Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy											Date: May 2017	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604307N *I Surface Combatant Cmbt Sys Eng*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	3,353.215	430.450	282.764	390.238	-	390.238	419.478	300.918	282.092	267.523	Continuing	Continuing
1447: *Surf Combatant Combat System Imp*	3,340.715	415.826	272.306	382.382	-	382.382	412.869	295.788	276.843	262.168	Continuing	Continuing
3357: *Aegis Training Improvement Program*	12.500	14.624	10.458	7.856	-	7.856	6.609	5.130	5.249	5.355	Continuing	Continuing
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 are: 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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	386.576	282.764	321.628	-	321.628
Current President's Budget	430.450	282.764	390.238	-	390.238
Total Adjustments	43.874	0.000	68.610	-	68.610
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	55.382	0.000			
• SBIR/STTR Transfer	-11.508	0.000			
• Program Adjustments	0.000	0.000	65.697	-	65.697
• Rate/Misc Adjustments	0.000	0.000	2.913	-	2.913

Change Summary Explanation

FY16 1447/3357:
$11.508M: SBIR Reduction to support Congressional Law
$62.200M: Ship Modernization, Operation and Sustainment Funding (SMOSF) increase to support AEGIS CG Modernization Plan
$6.818M: FMB Reduction

FY17 1447:
Continue AEGIS Far-Term Interoperability Efforts to integrate IFF Mode 5/S
Complete AEGIS BL 5.3 SEARAM Integration and Test Efforts
Continue AEGIS BL 9.A2 (Previously BL 9.A1) Development, Integration and Test Efforts
Continue AEGIS Advanced Capability Build 16 (BL 9.C2) Development, Integration and Test Efforts with limited Government oversight
Continue AEGIS Advanced Capability Build 20 Development, Integration and Test Efforts
Continue AEGIS Task Force Cyber Awakening (TFCA) Development, Integration and Test Efforts
Begin NAVY code updates AEGIS BL 5.3.X in support of Joint USN / Missile Defense Agency Project started in FY16 by MDA.

FY17 3357:
Continue AEGIS ACB16 (BL 9.C2) Training Improvements in support of the additional warfighting scope.

FY18 1447:
Continue AEGIS Far-Term Interoperability Efforts to integrate IFF Mode 5/S
Continue AEGIS BL 9.A2 (Previously BL 9.A1) Development, Integration and Test Efforts
Continue AEGIS Advanced Capability Build 16 (BL 9.C2) Development, Integration and Test Efforts with limited Government oversight
Continue AEGIS Advanced Capability Build 20 Development, Integration and Test Efforts
Continue AEGIS Task Force Cyber Awakening (TFCA) Development, Integration and Test Efforts
Continue AEGIS BL 5.3.X Upgrade Efforts
FY18 increased to support AEGIS BL 5.3.X POR
FY18 increased to support AEGIS IFF MODE 4/5 integration

FY18 1447/3357:
$22.200 million increase for additional effort in BL5.3X implementation.
$20.990 million increase for CG Mod baseline upgrades.
$28.128 million increase for AEGIS 4/5 upgrades.

FY18 3357:
Continue AEGIS ACB16 (BL 9.C2) Training Improvements in support of the additional warfighting scope.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy											Date: May 2017	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604307N / *Surface Combatant Cmbt Sys Eng*				Project (Number/Name) 1447 / *Surf Combatant Combat System Imp*			
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
1447: *Surf Combatant Combat System Imp*	3,340.715	415.826	272.306	382.382	-	382.382	412.869	295.788	276.843	262.168	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 180

A. Mission Description and Budget Item Justification

This project provides AEGIS Cruiser & Destroyer ACS upgrades and integrates new equipment and systems to pace the threat and capture advances in technology. The ACS capabilities have continually evolved starting with AEGIS Baseline (BL) 2 on Guided Missile Cruisers (CG) 52-58, BL 3 on CG 59-64, and BL 4 on CG 65-73. In FY 1992, AEGIS BL 5 was introduced on Guided Missile Destroyer (DDG) 51-78, BL 6 on DDG 79-90, BL 7 on DDG 91-112, and BL 9 113 and follow.

The AEGIS Modernization Baselines will provide new technology to replace aging military equipment, extend service life, and maintain combat viability of AEGIS combatants into the future. These baselines reduce combat system maintenance life cycle costs and streamline the development of capabilities. AEGIS BL 8 (Cruiser Modernization) upgraded CG 52-58, while AEGIS BL 9, consisting of an upgraded computing infrastructure and computer program enhancements, will modernize CGs 59,60,62 and DDG 51,52,53,57,61,65 and 69. AEGIS BL 9 will provide updated computer program to CG 52-58 to improve warfighter effectiveness by introducing Naval Integrated Fire Control - Counter Air (NIFC-CA), SM-6 and Fleet Urgent Operational Needs (UONs) and reduce the number of AEGIS Baselines within the AEGIS Fleet. AEGIS BL 9 will also be introduced on the new construction destroyers, starting with DDG 113 and follow.

AEGIS Advanced Capability Build (ACB) 16 and the required Technical Insertions (TI) 12/12H/16 Computing and Display Plant will provide warfighter upgrades to AEGIS Cruisers and Destroyers to include improved Ballistic Missile Defense (BMD) capabilities (DDG only), SEWIP BLK II, MH-60R Integration, IFF Mode 5/S, 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. ACB16 will support 3 hardware configurations: PHASE 0 AEGIS BL 9.C2.0 TI12 will support 15 DDGs (51/52/57/61/65/69/80/113-120) and 2 AEGIS ASHORE (AA) facilities (Poland/Romania); PHASE 1 AEGIS BL 9.C2.1 / 9.A2.1 TI12H will support 2 DDGs (79/83) and 7 CGs (63-65/66/68/69/71); and PHASE 2 AEGIS BL 9.C2.2 TI16 will support 13 DDGs (81-82/84-89/92/94/121-123) and 3 CGs (70/72/73).

AEGIS Advanced Capability Build (ACB) 20 and Technical Insertion (TI) 16 will provide critical warfighter upgrades to AEGIS FLT III Destroyers. ACB 20 combat system development and integration efforts will support the Air Missile Defense Radar (AMDR) acquisition milestone requirements and build upon ACB 16 to form the foundation for the AEGIS Flight III DDG Combat System. Provide Computer program updates that can be backfit to AEGIS TI 16 hardware configurations.

AEGIS BL 7.2 will provide a common Computer Program build that consolidates 2 (BL 7.1.3 and BL 7.1R) to one software configuration (BL 7.2) for a 22 ship superset (DDG 91-112). Also addresses operations and maintenance deficiencies to improve warfighting readiness and delivers critical warfighting improvements in air defense.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604307N / *Surface Combatant Cmbt Sys Eng*	**Project (Number/Name)** 1447 / *Surf Combatant Combat System Imp*

AEGIS Far Term Interoperability Improvement Plan will address the remaining interoperability issues within fielded AEGIS Combat System configurations to integrate F/A-18 Digital Air Control (Phase 1) in support of F/A-18 and F-35 Joint Strike Fighter initial deployment, integration of the Shipboard Gridlock System/Automatic Correlation (SGS/AC). These updates will be implemented in a phased approach to align with current and future AEGIS development efforts.

AEGIS Task Force Cyber Awakening will assess and provide corrective actions to improve AEGIS Combat System Computer Program and Hardware configurations against emerging threats within the Cyber arena. These improvements will be implemented within AEGIS Combat Systems currently under development and include updates to Boundary Defense Components (BDC).

