Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	1,174.607	74.090	85.711	71.565	-	71.565	117.014	105.837	93.247	88.610	Continuing	Continuing
0219: *Sub Sonar Improvement (ENG)*	752.027	47.991	55.674	41.903	-	41.903	75.255	61.444	59.839	61.134	Continuing	Continuing
0742: *Sub Integrated Ant System*	238.921	16.291	14.816	12.793	-	12.793	25.198	24.613	13.255	13.587	Continuing	Continuing
0775: *Submarine Supt Equip Prog*	6.070	1.155	1.318	8.064	-	8.064	6.472	9.481	9.694	3.167	Continuing	Continuing
1411: *Sub Tact Comm System*	177.589	8.653	13.903	8.805	-	8.805	10.089	10.299	10.459	10.722	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The Submarine Support Equipment Program develops and improves submarine Electronic Warfare Support (EWS) technology, components, equipment, and systems that will increase submarine operational effectiveness, safety of ship, and survivability in an increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Enhancements are necessary for submarine EWS to be operationally effective in the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare and Intelligence Collection, Maritime protection, and Joint Strike.

The Submarine Sonar Improvement Program delivers block updates to Sonar Systems and improved Sensors installed on SSN 688, 688I, SSN 21, VIRGINIA, SSBN, and SSGN Class Submarines to maintain clear acoustical, tactical and operational superiority over submarine and surface combatants in all scenarios through detection, classification, localization, and contact following. Current developments are focused on supporting Littoral Warfare, Regional Sea Denial, Battle Group Support, Diesel Submarine Detection, Surveillance, and Peacetime Engagement.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*			R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	82.620	89.672	82.880	-	82.880
Current President's Budget	74.090	85.711	71.565	-	71.565
Total Adjustments	-8.530	-3.961	-11.315	-	-11.315
• Congressional General Reductions	-	-0.024			
• Congressional Directed Reductions	-	-3.937			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.681	-			
• Program Adjustments	-	-	-2.002	-	-2.002
• Rate/Misc Adjustments	-	-	-9.313	-	-9.313
• Congressional General Reductions Adjustments	-6.849	-	-	-	-

Change Summary Explanation

Reduced FY13 funding for Sequestration reductions.

Schedule:

Advanced High Data Rate (Adv HDR): Schedule and development changes are a result of sequestration reduction. Planned milestones were adjusted accordingly.

All Projects: Reduced FY 15 funding due to the Department's decision to reduce contracted services.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*	Project (Number/Name) 0219 / *Sub Sonar Improvement (ENG)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0219: *Sub Sonar Improvement (ENG)*	752.027	47.991	55.674	41.903	-	41.903	75.255	61.444	59.839	61.134	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This program delivers block updates to Sonar Systems installed on SSN 688, 688I, SSN 21, VIRGINIA, SSBN, and SSGN Class Submarines to maintain clear acoustical, tactical and operational superiority over submarines and surface combatants in all scenarios through detection, classification, localization, and contact following.

Acoustics Rapid COTS Insertion (A-RCI) was a multi-phased evolutionary development geared toward addressing acoustic superiority issues through the rapid introduction of interim development products applicable to all classes of submarines. A-RCI Phase I and II introduced Towed Array processing improvements, Phase III introduced Spherical

Array processing improvements, and Phase IV provided High Frequency (HF) Array processing improvements for SSN 688I, SSGN, VIRGINIA, and SSN 21 Class Submarines. As part of CNO N972's plan to maintain acoustic superiority for in-service submarines, a joint cooperative effort with PEO IWS-5 was established to deliver annual Advanced Processing

Builds (APBs) to prevent obsolescence and deliver ongoing capability improvements. The capabilities in the APBs will be integrated as part of A-RCI certified system.

Sensor efforts provide increased operational capabilities for littoral operations, situational awareness, and reliability improvements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: APB Productionization	12.141	14.859	12.112
Articles:	-	-	-
Description: APB productionization provides for the transition of APB capability improvements to the Fleet for the integration, testing and formal certification.			
FY 2013 Accomplishments: Continued Advanced Processing Build (APB) Sea Testing, Integration, and Certification. This effort was primarily the transition of APB software from development to A-RCI for integration, testing, and formal certification.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0219 / *Sub Sonar Improvement (ENG)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue Advanced Processing Build (APB) Sea Testing, Integration, and Certification. This effort is primarily the transition of APB software from development to A-RCI for integration, testing, and formal certification. ***FY 2015 Plans:*** Continue Advanced Processing Build (APB) Sea Testing, Integration, and Certification. This effort is primarily the transition of APB software from development to A-RCI for integration, testing, and formal certification.			
Title: Integration and Testing ***Articles:*** ***Description:*** Integration and Testing provides support to integrated and test APB's into all submarine classes with numerous sensor systems. ***FY 2013 Accomplishments:*** Supported Advanced Processing Builds installed on SSN 688I, SSN 688, SSN 21, SSGN 726, and VA Class Submarines. ***FY 2014 Plans:*** Supports Advanced Processing Builds installed on SSN 688I, SSN 688, SSN 21, SSGN 726, and VA Class Submarines. ***FY 2015 Plans:*** Supports Advanced Processing Builds installed on SSN 688I, SSN 688, SSN 21, SSGN 726, SSBN, and VA Class Submarines.	35.850 -	40.815 -	25.941 -
Title: SSBN Combat System Modernization ***Articles:*** ***FY 2013 Accomplishments:*** N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** This effort incorporates SSBN combat systems into the APB/TI model.	- -	- -	3.850 -
Accomplishments/Planned Programs Subtotals	47.991	55.674	41.903

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/BLI 214700: *SSN Acoustics*	174.921	175.852	165.655	-	165.655	276.914	266.627	348.780	376.741	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0219 / *Sub Sonar Improvement (ENG)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

Acoustic Systems:

A-RCI utilizes an open architecture and Commercial Off-the-Shelf products in support of new and upgraded sonar systems. A follow-on development and production sole source cost plus incentive fee contract was awarded to General Dynamics, Advanced Information Systems in August 2009 and a competitive full and open contract was awarded to Lockheed Martin Maritime Systems & Sensors in January 2011. Program Reviews with the Milestone Decision Authority are conducted granting approval for the production options.

E. Performance Metrics

The A-RCI program will modernize approximately 25% of the SSN Fleet per year through executing bi-annual software Advanced Processing Builds (APBs) and bi-annual hardware Technical Insertions (TIs).

