Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy											Date: February 2015	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	1,248.793	83.360	71.551	109.908	-	109.908	97.958	87.662	89.067	96.097	Continuing	Continuing
0219: *Sub Sonar Improvement (ENG)*	800.018	54.008	41.903	68.891	-	68.891	53.617	54.501	55.737	61.588	Continuing	Continuing
0742: *Sub Integrated Ant System*	255.308	14.424	12.779	25.459	-	25.459	24.836	13.321	13.333	13.627	Continuing	Continuing
0775: *Submarine Supt Equip Prog*	7.225	1.314	8.064	6.204	-	6.204	8.837	9.149	9.319	9.986	Continuing	Continuing
1411: *Sub Tact Comm System*	186.242	13.614	8.805	9.354	-	9.354	10.668	10.691	10.678	10.896	Continuing	Continuing

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 2016 Navy					Date: February 2015
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*			R-1 Program Element (Number/Name) PE 0604503N *I SSN-688 & Trident Modernization*		
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	85.711	71.565	117.014	-	117.014
Current President's Budget	83.360	71.551	109.908	-	109.908
Total Adjustments	-2.351	-0.014	-7.106	-	-7.106
• Congressional General Reductions	-	-0.014			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.350	-			
• Program Adjustments	-	-	-4.661	-	-4.661
• Rate/Misc Adjustments	-0.001	-	-2.445	-	-2.445

Change Summary Explanation

The FY 2016 funding request was reduced by $1.613 million to account for the availability of prior year execution balances.

Schedule:

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

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*	Project (Number/Name) 0219 / *Sub Sonar Improvement (ENG)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
0219: *Sub Sonar Improvement (ENG)*	800.018	54.008	41.903	68.891	-	68.891	53.617	54.501	55.737	61.588	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: APB Productionization	13.193	12.112	12.000	-	12.000
Articles:	-	-	-	-	-
Description: APB productionization provides for the transition of APB capability improvements to the Fleet for the integration, testing and formal certification.					
FY 2014 Accomplishments: Continued 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.					
FY 2016 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0219 / *Sub Sonar Improvement (ENG)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
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 2016 OCO Plans:*** N/A					
Title: Integration and Testing	40.815	25.941	35.410	-	35.410
Articles:	-	-	-	-	-
Description: Integration and Testing provides support to integrated and test APB's into all submarine classes with numerous sensor systems. ***FY 2014 Accomplishments:*** Supported 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. FY15 funding level incorporates a $14.3M higher Departmental priority cut, cancelling the TI12/APB13 software upgrade, breaking the TI/APB model which provides for a newer TI hardware baseline to receive two versions of software baselines. By cancelling TI12/APB 13 , eight SSN 688/688I, two SEAWOLF and three VIRGINIA Class submarines will not receive the latest software improvements as part of the APB 13 baseline. ***FY 2016 Base Plans:*** Supports Advanced Processing Builds installed on SSN 688I, SSN 688, SSN 21, SSGN 726, SSBN, and VA Class Submarines. FY15 funding level incorporates a $14.3M higher Departmental priority cut, cancelling the TI12/APB13 software upgrade, breaking the TI/APB model which provides for a newer TI hardware baseline to receive two versions of software baselines. By cancelling TI12/APB 13 , eight SSN 688/688I, two SEAWOLF and three VIRGINIA Class submarines will not receive the latest software improvements as part of the APB 13 baseline. FY16 funding restores the funding to near (but below) FY14 level to enable planned upgrades to be incorporated into the TI14 baseline. ***FY 2016 OCO Plans:*** N/A					
Title: SSBN Combat System Modernization	-	3.850	4.827	-	4.827

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0219 / *Sub Sonar Improvement (ENG)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Articles:	-	-	-	-	-
FY 2014 Accomplishments: N/A ***FY 2015 Plans:*** This effort incorporates SSBN combat systems into the APB/TI model. ***FY 2016 Base Plans:*** This effort incorporates SSBN combat systems into the APB/TI model. ***FY 2016 OCO Plans:*** N/A					
Title: TB-29X Development	-	-	13.200	-	13.200
Articles:	-	-	-	-	-
Description: Provides funding for the development of TB-29A equivalent Thin Line Array with long range detection and tracking with improved reliability, using improved telemetry. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** Provides funding for the development of TB-29A equivalent Thin Line Array with long range detection and tracking with improved reliability, using improved telemetry. This effort incorporates TB-29X system development. Funding will provide for the procurement of a first article TB-29X array, testing and inspections in accordance with the Performance Specification. Testing will include environmental testing, acoustic calibration testing, self-noise tow testing and SONAR/TB-29X interface testing required to ensure the array meets all performance specifications. ***FY 2016 OCO Plans:*** N/A					
Title: SSN Combat Systems ISO Acoustic Superiority	-	-	3.454	-	3.454
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0219 / *Sub Sonar Improvement (ENG)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Description: Maintain Acoustic Superiority for In-service Submarines to deliver biannual Advance Processing Builds (APBs) to prevent obsolescence and deliver emerging capability improvements for current and future threats. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** This effort delivers emerging capability improvements for current and future threats by supporting development, integration, and testing of emerging capability improvements in passive long range detection/wide area search for current and future threats in support of CNO ltr Ser N00/S0100 dtd 7 Jan 13, Subj: SSN/SSBN Acoustic Superiority Campaign Plan. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	54.008	41.903	68.891	-	68.891

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPN/BLI 214700: *SSN Acoustics*	175.852	160.932	214.835	-	214.835	234.633	274.738	319.822	345.963	Continuing	Continuing

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 will be awarded to General Dynamics, Advanced Information Systems in January 2015 and a sole source contract will be awarded to Lockheed Martin Maritime Systems & Sensors in January 2015. Program Reviews with the Milestone Decision Authority are conducted granting approval for the production options.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0219 / *Sub Sonar Improvement (ENG)*

E. Performance Metrics

The A-RCI program will modernize approximately 8-12 SSNs per year through executing bi-annual software Advanced Processor Builds (APBs) and bi-annual Technical Insertions (TIs). Beginning with FY17 installations, the A-RCI program will modernize approximately 2-3 SSBNs per year through bi-annual APB/TI.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0219 / *Sub Sonar Improvement (ENG)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPIF	LMC : Manassas, VA	298.801	20.844	Dec 2013	11.586	Jan 2015	18.743	Dec 2015	-		18.743	Continuing	Continuing	Continuing
Ancillary Hardware Development	SS/CPFF	ARL University of Texas : Austin, TX	27.725	3.170	Mar 2014	2.913	Mar 2015	3.595	Mar 2016	-		3.595	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	Johns Hopkins APL : Baltimore, MD	30.023	3.082	Dec 2013	2.835	Dec 2014	3.585	Dec 2015	-		3.585	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	LMC : VA - Keyport	27.129	3.127	Jan 2014	2.877	Jan 2015	3.127	Jan 2016	-		3.127	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPIF	Progeny Systems : Manassas, VA	45.408	6.363	Jan 2014	5.854	Jan 2015	6.965	Jan 2016	-		6.965	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC : Newport, RI	155.203	5.951	Dec 2013	5.331	Dec 2014	5.951	Dec 2015	-		5.951	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Carderock, MD	20.571	2.674	Dec 2013	2.393	Dec 2014	2.674	Dec 2015	-		2.674	Continuing	Continuing	Continuing
TB-29X Development	C/CPIF	TBD : TBD	0.000	-		-		13.200	Dec 2015	-		13.200	Continuing	Continuing	Continuing
		Subtotal	604.860	45.211		33.789		57.840		-		57.840	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development	C/CPIF	General Dynamics, AIS : Fairfax, VA	148.389	3.118	Dec 2013	2.869	Jan 2015	5.569	Dec 2015	-		5.569	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	Sedna Digital, : Manassas, VA	24.507	4.141	Dec 2013	3.810	Dec 2014	4.141	Dec 2015	-		4.141	Continuing	Continuing	Continuing
		Subtotal	172.896	7.259		6.679		9.710		-		9.710	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test and Evaluation	WR	OPTEVFOR : Norfolk, VA	8.565	0.620	Dec 2013	0.571	Dec 2014	0.525	Dec 2015	-		0.525	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*	Project (Number/Name) 0219 / *Sub Sonar Improvement (ENG)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	8.565	0.620		0.571		0.525		-		0.525	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Support Services	C/FFP	Alion, BAH, URS Technical Services : Washington, DC	11.663	0.814	Dec 2013	0.762	Dec 2014	0.716	Dec 2015	-		0.716	Continuing	Continuing	Continuing
Travel	WR	NAVSEA : Washington, DC	2.034	0.104	Dec 2013	0.102	Dec 2014	0.100	Dec 2015	-		0.100	Continuing	Continuing	Continuing
		Subtotal	13.697	0.918		0.864		0.816		-		0.816	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	800.018	54.008		41.903		68.891		-		68.891	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0219 / *Sub Sonar Improvement (ENG)*

