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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy **Date:** March 2019

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	4,069.441	340.760	379.116	415.625	-	415.625	361.917	325.305	289.099	288.124	Continuing	Continuing
1447: <i>Surf Combatant Combat System Imp</i>	4,031.962	333.043	362.170	405.547	-	405.547	353.019	317.337	282.960	282.776	Continuing	Continuing
3357: <i>Aegis Training Improvement Program</i>	37.479	7.717	6.946	10.078	-	10.078	8.898	7.968	6.139	5.348	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.000	0.000	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.000

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 180

A. Mission Description and Budget Item Justification

This project provides Cruiser and Destroyer AEGIS Combat System (ACS) upgrades and integrates new equipment and systems to pace the threat and capture advances in technology. Examples of captured advanced technologies include: open architecture, advanced information assurance and initial cyber defense, fiber optics, distributed computing architecture, and high performance computing, all of which require corresponding AEGIS Weapon System (AWS) and ACS changes.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	390.238	397.403	343.636	-	343.636
Current President's Budget	340.760	379.116	415.625	-	415.625
Total Adjustments	-49.478	-18.287	71.989	-	71.989
• Congressional General Reductions	-	-1.578			
• Congressional Directed Reductions	-	-26.709			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-9.754	0.000			
• Program Adjustments	0.000	0.000	72.507	-	72.507
• Rate/Misc Adjustments	0.001	0.000	-0.518	-	-0.518
• Congressional General Reductions Adjustments	-1.016	-	-	-	-
• Congressional Directed Reductions Adjustments	-38.709	-	-	-	-

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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

Congressional Add: *AEGIS Force-Level Interoperability Definintion and Analysis*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2018	FY 2019
	0.000	10.000
	0.000	10.000
	0.000	10.000

Change Summary Explanation

FY18 1447/3357:

Reductions:

-\$38.709M: Congressional reductions in AEGIS baseline 5 capability package 2020, AEGIS baseline 10 capability package 2023, Identification Friend or Foe (IFF), and Far Term Interoperability Improvement Plan (FTIIP).

FY19 1447:

Reductions:

-\$26.709M: Congressional reductions in AEGIS FTIIP and Combat Systems Test Bed (CSTB).
 -\$1.578M: Federally funded research and development centers (FRDC).

FY20 1447/3357:

Increases:

+\$44.200M: AEGIS Warfighting improvements delivered as part of a AEGIS baseline 9 capability package 2022 update for both CGs and DDGs.

+\$24.500M: AEGIS baseline 5 capability package 2023 development and integration efforts.

+\$13.000M: AEGIS baseline 9 capability packages 2020 and 2021 Demonstration Testing / Operational Testing requirements to validate warfighting improvements at sea.

+\$2.400M: AEGIS training improvements needed to meet Fleet requirements.

Reductions:

-\$10.3700M: AEGIS FTIIP elimination

-\$2.038M: Contract Service Reform reduction

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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
1447: <i>Surf Combatant Combat System Imp</i>	4,031.962	333.043	362.170	405.547	-	405.547	353.019	317.337	282.960	282.776	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 180												

A. Mission Description and Budget Item Justification

AEGIS Baseline nomenclature has changed for President's Budget 2020 as follows, ACB-12 with TI-12 is now AEGIS BL 9 Capability package (AEGIS BL 9 (2015) 2015, ACB-16 with TI-12 is now AEGIS BL 9 Capability Package (AEGIS BL 9 2018) 2018, ACB-16 with TI-12H is now AEGIS BL 9 Capability Package (AEGIS BL 9 2020) 2020, ACB-16 with TI-16 is now AEGIS BL 9 Capability Package (AEGIS BL 9 2021) 2021, and ACB-20 with TI-16 is AEGIS BL 10 Capability Package (AEGIS BL 9 2023) 2023. AEGIS Baseline 9 capability package 2015 (AEGIS BL 9 2015) includes new technology and capabilities to replace aging MIL-SPEC equipment, extend service life, and maintain the combat viability of AEGIS ships into the future. AEGIS BL 9 2015 has been installed during modernization availabilities to DDG 51-53, 57, 61, 65 and 69 and CG 59, 60, 62 and also introduced on new construction destroyers (DDG 113-118).

AEGIS Baseline 9 capability packages 2018, 2020, and 2021 (AEGIS BL 9 2018, 2020, 2021) will deliver additional warfighter improvements to the AEGIS Fleet to include improved Ballistic Missile Defense (BMD) capabilities (DDG only), SEWIP BLK II, MH-60R Integration, SPQ-9B in the Fire Control Loop, Total Ship Training Capability (TSTC), Condition Based Maintenance, Combat System Boundary Defense, NIFC-CA 2019, and NIFC-CA Collateral #3. AEGIS BL 9 2018 will be delivered (including back-fit) to 15 DDGs (51/52/57/61/65/69/80/113-120), 7 CGs (52-58) and 2 AEGIS ASHORE (AA) sites (Poland/Romania); AEGIS BL 2020 will initially be delivered to 2 DDGs (79/83) and 7 CGs (63-65/66/68/69/71); and AEGIS BL 9 2021 will be delivered to 12 DDGs (81/84-88/92/94/121-124, 127).

AEGIS Baseline 10 capability package 2023 (AEGIS BL 10 2023) will provide critical warfighter improvements to the AEGIS FLT III Destroyers. AEGIS BL 10 2023 combat system development efforts include integration of the Air and Missile Defense Radar (AMDR) SPY-6 while building upon AEGIS BL 9 to form the foundation for the AEGIS Flight III DDG Combat System.

AEGIS Far Term Interoperability Improvement Plan (FTIIP) addressed interoperability issues within fielded AEGIS Combat System configurations.

AEGIS Task Force Cyber Awakening effort assesses and delivers design improvements to AEGIS Combat System Computer Program and Hardware configurations to counter emerging cyber threats. These improvements are implemented within AEGIS Combat Systems configurations currently under development and include updates to Boundary Defense Components (BDC).

AEGIS BL 5 capability package 2020 (AEGIS BL 5 2020) combines AEGIS BL 5 and BMD 4.1 into single AEGIS Computer Program enabling near simultaneous shift between AAW and BMD operations for the AEGIS Flight I/II DDGs as well as a combined Air and Ballistic Missile Defense capability. Additional capabilities delivered with AEGIS BL 5 2020 include SM-6 integration, as well as capabilities developed to address Fleet Urgent Operational Needs (UONs).

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AEGIS BL 5 capability package 2023 (AEGIS BL 5 2023) includes refurbishment of the SPY-1D radar arrays with installation of Low Noise Amplifiers (LNA) to improve radar sensitivity against emerging threats through the end of the Flight I/II DDG service life.

AEGIS IFF MODE 4/5 Integration program addresses IFF Mode 4 issues and fully integrates Mode 5 IFF for all AEGIS Baselines by 2020 in support of Fleet direction.