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0219 / *Sub Sonar Improvement (ENG)*

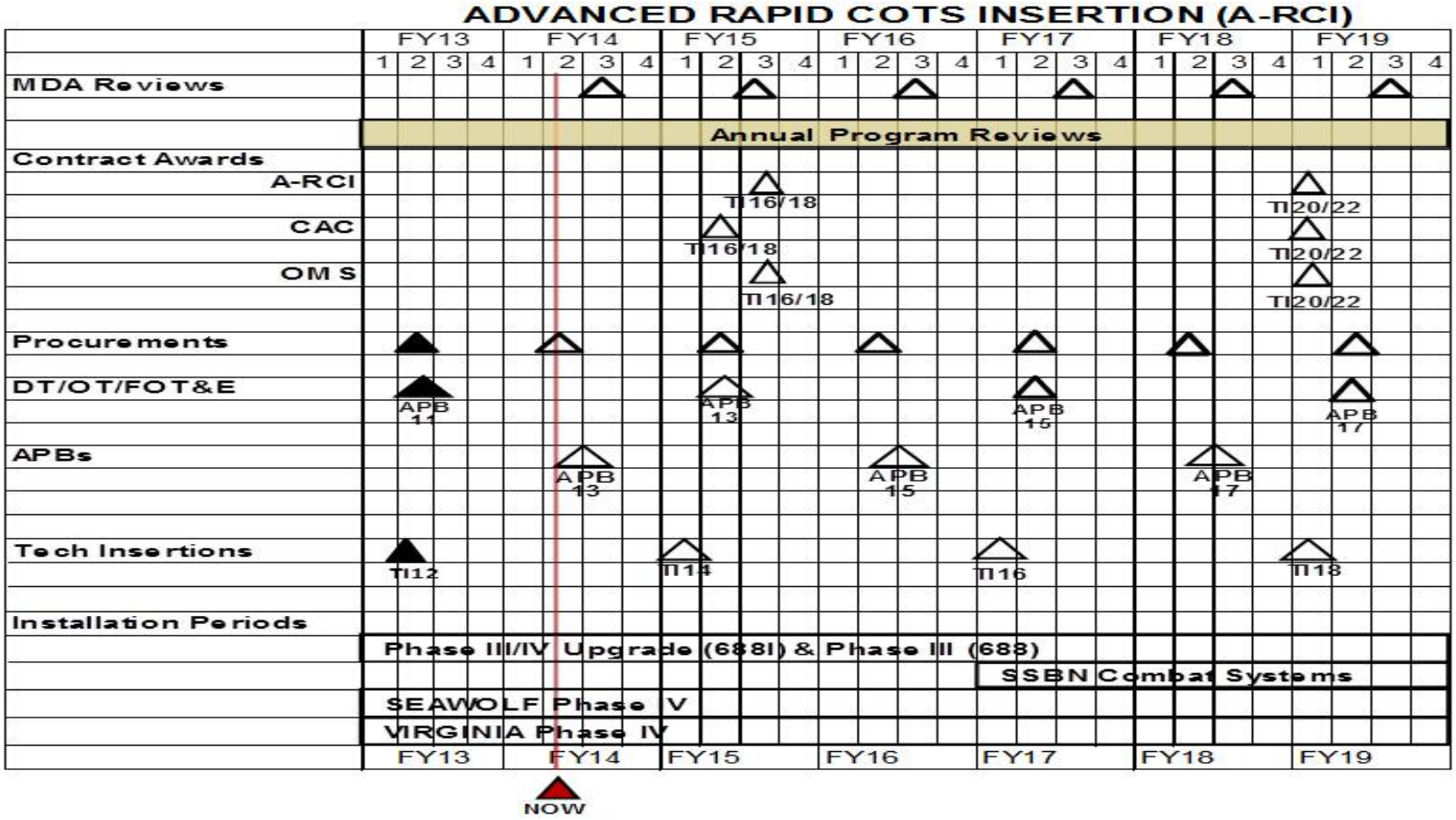


Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*	Project (Number/Name) 0742 / *Sub Integrated Ant System*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0742: *Sub Integrated Ant System*	238.921	16.291	14.816	12.793	-	12.793	25.198	24.613	13.255	13.587	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The Submarine Integrated Antenna System project (0742) provides for the development and testing of submarine antennas designed to meet emerging submarine requirements of: (a) Improved frequency coverage and data rate capabilities of submarine antennas and their interface to the External Communications System, (b) Improved submarine antenna performance and data rate while the submarine is operating at speed and depth, (c) Antenna compatibility with new waveforms and transceiver equipment, (d) Improved stealth capability of existing and future antennas and (e) Improved antenna design to reduce Total Ownership Cost. This project funds research and development for submarine antennas including (1) Pre-Planned Product Improvement (P3I) efforts to existing antennas including Outboard Electronics (OE)-538/BRC Multi-Function Antenna, (2) OE-562 Submarine, High Data Rate (SubHDR) system development of components for reliability improvements, (3) Development of new systems including Advanced High Data Rate (AdvHDR), (4) Continue support of Submarine Communications Buoy (SCB) Project Arrangement with United Kingdom (UK), and (5) Towed Buoy Antenna (AN/BRR-6/6B) system development of components for reliability improvements. The efforts listed above will provide Ship Submersible Nuclear (SSN), Ship Submersible Ballistic Nuclear (SSBN) and Ship Submersible Guided Nuclear (SSGN) platforms with improved communications capabilities to support future Joint, Allied, and Naval operations.

