Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy											Date: February 2016	
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 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	897.065	64.704	145.336	134.619	-	134.619	161.639	106.829	100.909	103.358	Continuing	Continuing
2178: *QRCC*	862.217	59.373	137.394	127.578	-	127.578	148.857	96.310	90.299	91.307	Continuing	Continuing
3172: *Joint Non-Lethal Weapons*	31.425	4.196	4.825	4.177	-	4.177	5.158	2.974	3.038	3.103	Continuing	Continuing
3306: *Integrated Swimmer Defense (ISD)*	2.669	0.035	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.704
3358: *SSDS Training Improvement Program*	0.754	1.100	3.117	2.864	-	2.864	7.624	7.545	7.572	8.948	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).

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 an X-Band Illuminator), SSDS will require development of system and software changes.

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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 8). FCLIP is a phased corrective action plan for system of systems deficiencies in SSDS MK2 ships, identified during live-fire testing with anti-ship missile targets. 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 to ten year interval to replace obsolescent COTS hardware and support the fielding of the war-fighting capabilities and improvements.

In PB15, 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 the ACB-12 capability baseline and specific fire control loop, surveillance, interoperability and cyber-security 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)/Task Force Cyber Awakening (TFCA) Boundary Defense Capability (BDC) Project 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), and integration with the SSDS MK2 TI-12/TI-16/TI-20 configurations, to meet SSDS integrated combat system training requirements.

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, maritime vessel stopper 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 2017 Navy					Date: February 2016
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 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**
Previous President's Budget	56.884	153.836	136.882	-	136.882
Current President's Budget	64.704	145.336	134.619	-	134.619
Total Adjustments	7.820	-8.500	-2.263	-	-2.263
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-8.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	9.009	0.000			
• SBIR/STTR Transfer	-1.189	0.000			
• Program Adjustments	0.000	0.000	0.514	-	0.514
• Rate/Misc Adjustments	0.000	0.000	-2.777	-	-2.777

Change Summary Explanation

FY 2015 funding request reflects program changes to include a reduction of $1.189 million for SBIR Transfer, an increase of $9.999 million to PU 2178 in support of CVN 78 SSDS MK2 ACB-12 software development efforts for SEWIP Block 2 Integration, and a decrease of $0.990 million in support of other Department high priority requirements.

FY 2016 funding request reflects a reduction of $8.5 million as a result of Fire Control Loop Improvement Project (FCLIP) Phase 2 unjustified program scope expansion.

FY 2017 funding request reflects program increases of $6.240 million to project 2178 for additional investment in SSDS Integrated Combat System (ICS) Cyber-Security ($4 million) and Strike Group Interoperability Improvements ($2.240 million). FY 2017 funding request also reflects decreases of $5.726 million for the Department of the Navy to comply with the Bipartisan Budget Act of 2015 and $2.777 million for rates/miscellaneous adjustments.

The FY17 plan includes the major SSDS MK2 product development efforts (identified below) to provide mission essential ICS capabilities and meet new ship construction and modernization schedules:
- Completion of SSDS MK2 ACB12/TI-12 development and integration for the CVN 78 OPEVAL and deployment;
- Completion of the development and integration of the SSDS MK2 TI-16 equipment and the migration of the SSDS ACB-12 software to the TI-16 configuration;
- Continuation 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, Cyber-security implementation, 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 2017 Navy	Date: February 2016
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- Continuation of the system engineering/analysis to support the development of system and software changes for the SSDS ICS in order to integrate the ESS (EASR and fire control loop capabilities) in CVN80 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, Cyber-security implementation, Factory System Integration Test (FSIT) and Wrap Around Simulation, and Wallops Island System Integration Test for Fire Control Loop Elements.
- Continuation of the development of the combat system requirements, capability phasing plan, and concept of integration for ACB-20/TI-20 including EASR/ESS.
- Accomplishment of SSDS MK2 ICS integration and certification testing for ship system installation and deployment;
- Accomplishment of the SSDS MK2 ICS test and evaluation requirements for the CVN 78 SSDS MK2 MOD 6C baseline;

The FY17 Plan for PU 3358 is for the continuation of the software development for the incorporation of TSTC functional requirements into SSDS MK2 Integrated Combat System baseline for FCLIP Phase 2/FTIIP/TFCA BDC and the integration with the SSDS MK2 TI-16 configuration.

The FY17 Plan for PU 3172 is to:
- Complete the LROI program of record transition strategy and issue the RFP.
- Continue performing HALLTS engineering updates identified during fleet user feedback and assessment; and conduct test and evaluation.
- Issue RFP for HALLTS production contract to fully meet the fielding requirement of units to NECC.
- Begin development effort of other emerging non-lethal technologies for maritime vessel stopping.

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COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2178: *QRCC*	862.217	59.373	137.394	127.578	-	127.578	148.857	96.310	90.299	91.307	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 an 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 8).

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 phased multi-year development effort (FY16-FY19) that includes:

CIWS integration with CEC/SSDS MK2, ESSM 2T Uplink, RAM Block2 Multi-Target processing in the missile, SoS integration of RAM Block 2 Multi-Target Processing, NSSMS MK9 Multi-Target Discrimination & Reporting, CEC / SSDS MK2 Engage on Remote, 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 identification capabilities, F/A-18 Digital Air Control Phase 1 in support of F/A-18 and F-35 Joint Strike Fighter initial deployment, re-host/integration of the Shipboard Gridlock System/Automatic Correlation (SGS/AC) system into the SSDS MK2 TI-16 configuration, and implementation of other high priority software changes for improved strike group interoperability.

TFCA BDC will provide Combat Systems-level and element-level cyber-security protection based on system of systems risk assessment. TFCA BDC is a phased multi-year development 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

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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.

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 to ten year interval to replace obsolescent COTS hardware and support the fielding of the war-fighting capabilities and improvements. FY17 includes completion of the development and integration of the SSDS MK2 TI-16 equipment and migration of the SSDS ACB-12 software to the TI-16 configuration. FY17 also includes the initiation of the system engineering analysis for the TI-20 configuration, to define the architecture for the SSDS MK2 ICS ship class variants and the hardware requirements for common infrastructure for computing, display, network, cyber-security and software operating environment.

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). ACB-12 integrates advanced systems such as Dual Band Radar (DBR), Evolved Sea-Sparrow Missile (ESSM) with Joint Universal Waveform

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Link (JUWL) Up-link, 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 for embedded onboard training.

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.

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 FY16.

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 with JUWL, 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, implementation of cyber-security boundary defense capabilities and Total Ship Training Capability (TSTC). ACB-12 is planned for IOC in the CVN 78, CVN 72 and LHD 2 in FY17.

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.

In PB15, 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

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continue as planned. However, with the delay in development and fielding of ACB-16, an increased number of SSDS MK2 ships will receive the ACB-12 capability baseline and specific fire control loop, surveillance, interoperability and cyber-security improvements, in lieu of ACB-16.

In addition to the integration of the Enterprise Surveillance Suite (EASR and X-Band TI), ICS cyber-security enhancements, and integration of TSTC enhancements for ACB-20, future warfighting improvement integration candidates include fire control loop improvements beyond FCLIP Phase 2 for tracking, weapon scheduling and engagement control with ESSM Block 2 missile; SEWIP Block 2 with soft kill coordinator; SEWIP Block 2 integration with SSDS MK2 TI-16; SEWIP Block 3 Electronic Attack.

SSDS MK 2 Product Development includes integration of government furnished hardware and software to provide Warfighting Capability Improvements via ACB and improvement projects, 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).

SSDS MK2 Development Test and Evaluation (DT&E) provides for comprehensive testing of SSDS MK2-based Combat System hardware/software upgrades for the CVN 68, CVN 78, 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. FY15 FOT&E includes the LHA 6 SSDS MK 2 Mod 4B configuration with the RAM Block 2 missile, ESSM, AMIIP and FCLIP. FY16 FOT&E includes the LSD SSDS MK 2 Mod 5C configuration with the Phalanx CIWS 1B Baseline 2 system and RAM Block2. FY17/FY18 FOT&E includes 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SSDS MK2 Development Test & Evaluation	17.127	26.265	26.940	0.000	26.940
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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 authorization OQE. For CVN78 SSDS MK2 Mod 6C configuration with DBR, CEC, TPX-42, High Speed Guard (HSG), 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 live DBR TRKEXs for the integrated Combat System and TPX-42 Air Traffic Control System, and 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 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.					
FY 2016 Plans: 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 ET14(DT) and Combat System Ship Qualification Trials (CSSQT) on LSD50. - Complete Live Fire At Sea Testing for LSD MOD 5C on SDTS - Enterprise Test 12. - Complete DT/OT III(I) Phase 2 / ET14 and CSSQT on LSD 45. - Conduct CST at WI for LSD 49 and LSD 51 for certification OQE. For CVN78 SSDS MK2 Mod 6C configuration with DBR, CEC, TPX-42, HSG, PL STM, UPX-29, ESSM, MK29 launcher, RAM Block2, SEWIP Block 2 and CVTSC.					