Combat Systems Test Bed (CSTB) will address the current limitations in AEGIS Modeling & Simulation highlighted by DOT&E in previous AEGIS baselines. Combat Systems Test Bed will provide automated analysis to efficiently process large amounts of M&S data. The CSTB has already been used to aid in the modeling and simulation of combat systems performance prior to the execution of every AEGIS Baseline 9 live fire testing since JAN 2015 and has a proven track record of realistic predictions and the identification of mission critical software defects. CSTB is already being utilized to predict AEGIS Baseline 9 2018 system performance on Cruisers and Destroyers, and has already run over 145,000 missile scenarios, with an associated cost avoidance of \$584M. The CSTB helps save on the use of targets and weapons required during live fire tests of new Combat Systems capabilities. DOT&E requires use of CSTB as noted in DOT&E letter dated Aug 09, 2013 and Jun 09, 2014. CSTB will continue to be used by IWS1 with expanded capabilities in 2018, 2019, and 2020, and by Commander Operational Test and Evaluation Force for AEGIS BL 9 Critical Operational Issue evaluations in 2022. The CSTB will be a critical system for Frigate Combat System and AEGIS BL 10 2023.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: AEGIS DEVELOPMENT SUPPORT	27.640	36.833	38.774	0.000	38.774
Articles:	-	-	-	-	-
<p>Description: AEGIS Development Support includes the following: AEGIS Technical Design Agent (TDA), AEGIS System Engineering, COTS Obsolescence evaluation, Future Surface Combatant (FSC) planning, AEGIS Development Site Operations and Maintenance, and Small Business Innovation Research (SBIR).</p> <p>FY 2019 Plans: AEGIS TDA evaluation of Combat System configurations to assess overall performance and identify areas where modifications can be implemented to improve the performance of the AEGIS Combat System for all warfare areas.</p> <p>AEGIS System engineering evaluation of AEGIS Combat System performance and development of the AEGIS Capability Phasing Plan to ensure that warfighter improvements are implemented through future Combat System upgrades to meet emerging threats. These efforts are focused on defining future capability upgrades to the AEGIS Combat System.</p> <p>AEGIS COTS Obsolescence to include evaluation of systems currently delivered as well and those under development. These updates are focused on replacing high failure rate components in addition to monitoring and resolving obsolescence issues for all AEGIS hardware configurations.</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Future Surface Combatant studies and analysis will deliver requirements and concept of employment for the next surface combatant.</p> <p>AEGIS Development Site Operation and Maintenance for the Land Based Test Sites (LBTS) ensures that adequate hours are available to support all planned AEGIS baseline development efforts. The LBTS include; Combat System Engineering Development Site (CSEDS), Program Generation Center (PGC), SPY-1A Test Facility (STF), Naval Systems Computing Center (NSCC), and Surface Combat System Center (SCSC).</p> <p>FY 2020 Base Plans: AEGIS TDA evaluation of Combat System configurations to assess overall performance and identify areas where modifications can be implemented to improve the performance of the AEGIS Combat System for all warfare areas.</p> <p>AEGIS System engineering evaluation of AEGIS Combat System performance and development of the AEGIS Capability Phasing Plan to ensure that warfighter improvements are implemented through future Combat System upgrades to meet emerging threats. These efforts are focused on defining future capability upgrades to the AEGIS Combat System.</p> <p>AEGIS COTS Obsolescence to include evaluation of systems currently delivered as well and those under development. These updates are focused on replacing high failure rate components in addition to monitoring and resolving obsolescence issues for all AEGIS hardware configurations.</p> <p>Future Surface Combatant studies and analysis will deliver requirements and concept of employment for the next surface combatant.</p> <p>AEGIS Development Site Operation and Maintenance for the Land Based Test Sites (LBTS) ensures that adequate hours are available to support all planned AEGIS baseline development efforts. The LBTS include; Combat System Engineering Development Site (CSEDS), Program Generation Center (PGC), SPY-1A Test Facility (STF), Naval Systems Computing Center (NSCC), and Surface Combat System Center (SCSC).</p> <p>FY 2020 OCO Plans:</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A					
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Increase to support Future Surface Combatant Studies and Analysis to support requirements definition.					
<i>Title:</i> AEGIS CRUISER BL 9 UPGRADES (PREVIOUSLY ADVANCED CAPABILITY BUILD 12 (BL 9.A2))	39.251	43.113	23.900	0.000	23.900
<i>Articles:</i>	-	-	-	-	-
<i>Description:</i> Develops and delivers AEGIS Cruiser baseline 9 upgrades. The Cruiser configuration of AEGIS BL 9 2018 includes the following warfighting improvements; SEWIP Integration - Electronic Warfare aided kill evaluation, SPQ-9B AW engage, UAV improvements with Agile Sundowner, stream raid improvements with Agile Storm, and Gun Weapon System splash avoidance. The Cruiser configuration of AEGIS BL 9 2020 captures additional warfighting improvements to include ESSM Blk 2 Functional, SEWIP - Early Hard Kill/Soft Kill Coordination / Advanced Off-board Electronic Warfare communication, NIFC-CA Collateral III, NIFC-CA 2019, and National Technical Means integration with Agile Thunder.					
<i>FY 2019 Plans:</i> Specific FY19 milestones will include the following to ensure the below tasking is on track to support delivery. CG at sea event preparation, at sea test event and post event support efforts required to field AEGIS BL 9 2018 on CG 63 and 64. Underway testing includes installation and checkout of computer program, Combat System Test events 1 and 2, scenario development, and CSSQT Planning required to support FY20 efforts.					
Engineering Assessments. Complete data analysis of Engineering Assessment completed in 2018 and planning, execution and data analysis of Engineering Assessment planned in 2nd QTR 2019.					
Programmatic and technical leadership in a collaborative Navy and industry environment. Program Management Team (PMT), System Engineering Cross Product Team (SECPT), Element, Safety, Configuration Management (CM), Test & Evaluation (T&E), Certification, and Subject Matter Experts (SMEs). Participate in and evaluate remaining AEGIS BL 9 2020 design decisions, Engineering Technical Reviews (ETR), Specification Change, Review, Implementation, and baseline governance boards and Navy Review Team (NRT). Execute Test Execution activities and stimulation capability. Execute Combat System certification activities required to support FY20 Certification. Execute risk management. Develop briefs for technical and programmatic meetings in support of Mission Readiness Assessments (MRAs), In Process Reviews (IPRs), Program Reviews, and Test Readiness Reviews (TRRs). Execute Combat System Safety Program to include Weapon System Explosive Safety Review Board (WSESRB).					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Computer Program emergent correction as required to address software limitations impacting planned underway test events or computer program certification.</p> <p>Computer Program updates required to address various hardware configurations.</p> <p>FY 2020 Base Plans: Specific FY20 milestones will include the following to ensure the below tasking is on track to support delivery. AEGIS BL 9 2020 Certification.</p> <p>CG at sea event preparation, at sea event conduct and post event support efforts required to field AEGIS BL 9 2018 on CG 65 and 69. Underway testing includes installation and checkout of computer program, Combat System Test events 1 and 2, Discrepancy investigation and resolution, Scenario development, CSSQT planning and post event analysis required to support FY20 CSSQT for CG 63, 64, 65, and 69.</p> <p>Combat System Certification in 1st QTR to support fielding of the AEGIS Computer Program.</p> <p>Computer program emergent corrections as required to address software defects that impact planned underway test events or computer program certification.</p> <p>Computer Program updates required to address various hardware configurations.</p> <p>FY 2020 OCO Plans: N/A</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decrease due to scope reduction, all LBTS testing completed in support of certification and ship installation.</p>					
<p>Title: AEGIS DESTROYER BL 9 UPGRADES (PREVIOUSLY ADVANCED CAPABILITY BUILD 16 / TECHNOLOGY INSERTION 16 (BL 9.C2))</p> <p align="right">Articles:</p> <p>Description: Develops and delivers AEGIS BL 9 Destroyer upgrades. AEGIS BL 9 2018 captures warfighting improvements to include; BMD 5.1, SEWIP Integration - EW aided kill evaluation, SPQ-9B AW Engage, UAV Improvements with Agile Sundowner, Raid Improvements with Agile Storm, and Gun Weapon System splash avoidance. AEGIS BL 9 2020 includes BMD 5.1.1, ESSM Blk 2 Functional, SEWIP - Early Hard Kill/Soft Kill</p>	68.591 -	31.500 -	74.413 -	0.000 -	74.413 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Coordination / Advanced Off-board Electronic Warfare communication, NIFC-CA Collateral III, NIFC-CA 2019, and National Technical Means integration with Agile Thunder. AEGIS BL 9 2021 includes BMD 5.1.2, SEWIP - Auto Association, Advanced Training Domain, IAMD Mission Planner, Above Water Sensor Coordinator, Hypersonic tracking improvements with Agile Sirocco, and Electronic Warfare operator enhancements with Agile Moondog.</p> <p>FY 2019 Plans: Specific FY19 milestones will include the following to ensure the below tasking is on track to support delivery. AEGIS BL 9 2020 Engineering Assessment #2 MAR 2019 AEGIS BL 9 2020 Certification Planning AUG-SEP 2019 AEGIS BL 9 2021 IPR #5 MAR 2019 AEGIS BL 9 2021 Engineering Assessment #1 AUG 2019</p> <p>AEGIS code development and integration of the following capabilities: BMD 5.1.2, SEWIP - Auto Association, Advanced Training Domain, IAMD Mission Planner, Above Water Sensor Coordinator, Agile Sirocco, and Agile Moondog.</p> <p>DDG at sea event preparation, at sea test event execution and post event support efforts required to field AEGIS BL 9 2020 on DDG 79, and 83 and AEGIS BL 9 2021 on DDG 84, and 86. Underway testing includes installation and checkout of computer program, Combat System Test events 1 and 2, discrepancy investigation and resolution, scenario development, CSSQT planning and post event analysis required to support FY19/20 CSSQT on DDG 79, 83, 84, and 86.</p> <p>Engineering Assessments. Complete data analysis of Engineering Assessment completed in SEP 2018 and supporting planning, execution, and data analysis of Engineering Assessment planned in 2nd QTR 2019.</p> <p>Programmatic and technical leadership in a collaborative Navy and industry environment. Program Management Team (PMT), System Engineering Cross Product Team (SECPT), Element, Safety, Configuration Management (CM), Test & Evaluation (T&E), Certification, and Subject Matter Experts (SMEs). Participate in and evaluate remaining AEGIS BL 9 2020 design decisions, Engineering Technical Reviews (ETR), Specification Change, Review, Implementation, and baseline governance boards and Navy Review Team (NRT). Execute Test Execution activities and stimulation capability. Execute Combat System certification activities required to support FY20 Certification. Execute risk management. Develop briefs for technical and programmatic meetings</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>in support of Mission Readiness Assessments (MRAs), In Process Reviews (IPRs), Program Reviews, and Test Readiness Reviews (TRRs). Execute Combat System Safety Program to include Weapon System Explosive Safety Review Board (WSESRB).</p> <p>Computer Program updates required to deliver the TI-12H backfit hardware upgrade. Updates are required to ensure that the ACS configuration will work with the installed TI 12H equipment.</p> <p>FY 2020 Base Plans: Specific FY20 milestones will include the following to ensure the below tasking is on track to support delivery. Phase 2 Certification Planning AUG-SEP 2020</p> <p>Execute Combat System Certification 1st QTR for all DDG variants to support fielding of the AEGIS Computer Program.</p> <p>Computer Program emergent correction as required to address software limitation impacting planned Underway Test events or Computer Program Certification.</p> <p>DDG At-Sea Event Preparation, At-Sea Test Event Execution and Post-Event Support efforts required to field AEGIS BL 9 2020 on DDG 79, and 83 and AEGIS BL 9 2021 on DDG 84, and 86. Underway testing include installation and checkout of Computer Program, Combat System Test events 1 and 2, Discrepancies investigation and resolution, Scenario development, CSSQT Planning and post event analysis required to support FY19/20 CSSQT on DDG 79, 83, 84, and 86. Includes Developmental Testing (DT) for the DDG configuration as part of the At-Sea events.</p> <p>Computer Program updates required to address various hardware configurations.</p> <p>FY 2020 OCO Plans: N/A</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase to support AEGIS BL 2022 Code Development to deliver the following warfighter capabilities; ESSM BLK II optimized, MMSP-R, ALPS, High Energy Laser with Integrated Optical-Dazzler and Surveillance</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
(HELIOS), Standard Missile 6 Block IB, and the Maritime Strike Tomahawk identified as CNO priorities, and integration of the next generation surface search radar (NGSSR).					
<p>Title: AEGIS FLT III DESTROYER BL 10 UPGRADES (PREVIOUSLY ADVANCED CAPABILITY BUILD 20 / TECHNOLOGY INSERTION 16/20)</p> <p align="right">Articles:</p> <p>Description: Develops and delivers AEGIS BL 10 FLT III Destroyer upgrades. AEGIS BL 10 2023 includes the following warfighting improvements; SPY-6 (AMDR), BMD 6.0, Close in Weapons System (CIWS) point defense sensor integration, Cyber Security improvements, and MK 160 Gun Computing System (GCS) improvements .</p> <p>FY 2019 Plans: Specific FY19 milestones will include the following to ensure the below tasking is on track to support delivery. In-Progress Review #3 MAR 2019</p> <p>AEGIS Code Development and Integration of the following capabilities: SPY-6 (AMDR), BMD 6.0, MK 160 GCS improvements, CIWS sensor data integration, and Cyber security improvements.</p> <p>Site Activation required to support AEGIS BL 10 2023 development and integration testing. This supports procurement of equipment required to simulate the SPY-6 radar needed to complete required integration testing in supporting of code development.</p> <p>SPY-6 radar integration within the AEGIS Combat System. Provides funding to complete SPY-6 development and resolve integration discrepancies discovered during the testing process.</p> <p>Evaluate and map all Flight III DDG requirements to support future integration and delivery to the first Flight III DDG.</p> <p>Programmatic and technical leadership in a collaborative Navy and industry environment. Program Management Team (PMT), System Engineering Cross Product Team (SECPT), Element, Safety, Configuration Management (CM), Test & Evaluation (T&E), Certification, and Subject Matter Experts (SMEs). Participate in and evaluate AEGIS BL 10 2023 design decisions, Engineering Technical Reviews (ETR), Specification Change, Review, Implementation, and baseline governance boards and Navy Review Team (NRT). Execute Test Execution activities and stimulation capability. Execute risk management. Develop briefs for technical and programmatic</p>	116.475	157.978	168.717	0.000	168.717
