Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy											Date: February 2015	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604755N *I Ship Self Def (Detect & Cntrl)*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	799.698	98.382	56.884	153.836	-	153.836	136.882	156.316	101.737	98.635	Continuing	Continuing
2178: *QRCC*	771.016	91.201	50.525	145.894	-	145.894	129.553	143.519	91.209	86.825	Continuing	Continuing
3172: *Joint Non-Lethal Weapons*	26.314	5.111	4.213	4.825	-	4.825	4.348	5.158	2.971	3.032	Continuing	Continuing
3306: *Integrated Swimmer Defense (ISD)*	2.368	1.010	1.026	-	-	-	-	-	-	-	-	4.404
3358: *SSDS Training Improvement Program*	0.000	1.060	1.120	3.117	-	3.117	2.981	7.639	7.557	8.778	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element consolidates efforts related to Detect & Control aspects of Ship Self Defense (SSD) to facilitate effective planning and management of these efforts and to exploit the synergistic relationship inherent in each. Analysis and demonstration have established that surface SSD based on single-sensor detection point-to-point control architecture is inadequate against current and projected Anti-Ship Cruise Missile (ASCM) threats. The supersonic seaskimming ASCM reduces the effective battle space to the horizon and the available reaction time-line to less than 30 seconds from first opportunity to detect until the ASCM impacts its target ship. Against such a threat, multi-sensor integration is required for effective detection, and parallel processing is essential to reduce reaction time to acceptable levels and to provide vital coordination/integration of hardkill and softkill assets. These SSD projects address and coordinate the detection and control functions necessary to meet the rigorous SSD requirements.

Quick Reaction Combat Capability (QRCC, PU2178): This project provides multi-sensor integration, parallel processing and the coordination of hard-kill / soft-kill capabilities in an automated, doctrine-based response to the ASCM threats and are the cornerstones of SSDS being developed through QRCC (PU 2178) efforts. In addition, this project provides for the central system engineering management for the integration of advanced sensor, weapon and C4I upgrades and the test and certification of the Integrated Combat System (ICS).

SSDS MK 2 Advance Capability Build (ACB)-16 was delayed 2 years due to the need to prioritize critical SSDS system improvements. ACB-16 was the designation for the next major SSDS baseline for the integration of new sensor, weapon, and C4I capabilities for anti-ship missile defense and strike group interoperability. As a result of the delay, ACB-16 has been re-designated to ACB-20. The SSDS MK 2 ACB-12 capability baseline development, test, and fielding will continue as planned. However, with the delay in development and fielding of ACB-16, an increased number of SSDS MK2 ships will receive ACB-12 capability baseline and specific fire control loop and interoperability improvements, in lieu of ACB-16.

SSDS Training Improvement Program (PU 3358): The SSDS Training Improvement project will provide 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 SSDS MK2 Advanced Capability Builds (ACB)/Fire Control Loop Improvement Project (FCLIP)/ Far-Term Interoperability Improvement Project (FTIIP) and Technical Insertion efforts under PU 2178 (QRCC). These enhancements will address current and future training requirements by implementing new functionality to enable the individual

warfighter to engage in more complex training requirements and distributed battle group events 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 AEGIS combat systems, and/or integration of re-usable common components developed by the TSTC BFTT Program (PE 0204571/PU1427) and AEGIS TSTC Training Improvement program (PE 0604307/PU 3357)to meet SSDS integrated combat system training requirements.

The Ship Self Defense System (SSDS) is the core combat system control element for the Quick Reaction Combat Capability (QRCC) in aircraft carriers and amphibious assault ships. SSDS integrates a diverse set of fire control loop sensors and weapons, and C4I systems for each ship class (CVN68/78, LHA6, LHD1, LPD17, and LSD41/49). SSDS MK2 provides the capabilities for integrated air and missile defense, multi-warfare situational awareness, combat direction, and joint interoperability via the Cooperative Engagement Capability (CEC) and Tactical Digital Information Link (TADIL)-J (Link 16). SSDS MK2 is being fielded with the new construction carriers (CVN78 class) and amphibious ships (LHA6, LPD17 classes). SSDS MK2 is replacing the Advanced Combat Direction System (ACDS) in the LHD1 class and SSDS MK1 in the LSD 41/49 class as fleet modernization initiatives. In addition, with the decision to replace the Dual Band Radar (DBR) for CVN 80 and L-Class Ships (LHA 8) with an Enterprise Surveillance Suite (ESS) consisting of a new radar (Enterprise Air Search Radar (EASR) and X-Band Illuminator), SSDS will require development of system and software changes.

SSDS MK2 integrates new combat system war-fighting capabilities and improvements on a phased basis via ACB, TI, the Fire Control Loop Improvement Project (FCLIP), Far-Term Interoperability Improvement Project (FTIIP), and the Task Force Cyber Awakening (TFCA) Boundary Defense Capability (BDC) project, and the development requirements imposed by integration of a DBR replacement radar onboard CVN 80 and L-Class (LHA). FTIIP is the second phase of the corrective action plan for the resolution of the strike group interoperability issues, and TFCA BDC will provide Combat Systems-level and element-level cyber-security protection based on System of Systems (SoS) risk assessment. New hardware TI baselines are required every four years to refresh the Commercial-Off-The-Shelf (COTS) assemblies to sustain system production and to support the incorporation of new ACB capabilities. Each individual ship is planned for a TI upgrade on an eight year interval to replace obsolescent COTS hardware and support the fielding of the war-fighting capabilities and improvements.

Integrated Swimmer Defense (ISD, PU3306) scope is to provide the Navy Expeditionary security forces with capabilities of a portable marine integrated swimmer defense system (ISDS) to engage combat swimmers/divers or unknown individuals underwater once they have been detected. There are no funds programmed for PU3306 in FY2016 and out; the program requirement has been cancelled.

Non-Lethal Weapons (PU 3172) provides a long range laser warning and dazzle system, vessel stopping system, and combined effects (light, laser, and sound) system for use in the maritime environment. Optical warning and distraction has been identified by the services as a possible technology solution to mitigate and/or address several known joint non-lethal capability gaps.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy					Date: February 2015
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*			R-1 Program Element (Number/Name) PE 0604755N *I Ship Self Def (Detect & Cntrl)*		
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	95.604	56.889	116.837	-	116.837
Current President's Budget	98.382	56.884	153.836	-	153.836
Total Adjustments	2.778	-0.005	36.999	-	36.999
• Congressional General Reductions	-	-0.005			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	4.996	-			
• SBIR/STTR Transfer	-2.218	-			
• Program Adjustments	-	-	37.828	-	37.828
• Rate/Misc Adjustments	-	-	-0.829	-	-0.829

Change Summary Explanation

FY14 program changes include SBIR Transfer and an increase to PU 2178 in support of SSDS MK2 ACB-12 software development and Integration efforts.

FY16 changes include program adjustment increases to PU 2178 and PU3358 and other rate/miscellaneous adjustments. The FY2016 plan includes a major increase in scope for the SSDS MK2 product development efforts (identified below) to provide mission essential ICS capabilities and meet new ship construction and modernization schedules, as well as the initiation of the systems engineering/analysis for the development of systems and software changes to the SSDS as a result of the Dual Band Radar (DBR) replacement with Enterprise Air Surveillance Radar (EASR) onboard CVN 80 and L-Class (LHA).

The increase in PU 2178 from FY15 to FY16 is required for the following major initiatives:

- Completion of SSDS MK2 ACB12/TI-12 development and integration for the CVN 78 PSA/CSSQT, CVN 72 RCOH and LHD 2 Combat System AAW Capstone Modernization.

- Completion of the development and qualification of the SSDS MK2 TI-16 equipment to support FY16 equipment production and re-host of SSDS ACB-12 software to the TI-16 configuration;

- Start of the full scale development for FCLIP Phase 2, FTIIP and TFCA BDC improvements to resolve priority fleet combat system deficiencies in anti-ship missile defense, strike group interoperability and cyber-security. The overall scope of the multi-year development effort will include systems engineering/analysis, M&S, Hardware and Software Development, Information Assurance (IA)/Cross Domain Solutions, Factory Systems Integration Test (FSIT) with Wrap Around Simulation, and Wallops Island System Integration Test for Fire Control Loop Elements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy	Date: February 2015
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604755N *I Ship Self Def (Detect & Cntrl)*

- Start of the system engineering/analysis for the development of system and software changes for the SSDS ICS in order to integrate the ESS (EASR and fire control loop capabilities) in CVN 80 and L-Class ship ICS variants for tracking and missile illumination/uplink. The overall scope of the multi-year development will include systems engineering/analysis, M&S, Hardware and Software development, Information Assurance (IA)/Cross Domain Solutions, Factory System Integration Test (FSIT) and Wrap Around Simulation, and Wallops Island System Integration Test for Fire Control Loop Elements.

- Development of the combat system requirements, capability phasing plan, and concept of integration for ACB-20/TI-20 including ESS.

- Accomplishment of SSDS MK2 integrated combat system integration and certification testing for ship system installation and deployment;

- Accomplishment of the SSDS MK2 test and evaluation requirements in the SSDS Test and Evaluation Master Plan (TEMP);

- T&E and certification efforts that include four new SSDS integrated combat system baselines, LSD SSDS MK2 Mod5C, CVN78 SSDS MK2 Mod 6C, LHD2 SSDS MK2 Mod 3C, and CVN72 SSDS MK2 Mod 1C.

The increase in PU 3358 from FY15 to FY16 is required for the following major initiative:

- Start the software development for the incorporation of TSTC functional requirements into SSDS MK2 Integrated Combat System baseline for FCLIP Phase 2/ FTIIP.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604755N / *Ship Self Def (Detect & Cntrl)*				Project (Number/Name) 2178 / *QRCC*			
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
2178: *QRCC*	771.016	91.201	50.525	145.894	-	145.894	129.553	143.519	91.209	86.825	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Ship Self Defense System (SSDS) is the core combat system control element for the Quick Reaction Combat Capability (QRCC) in aircraft carriers and amphibious assault ships. SSDS integrates a diverse set of fire control loop sensors and weapons, and C4I systems for each ship class (CVN68/78, LHA6, LHD1, LPD17, and LSD41/49). SSDS MK2 provides the capabilities for integrated air and missile defense, multi-warfare situational awareness, combat direction, and joint interoperability via the Cooperative Engagement Capability (CEC) and Tactical Digital Information Link (TADIL)-J (Link 16). SSDS MK2 is being fielded with the new construction carriers (CVN78 class) and amphibious ships (LHA6, LPD17 classes). SSDS MK2 is replacing the Advanced Combat Direction System (ACDS) in the LHD1 class and SSDS MK1 in the LSD 41/49 class as fleet modernization initiatives. In addition, with the decision to replace the Dual Band Radar (DBR) for CVN 80 and L-Class Ships (LHA 8) with an Enterprise Surveillance Suite (ESS) consisting of a new radar (Enterprise Air Search Radar (EASR) and X-Band Illuminator, SSDS will require development of system and software changes.

SSDS MK2 integrates new combat system war-fighting capabilities and improvements on phased basis via ACB, TI, the Fire Control Loop Improvement Project (FCLIP), Far-Term Interoperability Improvement Project (FTIIP), and the Task Force Cyber Awakening (TFCA) Boundary Defense Capability (BDC) project, and as a result of the development requirements imposed by integration of a DBR replacement radar onboard CVN 80 and L-Class (LHA).

FCLIP is planned as a phased corrective action plan for system-of-systems deficiencies in SSDS MK2 ships, identified during live-fire testing with stressing anti-ship missile targets. FCLIP Phase 2 is a multi-year development effort (FY16-FY18) that includes: RAM Block 2 Multi-Target processing in the missile; NSSMS MK9 Multi-Target Discrimination & Reporting; ESSM 2T Uplink; Systems engineering to determine the concepts of integration for CEC Engage on Remote Capability and CIWS Integration with SSDS MK2 and CEC and modeling and analysis to ensure optimization and alignment of capabilities into the ICS end-to-end fire control loop.

FTIIP is the second phase of the corrective action plan for the resolution of the strike group interoperability issues. FTIIP includes implementation of Tactical Data Link (TDL) IFF mode 5/S identification capabilities and F/A-18 Digital Air Control.