JUSTIFICATION FOR BUDGET ACTIVITY:
This project is funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.
Notes/Comments:
FY15 OE-538: Complete development/update of required Milestone C acquisition documents.
FY15 SubHDR: Continue development of Reliability Maintainability, and Availability (RMA) components identified by research and analysis to maintain Operational Availability (Ao) throughout the life of the system. Complete Underwater Explosion (UNDEX) development and testing.
FY15 SCB: Complete support for SCB Project Arrangement with United Kingdom and complete providing program, contract, and system engineering management support for Submarine Communications Buoy. Commence final report.
FY15 Towed Buoy Antenna (AN/BRR-6/6B): Continue component development, system integration, and testing for reliability improvements and continue providing program, contract, logistics, and system engineering management (Transitioned from Transition Engineering in FY14).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Antenna Transition Engineering	3.893	4.227	3.561
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: - Continued to provide emerging requirements and satellite communications (SATCOM) database/link analysis for other development programs in support of current & future communication architectures. - Continued Pre-Planned Product Improvement (P3I) investigation and development efforts towards legacy antenna systems. - Continued concept engineering, new technology evaluations, and assessments in support of current and future undersea antenna applications, to include Hull, Mechanical & Electrical (HM&E) interfaces. - Continued to investigate multiple usage antennas, including antennas that can be used for communications and other functions. - Continued BRR-6 Reliability Improvement. ***FY 2014 Plans:*** - Continue to provide emerging requirements and SATCOM database/link analysis for other development programs in support of current & future undersea communication architectures. - Continue P3I investigation and development efforts towards legacy antenna systems. - Continue concept engineering, new technology evaluations, and assessments in support of current and future undersea antenna applications, to include HM&E interfaces. - Continue to investigate multiple usage antennas, including antennas that can be used for undersea communications and other functions. - Commence development of undersea communications future capabilities in support of the 4th Generation Undersea Communication Architecture. ***FY 2015 Plans:*** - Continue to provide emerging requirements and SATCOM database/link analysis for other development programs in support of current & future undersea communication architectures. - Continue P3I investigation and development efforts towards legacy antenna systems. - Continue concept engineering, new technology evaluations, and assessments in support of current and future undersea antenna applications, to include HM&E interfaces. - Continue to investigate multiple usage antennas, including antennas that can be used for communications and other functions. - Continue development of future undersea communication capabilities in support of the 4th Generation Undersea Communication Architecture.			
Title: Outboard Electronics (OE)-538	3.951	4.156	3.480
Articles:	-	-	-
FY 2013 Accomplishments: - Continued Increment 2 system design, manufacture and testing of Engineering Development Model (EDM).			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- Continued Capability Production Document (CPD) and continued applicable Integrated Logistics Support (ILS) documentation to support Low-Rate Initial Production (LRIP) decision. - Continued development/update of required Milestone C acquisition documents. - Continued preparation for Developmental Test (DT) in support of LRIP. - Commenced the oversight of the development/integration of Global Positioning System (GPS) Anti-Jam (AJ). ***FY 2014 Plans:*** - Complete Increment 2 system design, manufacture and testing of EDM. - Complete CPD and continue applicable ILS documentation to support LRIP decision. - Continue development/update of required Milestone C acquisition documents. - Complete DT in support of LRIP. - Continue oversight for the development/integration of Global Positioning System (GPS) Anti-Jam (AJ). ***FY 2015 Plans:*** - Complete applicable ILS documentation to support LRIP decision. - Complete development/update of required Milestone C acquisition documents. - Commence preparation for OE-538A Underwater Explosion (UNDEX) test. - Commence preparation for DT/Operational Test (OT) in support of Full Rate Production (FRP). - Continue oversight for the development/integration of Global Positioning System (GPS) Anti-Jam (AJ).			
Title: Submarine High Data Rate (SubHDR) Pre-Planned Product Improvement (P3I)	3.529	-	3.367
Articles:	-	-	-
FY 2013 Accomplishments: - Continued development of Reliability Maintainability, and Availability (RMA) components identified by research and analysis to maintain an Operational Availability (Ao) throughout the life of the system. - Continued Underwater Explosion (UNDEX) development and testing. ***FY 2014 Plans:*** -N/A ***FY 2015 Plans:*** - Continue development of Reliability Maintainability, and Availability (RMA) components identified by research and analysis to maintain Operational Availability (Ao) throughout the life of the system. - Complete UNDEX development and testing and receive delivery of two functioning UNDEX prtotype kits.			
Title: Advanced High Data Rate (AdvHDR)	2.460	1.489	-
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: - Completed technology development efforts. - Continued system development engineering efforts. - Continued technology maturation. ***FY 2014 Plans:*** - Complete technology maturation. ***FY 2015 Plans:*** - N/A			
Title: Submarine Communications Buoy (SCB)	2.458	2.270	1.792
Articles:	-	-	-
Description: A project arrangement between the United States and the United Kingdom. ***FY 2013 Accomplishments:*** - Continued support for SCB Project Arrangement with United Kingdom. - Continued component design specification development of candidate SCB components. - Continued development of demonstration plan for SCB components. - Continued performance evaluation of the candidate SCB components. ***FY 2014 Plans:*** - Continue support for SCB Project Arrangement with United Kingdom. - Continue component design specification development for candidate SCB components. - Continue development of demonstration plan for SCB components. - Continue performance evaluation of the candidate SCB components. ***FY 2015 Plans:*** - Complete support for SCB Project Arrangement with United Kingdom. - Complete component design specification development of candidate SCB components. - Complete development of demonstration plan for SCB components. - Complete performance evaluation of the candidate SCB components. - Commence final report.			
Title: Towed Buoy Antenna (AN/BRR-6/6B)	-	2.674	0.593
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Description: AN/BRR-6/6B previously funded under Transition Engineering Project for development efforts and SAMS Program for procurement and sustainment efforts. ***FY 2013 Accomplishments:*** N/A ***FY 2014 Plans:*** - Continue support for BRR-6 Program providing program, contract, logistics, and system engineering management. - Continue component design specification/modification for reliability improvements of tow cable strength/throughput, antenna/amplifier, and servo valve isolation. - Continue component development, system integration, and testing for reliability improvements of tow cable strength/throughput, antenna/amplifier, and servo valve isolation. - Complete component design specification/modification for reliability improvements of buoy cabling/connectors and rotary joint. - Complete component development, system integration, and testing for reliability improvements of buoy cabling/connectors and rotary joint. ***FY 2015 Plans:*** - Continue support for BRR-6 Program providing program, contract, logistics, and system engineering management. - Continue component design specification/modification for reliability improvements of antenna/amplifier. - Continue component development, system integration, and testing for reliability improvements of antenna/amplifier. - Complete component design specification/modification for reliability improvements of tow cable strength/throughput and servo valve isolation. - Complete component development, system integration, and testing for reliability improvements of tow cable strength/throughput and servo valve isolation. - Complete tow cable failure analysis and key item failure analysis for reliability improvements.			
Accomplishments/Planned Programs Subtotals	16.291	14.816	12.793

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 313000: *Submarine Communications*	58.916	64.376	67.852	-	67.852	53.483	66.742	73.310	74.929	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

D. Acquisition Strategy

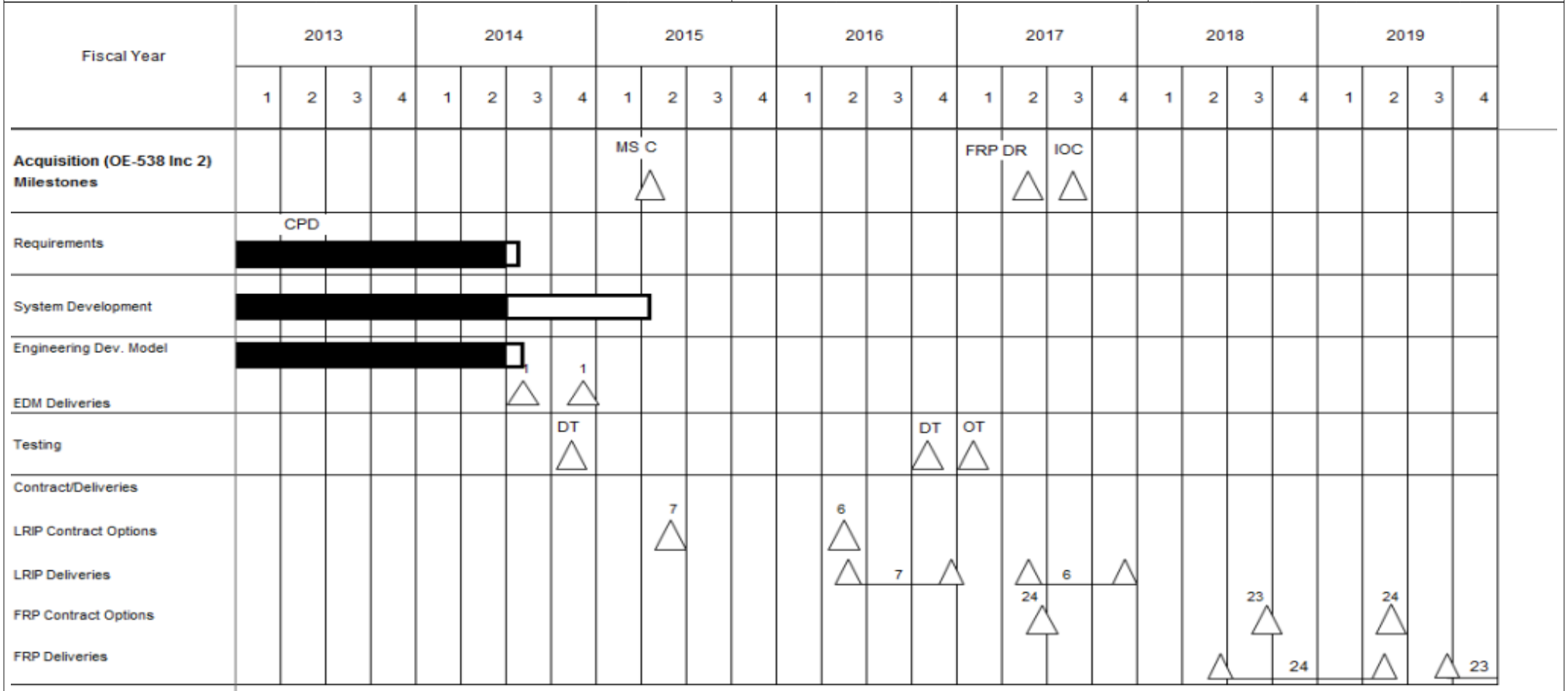
Program Milestones (MS):
Outboard Electronics (OE)-538: 2nd Quarter (QTR) FY15 Milestone C (MS C); 2nd QTR FY17 Full Rate Production (FRP) Decision Review.