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>meetings in support of Mission Readiness Assessments (MRAs), In Process Reviews (IPRs), Program Reviews, and Test Readiness Reviews (TRRs). Execute Combat System Safety Program to include Weapon System Explosive Safety Review Board (WSESRB). Early Test and Evaluation efforts being conducted at Land Based Test Sites to validate Computer Program development and integration efforts as required to meet the delivery to the first Flight III DDG.</p> <p>Integrating Modeling and Simulation products to improve requirements test coverage and reduce future test requirements.</p> <p>FY 2020 Base Plans: Specific FY20 milestones will include the following to ensure the below tasking is on track to support delivery.</p> <p>In-Progress Review #4 NOV 2019 In-Progress Review #5 JUL 2020</p> <p>Continued AEGIS Code Development and Integration of the following capabilities: SPY-6 (AMDR), BMD 6.0, MK 160 GCS improvements, CIWS sensor data integration, and Cyber security improvements.</p> <p>Site Activation required to support AEGIS BL 10 2023 Development and Integration Testing. This supporting the procurement of equipment required to simulate the SPY-6 radar to complete required integration testing in supporting of code development.</p> <p>SPY-6 Radar Integration within the AEGIS Combat System. Provides funding to complete SPY-6 development and resolve integration discrepancies discovered during the testing process.</p> <p>Evaluate and map all Flight III DDG requirements to support future integration and delivery to the first Flight III DDG.</p> <p>Programmatic and technical leadership in a collaborative Navy and industry environment. Program Management Team (PMT), System Engineering Cross Product Team (SECPT), Element, Safety, Configuration Management (CM), Test & Evaluation (T&E), Certification, and Subject Matter Experts (SMEs). Participate in and evaluate AEGIS BL 10 2023 design decisions, Engineering Technical Reviews (ETR), Specification Change, Review, Implementation, and baseline governance boards and Navy Review Team (NRT). Execute Test Execution</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>activities and stimulation capability. Execute risk management. Develop briefs for technical and programmatic meetings in support of Mission Readiness Assessments (MRAs), In Process Reviews (IPRs), Program Reviews, and Test Readiness Reviews (TRRs). Execute Combat System Safety Program to include Weapon System Explosive Safety Review Board (WSESRB). Early Test and Evaluation efforts being conducted at Land Based Test Sites to validate Computer Program development and integration efforts as required to meet the delivery to the first Flight III DDG.</p> <p>Early Test and Evaluation efforts being conducted at Land Based Test Sites to validate Computer Program development and integration efforts as required to meet the delivery to the first Flight III DDG.</p> <p>Integrating Modeling and Simulation products to improve requirements test coverage and reduce future test requirements.</p> <p>FY 2020 OCO Plans: N/A</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to SPY-6 Integration costs and the increased number of test requirements based on amount of coding completed in FY19.</p>					
<p>Title: AEGIS DESTROYER BL 5 UPGRADES (PREVIOUSLY AEGIS BL 5.4 UPGRADE)</p> <p align="right">Articles:</p> <p>Description: AEGIS BL 5 2020 combines AEGIS BL 5 and BMD 4.1 into single AEGIS Computer Program enabling near simultaneous shift between AAW and BMD operations for the AEGIS Flight I/II DDGs as well as a combined Air and Ballistic Missile Defense capability. Additional capabilities delivered with AEGIS BL 5 2020 include SM-6 integration, as well as capabilities developed to address Fleet Urgent Operational Needs (UONs). AEGIS BL 5 2023 includes refurbishment of the SPY-1D radar arrays with installation of Low Noise Amplifiers (LNA) to improve radar sensitivity against emerging threats through the end of the Flight I/II DDG service life.</p> <p>FY 2019 Plans: Specific FY19 milestones will include the following to ensure the below tasking is on track to support delivery. In Progress Review #3 NOV 2018 (AEGIS BL 5 2020) In Progress Review #4 MAY 2019 (AEGIS BL 5 2020) Engineering Assessment (EA) SEP 2019 (AEGIS BL 2020)</p>	41.967	41.400	46.905	0.000	46.905
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>AEGIS BL 5 2020 code development, integration and testing required the merge AEGIS BL 5 and BMD 4.1 functionality in a single computer program.</p> <p>Programmatic and technical leadership in a collaborative Navy and industry environment. Program Management Team (PMT), System Engineering Cross Product Team (SECPT), Element, Safety, Configuration Management (CM), Test & Evaluation (T&E), Certification, and Subject Matter Experts (SMEs). Participate in and evaluate remaining AEGIS BL 5 2020 design decisions, Engineering Technical Reviews (ETR), Specification Change, Review, Implementation, and baseline governance boards and Navy Review Team (NRT). Execute Test Execution activities and stimulation capability. Execute Combat System certification activities required to support FY20 Certification. Execute risk management. Develop briefs for technical and programmatic meetings in support of Mission Readiness Assessments (MRAs), In Process Reviews (IPRs), Program Reviews, and Test Readiness Reviews (TRRs). Execute Combat System Safety Program to include Weapon System Explosive Safety Review Board (WSESRB).</p> <p>Early LNA Firmware Development to support AEGIS BL 5 2023 and Wallops Island Virginia site modifications in preparation for the installation of the LNA array to support future test and evaluation efforts.</p> <p>FY 2020 Base Plans: Specific FY20 milestones will include the following to ensure the below tasking is on track to support delivery. System Requirements Review OCT 2019 (AEGIS BL 5 2023) Combat System Certification Panel MAY 2020 (AEGIS BL 5 2020) In Progress Review #1 JUN 2020 (AEGIS BL 5 2023)</p> <p>Programmatic and technical leadership in a collaborative Navy and industry environment. Program Management Team (PMT), System Engineering Cross Product Team (SECPT), Element, Safety, Configuration Management (CM), Test & Evaluation (T&E), Certification, and Subject Matter Experts (SMEs). Participate in and evaluate remaining AEGIS BL 5 2023 design decisions, Engineering Technical Reviews (ETR), Specification Change, Review, Implementation, and baseline governance boards and Navy Review Team (NRT). Execute Test Execution activities and stimulation capability. Execute Combat System certification activities required to support FY20 Certification. Execute risk management. Develop briefs for technical and programmatic meetings in support of Mission Readiness Assessments (MRAs), In Process Reviews (IPRs), Program Reviews, and Test</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Readiness Reviews (TRRs). Execute Combat System Safety Program to include Weapon System Explosive Safety Review Board (WSESRB).</p> <p>Continued LNA Firmware Development to support AEGIS BL 5 2023 and Wallops Island Virginia site modifications in preparation for the installation of the LNA array to support future test and evaluation efforts..</p> <p>AEGIS BL 5 2023 code development, integration, and testing.</p> <p>FY 2020 OCO Plans: N/A</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increased funding required to certify AEGIS BL 5 2020 and commence development of AEGIS BL 5 2023.</p>					
<p>Title: AEGIS: FIX IFF MODE 4 / ACCELERATE MODE 5</p> <p align="right">Articles:</p> <p>Description: This program addresses an immediate operational issue to fix Identification Friend or Foe (IFF) mode 4 as well as accelerate integration of IFF mode 5 and bring all AEGIS Cruisers and Destroyers into IFF mode 5 compliance by 2020 in accordance with the JROC mandate to sunset IFF mode 4</p> <p>FY 2019 Plans: Specific FY19 milestones will include the following to ensure the below tasking is on track to support delivery.</p> <p>Final code development of full IFF Mode 5 integration, and testing within the AEGIS CSL supporting both the Cruiser and Destroyer configuration of AEGIS BL 9 2018.</p> <p>Acceleration of an in service update for both AEGIS BL 5 and AEGIS BL 7. AEGIS BL 5 2019 CSCPs third and fourth quarter FY19 AEGIS BL 7 2019 CSCP third quarter FY19</p> <p>FY 2020 Base Plans: Specific FY20 milestones will include the following to ensure the below tasking is on track to support delivery.</p> <p>AEGIS BL 5 2020 CSCP OCT 2020</p>	18.752	28.691	21.470	0.000	21.470
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
AEGIS BL 9 2020 CSCP OCT 2020 FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: Reduction due to the completion of AEGIS BL 9 2018 IFF updates.					
Title: COMBAT SYSTEMS TEST BED (CSTB) Description: Combat Systems Test Bed (CSTB) will address the current limitations in AEGIS Modeling & Simulation highlighted by DOT&E in previous AEGIS baselines. Combat Systems Test Bed will provide automated analysis to efficiently process large amounts of M&S data The CSTB has already been used to aid in the modeling and simulation of combat systems performance prior to the execution of every AEGIS Baseline 9 live fire testing since JAN 2015 and has a proven track record of realistic predictions and the identification of mission critical software defects. CSTB is already being utilized to predict AEGIS Baseline 9 2018 system performance on Cruisers and Destroyers, over 145,000 missile scenarios have already been executed, with an associated cost avoidance of \$584M. The CSTB helps save on the cost of targets and weapons required during live fire tests of new Combat Systems capabilities. DOT&E requires use of CSTB as noted in DOT&E letter dated Aug 09, 2013 and Jun 09, 2014. CSTB will continue to be used by IWS1 and by Commander Operational Test and Evaluation Force for AEGIS BL 9 Critical Operational Issue evaluations in 2022. The CSTB will be a critical system for Frigate Combat System and AEGIS BL 10 2023. CSTB Build 1 has been completed as a prototype with 6 more build planned to provide more functionality to improve predictive analysis and reduce at-sea test requirements. FY 2019 Plans: Specific FY19 milestones will include the following to ensure the below tasking is on track to support delivery. In-Progress Review #1 JAN 2019 Build 2 delivery FEB 2019 Verification, Validation & Accreditation data review build 2 JUN 2019 In-Progress Review #2 JUL 2019	0.000	7.855	18.688	0.000	18.688
Articles:	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Government oversight of Combat System Test Bed development and support for the Verification, Validation, & Accreditation process.					
Development and integration of CSTB Build 2 required to support the following efforts:: (1) At-Sea -Test event planning for AEGIS BL 9 2018 utilizing AN/SPY-1, Weapons Control System (WCS), Command & Decision (C&D) and ESSM Block 1. (2) Assessment of new AEGIS Speed to Capability (ASToC) capabilities. (3) Analysis of performance deltas between Common Source Library (CSL) builds.					
Development and integration of CSTB Build 3 was cancelled due to FY19 Congressional mark. Build 3 would have expanded the capabilities delivered in CSTB Build 2, required to support the following efforts: initial AEGIS BL 10 2023 capabilities and the integration of AN/SPY-6, ESSM Block 2, and SLQ-32v(6) models. Build 3 was targeted to support the AEGIS BL 9 2018, 2020, and 2021 Operational Test (OT) Runs for Record.					
FY 2020 Base Plans: Specific FY20 milestones will include the following to ensure the below tasking is on track to support delivery.					
In-Progress Review #4 NOV 2019 Commence Development of Build 4 In-Progress Review #2 JUL 2020					
Government oversight of Combat System Test Bed development and support for the Verification, Validation, & Accreditation process.					
Development and integration of CSTB Build 3 expands on the capabilities delivered in CSTB Build 2, required to support the following efforts: initial AEGIS BL 10 2023 capabilities and the integration of AN/SPY-6, ESSM Block 2, and SLQ-32V(6) models. Build 3 is targeted to support the AEGIS BL 9 2018, 2020, and 2021 Operational Test (OT) Runs for Record, and significant verification and validation (V&V) of the requisite AN/SPY-1, Weapon Control System (WCS), Command & Decision (C&D), ESSM Block 1, and SM-2 Block IIIA/IIIB model capabilities will occur in FY19. AEGIS BL 10 2023 V&V will be on-going, culminating in delivery of Developmental Test (DT) and OT Accreditation Plans. Finally, CEC, CIWS, and SM-6 Block I models will continue integration and testing.					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Development and integration of CSTB Build 4 expands on the capabilities delivered in CSTB Build 2, including SM-6 BLK I, SM2-BLK IIIB, ESSM BLK I, CIWS, and VLS. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to development of CSTB build number 3 deferred from FY19. Build 3 includes the integration of AN/SPY-6, SSM Block 2, and SLQ-32V(6)					
Title: TASK FORCE CYBER AWAKENING (TFCA) Description: Provides solutions to address AEGIS Cyber deficiencies and vulnerabilities. Solutions include the AEGIS Cyber security toolkit, file integrity checker, anti-malware, USB media detection, boundary proxy service, system incident and event manager, common user interface, network device integrity, identification management, certificate management, secure boot, application whitelisting, sandbox, cross domain and daily report capabilities. These solutions will be delivered as part of planned AEGIS BL 9 and 10 updates. FY 2019 Plans: Specific FY19 milestones will include the following to ensure the below tasking is on track to support delivery. In-Progress Review #6 FEB 2019 In-Progress Review #7 AUG 2019 Integration efforts related to fielding Cyber capabilities within the AEGIS Common Source Library (CSL). System engineering efforts to identify, evaluate, and develop potential solutions required to address Cyber deficiencies within the AEGIS Combat System FY 2020 Base Plans: Specific FY20 milestones will include the following to ensure the below tasking is on track to support delivery. In-Progress Review #8 FEB 2020 In-Progress Review #9 AUG 2020 Integration efforts related to fielding Cyber capabilities within the AEGIS Common Source Library (CSL).	16.367	10.500	12.680	0.000	12.680
Articles:	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
System engineering efforts to identify, evaluate, and develop potential solutions required to address Cyber deficiencies within the AEGIS Combat System FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to additional efforts planned to identify and resolve Cyber issues within the AEGIS Weapon System.					
Title: FAR TERM INTEROPERABILITY IMPROVEMENT PLAN (FTIIP) Description: FTIIP included development of Link 16 Digital Air Control (DAC) phase 1 capability to integrate with the next generation fighter (F-35). DAC is the only means available for the F-35 to inject sensor data into the Carrier Strike Group (CSG) common tactical picture in an adverse communications denied environment. DAC phase 1 is a distributed lethality enabler. FY 2019 Plans: Analysis of a Link-16 DAC F-35 Tracking Exercise conducted in FY18 FY 2020 Base Plans: None FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: Decrease due to completion of the at sea demonstration live fire event in FY18.	4.000	4.300	0.000	0.000	0.000
Articles:	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	333.043	362.170	405.547	0.000	405.547