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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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Continue 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, RAM Block 2, and new capabilities for SSDS MK2 / SEWIP Block 2 integration. This will include live DBR TRKEX for the integrated Combat System and the TPX-42 Air Traffic Control System, and 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 HSG, TADIL with AMIIP, Air Control and the new capabilities for CV TSC integration. - Initiate DT (DT-III J Phase 3 / ET10) on CVN78 during post-delivery period. - Conduct CST#1 at WI for authorization OQE for ICS software package for PSA/CSSQT. 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 ICS software package for CSLO during RCOH, and CST at WI to provide certification OQE for ICS 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 CSA and CST at WI to provide certification OQE for ICS software package for CSLO. ***FY 2017 Base Plans:*** SSDS MK2 Development Test and Evaluation For CVN78 SSDS MK2 Mod6C - Continue Land-Based integration and engineering testing at WI for ICS software changes/corrections for CVN78 DT/OT/OPEVAL and deployment software deliveries, including testing of embedded training capabilities with DBR simulation software. - Continue DT(DT-III J Phase 3 / ET-10) on the CVN78 during post-delivery period. - Conduct Fire Control Loop risk reduction TRKEX/MSLEX on SDTS with DBR (MFR), CEC, SSDS MK2, SEWIP Block 2, ESSM and RAM Block2. - Conduct DT/OT III J Phase 3 / ET-09 MSLEX on SDTS. - Conduct CST #2 at WI to provide certification OQE for OPEVAL and deployment. For LPD19/CVN77 SSDS MK2 MOD 3E/2E/1E ACB-12/TI-16:					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Conduct Land-Based integration and engineering testing at WI. For SSDS MK2 FCLIP Phase 2 / FTIIP / TFCA BDC: - Initiate Land-Based integration and engineering testing at WI. ***FY 2017 OCO Plans:*** N/A					
Title: SSDS MK2 Product Development-Advanced Capability Builds (ACB)/Technology Insertion	42.246	111.129	100.638	0.000	100.638
Articles:	-	-	-	-	-
FY 2015 Accomplishments: For LSD SSDS MK2 MOD 5C Tech Insertion, accomplish pre and post certification support to Land Based engineering tests, and Combat System integration and certification tests. This includes test data analysis, and resolution of system software trouble reports. 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 cyber-security boundary defense capabilities. Complete delta FSIT for boundary defense capabilities and provide support for Land Based integration and engineering tests including live DBR TRKEXs. Initiate SSDS MK2 software design, code, and test for integration of SEWIP Block 2 for PSA / CSSQT (with FY14 and FY15 reprogramming actions). Continue development of operator and maintenance training courses for SSDS MK 2 Mod 6C ACB-12/TI-12. 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 and engineering tests for RCOH CSLO baseline. For LHD 2 SSDS MK2 MOD 3C ACB12 / TI12, complete the SSDS MK2 software modifications for CAPSTONE modernization and integration of NSSMS MK57 MOD14 with Objective Configuration Phase 2. For SSDS MK2 ACB-20, continue Top Level Requirements development, and develop Capability Phasing Plan and Concept of Integration for the mission essential Combat System Capability improvements.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
For SSDS MK2 TI-16, conduct In-process Technical Review (IPR) for full scale development of equipment and equipment software operating environment. ***FY 2016 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 ICS Land-Based integration and engineering tests at WI, CST #1, and for system / software trouble report resolution. 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 ICS Land Based integration and engineering tests at WI, CSA for the RCOH CSLO software, and CST for the post-RCOH CIA deployment software. This includes test data analysis and system/ software trouble report resolution. - For LHD 2 SSDS MK2 Mod 3C ACB12 / TI12, provide support for ICS Land Based integration and engineering test at WI, and for CSA and CST for the CSLO. This includes test data analysis and system / software trouble report resolution. - For LPD19/CVN77 SSDS MK2 MOD 3E/2E/1E ACB-12/TI 16, complete the development of the SSDS MK2 TI-16 equipment to support FY16 equipment production, and initiate SSDS ACB-12 software re-host to the TI-16 configuration; This includes the conduct of Hardware Critical Design Reviews (CDR), environmental qualification testing, development of the equipment software operating environment, and the conduct of an SRR, SFR, and design reviews for the re-host of the SSDS MK2 ACB-12 software. - For FCLIP Phase 2 / FTIIP / TFCA BDC baselines, define and allocate System of Systems Combat System functional requirements for FCLIP Phase 2 and initiate system and software requirements specifications for SSDS (and ICS elements) for capabilities for CIWS integration with CEC / SSDS MK2, ESSM 2T Uplink, and RAM Block 2 Multi-Target processing in the missile. Accomplish modeling and analysis to ensure optimization					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
and alignment of capabilities into the ICS end-to-end fire control loop. Conduct studies and analysis to define capability phasing, concepts of integration and Combat System functional requirements / allocation for SoS integration of RAM Block2 Multi-Target processing, NSSMS MK9 Multi-Target Discrimination Reporting and CEC / SSDS MK2 Engage on Remote. - For FTIIP, define and allocate Combat System functional requirements and initiate system and software requirements specifications for SSDS (and ICS elements) for TDL capabilities for IFF Mode 5 and F/A-18 Digital Air Control Phase 1 in support of F/A-18 and F-35 initial deployment, and for the integration / re-host of SGS/AC into the SSDS MK2 TI-16 configuration. - For TFCA BDC, define and allocate Combat System functional requirements and initiate system and software requirements specifications 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 EASR/ESS, start the systems engineering / analysis to determine the Concept of Integration and initiate the definition and functional allocation of the Combat System requirements to support the full scale 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, Cyber-Security Capabilities, 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 initiate the definition and functional allocation of the Combat System requirements for the ACB-20 capabilities, including the integration of ESS (EASR and X-Band TI), to support the full scale development of the ACB-20 / EASR / ESS ICS baseline. - Initiate the RFP for the competitive CSEA contract for the SSDS MK2 ICS development including the SSDS MK2 ACB-20 baseline development and the integration of EASR/ESS/TI-20.					
FY 2017 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
SSDS MK2 Product Development - ACB/TI For CVN78 SSDS MK2 MOD 6C - Complete software changes/corrections for the CVN 78 OPEVAL and deployment baselines including the integration of DBR simulation software for embedded on-board training capability.. - Conduct FSIT and FQT for these baselines. - Provide Support for ICS Land-Based integration and engineering tests at WI, and for CST #2 for OQE for the OPEVAL and deployment software. This includes test data analysis and system / software trouble report resolution. For LPD19 / CVN77 SSDS MK2 MOD 3E/2E/1E ACB-12/TI-16 - Complete the ACB-12 software migration to TI-16 and conduct FSIT and FQT for these ship baselines. - Provide support for ICS Land-Based integration and engineering test at WI. This includes test data analysis and system / software trouble report resolution. For FCLIP Phase 2 / FTIIP / TFCA BDC baselines - Complete the design and software development for CIWS integration with CEC/SSDS MK2 and conduct FSIT and FQT. - Complete the design for the ESSM 2T Up-Link, and RAM Block2 Multi-Target processing in the missile. - Complete the preliminary design for SoS integration of RAM Block 2 multi-Target processing, NSSMS MK9 Multi-Target Discrimination & Reporting, and CEC / SSDS MK2 Engage on Remote. - Conduct SSDS MK2/CS element design reviews for the FY17 initiatives identified above. For SSDS MK2 ACB-20/EASR/ESS/TI-20 - Complete the Combat System and Interface Requirement Documentation for the ACB-20 Warfighting Capability Improvements including EASR and ESS. This includes the Concept of Integration for each capability, capability phasing, the functional allocation of Combat System requirements, and the Interface Requirement Specifications for the integrated Capability basedline(s). - Initiate the system engineering analysis for the TI-20 configuration to define the architecture for the SSDS MK2 ICS ship class variants and the hardware requirements for common infrastructure for computing, display, network, cyber-security and software operating environment.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Complete the RFP for the competitive CSEA contract for the SSDS MK2 ICS development including the SSDS MK2 ACB-20 baseline development and the integration of EASR/ESS/TI-20. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	59.373	137.394	127.578	0.000	127.578

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/ BLI 5231 (SSDS): *SSDS*	19.766	61.409	54.919	-	54.919	60.238	61.287	62.152	63.429	Continuing	Continuing
• RDTEN/0603658N: *Cooperative Engagement*	41.158	73.786	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	601.250
• RDTEN/0607658N: *Cooperative Engagement Capability*	0.000	0.000	84.501	-	84.501	88.945	96.246	92.749	94.273	Continuing	Continuing

Remarks

Cooperative Engagement Capability (CEC) budget will realign from PE 0603658N to 0607658N starting in FY17.

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 specification production contracts, and leverage common enterprise COTS Open Architecture Computing Environment (OACE) products for computing, storage, display, network, conversion, and cyber-security. A competitive Combat System Engineering Agent (CSEA) / SSDS MK2 Design Agent (DA) contract is planned for FY2018-FY2027 with RFP preparation efforts commencing early in FY16.

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A sole source CPAF/CPIF delivery order, N00178-04-D-4112-0004, was awarded in FY05 to acquire a Systems Engineering & Integration agent to support SSDS MK2 (ACB12) development, integration and testing for the CVN78 Class Warfare System. A follow-on competitive CPIF contract is planned to be awarded for FY17 to support SSDS MK2 (ACB20) development and integration for both CVN and Amphibious Ship Classes.

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. Revision C is in routing and anticipated to be signed out by the end of FY15.

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.
- Conducted Enterprise Test (ET) Event 5 and Event 6 against a wide array of subsonic and supersonic targets during live fire testing conducted against the Self Defense Test Ship (SDTS) and the USS America (LHD 6) to assess performance of the Integrated Combat System (ICS).

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;

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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 following initiatives:
a. Develop, test and field combat system improvements through the Fire Control Loop Improvement Project (FCLIP) Phase 1 with SSDS MK2 integration of: High Diver improvements to SPS-48E and CEC; SPQ-9B tracking improvements; North Atlantic Treaty Organization (NATO) Seasparrow Surface Missile System (NSSMS) MK 9 Target Illuminator improvements.
b. Integrate, test, and field SEWIP Block 2, and NULKA improvements.
c. Expand the use of Modeling and Simulation.
d. Develop FCLIP Phase 2 capabilities for RAM Block 2 Multi-Target processing, NSSMS MK9 TI Multi-Target discrimination and reporting, ESSM 2T Up-link, CIWS integration with CEC / SSDS MK2, and CEC/SSDS MK2 Engage Remote Capability.
e. Consider follow on high return self-defense improvements with FCLIP and Advanced Capability Builds (ACB).

- Additional T&E and certification initiatives include:
a. Conduct element and platform level cyber-security testing using land based test site (LBTS) facilities.
b. Move away from platform centric certification testing towards baseline configuration centric testing for combat systems certfication testing.
c. Utilize Value Stream Analysis (VSA) to streamline certification testing process and implement process to better leverage existing or past test artifacts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ACB-12 / LSD / AMIIP PSEA / SW Dev't	SS/CPIF	RSC IDS (5128) : San Diego, CA	34.317	28.121	Nov 2014	35.952	Feb 2016	31.880	Dec 2016	-		31.880	Continuing	Continuing	Continuing
ACB-12 / LSD / AMIIP PSEA / SW Dev't	SS/CPAF	RSC IDS (5122) : San Diego, CA	38.416	0.000		0.000		0.000		-		0.000	0.000	38.416	-
ACB-12 / LSD / AMIIP SE	SS/CPFF	JHU/APL : Laurel, MD	63.413	3.474	Dec 2014	5.000	Feb 2016	4.550	Dec 2016	-		4.550	Continuing	Continuing	Continuing
ACB-12 - SW Dev/PL-STM	SS/CPAF	Gen. Dyn. (5100) : Fairfax, VA	3.628	0.000		0.000		0.000		-		0.000	0.000	3.628	-
ACB-12 / LSD / AMIIP SE	WR	NSWC DD : Dalhgren, VA	66.348	3.383	Nov 2014	5.500	Jan 2016	5.100	Nov 2016	-		5.100	Continuing	Continuing	Continuing
ACB-12 / LSD / AMIIP SE / ILS	WR	CDSA DN : Dam Neck, VA	21.766	0.518	Nov 2014	1.401	Jan 2016	1.400	Nov 2016	-		1.400	Continuing	Continuing	Continuing
ACB-12 / LSD / AMIIP SE&I	C/CPIF	RSC (IIS) : Suffolk, VA	0.000	0.361	Dec 2014	0.000		0.000		-		0.000	0.000	0.361	-
ACB-12 / LSD / AMIIP - Training Dev	WR	NSWC PHD : Pt Hueneme, CA	24.851	0.825	Nov 2014	1.500	Jan 2016	2.600	Nov 2016	-		2.600	Continuing	Continuing	Continuing
TI-16 HW Dev / ILS / EDM Proc (DN)	WR	CDSA DN : Dam Neck, VA	5.361	0.945	Nov 2014	6.000	Jan 2016	6.000	Nov 2016	-		6.000	Continuing	Continuing	Continuing
TI-16 HW Engr	WR	NSWC DD : Dalhgren, VA	0.108	0.217	Nov 2014	0.900	Jan 2016	0.750	Nov 2016	-		0.750	Continuing	Continuing	Continuing
TI-16 for ACB-12 SW Migration PSEA	SS/CPIF	RSC IDS (5128) : San Diego, CA	1.348	0.516	Dec 2014	10.900	Feb 2016	9.600	Dec 2016	-		9.600	Continuing	Continuing	Continuing
TI-16 - Training Course Development	WR	NSWC-PHD : Pt Hueneme, CA	0.000	0.000		1.305	Jan 2016	1.600	Nov 2016	-		1.600	Continuing	Continuing	Continuing
FCLIP Phase 2 - PSEA	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.333	0.260	Dec 2014	8.751	Feb 2016	8.853	Dec 2016	-		8.853	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	SS/CPFF	JHU/APL : Laurel, MD	1.221	0.309	Dec 2014	6.022	Feb 2016	2.882	Dec 2016	-		2.882	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	WR	NSWC-DD : Dahlgren, VA	0.215	0.217	Nov 2014	0.853	Jan 2016	0.327	Nov 2016	-		0.327	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	WR	CDSA DN : Dam Neck, VA	0.000	0.000		0.136	Jan 2016	0.100	Nov 2016	-		0.100	0.000	0.236	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FCLIP Phase 2 / SE	WR	NSWC PHD : Pt Hueneme, CA	0.000	0.206	Nov 2014	0.217	Jan 2016	0.150	Nov 2016	-		0.150	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE / Planning	C/CPIF	Delta Resources : Not Specified	0.000	0.000		0.233	Feb 2016	0.233	Dec 2016	-		0.233	0.000	0.466	-
FCLIP Phase 2 / SE & I	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.000	0.103	Dec 2014	1.529	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing
FCLIP Phase 2 / SEI&T	C/CPIF	TBD - Competition : TBD	0.000	0.000		0.000		0.617	Dec 2016	-		0.617	0.000	0.617	-
FCLIP Phase 2 / SE CIWS	TBD	IWS 3B : TBD	0.000	0.000		0.651	Jan 2016	0.000		-		0.000	0.000	0.651	-
FCLIP Phase 2 / SE	WR	NAWC : China Lake	0.000	0.000		1.035	Feb 2016	0.567	Nov 2016	-		0.567	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	SS/CPFF	RSC(5432/5410) : Tuscon, AZ	0.000	0.000		2.420	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	WR	NSWC : Crane, IN	0.000	0.000		0.271	Jan 2016	0.175	Dec 2016	-		0.175	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE / SW Dev't	SS/CPAF	RSC (5202) : St. Pete, FL	0.000	0.000		2.734	Feb 2016	0.600	Dec 2016	-		0.600	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE / SW Dev't	SS/CPAF	Rayth (RIDS) : Portsmouth, RI	0.000	0.000		1.530	Feb 2016	0.000	Dec 2016	-		0.000	0.000	1.530	-
FTIIP - PSEA / SW Dev't	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.000	0.000		1.511	Feb 2016	1.675	Dec 2016	-		1.675	Continuing	Continuing	Continuing
FTIIP - SE	C/BA	JHU/APL : Laurel, MD	0.000	0.000		0.326	Feb 2016	0.300	Dec 2016	-		0.300	0.000	0.626	-
FTIIP / SE	WR	NSWC-DD : Dahlgren, VA	0.000	0.000		0.465	Jan 2016	0.250	Nov 2016	-		0.250	Continuing	Continuing	Continuing
FTIIP / SE	WR	CDSA DN : Dam Neck, VA	0.000	0.000		0.673	Jan 2016	0.688	Nov 2016	-		0.688	Continuing	Continuing	Continuing
FTIIP / SE&I	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.000	0.000		0.125	Feb 2016	0.287	Dec 2016	-		0.287	Continuing	Continuing	Continuing
ICS SE - PSEA SE	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.333	0.175	Dec 2014	0.000		0.200	Dec 2016	-		0.200	0.000	0.708	-
ICS SE / SE&I	C/CPIF	RSC (IIS) : Suffolk, VA	1.368	0.258	Nov 2014	1.950	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ACB-20 / ICS SE / SEI&T	C/CPIF	TBD - Competition : TBD	0.000	0.000		0.000		3.134	Dec 2016	-		3.134	0.000	3.134	-
ACB-20 / ICS SE	SS/CPFF	JHU/APL : Laurel, MD	0.677	0.309	Dec 2014	1.200	Feb 2016	0.600	Dec 2016	-		0.600	Continuing	Continuing	Continuing
ACB-20 / ICS SE	WR	NSWC DD : Dalhgren, VA	1.631	0.237	Nov 2014	1.200	Jan 2016	0.843	Nov 2016	-		0.843	Continuing	Continuing	Continuing
ACB-20 / ICS SE	WR	CDSA DN : Dam Neck, VA	0.000	0.215	Nov 2014	0.572	Jan 2016	0.400	Nov 2016	-		0.400	Continuing	Continuing	Continuing
TI-20 HW Engineering	WR	CDSA DN : Dam Neck, VA	0.000	0.000		0.000		0.657	Nov 2016	-		0.657	0.000	0.657	-
TI-20 HW Engineering	WR	NSWC-DD : Dalhgren, VA	0.000	0.000		0.000		0.324	Nov 2016	-		0.324	0.000	0.324	-
EASR / ESS SE	SS/CPFF	JHU/APL : Laurel, MD	0.000	0.000		1.300	Feb 2016	1.200	Dec 2016	-		1.200	Continuing	Continuing	Continuing
EASR / ESS SE	WR	NSWC DD : Dalhgren, VA	0.000	0.000		0.500	Jan 2016	0.800	Nov 2016	-		0.800	Continuing	Continuing	Continuing
EASR / ESS / SE&I	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.000	0.000		0.000	Feb 2016	0.000		-		0.000	0.000	0.000	-
EASR / ESS / SEI&T	C/CPIF	TBD - Competition : TBD	0.000	0.000		0.000		1.000	Dec 2016	-		1.000	0.000	1.000	-
EASR / ESS SE / Analysis	C/BA	IWS 7.0 : Washington DC	0.000	0.000		0.700	Jan 2016	0.500	Dec 2016	-		0.500	Continuing	Continuing	Continuing
TFCA - BDC PSEA SW Dev't	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.000	0.000		1.450	Feb 2016	3.000	Dec 2016	-		3.000	Continuing	Continuing	Continuing
TFCA - BDC SE	SS/CPFF	JHU/APL : Laurel, MD	0.000	0.000		0.481	Feb 2016	0.600	Dec 2016	-		0.600	Continuing	Continuing	Continuing
TFCA - BDC SE	WR	NSWC-DD : Dalhgren, VA	0.000	0.000		0.989	Jan 2016	2.400	Nov 2016	-		2.400	Continuing	Continuing	Continuing
TFCA - BDC SE	WR	CDSA DN : Dam Neck, VA	0.000	0.000		0.696	Jan 2016	1.000	Nov 2016	-		1.000	Continuing	Continuing	Continuing
TFCA - BDC / SE&I	C/CPIF	RSC (IIS) : Suffolk, VA	0.000	0.000		0.329	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TFCA - BDC / SEI&T	C/CPIF	TBD : TBD	0.000	0.000		0.000		0.500	Dec 2016	-		0.500	0.000	0.500	-
TFCA - BDC Cyber Products	C/CPIF	Progeny Systems Corp : Manasas, Va	0.000	0.000		0.055	Feb 2016	0.000	Dec 2016	-		0.000	Continuing	Continuing	Continuing
TFCA - BDC Cyber Products	TBD	TBD : TBD	0.000	0.000		0.000		0.500	Dec 2016	-		0.500	0.000	0.500	-
HQ Travel	Various	PEO IWS : Washington DC	0.050	0.100	Oct 2014	0.100	Jan 2016	0.100	Dec 2016	-		0.100	Continuing	Continuing	Continuing
SE/Dev/Integrate	SS/CPAF	Rayth(5412) (RIDS) : Portsmouth, RI	83.451	0.000		0.000		0.000		-		0.000	0.000	83.451	-
Misc - Prior Year Cum Cost	C/BA	SEA 05C : Washington DC	278.839	0.155	Dec 2014	0.167	Feb 2016	0.166	Dec 2016	-		0.166	0.000	279.327	-
		Subtotal	627.674	40.904		109.629		99.108		-		99.108	-	-	-

