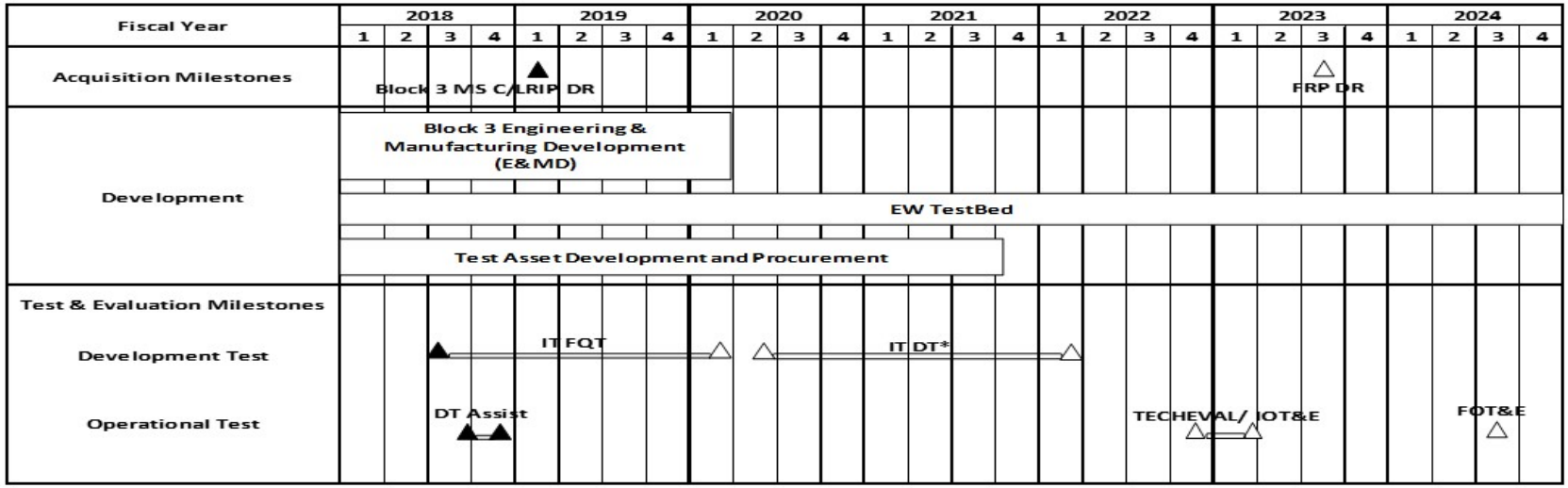
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block 3 Program Management Support	C/CPIF	TMB (SEAPORT) : Washington, DC	1.391	0.040	Oct 2018	0.086	Jan 2019	0.065	Nov 2019	-		0.065	Continuing	Continuing	Continuing
Block 3 Program Management Support	C/CPIF	CACI (SEAPORT) : Washington, DC	0.422	0.000		0.127	Jan 2019	0.099	Nov 2019	-		0.099	Continuing	Continuing	Continuing
Block 3 Program Management Support	C/CPIF	SPA : Washington, DC	0.074	0.072	Oct 2018	0.055	Dec 2018	0.050	Nov 2019	-		0.050	Continuing	Continuing	Continuing
Block 3 Travel	WR	NAVSEA Program Office : Washington, DC	0.347	0.015	Mar 2018	0.050	Dec 2018	0.050	Nov 2019	-		0.050	Continuing	Continuing	Continuing
		Subtotal	2.234	0.127		0.318		0.264		-		0.264	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	250.277	76.313		35.877		22.129		-		22.129	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 Q2FY2019 to Q1FY2020 due to late Engineering Development Model (EDM) delivery caused by additional system design (e.g., antenna, cooling, power) and late EDM material receipt from suppliers delaying manufacturing and integration.

Note 2: TECHEVAL / IOT&E moved from Q1FY2021 to Q4FY2022 due to a change in test ships caused by the late delivery of the LRIP #1 system. The production lead time increased from 18 months to 24 months due to longer than previously projected material procurement and processing times for long lead solid state devices in the system. Due to the limited number of ship availabilities long enough to support the SEWIP Block 3 installation duration, the delay in LRIP #1 delivery has a greater impact.

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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	2018	1	2020
EW Testbed	1	2018	4	2024
Test Asset Development and Procurement	1	2018	4	2021
IT-FQT	3	2018	1	2020
DT Assist	3	2018	4	2018
Block 3 MS C/LRIP DR	1	2019	1	2019
IT-DT	2	2020	1	2022
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

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / *Ship Self Def (Engage: Soft Kill/EW)*	Project (Number/Name) 3430 / *SEWIP Block 4*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
3430: *SEWIP Block 4*	0.000	0.000	0.000	0.000	-	0.000	41.600	40.100	30.000	19.300	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

3430 - SEWIP Block 4 will provide EO/IR, ES and EA capability required for US Navy ships to keep pace with the threat. SEWIP Block 4 will provide a common EO/IR surveillance and countermeasure capability to all surface combatants and non-combatants outfitted with SEWIP variants AN/SLQ-32(V)6 and (V)7 as well as select new construction platforms.