Test and Evaluation (T&E) Milestones:
OE-538: 4th QTR FY16 DT for FRP; 1st QTR FY17 Operational Test (OT) for FRP.

E. Performance Metrics

FY15 OE-538: Complete Milestone C Decision Review.
FY15 SubHDR: Deliver two functioning Underwater Explosion (UNDEX) prototype kits.
FY15 BRR-6 Reliability Improvements: Complete development of reliability improvements for Tow Cables, Servo Valve Isolation and Failure analysis on Key Items.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*



Footnotes:

1. Milestone schedule changed from 4QTR FY14 to 2QTR FY15 due to EDM delivery delay.
2. Production of OE-538 Increment 2 starting in FY18 and out will include Global Positioning System (GPS) Anti-Jam (AJ) capability funded by PMW/A 170 Sea NAVWAR Program.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

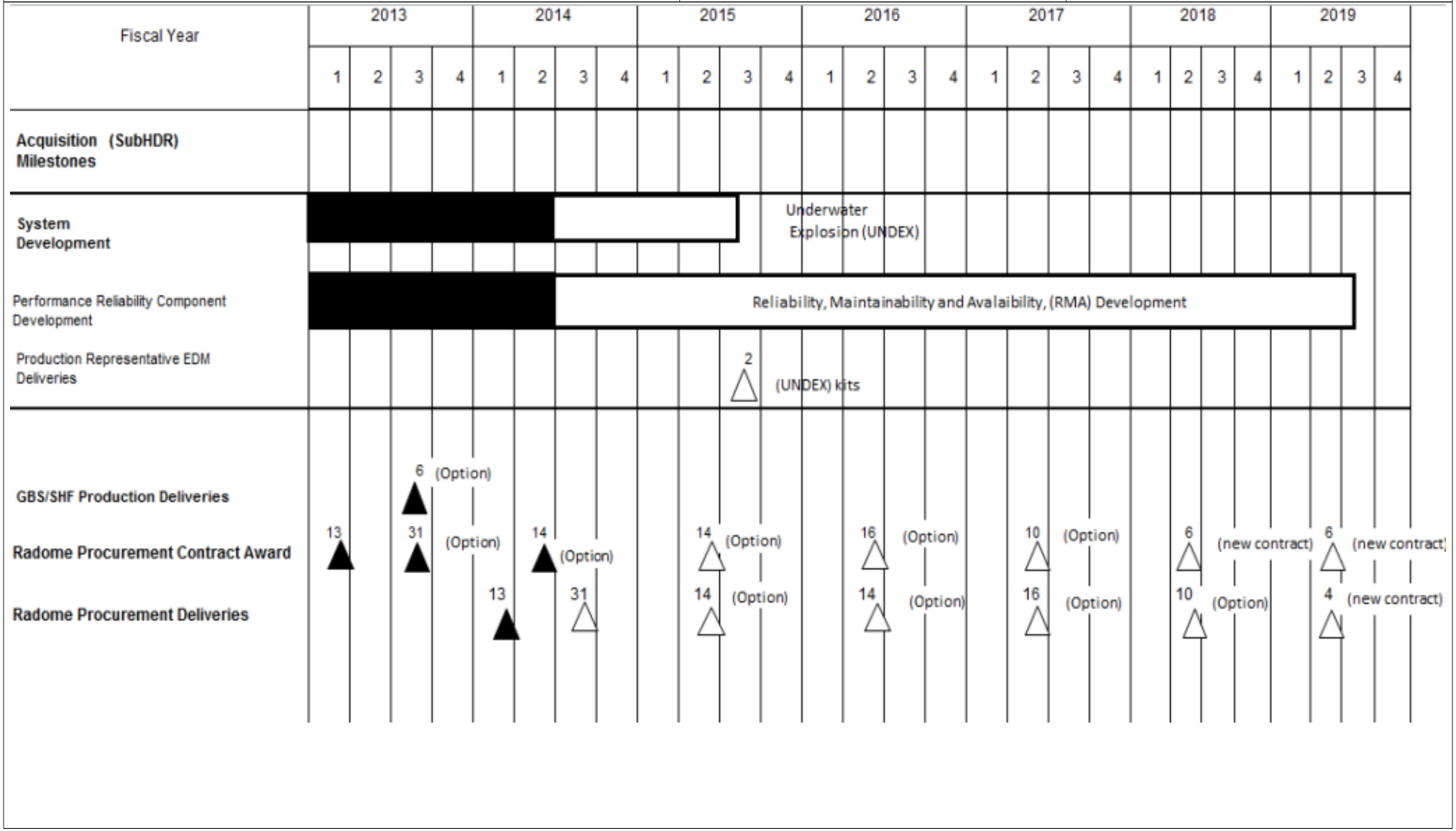
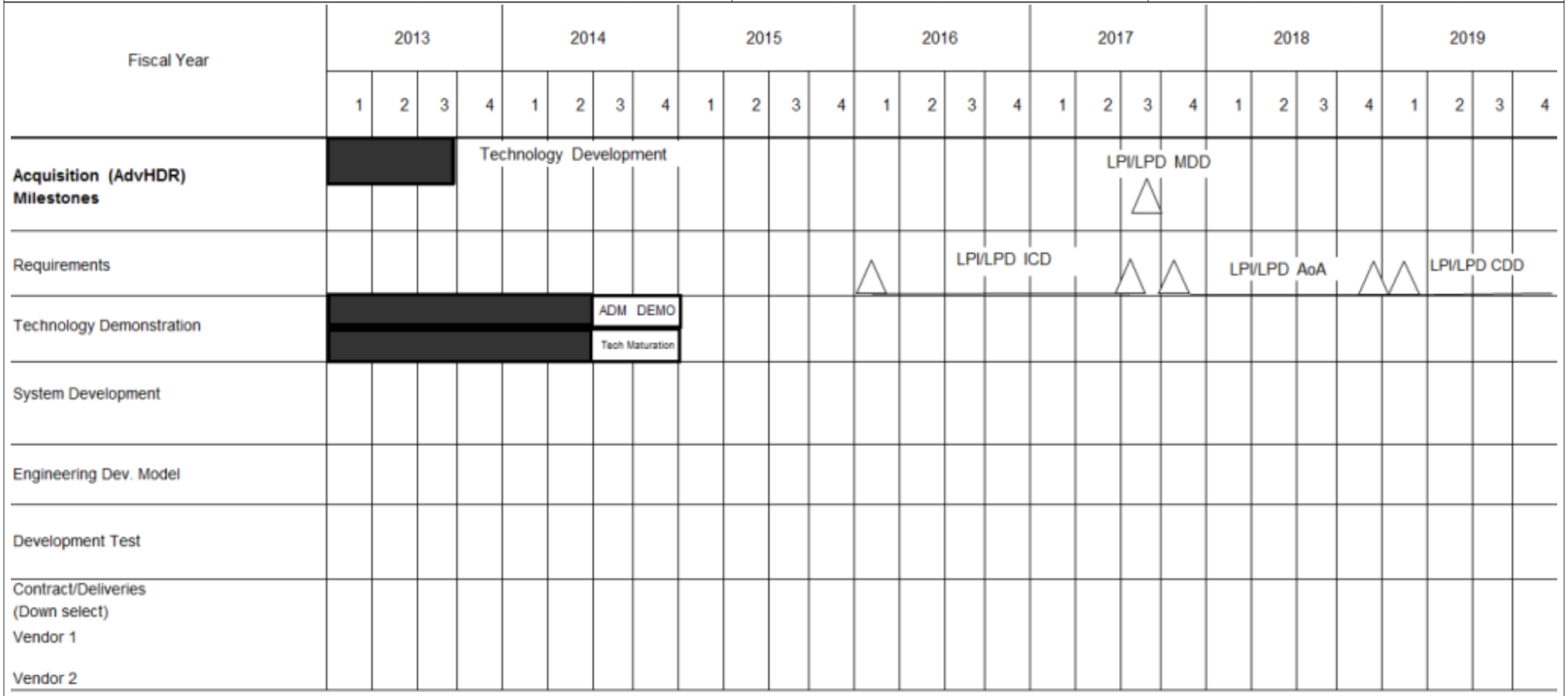


Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*



Acronyms:
ADM - Advanced Development Model
LPI/LPD Low Probability of Intercept/Low Probability of Detection

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Navy			**Date:** March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*	

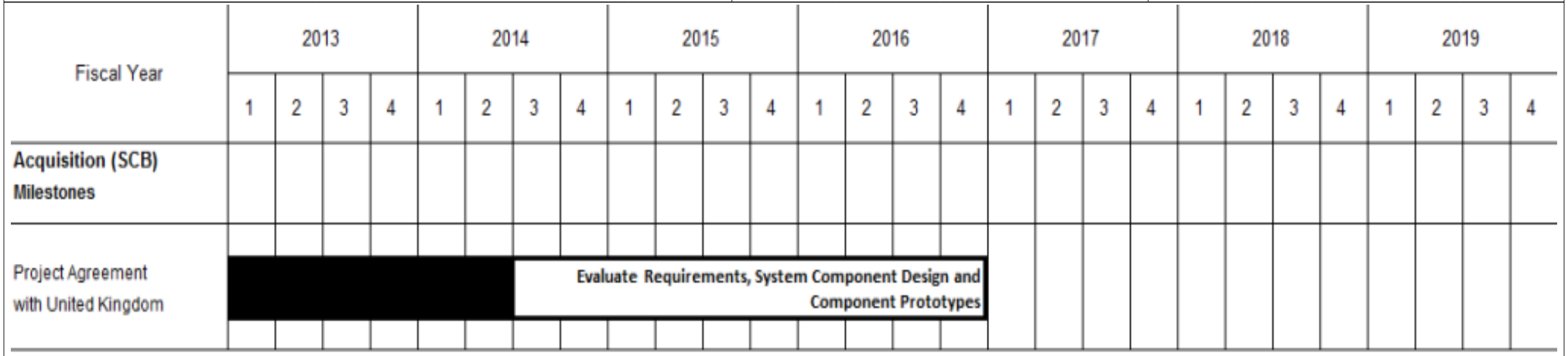


Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

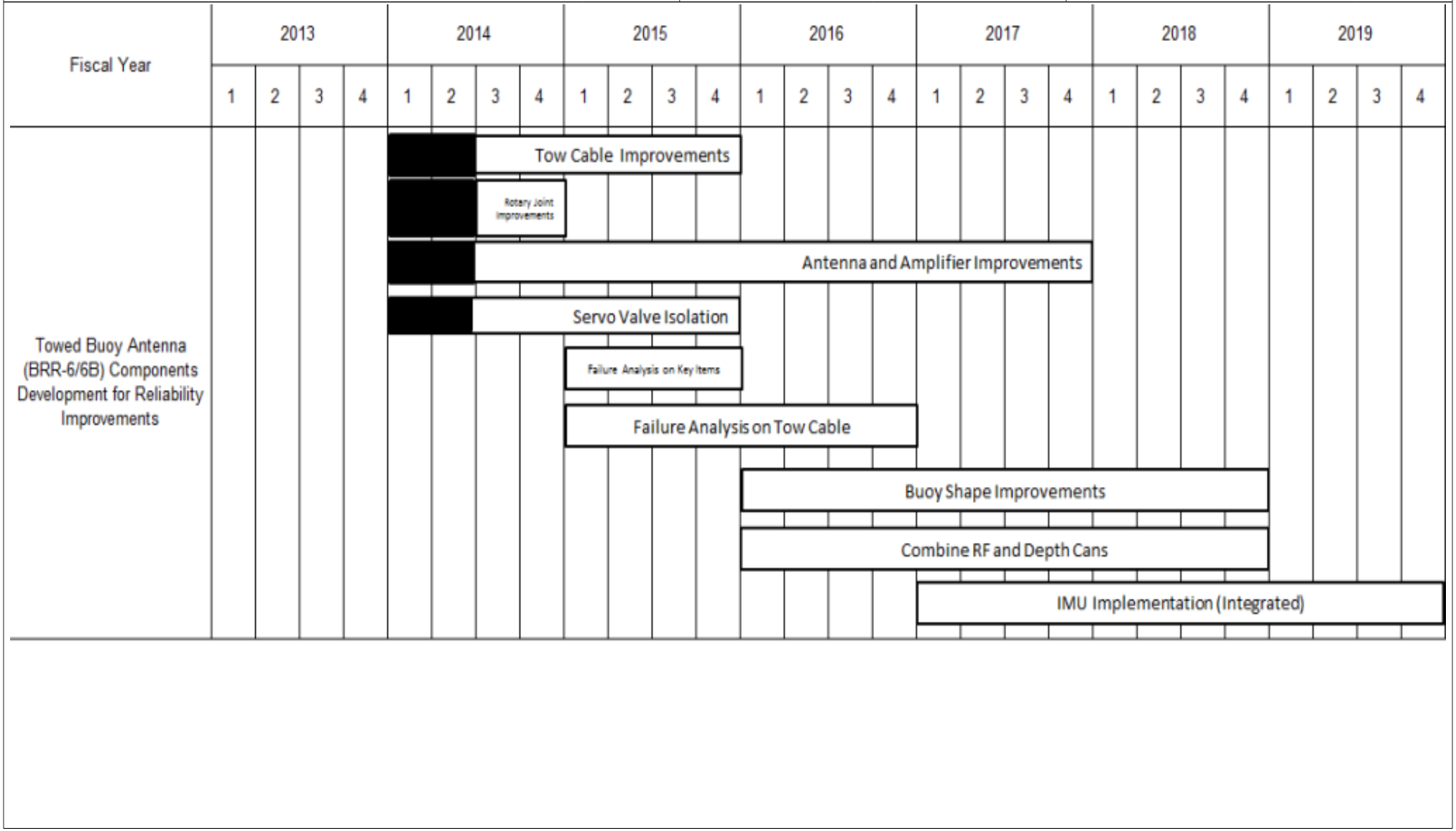


Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*				Project (Number/Name) 0775 / *Submarine Supt Equip Prog*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0775: *Submarine Supt Equip Prog*	6.070	1.155	1.318	8.064	-	8.064	6.472	9.481	9.694	3.167	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The Submarine Support Equipment Program (SSEP) is responsible for the development and improvement of Submarine Electronic Warfare (EW) systems in support of effective operations in the following mission areas: Joint Littoral Warfare; Joint Intelligence Surveillance Reconnaissance (ISR), Indications and Warnings; Electronic Warfare; Information Operations including Cyber; and Special Operations Force (SOF) support. The rapid proliferation of complex radar, communications and navigation equipment available to potential adversaries creates an increasingly dense and sophisticated electromagnetic environment. Sustained and significant improvements to submarine EW systems are required to maintain tactical ship safety and operation effectiveness. As such EW was raised to a submarine primary mission area in FY2012 by Commander Submarine Forces, and EW is listed as the number one modernization requirement by the Submarine Tactical Requirements Group (STRG). OPNAV letter dated 17 June 12, SER N97/12U144401 further codified this need by directing development of a digital Next Generation EW system as an evolution of the AN/BLQ-10 EW program. SSEP efforts in support of these needs include; integration of technology developed and transitioned from the Advanced Submarine Support Equipment Program (ASSEP) into tactical EW systems; interface and capability integration with Submarine Warfare Federated Tactical System Modernization efforts; and, commencing in FY14, development of the Next Generation EW BLQ-10 system.

RDTE Funding line supports the entire AN/BLQ-10 EW procurement program. The FY15 increase in RDTE budget supports development of EW Next Generation Architecture. Average FY OPN and SCN hardware procurement yearly funds are $100M.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Submarine Support Equipment Program	1.155	1.318	8.064
Articles:	-	-	-
FY 2013 Accomplishments: Updated AN/BLQ-10 software baseline changes for SWFTS and NPES, SPR Resolution, and Software Enhancement. Integrated and commenced development of TI-14 Processor Upgrades, Remote Log-In, Rapid Reprogramming of Threat Libraries, and ES Server Correlator.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0775 / *Submarine Supt Equip Prog*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Update AN/BLQ-10 software baseline changes for SWFTS and NPES, SPR Resolution and Software Enhancement. Complete testing of TI-14 Processor Upgrades, Remote Log-in, Rapid Reprogramming of Threat Libraries and ES Server Correlator (component of Next Generation Architecture). Commence integration and testing of TI-APB 13. ***FY 2015 Plans:*** Update AN/BLQ-10 software baseline changes for SWFTS and NPES, SPR Resolution and Software Enhancement. Commence development of TI-16 Processor Upgrades, remote display and vulnerability rules of thumb. Commence development of Next Generation Architecture Increment 1 and EW Tactical Improvement Set (ETIS). These developments include; Update/develop processes, procedures and standards; Develop an open system architecture plan; Develop data standards and specifications; Develop EW server, displays and control of digital ELINT and digital COMINT subsystems. Demonstrate technology feasibility of systems capable of meeting AN/BLQ-10(B) performance and digital data delivery and processing requirements.			
Accomplishments/Planned Programs Subtotals	1.155	1.318	8.064

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/256000: *Submarine Supt Equip Prog*	31.191	44.429	45.362	-	45.362	56.956	64.790	64.823	98.198	Continuing	Continuing
• SCN/201300: *VIRGINIA Class Submarine*	50.863	50.225	51.378	-	51.378	52.560	53.769	55.006	55.136	Continuing	Continuing
• RDT&E/0604558N: *VIRGINIA Class Design Development*	1.500	5.000	1.500	-	1.500	1.500	1.500	1.500	1.526	Continuing	Continuing
• RDT&E/0603562N: *Advanced Submarine Support Equipment (ASSEP)*	3.648	3.855	3.343	-	3.343	4.077	4.186	4.162	4.248	Continuing	Continuing

Remarks

D. Acquisition Strategy

AN/BLQ-10 (V) EW System - Procurements are executed/managed in accordance with the Acquisition Strategy Report (Rev 7) for AN/BLQ-10(V) EW System dtd 01/28/2013 and the Acquisition Plan (Rev 9) for AN/BLQ-10(V) EW System dtd 06/06/13.

E. Performance Metrics

The RDD program goal is to respond to urgent operational needs within 30 days and provide for rapid development and fielding of prototype solutions within 270 days.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0775 / *Submarine Supt Equip Prog*