Remarks

The increase in PU 2178 from FY15 to FY16/FY17 is required for the following major initiatives:
*Completion of SSDS MK2 ACB12/TI-12 development & integration for CVN78 and LHD2.
*Completion of the development and integration of the SSDS MK2 TI-16 equipment and migration of SSDS ACB-12 S/W to the TI-16 configuration.
*The development of FCLIP Phase 2 / FTIIP / TFCA-BDC improvements.
*Development of the concept of integration capability phasing, combat system requirements, and interface requirements for ACB-20 / EASR / ESS.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DT&E (PHD)	WR	NSWC PHD : Port Hueneme, CA	91.132	3.349	Nov 2014	3.594	Jan 2016	3.875	Nov 2016	-		3.875	Continuing	Continuing	Continuing
DT&E (SCSC-WI)	WR	SCSC-WI : Wallops Is, VA	56.354	5.030	Nov 2014	7.131	Jan 2016	7.150	Nov 2016	-		7.150	Continuing	Continuing	Continuing
DT&E (JHU)	SS/CPFF	JHU/APL : Laurel, MD	18.697	1.122	Dec 2014	2.169	Feb 2016	2.173	Dec 2016	-		2.173	Continuing	Continuing	Continuing
DT&E (Corona)	WR	NSWC Corona : Corona, CA	7.551	1.075	Nov 2014	3.135	Jan 2016	3.198	Nov 2016	-		3.198	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DT&E (Raytheon - St. Pete)	SS/CPAF	RSC (5202) : St. Pete, FL	3.670	1.038	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DT&E (RAM & ESSM) (China Lake)	WR	NAWC : China Lake, CA	1.150	0.000	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DT&E (RAM & ESSM) (RSC)	SS/CPFF	RSC(5432/5410) : Tucson, AZ	3.153	0.000	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DT&E (Raytheon - SE&I)	C/CPIF	Rayth - IIS : Sofolk, Va.	0.571	0.000	Dec 2014	0.000		0.000		-		0.000	0.000	0.571	-
DT&E Raytheon - PSEA	SS/CPIF	RSC (5128) : San Diego, CA	0.000	0.182	Nov 2014	0.000		0.000		-		0.000	0.000	0.182	-
DT&E (GD/AIS - IWS 1.0)	SS/CPAF	GD/AIS : Fairfax Va.	0.266	0.000		0.000		0.000		-		0.000	0.000	0.266	-
DT&E/CST (DD - CST)	WR	NSWC DD : Dahlgren, VA	11.213	3.457	Nov 2014	6.665	Jan 2016	6.890	Nov 2016	-		6.890	Continuing	Continuing	Continuing
DT&E (COTF)	WR	OPTEVFOR : Norfolk, VA	3.760	0.052	Nov 2014	1.173	Jan 2016	1.195	Nov 2016	-		1.195	Continuing	Continuing	Continuing
DT&E (CDSA-DN)	WR	CDSA DN : Dam Neck, VA	3.346	0.731	Nov 2014	0.586	Jan 2016	0.607	Nov 2016	-		0.607	Continuing	Continuing	Continuing
DT&E (Raytheon - RIDS)	SS/CPAF	RSC (5412) : Portsmouth, RI	1.902	0.000	Oct 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DT&E (SPAWAR-SD)	WR	SPAWAR : San Diego, CA	5.624	0.156	Dec 2014	0.342	Jan 2016	0.352	Nov 2016	-		0.352	0.000	6.474	-
		Subtotal	208.389	16.192		24.795		25.440		-		25.440	-	-	-

Remarks

The increases in PU 2178 from FY15 to FY16/FY17 are required for the following major T&E and certification initiatives:
*Accomplishment of SSDS MK2 ICS integration and certification testing for ship system installation and deployment;
*Accomplishment of the SSDS MK2 ICS test and evaluation for the CVN78 SSDS MK2 Mod 6C baseline.
*In FY17, the T&E and certification efforts continue on new SSDS integrated combat system baselines (see R-4 exhibit)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPIF	Various : Various	26.154	2.277	Dec 2014	2.970	Feb 2016	3.030	Dec 2016	-		3.030	Continuing	Continuing	Continuing
		Subtotal	26.154	2.277		2.970		3.030		-		3.030	-	-	-

Remarks

For FY15-FY17, new contracts have been established on a competitive basis with Tech Marine for financial management support, and with CACI for Acquisition/Logistics support. During FY15-FY17, Engility (formerly TASC) will continue to provide program support for T&E, and Delta Resources will provide program management support for project planning, under competitively awarded SEAPORT contracts.

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	862.217	59.373		137.394		127.578		-		127.578	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