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
• R&D 0604501N: <i>Multi Mission Signal Processor</i>	2.424	2.503	2.567	-	2.567	2.856	0.000	0.000	0.000	Continuing	Continuing
• SCN 2122: <i>DDG 51</i>	3,498.792	5,945.731	5,373.323	-	5,373.323	3,483.842	3,600.696	6,159.792	5,649.274	3,803.000	118,036.476

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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2018	FY 2019	FY 2020	FY 2020	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Cost To	
			Base	OCO	Total					Complete	Total Cost
• OPN 0900: <i>DDG Modernization</i>	592.644	462.908	566.140	-	566.140	555.525	812.338	1,042.482	1,107.075	2,558.665	10,388.593
• R&D 0604378N	27.359	29.092	25.767	-	25.767	25.694	0.000	0.000	0.000	Continuing	Continuing
PU 3159: <i>NIFC-CA</i>											
• OPN 5231: <i>Ship Missile Support Equipment (AEGIS Support Equipment)</i>	76.236	33.692	89.000	-	89.000	98.288	99.468	101.184	88.813	Continuing	Continuing

Remarks

D. Acquisition Strategy

Combat system improvements are implemented in baselines as described in the project mission statement. After the combat system is completed and tested, the computer program and associated equipment are delivered to the new construction shipbuilders and modernization shipyards where the computer program and equipment are installed and tested along with all other elements of the shipboard combat system and associated combat support systems. The computer program is a Government Furnished Computer Program (GFCP) deliverable to the Production Test Center for equipment test and check out. Future Combat System deliveries will be provided using the Combat System Engineering Agent (CSEA) contract. Additional modifications to the existing contracts will address any war fighting improvements as directed by OPNAV.

Currently PEO IWS 1.0 has existing contracts or pending contract actions support all efforts defined within the Budget Exhibit. A summary of contracts and contractual actions are captured below.

Active Major Contracts:

- N00024-13-C-5116: Competitive award to support AEGIS BL 9 2018 and follow on efforts - Period of Performance FY13-FY23
ECP pending for AEGIS BL 9 2022, post demo, and AEGIS BL 10 2023 LOE increase - planned award 2ND QTR FY19
- N00024-16-C-5102: Sole source follow on to complete AEGIS BL 9 2018 for DDG 118-119 - Period of Performance FY16-FY21
- N00024-13-C-5132: Sole source to support NJ Sites - Period of Performance FY13-FY18
Pending follow on contract planned to award 2ND QTR FY19 (N00024-18-C-5103)
- N00024-17-C-5019: Life cycle logistics support - Period of Performance FY17-FY21
- N00024-14-C-5104: Sole source to support ship installation and test - Period of Performance FY14-FY22
- N00024-15-C-5151: AEGIS ship integration and test - Period of Performance FY15-FY25
ECP Pending to increase scope to incorporate High Energy Weapons and AEGIS Ashore - Planned Award 2ND QTR FY19

Pending New Contracts:

- N00024-18-X-0343: GSA awarded to support strategic planning efforts - Planned Award 2ND QTR FY19
- N00024-15-X-0584: AEGIS ILS life cycle support sustainment - Planned Award Date FEB 2020

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<p>N00024-17-X-0343: Surface Combatant CSEA - Planned Award Date DEC 2020</p> <p>In addition, PEO IWS 1.0 leverages contracts of other organizations to support AEGIS Development. These include: MDA - LM BMD Contract (AEGIS BL 5 2020/2023 DEV) NAVSEA - JHU APL, SAIC, CACI, SI, TMB, and Engility (ENG/PSS/ESS) SEA05C - IDT (DEV)</p> <p>E. Performance Metrics</p> <p>Major Milestones for AEGIS CRUISER BL 9 UPGRADES (PREVIOUSLY ADVANCED CAPABILITY BUILD 12 (BL 9.A2)): In-Progress Review (IPR) #3 first quarter FY18. In-Progress Review (IPR) #4 fourth quarter FY18 Engineering Assessment (EA) #1 fourth quarter FY18. Engineering Assessment (EA) #2 second quarter FY19. BL 9 2018 Combat System Certification Panel (CG variant)fourth quarter of FY18.* *Shifted CSCP from 3rd quarter to 4th quarter FY18 due to additional scope and software defect corrections. BL 9 2020 Combat System Certification Panel first quarter of FY20.</p> <p>Major Milestones for AEGIS DESTROYER BL 9 UPGRADES (PREVIOUSLY ADVANCED CAPABILITY BUILD 16 / TECHNOLOGY INSERTION 12/12H/16 (BL 9.C2)): BL 9 2018 Combat System Certification Panel (DDG variant) fourth quarter of FY18 BL 9 2020 In-Progress Review (IPR) #1 first quarter FY18. BL 9 2020 In-Progress Review (IPR) #2 fourth quarter FY18. BL 9 2018 Combat System Certification Panel (CSCP) TI12 Configuration fourth quarter FY18. BL 9 2020 Engineering Assessment (EA) #1 fourth quarter FY18. BL 9 2020 Engineering Assessment (EA) #2 second quarter FY19. BL 9 2021 In-Progress Review (IPR) #1 second quarter FY19. BL 9 2021 Engineering Assessment (EA) #1 fourth quarter FY19 BL 9 2020 Combat System Certification Panel (CSCP) TI12H Configuration first quarter FY20. *Corrected error on PB19 budget exhibit. Date was incorrectly shown as second quarter FY19. BL 9 2021 Combat System Certification Panel (CSCP) TI16 Configuration first quarter FY21. BL 9 2022 In-Progress Review (IPR) #1 first quarter FY20. BL 9 2022 In-Progress Review (IPR) #2 fourth quarter FY20. BL 9 2022 Engineering Assessment (EA) #1 first quarter FY21. BL 9 2022 Combat System Certification Panel (CSCP) Configuration first quarter FY22.</p> <p>Major Milestones for AEGIS FLT III DESTROYER BL 10 UPGRADES (PREVIOUSLY ADVANCED CAPABILITY BUILD 20 / TECHNOLOGY INSERTION 16): Completed BL 10 Preliminary Design Review (PDR) first quarter FY18.</p>		

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<p>Completed BL 10 2023 In-Progress Review #2 fourth quarter FY18. BL 10 2023 In-Progress Review #3 second quarter FY19. BL 10 2023 In-Progress Review #2 first quarter FY20. BL 10 2023 In-Progress Review #2 fourth quarter FY20. BL 10 2023 In-Progress Review #2 third quarter FY21. BL 10 2023 Engineering Assessment (EA) first quarter FY22. BL 10 2023 AEGIS Light-Off (ALO) second quarter FY22. BL 10 2023 Combat System Certification Panel fourth quarter FY23. Combat System Interface Support Equipment Delivery in fourth quarter FY18 *Made a number of corrections to the PB19 budget exhibit schedule to include: - Removed the CDR in FY19 as we have shifted from a waterfall development strategy to an agile approach. - Corrected the ALO date from the first quarter 2021 to the second quarter 2022 - Corrected the CSCP date from the second quarter 2023 to the fourth quarter 2023 - Corrected the Demo date (and changed the name from Demo to EA) from the second quarter 2022 to the first quarter 2022</p> <p>Major Milestones for AEGIS DESTROYER BL 5 UPGRADES (PREVIOUSLY AEGIS BL 5.4 UPGRADE): Completed BL 5.4 Phase 1 In-Progress Review (IPR) #2 third quarter FY18. BL 5 2020 In-Progress Review (IPR) #3 first quarter FY19. BL 5 2020 In-Progress Review (IPR) #4 third quarter FY19. BL 5 2020 Engineering Assessment (EA) fourth quarter FY19.* *Shifted from third quarter FY19 due to Congressional mark. BL 5 2020 Combat System Certification Panel (CSCP) third quarter FY20.* *Shifted from fourth quarter FY19 due to Congressional mark. BL 5 2023 Kickoff (KO) first quarter FY19. BL 5 2023 System Requirements Review (SRR) first quarter FY20. BL 5 2023 In-Progress Review (IPR) #1 third quarter FY20. BL 5 2023 In-Progress Review (IPR) #2 first quarter FY21. BL 5 2023 In-Progress Review (IPR) #3 third quarter FY21. BL 5 2023 In-Progress Review (IPR) #4 first quarter FY22. BL 5 2023 Engineering Assessment (EA) fourth quarter FY22. BL 5 2023 Combat System Certification Panel (CSCP) fourth quarter FY23.* *Corrected CSCP date from second quarter FY22 to fourth quarter FY23.</p> <p>Major Milestones for AEGIS MODE 4/5 Integration*: AEGIS BL 5 2018 Upgrade In-Progress Review (IPR) #1 first quarter FY19.</p>		