AEGIS BL 5.3.X combines AEGIS BL 5.3.9 and BMD 4.1 into single AEGIS Computer Program enabling a near simultaneous shift from AAW to BMD to AEGIS Flight I/II DDGs to ensure viability against emerging threats until end of service life (ESL). These improvements will include Computer Program updates to integrate the improved radar performance provided by the hardware upgrades to the SPY-1D radar.

AEGIS BL 5.3 SEARAM Integration and Test program will introduce SEARAM as part of the AEGIS Combat System to address Combatant Commander Requirements to improve warfighter capabilities against advanced anti-ship cruise missiles. These updates will be focused on completing integration and test requirements to validate the performance of the integrated capability. These updates will support Demonstration and Operational Test efforts planned for FY16/17 and introduction into BL 9 DDGs.

AEGIS IFF MODE 4/5 Integration program will address Mode 4 Inoculation, implement Mode 5 IFF within the Fire Control Loop for AEGIS Baselines

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: AEGIS DEVELOPMENT SUPPORT	30.622	33.140	38.270	0.000	38.270
Articles:	-	-	-	-	-
FY 2016 Accomplishments: AEGIS Development Support covers the following areas: AEGIS Technical Design Agent (TDA), AEGIS System Engineering to identify and evaluate emerging threats and support R3B decision process, COTS Obsolescence evaluation, and AEGIS Development Site Operations and Maintenance. AEGIS TDA supported the evaluation of Combat System configuration and provided detailed information on overall performance, identify areas where improvements can be implemented to improve the performance of the Combat System in the Air, Surface and Underwater Combat areas. AEGIS System engineering supported the evaluation of the Combat System threat capabilities and maintain the Capability Phasing Plan to ensure meaningful improvements are implemented within future Combat System					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604307N / *Surface Combatant Cmbt Sys Eng*	**Project (Number/Name)** 1447 / *Surf Combatant Combat System Imp*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
upgrades to meet emergent threats. These efforts provided updates to the Capability Phasing Plan (CPP) support future Combat System upgrades to the AEGIS Combat System. AEGIS Development Site Operation and Maintenance provided ~2250 hours of testing in support of planned development, test and integration efforts for the following projects in FY16: AEGIS ACB12 (BL 9.C0/9.C1) AEGIS ACB12 (BL 9.A2), AEGIS BL 7.2A/B, AEGIS ACB16 (9.C2) and AEGIS ACB 20 (BL 9.CX, BL 10.C0) development efforts at Combat System Engineering Development Sites (CSEDS), Program Generation Center (PGC), SPY-1A Test Facility (STF), and Naval System Computing Center (NSCC). ***FY 2017 Plans:*** AEGIS Development Support covers the following areas: AEGIS Technical Design Agent (TDA), AEGIS System Engineering to identify and evaluate emerging threats and support R3B decision process, COTS Obsolescence evaluation, and AEGIS Development Site Operations and Maintenance. The AEGIS TDA will continue to evaluate Combat System configuration and provide detailed information on overall performance, identify areas where improvements can be implemented to improve the performance of the Combat System in the Air, Surface and Underwater Combat areas aligning to the 30 year Combat System plan. AEGIS System engineering will continue to evaluate the Combat System threat capabilities and maintain the Capability Phasing Plan to ensure meaningful improvements are implemented within future Combat System upgrades to meet emergent threats. These efforts are focused on defining the next major upgrade to the AEGIS Combat System ACB20 in support to the 30 year Combat System plan. AEGIS Development Site Operation and Maintenance will support NJ Land Based Test Sites (LBTS) to ensure adequate hours are available to support the planned development efforts. In FY17 ~2400 hours are planned within budget to support AEGIS BL 5.3.X, AEGIS ACB12 (BL 9.A2), AEGIS ACB16 (9.C2) and AEGIS ACB 20 (BL 9.CX, BL 10.C0) development efforts at Combat System Engineering Development Sites (CSEDS), Program Generation Center (PGC), SPY-1A Test Facility (STF), Naval System Computing Center (NSCC), and Surface Combat System Center (SCSC). ***FY 2018 Base Plans:*** Funding increases to support an increased number of test hours required at AEGIS Land Based Test Sites to support 4 development efforts implementing increased functionality to address emergent threats.					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604307N / *Surface Combatant Cmbt Sys Eng*	**Project (Number/Name)** 1447 / *Surf Combatant Combat System Imp*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
AEGIS Development Support covers the following areas: AEGIS Technical Design Agent (TDA), AEGIS System Engineering to identify and evaluate emerging threats and support R3B decision process, COTS Obsolescence evaluation, and AEGIS Development Site Operations and Maintenance. The AEGIS TDA will continue to evaluate Combat System configuration and provide detailed information on overall performance, identify areas where improvements can be implemented to improve the performance of the Combat System in the Air, Surface and Underwater Combat areas aligning to the 30 year Combat System plan. AEGIS System engineering will continue to evaluate the Combat System threat capabilities and maintain the Capability Phasing Plan to ensure meaningful improvements are implemented within future Combat System upgrades to meet emergent threats. These efforts are focused on defining the next major upgrade to the AEGIS Combat System ACB20 in support to the 30 year Combat System plan. AEGIS Development Site Operation and Maintenance will support NJ Land Based Test Sites (LBTS) to ensure adequate hours are available to support the planned development efforts. In FY18 ~2750 hours are planned within budget to support AEGIS BL 5.3.X, AEGIS ACB12 (BL 9.A2), AEGIS ACB16 (9.C2) and AEGIS ACB 20 (BL 9.CX, BL 10.C0) development efforts at Combat System Engineering Development Sites (CSEDS), Program Generation Center (PGC), SPY-1A Test Facility (STF), Naval System Computing Center (NSCC), and Surface Combat System Center (SCSC). ***FY 2018 OCO Plans:*** N/A					
Title: FAR TERM INTEROPERABILITY IMPROVEMENT PLAN (FTIIP)	1.000	4.727	15.000	0.000	15.000
Articles:	-	-	-	-	-
FY 2016 Accomplishments: Develop and provide a comprehensive plan to implement corrective action in a phased approach to address IFF Mode 5/S in conjunction with ongoing AEGIS development efforts. Conduct cross-program Interim Progress Reviews (IPRs).					
FY 2017 Plans: Develop and provide a comprehensive plan to implement corrective action in a phased approach to address the integration of F/A-18 Digital Air Control in support of F/A-18 and F-35 Joint Strike Fighter initial deployment,					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
and integration of the Shipboard Gridlock System/Automatic Correlation (SGS/AC) in conjunction with ongoing AEGIS development efforts. Conduct cross-program Interim Progress Reviews (IPRs). ***FY 2018 Base Plans:*** Funding increases to support 5 concurrent code development efforts required to implement Digital Air Control (DAC) improvements within AEGIS BL Development efforts to improve Battlegroup Operations of the AEGIS Weapon System. Support System Requirements definition, specification updated, functional allocation within the Combat System components, support code development, unit and system level testing of functionality identified during the FY17 time period. These requirements will be implemented on a number of AEGIS baselines including the following: - BL's under development AEGIS 9.C2, AEGIS ACB20, AEGIS BL 5.3 and fielded configurations AEGIS BL 6.3, AEGIS BL 7.2A/B. Conduct cross-program Interim Progress Reviews (IPRs) #2. ***FY 2018 OCO Plans:*** N/A					
Title: AEGIS BASELINE 7.2A/B	6.800	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2016 Accomplishments: Supported Computer Program installations and provided BL 7.2.1 Computer Program Maintenance update to address open high priority issues identified during deployment workups in order to improve the Combat Systems Operational effectiveness. ***FY 2017 Plans:*** N/A ***FY 2018 Base Plans:*** N/A ***FY 2018 OCO Plans:*** N/A					
Title: AEGIS BL 5.3 SEARAM INTEGRATION & TEST	13.000	3.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2016 Accomplishments:					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Provided engineering support to complete integration and test of SEARAM on Forward Deployed Naval Forces (FDNF) AEGIS DDGs. Completed System Qualification Testing, Combat System Certification Panel (CSCP), Software System Safety Technical Review Panel (SSSTRP), and Weapon System Explosive Safety Review Board (WSESRB) to support the integration, testing and certification of the AEGIS Combat System and Computer Program. Conducted Test Readiness Reviews (TRRs), initial ship installation and Combat System Ship Qualification Test (CSSQT) for DDG 78/64. ***FY 2017 Plans:*** Support initial ship computer program installations and Combat System Ship Qualification Test (CSSQT) planning and execution for DDG 75/71 in the first and second quarter of FY17. ***FY 2018 Base Plans:*** N/A ***FY 2018 OCO Plans:*** N/A					