TFCA BDC will provide Combat Systems-level and element-level cyber-security protection based on system of systems risk assessment. TFCA BDC is a multi-year development (FY16-FY18) to define, develop, and integrate enterprise Combat System cyber-security solutions. These solutions will provide a set of boundary defense capabilities for the SSDS MK2 ICS, a set of centralized Combat Systems-level cyber-security capabilities, and a set of element-level cyber-security protections. The boundary defense capabilities will protect and detect threats entering and leaving the Combat System. The centralized Combat System-level cyber-security capabilities will provide cyber situational awareness and management of various (e.g. malware detection, file integrity verification, etc.) cyber-security protection and detection capabilities. Element-level cyber-security protections will provide additional measures to ensure system integrity. Development of enterprise Combat System risk management processes will occur, to include a system of systems risk assessment methodology to support Combat System execution of the Risk Management Framework.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

New hardware TI baselines are required every four years to refresh the Commercial-Off-The-Shelf (COTS) assemblies to sustain system production and to support the incorporation of new ACB capabilities. Each individual ship is planned for a TI upgrade on an eight year interval to replace obsolescent COTS hardware and support the fielding of the war-fighting capabilities and improvements.

The QRCC project implements an evolutionary acquisition of improved ship self-defense capabilities against Anti-Ship Cruise Missiles (ASCMs) for selected ships. The SSDS is the integrating element of QRCC. The design integrates several existing stand-alone Anti-Air Warfare (AAW) systems that do not individually provide the complete detection, control, and engagement capabilities needed against low flying, high speed ASCMs with low radar cross sections. The SSDS integration concept fulfills the need for an automated detection, quick reaction and multi-target engagement capability emphasizing performance in the littoral environment. SSDS replaces manual control of several self-defense systems with a single integrated capability under the computer-aided control of ship operators. System design emphasizes use of non-developmental items, commercial standards, commercial processors, computer program reuse and open system architecture. SSDS is a physically distributed, open system architecture computer network consisting of commercially available or previously developed hardware. It includes the Navy's standard computers (Common Processor System) and displays (AN/UYQ-70 and Common Display System) and command table for human-system interface, commercially based network switching and interface units, and commercially available fiber optic cabling.

SSDS MK1 integrates the SPS-49A(V)1 radar, SPS-67(V)1 radar, AN/SLQ-32A/B electronic warfare system, Combat Identification Friend or Foe-Self Defense (CIFF-SD), Rolling Airframe Missile (RAM) and Phalanx Close-In Weapon System (CIWS) and is installed on LSD41/49 class ships. SSDS MK1 successfully completed Operational Evaluation in June 1997. SSDS received Milestone III Approval for Full Rate Production (Mar 98) and authority to integrate with ACDS and Cooperative Engagement Capability (CEC) on CVN, LPD-17, LHD and LHA ship classes.

SSDS MK2 facilitates the incremental evolution and implementation of follow-on modifications. Development of SSDS MK2 leveraged critical experiments and re-use of technology and software from SSDS MK1. SSDS MK2 integrates other ship self-defense elements, such as AN/SPQ-9B radar, NATO Sea-sparrow system, CEC and Tactical Data Links for joint interoperability. SSDS MK2 provides enhanced capabilities for Self-Defense against air and surface threats using both ownship and remote data to address AAW Capstone requirements. SSDS MK2 becomes the integrated, coherent real time Command and Control System for Aircraft Carriers and Amphibious ships. It will increase operational capabilities; improve combat readiness and Strike Group/Expeditionary Strike Group Interoperability; and promote standardization. It introduces new shipboard tactical displays and support equipment via Technology Insertion and warfighting capability improvements via Advanced Capability Builds (ACB). ACBs integrate advanced systems such as Dual Band Radar (DBR), Evolved Sea-Sparrow Missile (ESSM), RAM Block 2 missile, SLQ-32 SEWIP Block 2 and MH-60R Helicopter to implement the warfighting capability improvements and Total Ship Training Capability (TSTC) improvements.

In order to meet the Navy's warfighting capabilities and modernization concepts described in SEA POWER 21, Navy Open Architecture (OA) is being introduced in conjunction with SSDS Commercial off the Shelf (COTS) Technology Refresh initiatives. This is the first step in unifying a set of war fighting functions into a common architecture shared among many ship classes. This principle of commonality is a major mechanism for cost control and avoidances in the Navy's future war fighting systems. Starting in 2008, SSDS MK 2 re-hosted existing tactical computer program applications into the Open Architecture Computing Environment (OACE) specifications with equipment suites concurrent with COTS Technology Insertion (TI) cycles, prior to migration and integration with other Navy OA applications for implementation on future new construction ships or during future ship modernization. TI cycles and equipment technology refreshes are driven by COTS obsolescence.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

In FY09, system development was initiated for SSDS MK1 technology refresh for the LSD 41/49 class ships. The effort will transition these ships to an SSDS MK OACE and SSDS MK 2 single source library. The new system designation is SSDS MK2 Mod 5C. The system development effort encompasses TI of new OA computing and display equipment (Common Processor System (CPS) and Common Display System (CDS)), modifications and additions to the SSDS MK 2 software for an upgraded interface with the Phalanx Closed-In-Weapon System (CIWS) Block 1B Baseline 2 and Battle Force Tactical Trainer (BFTT), and other unique LSD SSDS interfaces and functionality. The first LSD SSDS MK 2 Mod 5C was installed in LSD-50 in FY14 after land-based Combat System Integration and Certification Testing with an IOC in FY15.

In FY10, SSDS MK 2 system development commenced for the first phase of migration to the Navy OA objective functional architecture designated as SSDS MK 2 ACB-12/TI-12. ACB-12/TI-12 encompasses: implementation of common product line software components for System Track Management; integration of the product line System Track Management components and associated data model with other SSDS software components and Combat System interfaces (e.g. CEC, DBR, ESSM and Joint Universal Waveform Link (JUWL) up-link, RAM Block 2 and CV-TSC); integration of new interfaces with SEWIP Block 2 Electronic Support (ES),and MH-60R; integration of CPS and CDS; and expansion of SSDS MK 2 Local Area Network (LAN) to OA Combat System LAN, and implementation of information assurance boundary defense capabilities. ACB-12 is planned for IOC in the CVN 78, CVN 72 in FY16, and LHD 2 in FY17.

In FY12, planning, analysis, and top level requirements definition was initiated for SSDS MK 2 ACB-16 (now designated as ACB-20). In addition to the integration of the Enterprise Surveillance Suite (EASR and X-Band TI), ACB-20 warfighting improvement integration candidates include fire control loop improvements beyond FCLIP Phase 2 for precision tracking, weapon scheduling, soft kill / hard kill coordination, and engagement control; SEWIP Block 2 with automated radar designation decoy launch; SEWIP Block 3 with Electronic Attack; Terminator; ESSM Block 2 missile; Solid State Laser, sensor / track data from multiple MH-60R Helicopters; interoperability with Joint Strike Fighter, UCLASS and USMC systems; GCCS-M Data Exchange via CANES; and Total Ship Training Capability (TSTC) enhancements.

Funds were added in FY13 for the integration and test of SSDS MK2 Tactical Data Link (TDL) 16 interoperability improvements to address critical Strike Group interoperability issues under the AEGIS Wholeness Initiative, designated AMIIP. In FY13, software defect corrections were implemented as Phase 1 of the Fire Control Loop Improvement Project (FCLIP) to correct specific anti-ship missile defense deficiencies identified during live-fire testing. In FY16, FCLIP Phase 2 and FTIIP will be initiated as follow on efforts for fire control loop and strike group interoperability improvements.

TI-16 will include common enterprise COTS hardware products for computing, storage, display, and network switching devices to support system and equipment modernization driven by COTS obsolescence.

SSDS MK 2 Product Development includes integration of government furnished hardware and software to provide Warfighting Capability Improvements via ACB, and OACE improvements and COTS obsolescence refresh via TI. Product development encompasses studies and analysis, modeling and simulation, system requirements engineering, critical experiments, hardware and software design, software code development, EDM units, hardware/software integration, factory system integration testing, factory qualification testing, and system pre and post certification support during Combat System Integration Testing, Combat System Certification testing, and DT&E (land-based and at-sea).

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

SSDS MK2 Development Test and Evaluation (DT&E) provides for comprehensive testing of SSDS MK2-based Combat System hardware/software upgrades for the CVN, LPD 17, LHD, LHA 6 and LSD ship classes. This includes Land Based testing at Wallops Island and At-Sea testing for the lead ships in each specific ship class Combat System configuration and Live Fire testing on the SDTS. The DT&E encompasses test preparation, integration, engineering and development tests, data collection and analysis, and resolution and verification of deficiency corrections. The SSDS MK 2 T&E supports Integrated Combat System certification, the SSDS Test and Evaluation Master Plan (TEMP) and the Air Warfare Ship Self Defense CAPSTONE Enterprise TEMP.