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<p>AEGIS BL 5 2018 Combat System Certification Panel fourth quarter FY19. AEGIS BL 5 2018 (BMD 3.6) Combat System Certification Panel fourth quarter FY19. AEGIS BL 5 2018 (BMD 4.0) Combat System Certification Panel first quarter FY20. AEGIS BL 7 2019 In-Progress Review (IPR) #1 fourth quarter FY18. AEGIS BL 7 2019 Combat System Certification Panel third quarter FY19. AEGIS BL 9 2018 In-Progress Review (IPR) #1 first quarter FY18. AEGIS BL 9 2018 In-Progress Review (IPR) #2 fourth quarter FY18. AEGIS BL 9 2020 Engineering Assessment (EA) #1 fourth quarter FY18. AEGIS BL 9 2020 Engineering Assessment (EA) #2 second quarter FY19. AEGIS BL 9 2020 Combat System Certification Panel first quarter FY20. *Modified PB19 schedule based on AEGIS BL deliveries vice completion of IFF integration phases.</p> <p>Major Milestones for Combat System Test Bed (CSTB): Computer Program Delivery #2 second quarter FY19. Computer Program Delivery #4 first quarter FY22. Computer Program Delivery #5 first quarter FY23. Computer Program Delivery #6 first quarter FY24.</p> <p>Major Milestones for TASK FORCE CYBER AWAKENING (TFCA): Completed In-Progress Review (IPR) #4 second quarter FY18. In-Progress Review (IPR) #5 fourth quarter FY18. In-Progress Review (IPR) #6 second quarter FY19. In-Progress Review (IPR) #7 fourth quarter FY19. In-Progress Review (IPR) #8 second quarter FY20. In-Progress Review (IPR) #9 fourth quarter FY20. In-Progress Review (IPR) #10 second quarter FY21. In-Progress Review (IPR) #11 fourth quarter FY21. In-Progress Review (IPR) #12 second quarter FY22.</p> <p>Major Milestones for Far Term Interoperability Improvement Plan (FTIIP): FTIIP In-Progress Review (IPR) #2 fourth quarter FY18. FTIIP In-Progress Review (IPR) #3 fourth quarter FY19.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy **Date:** March 2019

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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	C/CPIF	Lockheed Martin : Moorestown, NJ	2,655.238	256.512	Oct 2017	269.728	Oct 2018	294.905	Oct 2019	-		294.905	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	APL : Baltimore, MD	105.662	13.080	Oct 2017	21.482	Oct 2018	21.594	Oct 2019	-		21.594	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Dahlgren, VA	480.465	30.890	Oct 2017	30.578	Oct 2018	41.571	Oct 2019	-		41.571	Continuing	Continuing	Continuing
Systems Engineering	SS/CPAF	BAE Systems : Rockville, MD	62.133	5.320	Oct 2017	5.521	Oct 2018	5.921	Oct 2019	-		5.921	Continuing	Continuing	Continuing
Systems Engineering	C/CPIF	Raytheon : St. Petersburg, FL	0.000	0.000		1.400	Oct 2018	3.512	Oct 2019	-		3.512	0.000	4.912	-
Systems Engineering	WR	NSWC : Port Hueneme, CA	89.301	5.074	Oct 2017	5.578	Oct 2018	6.895	Oct 2019	-		6.895	Continuing	Continuing	Continuing
Systems Engineering	WR	NWAS : Corona, CA	38.050	3.854	Oct 2017	4.082	Oct 2018	4.152	Oct 2019	-		4.152	Continuing	Continuing	Continuing
Systems Engineering	WR	SPAWAR : San Diego, CA	12.932	0.824	Oct 2017	1.089	Oct 2018	1.098	Oct 2019	-		1.098	Continuing	Continuing	Continuing
Systems Engineering	WR	Various : Various	181.040	9.958	Oct 2017	13.524	Oct 2018	16.204	Oct 2019	-		16.204	Continuing	Continuing	Continuing
Award fees	SS/CPAF	Lockheed Martin : Moorestown, NJ	272.094	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Award fees	SS/CPAF	BAE Systems : Rockville, MD	3.853	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Award fees	SS/CPAF	Alion Science : Washington DC	2.920	0.000		0.000		0.000		-		0.000	0.000	2.920	-
Award fees	WR	Various : Various	9.741	0.350	Oct 2017	0.386	Oct 2018	0.458	Oct 2019	-		0.458	Continuing	Continuing	Continuing
Systems Engineering	C/CPIF	Technology Service Corporation : Silver Spring , MD	0.000	0.000		0.432	Oct 2018	0.463	Oct 2019	-		0.463	0.000	0.895	-
Subtotal			3,913.429	325.862		353.800		396.773		-		396.773	Continuing	Continuing	N/A

Remarks
 Various Performing Activities consist of multiple performing activities with funding for each no greater than \$1 million per year. These larger performing activities include CDSA Dam Neck and NSWC/Crane.

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>
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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	WR	Department of Interior : Boise, Idaho	43.779	0.980	Oct 2017	1.058	Oct 2018	1.124	Oct 2019	-		1.124	Continuing	Continuing	Continuing
Test and Evaluation	WR	NAVAIR : Pax River, MD	16.872	1.350	Oct 2017	1.524	Oct 2018	1.694	Oct 2019	-		1.694	Continuing	Continuing	Continuing
Test and Evaluation	Various	PMRF : Hawaii, HI	2.500	0.900	Oct 2017	0.986	Oct 2018	1.048	Oct 2019	-		1.048	0.000	5.434	-
Subtotal			63.151	3.230		3.568		3.866		-		3.866	Continuing	Continuing	N/A

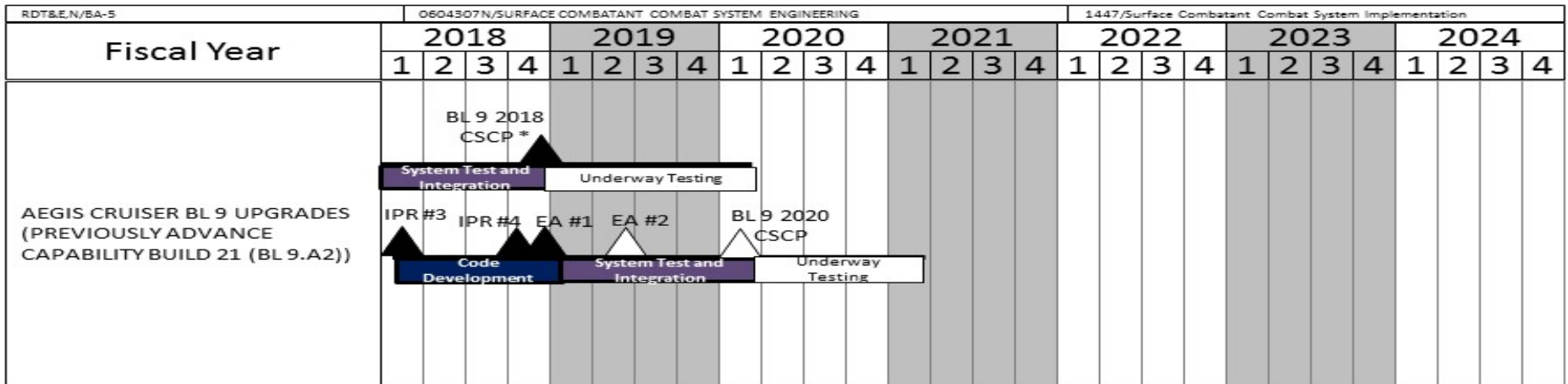
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	SS/CPAF	Alion Science : Washington DC	31.437	1.350	Oct 2017	1.532	Oct 2018	1.624	Oct 2019	-		1.624	Continuing	Continuing	Continuing
Program Management Support	SS/CPAF	SAIC : Mclean, VA	22.138	2.601	Oct 2017	3.270	Oct 2018	3.284	Oct 2019	-		3.284	Continuing	Continuing	Continuing
DAWDF	Various	Various : Various	1.807	0.000	Oct 2017	0.000	Oct 2018	0.000	Oct 2019	-		0.000	0.000	1.807	-
Subtotal			55.382	3.951		4.802		4.908		-		4.908	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	4,031.962	333.043	362.170	405.547	-	405.547	Continuing	Continuing	N/A

Remarks

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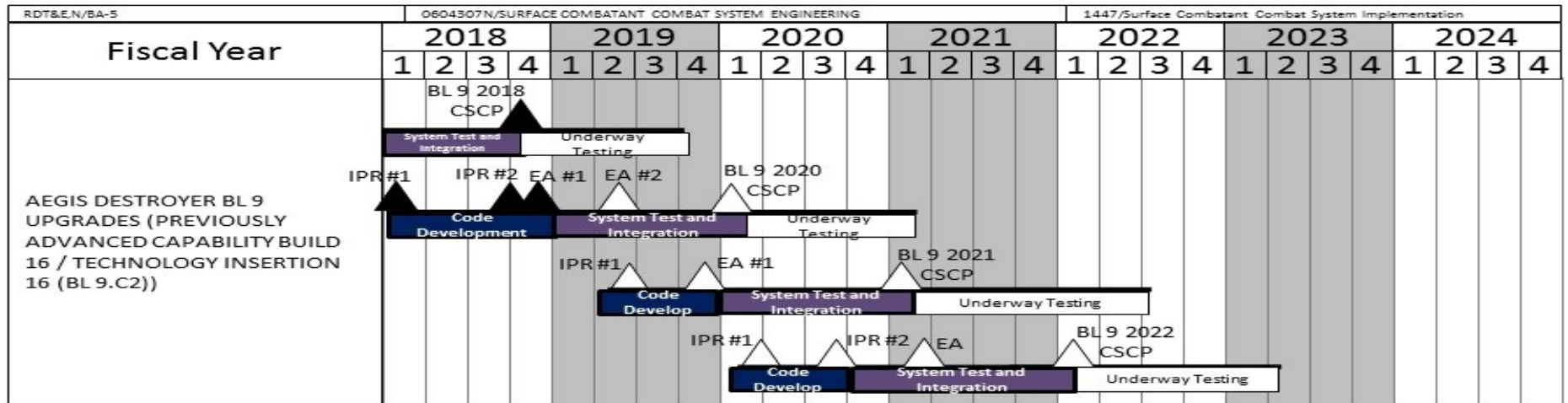
Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>