Title: ADVANCED CAPABILITY BUILD 12 (BL 9.C1) ***Articles:*** ***FY 2016 Accomplishments:*** Completed initial certification of BL 9.C1 in support of modernized DDGs. Supported combat system element changes from PARMs for future ships (DDG 57, 61, 69), including SEWIP Blk II and Consolidated Afloat and Enterprise Service (CANES), and certify these configurations in a follow-on combat system certification effort. Supported test event planning and execution for Agile Prism and Surface Warfare test events in NOV 2015 and SM-6 Follow-on Operational Test & Evaluation (FOT&E) events in JAN 2016. Provided emergent computer program loads to support correction of critical discrepancies within the Combat system. Supported shipboard Sea Trials for DDG 51, 113, 115, 57, 69. Supported CSSQT for DDG 51. Conducted authorization efforts for new construction DDGs to support sea trials. Supported NIFC-CA Collateral Tactical Demonstration (TACDEMO) test event, including computer program and safety authorization efforts and post-event certification efforts. Supported Operational Test events including Cyber security (OCT 2015), Maintenance Demonstration (FEB 2016) and at-sea tracking and live fire events (MAR 2016). ***FY 2017 Plans:*** N/A ***FY 2018 Base Plans:***	18.218 -	0.000 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
N/A ***FY 2018 OCO Plans:*** N/A					
Title: ADVANCED CAPABILITY BUILD 12 (BL 9.A2) (Previously BL 9.A1)	109.325	12.666	39.251	0.000	39.251
Articles:	-	-	-	-	-
FY 2016 Accomplishments: Funding increases to support the addition of SMOSF efforts in support CG Modernization. Provided system engineering, development, integration and test support to implement AEGIS BL 9.A2. Support Land Based Test Site hardware updates (TI12H / TI16). Conducted Computer Program Development efforts as a unique effort and then merge the code base with the AEGIS Common Source Library. Conducted System Level testing to validate Combat System requirements and supported Combat System Certification process of generating Objective Quality Evidence (OQE). Provided System Engineering, Requirements Definition, Integration and Test. Conducted In-Progress Review (IPR) #2 , Engineering Evaluation, and In-Progress Review (IPR) #3.					
FY 2017 Plans: Provide system engineering, development, integration and test support to test and certify AEGIS BL 9.A2. Support Land Based Test Site hardware update at Surface Combat System Center (SCSC). Support Computer Program certification efforts as part of the larger AEGIS Weapon System certification process. Support ship AEGIS Light Off (ALO) and provide Computer Program updates to address issues identified during testing in order to improve the Combat Systems operational effectiveness.					
FY 2018 Base Plans: Funding increases to support underway testing planned in support of Combat System certification for 2 AEGIS CG Modernization configurations. Provide system engineering, development, integration and test support to test and certify AEGIS BL 9.A2. Support Computer Program certification efforts for upgraded BL 8 fielded CGs and BL 9 fielded CG's. Support ship installations and provide Computer Program updates to address issues identified during certification					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
assessments in order to improve the Combat Systems operational effectiveness. Support installation of upgraded hardware in CG 52 through 58. ***FY 2018 OCO Plans:*** N/A					
Title: ADVANCED CAPABILITY BUILD 16 / TECHNOLOGY INSERTION 16 (BL 9.C2)	84.102	59.485	68.591	0.000	68.591
Articles:	-	-	-	-	-
FY 2016 Accomplishments: Provided program management, system engineering, development and test, and procurement activities with limited government oversight to support the AEGIS ACB 16 (BL 9.C2) Phase 0, Phase 1 and Phase 2 Capability Package (CP) 1 and 2 program development. In support of AEGIS BL 9.C2 CP 1 Phase 0 on TI12, conducted two Software Increment Reviews (SWIRs). Conduct IPR #1 and executed development and testing of computer program. Merge code with Common Source Library Mainline at Build 22.121.A with BMD 5.1. Completed installation on USS JOHN PAUL JONES (DDG 53) and support authorization efforts for At-Sea test event in Q4. Continued Development, Integration and Test of NIFC-CA and SEWIP Capabilities.					
FY 2017 Plans: Provide program management, system engineering, development and test, and procurement activities with limited government oversight to support the AEGIS ACB 16 (BL 9.C2) Phase 0, Phase 1 and Phase 2 CP 1 and CP 2 program development. Complete development and testing of AEGIS BL 9.C2.0/9.B2.0 Phase 0 CP1 Build 24. Support authorization efforts for At-Sea test events in Q2 and Q4. Conduct two Demos to demonstrate the full breadth of functionality and mitigate risk of test completion prior to certification. Continue development and testing of AEGIS BL 9.C2 Phase 1 and Phase 2 CP 2 on TI12H and TI16 respectively. Merge code with Common Source Library Mainline at Build 24A.					
FY 2018 Base Plans: Funding increases to support 2 concurrent test programs planned in support of AEGIS ACB16 for AEGIS Modernization and New Construction Ships. Provide program management, system engineering, development and test, and procurement activities with limited government oversight to support the AEGIS ACB 16 (BL 9.C2) Phase 0, Phase 1 and Phase 2 CP 1 and CP 2 program development. Complete development and testing of AEGIS BL 9.C2.1/9.B2.1 Phase 0 CP2 Build 27. Support authorization efforts for At-Sea test events in Q2 and Q4. Conduct one Demo to demonstrate the full breadth of functionality and mitigate risk of test completion prior to certification. Continue development and					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
testing of AEGIS BL 9.C2 Phase 2 and TI16 respectively. Merge code with Common Source Library Mainline at Build 27A. ***FY 2018 OCO Plans:*** N/A					
Title: ADVANCED CAPABILITY BUILD 20 / TECHNOLOGY INSERTION 16/20	138.804	115.978	126.475	0.000	126.475
Articles:	-	-	-	-	-
FY 2016 Accomplishments: To Reduce Program Risk, the first 3 DDGs will be integrated within the Technology Insertion (TI) 16 hardware configurations for New Construction and TI 20 will be implemented on later version of the New Construction Program. In support of DDG FLT III with AMDR, provide system engineering to finalize all B-1 system and B-5 sub-system requirement specifications, update the Interface Requirement Specification (IRS) and Interface Design Description (IDD) to execute CS ISE Preliminary Design Review (PDR). Completed CS ISE Computer Program Builds 1-3 and begin developing Computer Program Build 4. Completed CS ISE desktop testing and execute CS ISE Developmental Testing (DT) phase 1. Started executing CS ISE DT phase 2. Supported two Joint Test Program Reviews (JTPRs) to verify status and alignment between all programs participating in SPY-6 Milestone C testing. Provided insight to the approved NCD capabilities and expected performance. Provided system engineering to complete artifacts to execute ACB 20 Phase 0 System Requirements Review (SRR)/System Functional Review (SFR). Supported development of BMD 6 artifacts and execution of BMD 6 SRR. Provide system engineering to the execution of SPY-6 Integration & Testing. Continue to provide management, engineering and test support for the planning and execution of land based testing at Advanced Radar Detection Laboratory (ARDEL) to include CS ISE development, maintenance and operations. Provided systems engineering to support completion of Flight III ship design, including required updates to TI 16 in support of the lead Flight III ships, and conduct TI 16 (Flight III) IPR #1 to review required updates. ***FY 2017 Plans:*** Complete development of Combat System Interface Support Equipment (CS ISE) Builds 4 & 5 and complete CS ISE Developmental Testing (DT) phase 2. Participate in SPY-6 DT-3 test planning and analysis process. Prepare Test Plans and conduct CS ISE Combat System Integration Test (CIT) Test Readiness Reviews (TRRs)					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
for CIT events 1 & 2. Execute CIT-1 at developer site with CS ISE and SPY-6 emulator, and execute CIT-2 at the Advanced Radar Detection Laboratory (ARDEL) at PMRF with CS ISE and SPY-6 EDM. Execute Test Program Review 2 to verify status and alignment between all programs participating in SPY-6 Milestone C testing. Conduct CIT post-event analysis and provide reporting to support the SPY-6 Milestone C decision. Provide system engineering to complete artifacts to execute ACB 20 Phase 0 Delta System Functional Review (SFR). Support development of BMD 6 artifacts and execution of BMD 6 SFR. Update Technical Data Packages (TDPs) for TI 16 in support of Flight III fielding. Complete systems engineering to develop artifacts to support ACB20 design process. Commence systems engineering activities to develop preliminary system design and allocation of functional baseline to system configuration items for the ACB 20/BMD 6 PDR. Complete ACB 20 Modeling and Simulation required for performance analysis in support of the ACB 20 design. Support Mk 160 Guns Control System (GCS) and Cooperative Engagement Capability (CEC) SRRs. ***FY 2018 Base Plans:*** Funding increases to support Code Development required to implement the R3B approved requirements within the ACB20 Combat System Computer Program to support DDG FLT III. Complete systems engineering to develop artifacts for the ACB 20 Preliminary Design Review (PDR). Support development of BMD 6 artifacts and execution of BMD 6 PDR. Commence ACB 20 detailed design and decomposition of performance requirements. Start Computer Program code development to support integration of all scope identified within the Naval Capabilities Document for New Construction and Modernization configuration. Deliver the CS ISE. Establish the ACB 20 Land Base Test Sites. ***FY 2018 OCO Plans:*** N/A					