The initial DT&E and Follow on Operational Test and Evaluation (FOT&E) for SSDS MK 2 was conducted with the CVN 76 SSDS MK 2 Mod 1 configuration in FY05. In FY07, the SSDS MK 2 FOT&E requirements were linked with the Air Warfare Ship Self Defense Enterprise T&E initiative to combine At-Sea Combat System element DT&E and OT&E requirements to synergize the resources required for testing in the SSDS MK 2 ships and the SDTS. The LPD-17 class SSDS MK 2 Mod 2 FOT&E was conducted in FY07/FY08 as part of the Enterprise T&E initiative. Live fire, Combat System end-to-end testing was conducted against Anti-Ship Cruise Missile (ASCM) targets on the SDTS in FY07/08/09 with the CVN/LHD/LPD configurations. FOT&E of ESSM integration with SSDS MK 2 was initiated on the CVN 68 class in FY08 and will extend through FY15. FOT&E for the CVN class SSDS MK 2 Mod 1B OACE COTS TI was conducted in FY09. FY14/FY15 FOT&E includes the LHA 6 SSDS MK 2 Mod 4B configuration with the RAM Block 2 missile, ESSM, AMIIP and FCLIP. Future FOT&E includes the LSD SSDS MK 2 Mod 5C configuration with the Phalanx CIWS 1B Baseline 2 system and RAM Block2; and CVN 78 SSDS MK 2 Mod 6C configuration with the DBR, SEWIP Block 2 ES, ESSM with JUWL up-link, and RAM Block 2.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: SSDS MK2 Development Test & Evaluation	21.992	17.127	26.265	-	26.265
Articles:	-	-	-	-	-
FY 2014 Accomplishments: For CVN/LPD24/LHA6 SSDS MK2 Mod 1B/2B/4B Configurations with RAM Block 2 integration, Linux OACE, and AMIIP / FCLIP phase 1: - Conduct Land Based Development Test at Wallops Island (WI) and CST at ICSTF for CVN 68/71/75/76 and LHA6 for certification objective quality evidence (OQE). For CVN/LHD/LPD SSDS MK2 MOD 1A/2A/3A configurations with AMIIP/FCLIP phase 1: - Conduct Land Based system integration and engineering test at WI, and CST at ICSTF for CVN 73, LHD 7/8 and LPD 21/22/23 for certification OQE. For LSD SSDS MK2 Mod 5C configuration with the Phalanx CIWS Block 1B Baseline 2, RAM Block 2 and CPS/ CDS equipment: - Conduct Engineering Tests, Development Test / Development Test Assist, and CST at WI for LSD50 for authorization OQE.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
For CVN78 SSDS MK2 Mod 6C configuration with DBR, CEC, TPX-42, PL STM, UPX-29, ESSM, MK29 launcher, RAM Block2, and TPX-42. - Conduct Land Based system integration and engineering tests for CVN78 SSDS MK2 Engineering Software Releases at WI for the fire control loop including DBR, CEC, UPX-29, ESSM, MK-29 launcher, and RAM Block 2. This includes missile integration testing of ESSM X-Band JUWL uplink/downlink with the SSDS MK2 MOD6C and DBR / DBR radar equipment simulator. The testing will also include integration test with TPX-42, TADIL and Air Control.					
FY 2015 Plans: For CVN/LPD24/LHA6 SSDS MK2 Mod 1B/2B/4B Configurations with RAM Blk 2 integration, Linux OACE, and AMIIP/FCLIP phase 1: - Complete Live Fire At Sea Testing for LHA6 configuration in SDTS-Enterprise Test 05 Phase 2. - Conduct DT/OT (IIIH Phase2 / ET06) and CSSQT on LHA6. For LSD SSDS MK2 Mod 5C configuration with the Phalanx CIWS Block 1B Baseline 2, RAM Block 2 and CPS/ CDS equipment: - Conduct CST at WI for LSD 50, LSD 52, and LSD 45 for certification OQE. For CVN78 SSDS MK2 Mod 6C configuration with DBR, CEC, TPX-42, PL STM, UPX-29, ESSM, MK29 launcher, and RAM Block2. - Conduct Land Based system integration and engineering tests for CVN78 SSDS MK2 Engineering Software Releases at WI for the fire control loop including DBR, CEC, UPX-29, ESSM, MK-29 launcher, and RAM Block 2. This will also include missile integration testing of ESSM X-Band JUWL uplink/downlink with the SSDS MK2 MOD6C, and DBR / DBR Radar Equipment Simulator. The testing will also include integration test with TPX-42, TADIL with AMIIP, and Air Control. - Conduct Combat System Assessment (CSA) Test at WI to deliver an integrated Combat System software package for CVN78 Combat System Light-off during construction. For CVN72 SSDS MK2 ACB-12/TI-12 configuration with SPS-48G, SPS-49A, SPQ-9B, CEC, PL STM, UPX-29, ESSM, NSSMS MK57 MOD13, RAM Block2, SLQ-32(V)4, NULKA, CV-TSC (with MH-60R link) and BFTT, conduct CSA at WI to deliver integrated Combat System software package for CSLO during RCOH.					
FY 2016 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
The T&E and certification efforts include four new SSDS integrated combat system baselines, LSD SSDS MK2 Mod5C, CVN78 SSDS MK2 Mod 6C, LHD2 SSDS MK2 Mod 3C, and CVN72 SSDS MK2 Mod 1C. For LSD SSDS MK2 Mod 5C configuration with the Phalanx CIWS Block 1B Baseline 2, RAM Block 2 and CPS/ CDS equipment: - Complete DT/OT-III(I) Phase 2 / ET14 and Combat System Ship Qualification Trials (CSSQT) on LSD50 and LSD52. - Complete Live Fire At Sea Testing for LSD MOD 5C on SDTS - Enterprise Test 12. For CVN78 SSDS MK2 Mod 6C configuration with DBR, CEC, TPX-42, PL STM, UPX-29, ESSM, MK29 launcher, and RAM Block2. - Continue Land Based system integration and engineering tests for CVN78 SSDS MK2 Engineering Software Releases at WI for the fire control loop including CEC, UPX-29, ESSM, MK-29 launcher, and RAM Block 2. This will also include missile integration testing of ESSM X-Band JUWL uplink/downlink with the SSDS MK2 MOD6C, and DBR Radar Equipment Simulator. The testing will also include integration test with TPX-42, TADIL with AMIIP, and Air Control. For CVN72 SSDS MK2 ACB-12/TI-12 configuration with SPS-48G, SPS-49A, SPQ-9B, CEC, PL STM, UPX-29, ESSM, NSSMS MK57 MOD13, RAM Block2, SLQ-32(v)4, NULKA, CV-TSC (with MH-60R link) and BFTT, conduct CST at WI to provide certification OQE for integrated Combat System software package for CIA and deployment. For LHD2 SSDS MK2 ACB-12/TI-12 configuration with SPS-48G, SPS-49A, SPQ-9B, CEC, PL STM, UPX-29, ESSM, NSSMS MK57 MOD14 (Objective Configuration Phase 2), RAM Block2, SLQ-32(V)3, and BFTT, conduct CST at WI to provide certification OQE for integrated Combat System software package for CSLO. ***FY 2016 OCO Plans:*** N/A					
Title: SSDS MK2 Product Development-Advanced Capability Builds (ACB)/Technology Insertion	69.209	33.398	119.629	-	119.629
Articles:	-	-	-	-	-
FY 2014 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
For LSD SSDS MK2 MOD 5C Tech Insertion, accomplish pre and post certification support for Land Based engineering tests, development tests, and Combat System certification test. This includes data analysis, resolution of software trouble reports and technical support. For CVN 78 SSDS MK 2 Mod 6C, continue SSDS MK2 software design, code, test, and integration for the software for the CVN78 Combat System Light-off baseline. (The SSDS software development for integration of SEWIP Block2 and CV-TSC are in the FY15/16 plans for post construction delivery to CVN78.) Initiate Functional System Integration Test(FSIT) 1 and support for Land Based integration and engineering tests. Initiate development of operator and maintenance training courses for SSDS MK 2 Mod 6C ACB-12/TI-12. For LHD2 SSDS MK2 MOD 3C ACB-12/TI-12, initiate system engineering to define system architecture, generate requirements documents/specifications, for modification of the CVN ACB-12/TI-12 software for Capstone modernization and integration of NSSMS MK57 MOD14 with Objective Configuration Phase 2. For SSDS MK2 AMIIP / FCLIP 1 for designated in-service carriers, provide software support for Combat System interoperability and certification testing and shipboard integration and testing. For SSDS MK2 ACB20, continue engineering analysis, formulate top level requirements and initiate Integrated Combat System CDD for the mission essential Combat System Capability improvements. For SSDS MK2 TI-16, initiate full scale development of specific TI-16 equipment. Conduct IPR for SSDS MK2 TI-16 physical architecture and initiate equipment design. ***FY 2015 Plans:*** For CVN 78 SSDS MK 2 Mod 6C, complete SSDS MK2 software design, code, test, and integration for the CVN78 CSLO baseline including AMIIP and information assurance boundary defense capabilities. Complete delta FSIT for boundary defense capabilities and provide support for Land Based integration and engineering tests. Initiate SSDS MK2 software design, code, and test for integration of SEWIP Block 2 for PSA / CSSQT (with FY14 reprogramming action in Sep 2014). Continue development of operator and maintenance training courses for SSDS MK 2 Mod 6C ACB-12/TI-12.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
For CVN72 SSDS MK2 ACB-12/TI-12 configuration with SPS-48G, SPS-49A, SPQ-9B, CEC, PL STM, UPX-29, ESSM, NSSMS MK57 MOD13, RAM Block2, SLQ-32(v)4, NULKA, and BFTT, accomplish FSIT/SIT and provide support for Land Based integration, engineering and CSA tests for RCOH CSLO baseline. For LHD 2 SSDS MK2 MOD 3C ACB12 / TI12, complete the SSDS MK2 software modifications and integration for Capstone modernization and integration of NSSMS MK57 MOD14 with Objective Configuration Phase 2. For SSDS MK2 ACB-20, continue CDD development and develop Capability Phasing Plan and Concept of Integration for the mission essential Combat System Capability improvements. For SSDS MK2 TI-16, conduct Preliminary Design Review (PDR) for full scale development of equipment and equipment software operating environment. ***FY 2016 Base Plans:*** The FY2016 plans include a major increase in scope for the SSDS MK2 product development efforts identified below to meet ship new construction and modernization schedules. - For CVN78 SSDS MK2 Mod 6C, complete SSDS MK2 software design, code, test, and integration for the CVN78 PSA/CSSQT baseline including SEWIP Block 2 and CV-TSC interfaces. Conduct FSIT and FQT for this baseline and provide support for Land Based integration, and engineering and certification tests. Continue development of operator and maintenance training courses for SSDS MK 2 Mod 6C ACB-12/TI-12. - For CVN72 SSDS MK2 Mod 1C ACB-12/TI-12 configuration with SPS-48G, SPS-49A, SPQ-9B, CEC, PL STM, UPX-29, ESSM, NSSMS MK57 MOD13, RAM Block2, SLQ-32(v)4, NULKA, CV-TSC (with MH-60R link) and BFTT, provide support for Land Based integration, engineering and certification tests. - For LHD 2 SSDS MK2 Mod 3C ACB12 / TI12, provide support for Land Based integration, and engineering and certification tests. - For SSDS MK2 TI 16, complete the development of the SSDS MK2 TI-16 equipment to support FY16 equipment production, and accomplish SSDS ACB-12 software re-host to the TI-16 configuration; This includes equipment software operating envirnoment, conduct of Critical Design Review (CDR), environmental qualification testing, Production Readiness Review and Test Readiness Review for system FQT.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- For FCLIP Phase 2 / FTIIP / TFCA BDC baseline, define and allocate Combat System functional requirements for FCLIP Phase 2 and initiate software requirements specifications and design for SSDS (and ICS elements) for capabilities for RAM Block 2 multi-targeting processing in the missile, NSSMS multi-target dissemination and reporting, and ESSM 2T Uplink. Accomplish modeling and analysis to ensure optimization and alignment of capabilities into the ICS end-to-end fire control loop. Conduct studies and analysis define capability phasing, concepts of integration and scope for follow on FCLIP capabilities for CEC engage on remote with CEC and SSDS MK2. - For FTIIP, define and allocate Combat System functional requirements and initiate software requirements specifications and design for SSDS (and ICS elements) for TDL capabilities for IFF Mode 5/S and F/A-18 Digital Air Control. - For TFCA BDC, define and allocate Combat System functional requirements and initiate software requirements specifications and design for SSDS (and ICS elements) for cyber-security protections. The boundary defense capabilities will protect and detect threats entering and leaving the Combat System. The centralized Combat System-level cyber-security capabilities will provide cyber situational awareness and management of various (e.g. malware detection, file integrity verification, etc.) cyber-security protection and detection capabilities. Element-level cyber-security protections will provide additional measures to ensure system integrity. - For ESS, start the systems engineering / analysis for the development of system and software changes to the Ship Self Defense System (SSDS) ICS for CVN 80 and L-Class ships ICS variants in order to integrate the EASR and fire control capabilities for tracking and missile illumination/uplink. The overall scope of the multi-year development will include Systems Engineering/Analysis, M&S, Hardware and Software development, Information Assurance (IA)/Cross Domain Solutions, Factory System Integration Test (FSIT) and Wrap Around Simulation, and Wallops Island System Integration Test for Fire Control Loop Elements. - For SSDS MK2 ACB-20, define the Combat System architecture and allocate Combat System Functional Requirements for ACB-20 including the integration of ESS (EASR and X-Band TI) to support the full scale development of the ACB-20 / ESS ICS baseline. ***FY 2016 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A					
Accomplishments/Planned Programs Subtotals	91.201	50.525	145.894	-	145.894

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPN/5231: *SSDS*	51.858	19.766	61.409	-	61.409	53.902	55.453	56.678	57.814	Continuing	Continuing
• RDTEN/0603658N: *Cooperative Engagement*	52.539	37.310	76.247	-	76.247	81.475	81.489	85.265	81.253	Continuing	Continuing

Remarks

D. Acquisition Strategy

The first SSDS MK 2 system procurements took place under a Cost Plus Award Fee (CPAF) contract in FY99 for the CVN 76, LPD 17, LPD 18 and CVN 69. Follow-on equipment procurements for additional ships of the CVN, LPD and LHD classes were awarded on Firm Fixed Price (FFP) contracts. For those ships that will be receive P3I OACE COTS tech Refresh hardware suites, the initial system Tech Refresh Development occurred under a CPAF type contract, with ship COTS conversion equipment/kits procured on FFP contracts.

A system engineering/design agent and Life Cycle Maintenance Cost Plus Fixed Fee (CPFF) contract was awarded in FY05 and a follow-on CPFF/CPAF contract, N00024-08-C-5122, was awarded on 30 Sept 2008, to support SSDS MK 2 system/software maintenance and system upgrades through FY13 including the TI-12 COTS Tech Insertion.

A follow on CPIF LOE contract, N00024-14-C-5128, was awarded 18 December, 2013 on a sole source basis for FY14-FY17 for the completion of the development, test, certification of SSDS MK2 (ACB12/TI12) for CVN78, CVN72, LHD2, and the software migration of ACB12 to TI16 for CVN68, LHD1, LPD17 ship classes. For SSDS MK2 TI-16 equipment, the SSDS program will use competitive build to print production contracts, and leverage common enterprise COTS Open Architecture Computing Environment (OACE) products for computing, storage, display, network, conversion, and information assurance. A competitive Combat System Engineering Agent (CSEA) / SSDS MK2 Design Agent (DA) contract is planned for FY2018-FY2022 with RFP preparation efforts commencing early in FY16.