* PB19 to PB20 Changes:
Shifted CSCP date from the 3rd QTR. FY18 to the 4th QTR. FY18 due to additional scope and software defect corrections

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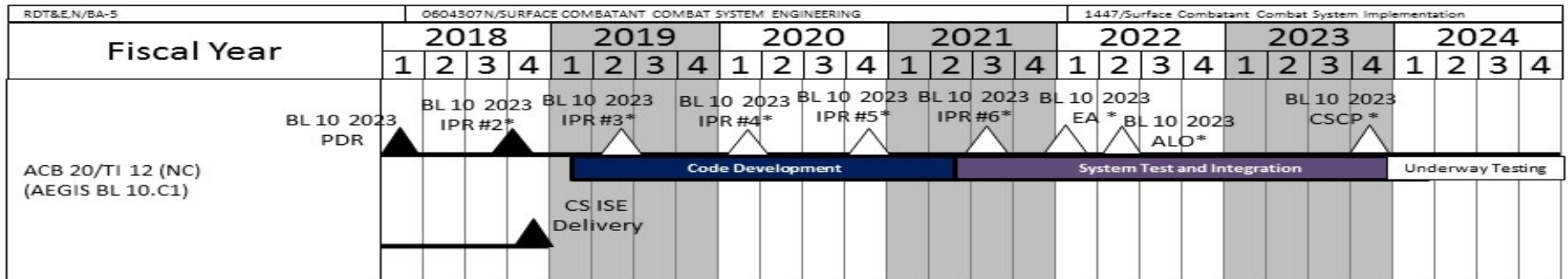
Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>



*PB19 to PB20 Changes:
Updated BL 9 2020 CSCP date from 2Q FY19 to 1Q FY20.

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>



* PB19 to PB20 Changes:
 Removed the CDR in FY19 as we have shifted from a waterfall development strategy to an agile approach.
 Added In-Progress Review 2-6
 Updated the ALO date from 1Q 2021 to 2Q FY22
 Updated the CSCP date from 1Q 2021 to 2Q FY23
 Updated the Demo date (and changed the name from Demo to EA) from 2Q FY22 to 1Q FY22

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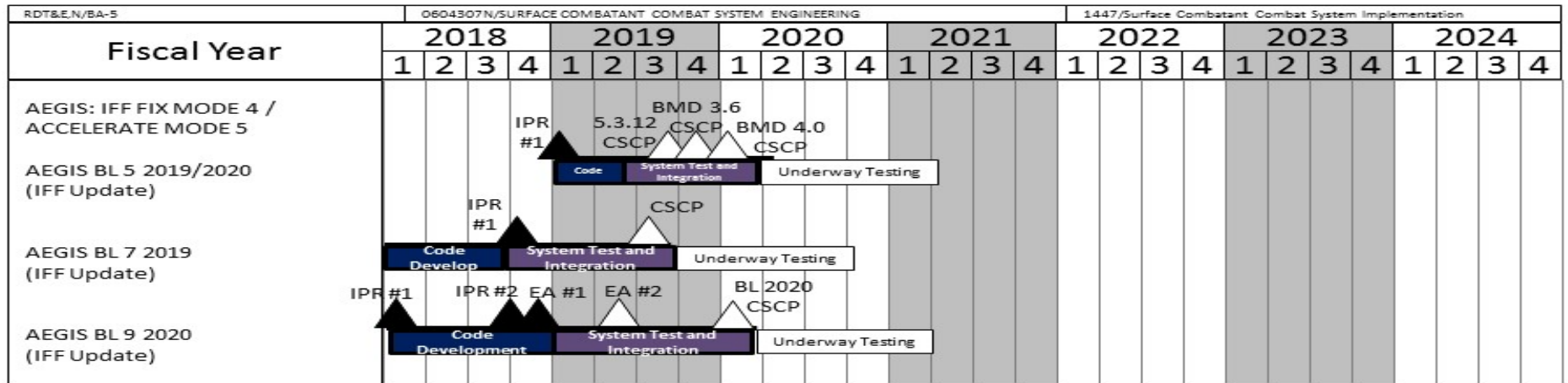
Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>

Fiscal Year	0604307N/SURFACE COMBATANT COMBAT SYSTEM ENGINEERING																1447/Surface Combatant Combat System Implementation														
	2018				2019				2020				2021				2022				2023				2024						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
AEGIS BL 5 UPGRADES (PREVIOUSLY AEGIS BL 5.4 UPGRADE)	REPLAN	IPR #2	IPR #3	IPR #4*	EA *			BL 5.4 2020 CSCP *																							
		Code Development	System Test and Integration				Underway Testing																								
				KO		SRR		IPR #1*	IPR #2*	IPR #3*	IPR #4*		EA *													BL 5 2023 CSCP *					
								Code Development				System Test and Integration				Underway Testing															

* PB19 to PB20 Changes:
 Added BL 5 2020 IPR #4 in 3Q FY19
 Shifted BL 5 2020 EA from 3Q FY19 to 4Q FY19 due to Congressional Reduction
 Shifted BL 5 2020 CSCP from 4Q FY19 to 3Q FY20 due to Congressional Reduction
 Removed BL 5 2023 IDR and PDR events shifting to IPR's – Added IPR's 1-4
 Removed BL 5 2023 At-Sea Events
 Removed BL 5 2023 FTM 27
 Added BL 5 2023 EA in 4Q FY22
 Updated BL 5 2023 CSCP date from 2Q FY22 to 4Q FY23

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>



* PB19 to PB20 Changes:
Modified PB19 schedule based on AEGIS BL deliveries vice completion of IFF Integration phases.

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>

Fiscal Year	0604307N/SURFACE COMBATANT COMBAT SYSTEM ENGINEERING																1447/Surface Combatant Combat System Implementation															
	2018				2019				2020				2021				2022				2023				2024							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
AEGIS FARTERM INTEROP IMPROVEMENT PLAN (Notional)			IPR #2				IPR #3																									

*PB19 to PB20 Changes:
Effort eliminated after FY19 due to funding higher priority efforts.

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>

RDT&E.N/BA-S	0604307N/SURFACE COMBATANT COMBAT SYSTEM ENGINEERING																1447/Surface Combatant Combat System Implementation															
	2018				2019				2020				2021				2022				2023				2024							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
COMBAT SYSTEM TEST BED (CSTB) <small>(Notional)</small>								CP DEL #2								CP DEL #4								CP DEL #5								CP DEL #6

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>

Fiscal Year	0604307N/SURFACE COMBATANT COMBAT SYSTEM ENGINEERING																1447/Surface Combatant Combat System Implementation																																			
	2018				2019				2020				2021				2022				2023				2024																											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																								
AEGIS CYBER AWAKENING TASK FORCE <small>(Notional)</small>	IPR #4				IPR #5				IPR #6				IPR #7				IPR #8				IPR #9				IPR #10				IPR #11				IPR #12																			

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 1447				
AEGIS CRUISER BL 9 UPGRADES: IN-PROGRESS REVIEW #3	1	2018	1	2018
AEGIS CRUISER BL 9 UPGRADES: IN-PROGRESS REVIEW #4	4	2018	4	2018
AEGIS CRUISER BL 9 UPGRADES: ENGINEERING ASSESSMENT #1	4	2018	4	2018
AEGIS CRUISER BL 9 UPGRADES: ENGINEERING ASSESSMENT #2	1	2019	1	2019
AEGIS CRUISER BL 9 UPGRADES: COMPUTER PROGRAM CERTIFICATION PANEL BL 9 2018	2	2019	2	2019
AEGIS CRUISER BL 9 UPGRADES: COMPUTER PROGRAM CERTIFICATION PANEL BL 9 2020	1	2020	1	2020
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2018 COMBAT SYSTEM CERTIFICATION PANEL (T112)	4	2018	4	2018
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2020 IN-PROGRESS REVIEW (IPR) #1	1	2018	1	2018
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2020 IN-PROGRESS REVIEW (IPR) #2	4	2018	4	2018
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2020 ENGINEERING ASSESSMENT (EA) #1	4	2018	4	2018
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2020 ENGINEERING ASSESSMENT (EA) #2	2	2019	2	2019
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2020 COMBAT SYSTEM CERTIFICATION PANEL (T112H)	1	2020	1	2020
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2021 IN-PROGRESS REVIEW (IPR) #1	2	2019	2	2019
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2021 ENGINEERING ASSESSMENT (EA) #1	4	2019	4	2019
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2021 COMBAT SYSTEM CERTIFICATION PANEL (T116)	1	2021	1	2021