A-RCI Planning Schedule

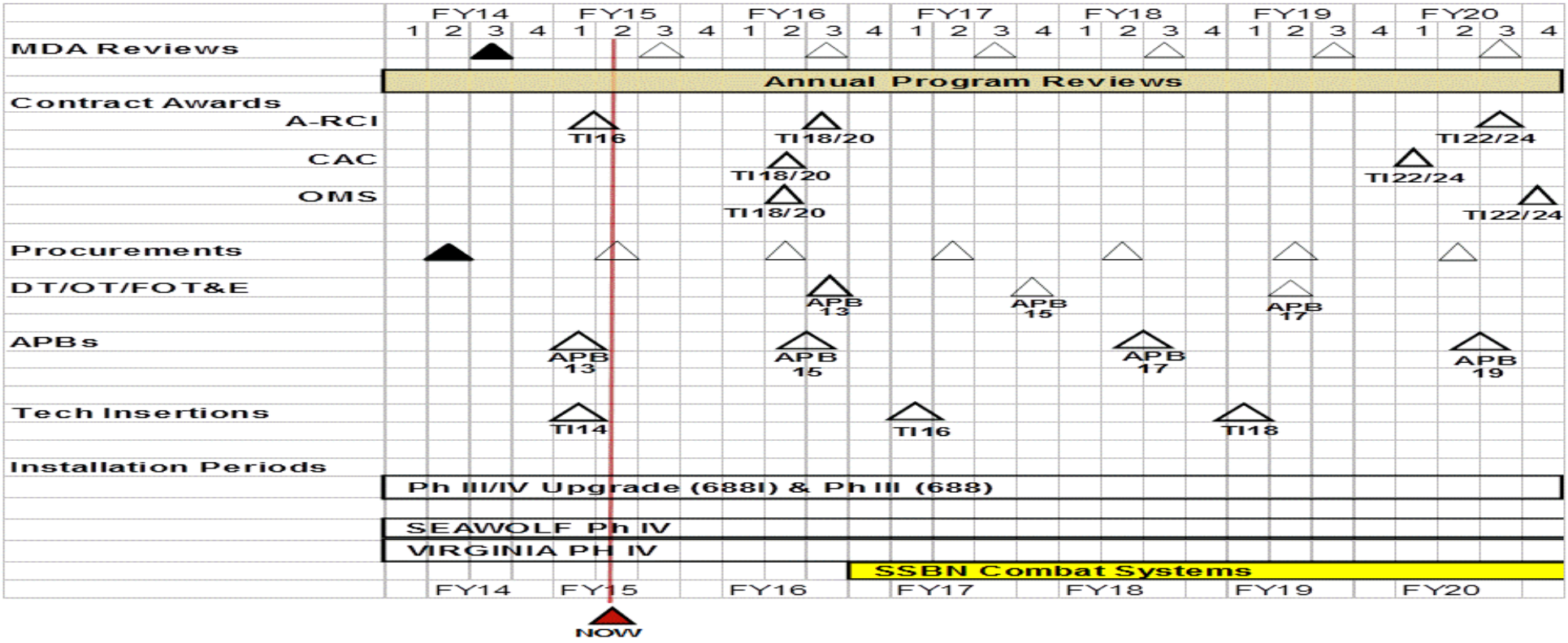

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0219 / *Sub Sonar Improvement (ENG)*

TB-29X Schedule

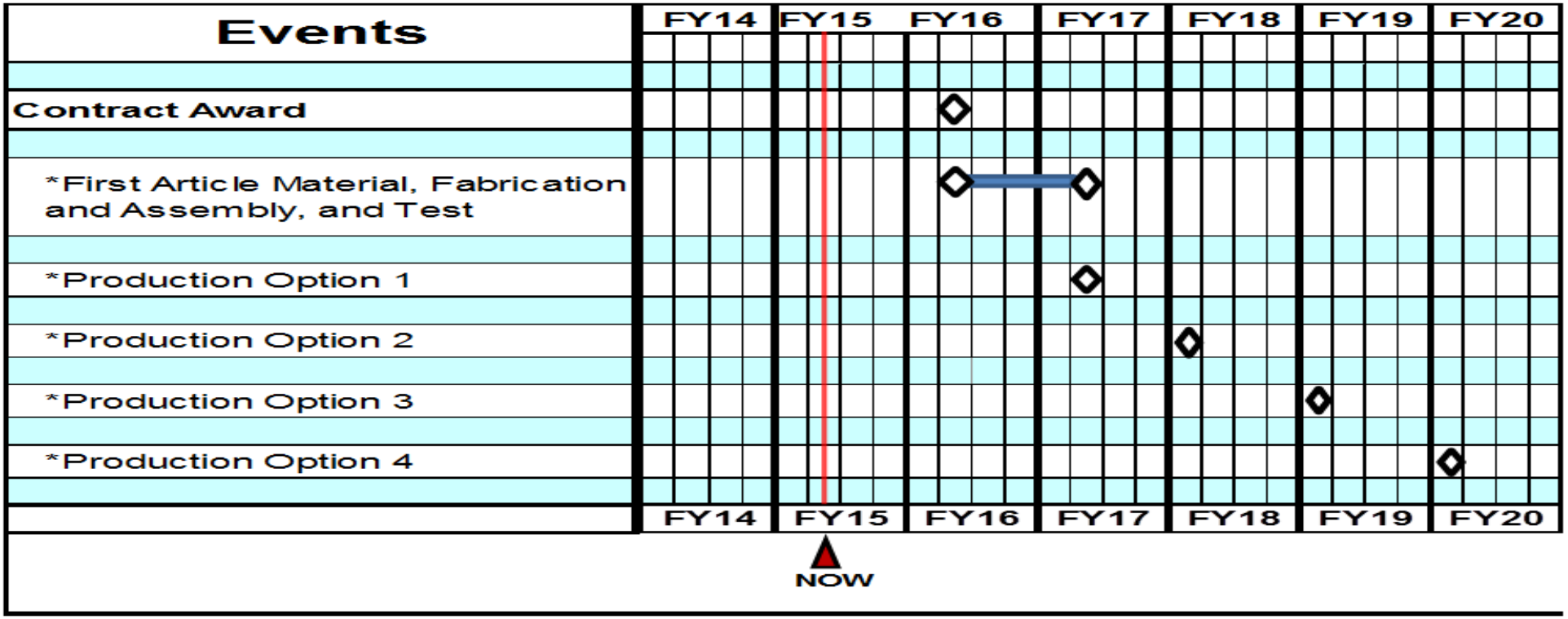

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0219 / *Sub Sonar Improvement (ENG)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0219				
ACOUSTICS	1	2014	4	2020
---Acquisition Milestones	3	2014	3	2020
---Annual Program Review	1	2014	4	2020
---Contract Awards	1	2015	4	2020
---Procurements	2	2014	2	2020
---DT/OT/FOT&E Tests	3	2016	2	2019
---APB Deliveries	1	2015	3	2020
---Tech Insertions	1	2015	1	2019
---Installation Periods	1	2014	4	2020
TB-29X Development	1	2016	4	2020
---First Article Procurement & Assembly	2	2016	2	2017
---Production Options	2	2017	1	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*	Project (Number/Name) 0742 / *Sub Integrated Ant System*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
0742: *Sub Integrated Ant System*	255.308	14.424	12.779	25.459	-	25.459	24.836	13.321	13.333	13.627	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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) Increased frequency coverage and data rate capabilities of submarine antennas and their interface to the External Communications System, (b) Increased 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) Increased 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) Low Probability of Intercept/Low Probability of Detection (LPI/LPD), (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 Missile 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:
FY16 Antenna Transition Engineering (XENG): Continue development of future undersea communication capabilities in support of the 4th Generation Undersea Communication Architecture. Commence and complete High Altitude Electromagnetic Pulse (HEMP) testing.
FY16 OE-538: Continue preparation for Developmental Test (DT)/Operational Test (OT) in support of Full Rate Production (FRP). Commence applicable Integrated Logistics Support (ILS) documentation to support FRP decision. Commence development/update of required FRP acquisition documents. Commence and complete High Altitude Electromagnetic Pulse (HEMP) testing.
FY16 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. Commence and complete High Altitude Electromagnetic Pulse (HEMP) testing.
FY16 AdvHDR: Commence LPI/LPD Initial Capabilities Document (ICD) development. Commence Optical Communications Project Agreement with United Kingdom. Commence preparations for LPI/LPD Materiel Development Decision.
FY16 SCB: Complete Final Report.
FY16 Towed Buoy Antenna (AN/BRR-6/6B): Continue component development, system integration, and testing for reliability improvements.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Antenna Transition Engineering	3.427	3.557	4.209	-	4.209
Articles:	-	-	-	-	-
FY 2014 Accomplishments: - Continued to provide emerging requirements and Satellite Communications (SATCOM) database/link analysis for other development programs in support of current & future undersea 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 and Electrical (HM&E) interfaces. - Continued to investigate multiple usage antennas, including antennas that can be used for undersea communications and other functions. - Commenced 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 undersea communication future capabilities in support of the 4th Generation Undersea Communication Architecture.					
FY 2016 Base 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.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Continue development of future undersea communication capabilities in support of the 4th Generation Undersea Communication Architecture. - Commence and complete High Altitude Electromagnetic Pulse (HEMP) testing. ***FY 2016 OCO Plans:*** N/A					
Title: Outboard Electronics (OE)-538	4.448	3.476	3.079	-	3.079
Articles:	-	-	-	-	-
FY 2014 Accomplishments: - Completed Capability Production Document (CPD) and continued applicable Integrated Logistics Support (ILS) documentation to support Low-Rate Initial Production (LRIP) decision. - Continued Increment 2 system design, manufacture and testing of Engineering Design Model (EDM). - Continued development/update of required Milestone C acquisition documents. - Continued Developmental Test (DT) in support of LRIP. - Continued oversight for the development/integration of Global Positioning System (GPS) Anti-Jam (AJ) into OE-538 Increment 2.					
FY 2015 Plans: - Complete Increment 2 system design, manufacture and testing of EDM. - Complete applicable ILS documentation to support LRIP decision. - Complete 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) into OE-538 Increment 2. - Commence preparation for DT/Operational Test (OT) in support of Full Rate Production (FRP). - Commence and complete OE-538A Underwater Explosion (UNDEX) test.					
FY 2016 Base Plans: - Continue preparation for DT/OT in support of FRP. - Continue oversight for the development/integration of Global Positioning System (GPS) Anti-Jam (AJ) into OE-538 Increment 2. - Commence applicable ILS documentation to support FRP decision. - Commence development/update of required FRP acquisition documents.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Commence and complete High Altitude Electromagnetic Pulse (HEMP) testing. ***FY 2016 OCO Plans:*** N/A					
Title: Submarine High Data Rate (SubHDR) Pre-Planned Product Improvement (P3I)	-	3.364	10.487	-	10.487
Articles:	-	-	-	-	-
FY 2014 Accomplishments: -N/A ***FY 2015 Plans:*** - Complete Underwater Explosion (UNDEX) development and testing, and receive delivery of two functioning UNDEX prototype kits. - 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. ***FY 2016 Base Plans:*** - Continue development of Reliability Maintainability, and Availability (RMA) components identified by research and analysis to maintain Ao throughout the life of the system. - Commence the Mast Motion Sensor (MMS) development. - Commence the Traveling Wave Tube, Multivolt Power Supply, Q Band Upconverter, High Volt Power Supply, and Inverter development. - Commence and complete High Altitude Electromagnetic Pulse (HEMP) testing. ***FY 2016 OCO Plans:*** N/A					
Title: Advanced High Data Rate (AdvHDR)	0.438	-	3.538	-	3.538
Articles:	-	-	-	-	-
FY 2014 Accomplishments: - Completed technology maturation. ***FY 2015 Plans:*** - N/A ***FY 2016 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Commence Low Probability of Intercept/Low Probability of Detection (LPI/LPD) Initial Capabilities Document (ICD) development. - Commence Optical Communications Project Arrangement with United Kingdom. - Commence preparations for LPI/LPD Materiel Development Decision. ***FY 2016 OCO Plans:*** N/A					
Title: Submarine Communications Buoy (SCB) ***Articles:*** ***Description:*** A project arrangement between the United States and the United Kingdom. ***FY 2014 Accomplishments:*** - Continued support for SCB Project Arrangement with United Kingdom. - Continued component design specification development for candidate SCB components. - Continued development of demonstration plan for SCB components. - Continued 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. ***FY 2016 Base Plans:*** - Complete Final Report. ***FY 2016 OCO Plans:*** N/A	2.746 -	1.790 -	0.240 -	- -	0.240 -
Title: Towed Buoy Antenna (AN/BRR-6/6B) ***Articles:*** ***FY 2014 Accomplishments:*** - Completed component development, system integration, and testing for reliability improvements of buoy cabling/connectors and rotary joint.	3.365 -	0.592 -	3.906 -	- -	3.906 -