E. Performance Metrics

Requirement Documents
- Capability Development Document (CDD) for Ship Self Defense System (SSDS) MK2 approved 19 December 2013.
- Test and Evaluation Master Plan (TEMP No. 1400) For Ship Self Defense System (SSDS) Revision B, 5 Mar 2008.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

Background
- SSDS MK1 OPEVAL was successfully completed June 1997 with a Milestone III approval in March 1998
- SSDS MK2 MOD 1 FOT&E was conducted on CVN 76 in 2005. All KPP thresholds were met. However, the system was assessed as not suitable and not effective by COMOPTEVFOR based on the identification of SSDS MK2 and Combat Systems deficiencies (24major, 37 minor deficiencies).
- SSDS MK 2 Mod 2 FOT&E was conducted in LPD 17-19 in 2007/2008. All KPPs thresholds were met and the system was assessed OPERATIONALLY EFFECTIVE and OPERATIONALLY SUITABLE by COMOPTEVFOR in the 12 Feb 2010 report. 10 major and minor deficiencies were identified against SSDS MK 2. (Also, major Warfare effects deficiencies were identified against the LPD 17 class Combat System).
- SSDS MK 2 Mod 3A FOT&E was conducted in LHD 8 in Feb 2010. All KPPs thresholds were met and the system was assessed OPERATIONALLY EFFECTIVE and OPERATIONALLY SUITABLE by COMOPTEVFOR in the 13 Dec 2010 report. 10 major deficiencies were identified against SSDS MK 2. (Also, major Warfare effects deficiencies were identified against the LHD 8 Combat System).
- SSDS MK2 FOT&E with ESSM and RAM Block 1 was conducted in the SDTS Oct-Dec 2011 as part of Enterprise Test - 03. Combat System (system-of-system) deficiencies identified during MSLEX with stressing targets has resulted in a phased corrective action plan, designated as Fire Control Loop Improvement Project (FCLIP).
- SSDS MK2 FOT&E with RAM Block 2 DT&E was conducted in the SDTS Dec 2014 as part of Enterprise Test - O5 Phase 2. Low altitude, supersonic, maneuvering targets were successfully engaged with RAM Block 2 missiles.

Status
- The Director, Operational Test and Evaluation (DOT&E) Annual Reports have identified ship self-defense mission deficiencies based on operational testing. The report is a compilation of multiple reports from Commander, Operational Test Force (COTF) including shipboard testing on the CVN 76, CVN 70, LPD 17, LPD 18, LPD 19, LHD 8; and enterprise testing on the SDTS and in the Probability of Raid Annihilation (PRA) test-bed.
- SSDS was assessed Operationally Effective and Operationally Suitable for the LPD 17 Class and LHD 8. The Combat Systems (CVN, LPD, LHD) were assessed Not Operationally Effective against several Anti-Ship Cruise Missiles (ASCM). There are system of systems performance issues and design limitations. The issues are divided into four categories: detect, engage, test resources, and threat representation.
- All of the major training deficiencies have been addressed and are pending Verification of Correction of Deficiency (VCD) by COTF. Revised SSDS NTSP was signed 30 Jul 2012.

- OPNAV N96 is working with PEO IWS, DASN, and COTF to address the shortfalls in performance testing with the

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

following initiatives:

a. Continue to develop, test and field combat system improvements through the Fire Control Loop Improvement Project (FCLIP) with SSDS MK2 integration of: High Diver improvements to SPS-48E and CEC; RAM Blk 2; SPQ-9B tracking improvements; SEWIP Blk 2 integration; Evolved Sea Sparrow Missile (ESSM) and North Atlantic Treaty Organization (NATO) Seasparrow Surface Missile System (NSSMS) MK 9 Target Illuminator improvements; and NULKA improvements.

b. Expand the use of Modeling and Simulation.

c. Develop FCLIP Phase 2 capabilities for RAM Block 2 multi-Target processing, NSSMS MK9 TI Multi-Target discrimination and reporting, and ESSM 2T Uplink.

d. Consider follow on high return self-defense improvements through the POM process with FCLIP and Advanced Capability Builds (ACB).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / *Ship Self Def (Detect & Cntrl)*	Project (Number/Name) 2178 / *QRCC*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ACB-12 / LSD / AMIIP PSEA	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.000	34.317	Dec 2013	19.534	Nov 2014	35.319	Nov 2015	-		35.319	Continuing	Continuing	Continuing
ACB-12 / LSD / AMIIP PSEA	SS/CPAF	RSC IDS (5122) : San Diego, CA	32.024	6.392	Nov 2013	-		-		-		-	-	38.416	-
ACB-12 / LSD / AMIIP SE	SS/CPFF	JHU/APL : Laurel, MD	58.580	4.833	Jan 2014	3.493	Dec 2014	4.550	Dec 2015	-		4.550	Continuing	Continuing	Continuing
ACB-12 - SW Dev/PL-STM	SS/CPAF	Gen. Dyn. (5100) : Fairfax, VA	2.828	0.800	Jan 2014	-		-		-		-	-	3.628	-
ACB-12 / LSD / AMIIP SE	WR	NSWC DD : Dalhgren, VA	58.900	7.448	Nov 2013	3.682	Nov 2014	5.108	Nov 2015	-		5.108	Continuing	Continuing	Continuing
ACB-12 / LSD / AMIIP SE / ILS	WR	CDSA DN : Dam Neck, VA	19.971	1.795	Nov 2013	0.526	Nov 2014	1.401	Nov 2015	-		1.401	Continuing	Continuing	Continuing
ACB-12 / LSD / AMIIP - Training Dev	WR	NSWC PHD : Pt Hueneme, CA	22.801	2.050	Nov 2013	1.139	Nov 2014	3.000	Nov 2015	-		3.000	Continuing	Continuing	Continuing
TI-16 HW Dev / ILS / EDM Proc (DN)	WR	CDSA DN : Dam Neck, VA	0.600	4.761	Nov 2013	0.884	Nov 2014	6.229	Nov 2015	-		6.229	Continuing	Continuing	Continuing
TI-16 HW Engr	WR	NSWC DD : Dalhgren, VA	0.000	0.108	Mar 2014	0.239	Nov 2014	0.931	Nov 2015	-		0.931	Continuing	Continuing	Continuing
TI-16 for ACB-12 SW Migration PSEA	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.677	0.671	Apr 2014	0.570	Dec 2014	10.295	Dec 2015	-		10.295	Continuing	Continuing	Continuing
TI-16 - Training	WR	NSWC-PHD : Pt Hueneme, CA	0.000	-		-		1.650	Nov 2015	-		1.650	Continuing	Continuing	Continuing
FCLIP Phase 2 - PSEA	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.000	0.333	Jan 2014	-	Nov 2014	13.432	Dec 2015	-		13.432	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	SS/CPFF	JHU/APL : Laurel, MD	0.000	1.221	Jan 2014	0.342	Dec 2014	7.240	Dec 2015	-		7.240	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	WR	NSWC-DD : Dahlgren, VA	0.000	0.215	Jan 2014	0.239	Nov 2014	1.620	Nov 2015	-		1.620	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	WR	NSWC PHD : Pt Hueneme, CA	0.000	-		0.228	Nov 2014	0.280	Nov 2015	-		0.280	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE & I	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.000	-		-		3.400	Dec 2015	-		3.400	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / *Ship Self Def (Detect & Cntrl)*	Project (Number/Name) 2178 / *QRCC*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FCLIP Phase 2 / SE	WR	NAWC : China Lake	0.000	-		-		1.080	Nov 2015	-		1.080	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	SS/CPFF	RSC(5432/5410) : Tuscon, AZ	0.000	-		-		4.460	Dec 2015	-		4.460	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	WR	NSWC : Crane, IN	0.000	-		-		0.180	Nov 2015	-		0.180	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	SS/CPAF	RSC (5202) : St. Pete, FL	0.000	-		-		3.190	Dec 2015	-		3.190	Continuing	Continuing	Continuing
FTIIP - PSEA	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.000	-		-		1.200	Nov 2015	-		1.200	Continuing	Continuing	Continuing
FTIIP / SE	WR	NSWC-DD : Dahlgren, VA	0.000	-		-		0.600	Nov 2015	-		0.600	Continuing	Continuing	Continuing
FTIIP / SE	WR	CDSA DN : Dam Neck, VA	0.000	-		-		0.500	Nov 2015	-		0.500	Continuing	Continuing	Continuing
FTIIP (SE&I)	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.000	-		-		0.800	Nov 2015	-		0.800	Continuing	Continuing	Continuing
ACB-20 / ICS SE - PSEA	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.000	0.333	Jan 2014	0.199	Dec 2014	-		-		-	-	0.532	-
ACB-20 / ICS SE (SE&I)	C/CPIF	RSC (IIS) : Suffolk, VA	0.000	1.368	Jan 2014	0.399	Nov 2014	2.000	Dec 2015	-		2.000	Continuing	Continuing	Continuing
ACB-20 / ICS SE	SS/CPFF	JHU/APL : Laurel, MD	0.000	0.677	Mar 2014	0.342	Dec 2014	1.250	Dec 2015	-		1.250	Continuing	Continuing	Continuing
ACB-20 / ICS SE	WR	NSWC DD : Dalhgren, VA	1.200	0.431	Mar 2014	0.262	Nov 2014	1.250	Nov 2015	-		1.250	Continuing	Continuing	Continuing
ACB-20 / ICS SE	WR	CDSA DN : Dam Neck, VA	0.000	-		0.237	Nov 2014	0.589	Nov 2015	-		0.589	Continuing	Continuing	Continuing
ESS SE	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.000	-		-		-	Nov 2015	-		-	-	-	-
ESS SE	SS/CPFF	JHU/APL : Laurel, MD	0.000	-		-		1.300	Dec 2015	-		1.300	Continuing	Continuing	Continuing
ESS SE	WR	NSWC DD : Dalhgren, VA	0.000	-		-		0.500	Nov 2015	-		0.500	Continuing	Continuing	Continuing
ESS (SE&I)	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.000	-		-		-	Nov 2015	-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ESS SE/Analysis	C/BA	IWS 7.0 : Washington DC	0.000	-		-		0.700	Nov 2015	-		0.700	Continuing	Continuing	Continuing
TFCA - BDC PSEA	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.000	-		-		0.900	Dec 2015	-		0.900	Continuing	Continuing	Continuing
TFCA - BDC SE	SS/CPFF	JHU/APL : Laurel, MD	0.000	-		-		0.700	Dec 2015	-		0.700	Continuing	Continuing	Continuing
TFCA - BDC SE	WR	NSWC-DD : Dalhgren, VA	0.000	-		-		0.700	Nov 2015	-		0.700	Continuing	Continuing	Continuing
TFCA - BDC SE	WR	CDSA DN : Dam Neck, VA	0.000	-		-		0.800	Nov 2015	-		0.800	Continuing	Continuing	Continuing
TFCA - BDC SE&I	C/CPIF	RSC (IIS) : Suffolk, VA	0.000	-		-		0.500	Dec 2015	-		0.500	Continuing	Continuing	Continuing
TFCA - BDC SE	SS/CPAF	Gen. Dyn. (5100) : Fairfax, VA	0.000	-		-		0.400	Dec 2015	-		0.400	Continuing	Continuing	Continuing
HQ Travel	Various	PEO IWS : Washington DC	0.000	0.050	Oct 2013	0.050	Oct 2014	0.075	Nov 2015	-		0.075	Continuing	Continuing	Continuing
SE/Dev/Integrate	SS/CPAF	Rayth(5412) (RIDS) : Portsmouth, RI	83.451	-		-		-		-		-	-	83.451	-
Misc - Prior Year Cum Cost	C/BA	SEA 05C (FY14) : Washington DC	278.700	0.139	Mar 2014	-		-		-		-	-	278.839	-
		Subtotal	559.732	67.942		32.365		118.129		-		118.129	-	-	-