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2022 IN-PROGRESS REVIEW (IPR) #1	1	2020	1	2020
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2022 IN-PROGRESS REVIEW (IPR) #2	4	2020	4	2020
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2022 ENGINEERING ASSESSMENT (EA) #1	1	2021	1	2021
AEGIS DESTROYER BL 9 UPGRADES: BL 9 2022 COMBAT SYSTEM CERTIFICATION PANEL (TI16)	1	2022	1	2022
AEGIS FLT III DESTROYER BL 10 UPGRADES: BL 10 2023 PRELIMINARY DESIGN REVIEW (PDR)	1	2018	1	2018
AEGIS FLT III DESTROYER BL 10 UPGRADES: BL 10 2023 IN-PROGRESS REVIEW (IPR) #2	1	2018	1	2018
AEGIS FLT III DESTROYER BL 10 UPGRADES: BL 10 2023 IN-PROGRESS REVIEW (IPR) #3	2	2019	2	2019
AEGIS FLT III DESTROYER BL 10 UPGRADES: BL 10 2023 IN-PROGRESS REVIEW (IPR) #4	1	2020	1	2020
AEGIS FLT III DESTROYER BL 10 UPGRADES: BL 10 2023 IN-PROGRESS REVIEW (IPR) #5	4	2020	4	2020
AEGIS FLT III DESTROYER BL 10 UPGRADES: BL 10 2023 IN-PROGRESS REVIEW (IPR) #6	3	2021	3	2021
AEGIS FLT III DESTROYER BL 10 UPGRADES: BL 10 2023 ENGINEERING ASSESSMENT (EA)	1	2022	1	2022
AEGIS FLT III DESTROYER BL 10 UPGRADES: BL 10 2023 AEGIS LIGHT OFF (ALO)	2	2022	2	2022
AEGIS FLT III DESTROYER BL 10 UPGRADES: BL 10 2023 COMBAT SYSTEM CERTIFICATION PANEL (CSCP)	4	2023	4	2023
AEGIS FLT III DESTROYER BL 10 UPGRADES: CS ISE DELIVERY	4	2018	4	2018
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2020 IN-PROGRESS REVIEW (IPR) #2	3	2018	3	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019	
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)		
1319 / 5	PE 0604307N / Surface Combatant Cmbt Sys Eng	1447 / Surf Combatant Combat System Imp		
Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2020 IN-PROGRESS REVIEW (IPR) #3	1	2019	1	2019
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2020 IN-PROGRESS REVIEW (IPR) #4	3	2019	3	2019
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2020 ENGINEERING ASSESSMENT (EA)	4	2019	4	2019
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2020 COMBAT SYSTEM CERTIFICATION PANEL (CSCP)	4	2019	4	2019
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2023 KICK OFF (KO)	1	2019	1	2019
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2023 SYSTEM REQUIREMENTS REVIEW (SRR)	1	2020	1	2020
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2023 IN-PROGRESS REVIEW (IPR) #1	3	2020	3	2020
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2023 IN-PROGRESS REVIEW (IPR) #2	1	2021	1	2021
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2023 IN-PROGRESS REVIEW (IPR) #3	3	2021	3	2021
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2023 IN-PROGRESS REVIEW (IPR) #4	1	2022	1	2022
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2023 ENGINEERING ASSESSMENT (EA)	4	2022	4	2022
AEGIS DESTROYER BL 5 UPGRADES: AEGIS BL 5 2023 COMBAT SYSTEM CERTIFICATION PANEL (CSCP)	4	2023	4	2023
AEGIS IFF MODE 4/5 Integration: AEGIS BL 5 2018 IN-PROGRESS REVIEW (IPR) #1	1	2019	1	2019
AEGIS IFF MODE 4/5 Integration: AEGIS BL 5 2018 COMBAT SYSTEM CERTIFICATION PANEL	4	2019	4	2019
AEGIS IFF MODE 4/5 Integration: AEGIS BL 5 2018 (BMD 3.6) COMBAT SYSTEM CERTIFICATION PANEL	4	2019	4	2019

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AEGIS IFF MODE 4/5 Integration: AEGIS BL 5 2018 (BMD 4.0) COMBAT SYSTEM CERTIFICATION PANEL	1	2020	1	2020
AEGIS IFF MODE 4/5 Integration: AEGIS BL 7 2019 IN-PROGRESS REVIEW #1	4	2018	4	2018
AEGIS IFF MODE 4/5 Integration: AEGIS BL 7 2019 COMBAT SYSTEM CERTIFICATION PANEL	3	2019	3	2019
AEGIS IFF MODE 4/5 Integration: AEGIS BL 9 2018 IN-PROGRESS REVIEW #1	1	2018	1	2018
AEGIS IFF MODE 4/5 Integration: AEGIS BL 9 2018 IN-PROGRESS REVIEW #2	4	2018	4	2018
AEGIS IFF MODE 4/5 Integration: AEGIS BL 9 2020 ENGINEERING ASSESSMENT (EA) #1	4	2018	4	2018
AEGIS IFF MODE 4/5 Integration: AEGIS BL 9 2020 ENGINEERING ASSESSMENT (EA) #2	2	2019	2	2019
AEGIS IFF MODE 4/5 Integration: AEGIS BL 9 2020 COMBAT SYSTEM CERTIFICATION PANEL	1	2020	1	2020
COMBAT SYSTEM TEST BED (CTSB): CTSB BUILD #2	2	2019	2	2019
COMBAT SYSTEM TEST BED (CTSB): CTSB BUILD #4	1	2022	1	2022
COMBAT SYSTEM TEST BED (CTSB): CTSB BUILD #5	1	2023	1	2023
COMBAT SYSTEM TEST BED (CTSB): CTSB BUILD #6	1	2024	1	2024
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #4	2	2018	2	2018
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #5	4	2018	4	2018
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #6	2	2019	2	2019
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #7	4	2019	4	2019
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #8	2	2020	2	2020
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #9	4	2020	4	2020
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #10	2	2021	2	2021
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #11	4	2021	4	2021
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #12	2	2022	2	2022

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP IN-PROGRESS REVIEW #2	4	2018	4	2018
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP IN-PROGRESS REVIEW #3	4	2019	4	2019

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>				Project (Number/Name) 3357 / <i>Aegis Training Improvement Program</i>			
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
3357: <i>Aegis Training Improvement Program</i>	37.479	7.717	6.946	10.078	-	10.078	8.898	7.968	6.139	5.348	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AEGIS Training Improvement project provides enhancements and upgrades to the Total Ship Training Capability (TSTC) training components within the combat system to address needs for increased training capability and functionality in conjunction with AEGIS Advanced Capability Builds (ACB). These enhancements will address current and future training requirements by implementing new functionality to enable the individual warfighter through distributed battle group events to engage in more complex training requirements to support fleet required training certification events. Capability Development and integration are related to Integrated Air and Missile Defense, Underwater, Surface, and other warfare areas. Capability enhancements and upgrades include development of re-useable common components that can be leveraged by SSDS MK2 combat systems, and/or integration of re-usable common components developed by the TSTC Battle Force Tactical Trainer (BFTT) Program and Ship Self Defense System (SSDS) MK2 TSTC Training Improvement programs to meet AEGIS combat system training requirements. TSTC provides realistic joint warfare training across the spectrum of armed conflict, realistic unit level team training in all warfare areas (e.g. NIFC-CA and BMD missions to support IAMD). TSTC provides ships' Commanding Officers and Battle Group/Battle Force Commanders with the ability to conduct coordinated realistic, high stress, combat system level team training as an integral part of the Afloat Training Organization, the Tactical Training Groups and C2F/C3F Fleet Synthetic Trainers (FSTs). TSTC continues to integrate and update, as new tactical capabilities are being introduced, to enable crew operator proficiency training for basic and sustainment level training events, through distributed strike group certification fleet synthetic training (FST) events and including COMPTUEX FST at Sea integration into Live, Virtual and Constructive (LVC) environment. Continued Development is required to integrate new capabilities and interfaces to provide training for AEGIS and SSDS combat system capability upgrades, and to address the Fleet's Live, Virtual and Constructive (LVC) Fleet Training Wholeness initiative. Additionally, modernization is needed to support the DoD Training Transformation Plan, the Chief of Naval Operations Fleet Response Plan and Commander United States Fleet Forces Command Fleet Readiness Training Plan.

The Advanced Training Domain (ATD) is being developed to combine BFTT and the AEGIS Combat Training System (ACTS) into a common system that integrates with AEGIS BL 9.2.2AF, and SSDS BL 11.xAF. ATD is being hosted along with the AEGIS and SSDS combat system on TI-16 common processing and display hardware. ATD is being designed to be the core of the Total Ship Training Capability, and is projected to be more reliable, simpler to use, and architected to be extensible to meet interoperability and capability enhancement challenges in the future.

The BFTT is being updated to maintain integration and capability enhancements developed for the Cooperative Engagement Capability (CEC), Surface Electronic Warfare Improvement Program (SEWIP), and the Carrier Tactical Support Center (CV-TSC), and SSDS Fire Control Loop Improvement Program.

TSTC provides realistic joint warfare training across the spectrum of armed conflict, realistic unit level team training in all warfare areas (e.g. NIFC-CA and BMD missions to support IAMD). TSTC provides ships' Commanding Officers and Battle Group/Battle Force Commanders with the ability to conduct coordinated realistic, high stress, combat system level team training as an integral part of the Afloat Training Organization, the Tactical Training Groups and C2F/C3F FST/LVC events.

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 3357 / <i>Aegis Training Improvement Program</i>

Develop and integrate MH-60R simulator to enable embedded shipboard training in support of basic and sustainment training, as well as establishes the pathway to support pier-side Fleet Synthetic Training (FST) events.

Develop and Integrate Cooperative Engagement Capability (CEC) Enhanced Training (CET) to support basic and sustainment level training, as well as provide ability to distribute and establish CEC data link during pier-side fleet synthetic training exercises. CET will also provide enable proficiency training of NIFC-CA capability.

Develop and integrate CEC Interim Training (CIT) capability to support pier-side fleet synthetic training events. This is an interim capability support the distributed portion of the CET capability, until CET is fully deployed. This supports training of strike groups of new tactical capabilities that were integrated into the AEGIS BL9 ships, and provides the necessary functionality to allow ships to train as a strike group.

Develop and integrate upgrades to Battle-Force Electronic Warfare Trainer (BEWT) to support soft kill training with NULKA.

Develop Identification Friend or Foe (IFF) simulator to enable training of Modes 1, 2, 3A, 4, C, 5 and S on both AEGIS and SSDS ships. Capability will support AEGIS and SSDS IFF MODE 4/5 Integration program will address training Mode 4 Inoculation, and allow training of Modes 5 and S IFF.

Develop and integrate commensurate training improvements to SSDS ACB 20 for Enhanced Sea Sparrow Missile (ESSM) and Electronic Warfare (EW) tactical improvements.

Integrate Navy Continuous Training Environment (NCTE) networking and cyber security upgrades maintain authorization to participate in distributed shipboard training events.

TSTC integrated on AEGIS provides the capability to complete system and operational level testing of the combat system.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: AEGIS Training Improvement and ACB 16 Integration	7.717	5.644	7.770	0.000	7.770
Articles:	-	-	-	-	-
Description: AEGIS Total Ship Training Capability (TSTC) provides enhancements to training components and increase training functionality in conjunction with AEGIS ACB16 development and integration. These enhancements will address current and future training requirements and implement new functionality to support more complex training requirements related to Underwater, Surface and other warfighter upgrades.					
FY 2019 Plans: AEGIS Modifications to support integration and testing of ATD and BFTT Integrated Training Improvements.					