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Continued support for BRR-6 Program providing program, contract, logistics, and system engineering management. - Continued component design specification/modification for reliability improvements of tow cable strength/ throughput, antenna/amplifier, and servo valve isolation. - Continued component development, system integration, and testing for reliability improvements of tow cable strength/throughput, antenna/amplifier, and servo valve isolation. - Completed component design specification/modification for reliability improvements of buoy cabling/connectors and rotary joint.					
FY 2015 Plans: - 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. - Continue limited support for BRR-6 Program providing program, contract, logistics, and system engineering management. - Continue limited component design specification/modification for reliability improvements of antenna/amplifier. - Continue limited component development, system integration, and testing for reliability improvements of antenna/amplifier. - Commence failure analysis report on tow cables for reliability improvements. - Commence and complete key item failure analysis report for reliability improvements.					
FY 2016 Base Plans: - Complete failure analysis on tow cables for reliability improvements. - 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. - Commence component design specification/modification for reliability improvements of buoy shape improvements and combine Radio Frequency (RF) and Depth Cans effort.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Commence component development, system integration, and testing for reliability improvements of buoy shape improvement and combine RF and Depth Cans efforts. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	14.424	12.779	25.459	-	25.459

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 313000: *Submarine Communications*	64.376	64.954	60.945	-	60.945	67.507	61.859	67.274	73.051	Continuing	Continuing

Remarks

D. Acquisition Strategy

Program Milestones (MS):
Outboard Electronics (OE)-538: 4th Quarter (QTR) FY15 Milestone C (MS C); 3rd QTR FY17 Full Rate Production (FRP) Decision Review.

Test and Evaluation (T&E) Milestones:
OE-538: 1st QTR FY17 DT for FRP; 2nd QTR FY17 Operational Test (OT) for FRP.

E. Performance Metrics

FY16 OE-538: High Altitude Electromagnetic Pulse (HEMP) test report.
FY16 SubHDR: HEMP test report.
FY16 BRR-6 Reliability Improvements: Complete development of reliability improvements for failure analysis on tow cables.
FY16 SCB: Complete Final Report.
FY16 XENG: HEMP test report.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Digital Interface Dev (Submarine High Data Rate - SubHDR)	C/CPAF	Raytheon : Marlboro, MA	3.545	-		-		-		-		-	-	3.545	3.545
Digital Dev (SubHDR)	C/CPAF	Raytheon : Marlboro, MA	8.182	-		-		-		-		-	-	8.182	8.182
Hardware Dev (SubHDR)	WR	NUWC : Newport, RI	2.888	-		-		-		-		-	-	2.888	2.888
Hardware Dev (SubHDR SHF/FOT)	C/CPAF	Raytheon : Marlboro, MA	14.632	-		-		-		-		-	-	14.632	14.632
Hardware Dev (Antenna Trans Eng)	C/CPAF	Sippican : Marion, MA	2.207	-		-		-		-		-	-	2.207	2.207
Hardware Dev (Communications at Speed and Depth - CSD)	C/CPAF	Apogen : San Diego, CA	2.800	-		-		-		-		-	-	2.800	2.800
Systems/Hardware Dev (CSD)	C/CPAF	Lockheed Martin/ Sippican : Marion, MA	36.623	-		-		-		-		-	-	36.623	36.623
Systems/Hardware Dev (Submarine Communications Buoy - SCB)	WR	NSWC : Philadelphia	4.216	1.579	Nov 2013	1.583	Nov 2014	0.150	Nov 2015	-		0.150	Continuing	Continuing	Continuing
Hardware Dev (Outboard Electronics (OE)-538)	C/CPAF	Lockeed Martin Sippican/Granite State MFG : MA and NH	19.393	0.879	Mar 2014	0.328	Mar 2015	-		-		-	Continuing	Continuing	Continuing
Systems Engineering (OE-538)	WR	NUWC : Newport, RI	7.446	0.713	Nov 2013	0.769	Nov 2014	0.978	Nov 2015	-		0.978	Continuing	Continuing	Continuing
Systems Engineering (SubHDR)	WR	NUWC : Newport, RI	16.561	-		0.428	Nov 2014	0.481	Nov 2015	-		0.481	Continuing	Continuing	Continuing
Systems Engineering (Advanced High Data Rate - AdvHDR)	WR	SSC Pacific : San Diego, CA	7.702	0.360	Dec 2013	-		1.875	Nov 2015	-		1.875	Continuing	Continuing	Continuing
Systems Engineering (Antenna Trans Eng)	WR	NUWC : Newport, RI	34.887	1.335	Nov 2013	1.656	Nov 2014	1.670	Nov 2015	-		1.670	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering (CSD)	Various	Various : Various	4.628	-		-		-		-		-	-	4.628	4.628
Systems Engineering (CSD)	WR	SSC PAC : San Diego, CA	3.048	-		-		-		-		-	-	3.048	3.048
Systems Engineering (SCB)	C/CPFF	FSI : San Diego, CA	0.650	0.359	Nov 2013	0.207	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Systems Engineering (CSD)	WR	NUWC : Newport, RI	18.521	-		-		-		-		-	-	18.521	18.521
UNDEX Kit Development (SubHDR)	C/CPFF	Raytheon : Marlboro, MA	5.475	-		0.257	Feb 2015	-		-		-	Continuing	Continuing	Continuing
Technology Maturation/ Demonstrations Dev (AdvHDR)	C/CPAF	NUWC : Newport, RI	9.112	-		-		-		-		-	-	9.112	9.112
Research and Analysis Reliability Dev (SubHDR)	WR	NUWC : Newport, RI	4.927	-		0.114	Nov 2014	1.300	Nov 2015	-		1.300	Continuing	Continuing	Continuing
Systems Engineering (AdvHDR)	WR	NUWC : Newport, RI	4.346	-		-		1.271	Nov 2015	-		1.271	Continuing	Continuing	Continuing
Systems Engineering (BRR-6)	C/CPFF	FSI : San Diego, CA	0.000	0.172	Nov 2013	0.100	Nov 2014	0.175	Nov 2015	-		0.175	Continuing	Continuing	Continuing
Hardware Dev (Antenna Trans Eng)	WR	NUWC : Newport, RI	0.185	-		-		-		-		-	-	0.185	0.185
Systems Engineering (Antenna Trans Eng)	WR	NSWC : Philadelphia, PA	1.932	0.080	Jan 2014	-		0.100	Nov 2015	-		0.100	Continuing	Continuing	Continuing
Hardware (Antenna Trans Eng)	WR	NSWC : Philadelphia, PA	0.590	-		-		-		-		-	-	0.590	0.590
Systems Engineering/ Hardware Dev (BRR-6)	WR	NUWC : Newport, RI	0.000	1.417	Nov 2013	0.092	Nov 2014	0.850	Nov 2015	-		0.850	Continuing	Continuing	Continuing
Hardware Dev (OE-538)	WR	NUWC : Newport, RI	1.412	0.686	Nov 2013	0.683	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Systems Engineering/ Hardware Dev (BRR-6)	WR	NSWC : Philadelphia, PA	0.000	1.522	Nov 2013	0.400	Nov 2014	2.656	Nov 2015	-		2.656	Continuing	Continuing	Continuing
Research and Analysis Reliability Dev (SubHDR)	C/CPAF	BTP Systems : Ludlow, MA	1.734	-		-		-		-		-	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Future Capabilites (Trans Eng)	WR	SSC Pacific : San Diego, CA	0.590	1.125	Nov 2013	0.845	Nov 2014	1.383	Nov 2015	-		1.383	Continuing	Continuing	Continuing
Systems Engineering (OE-538)	C/CPFF	FSI : San Diego, CA	0.973	0.430	Nov 2013	0.410	Nov 2014	0.411	Nov 2015	-		0.411	Continuing	Continuing	Continuing
Research and Analysis Reliability Dev (SubHDR)	C/CPIF	TBD : TBD	0.000	-		2.061	Feb 2015	6.938	Feb 2016	-		6.938	Continuing	Continuing	Continuing
Software Dev (OE-538)	WR	NUWC : Newport, RI	0.096	0.130	Oct 2013	0.252	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Systems Engineering (Antenna Trans Eng)	WR	MITRE : McLean, VA	0.000	0.398	Dec 2013	0.400	Dec 2014	0.500	Dec 2015	-		0.500	Continuing	Continuing	Continuing
Systems Engineering (Antenna Trans Eng)	WR	NPS : Monterey, CA	0.000	0.120	Jul 2014	0.106	Apr 2015	0.106	Apr 2016	-		0.106	Continuing	Continuing	Continuing
		Subtotal	219.301	11.305		10.691		20.844		-		20.844	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support (AdvHDR)	C/CPFF	Cambridge Intl : Arlington, VA	1.134	-		-		-		-		-	-	1.134	1.134
Integrated Logistics Support (Antenna Trans Eng)	C/CPFF	TCI : Fairfax, VA	0.050	-		-		-		-		-	-	0.050	0.050
Integrated Logistics Support OE-538)	C/CPFF	Cambridge Intl : Arlington, VA	0.285	-		-		-		-		-	-	0.285	0.285
Integrated Logistics Support (CSD)	C/CPFF	TCI : Fairfax, VA	0.283	-		-		-		-		-	-	0.283	0.283
Cost Estimating (SCB)	C/CPFF	BAH : San Diego, CA	0.075	-		-		-		-		-	-	0.075	0.075
Acquisition Documentation (Various)	C/CPFF	Various : Various	1.132	-		-		-		-		-	-	1.132	1.132
Cost Estimating (BRR-6)	C/CPFF	TASC : San Diego, CA	0.000	0.059	Nov 2013	-		0.050	Nov 2015	-		0.050	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated logistics Support (BRR-6)	WR	NUWC : Newport, RI	0.000	0.047	Nov 2013	-		0.050	Nov 2015	-		0.050	Continuing	Continuing	Continuing
Integrated logistics Support (BRR-6)	C/CPFF	CSA : San Diego, CA	0.000	0.050	Nov 2013	-		0.050	Nov 2015	-		0.050	Continuing	Continuing	Continuing
Integrated logistics Support (OE-538)	C/CPFF	CSA : San Diego, CA	0.000	0.092	Nov 2013	0.105	Nov 2014	0.210	Nov 2015	-		0.210	Continuing	Continuing	Continuing
Integrated Logistics Support (AdvHDR)	C/CPFF	CSA : San Diego, CA	0.000	-		-		0.075	Feb 2016	-		0.075	Continuing	Continuing	Continuing
Cost Estimating (OE-538)	C/CPFF	BAH : San Diego, CA	0.375	-		-		-		-		-	-	0.375	0.375
Cost Estimating (AdvHDR)	C/CPFF	TASC : San Diego, CA	0.000	-		-		0.075	Feb 2016	-		0.075	Continuing	Continuing	Continuing
Cost Estimating (OE-538)	C/CPFF	TASC : San Diego, CA	0.100	0.125	Nov 2013	0.181	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Integrated Logistics Support (OE-538)	C/CPFF	TCI : Fairfax, VA	3.296	-		-		-		-		-	-	3.296	3.296
Integrated Logistics Support (SubHDR)	C/CPFF	CSA : San Diego, CA	0.000	-		-		0.157	Feb 2016	-		0.157	Continuing	Continuing	Continuing
Security Engineering (Antenna Trans Eng)	C/CPFF	Merdan : San Diego, CA	0.000	0.275	Nov 2013	0.275	Nov 2014	0.300	Nov 2015	-		0.300	Continuing	Continuing	Continuing
		Subtotal	6.730	0.648		0.561		0.967		-		0.967	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation (CSD)	WR	COTF : Norfolk, VA	0.637	-		-		-		-		-	-	0.637	0.637
Test & Evaluation (OE-538)	WR	COTF : Norfolk, VA	0.836	0.163	Nov 2013	0.024	Nov 2014	0.180	Nov 2015	-		0.180	Continuing	Continuing	Continuing
Test & Evaluation (SubHDR)	WR	NUWC : Newport, RI	1.143	-		0.152	Nov 2014	1.135	Nov 2015	-		1.135	Continuing	Continuing	Continuing