Remarks

The increase in PU 2178 from FY15 to FY16 is required for the following major initiatives:
*Completion of SSDS MK2 ACB12/TI-12 development & integration for CVN78 and LHD2.
*Completion of the development of the SSDS MK2 TI-16 equipment to support FY16 equipment production, and accomplishment of SSDS ACB-12 S/W re-host to the TI-16 configuration.
*Start development of FCLIP Phase 2 / FTIIP improvements.
*Development of the combat system requirements, capability phasing plan, and concept of integration of ACB-20/ESS.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / *Ship Self Def (Detect & Cntrl)*	Project (Number/Name) 2178 / *QRCC*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DT&E (PHD)	WR	NSWC PHD : Port Hueneme, CA	86.469	4.663	Nov 2013	2.995	Nov 2014	5.178	Nov 2015	-		5.178	Continuing	Continuing	Continuing
DT&E (SCSC-WI)	WR	SCSC-WI : Wallops Is, VA	50.716	5.638	Nov 2013	5.027	Nov 2014	10.064	Nov 2015	-		10.064	Continuing	Continuing	Continuing
DT&E (JHU)	SS/CPFF	JHU/APL : Laurel, MD	17.192	1.505	Jan 2014	1.069	Dec 2014	2.126	Dec 2015	-		2.126	Continuing	Continuing	Continuing
DT&E (Corona)	WR	NSWC Corona : Corona, CA	6.168	1.383	Nov 2013	0.963	Nov 2014	1.442	Nov 2015	-		1.442	Continuing	Continuing	Continuing
DT&E (Raytheon - St. Pete)	SS/CPAF	RSC (5202) : St. Pete, FL	2.500	1.170	Mar 2014	0.963	Dec 2014	-		-		-	Continuing	Continuing	Continuing
DT&E (RAM & ESSM)	WR	NAWC : China Lake, CA	1.150	-	Mar 2014	-	Dec 2014	-		-		-	Continuing	Continuing	Continuing
DT&E (RAM & ESSM) (RSC)	SS/CPFF	RSC(5432/5410) : Tucson, AZ	2.980	0.173	Feb 2014	-	Dec 2014	-		-		-	Continuing	Continuing	Continuing
DT&E (Raytheon - SE&I)	C/CPIF	Rayth - IIS : Sofolk, Va.	0.000	0.571	Jan 2014	0.246	Dec 2014	-		-		-	-	0.817	-
DT&E Raytheon - PSEA	SS/CPIF	RSC (5128) : San Diego, CA	0.000	-		0.160	Nov 2014	-		-		-	-	0.160	-
DT&E (GD/AIS - IWS 1.0)	SS/CPAF	GD/AIS : Fairfax Va.	0.000	0.266	Jan 2014	-		-		-		-	-	0.266	-
DT&E/CST (DD - CST)	WR	NSWC DD : Dahlgren, VA	7.267	3.946	Nov 2013	4.011	Nov 2014	5.105	Nov 2015	-		5.105	Continuing	Continuing	Continuing
DT&E (COTF)	WR	OPTEVFOR : Norfolk, VA	3.707	0.053	Nov 2013	0.053	Nov 2014	0.055	Nov 2015	-		0.055	Continuing	Continuing	Continuing
DT&E (CDSA-DN)	WR	CDSA DN : Dam Neck, VA	2.452	0.894	Nov 2013	0.753	Nov 2014	1.217	Nov 2015	-		1.217	Continuing	Continuing	Continuing
DT&E (Raytheon - RIDS)	SS/CPAF	RSC (5412) : Portsmouth, RI	1.050	0.852	Feb 2014	-	Oct 2014	-		-		-	Continuing	Continuing	Continuing
DT&E (SPAWAR-SD)	WR	SPAWAR : San Diego, CA	5.546	0.078	Jan 2014	0.074	Dec 2014	0.078	Oct 2015	-		0.078	-	5.776	-
		Subtotal	187.197	21.192		16.314		25.265		-		25.265	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

The increases in PU 2178 from FY15 to FY16 is required for the following major initiatives:
*Accomplishment of SSDS MK2 integrated combat system integration and certification testing for ship system installation and deployment;
*Accomplishment of the SSDS MK2 test and evaluation in accordance with the SSDS Test and Evaluation Master Plan (TEMP)
*In FY16, the T&E and certification efforts include four new SSDS integrated combat system baselines, LSD SSDS MK2 Mod5C, CVN78 SSDS MK2 Mod 6C, LHD2 SSDS MK2 Mod 3C, and CVN72 SSDS MK2 Mod 1C (see R-4 exhibit)

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	Various : Various	24.087	2.067	Dec 2013	1.846	Dec 2014	2.500	Dec 2015	-		2.500	Continuing	Continuing	Continuing
		Subtotal	24.087	2.067		1.846		2.500		-		2.500	-	-	-

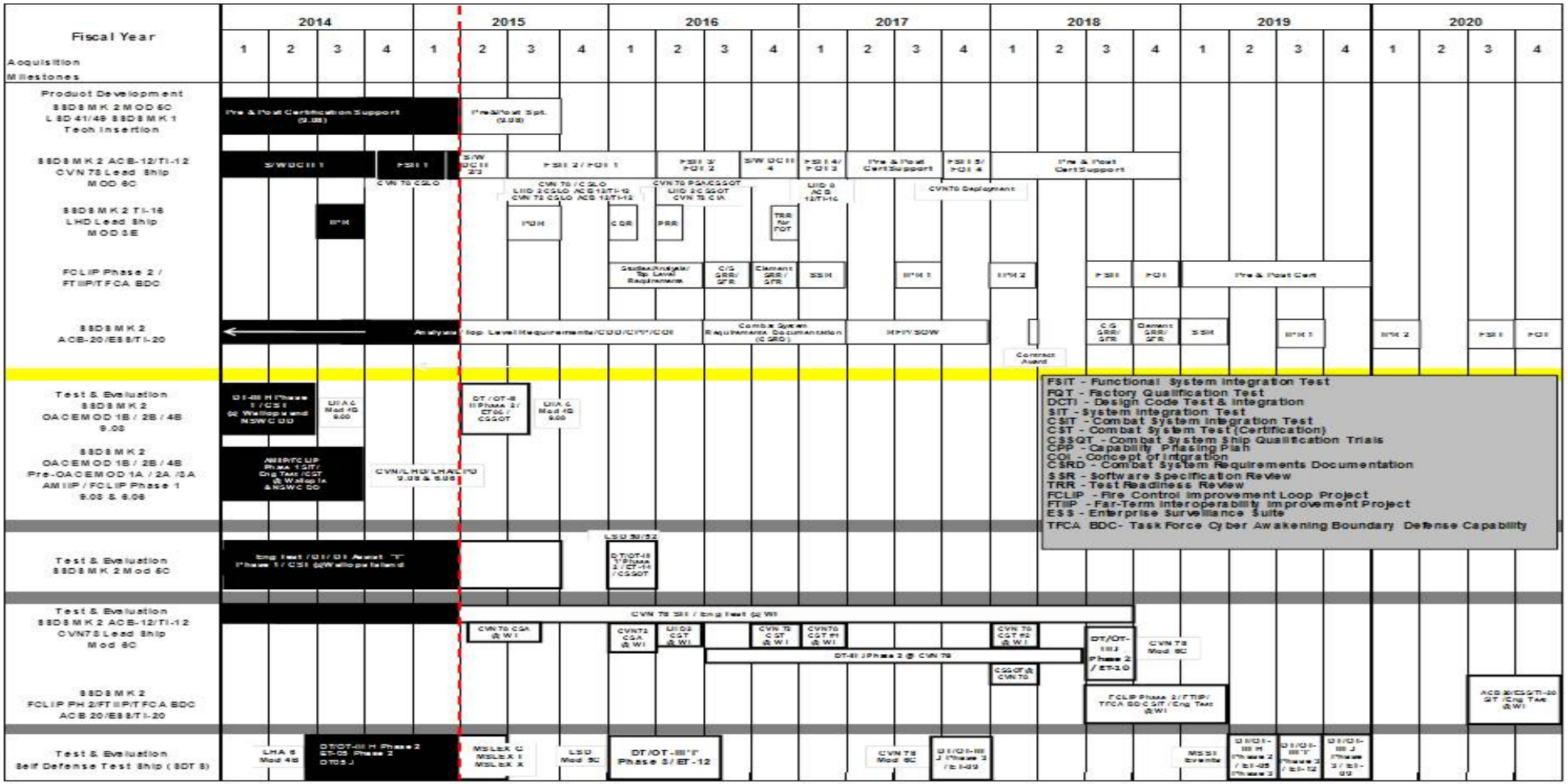
Remarks

For FY14, Program Management Support includes two SEAPORT contractors, Alion and TASC. For FY15 and FY16, TASC will continue to provide program management support for T&E. New contracts have been established on a competitive basis with Tech Marine for financial management support, and with CACI for Acquisition/Logistics support.

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	771.016	91.201		50.525		145.894		-		145.894	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*