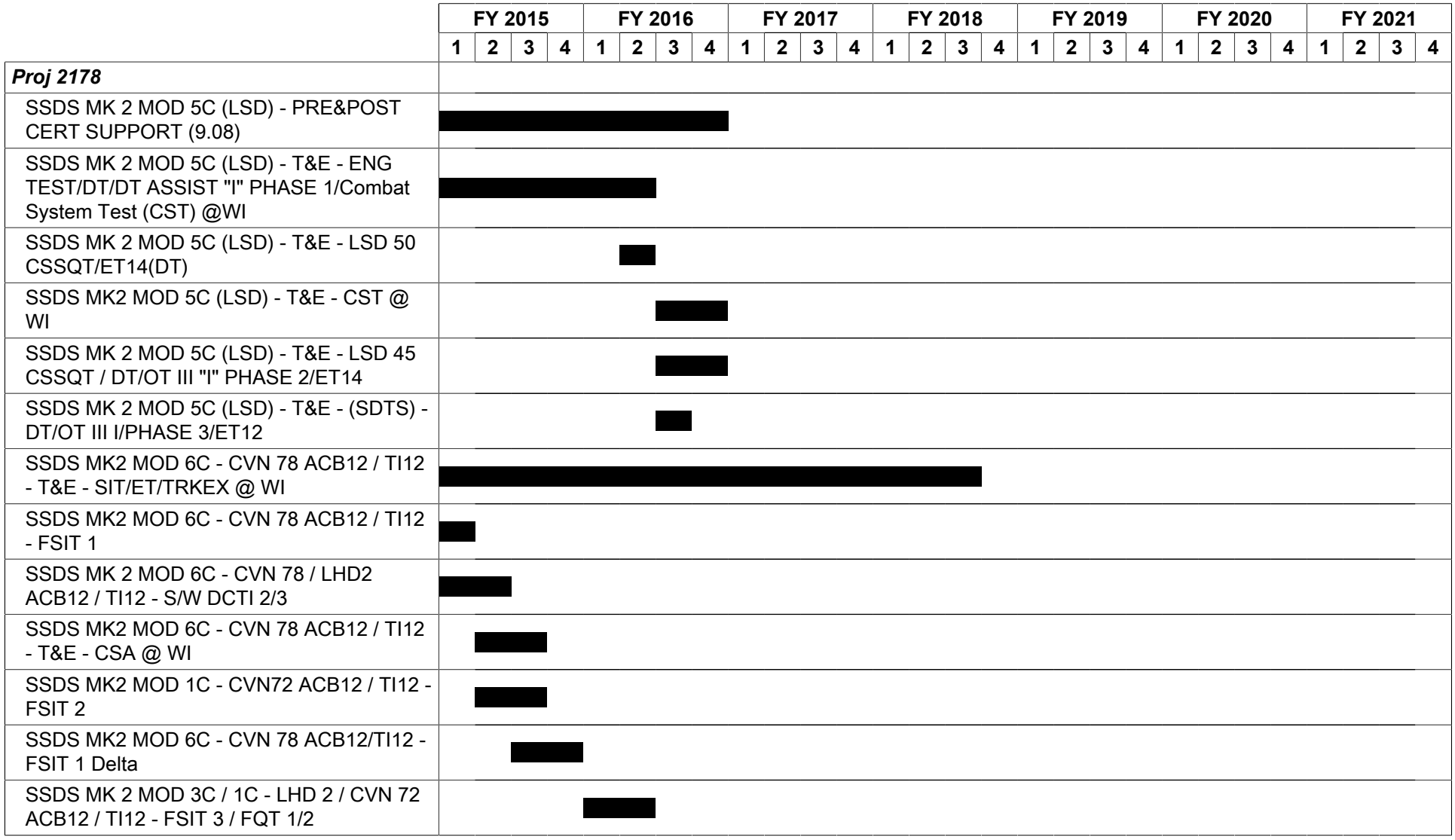

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

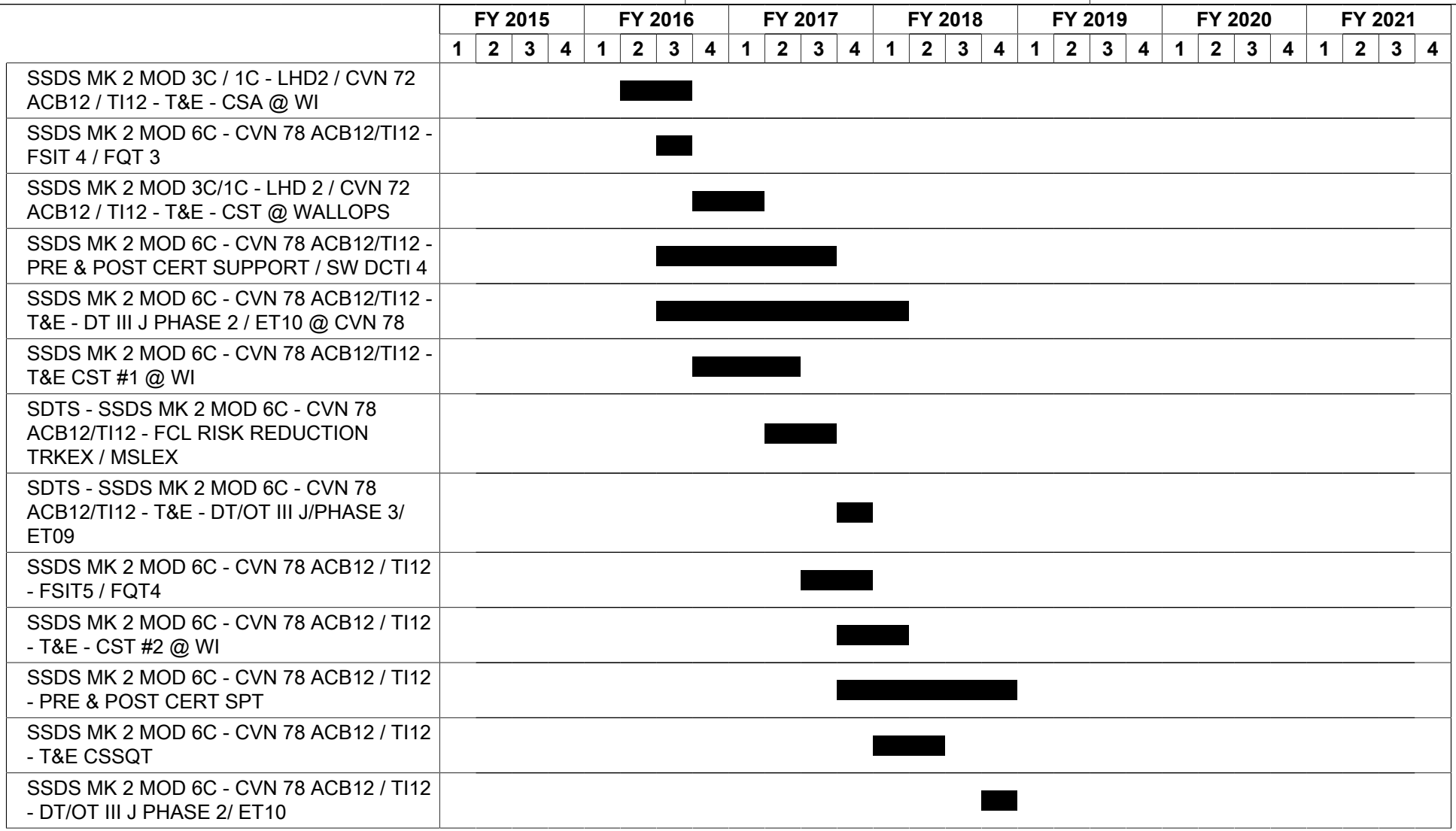

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

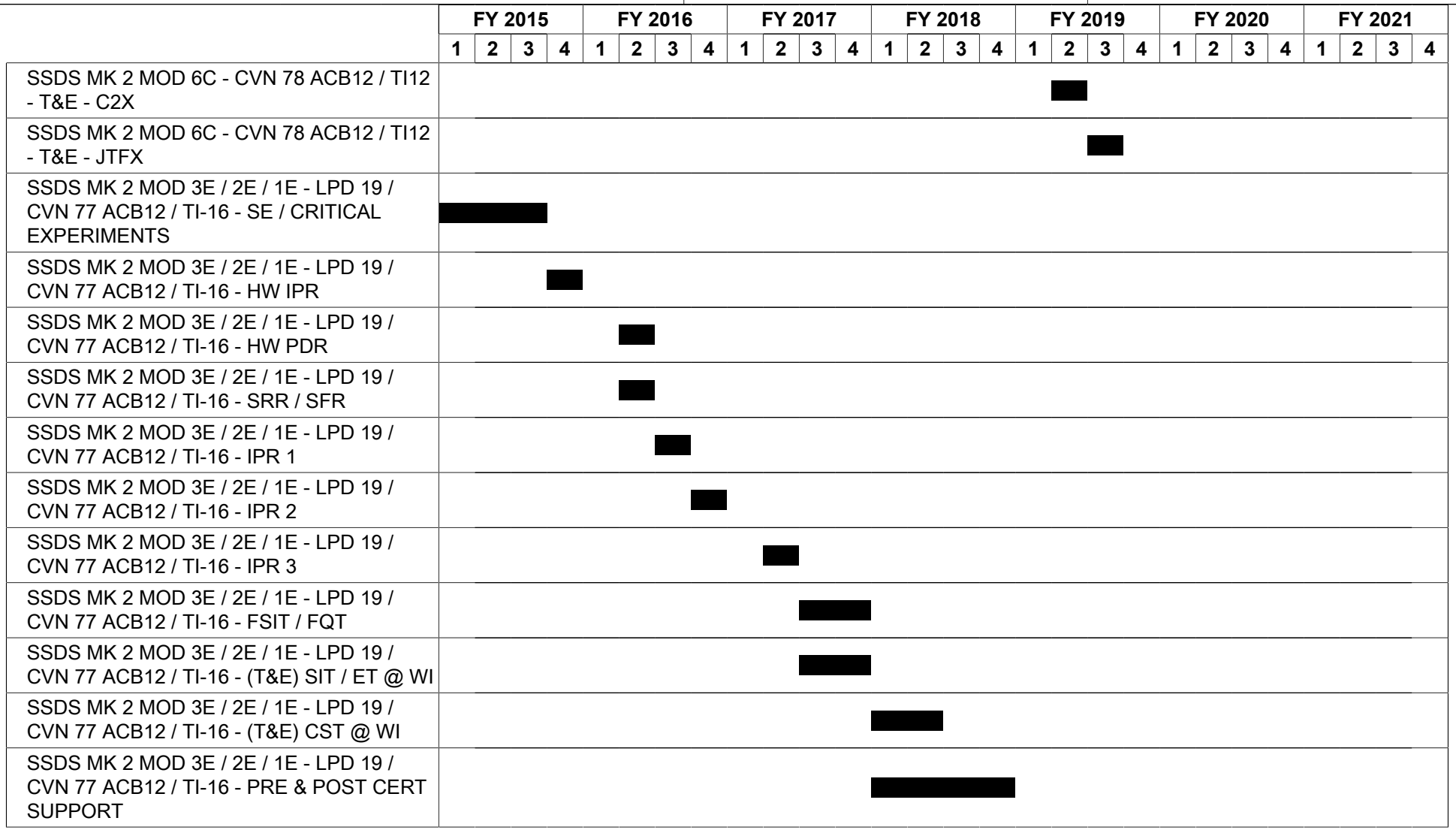

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

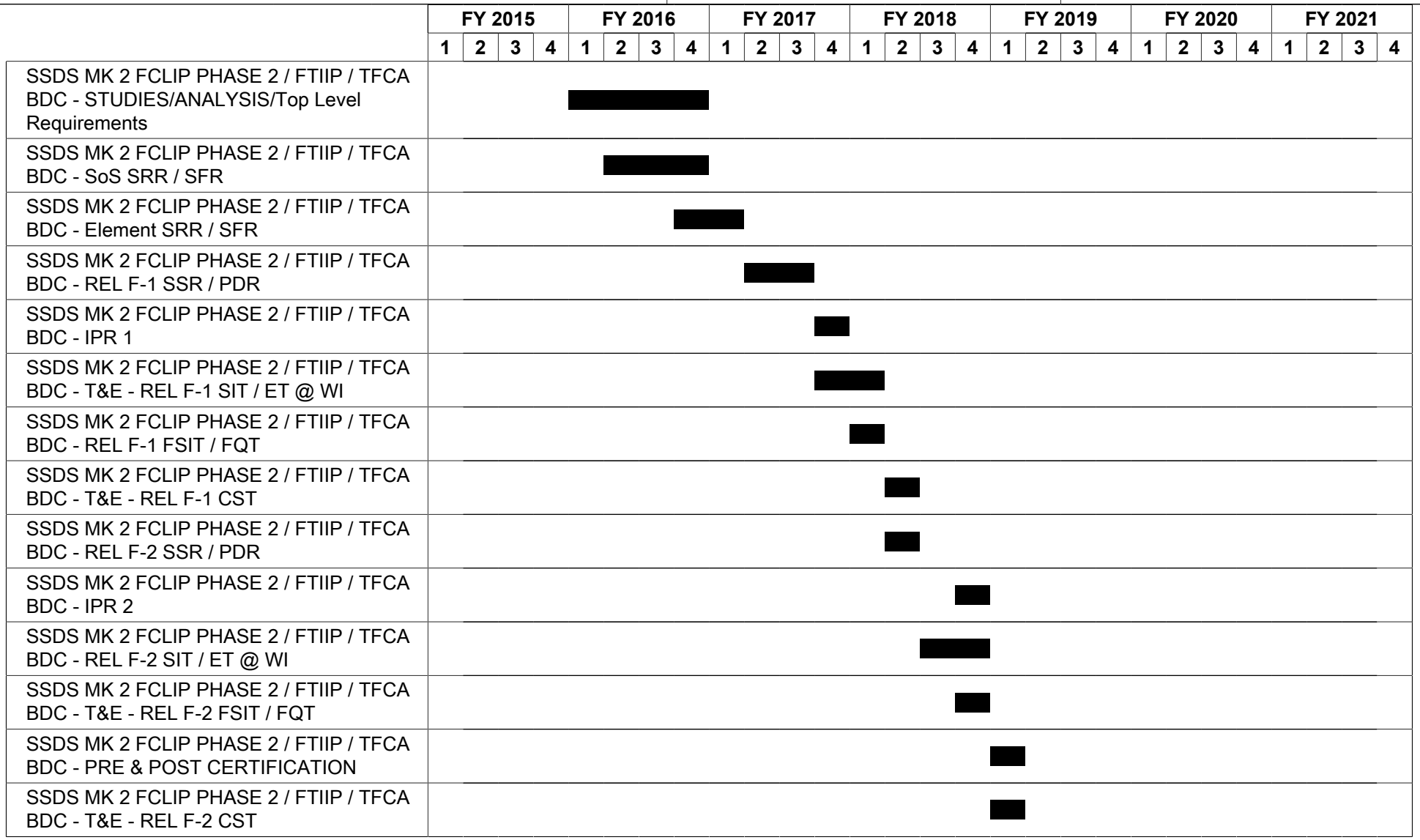

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

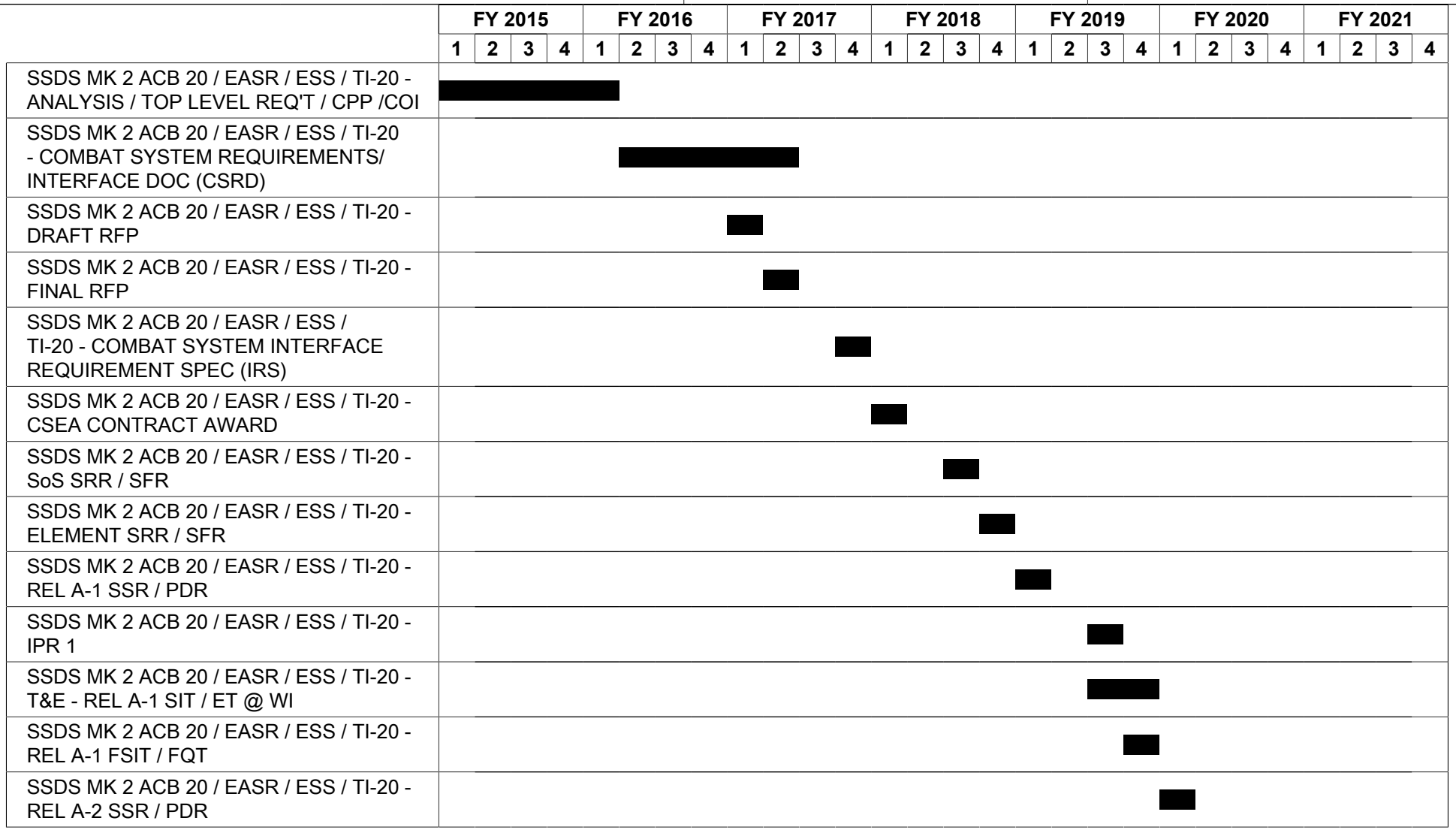

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

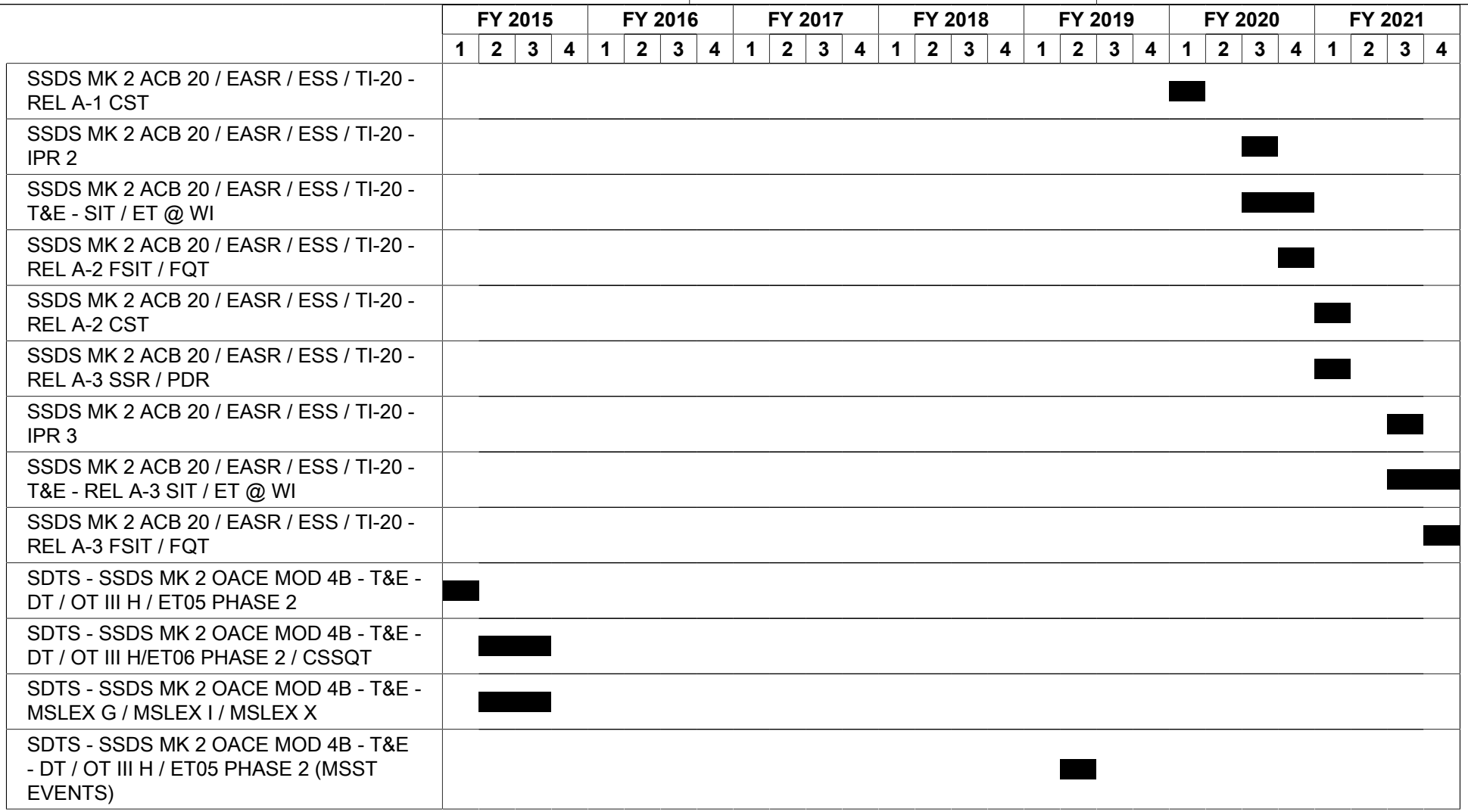

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

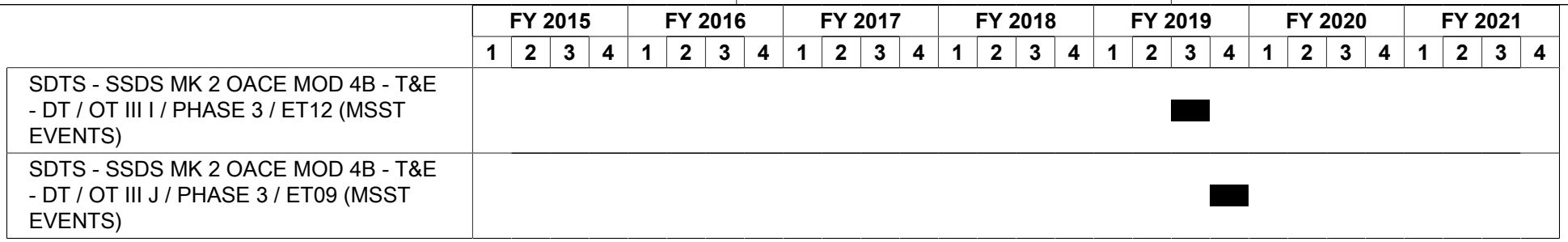

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 2178 / *QRCC*

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	2015	4	2016
SSDS MK 2 MOD 5C (LSD) - T&E - ENG TEST/DT/DT ASSIST "I" PHASE 1/Combat System Test (CST) @WI	1	2015	2	2016
SSDS MK 2 MOD 5C (LSD) - T&E - LSD 50 CSSQT/ET14(DT)	2	2016	2	2016
SSDS MK2 MOD 5C (LSD) - T&E - CST @ WI	3	2016	4	2016
SSDS MK 2 MOD 5C (LSD) - T&E - LSD 45 CSSQT / DT/OT III "I" PHASE 2/ET14	3	2016	4	2016
SSDS MK 2 MOD 5C (LSD) - T&E - (SDTS) - DT/OT III I/PHASE 3/ET12	3	2016	3	2016
SSDS MK2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - SIT/ET/TRKEX @ WI	1	2015	3	2018
SSDS MK2 MOD 6C - CVN 78 ACB12 / TI12 - FSIT 1	1	2015	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 @ WI	2	2015	3	2015
SSDS MK2 MOD 1C - CVN72 ACB12 / TI12 - FSIT 2	2	2015	3	2015
SSDS MK2 MOD 6C - CVN 78 ACB12/TI12 - FSIT 1 Delta	3	2015	4	2015
SSDS MK 2 MOD 3C / 1C - LHD 2 / CVN 72 ACB12 / TI12 - FSIT 3 / FQT 1/2	1	2016	2	2016
SSDS MK 2 MOD 3C / 1C - LHD2 / CVN 72 ACB12 / TI12 - T&E - CSA @ WI	2	2016	3	2016
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - FSIT 4 / FQT 3	3	2016	3	2016
SSDS MK 2 MOD 3C/1C - LHD 2 / CVN 72 ACB12 / TI12 - T&E - CST @ WALLOPS	4	2016	1	2017
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - PRE & POST CERT SUPPORT / SW DCTI 4	3	2016	3	2017
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 -T&E - DT III J PHASE 2 / ET10 @ CVN 78	3	2016	1	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 -T&E CST #1 @ WI	4	2016	2	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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 - FCL RISK REDUCTION TRKEX / MSLEX	2	2017	3	2017
SDTS - SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - T&E - DT/OT III J/PHASE 3/ ET09	4	2017	4	2017
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - FSIT5 / FQT4	3	2017	4	2017
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - CST #2 @ WI	4	2017	1	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - PRE & POST CERT SPT	4	2017	4	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E CSSQT	1	2018	2	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - DT/OT III J PHASE 2/ ET10	4	2018	4	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - C2X	2	2019	2	2019
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - JTFX	3	2019	3	2019
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - SE / CRITICAL EXPERIMENTS	1	2015	3	2015
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - HW IPR	4	2015	4	2015
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - HW PDR	2	2016	2	2016
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - SRR / SFR	2	2016	2	2016
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - IPR 1	3	2016	3	2016
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - IPR 2	4	2016	4	2016
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - IPR 3	2	2017	2	2017
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - FSIT / FQT	3	2017	4	2017
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - (T&E) SIT / ET @ WI	3	2017	4	2017
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - (T&E) CST @ WI	1	2018	2	2018