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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental/ Operational T&E (AdvHDR)	WR	COTF : Norfolk, VA	0.105	-		-		-		-		-	-	0.105	0.105
Developmental/ Operational T&E (AdvHDR)	WR	NUWC : Newport, RI	0.890	0.078	Nov 2013	-		-		-		-	Continuing	Continuing	Continuing
Developmental/ Operational T&E (OE-538)	WR	NUWC : Newport, RI	4.655	1.037	Nov 2013	0.613	Nov 2014	1.200	Nov 2015	-		1.200	Continuing	Continuing	Continuing
Test & Evaluation (CSD)	WR	SSC PAC : San Diego, CA	2.497	-		-		-		-		-	-	2.497	2.497
Test & Evaluation (SCB)	WR	NUWC : Newport, RI	0.239	0.711	Nov 2013	-		0.090	Nov 2015	-		0.090	Continuing	Continuing	Continuing
		Subtotal	11.002	1.989		0.789		2.605		-		2.605	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support (SubHDR)	C/CPFF	CSA : San Diego, CA	2.994	-		0.352	Dec 2014	0.476	Feb 2016	-		0.476	Continuing	Continuing	Continuing
Program Management Support (AdvHDR)	C/CPFF	CSA : San Diego, CA	7.563	-		-		0.242	Feb 2016	-		0.242	Continuing	Continuing	Continuing
Program Management Support (Antenna Trans Eng)	C/CPFF	CSA : San Diego, CA	3.511	0.095	Nov 2013	0.275	Nov 2014	0.150	Nov 2015	-		0.150	Continuing	Continuing	Continuing
Program Management Support (SCB)	C/CPFF	CSA : San Diego, CA	0.276	0.097	Nov 2013	-		-		-		-	Continuing	Continuing	Continuing
Program Management Support (OE-538)	C/CPFF	CSA : San Diego, CA	3.931	0.193	Nov 2013	0.111	Nov 2014	0.100	Nov 2015	-		0.100	Continuing	Continuing	Continuing
Program Management Support (BRR-6)	C/CPFF	CSA : San Diego, CA	0.000	0.097	Nov 2013	-		0.075	Nov 2015	-		0.075	Continuing	Continuing	Continuing
		Subtotal	18.275	0.482		0.738		1.043		-		1.043	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
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	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	255.308	14.424		12.779		25.459		-		25.459	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
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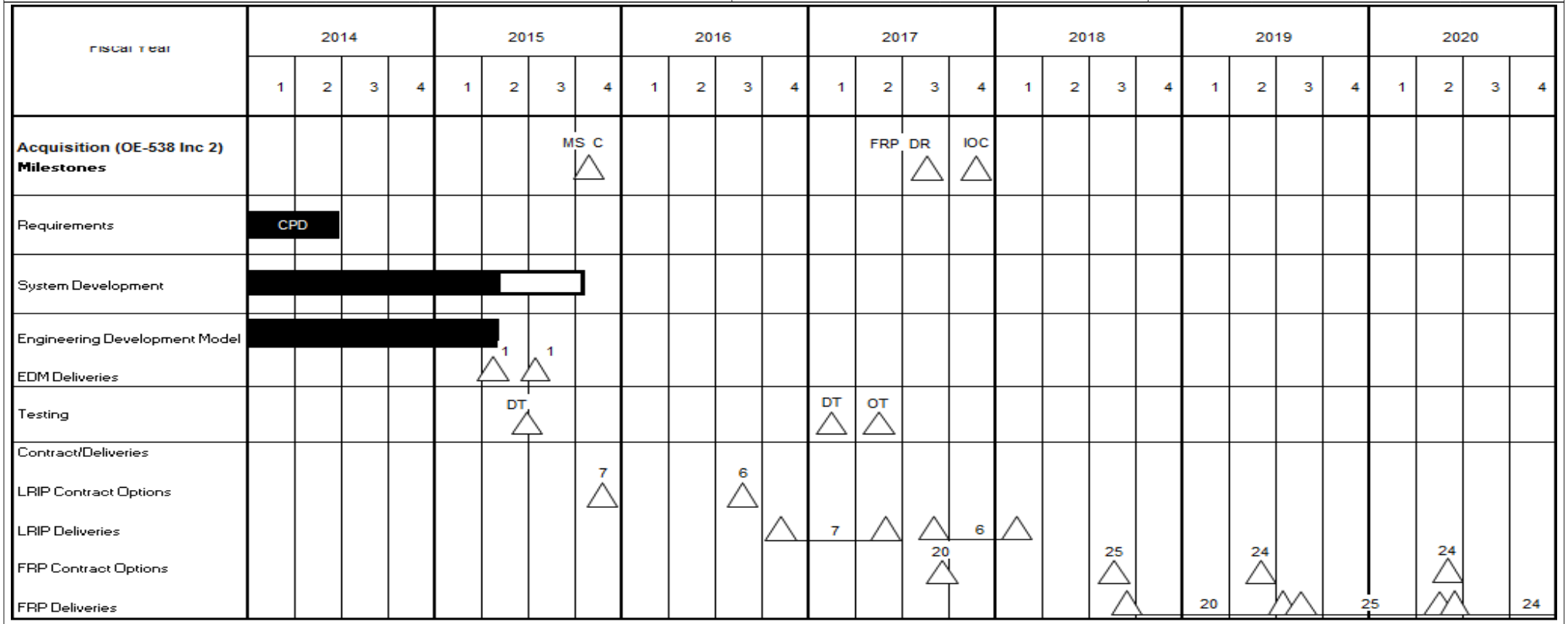

Note: Production of OE-538 Increment 2 starting in FY19 and out will include Global Positioning System (GPS) Anti-Jam (AJ) capability funded by PMW/A 170 Sea NAVWAR Program.