1

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2178				
SSDS MK 2 MOD 5C (LSD) - PRE&POST CERT SUPPORT (9.08)	1	2014	3	2015
SSDS MK 2 MOD 5C (LSD) - T&E - ENG TEST/DT/DT ASSIST "I" PHASE 1/Combat System Test (CST) @WI	1	2014	3	2015
SSDS MK 2 MOD 5C (LSD) - T&E - LSD 50/52 DT/OT III "I" PHASE 2/ET14/CSSQT	1	2016	1	2016
SDTS-SSDS MK 2 MOD 5C (LSD) - T&E DT/OT III I/PHASE 3/ET12	1	2016	3	2016
SSDS MK2 MOD 6C - CVN 78 ACB12/TI12 - S/W DCTI 1	1	2014	4	2014
SSDS MK2 MOD 6C - CVN 78 ACB12/TI12 - T&E - SIT/ET @ WALLOPS	1	2014	3	2018
SSDS MK2 MOD 6C - CVN 78 ACB12/TI12 - FSIT 1	4	2014	1	2015
SSDS MK 2 MOD 6C - CVN 78/LHD2/ACB12/TI12-S/W DCTI 2/3	1	2015	2	2015
SSDS MK2 MOD 6C - CVN 78 ACB12/TI12 - T&E - CSA @ WALLOPS	2	2015	3	2015
SSDS MK2 MOD 6C - CVN 78/CVN72/LHD 2/ACB12/TI12 - FSIT 2/FQT 1	3	2015	1	2016
SSDS MK 2 MOD 1C - CVN 72 ACB12/TI12 - T&E - CSA @ WI	1	2016	1	2016
SSDS MK2 MOD 3C - LHD 2 ACB12/TI12 - T&E - CST @ WALLOPS	2	2016	2	2016
SSDS MK 2 MOD 6C - CVN 78/CVN 72/LHD2 SSDS MK 2 ACB12/TI12 - FSIT 3 / FQT 2	2	2016	3	2016
SSDS MK 2 MOD 6C - CVN 78/LHD 8/ACB12/TI12/TI16 - S/W DCTI 4	3	2016	4	2016
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12-T&E DT III J PHASE 2 @ CVN 78	3	2016	2	2018
SSDS MK 2 MOD 1C - CVN 72 / ACB12/TI12 - T&E - CST @ WALLOPS	4	2016	4	2016
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 -T&E CST #1 @ WALLOPS	1	2017	1	2017
SSDS MK 2 MOD 3E - LHD 8 / ACB12/TI16 - FSIT 4/FQT 3	1	2017	1	2017
CVN 78/CVN 72/LHD 2/LHD 8/SSDS MK 2 ACB12/TI12/TI16 - PRE & POST CERT SPT	2	2017	3	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SDTS - SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - T&E - DT/OT III J/PHASE 3/ ET09	3	2017	4	2017
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - FSIT5 / FQT4	4	2017	4	2017
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 CSSQT	1	2018	1	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - T&E - CST #2 @ WALLOPS	1	2018	1	2018
SSDS MK 2 MOD 6C - CVN 78 / LHD 8 / SSDS MK2 ACB12 / TI-12 / TI-16 - PRE & POST CERT SPT	1	2018	4	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - T&E -DT/OT III J PHASE 2/ ET10	3	2018	3	2018
SSDS MK 2 TI 16 - HW IPR	3	2014	3	2014
SSDS MK 2 TI 16 - PDR	3	2015	3	2015
SSDS MK2 TI 16 - CDR	1	2016	1	2016
SSDS MK2 TI 16 - PRR	2	2016	2	2016
SSDS MK 2 TI 16 - TRR for FQT	4	2016	4	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - STUDIES/ANALYSIS/Top Level Requirements	1	2016	2	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - Combat System SRR/SFR	3	2016	3	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - Element SRR/SFR	4	2016	4	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - SSR	1	2017	1	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - IPR 1	3	2017	3	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - IPR 2	1	2018	1	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - FSIT	3	2018	3	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - SIT/ET/CST	3	2018	1	2019
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - FQT	4	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - Pre and Post Certification	1	2019	4	2019
AMIIP / FCLIP PH 1 (CVN/LHD/LHA/LPD) - T&E - SIT/ET/CST @WI & NSWC DD	1	2014	3	2014
SSDS MK 2 OACE MOD 4B T&E - DT-III H Phase 1 / CST at WI & NSWC DD	1	2014	2	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SSDS MK 2 ACB 20/ESS/TI-20 - ANALYSIS / TOP LEVEL REQUIREMENTS / CDD/ CPP/COI	1	2014	2	2016
SSDS MK 2 ACB 20/ESS/TI-20 - CSRD	3	2016	1	2017
SSDS MK 2 ACB 20/ESS/TI-20 - RFP/SOW	2	2017	4	2017
SSDS MK 2 ACB 20/ESS/TI-20 - CONTRACT AWARD	1	2018	1	2018
SSDS MK 2 ACB 20/ESS/TI-20 - Combat System SRR/SFR	3	2018	3	2018
SSDS MK 2 ACB 20/ESS/TI-20 - ELEMENT SRR/SFR	4	2018	4	2018
SSDS MK 2 ACB 20/ESS/TI-20 - SSR	1	2019	1	2019
SSDS MK 2 ACB 20/ESS/TI-20 - IPR 1	3	2019	3	2019
SSDS MK 2 ACB 20/ESS/TI-20 - IPR 2	1	2020	1	2020
SSDS MK 2 ACB 20/ESS/TI-20 - FSIT	3	2020	3	2020
SSDS MK 2 ACB 20/ESS/TI-20 - T&E - SIT/ET @ WI	3	2020	4	2020
SSDS MK 2 ACB 20/ESS/TI-20 - FQT	4	2020	4	2020
SDTS-SSDS MK 2 OACE MOD 4B - T&E - DT/OT III H/ET05 PHASE 2	2	2014	2	2015
SSDS MK 2 OACE MOD 4B - T&E - DT/OT III H/ET06 PHASE 2/CSSQT	2	2015	3	2015
SDTS - SSDS MK2 OACE MOD 4B - T&E - DT/OT III H/ET05 PHASE 3	2	2019	2	2019
SDTS - SSDS MK 2 - T&E - DT/OT III I / PHASE 3/ET12	3	2019	3	2019
SDTS - SSDS MK 2 - T&E - DT/OT III J / PHASE 3/ET09	4	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / *Ship Self Def (Detect & Cntrl)*	Project (Number/Name) 3172 / *Joint Non-Lethal Weapons*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
3172: *Joint Non-Lethal Weapons*	26.314	5.111	4.213	4.825	-	4.825	4.348	5.158	2.971	3.032	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Develop non-lethal weapon systems in support of anti-terrorism/force protection missions. Example technologies include, but are not limited to, ocular interrupters, ship entanglement systems, and audible hailing devices. Current efforts are focused on the Rapid Deployment of Long-Range Ocular Interrupter (LROI) and Program of Record transition. The LROI is intended to provide the U.S. Navy with the capability to deliver a bright light producing a dazzling or glare effect on a closing target to warn and/or suppress potential threats through increasing levels of visual degradation. The planned LROI will generate controlled, high-intensity output, providing warning and suppression effects. The extended range capability of LROI will effectively increase tactical decision-making time in support of escalation of force (EoF) tactics, techniques and procedures (TTP) across a broad range of military operations (ROMO). Further, the LROI will enhance Joint Force operations in assessing the intent of personnel and controlling the potential threat as early as possible.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Joint Non-Lethal Weapons Development	5.111	4.213	4.825	-	4.825
Articles:	-	8	-	-	-
FY 2014 Accomplishments: Completed preliminary design and development for LROI Rapid Acquisition effort. Performed Preliminary Hazard Assessment and Safety Hazard Analysis. The increase in FY 2014 funding was driven by the higher-cost engineering and design activities such as refining concept designs, procuring/ manufacturing hardware, manufacturing Rapid Acquisition Systems (RAS), conducting engineering assessments of RAS, and conducting performance evaluations of RAS. Concurrently, we are developing LROI program of record transition strategy and documentation in accordance with Department of Defense statutory and regulatory requirements.					
FY 2015 Plans: Complete LROI RAS design and development, manufacture two test systems, conduct Developmental Testing and Quick Reaction Assessment (QRA), produce 8 systems (6 to be fielded and 2 spares) to Navy Expeditionary Combat Command (NECC) and complete developmental Technical Data Package (TDP). Conduct Laser Safety Review Board, develop training manuals, and Operations & Maintenance Guide for the Rapid Acquisition effort. Continue program of record documentation development. Complete Capability Development Document (CDD)/					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3172 / *Joint Non-Lethal Weapons*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Capability Production Document (CPD) and start JCIDS staffing process. Complete the program of record transition strategy and begin preparation for contract award. ***FY 2016 Base Plans:*** Complete JCIDS staffing of CDD/CPD. Award an initial contract to further develop the developmental TDP into a production-level TDP and start preparing for an LRIP contract award. Finalize program of record documentation and begin approval process. Begin development effort of other emerging non-lethal technologies for vessel stopping and hostile intent determination (i.e. Hailing Acoustic Laser Light Tactical Systems (HALLTS)). ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	5.111	4.213	4.825	-	4.825

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPN/8128: *NCW Forces Active*	0.505	1.236	-	-	-	5.940	6.418	8.061	8.061	Continuing	Continuing

Remarks

D. Acquisition Strategy

The initial LROI systems are being designed, developed, and deployed as a Rapid Acquisition and will be transitioned to a Program of Record (PoR). A developmental Technical Data Package (TDP) will be developed as part of the Rapid Acquisition effort. The developmental TDP will be included in the Request for Proposal (RFP) to the industry to be further refined for a production-level TDP to be used for PoR. The RFP including the production-level TDP will be provided to the industry to solicit offers for the LRIP production and subsequently for full rate production for a total of 290 LROI systems.

E. Performance Metrics

Successfully conduct LROI QRA and transition to a PoR.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / *Ship Self Def (Detect & Cntrl)*	Project (Number/Name) 3172 / *Joint Non-Lethal Weapons*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	WR	NSWC Dahlgren : Dahlgren VA	8.914	2.111	Feb 2014	1.613	Feb 2015	2.234	Feb 2016	-		2.234	Continuing	Continuing	Continuing
System Engineering	WR	NSWC Port Hueneme : Port Hueneme CA	0.628	-		-		-		-		-	Continuing	Continuing	Continuing
System Engineering	WR	NSWC Crane : Crane IN	0.580	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	10.122	2.111		1.613		2.234		-		2.234	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services (NSWC)	WR	NSWC Dahlgren : Dahlgren, VA	1.000	1.000	Feb 2014	1.000	Feb 2015	1.000	Feb 2016	-		1.000	-	4.000	-
Program Management	WR	NUWC Newport : Newport, RI	2.857	-		-		-		-		-	Continuing	Continuing	Continuing
Engineering Services (NSWC)	WR	NSWC Panama City : Panama City, FL	1.200	-		-		-		-		-	-	1.200	-
		Subtotal	5.057	1.000		1.000		1.000		-		1.000	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	NSWC Dahlgren : Dahlgren VA	1.300	0.500	Feb 2014	0.500	Feb 2015	0.500	Feb 2016	-		0.500	-	2.800	-
Test and Evaluation	MIPR	Military Sealift Command : Washington DC	2.200	-		-		-		-		-	-	2.200	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3172 / *Joint Non-Lethal Weapons*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	COMOPTEVFOR : Norfolk VA	3.425	0.500	Feb 2014	0.500	Feb 2015	0.500	Feb 2016	-		0.500	Continuing	Continuing	Continuing
		Subtotal	6.925	1.000		1.000		1.000		-		1.000	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NSWC Dahlgren : Dahlgren VA	4.192	1.000	Feb 2014	0.600	Feb 2015	0.591	Feb 2016	-		0.591	Continuing	Continuing	Continuing
DAWDF	Various	Not Specified : Not Specified	0.018	-		-		-		-		-	-	0.018	-
		Subtotal	4.210	1.000		0.600		0.591		-		0.591	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.314	5.111		4.213		4.825		-		4.825	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3172 / *Joint Non-Lethal Weapons*

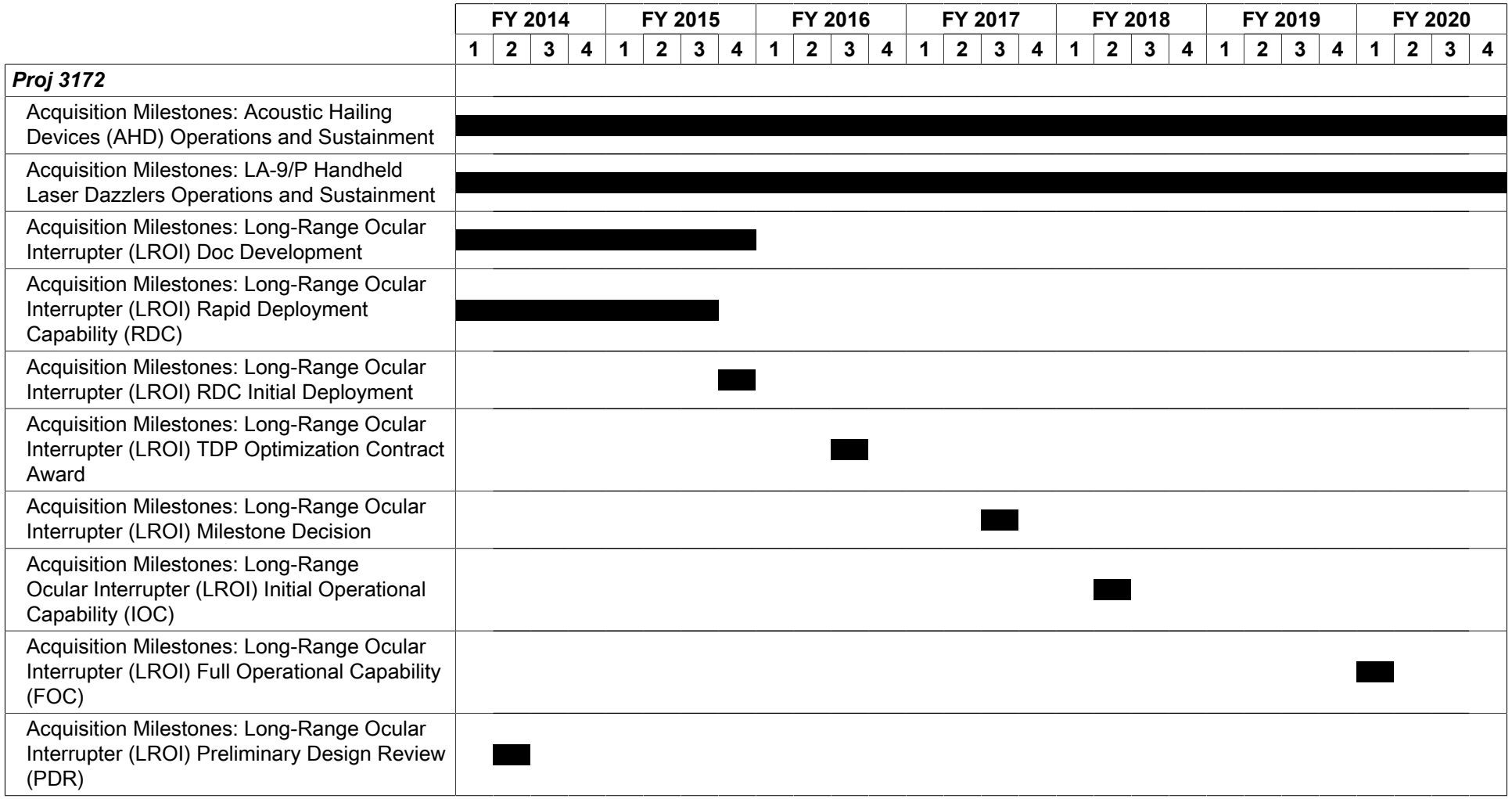


Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3172 / *Joint Non-Lethal Weapons*