Title: AEGIS BL 5.3.X UPGRADE	0.000	31.400	50.300	0.000	50.300
Articles:	-	-	-	-	-
FY 2016 Accomplishments: N/A ***FY 2017 Plans:*** Increase due to initial Navy effort to continue FY16 MDA funded scope. Provide engineering support to AEGIS Baseline (BL) 5.3.X efforts to field a single Combat System, BL5.3.X. BMD BL 4.1 and AEGIS Weapon System (AWS) BL 5.3.11 will be merged into one single computer program, BL 5.3.X, enabling a near simultaneous					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604307N / *Surface Combatant Cmbt Sys Eng*	**Project (Number/Name)** 1447 / *Surf Combatant Combat System Imp*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
shift from AAW to BMD. This effort provides system engineering analysis to develop SW upgrades to the AEGIS Weapon System computer program which will enhance warfighting capability. AEGIS B/L 5.3.X is planned for fielding on Flight I/II DDGs allowing these ships to remain relevant through their Expected Service Life (ESL). Update system performance requirements based upon the improved capabilities of the new AWS. Generate development, test and certification schedules in support of fielding plans. Provide engineering support for a joint Missile Defense Agency (MDA)/ United State Navy (USN) System Design Review (SDR) / Preliminary Design Review (PDR) and Critical Design Review (CDR). ***FY 2018 Base Plans:*** This effort increases to support Code Development efforts required to implement Hardware and Software changes within the AEGIS BL 5.3 Computer Program to provide improved Integrated Air & Missile Defense capabilities to address emerging threats. Support development and engineering support of the AEGIS baseline 5.3.X Phase 1 integrated AAW/BMD computer Program as part of Phase 1 implementation. Support Code Development and integration efforts to address emergent requirements related to the following capabilities: stream raid improvements, developed AEGIS Speed To Capability (ASTOC) improvements, and SM-6 capability within single computer program to improve AWS/BMD performance. Provide engineering support and resources to conduct developmental testing (DT) and system functional tests (SFTs) at land based test sites and provide artifacts to support Combat System Certification in FY19. Support development and engineering of AEGIS Baseline 5.3.X Phase 2, integrating Radar hardware improvements to improve performance against emerging threats. Support Surface Combat System Center design, installation, and integration of upgraded SPY hardware to support BL 5.3.X testing efforts planned for FY19-21. Procurement of one (1) AEGIS SPY Array for Surface Combat System Center. ***FY 2018 OCO Plans:*** N/A					
Title: AEGIS: FIX MODE 4 / ACCELERATE 5 ***Articles:*** ***FY 2016 Accomplishments:*** N/A ***FY 2017 Plans:***	0.000 -	0.000 -	28.128 -	0.000 -	28.128 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604307N / *Surface Combatant Cmbt Sys Eng*	**Project (Number/Name)** 1447 / *Surf Combatant Combat System Imp*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
N/A ***FY 2018 Base Plans:*** This efforts will start in FY18 and address emergent requirements related to fixing MODE 4 and accelerating the delivery of MODE 5 within Fielded AEGIS Baselines and Development efforts. Start Development of AEGIS Phase I IFF Integration within In-Service Baselines to support Mode 4 Inoculation and implement Mode 5 IFF within the Fire Control Loop and improve Mode 5 Interoperability. Program will be kicked off in 1QFY18 and Phase I IPR #1 will be conducted in 2QFY18 to support the development of Specification Changes (SC) for AEGIS BL 3.6/4.0/6.1/7.2/8.1/9.A0 and will trigger Code Development and Integration Testing for each Baseline to address IFF Mode 4 End of Life (EOL) in 2020 within the fielded AEGIS Combat System configurations. In 4QFY18, Computer Programs will be delivered to support Certification Test of the baselines documented as part of Phase I. Phase I IPR #2 will support certification for the AEGIS Combat Systems and provide direction to start AEGIS Computer Program installation on the Phase I configurations. Phase II IFF Integration within AEGIS Baselines will capture completed code development in Phase I and implement in AEGIS BL 9.A2/9.C2. Phase II IPR #1 will be conducted in 3QFY18. ***FY 2018 OCO Plans:*** N/A					
Title: TASK FORCE CYBER AWAKENING (TFCA)	13.955	11.910	16.367	0.000	16.367
Articles:	-	-	-	-	-
FY 2016 Accomplishments: Initiated development and integration of cybersecurity into all phases of the AEGIS Combat System systems engineering process in order to build capabilities to detect and protect against cyber-attacks and, enable operators to react to prevent damage and restore combat capability within an acceptable timeframe. Developed capability phasing plan that identifies timeline for incremental improvements in cybersecurity. Conducted Combat System Engineering to map interconnections, ports, protocols and interfaces, develop disconnect procedures, and characterize potential attack vectors to inform design decisions. Initiated engineering to assess system of systems impact of migrating to the CYBERSAFE directed criticality-focused enclave architecture. Conducted combat system penetration testing to evaluate vulnerabilities in legacy combat systems and identify gaps to inform cybersecurity priorities, designs, and integration of solutions. Initiated the development of Boundary Defense Capability (Firewall, Intrusion Detection System, External Cross Domain Solution, Bulk Data					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604307N / *Surface Combatant Cmbt Sys Eng*	**Project (Number/Name)** 1447 / *Surf Combatant Combat System Imp*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Transfer Services), Centralized Cybersecurity Capabilities (Router/Switch, Internal Cross Domain Solutions, Host Based Intrusion Detection, Anti- Virus Management, Security Information and Event Manager, and Certificate Management), and Element System Capabilities (Networks, Hosts, Applications, Data in Transit, Data at Rest, Removable Media Detection). Conducted cybersecurity trade studies that evaluated solutions against requirements to narrow options for inclusion in the preliminary hardware designs. ***FY 2017 Plans:*** Continue planning and preliminary design efforts using vulnerabilities and threats identified in FY16 to inform analysis of alternatives and final design. Consolidate findings of FY16 testing, solution evaluation, and system engineering to inform ongoing design and development decisions. Continue FY16 engineering effort to identify critical components and enclave changes necessary to migrate combat system to CYBERSAFE architectures. Continue development leading to final design of Boundary Defense Capability (Firewall, Intrusion Detection System, External Cross Domain Solutions, Bulk Data Transfer Services), Centralized Cybersecurity Capabilities (Router/Switch integrity, Internal Cross Domain Solutions, Host Based Intrusion Detection, Anti-Virus Management, Security Information and Event Manager, and Certificate Management), and Element System Capabilities (Networks, Hosts, Applications, Data in Transit, Data at Rest, Removable Media Control). Integrate IA Toolkit into baseline combat system software. Continue cybersecurity trade studies to narrow options and identify solutions for final hardware design. Develop casualty procedures and preventative maintenance to enhance cybersecurity hygiene of existing system and react to cyber incidents. ***FY 2018 Base Plans:*** Funding increase to support coding and integration of completed cybersecurity improvements in parallel with evaluation, development, and integration. AEGIS Cybersecurity Toolkit, file integrity checker, anti-malware, USB Media detection, CSTK, boundary proxy service, System incident and event manager, CASA upgrades, Common user interface, network device integrity and update manager capabilities will be completed, and undergo baseline integration during FY18. Development and engineering of bug fixes, ID Management, certificate management, secure boot, application whitelisting, sandbox, cross domain and daily report capabilities will start and finish during this period as well. Integration and engineering updates necessary to integrate capabilities with each other and the common user interface will also occur as these capabilities are readied for baseline integration. Planning and design efforts for follow on capability increments will continue using vulnerabilities and threats identified in FY17 to inform analysis of alternatives leading to final design. Consolidated findings of FY17 testing and system mapping data will be used to inform ongoing capability increment decisions and priorities. FY17 engineering effort to migrate					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604307N / *Surface Combatant Cmbt Sys Eng*	**Project (Number/Name)** 1447 / *Surf Combatant Combat System Imp*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
combat system to CYBERSAFE criticality focused enclave architectures will continue. Finalize cyber security hardware, software, and appliance trade studies and inform future increments. Develop logistics documentation and training material. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	415.826	272.306	382.382	0.000	382.382