Acronyms

CPD: Capability Production Document	LRIP: Low Rate Initial Production
DT: Developmental Test	MS C: Milestone C
FRP: Full Rate Production	OT: Operational Test
IOC: Initial Operatinal Capability	

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
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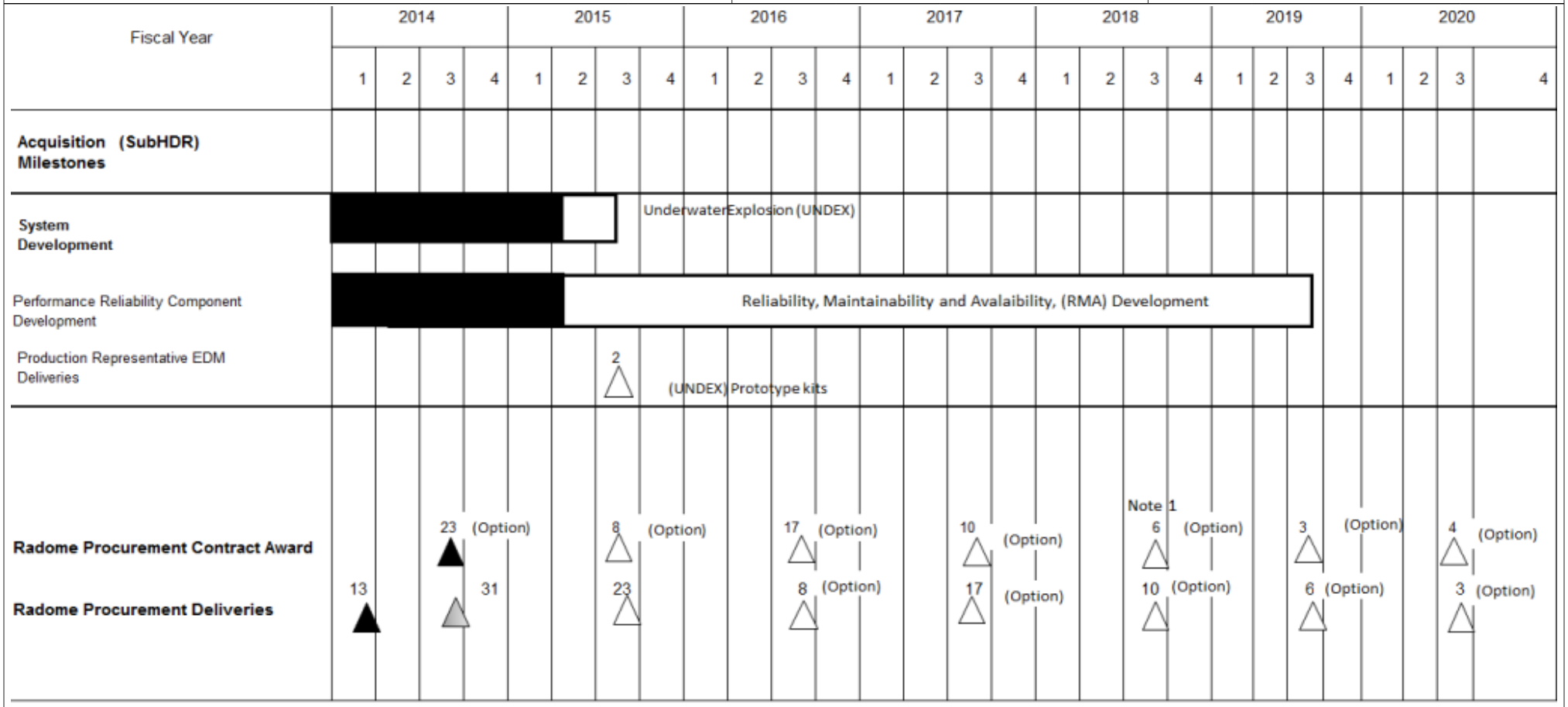
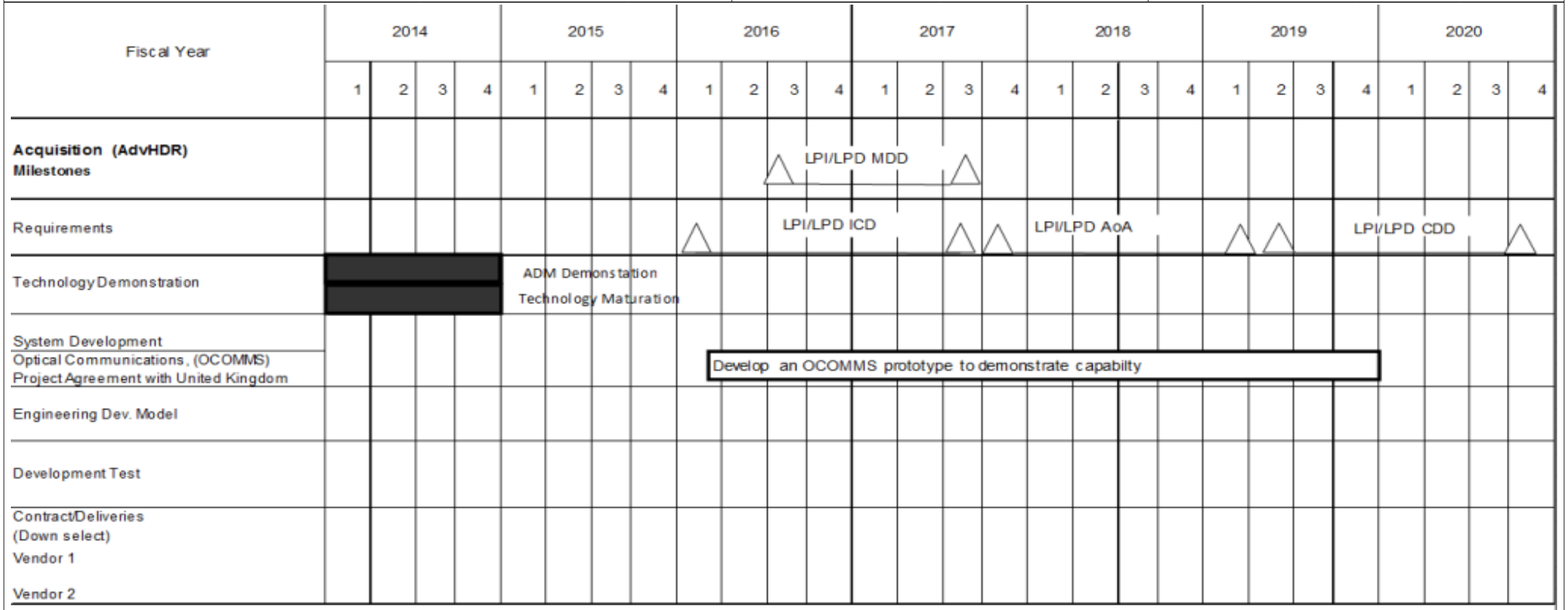


Note 1: The final 13 radomes will require a new contract.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*



Acronyms:
ADM - Advanced Development Model
AoA Analysis Of Alternatives
CDD Capabilities Design Document
ICD Initial Capabilities Document
LPI/LPD Low Probability of Intercept/Low Probability of Detection
MDD Materiel Development Decision

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy			**Date:** February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*	