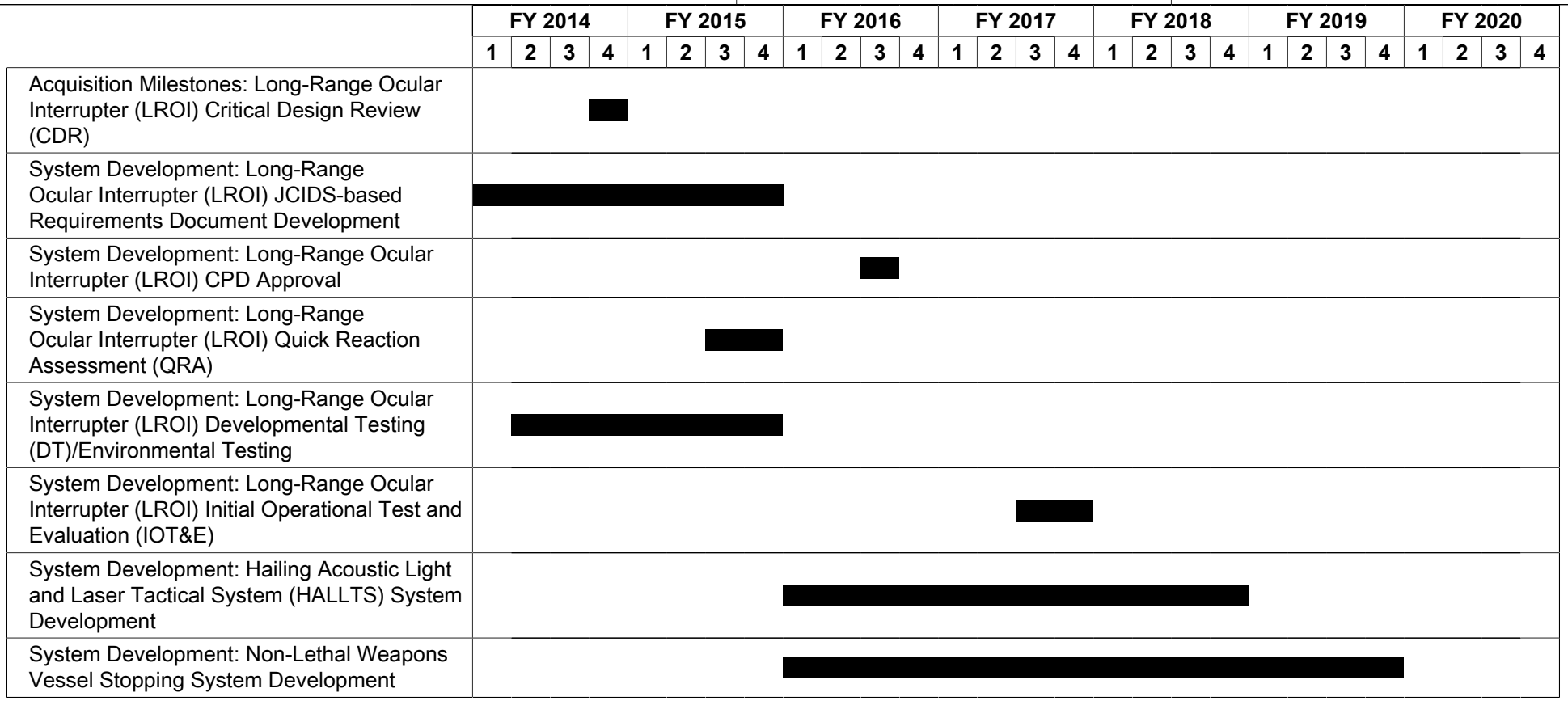


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3172 / *Joint Non-Lethal Weapons*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3172				
Acquisition Milestones: Acoustic Hailing Devices (AHD) Operations and Sustainment	1	2014	4	2020
Acquisition Milestones: LA-9/P Handheld Laser Dazzlers Operations and Sustainment	1	2014	4	2020
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Doc Development	1	2014	4	2015
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Rapid Deployment Capability (RDC)	1	2014	3	2015
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) RDC Initial Deployment	4	2015	4	2015
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) TDP Optimization Contract Award	3	2016	3	2016
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Milestone Decision	3	2017	3	2017
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Initial Operational Capability (IOC)	2	2018	2	2018
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Full Operational Capability (FOC)	1	2020	1	2020
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Preliminary Design Review (PDR)	2	2014	2	2014
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Critical Design Review (CDR)	4	2014	4	2014
System Development: Long-Range Ocular Interrupter (LROI) JCIDS-based Requirements Document Development	1	2014	4	2015
System Development: Long-Range Ocular Interrupter (LROI) CPD Approval	3	2016	3	2016
System Development: Long-Range Ocular Interrupter (LROI) Quick Reaction Assessment (QRA)	3	2015	4	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3172 / *Joint Non-Lethal Weapons*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
System Development: Long-Range Ocular Interrupter (LROI) Developmental Testing (DT)/Environmental Testing	2	2014	4	2015
System Development: Long-Range Ocular Interrupter (LROI) Initial Operational Test and Evaluation (IOT&E)	3	2017	4	2017
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) System Development	1	2016	4	2018
System Development: Non-Lethal Weapons Vessel Stopping System Development	1	2016	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / *Ship Self Def (Detect & Cntrl)*	Project (Number/Name) 3306 / *Integrated Swimmer Defense (ISD)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
3306: *Integrated Swimmer Defense (ISD)*	2.368	1.010	1.026	-	-	-	-	-	-	-	-	4.404
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The scope of this project is to provide the fleet Expeditionary (specifically the Maritime Expeditionary Security Force) units with the capability of a portable maritime Integrated Swimmer Defense (ISD) system to engage combat swimmers/divers or unknown individuals underwater once they have been detected. The ISD program combines the detection and engagement operations in order to complete the swimmer defense picture for the fleet. The objective of the integrated swimmer defense system (ISD) is the development and deployment of an integrated system capable of being deployed by the expeditionary harbor security units (primarily the Maritime Expeditionary Security Force). ISD will be designed to detect, track, classify, warn, deter and neutralize divers' and swimmers' threats. ISD is important to protecting high value assets within harbors from the increasing threat of waterborne terrorist or combatant attacks. This program has been cancelled.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Integrated Swimmer Defense	1.010	1.026	-	-	-
Articles:	-	-	-	-	-
FY 2014 Accomplishments: Performance Specification delivered. Completed test plan.					
FY 2015 Plans: Award contract for Test Articles. Receive Test Articles and begin integrated Test & Evaluation.					
FY 2016 Base Plans: Not Applicable. Program cancelled by OPNAV Resource Sponsor after FY15.					
FY 2016 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	1.010	1.026	-	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPN/8128: *ISD*	-	0.461	-	-	-	-	-	-	-	-	0.461

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3306 / *Integrated Swimmer Defense (ISD)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

The acquisition strategy includes the integration of swimmer/diver detection sensors and using software to fuse the sensor track data thereby creating an end to end combat system capability for swimmer/diver defense. The ISD program of record system configuration will be produced through an Acquisition Category (ACAT) program to procure component systems needed to bring the performance of the UOES prototypes up to the full production requirements.

The Department has cancelled this program after FY15.

E. Performance Metrics

User Operational Evaluation Systems (UOES) will culminate defined set of system capabilities and limitations. Define level specifications and technical data packages.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3306 / *Integrated Swimmer Defense (ISD)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware/Software Development	WR	NUWC Keyport : Keyport	0.443	0.254	Feb 2014	0.289	Feb 2015	-		-		-	-	0.986	-
Hardware/Software Development - FNC	WR	NUWC Newport : Newport RI	0.100	-		-		-		-		-	-	0.100	-
Hardware/Software Development - FNC Detection and Targeting	WR	NUWC Newport : Newport RI	0.125	-		-		-		-		-	-	0.125	-
		Subtotal	0.668	0.254		0.289		-		-		-	-	1.211	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services	WR	NUWC : Keyport	0.879	0.246	Feb 2014	0.250	Feb 2015	-		-		-	-	1.375	-
		Subtotal	0.879	0.246		0.250		-		-		-	-	1.375	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	NUWC : Keyport	0.490	0.254	Feb 2014	0.250	Feb 2015	-		-		-	-	0.994	-
		Subtotal	0.490	0.254		0.250		-		-		-	-	0.994	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NUWC : Keyport	0.331	0.256	Feb 2014	0.237	Feb 2015	-		-		-	-	0.824	-
		Subtotal	0.331	0.256		0.237		-		-		-	-	0.824	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / *Ship Self Def (Detect & Cntrl)*	Project (Number/Name) 3306 / *Integrated Swimmer Defense (ISD)*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.368	1.010		1.026		-		-		-	-	4.404	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3306 / *Integrated Swimmer Defense (ISD)*

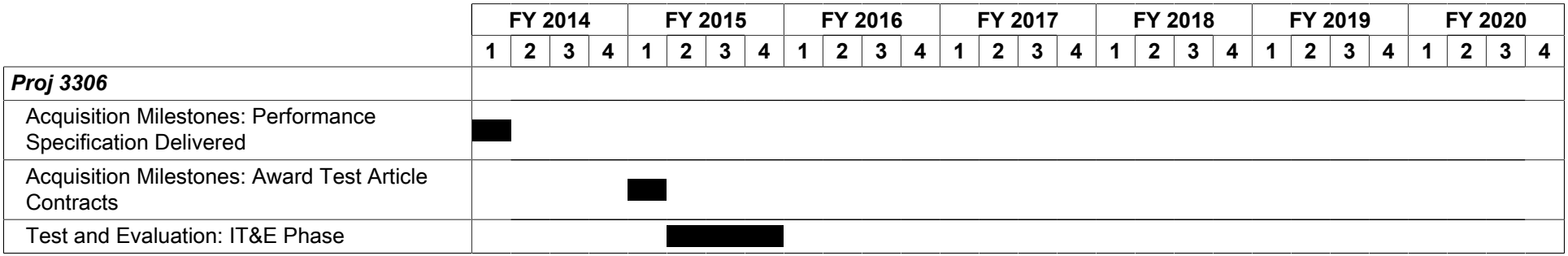


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3306 / *Integrated Swimmer Defense (ISD)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3306				
Acquisition Milestones: Performance Specification Delivered	1	2014	1	2014
Acquisition Milestones: Award Test Article Contracts	1	2015	1	2015
Test and Evaluation: IT&E Phase	2	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / *Ship Self Def (Detect & Cntrl)*	Project (Number/Name) 3358 / *SSDS Training Improvement Program*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
3358: *SSDS Training Improvement Program*	-	1.060	1.120	3.117	-	3.117	2.981	7.639	7.557	8.778	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The SSDS Training Improvement project will provide 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 SSDS MK2 Advanced Capability Builds (ACB)/Fire Control Loop Improvement Project (FCLIP), Far-Term Interoperability Improvement Project (FTIIP) and Technical Insertion efforts under PU 2178 (QRCC). These enhancements will address current and future training requirements by implementing new functionality to enable the individual warfighter to engage in more complex training requirements and distributed battle group events 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 AEGIS combat systems, and/or integration of re-usable common components developed by the TSTC BFTT Program (PE 0204571/PU1427) and AEGIS TSTC Training Improvement program (PE 0604307/PU 3357) to meet SSDS integrated combat system training requirements.