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• R&D 0604501N: *Multi Mission Signal Processor*	13.432	2.279	2.424	-	2.424	2.503	2.567	2.856	0.000	Continuing	Continuing
• SCN 2122: *DDG 51*	4,207.664	3,660.251	3,640.792	-	3,640.792	3,819.964	3,731.008	3,392.011	3,448.012	3,834.720	102,786.832
• OPN 0900: *DDG Modernization*	421.195	432.766	603.355	-	603.355	456.218	605.847	582.863	714.483	3,365.248	9,021.982
• R&D 0604378N PU 3159: *NIFC-CA*	23.695	25.750	27.359	-	27.359	29.092	25.767	25.694	0.000	Continuing	Continuing
• OPN 5231: *Ship Missile Support Equipment (AEGIS Support Equipment)*	276.503	320.446	272.359	2.436	274.795	270.120	269.415	313.801	330.194	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 in Advanced Capability Builds (ACBs) and Technology Insertions (TIs) using the Combat System Engineering Agent (CSEA) contract. Additional modifications to the existing contracts will address B/L 9 completion (new construction), ACB 16 additional warfighting improvements, and ACB 20 engineering development efforts related to DDG FLT III, as approved by OPNAV.

E. Performance Metrics

Major Milestones for ACB 12 (BL 9A0):

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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Completed BL 9.A0 Combat System Certification Panel second quarter FY16.

Major Milestones for ACB 12 (BL 9.C1):
Completed BL 9.C1 Engineering Evaluation (EE) first quarter FY16.
Completed BL 9.C1 Combat System Certification Panel fourth quarter FY16

Major Milestones for ACB 12 (BL 9.A2):
Completed BL 9.A2 In-Progress Review (IPR) #2 third quarter of FY16.
Completed BL 9.A2 Engineering Evaluation (EE) fourth quarter FY16.
Completed BL 9.A2 In-Progress Review (IPR) #3 fourth quarter of FY16.
BL 9.A2 CG 53 AEGIS Light-Off (ALO) third quarter FY17.
BL 9.A2A Combat System Certification Panel second quarter of FY18.
BL 9.A2B Combat System Certification Panel third quarter of FY18.

Major Milestones for ACB 16 (BL 9.A2/B2/C2):
Completed ACB 16 Software Increment Review (SWIR) #2 first quarter FY16.
Completed ACB 16 Software Increment Review (SWIR) #3 second quarter FY16.
Completed ACB 16 Software Increment Review (SWIR) #4 third quarter FY16.
ACB16 BL 9.C2.0 Demonstration #1 third quarter FY17.
ACB16 BL 9.C2.0 Demonstration #2 fourth quarter FY17.
ACB 16 BL 9.B2.0/9.C2.0 Combat System Certification Panel (CSCP) TI12 Configuration fourth quarter FY18.
ACB16 BL 9.C2.1 Demonstration #3 fourth quarter FY18.
ACB16 BL 9.C2.2 Demonstration #4 fourth quarter FY19.
ACB 16 BL 9.A2.1 / 9.C2.1 Combat System Certification Panel (CSCP) TI12H Configuration first quarter FY20.
ACB 16 BL 9.A2.2 / 9.C2.2 Combat System Certification Panel (CSCP) TI16 Configuration first quarter FY21.