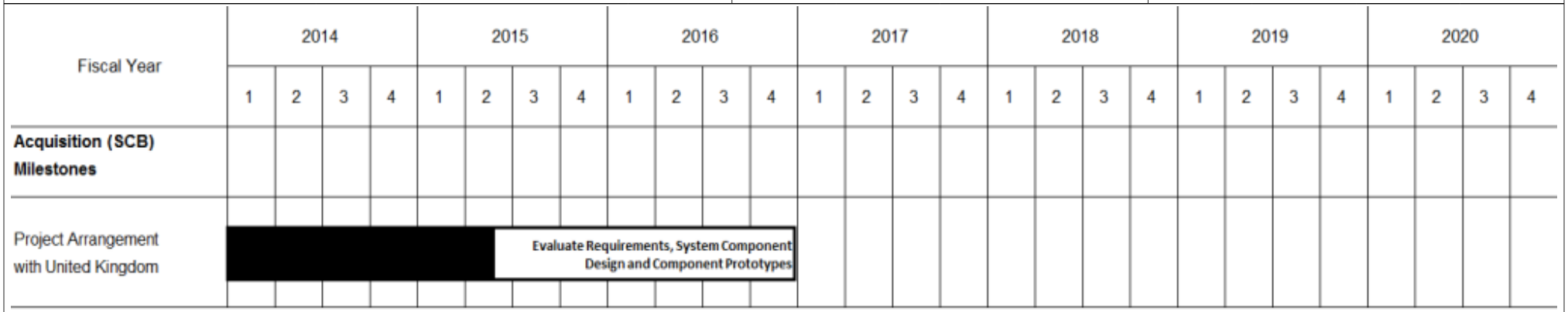


Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

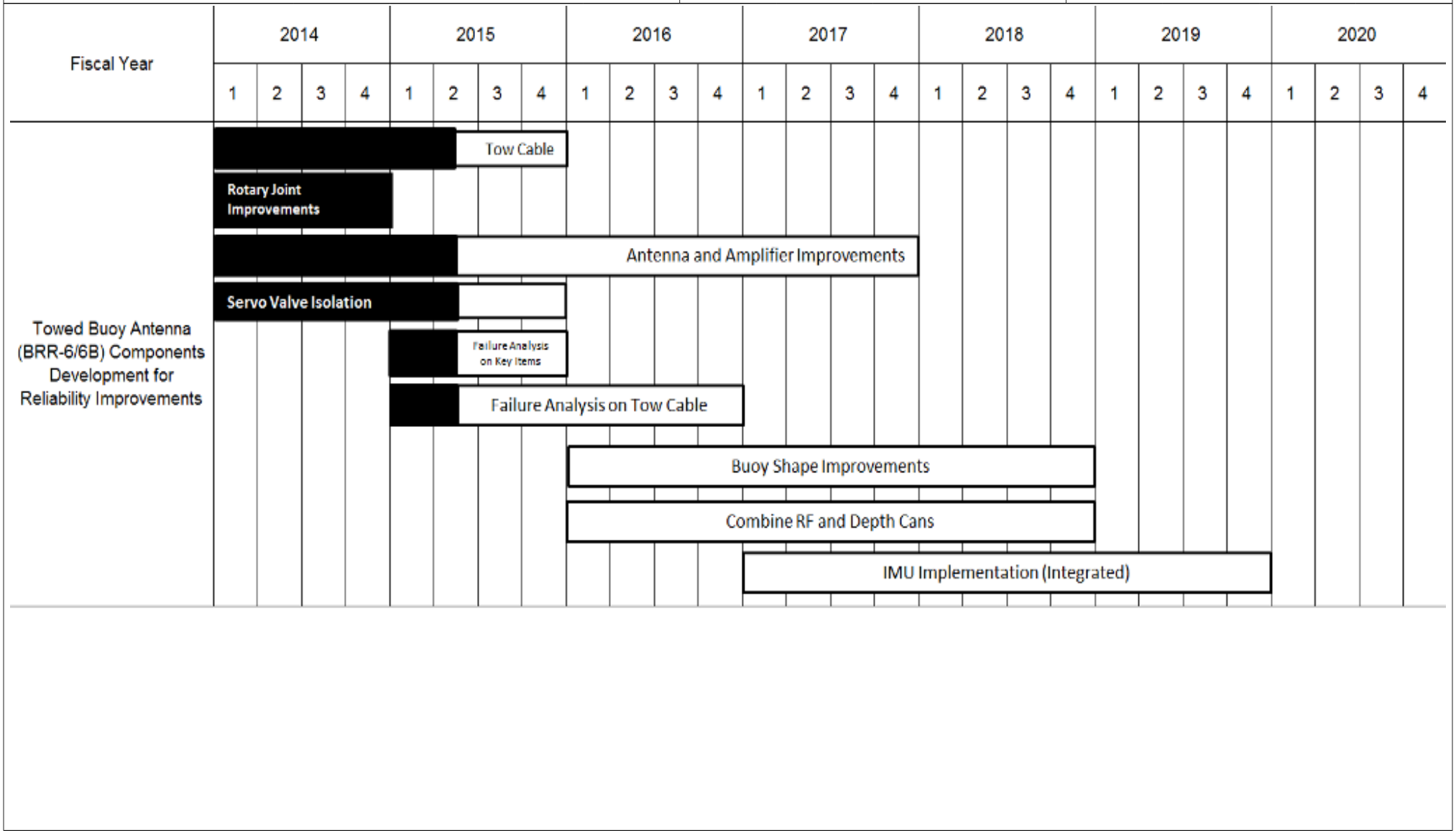


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0742				
Outboard Electronics (OE)-538 Milestone C (MS C) Decision	4	2015	4	2015
OE-538 Full Rate Production Decision Review (FRP DR)	3	2017	3	2017
OE-538 Initial Operational Capability (IOC) without Global Position System (GPS) Anti-Jam (AJ)	4	2017	4	2017
OE-538 Capability Production Document (CPD)	1	2014	2	2014
OE-538 System Development	1	2014	4	2015
OE-538 Engineering Development Model (EDM) Development	1	2014	2	2015
OE-538 1st EDM Delivery	2	2015	2	2015
OE-538 2nd EDM Delivery	3	2015	3	2015
OE-538 Developmental Test (DT) for Milestone C (MS C)	2	2015	2	2015
OE-538 DT for Full Rate Production (FRP)	1	2017	1	2017
OE-538 Operational Test (OT)	2	2017	2	2017
OE-538 Low-Rate Initial Production (LRIP) Contract Option Year 1	4	2015	4	2015
OE-538 LRIP Deliveries Year 1	4	2016	2	2017
OE-538 LRIP Contract Option Year 2	3	2016	3	2016
OE-538 LRIP Deliveries Year 2	3	2017	1	2018
OE-538 Full Rate Production (FRP) Contract Options Year 1	3	2017	3	2017
OE-538 FRP Deliveries Year 1	3	2018	3	2019
OE-538 FRP Contract Option Year 2	3	2018	3	2018
OE-538 FRP Deliveries Year 2	3	2019	3	2020
OE-538 FRP Contract Option Year 3	2	2019	2	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
OE-538 FRP Deliveries Year 3	2	2020	4	2020
OE-538 FRP Contract Option Year 4	2	2020	2	2020
Submarine High Data Rate (SubHDR) Under Water Explosion (UNDEX) Development	1	2014	3	2015
SubHDR Performance Reliability Component Development/Test	1	2014	3	2019
SubHDR Production Representative UNDEX Engineering Development Model (EDM) Deliveries	3	2015	3	2015
SubHDR Radome Procurement Contract Awards	3	2014	3	2020
SubHDR Radome Production Deliveries	1	2014	3	2020
AdvHDR Materiel Development Decision (MDD) LPI/LPD	3	2016	3	2017
AdvHDR Initial Capabilities Document (ICD) for LPI/LPD	1	2016	3	2017
AdvHDR Analysis of Alternative (AoA) for LPI/LPD	4	2017	1	2019
AdvHDR Capabilities Development Document (CDD) for LPI/LPD	2	2019	4	2020
AdvHDR Optical Communcations Project Agreement with United Kingdom	1	2016	4	2019
AdvHDR Demonstration (DEMO)	1	2014	4	2014
AdvHDR Technology Maturation	1	2014	4	2014
SCB Project arrangement with United Kingdom (UK)	1	2014	4	2016
Towed Buoy Antenna (BRR-6/6B) Tow Cable Improvements	1	2014	4	2015
BRR-6/6B Rotary Joint Improvement	1	2014	4	2014
BRR-6/6B Antenna and Amplifier Improvements	1	2014	4	2017
BRR-6/6B Servo Valve Isolation	1	2014	4	2015
BRR-6/6B Failure Analysis on Key Items	1	2015	4	2015
BRR-6/6B Failure Analysis on Tow Cable	1	2015	4	2016
BRR-6/6B Buoy shape Improvements	1	2016	4	2018
BRR-6/6B Combine RF and Depth Cans	1	2016	4	2018
BRR-6/6B IMU Implementation (Integrated)	1	2017	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*	Project (Number/Name) 0775 / *Submarine Supt Equip Prog*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
0775: *Submarine Supt Equip Prog*	7.225	1.314	8.064	6.204	-	6.204	8.837	9.149	9.319	9.986	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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 development of the Next Generation EW BLQ-10 system.

RDTE Funding line supports the entire AN/BLQ-10 EW procurement program. Increases in RDTE budget starting in FY15 supports development of EW Next Generation Architecture.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Submarine Support Equipment Program	1.314	8.064	6.204	-	6.204
Articles:	-	-	-	-	-
FY 2014 Accomplishments: Updated AN/BLQ-10 software baseline changes for Submarine Warfare Federated Tactical System (SWFTS) and Non-Propulsion Electronics System (NPES), Software Problem Report (SPR) Resolution and Software Enhancement. Completed testing of TI-14 Processor Upgrades, Remote Log-in, Rapid Reprogramming of Threat Libraries and Electronic Support (ES) Server Correlator (component of Next Generation Architecture). Commenced integration and testing of TI-APB 13. Developed EW Tactical Improvement Set (ETIS) system specifications for TI-16 Back fit Human Machine Interface (HMI) and TI-16 EW server back fit.					
FY 2015 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0775 / *Submarine Supt Equip Prog*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Update AN/BLQ-10 software baseline changes for SWFTS and NPES, SPR Resolution and Software Enhancement. Development of TI-16 Processor Upgrades, remote display and vulnerability rules of thumb. Commence development of Next Generation Architecture (NGA) Increment 1 and ETIS. Develop EW server, displays and control of digital Electronic Intelligence (ELINT) and digital Communications Intelligence (COMINT) subsystems. Advanced technology demonstrations for feasibility of systems capable of meeting later increments of AN/BLQ-10(B) for performance and digital data delivery. ***FY 2016 Base Plans:*** Update AN/BLQ-10 software baseline changes for SWFTS and NPES, SPR Resolution and Software Enhancement. Complete testing of TI-16 Processor Upgrades and ETIS improvements. Develop TI-18 NRE updates of HMI package to incorporate Digital Onboard Trainer and usage of I&Q data; Digital Apertures, Embedded Built in Test (BIT), and New Ultra Wideband High-speed Digital Receiver (UWHD). Commence development of TI-20/INC 2 for High Speed Network, SIRFSUP capabilities, Multifunctional Modular Mast (MMM) payload Next Generation EW System. Develop Communications Digital Aperture Correlation and Emitter improvements. Advanced technology demonstrations for feasibility of systems capable of meeting later increments of AN/BLQ-10(B) for performance and digital data delivery. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	1.314	8.064	6.204	-	6.204

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OPN/256000: *Submarine Supt Equip Prog*	44.464	36.938	79.954	-	79.954	71.028	60.090	77.373	85.594	Continuing	Continuing
• SCN/201300: *VIRGINIA Class Submarine*	55.412	56.512	57.650	-	57.650	58.821	60.015	61.215	62.562	Continuing	Continuing
• RDT&E/0604558N: *VIRGINIA Class Design Development*	5.000	1.500	1.500	-	1.500	1.500	1.500	1.526	1.557	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0775 / *Submarine Supt Equip Prog*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDT&E/0603562N: *Advanced Submarine Support Equipment (ASSEP)*	3.807	3.343	4.103	-	4.103	4.052	4.161	4.415	4.733	Continuing	Continuing

Remarks

D. Acquisition Strategy

AN/BLQ-10 (V) EW System - Procurements are executed/managed in accordance with Acquisition Plan (Rev 9) for AN/BLQ-10(V) EW System dtd 06/06/13 and the Single Acquisition Management Plan dtd 06/12/14.