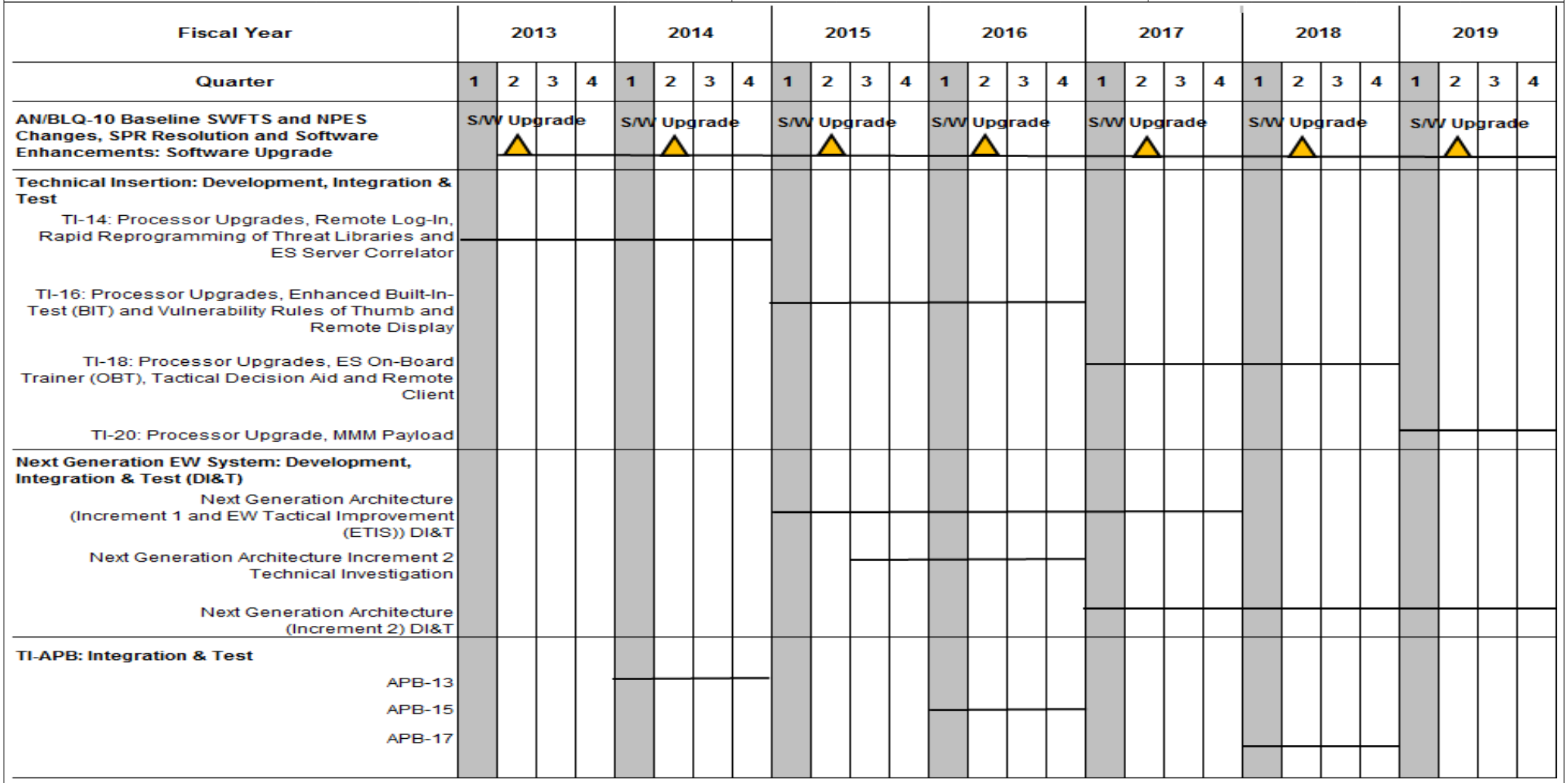


Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*				Project (Number/Name) 1411 / *Sub Tact Comm System*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
1411: *Sub Tact Comm System*	177.589	8.653	13.903	8.805	-	8.805	10.089	10.299	10.459	10.722	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Common Submarine Radio Room (CSRR) transforms LOS ANGELES, OHIO (SSBN and SSGN) and SEAWOLF Class radio rooms from suites of class-specific, closed system equipment to a common design which incorporates Open System Architecture communications equipment. CSRR will leverage VIRGINIA Class Exterior Communications System (ECS) design, utilize VIRGINIA Class ECS Control and Management software, apply a systems approach to design and implementation of Joint Maritime Communication System, and maximize use of Commercial Off-the-Shelf (COTS) products and emerging technologies. The Submarine Tactical Communications System project (1411) provides submarines with communications systems designed to: (a) enhance data throughout the automation and integrated network management; (b) convert to ForceNet and tactical data networks; (c) provide submarine Internet Protocol (IP) connectivity; (d) be interoperable with other joint United States and combined allied military networks; and (e) improve reliability, maintainability, and availability. This is accomplished by providing the submarine with a properly integrated mix of fully interoperable Navy standard and COTS communication equipment covering a wide range of frequencies and modes. The Common Submarine Radio Room (CSRR) integrates COTS and Government Off-The-Shelf components into a single radio room configuration for all classes of submarines. CSRR leverages and continues the development of VIRGINIA Class ECS which includes Open Systems Architecture design. The project utilizes land-based integration test facilities to integrate C4I program of record components into the open architecture prior to fleet implementation on all submarine platforms. This project funds the development of a replacement Simulation/Stimulation suite to support testing and training requirements. The project includes system engineering efforts associated with demonstration of new technology which will allow submarines to connect to the global information grid and participate in strike groups, as well as joint operations. The new technology will ensure the submarine's continued ability to participate in network-centric warfare and exploit its inherent stealth capabilities in support of the joint and combined fight to achieve total battlespace dominance.

JUSTIFICATION FOR BUDGET ACTIVITY:

This program is funded under ENGINEERING and MANUFACTURING DEVELOPMENT because it encompasses development and demonstration of new end-items prior to production approval decision.

Funding in FY15 is to continue CSRR Increment 1 Version 4 systems engineering development for LOS ANGELES, Ship Submersible Ballistic Nuclear (SSBN) and VIRGINIA class submarines and commence Increment 1 Version 4 systems engineering development for Ship Submersible Guided Missile Nuclear (SSGN) and SEAWOLF class submarines. Continue development of platform specific builds of Control & Management software incorporating Increment 1 Version 4 capabilities. Complete Increment 1 Version 3 Multi-Purpose Reconfigurable Training System (MRTS) software development for SSBN Operator. Continue development of the MRTS software for Increment 1 Version 4 capabilities.

Acquisition Decision Memorandum signed by Assistant Secretary of Navy for Research, Development & Acquisition dated 15 July 2008 approved consolidating Increments 1 and 2 to a single Increment 1 with multiple block upgrades (Versions).

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Common Submarine Radio Room (CSRR)	8.653	13.903	8.805
Articles:	-	-	-
FY 2013 Accomplishments: - Completed Multi-Purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 3 CSRR baseline for LOS ANGELES operator and VIRGINIA maintenance trainer. - Continued implementation of Increment 1 Version 3 security upgrades to meet Information Assurance, Information Security and multiple levels of certification requirements for General Service and Sensitive Compartmented Information for all CSRR platforms. - Completed CSRR systems engineering and modernization of Increment 1 Version 3 for SSGN and continued systems engineering and modernization for SEAWOLF and SSBN class submarines. - Completed Follow-on Operational Test & Evaluation (FOT&E) of the CSRR Increment 1 Version 3 baseline on the LOS ANGELES platform; assessed as operationally effective and suitable. - Achieved Joint Interoperability Test Command (JITC) certification of Increment 1 Version 3. - Attained successful Full Fielding Decision for Increment 1 Version 3. - Completed VIRGINIA, LOS ANGELES, and SSGN Increment 1 Version 3 upgrade of Control and Management software baseline. - Continued development for platform specific builds of Control & Management software Increment 1 Version 3 capabilities for VIRGINIA, LOS ANGELES, SEAWOLF, SSGN and SSBN incorporating End of Life (EOL) issues due to equipment obsolescence. - Continued development of platform specific builds of Increment 1 Version 3 Control and Management software for SEAWOLF and SSBN capabilities.			