Major Milestones for ACB 20 / TI 20:
Completed Combat System Interface Support Equipment System Functional Review (SFR) first quarter FY16.
Completed Combat System Interface Support Equipment Preliminary Design Review (PDR) fourth quarter FY16.
Completed ACB 20 System Requirements Review (SRR)/System Functional Review (SFR) fourth quarter FY16.
Completed Combat System Interface Support Equipment Critical Design Review (CDR) second quarter FY17.
ACB 20 Delta System Functional Review (SFR) third quarter FY17.
ACB 20 Preliminary Design Review (PDR) first quarter FY18.
Combat System Interface Support Equipment Delivery in fourth quarter FY18
ACB 20 Critical Design Review (CDR) second quarter FY19.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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ACB 20 AEGIS Light-Off (ALO) first quarter FY21.
ACB 20 Demonstration Test (DEMO) second quarter FY21.

Major Milestones for AEGIS Baseline 7.2 (formerly 7.1R Backfit):
Completed BL 7.2.1 Lead Ship Installation second quarter FY16.
Completed BL 7.2.1 Combat System Certification Panel third quarter FY16.

Major Milestones for Far Term Interoperability Improvement Plan (FTIIP):
Completed Kickoff first quarter FY17.
FTIIP In-Progress Review (IPR) #1 third quarter FY17.
FTIIP In-Progress Review (IPR) #2 fourth quarter FY18.
FTIIP In-Progress Review (IPR) #3 fourth quarter FY19.
FTIIP In-Progress Review (IPR) #4 fourth quarter FY20.

Major Milestones for AEGIS BL 5.3. SEARAM Upgrade:
Completed BL 5.3 In-Progress Review (IPR) second quarter FY16.
Completed BL 5.3 Test Readiness Review (TRR) second quarter FY16.

Major Milestones for AEGIS BL 5.3.X Computer Program Integration:
Completed BL 5.3.X Phase 1 In-Progress Review (IPR) second quarter FY17.
BL 5.3.X Phase 1 Critical Design Review (CDR) fourth quarter FY17.
BL 5.3.X Phase 1 Combat System Certification Panel (CSCP) fourth quarter FY19.
BL 5.3.X Phase 2 Combat System Certification Panel (CSCP) fourth quarter FY21.

Major Milestones for Task Force Cyber Awakening (TFCA):
Completed Task Force Cyber Awakening Kick Off in second quarter FY16.
Completed In-Progress Review (IPR) #1 fourth quarter FY16.
Completed In-Progress Review (IPR) #2 second quarter FY17.
In-Progress Review (IPR) #3 fourth quarter FY17.
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.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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In-Progress Review (IPR) #10 second quarter FY21.
In-Progress Review (IPR) #11 fourth quarter FY21.
In-Progress Review (IPR) #12 second quarter FY22.

Major Milestones for AEGIS MODE 4/5 Integration:
Effort Kickoff first quarter FY18.
Phase I In-Progress Review (IPR) #1 second quarter FY18.
Phase I Code Delivery fourth quarter FY18.
Phase I In-Progress Review (IPR) #2 first quarter FY19.
Phase II In-Progress Review (IPR) #1 third quarter FY18.
Phase II In-Progress Review (IPR) #2 fourth quarter FY19.
Phase III In-Progress Review (IPR) #1 first quarter FY19.
Phase III In-Progress Review (IPR) #2 first quarter FY21.

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy		Date: May 2017
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPIF	Lockheed Martin : Moorestown, NJ	2,172.373	293.428	Oct 2015	185.322	Oct 2016	294.322	Oct 2017	-		294.322	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	APL : Baltimore, MD	75.615	16.155	Oct 2015	13.892	Oct 2016	16.080	Oct 2017	-		16.080	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Dahlgren, VA	409.760	35.458	Oct 2015	36.247	Oct 2016	36.890	Oct 2017	-		36.890	Continuing	Continuing	Continuing
Systems Engineering	SS/CPAF	BAE Systems : Rockville, MD	51.902	4.968	Oct 2015	5.263	Oct 2016	5.320	Oct 2017	-		5.320	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Port Hueneme, CA	75.165	6.290	Oct 2015	7.846	Oct 2016	6.074	Oct 2017	-		6.074	Continuing	Continuing	Continuing
Systems Engineering	WR	NWAS : Corona, CA	31.932	2.950	Oct 2015	3.168	Oct 2016	3.854	Oct 2017	-		3.854	Continuing	Continuing	Continuing
Systems Engineering	WR	SPAWAR : San Diego, CA	11.992	0.315	Oct 2015	0.625	Oct 2016	0.824	Oct 2017	-		0.824	Continuing	Continuing	Continuing
Systems Engineering	WR	Various : Various	154.795	15.366	Oct 2015	10.879	Oct 2016	11.958	Oct 2017	-		11.958	Continuing	Continuing	Continuing
Award fees	SS/CPAF	Lockheed Martin : Moorestown, NJ	239.249	32.845	Oct 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Award fees	SS/CPAF	BAE Systems : Rockville, MD	2.603	1.250	Oct 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Award fees	SS/CPAF	Alion Science : Washington DC	2.134	0.786	Oct 2015	0.000		0.000		-		0.000	0.000	2.920	-
Award fees	WR	Various : Various	9.229	0.251	Oct 2015	0.261	Oct 2016	0.350	Oct 2017	-		0.350	Continuing	Continuing	Continuing
		Subtotal	3,236.749	410.062		263.503		375.672		-		375.672	-	-	-

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.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	Department of Interior : Boise, Idaho	41.548	0.950	Oct 2015	1.281	Oct 2016	0.980	Oct 2017	-		0.980	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy		Date: May 2017
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	NAVAIR : Pax River, MD	14.363	0.987	Oct 2015	1.522	Oct 2016	1.350	Oct 2017	-		1.350	Continuing	Continuing	Continuing
Test and Evaluation	Various	PMRF : Hawaii, HI	0.000	0.000		2.500	Oct 2016	0.900	Oct 2017	-		0.900	0.000	3.400	-
		Subtotal	55.911	1.937		5.303		3.230		-		3.230	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	SS/CPAF	Alion Science : Washington DC	29.211	0.962	Oct 2015	1.264	Oct 2016	1.350	Oct 2017	-		1.350	Continuing	Continuing	Continuing
Program Management Support	SS/CPAF	SAIC : Mclean, VA	17.937	1.965	Oct 2015	2.236	Oct 2016	2.130	Oct 2017	-		2.130	Continuing	Continuing	Continuing
DAWDF	Various	Various : Various	0.907	0.900	Oct 2015	0.000	Oct 2016	0.000	Oct 2017	-		0.000	0.000	1.807	-
		Subtotal	48.055	3.827		3.500		3.480		-		3.480	-	-	-