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-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
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*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/BLQ-10 EW Product Development	C/CPFF	Various Contractors : Not Specified	3.127	0.135	Mar 2014	-		-		-		-	Continuing	Continuing	Continuing
Systems Engineering & Test Support	WR	NUWC : Newport, RI	4.098	-	Oct 2013	-	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Hardware and Software Development	WR	NUWC : Newport, RI	0.000	-		6.993	Oct 2014	4.068	Oct 2015	-		4.068	Continuing	Continuing	Continuing
		Subtotal	7.225	0.135		6.993		4.068		-		4.068	-	-	-

Remarks

Increase in FY15 Hardware Development supports efforts for AN/BLQ-10(B) EW Next Generation Architecture

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	WR	COTF : Norfolk, VA	0.000	-		0.254	Oct 2014	0.260	Oct 2015	-		0.260	-	0.514	-
Systems Engineering & Test Support	WR	NUWC : Newport, RI	0.000	1.179	Oct 2013	0.817	Oct 2014	1.876	Oct 2015	-		1.876	-	3.872	-
		Subtotal	0.000	1.179		1.071		2.136		-		2.136	-	4.386	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.225	1.314		8.064		6.204		-		6.204	-	-	-

Remarks

Development Integration and Test (DI&T) for NGA Increment I/ETIS extends into FY17 to complete testing for Increment I hardware tied to VIRGINIA new construction schedule.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
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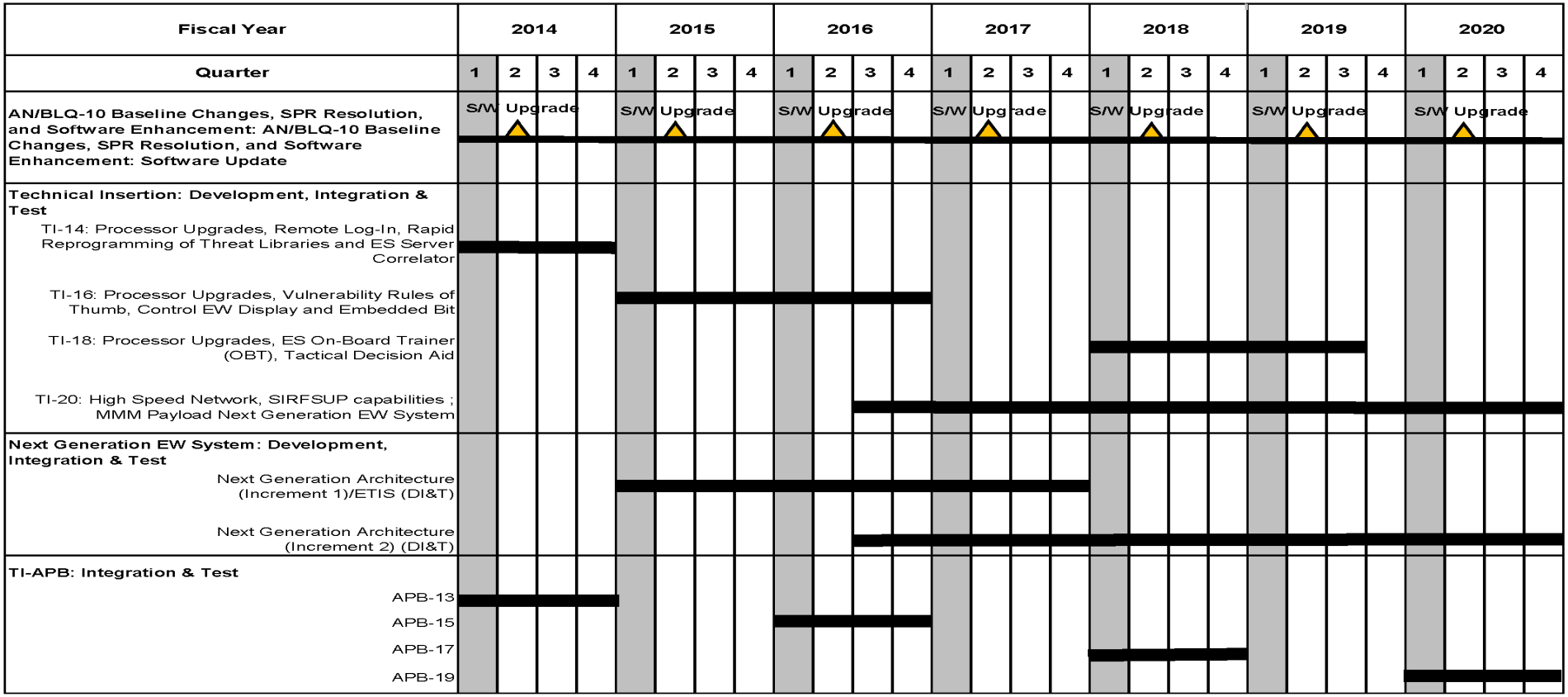

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 0775 / *Submarine Supt Equip Prog*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0775				
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY14	2	2014	2	2014
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY15	2	2015	2	2015
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY16	2	2016	2	2016
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY17	2	2017	2	2017
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY18	2	2018	2	2018
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY19	2	2019	2	2019
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY20	2	2020	2	2020
TI-14: Processor Upgrades, Remote Log-in, Rapid Reprom. of Threat Libraries, ES Server Correlator	1	2014	4	2014
TI-16: Processor Upgrades, Vulnerability Rules of Thumb, Control EW display and Embedded bit	1	2015	4	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
TI-18: Processor Upgrades, ES On-Board Trainer (OBT), Tactical Decision Aid	1	2018	3	2019
TI-20: High Speed Network, SURSUP capabilities, MMM Payload Next Generation EW System	3	2016	4	2020
Next Generation EW System: Development, Integration & Test (DI&T): Next Generation Architecture (Increment 1)/ETIS (DI&T)	1	2015	4	2017
Next Generation EW System: Development, Integration & Test (DI&T): Next Generation Architecture (Increment 2) (DI&T)	3	2016	4	2020
TI-APB: Integration & Test: APB-13	1	2014	4	2014
TI-APB: Integration & Test: APB-15	1	2016	4	2016
TI-APB: Integration & Test: APB-17	1	2018	4	2018
TI-APB: Integration & Test: APB-19	1	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy											Date: February 2015	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*				Project (Number/Name) 1411 / *Sub Tact Comm System*			
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
1411: *Sub Tact Comm System*	186.242	13.614	8.805	9.354	-	9.354	10.668	10.691	10.678	10.896	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Submarine Tactical Communications System project (1411) provides submarines with communications systems designed to: (a) enhance assured information transfer via automated and integrated network management; (b) support assured Command & Control, (c) provide submarine Internet Protocol (IP) connectivity; (d) be interoperable with Nuclear Command, Control, and Communications (NC3), joint United States, and allied/coalition military networks; (e) meet NC3 strategic messaging requirements; and (f) improve reliability, maintainability, and availability. This is accomplished by providing the submarine with a properly integrated mix of fully interoperable Navy standard and Commercial Off-the-Shelf (COTS) communication equipment covering a wide range of frequencies and modes. The 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 (not identical) design which incorporates Open System Architecture communications equipment. CSRR leverages and continues the development of VIRGINIA Class External Communications System (ECS) design and ECS Control and Management software, applies a system-of-systems approach to design and implementation of Joint Maritime Communication System, and integrates COTS and Government Off-the-Shelf components with emerging technologies into a single centrally managed radio room architecture for all classes of submarines. The project utilizes land-based integration test facilities to integrate Command, Control, Communications, Computers, and Intelligence (C4I) programs 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 training requirements. The project includes system engineering efforts associated with demonstration of new technology allowing submarines to connect to the global information grid, participate in strike group and joint operations, and support NC3 commitments. CSRR supports the Navy Strategy for achieving Information Dominance by providing the submarine resilient, robust communications capabilities for NC3, Joint United States and allied/coalition military 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 Navy, Joint, and allied/coalition fight to achieve total battlespace information 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 fielding approval decision.

Funding in FY16 is to continue CSRR Increment 1 Version 4 systems engineering development for OHIO Class ballistic missile (SSBN) submarines, VIRGINIA, LOS ANGELES and SEAWOLF Class attack (SSN) submarines, OHIO Class guided missile (SSGN) submarines, and ensure Supply Chain Risk Management (SCRM) compliance. Continue development of platform specific builds for Control & Management software incorporating Increment 1 Version 4 capabilities. Continue development of the Multi-purpose Reconfigurable Training System (MRTS) software for Increment 1 Version 4 capabilities. Update acquisition documentation to reflect changes in Increment 1 Version 4 through Version 6.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*

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).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Common Submarine Radio Room (CSRR)	13.614	8.805	9.354	-	9.354
Articles:	-	-	-	-	-
FY 2014 Accomplishments: - Completed CSRR systems engineering development for modernization of Increment 1 Version 3 for SSBN and SEAWOLF Class submarines. - Completed development of platform specific builds of Increment 1 Version 3 Control and Management software for SEAWOLF and SSBN Class capabilities. - Completed implementation of Increment 1 Version 3 security upgrades to meet Cyber Security and multiple levels of certification requirements for General Service and Sensitive Compartmented Information for all CSRR platforms. - Completed required Increment 1 Version 3 SSBN Emergency Action Message (EAM) certification testing and data analysis and Targeting Change Message (TCM) testing and successfully received certifications. - Completed engineering design to correct Increment 1 Version 3 cable management plan design deficiencies identified on Increment 1 Version 3 platforms in the Departure From Specification (DFS) documentation. - Completed Verification of Correction of Deficiencies (VCD) testing defined in the Increment 1 Version 3 OT report. - Continued 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. - Commenced Federal Information System Management Act (FISMA) statutory requirement for Cyber Security compliance and correction of Increment 1 Version 1 - Version 3 cyber security deficiencies. - Commenced Supply Chain Risk Management (SCRM) assessment as part of Program Protection Plan revision. - Commenced Multi-purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 3 CSRR baseline for SSBN Class operator trainer. - Commenced Increment 1 Version 3 Operational Test (OT) test deferrals and Special Operations Forces (SOF) testing. - Commenced implementation of Increment 1 Version 4 security upgrades to meet Cyber 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 2016 Navy		Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Commenced Multi-Purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 4 CSRR baseline for LOS ANGELES and SSBN Class operator trainer and VIRGINIA Class maintenance trainer. - Commenced CSRR Increment 1 Version 4 system engineering development and modernization for the LOS ANGELES, SSBN and VIRGINIA Class submarines. - Commenced 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 Increment 1 Version 3 OT test deferrals and Special Operations Forces (SOF) testing. - Complete development of platform specific builds of Control & Management software Increment 1 Version 3 capabilities for VIRGINIA, LOS ANGELES, SEAWOLF, SSGN and SSBN Class submarines 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 Class 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 (PPP) revision. - Continue CSRR Increment 1 Version 4 system engineering development and modernization for the LOS ANGELES, SSBN and VIRGINIA Class submarines. - Continue development of platform specific builds of Increment 1 Version 4 Control and Management software for LOS ANGELES, SSBN and VIRGINIA Class capabilities. - Continue implementation of Increment 1 Version 4 security upgrades and meet Cyber Security and multiple levels of certification requirements for General Service and Sensitive Compartmented Information for all CSRR platforms. - Continue Multi-Purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 4 CSRR baseline for LOS ANGELES, SSBN, and SSGN Class operator trainer and VIRGINIA Class maintenance trainer. - Commence CSRR Increment 1 Version 4 system engineering development and modernization for the SSGN and SEAWOLF Class submarines. - Commence development of platform specific builds of Increment 1 Version 4 Control and Management software for SSGN and SEAWOLF Class capabilities.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Commence Federal Information System Management Act (FISMA) statutory requirement for Cyber Security compliance and correction of Increment 1 Version 4 cyber security deficiencies. - Commence updating the CSRR Acquisition Plan, Acquisition Strategy, System Engineering Plan, and Program Protection Plan to reflect changes for Increment 1 Version 4 through Version 6. ***FY 2016 Base Plans:*** - Continue 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 SCRM assessment as part of PPP revision. - Continue CSRR Increment 1 Version 4 system engineering development and modernization for the LOS ANGELES, SSBN, VIRGINIA, SSGN, and SEAWOLF Class submarines. - Continue development of platform specific builds of Increment 1 Version 4 Control and Management software for LOS ANGELES, SSBN, VIRGINIA, SSGN and SEAWOLF Class capabilities. - Continue implementation of Increment 1 Version 4 security upgrades and meet Cyber Security and multiple levels of certification requirements for General Service and Sensitive Compartmented Information for all CSRR platforms. - Continue Multi-Purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 4 CSRR baseline for LOS ANGELES, SSBN, and SSGN Class operator trainer and VIRGINIA Class maintenance trainer. - Continue updating the CSRR Acquisition Plan, Acquisition Strategy, System Engineering Plan, and Program Protection Plan to reflect changes for Increment 1 Version 4 through Version 6. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	13.614	8.805	9.354	-	9.354