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - PRE & POST CERT SUPPORT	1	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - STUDIES/ANALYSIS/Top Level Requirements	1	2016	4	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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 FCLIP PHASE 2 / FTIIP / TFCA BDC - SoS SRR / SFR	2	2016	4	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - Element SRR / SFR	4	2016	1	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-1 SSR / PDR	2	2017	3	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - IPR 1	4	2017	4	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-1 SIT / ET @ WI	4	2017	1	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-1 FSIT / FQT	1	2018	1	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-1 CST	2	2018	2	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-2 SSR / PDR	2	2018	2	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - IPR 2	4	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-2 SIT / ET @ WI	3	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-2 FSIT / FQT	4	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - PRE & POST CERTIFICATION	1	2019	1	2019
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-2 CST	1	2019	1	2019
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - ANALYSIS / TOP LEVEL REQ'T / CPP / COI	1	2015	1	2016
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - COMBAT SYSTEM REQUIREMENTS/ INTERFACE DOC (CSRD)	2	2016	2	2017
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - DRAFT RFP	1	2017	1	2017
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - FINAL RFP	2	2017	2	2017
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - COMBAT SYSTEM INTERFACE REQUIREMENT SPEC (IRS)	4	2017	4	2017
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - CSEA CONTRACT AWARD	1	2018	1	2018
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - SoS SRR / SFR	3	2018	3	2018
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - ELEMENT SRR / SFR	4	2018	4	2018
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-1 SSR / PDR	1	2019	1	2019
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - IPR 1	3	2019	3	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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 / EASR / ESS / TI-20 - T&E - REL A-1 SIT / ET @ WI	3	2019	4	2019
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-1 FSIT / FQT	4	2019	4	2019
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-2 SSR / PDR	1	2020	1	2020
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-1 CST	1	2020	1	2020
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - IPR 2	3	2020	3	2020
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - T&E - SIT / ET @ WI	3	2020	4	2020
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-2 FSIT / FQT	4	2020	4	2020
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-2 CST	1	2021	1	2021
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-3 SSR / PDR	1	2021	1	2021
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - IPR 3	3	2021	3	2021
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - T&E - REL A-3 SIT / ET @ WI	3	2021	4	2021
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-3 FSIT / FQT	4	2021	4	2021
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III H / ET05 PHASE 2	1	2015	1	2015
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III H/ET06 PHASE 2 / CSSQT	2	2015	3	2015
SDTS - SSDS MK 2 OACE MOD 4B - T&E - MSLEX G / MSLEX I / MSLEX X	2	2015	3	2015
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III H / ET05 PHASE 2 (MSST EVENTS)	2	2019	2	2019
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III I / PHASE 3 / ET12 (MSST EVENTS)	3	2019	3	2019
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III J / PHASE 3 / ET09 (MSST EVENTS)	4	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3172: *Joint Non-Lethal Weapons*	31.425	4.196	4.825	4.177	-	4.177	5.158	2.974	3.038	3.103	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. Technologies include, but are not limited to, ocular interrupters, ship entanglement systems, and audible hailing devices. Current efforts are focused on the Long-Range Ocular Interrupter (LROI), Hailing Acoustic Laser and Light Tactical System (HALLTS), and Maritime Vessel Stopper(MVS). 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.