FY 2014 Plans: - Complete CSRR systems engineering development for modernization of Increment 1 Version 3 for SSBN and SEAWOLF class submarines. - Complete development of platform specific builds of Increment 1 Version 3 Control and Management software for SEAWOLF and SSBN capabilities. - Complete implementation of Increment 1 Version 3 security upgrades and meet Information Assurance, Information Security and multiple levels of certification requirements for General Service and Sensitive Compartmented Information for all CSRR platforms. - Commence Federal Information System Management Act (FISMA) statutory requirement for cyber security compliance and correction of Increment 1 Version 1 - Version 3 cyber security deficiencies. - Commence Supply Chain Risk Management (SCRM) assessment as part of Program Protection Plan revision. - Continue development of platform specific builds of Control & Management software Increment 1 Version 3 capabilities for VIRGINIA, LOS ANGELES, SEAWOLF, SSGN and SSBN incorporating End of Life (EOL) issues due to equipment obsolescence. - Commence Multi-purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 3 CSRR baseline for SSBN operator trainer.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- Conduct Increment 1 Version 3 OT test deferrals, Special Operations Force (SOF) testing and Verification of Correction of Deficiencies (VCD) testing defined in the Increment 1 Version 3 OT report. Conduct required Increment 1 Version 3 SSBN Emergency Action Message (EAM) certification testing and data analysis and Targeting Change Message (TCM) testing. Correct Increment 1 Version 3 cable management plan design deficiencies identified on all Increment 1 Version 3 platforms in the Departure From Specification (DFS) documentation. - Commence implementation of Increment 1 Version 4 security upgrades and meet Information Assurance, Information Security and multiple levels of certification requirements for General Service and Sensitive Compartmented Information for all CSRR platforms. - Commence Multi-Purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 4 CSRR baseline for LOS ANGELES and SSBN operator trainer and VIRGINIA maintenance trainer. - Commence CSRR Increment 1 Version 4 system engineering development and modernization for the LOS ANGELES, SSBN and VIRGINIA class submarines. - Commence development of platform specific builds of Increment 1 Version 4 Control and Management software for LOS ANGELES, SSBN and VIRGINIA capabilities.			
FY 2015 Plans: - Complete development of platform specific builds of Control & Management software Increment 1 Version 3 capabilities for VIRGINIA, LOS ANGELES, SEAWOLF, SSGN and SSBN incorporating End of Life (EOL) issues due to equipment obsolescence. - Complete Multi-purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 3 CSRR baseline for SSBN operator trainer. - Continue Federal Information System Management Act (FISMA) statutory requirement for cyber security compliance and correction of Increment 1 Version 1 - Version 3 cyber security deficiencies. - Continue Supply Chain Risk Management (SCRM) assessment as part of Program Protection Plan revision. - Continue CSRR Increment 1 Version 4 system engineering development and modernization for the LOS ANGELES, SSBN and VIRGINIA class submarines. - Commence CSRR Increment 1 Version 4 system engineering development and modernization for the SSGN and SEAWOLF class submarines. - Continue development of platform specific builds of Increment 1 Version 4 Control and Management software for LOS ANGELES, SSBN and VIRGINIA capabilities. - Commence development of platform specific builds of Increment 1 Version 4 Control and Management software for SSGN and SEAWOLF capabilities. - Continue implementation of Increment 1 Version 4 security upgrades and meet Information Assurance, Information Security and multiple levels of certification requirements for General Service and Sensitive Compartmented Information for all CSRR platforms.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- Commence Federal Information System Management Act (FISMA) statutory requirement for cyber security compliance and correction of Increment 1 Version 1 - Version 4 cyber security deficiencies. - Continue Multi-Purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 4 CSRR baseline for LOS ANGELES and SSBN operator trainer and VIRGINIA maintenance trainer.			
Accomplishments/Planned Programs Subtotals	8.653	13.903	8.805