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,340.715	415.826		272.306		382.382		-		382.382	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
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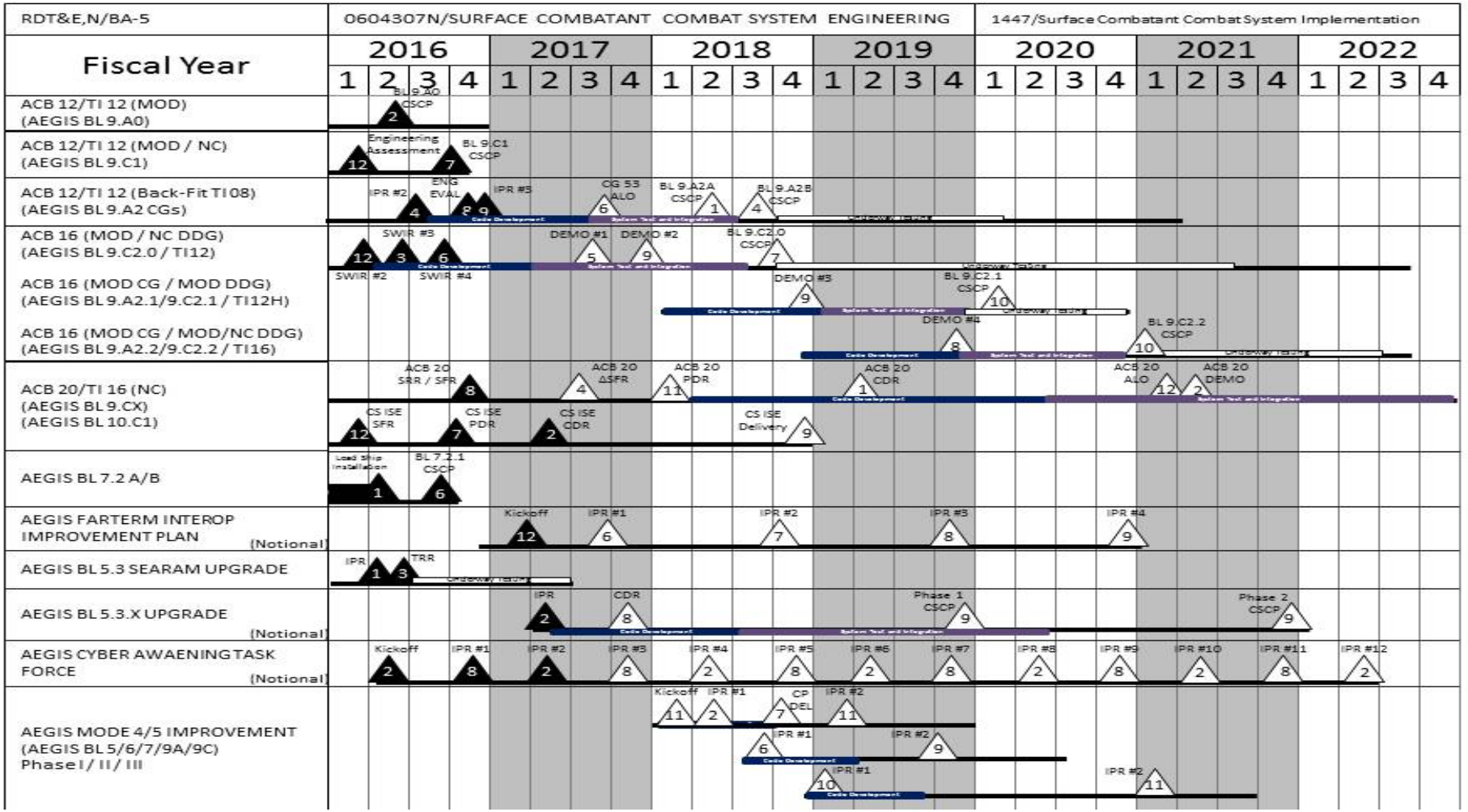

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1447				
ADVANCE CAPABILITY BUILD 12 (BL 9.A0 / 9.C0): ACB 12 (BL 9.A0) COMPUTER PROGRAM CERTIFICATION PANEL	2	2016	2	2016
ADVANCE CAPABILITY BUILD 12 (BL 9.C1): ACB 12 (BL 9.C1) ENGINEERING EVALUATION	1	2016	1	2016
ADVANCE CAPABILITY BUILD 12 (BL 9.C1): ACB 12 (BL 9.C1) COMPUTER PROGRAM CERTIFICATION PANEL	4	2016	4	2016
ADVANCED CAPABILITY BUILD 12 (BL 9.A2): ACB 12 (BL 9.A2) IN-PROGRESS REVIEW #2	3	2016	3	2016
ADVANCED CAPABILITY BUILD 12 (BL 9.A2): ACB 12 (BL 9.A2) ENGINEERING EVALUATION	4	2016	4	2016
ADVANCED CAPABILITY BUILD 12 (BL 9.A2): ACB 12 (BL 9.A2) IN-PROGRESS REVIEW #3	4	2016	4	2016
ADVANCED CAPABILITY BUILD 12 (BL 9.A2): ACB 12 (BL 9.A2) CG 53 AEGIS LIGHT-OFF	3	2017	3	2017
ADVANCED CAPABILITY BUILD 12 (BL 9.A2): ACB 12 (BL 9.A2) COMPUTER PROGRAM CERTIFICATION PANEL 9.A2.A	2	2018	2	2018
ADVANCED CAPABILITY BUILD 12 (BL 9.A2): ACB 12 (BL 9.A2) COMPUTER PROGRAM CERTIFICATION PANEL 9.A2.B	3	2018	3	2018
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) SOFTWARE IMPLEMENTATION REVIEW #2	1	2016	1	2016
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) SOFTWARE IMPLEMENTATION REVIEW #3	2	2016	2	2016
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) SOFTWARE IMPLEMENTATION REVIEW #4	3	2016	3	2016

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) DEMO #1	3	2017	3	2017
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2.0) DEMO #2	4	2017	4	2017
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2.0) COMBAT SYSTEM CERTIFICATION PANEL (TI12)	4	2018	4	2018
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2.1) DEMO #3	4	2018	4	2018
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2.2) DEMO #4	4	2019	4	2019
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2.1) COMBAT SYSTEM CERTIFICATION PANEL (TI12H)	1	2020	1	2020
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2.2) COMBAT SYSTEM CERTIFICATION PANEL (TI16)	1	2021	1	2021
ADVANCED CAPABILITY BUILD 20: CS ISE SYSTEM FUNCTIONAL REVIEW (SFR)	1	2016	1	2016
ADVANCED CAPABILITY BUILD 20: CS ISE PRELIMINARY DESIGN REVIEW (PDR)	4	2016	4	2016
ADVANCED CAPABILITY BUILD 20: ACB 20 SYSTEM REQUIREMENTS REVIEW (SRR)	4	2016	4	2016
ADVANCED CAPABILITY BUILD 20: ACB 20 SYSTEM FUNCTIONAL REVIEW (SFR)	4	2016	4	2016
ADVANCED CAPABILITY BUILD 20: CS ISE CRITICAL DESIGN REVIEW (CDR)	2	2017	2	2017
ADVANCED CAPABILITY BUILD 20: ACB 20 DELTA SYSTEM FUNCTIONAL REVIEW (SFR)	3	2017	3	2017
ADVANCED CAPABILITY BUILD 20: ACB 20 PRELIMINARY DESIGN REVIEW (PDR)	1	2018	1	2018
ADVANCED CAPABILITY BUILD 20: CS ISE DELIVERY	4	2018	4	2018
ADVANCED CAPABILITY BUILD 20: ACB 20 CRITICAL DESIGN REVIEW (CDR)	2	2019	2	2019
ADVANCED CAPABILITY BUILD 20: ACB 20 AEGIS LIGHT-OFF	1	2021	1	2021
ADVANCED CAPABILITY BUILD 20: ACB 20 DEMONSTRATION	2	2021	2	2021
AEGIS BL 7.2: LEAD SHIP INSTALLATION	1	2016	2	2016
AEGIS BL 7.2: BL 7.2 COMBAT SYSTEM CERTIFICATION PANEL	3	2016	3	2016
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP KICKOFF	1	2017	1	2017