HALLTS is a single-operator, man-portable, hailing and warning system developed to enhance the ability of security forces to effectively execute escalation of force procedures. HALLTS integrates three COTs, Navy-fielded non-lethal devices, consisting of an acoustic loud-hailing device, a high intensity white light and a dazzling green beam laser, using a common system controller and common mounting options. HALLTS reduces the manpower requirements for operation of multiple non-lethal devices and enhance the execution of escalation of force procedures.

MVS technologies are means of defending against small, attacking vessels while utilizing methodologies designed to incapacitate personnel or materiel while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment. MVS technologies are being studied with consideration for the defense of U.S. Navy personnel, material, and operations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Joint Non-Lethal Weapons Development	4.196	4.825	4.177	0.000	4.177
Articles:	8	-	-	-	-
FY 2015 Accomplishments: Completed LROI design and development, manufactured two test systems, and conducted Environmental and Developmental Testing. Conducted Laser Safety Review Board, developed training manuals, and Operations & Maintenance Guide for the Rapid Acquisition effort. Designed and started fabricating Hailing Acoustic Laser and Light Tactical Systems (HALLTS).					
FY 2016 Plans: Produce 8 LROI systems and complete developmental Technical Data Package (TDP). Perform an MUA with NECC. Perform any LROI engineering updates identified during NECC MUA. Initiate LROI program of record					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
documentation and begin approval process. Receive HALLTS feedback from NECC fleet users and incorporate their input via ECPs. Complete MVS CDD and begin JCIDS process. ***FY 2017 Base Plans:*** Complete the LROI program of record transition strategy and issue RFP. Continue performing HALLTS engineering updates identified during fleet user feedback and assessment; and conduct test and evaluation. Issue RFP for HALLTS production contract to fully meet the fielding requirement of units to NECC. Begin development effort of other emerging non-lethal technologies for vessel stopping. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	4.196	4.825	4.177	0.000	4.177

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/8128: *NCW Forces Active*	1.236	0.000	5.744	-	5.744	6.235	7.805	7.805	7.961	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 100 LROI systems to be fielded to NECC.
In FY16, initial HALLTS systems will be developed and tested. These units will go through user assessment for their feedback. ECP will be performed to incorporate user inputs. The RFP, including the developmental TDP, will be provided to the industry to solicit offers for the LRIP production after refining the TDP and subsequently for full rate production for a total of 117 HALLTS systems to be fielded to NECC.

E. Performance Metrics

Successfully produce LROI systems, conduct Military Utility Assessment (MUA) with Navy Expeditionary Combat Command (NECC) sailors, and transition to a PoR. Successfully conduct HALLTS testing and fielding to fleet users.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	WR	NSWC Dahlgren : Dahlgren VA	11.025	1.596	Feb 2015	2.234	Feb 2016	2.202	Nov 2016	-		2.202	Continuing	Continuing	Continuing
System Engineering	WR	NSWC Port Hueneme : Port Hueneme CA	0.628	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
System Engineering	WR	NSWC Crane : Crane IN	0.580	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	12.233	1.596		2.234		2.202		-		2.202	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services (NSWC)	WR	NSWC Dahlgren : Dahlgren, VA	2.000	1.000	Feb 2015	1.000	Feb 2016	0.000		-		0.000	0.000	4.000	-
Program Management	WR	NUWC Newport : Newport, RI	2.857	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Engineering Services (NSWC)	WR	NSWC Panama City : Panama City, FL	1.200	0.000		0.000		0.875	Nov 2016	-		0.875	0.000	2.075	-
		Subtotal	6.057	1.000		1.000		0.875		-		0.875	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	NSWC Dahlgren : Dahlgren VA	1.800	0.500	Feb 2015	0.500	Feb 2016	0.500	Nov 2016	-		0.500	0.000	3.300	-
Test and Evaluation	MIPR	Military Sealift Command : Washington DC	2.200	0.000		0.000		0.000		-		0.000	0.000	2.200	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	COMOPTEVFOR : Norfolk VA	3.925	0.500	Feb 2015	0.500	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	7.925	1.000		1.000		0.500		-		0.500	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NSWC Dahlgren : Dahlgren VA	5.192	0.600	Feb 2015	0.591	Feb 2016	0.600	Nov 2016	-		0.600	Continuing	Continuing	Continuing
DAWDF	Various	Not Specified : Not Specified	0.018	0.000		0.000		0.000		-		0.000	0.000	0.018	-
		Subtotal	5.210	0.600		0.591		0.600		-		0.600	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	31.425	4.196		4.825		4.177		-		4.177	-	-	-

Remarks

1. FY15 planned 4th QTR LROI RDC Quick Reaction Assessment (QRA) was determined to be no longer required due to the cancellation of the 2008 U.S. Central Command (CENTCOM) Non-Lethal Weapons (NLW) Urgent Operational Need (UON).

2. After PB16 submit, RDC requirements increased to include a Military Utility Assessment (MUA) of the produced eight (8) RDC units, extending POR by 9 months. These efforts include:
a) Conduct MUA
b) Collect and verify user assessment data
c) Perform cost/benefit analysis
d) Update system design
e) Perform solid modeling and finite element analysis
f) Update Technical Data Package (TDP)

3. The HALLTS S&T efforts were funded by Physical Security Enterprise and Analysis Group (PSEAG). The S&T project completed ahead of schedule enabling the PMO to start the design efforts on production level system sooner than planned.

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
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*

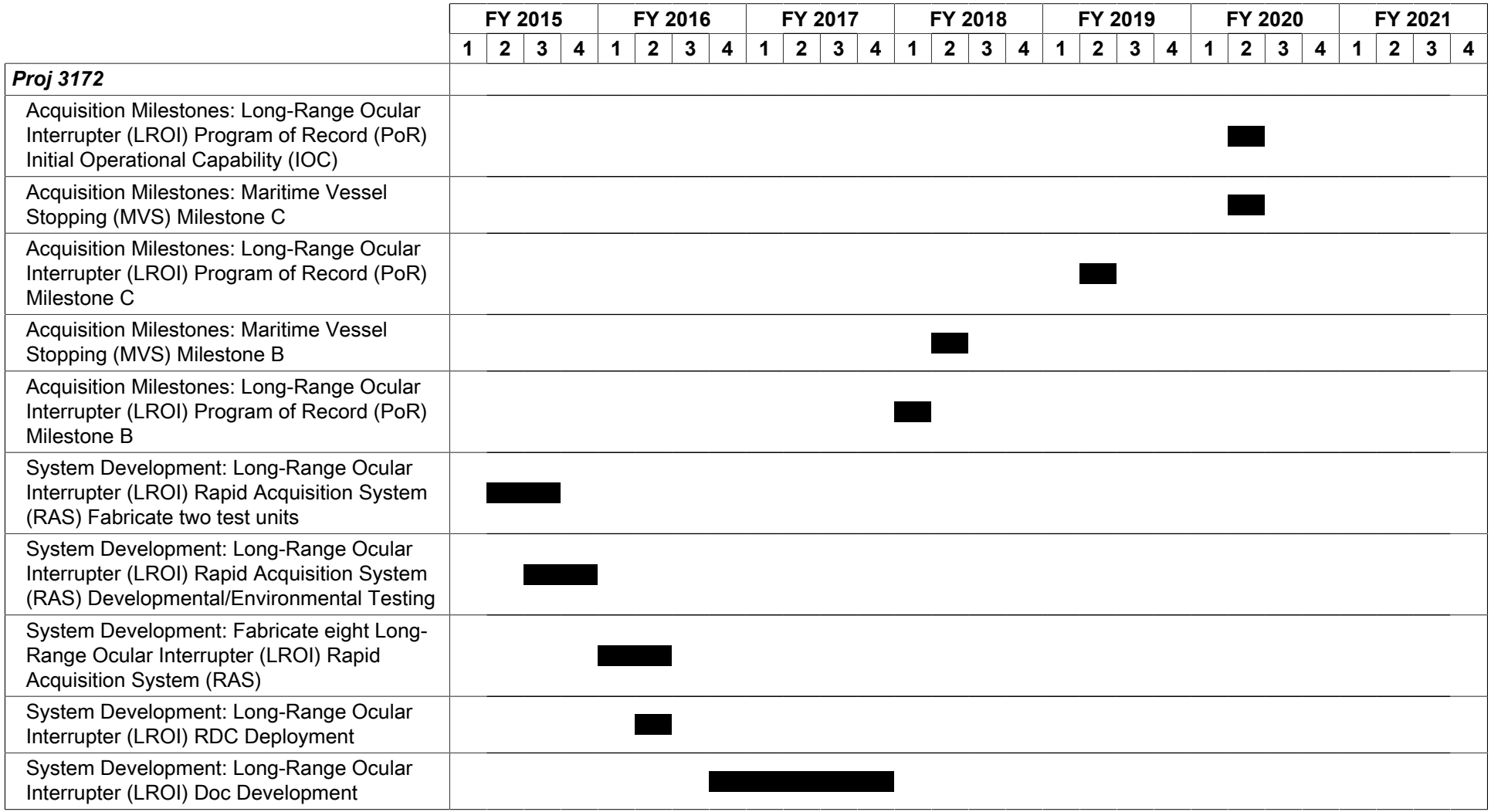

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3172 / *Joint Non-Lethal Weapons*