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 3357 / <i>Aegis Training Improvement Program</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>ATD 1.0: Deliver ATD 1.0 to support AEGIS BL 9 2021 and SSDS BL 11.x.</p> <p>ATD 1.1: Conduct integration testing with AEGIS BL 10 2023. Develop and integrate Close-in Weapon System (CIWS) simulator and develop and integrate Gun Weapons System training capability to meet Aegis BL 10 2023 requirements.</p> <p>BFTT 5.1.2: Deliver training capability to support SSDS Combat System FCLIP upgrades to include integration at CIWS Simulator leveraged from Aegis BL 10 2023 development.</p> <p>ATD and BFTT: Continue to achieve interoperability with NCTE, AEGIS and SSDS Combat Systems; SLQ-32, SQQ-89, CV-TSC, SPQ-9B AMDR, EASR, and CEC PARM Elements.</p> <p>FY 2020 Base Plans:</p> <ul style="list-style-type: none"> - Continue development, integration and testing of ATD on Aegis BL 10 2023 and Ship Self Defense System (SSDS) BL 11. - Develop changes to BFTT to incorporate ATD Human Machine Interface (HMI) to modernize BFTT on ships without TI 16 computing and display infrastructure. <p>FY 2020 OCO Plans:</p> <p>N/A</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <p>The increase of 2.126M is caused by the support for the interoperability with NCTE, Aegis and SSDS Combat System.</p>					
<p>Title: Fleet Training Wholeness</p> <p align="right">Articles:</p> <p>FY 2019 Plans:</p> <p>Develop ECP's to implement ability for SPS-48, Next Generation Surface Search Radar (NGSSR) and SPQ-9B radars to process both simulated and live contacts.</p> <p>Develop changes on AEGIS and SSDS baselines to allow training to overlay tactical displays to support training underway.</p>	0.000	1.302	2.308	0.000	2.308
	-	-	-	-	-

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 3357 / <i>Aegis Training Improvement Program</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Develop of Surface Warfare Capability for integration on AEGIS.					
Develop Cooperative Engagement Capability (CEC) Distributed Training Capability enhancements for training underway.					
Assess safety and navigation distribution for underway training.					
Develop data collection and after-action review tools for large events.					
Develop surface search radar simulators.					
Integrate shipboard synthetic tactical radios.					
Develop weapon systems modifications to integrate LVC functionality and safety.					
Initiate ATD 2.x and BFTT 5.2.x development efforts to integrate above capabilities.					
<i>FY 2020 Base Plans:</i> - Continue integration and testing of sim over live training improvements being developed with radars. - Continue development of Advanced Training Domain (ATD) for Aegis BL 9 2021 and BL 10 2023.					
<i>FY 2020 OCO Plans:</i> N/A					
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Increase of \$1.006M for Fleet Training Wholeness Strike Group.					
Accomplishments/Planned Programs Subtotals	7.717	6.946	10.078	0.000	10.078

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
• RDTE/0204571N/1427: <i>Surface Tactical Team Trainer (STTT)</i>	15.274	34.187	42.554	-	42.554	34.241	24.353	17.876	0.000	Continuing	Continuing

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 3357 / <i>Aegis Training Improvement Program</i>

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

Efforts will be completed on various contracts to support requirements updates to multiple products that will support Training Integration and Implementation within AEGIS ACB16.

E. Performance Metrics

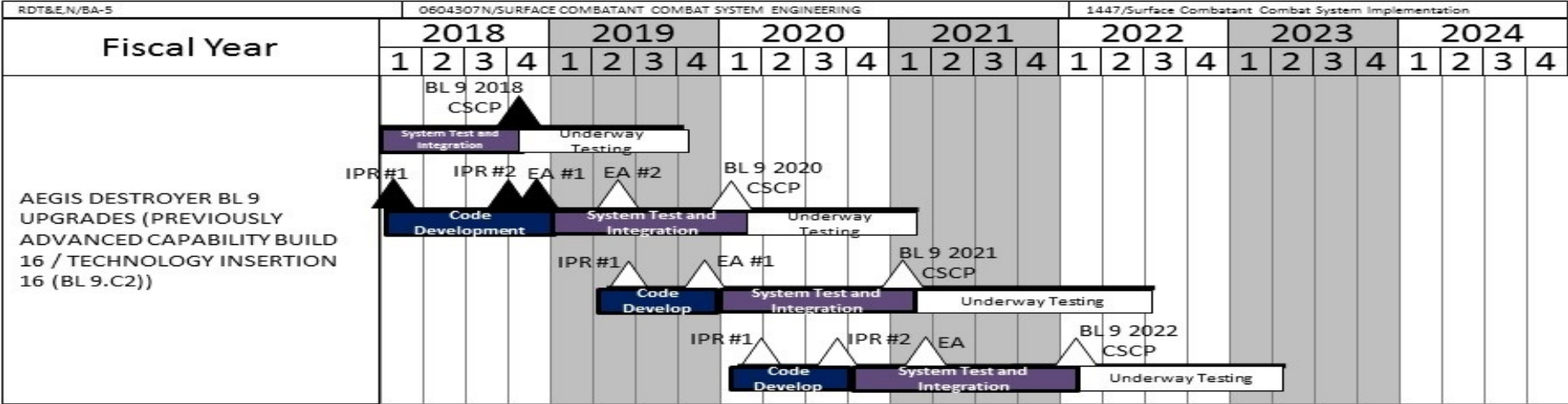
Training Improvement Program efforts will complete major development milestones.
 Major Milestones for AEGIS DESTROYER BL 9 UPGRADES (PREVIOUSLY ADVANCED CAPABILITY BUILD 16 / TECHNOLOGY INSERTION 12/12H/16 (BL 9.C2)):
 BL 9 2018 Combat System Certification Panel (DDG variant) fourth quarter of FY18
 BL 9 2020 In-Progress Review (IPR) #1 first quarter FY18.
 BL 9 2020 In-Progress Review (IPR) #2 fourth quarter FY18.
 BL 9 2018 Combat System Certification Panel (CSCP) TI12 Configuration fourth quarter FY18.
 BL 9 2020 Engineering Assessment (EA) #1 fourth quarter FY18.
 BL 9 2020 Engineering Assessment (EA) #2 second quarter FY19.
 BL 9 2021 In-Progress Review (IPR) #1 second quarter FY19.
 BL 9 2021 Engineering Assessment (EA) #1 fourth quarter FY19
 BL 9 2020 Combat System Certification Panel (CSCP) TI12H Configuration first quarter FY20. *Corrected error on PB19 budget exhibit. Date was incorrectly shown as second quarter FY19
 BL 9 2021 Combat System Certification Panel (CSCP) TI16 Configuration first quarter FY21.
 BL 9 2022 In-Progress Review (IPR) #1 first quarter FY20.
 BL 9 2022 In-Progress Review (IPR) #2 fourth quarter FY20.
 BL 9 2022 Engineering Assessment (EA) #1 first quarter FY21.
 BL 9 2022 Combat System Certification Panel (CSCP) Configuration first quarter FY22.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)							
1319 / 5				PE 0604307N / Surface Combatant Cmbt Sys Eng					3357 / Aegis Training Improvement Program							
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Product Development	Various	Various : Various	18.962	4.098	Dec 2017	3.696	Dec 2018	6.822	Dec 2019	-		6.822	Continuing	Continuing	Continuing	
Subtotal			18.962	4.098		3.696		6.822		-		6.822	Continuing	Continuing	N/A	
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
System Engineering	Various	Various : Various	16.420	2.991	Dec 2017	2.592	Dec 2018	2.578	Dec 2019	-		2.578	Continuing	Continuing	Continuing	
Subtotal			16.420	2.991		2.592		2.578		-		2.578	Continuing	Continuing	N/A	
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Engineering Support	C/CPIF	CACI : Arlington, VA	1.566	0.527	Dec 2017	0.553	Dec 2018	0.570	Dec 2019	-		0.570	Continuing	Continuing	Continuing	
Professional Support	C/CPIF	TMB : Washington DC	0.531	0.101	Dec 2017	0.105	Dec 2018	0.108	Dec 2019	-		0.108	Continuing	Continuing	Continuing	
Subtotal			2.097	0.628		0.658		0.678		-		0.678	Continuing	Continuing	N/A	
Project Cost Totals			37.479	7.717		6.946		10.078		-		10.078	Continuing	Continuing	N/A	
Remarks																

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 3357 / <i>Aegis Training Improvement Program</i>



*PB19 to PB20 Changes:
Updated BL 9 2020 CSCP date from 2Q FY19 to 1Q FY20.

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 3357 / <i>Aegis Training Improvement Program</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3357				
ACB16 BL 9.C2: ACB 16 (BL 9.C2.0) COMBAT SYSTEM CERTIFICATION PANEL (TI12)	4	2018	4	2018
ACB16 BL 9.C2: ACB 16 (BL 9.C2.1) IN-PROGRESS REVIEW (IPR) #1	1	2018	1	2018
ACB16 BL 9.C2: ACB 16 (BL 9.C2.1) IN-PROGRESS REVIEW (IPR) #2	4	2018	4	2018
ACB16 BL 9.C2: ACB 16 (BL 9.C2.1) ENGINEERING ASSESSMENT #1	4	2018	4	2018
ACB16 BL 9.C2: ACB 16 (BL 9.C2.1) ENGINEERING ASSESSMENT #2	2	2019	2	2019
ACB16 BL 9.C2: ACB 16 (BL 9.C2.1) COMBAT SYSTEM CERTIFICATION PANEL (TI12H)	1	2020	1	2020
ACB16 BL 9.C2: ACB 16 (BL 9.C2.2) IN-PROGRESS REVIEW (IPR) #1	2	2019	2	2019
ACB16 BL 9.C2: ACB 16 (BL 9.C2.2) ENGINEERING ASSESSMENT #1	4	2019	4	2019
ACB16 BL 9.C2: ACB 16 (BL 9.C2.2) COMBAT SYSTEM CERTIFICATION PANEL (TI16)	1	2021	1	2021

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.000	0.000	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Provide System Engineering to evaluate Force Level Interoperability Improvements.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019
Congressional Add: AEGIS Force-Level Interoperability Definintion and Analysis	0.000	10.000
FY 2018 Accomplishments: N/A		
FY 2019 Plans: Review and Evaluate potential solution to improve Combat System interoperability with in the AEGIS Platform and associated battlegroup configurations.		
Congressional Adds Subtotals	0.000	10.000

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
• RDTE/0604307N/1447: <i>AEGIS COMBANTANT COMBAT SYSTEM DEVELOPMENT AND INTEGRATION</i>	333.043	362.170	405.547	-	405.547	353.019	317.337	282.960	282.776	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Major Milestones for AEGIS Force-Level Interoperability:

Contract Award (CA) third quarter FY19.

In-Progress Review fourth quarter FY19.

In Progress Review will provide current status of work being performed to study and evaluate potential changes to the AEGIS program to improve Force-Level Interoperability.

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TBD	C/BA	TBD : TBD	0.000	0.000		10.000	Jun 2019	0.000		-		0.000	0.000	10.000	-
Subtotal			0.000	0.000		10.000		0.000		-		0.000	0.000	10.000	N/A
Project Cost Totals			0.000	0.000		10.000		0.000		-		0.000	0.000	10.000	N/A

Remarks

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Proj 9999	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Force Interoperability							▲	▲																								

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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 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
Force Interoperability: Contract Kickoff	3	2019	3	2019
Force Interoperability: In Progress Review	4	2019	4	2019