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604307N / *Surface Combatant Cmbt Sys Eng*	**Project (Number/Name)** 1447 / *Surf Combatant Combat System Imp*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP IN-PROGRESS REVIEW #1	3	2017	3	2017
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
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP IN-PROGRESS REVIEW #4	4	2020	4	2020
AEGIS BL 5.3.9 SEARAM INT & TEST EFFORT: BL 5.3.9 IN-PROGRESS REVIEW #1	2	2016	2	2016
AEGIS BL 5.3.9 SEARAM INT & TEST EFFORT: BL 5.3.9 TEST READINESS REVIEW	2	2016	2	2016
AEGIS BL 5.3.9 SEARAM INT & TEST EFFORT: BL 5.3.9 UNDERWAY TESTING SUPPORT	3	2016	2	2017
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X IN-PROGRESS REVIEW (IPR)	2	2017	2	2017
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X CRITICAL DESIGN REVIEW (CDR)	4	2017	4	2017
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X COMBAT SYSTEM CERTIFICATION PANEL PHASE 0	4	2019	4	2019
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X COMBAT SYSTEM CERTIFICATION PANEL PHASE 2	4	2021	4	2021
TASK FORCE CYBER AWAKENING (TFCA): TFCA KICKOFF	2	2016	2	2016
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #1	4	2016	4	2016
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #2	2	2017	2	2017
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #3	4	2017	4	2017
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

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
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
AEGIS IFF MODE 4/5 Integration: IFF MOD 4/5 Kickoff	1	2018	1	2018
AEGIS IFF MODE 4/5 Integration: PHASE I IN-PROGRESS REVIEW #1	2	2018	2	2018
AEGIS IFF MODE 4/5 Integration: PHASE I COMPUTER PROGRAM DELIVERY	4	2018	4	2018
AEGIS IFF MODE 4/5 Integration: PHASE I IN-PROGRESS REVIEW #2	1	2019	1	2019
AEGIS IFF MODE 4/5 Integration: PHASE II IN-PROGRESS REVIEW #1	3	2018	3	2018
AEGIS IFF MODE 4/5 Integration: PHASE II IN-PROGRESS REVIEW #2	4	2019	4	2019
AEGIS IFF MODE 4/5 Integration: PHASE III IN-PROGRESS REVIEW #1	1	2019	1	2019
AEGIS IFF MODE 4/5 Integration: PHASE III IN-PROGRESS REVIEW #2	1	2021	1	2021

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / *Surface Combatant Cmbt Sys Eng*	Project (Number/Name) 3357 / *Aegis Training Improvement Program*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
3357: *Aegis Training Improvement Program*	12.500	14.624	10.458	7.856	-	7.856	6.609	5.130	5.249	5.355	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).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: AEGIS Training Improvement and ACB 16 integration	14.624	10.458	7.856	0.000	7.856
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 2016 Accomplishments: Complete Build 5.0 testing and Combat System Certification to support SLQ-32 (V)6 SEWIP BLK II integration in AEGIS Baseline 9A.0/9.C1 and legacy AWS Baseline ships. Continued development of TSTC which include BFTT Build 5.1, Advanced Training Domain (ATD) 1.0, Dual Band Radar Simulator, CEC Enhanced and Interim Training Capabilities, and Identification Friend/Foe Simulator. Completed BFTT 5.1 Critical Design Review					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
and Test Readiness Review milestone events. BFTT 5.1 is planned to be integrated onto CVN-78, and AEGIS BL 9.C2 phases 0 and 1. Completed ATD 1.0 Systems Requirement Review, In-Process Review and System Functional Review milestones. ATD is planned to be integration onto CVN-73 and AEGIS BL 9.C2 phase 2 TI-16 based combat systems. Complete development and integration of the Dual Band Radar simulator that is a key enabler for CVN-78 embedded training. Continued Combat Systems level Integration engineering for Cooperative Engagement Capability (CEC) Enhanced Trainer (CET) training capabilities and commensurate updates to Cooperative Engagement Processor computer program. Began requirements development of AEGIS and SSDS ACB 20 TSTC training requirements, to include updates to naval capabilities documents, combat systems level requirement specifications, and interface requirements of the Air and Missile Defense Radar (AMDR) stimulation capability. Initiated development of NULKA simulation capability to enable combat systems soft kill training. ***FY 2017 Plans:*** Perform BFTT 5.1 element certification, conduct combat system test and evaluation, and deliver BFTT Build 5.1. Conduct ATD 1.0 preliminary design review and critical design reviews. Complete Build 5.1 testing and Certification for CVN 78 and AEGIS Baselines 9.A0/9.C1/9.C2. Deliver and Install BFTT 5.1 to support CVN78 SSDS MK2 Mod 6C engineering tests at Wallops Island and Shipboard Combat System light off event. Complete ATD 1.0 CDR. Initiate software development for ATD 1.0 and necessary integration engineering to support Aegis Baseline 9.C2 TSTC development. Complete development and deliver CEC Interim Training Capability to enable single and multi-ship integrated fire control training and continue development of embedded CEC training capability. Conduct NULKA and IFF simulation capability preliminary and critical design reviews. Continue development of embedded shipboard MH-60R Simulator and associated components. Initiate development of requirements to support TSTC capability improvements to support tactical training requirements of AEGIS and SSDS ACB 20, to include training system modifications to support integration of the Air and Missile Defense Radar (AMDR) stimulation capability, Enhanced Sea Sparrow Missile System, and Advanced Electronic Warfare. ***FY 2018 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Conduct ATD 1.0 Test and Evaluation in support of AEGIS ACB 16 phase 2 and SSDS ACB 12+ TI-16 based combat systems. Deliver CEC Embedded Training capability, IFF Simulator, NULKA Simulator, and MH-60R Simulator for integration and testing. Begin TSTC requirements developments of AMDR, ESSM and Advanced EW training capabilities. Begin TSTC requirements development for the DDG 1000 embedded shipboard training capability. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	14.624	10.458	7.856	0.000	7.856

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• RDTE/0204571N/1427: *Surface Tactical Team Trainer (STTT)*	9.857	12.289	15.274	-	15.274	15.387	15.454	13.541	11.153	Continuing	Continuing

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 ACB 16 (BL 9.A2/B2/C2):
Completed ACB 16 Software Increment Review (SWIR) #2 first quarter FY16.
Completed ACB 16 Software Increment Review (SWIR) #3 second quarter FY16.
Completed ACB 16 Software Increment Review (SWIR) #4 third quarter FY16.
ACB16 BL 9.C2.0 Demonstration #1 third quarter FY17.
ACB16 BL 9.C2.0 Demonstration #2 fourth quarter FY17.
ACB 16 BL 9.B2.0/9.C2.0 Combat System Certification Panel (CSCP) TI12 Configuration fourth quarter FY18.
ACB16 BL 9.C2.1 Demonstration #3 fourth quarter FY18.
ACB16 BL 9.C2.2 Demonstration #4 fourth quarter FY19.

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ACB 16 BL 9.A2.1 / 9.C2.1 Combat System Certification Panel (CSCP) TI12H Configuration first quarter FY20.
ACB 16 BL 9.A2.2 / 9.C2.2 Combat System Certification Panel (CSCP) TI16 Configuration first quarter FY21.