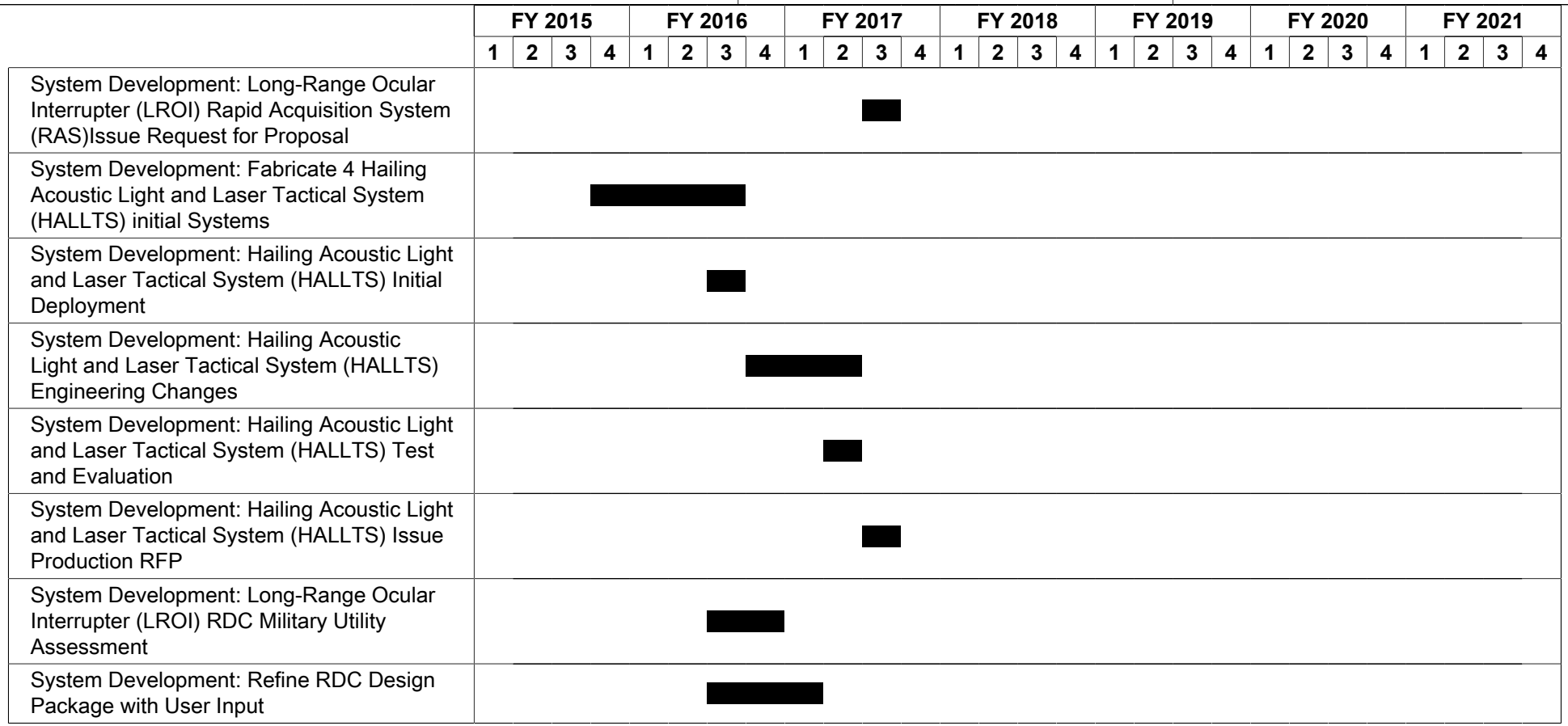

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3172 / *Joint Non-Lethal Weapons*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3172				
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Program of Record (PoR) Initial Operational Capability (IOC)	2	2020	2	2020
Acquisition Milestones: Maritime Vessel Stopping (MVS) Milestone C	2	2020	2	2020
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Program of Record (PoR) Milestone C	2	2019	2	2019
Acquisition Milestones: Maritime Vessel Stopping (MVS) Milestone B	2	2018	2	2018
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Program of Record (PoR) Milestone B	1	2018	1	2018
System Development: Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS) Fabricate two test units	2	2015	3	2015
System Development: Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS) Developmental/Environmental Testing	3	2015	4	2015
System Development: Fabricate eight Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS)	1	2016	2	2016
System Development: Long-Range Ocular Interrupter (LROI) RDC Deployment	2	2016	2	2016
System Development: Long-Range Ocular Interrupter (LROI) Doc Development	4	2016	4	2017
System Development: Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS)Issue Request for Proposal	3	2017	3	2017
System Development: Fabricate 4 Hailing Acoustic Light and Laser Tactical System (HALLTS) initial Systems	4	2015	3	2016
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) Initial Deployment	3	2016	3	2016
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) Engineering Changes	4	2016	2	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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: Hailing Acoustic Light and Laser Tactical System (HALLTS) Test and Evaluation	2	2017	2	2017
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) Issue Production RFP	3	2017	3	2017
System Development: Long-Range Ocular Interrupter (LROI) RDC Military Utility Assessment	3	2016	4	2016
System Development: Refine RDC Design Package with User Input	3	2016	1	2017

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3306: *Integrated Swimmer Defense (ISD)*	2.669	0.035	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.704
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Integrated Swimmer Defense	0.035	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Award contract for Test Articles. Receive Test Articles and begin integrated Test & Evaluation.					
FY 2016 Plans: Not Applicable. Program cancelled by OPNAV Resource Sponsor after FY15.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.035	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/8128: *ISD*	0.461	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.461

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	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 2017 Navy			Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware/Software Development	WR	NUWC Keyport : Keyport	0.697	0.000	Feb 2015	0.000		0.000		-		0.000	0.000	0.697	-
Hardware/Software Development - FNC	WR	NUWC Newport : Newport RI	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-
Hardware/Software Development - FNC Detection and Targeting	WR	NUWC Newport : Newport RI	0.125	0.000		0.000		0.000		-		0.000	0.000	0.125	-
		Subtotal	0.922	0.000		0.000		0.000		-		0.000	0.000	0.922	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services	WR	NUWC : Keyport	1.125	0.000	Feb 2015	0.000		0.000		-		0.000	0.000	1.125	-
		Subtotal	1.125	0.000		0.000		0.000		-		0.000	0.000	1.125	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	NUWC : Keyport	0.035	0.025	Feb 2015	0.000		0.000		-		0.000	0.000	0.060	-
		Subtotal	0.035	0.025		0.000		0.000		-		0.000	0.000	0.060	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NUWC : Keyport	0.587	0.010	Feb 2015	0.000		0.000		-		0.000	0.000	0.597	-
		Subtotal	0.587	0.010		0.000		0.000		-		0.000	0.000	0.597	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
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 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.669	0.035		0.000		0.000		-		0.000	0.000	2.704	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
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)*

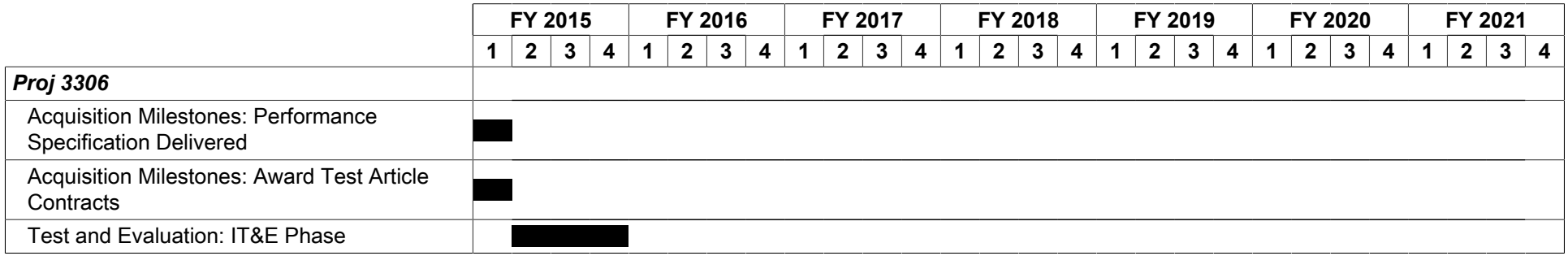

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3306 / *Integrated Swimmer Defense (ISD)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3306				
Acquisition Milestones: Performance Specification Delivered	1	2015	1	2015
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 2017 Navy			Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3358: *SSDS Training Improvement Program*	0.754	1.100	3.117	2.864	-	2.864	7.624	7.545	7.572	8.948	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The SSDS Total Ship Training Capability (TSTC) provides enhancements and upgrades to the 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), Task Force Cyber Awakening (TFCA) Boundary Defense Capability (BDC), 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 through distributed battle group events to engage in more complex training requirements to support fleet required training certification events. Capability Development and integration are related to Self Defense, Underwater, Surface, and other warfare areas. Capability enhancements and upgrades include development of re-useable common components that can be leveraged by SSDS MK2 combat systems, and/or integration of re-usable common components developed by the TSTC BFTT Program and AEGIS TSTC Total Ship Training Capability (TSTC) projects to meet AEGIS combat system training requirements.

PU 3358 funds the development and/or integration of TSTC improvements into the SSDS MK2 ACB-12, FCLIP Phase 2 / FTIIP / TFCA BDC, and ACB-20 / EASR / ESS (Enterprise Air Search Radar / 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 integration with the SSDS MK2 TI-12/TI-16/TI-20 Open Architecture Computing Environment (OACE) for TSTC implementation.

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 Fleet Synthetic Trainers (FSTs).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SSDS Total Ship Training Capability	1.100	3.117	2.864	0.000	2.864
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Continued Integrated Combat System engineering to define and allocate TSTC functional requirements to the training system, SSDS MK2, and other Combat System elements. Defined Integrated Combat System software architecture including common software components for SSDS and AEGIS integrated combat systems. - Defined new technical approach for CVN78 baseline with Dual Band Radar (DBR) to provide in-port and underway self defense fire control loop training capabilities involving integration of DBR simulation software into the CVN78 SSDS MK2 ACB-12 / TI-12 baseline. - Initiated integration of DBR simulation software for delivery of in-port training capability (Phase 1) to CVN78 as part of SSDS MK2 ACB-12 / TI-12 baseline. ***FY 2016 Plans:*** -Complete adaptation, integration, test and delivery of DBR simulation software (Phase 1) as part of SSDS MK2 ACB-12 / TI-12 for CVN78 in-port fire control loop training capability in support of CVN78 ship delivery to the Navy. - Initiate additional software modifications for integration of DBR simulation software (Phase 2) to support CVN78 underway training as part of the CVN78 SSDS MK2 ACB-12 / TI-12 baseline. - Start the incorporation of TSTC functional requirements into SSDS Integrated Combat System Requirements Documentation for the first FCLIP Phase 2 / FTIIP / TFCA BDC baseline with the initiation of system engineering and development of documentation to support System of Systems Requirements Review / Functional Review (SoS SRR/SFR), and Combat System element SRRs/SFRs. - Initiate development of requirements to support TSTC capability improvements to support tactical training requirements of SSDS ACB-20 / EASR / 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 2017 Base Plans:*** - Continue development of TSTC requirements into SSDS Integrated Combat System (ICS) for the first FCLIP Phase 2 / FTIIP / TFCA BDC baselines with the completion of the SSDS MK2 software specifications and development (Design, code, and integration test) and conduct of associated system / software design reviews.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Complete SoS requirements, functional allocation and interface requirements to support the TSTC capability improvements for tactical training requirements for the SSDS ACB 20 / EASR / ESS baselines. Finalize requirements to support simulating real world environments within SSDS MK2 shipboard sensors for Anti-Area / Area Denial (A2AD) training. - Complete software modification, integration, test and delivery of DBR simulation as part of CVN 78 SSDS MK2 ACB-12 / TI-12 baseline for CVN78 in-port and underway fire control loop training capabilities in support of CVN78 CSSQT and deployment. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	1.100	3.117	2.864	0.000	2.864

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDTEN / PE 0204571N: *Surface Tactical Team Trainer (PU 1427)*	16.366	9.954	12.289	-	12.289	10.647	9.543	9.796	10.034	Continuing	Continuing
• RDT&E / PE 0604307N: *AEGIS Training Improv. Prog. (PU 3357)*	8.767	14.677	10.458	-	10.458	7.819	6.574	5.081	5.196	Continuing	Continuing

Remarks

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 identified in the R-4A exhibit for PU2178 apply for the CVN78 SSDS MK2 ACB-12 / TI-12 baseline development and the integration of the DBR simulation software to provide CVN78 in-port and underway fire control loop training capabilities. The milestones for implementation of TSTC improvements into future SSDS MK2 ICS baselines for the SSDS MK2 FCLIP Phase 2 / FTIIP / TFCA BDC, and ACB-20 / EASR / 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 2017 Navy		Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TSTC Sys Eng / Safety	WR	DD : Dahlgren, VA	0.072	0.000		0.227	Jan 2016	0.651	Nov 2016	-		0.651	Continuing	Continuing	Continuing
TSTC Sys Eng / ILS	WR	DN : Dam Neck, VA	0.156	0.250	Nov 2014	0.841	Jan 2016	0.937	Nov 2016	-		0.937	Continuing	Continuing	Continuing
TSTC Sys Eng / Integration	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.401	0.675	Dec 2014	0.000	Jan 2016	0.000		-		0.000	Continuing	Continuing	Continuing
TSTC TDL Gateway	WR	SPAWAR PMW 150 : San Diego, CA	0.000	0.000		0.216	Jan 2016	0.000		-		0.000	0.000	0.216	-
TSTC Sys Eng / PSEA	SS/CPIF	RSC (5128) : San Diego, CA	0.000	0.000		1.833	Jan 2016	1.137	Dec 2016	-		1.137	Continuing	Continuing	Continuing
TSTC Sys Eng / MH-60R Training Capability	WR	Keyport (NUWC) : Keyport, RI	0.125	0.150	Dec 2014	0.000	Jan 2016	0.139	Nov 2016	-		0.139	Continuing	Continuing	Continuing
TSTC Planning Support	C/CPIF	TMB : Washington, DC	0.000	0.025	Dec 2014	0.000		0.000		-		0.000	0.000	0.025	-
		Subtotal	0.754	1.100		3.117		2.864		-		2.864	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.754	1.100		3.117		2.864		-		2.864	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
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*