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 313000: *Submarine Communications*	58.916	64.376	67.852	-	67.852	53.483	66.742	73.310	74.929	Continuing	Continuing

Remarks

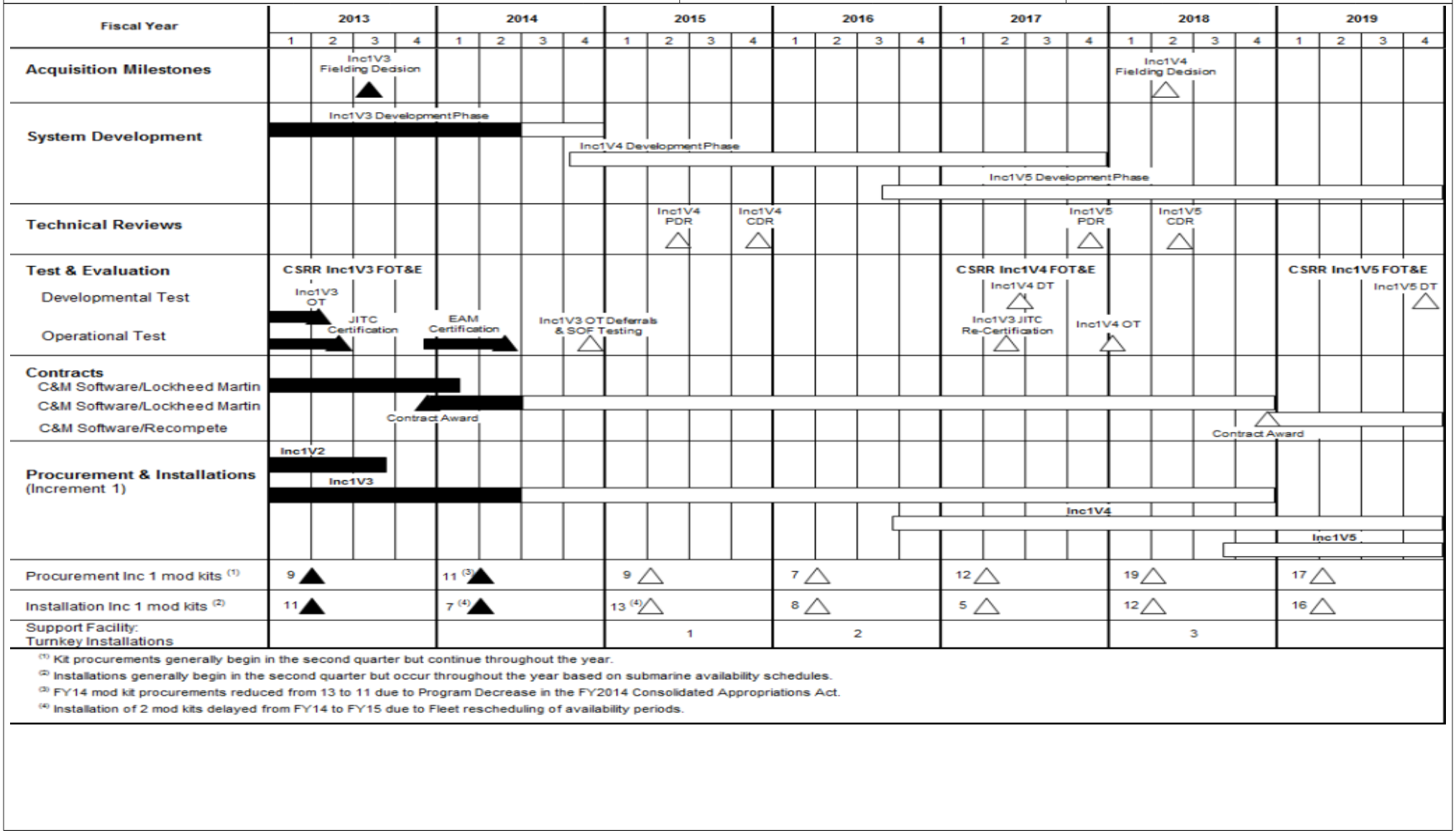
D. Acquisition Strategy

CSRR transforms LOS ANGELES, OHIO (SSBN and SSGN), VIRGINIA and SEAWOLF Class radio rooms from suites of class-specific, closed system equipment to a common design which incorporates Open System Architecture (OSA). CSRR applies a systems approach to design and implementation of Joint Maritime Communication System (JMCOMS), and maximizes use of Commercial Off-The-Shelf (COTS) products and emerging technologies. Program Milestones: Increment 1 Version 4 Preliminary Design Review (PDR) 2Q FY15, Critical Design Review (CDR) 4Q FY15, Developmental Test (DT) 2Q FY17, Operational Test (OT) 1Q FY18, and Fielding Decision 2Q FY18. Increment 1 Version 5 PDR 4Q FY17, CDR 2Q FY18, and DT 4Q FY19.

E. Performance Metrics

FY15 CSRR reduces the overall cost for implementation of Command, Control, Communications Computer, Intelligence (C4I) Programs of Record (POR) components into the submarine external communications system by implementing block upgrades and reducing the integration/installation costs. The amount of RDT&E funding is dependent on the number of baselines being integrated and tested in any given year.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*



(1) Kit procurements generally begin in the second quarter but continue throughout the year.
(2) Installations generally begin in the second quarter but occur throughout the year based on submarine availability schedules.
(3) FY14 mod kit procurements reduced from 13 to 11 due to Program Decrease in the FY2014 Consolidated Appropriations Act.
(4) Installation of 2 mod kits delayed from FY14 to FY15 due to Fleet rescheduling of availability periods.