PU 3358 funds the development and/or integration of TSTC improvements into the SSDS MK2 FCLIP Phase 2 / FTIIP and ACB-20/ESS (Enterprise Surveillance Suite) baselines and TI-12/TI-16/TI-20 configurations. The integrated SSDS MK2 TSTC improvements will be included in the SSDS MK2 baseline documentation, testing and certification. The planning schedule for the SSDS MK2 baselines are documented in QRCC Project (PU 2178). The TSTC improvements encompass physical and functional upgrades to the existing SSDS MK2 onboard training capabilities and configuration implemented with Battle Force Tactical Trainer (BFTT). Planned TSTC improvements include the use of SSDS MK2 TI-12/TI-16/TI-20 Open Architecture Computing Environment (OACE) for TSTC integration.

TSTC provides realistic joint warfare training across the spectrum of armed conflict, realistic unit level team training in all warfare areas. 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 FSTs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: New Accomplishment/Planned Program Entry	1.060	1.120	3.117	-	3.117
Articles:	-	-	-	-	-
FY 2014 Accomplishments: Initiated systems engineering efforts for the development of TSTC capabilities to support improved Anti-Air Warfare (AAW) training, MH-60R, Identification Friend or Foe (IFF) Simulator Development, Cooperative Engagement Capability (CEC) Training Enhancements Integration, Dual Band Radar Training Integration, and					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3358 / *SSDS Training Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Integration of upgraded on-board Electronic Warfare and Carrier Tactical Support Center (CV-TSC) trainer upgrades for SSDS MK2. Developed Concepts of integration and conducted requirements analysis on planned TSTC improvements. ***FY 2015 Plans:*** Continue Integrated Combat System engineering to define and allocate TSTC functional requirements to the training system, SSDS MK2, and other Combat System elements. Define Integrated Combat System software architecture including common software components for SSDS and AEGIS integrated combat systems, and physical architecture including SSDS MK2 TI-16 physical architecture to integrate TSTC. ***FY 2016 Base Plans:*** Start the incorporation of TSTC functional requirements into SSDS Integrated Combat System Requirements Documentation for FCLIP Phase 2 / FTIIP baseline with the initiation of system engineering and development of documentation to support Combat System SRR/SFR, Combat System element SRRs/SFRs, and Software Specification Reviews. Initiate development of requirements to support TSTC capability improvements to support tactical training requirements of SSDS ACB 20 / ESS. Initiate study to determine method of simulating real world environments within SSDS MK2 shipboard sensors for Anti-Area / Area Denial (A2AD) training. Investigate options to integrate of Full Motion Video capability to provide required realism/fidelity for Surface Warfare Training. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	1.060	1.120	3.117	-	3.117

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTEN / PE 0204571N: *Surface Tactical Team Trainer (PU 1427)*	10.849	16.768	9.954	-	9.954	13.893	11.764	10.631	10.851	Continuing	Continuing
• RDT&E / PE 0604307N: *AEGIS Training Improv. Prog. (PU 3357)*	3.733	8.994	14.677	-	14.677	10.843	7.838	6.582	5.082	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3358 / *SSDS Training Improvement Program*

D. Acquisition Strategy

For the SSDS MK2 software development, including the integration of TSTC software improvements and the TI-16 Open Architecture Computing Environment, the acquisition strategy identified for SSDS MK2 for QRCC Project (PU 2178) (R-2A exhibit) applies.

E. Performance Metrics

Performance metrics for SSDS MK2 for QRCC Project (PU 2178) apply (R-2A exhibit). The milestones for SSDS MK2 FCLIP Phase 2/FTIIP and ACB-20/ESS baselines in QRCC Project (PU 2178) apply and are listed in the R-4A exhibits for PU 3358.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3358 / *SSDS Training Improvement Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TSTC Sys Eng / Safety	WR	DD : Dahlgren, VA	0.000	0.072	Mar 2014	-		0.225	Nov 2015	-		0.225	Continuing	Continuing	Continuing
TSTC Sys Eng / ILS	WR	DN : Dam Neck, VA	0.000	0.156	Mar 2014	0.250	Nov 2014	0.278	Nov 2015	-		0.278	Continuing	Continuing	Continuing
TSTC Sys Eng / IFF / Veh. Cntrl SIM	WR	NAVAIR : PMA 213	0.000	0.306	Mar 2014	-		0.856	Nov 2015	-		0.856	Continuing	Continuing	Continuing
TSTC Sys Eng / Integration	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.000	0.401	Mar 2014	0.720	Dec 2014	0.981	Nov 2015	-		0.981	Continuing	Continuing	Continuing
TSTC Sys Eng / PSEA	SS/CPIF	RSC (5128) : San Diego, CA	0.000	-		-		0.333	Nov 2015	-		0.333	Continuing	Continuing	Continuing
TSTC Sys Eng	WR	Keyport (NUWC) : Keyport, RI	0.000	0.125	Mar 2014	0.150	Dec 2014	0.444	Nov 2015	-		0.444	Continuing	Continuing	Continuing
		Subtotal	0.000	1.060		1.120		3.117		-		3.117	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.060		1.120		3.117		-		3.117	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3358 / *SSDS Training Improvement Program*

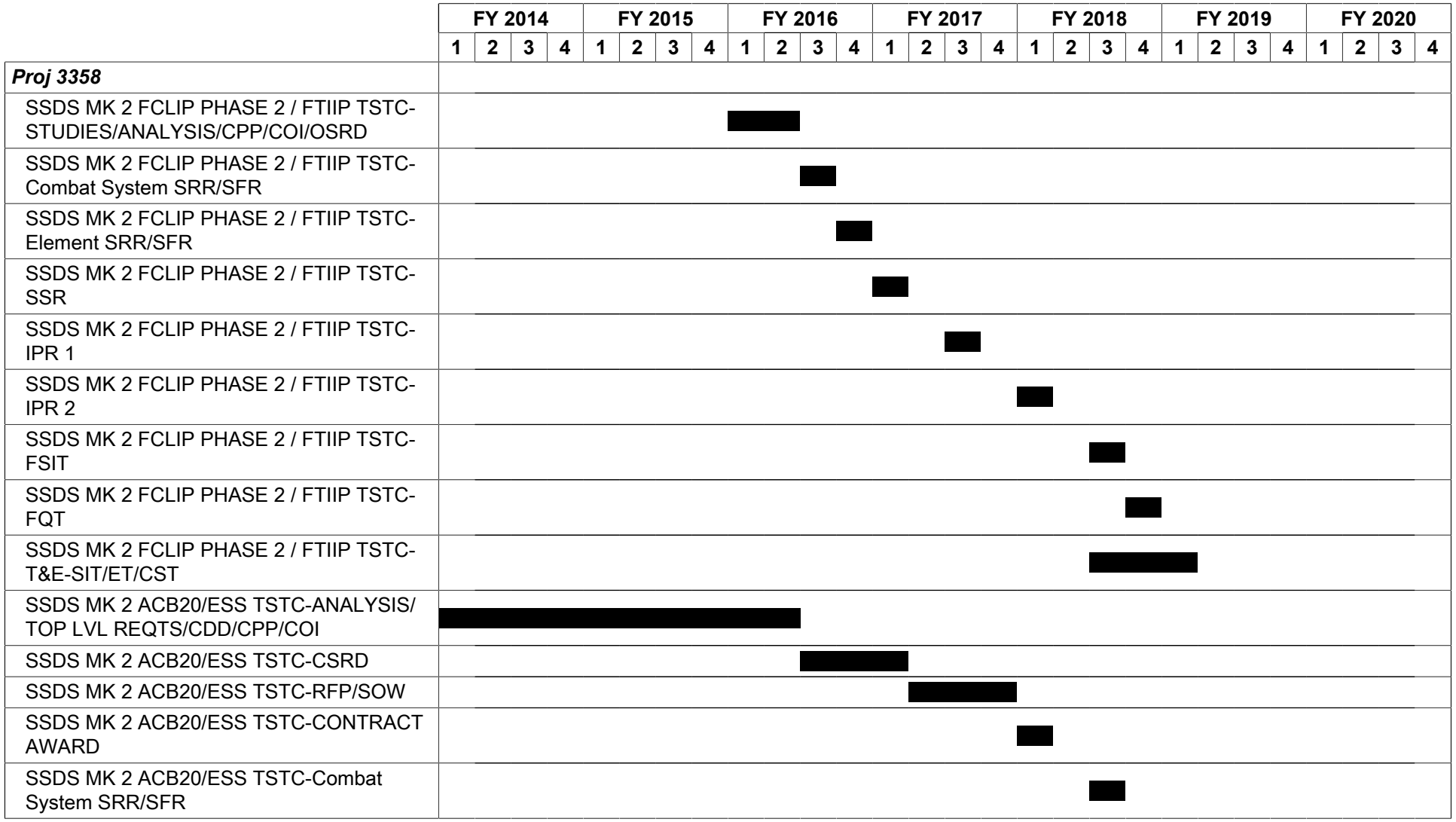


Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3358 / *SSDS Training Improvement Program*

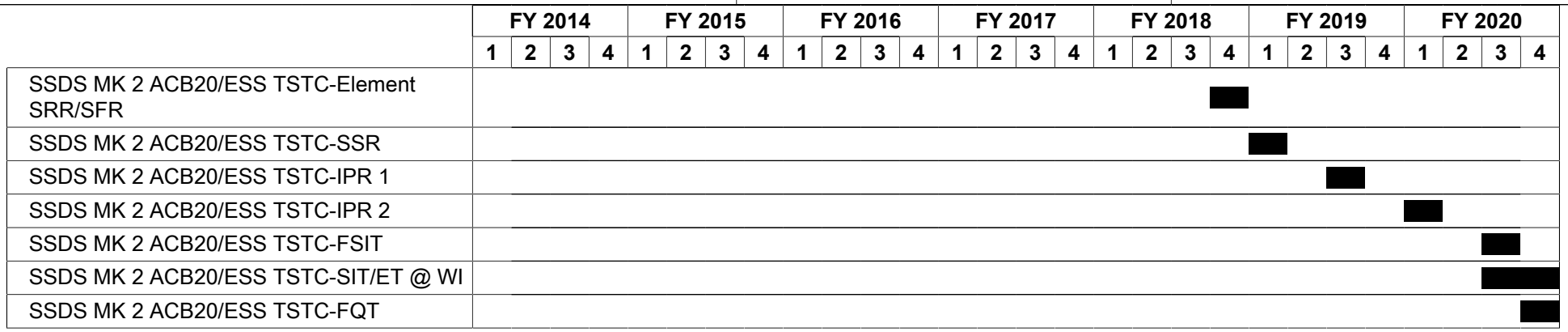


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3358 / *SSDS Training Improvement Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3358				
SSDS MK 2 FCLIP PHASE 2 / FTIIP TSTC-STUDIES/ANALYSIS/CPP/COI/OSRD	1	2016	2	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP TSTC-Combat System SRR/SFR	3	2016	3	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP TSTC-Element SRR/SFR	4	2016	4	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP TSTC-SSR	1	2017	1	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP TSTC-IPR 1	3	2017	3	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP TSTC-IPR 2	1	2018	1	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TSTC-FSIT	3	2018	3	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TSTC-FQT	4	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TSTC-T&E-SIT/ET/CST	3	2018	1	2019
SSDS MK 2 ACB20/ESS TSTC-ANALYSIS/TOP LVL REQTS/CDD/CPP/COI	1	2014	2	2016
SSDS MK 2 ACB20/ESS TSTC-CSRD	3	2016	1	2017
SSDS MK 2 ACB20/ESS TSTC-RFP/SOW	2	2017	4	2017
SSDS MK 2 ACB20/ESS TSTC-CONTRACT AWARD	1	2018	1	2018
SSDS MK 2 ACB20/ESS TSTC-Combat System SRR/SFR	3	2018	3	2018
SSDS MK 2 ACB20/ESS TSTC-Element SRR/SFR	4	2018	4	2018
SSDS MK 2 ACB20/ESS TSTC-SSR	1	2019	1	2019
SSDS MK 2 ACB20/ESS TSTC-IPR 1	3	2019	3	2019
SSDS MK 2 ACB20/ESS TSTC-IPR 2	1	2020	1	2020
SSDS MK 2 ACB20/ESS TSTC-FSIT	3	2020	3	2020
SSDS MK 2 ACB20/ESS TSTC-SIT/ET @ WI	3	2020	4	2020
SSDS MK 2 ACB20/ESS TSTC-FQT	4	2020	4	2020