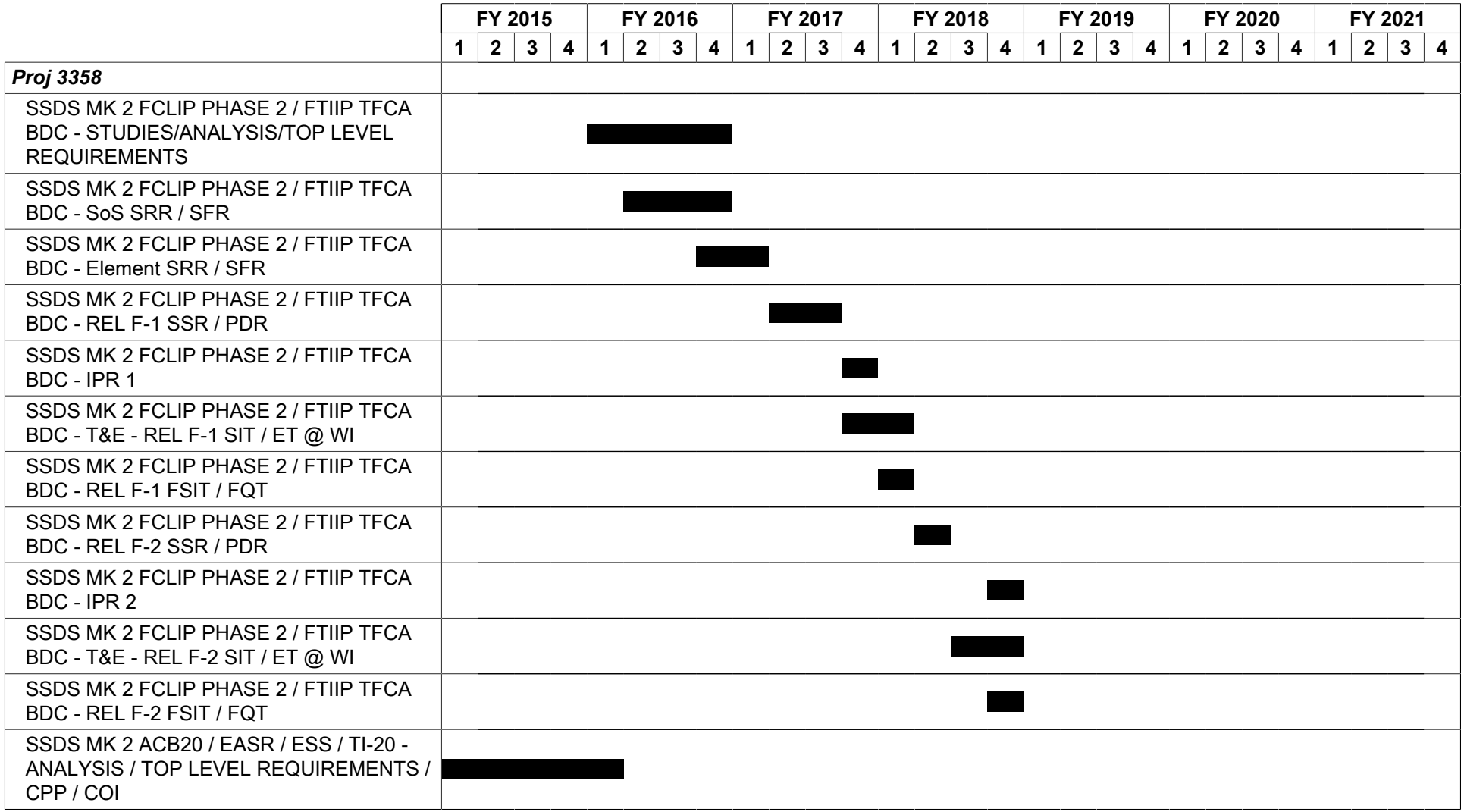

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3358 / *SSDS Training Improvement Program*

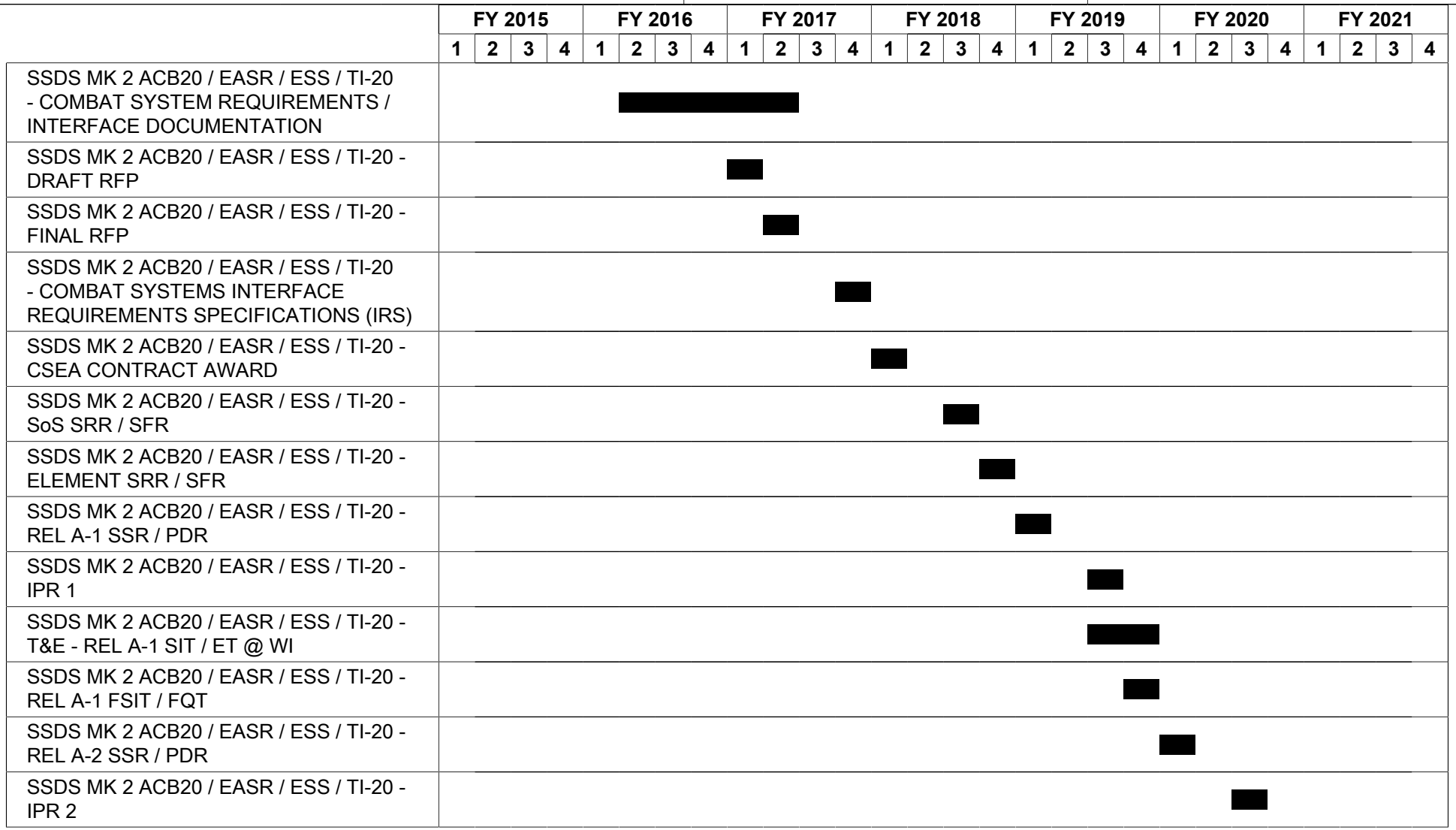

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3358 / *SSDS Training Improvement Program*

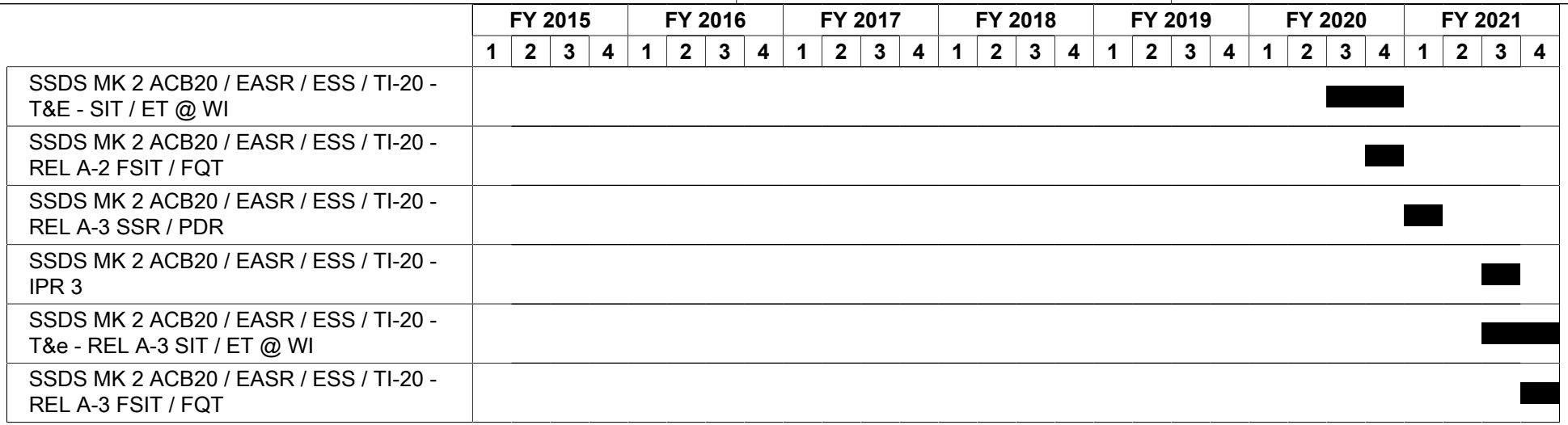

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604755N / *Ship Self Def (Detect & Cntrl)*	**Project (Number/Name)** 3358 / *SSDS Training Improvement Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3358				
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - STUDIES/ANALYSIS/TOP LEVEL REQUIREMENTS	1	2016	4	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - SoS SRR / SFR	2	2016	4	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - Element SRR / SFR	4	2016	1	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-1 SSR / PDR	2	2017	3	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - IPR 1	4	2017	4	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - T&E - REL F-1 SIT / ET @ WI	4	2017	1	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-1 FSIT / FQT	1	2018	1	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-2 SSR / PDR	2	2018	2	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - IPR 2	4	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - T&E - REL F-2 SIT / ET @ WI	3	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-2 FSIT / FQT	4	2018	4	2018
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - ANALYSIS / TOP LEVEL REQUIREMENTS / CPP / COI	1	2015	1	2016
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - COMBAT SYSTEM REQUIREMENTS / INTERFACE DOCUMENTATION	2	2016	2	2017
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - DRAFT RFP	1	2017	1	2017
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - FINAL RFP	2	2017	2	2017
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - COMBAT SYSTEMS INTERFACE REQUIREMENTS SPECIFICATIONS (IRS)	4	2017	4	2017
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - CSEA CONTRACT AWARD	1	2018	1	2018
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - SoS SRR / SFR	3	2018	3	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - ELEMENT SRR / SFR	4	2018	4	2018
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-1 SSR / PDR	1	2019	1	2019
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - IPR 1	3	2019	3	2019
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - T&E - REL A-1 SIT / ET @ WI	3	2019	4	2019
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-1 FSIT / FQT	4	2019	4	2019
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-2 SSR / PDR	1	2020	1	2020
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - IPR 2	3	2020	3	2020
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - T&E - SIT / ET @ WI	3	2020	4	2020
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-2 FSIT / FQT	4	2020	4	2020
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-3 SSR / PDR	1	2021	1	2021
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - IPR 3	3	2021	3	2021
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - T&e - REL A-3 SIT / ET @ WI	3	2021	4	2021
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-3 FSIT / FQT	4	2021	4	2021

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