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 313000: *Submarine Communications*	64.376	64.954	60.945	-	60.945	67.507	61.859	67.274	73.051	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*

D. Acquisition Strategy

Program Milestones: Increment 1 Version 4 Preliminary Design Review (PDR) 4Q FY15, Critical Design Review (CDR) 3Q FY16, Developmental Test (DT) 2Q FY18, Operational Test (OT) 3Q FY18, and Fielding Decision 4Q FY18. Increment 1 Version 5 PDR 4Q FY18, CDR 3Q FY19.

E. Performance Metrics

FY16 CSRR reduces the overall cost for implementation of Command, Control, Communications Computers, and Intelligence (C4I) Programs of Record 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-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	WR	SSC PAC : San Diego, CA	2.776	-		-		-		-		-	-	2.776	2.776
Hardware Development	WR	SSC LANT : Charleston, SC	0.431	-		-		-		-		-	-	0.431	0.431
Multi-Crypto System (MCS) Development	C/CPFF	Motorola : Scottsdale, Arizona	10.214	-		-		-		-		-	-	10.214	10.214
Software Development	WR	SSC PAC : San Diego, CA	2.068	-		-		-		-		-	-	2.068	2.068
Software Development	WR	NUWC : Newport, RI	5.852	-		-		-		-		-	-	5.852	5.852
Multi-Purpose Reconfigurable Training System (MRTS) Development	WR	NAVAIR : Orlando, FL	16.006	-		-		-		-		-	-	16.006	16.006
Multi-Purpose Reconfigurable Training System (MRTS) Development	WR	SSC LANT : Charleston, SC	0.325	1.201	Nov 2013	1.397	Nov 2014	1.295	Nov 2015	-		1.295	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC : Newport, RI	47.244	-		-		-		-		-	-	47.244	47.244
Systems Eng/Design Version 4	WR	NUWC : Newport, RI	0.000	6.015	Nov 2013	3.745	Nov 2014	3.823	Nov 2015	-		3.823	Continuing	Continuing	Continuing
Site Platform Integration/ Certification	WR	NUWC : Newport, RI	12.699	0.118	Nov 2013	0.122	Nov 2014	0.130	Nov 2015	-		0.130	Continuing	Continuing	Continuing
Broadcast Control Authority/Operational Control (BCA/OPCON) architecture	WR	NUWC : Newport, RI	3.683	-		-		-		-		-	-	3.683	3.683
Software Development (CSRR)	C/CPAF	Lockheed Martin : Eagan, MN/San Diego, CA	35.881	-		-		-		-		-	-	35.881	36.306
Software Development (CSRR)	C/CPIF	Lockheed Martin : San Diego, CA	0.716	3.744	Dec 2013	2.133	Jan 2015	2.118	Nov 2015	-		2.118	Continuing	Continuing	Continuing
		Subtotal	137.895	11.078		7.397		7.366		-		7.366	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*	Project (Number/Name) 1411 / *Sub Tact Comm System*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NUWC : Newport, RI	3.401	0.226	Nov 2013	0.062	Nov 2014	0.192	Nov 2015	-		0.192	Continuing	Continuing	Continuing
Software Engineering	WR	SSC PAC : San Diego, CA	3.208	0.273	Mar 2014	0.173	Jan 2015	0.185	Nov 2015	-		0.185	Continuing	Continuing	Continuing
Information Security/ Information Assurance (INFOSEC/IA) Certification/Supply Chain Risk Management (SCRM) Assessment	Various	SSC PAC/SSC LANT/NUWC/ MITRE : San Diego, CA/Charleston, SC/ Newport, RI/San Diego	20.166	1.591	Nov 2013	1.104	Nov 2014	1.536	Nov 2015	-		1.536	Continuing	Continuing	Continuing
		Subtotal	26.775	2.090		1.339		1.913		-		1.913	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental/ Operational Test and Evaluation (T&E)	WR	COTF, JITC : Various	11.020	0.265	Nov 2013	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	11.020	0.265		-		-		-		-	-	-	-

Management Services ($ in Millions)

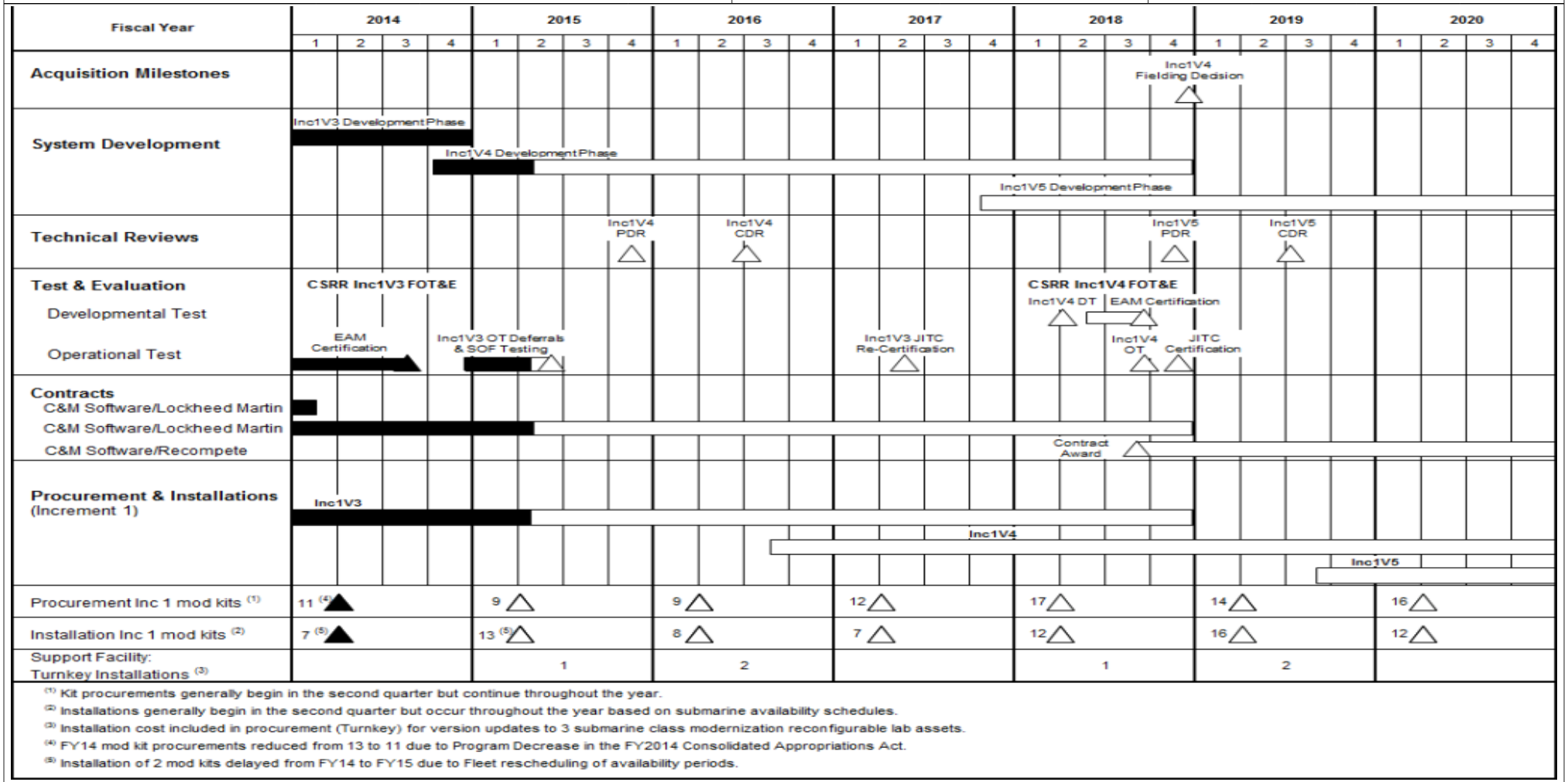
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	CSA/FSI : San Diego, CA	10.552	0.181	Nov 2013	0.069	Jan 2015	0.075	Nov 2015	-		0.075	Continuing	Continuing	Continuing
		Subtotal	10.552	0.181		0.069		0.075		-		0.075	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / *SSN-688 & Trident Modernization*	Project (Number/Name) 1411 / *Sub Tact Comm System*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	186.242	13.614		8.805		9.354		-		9.354	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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) Installation cost included in procurement (Turnkey) for version updates to 3 submarine class modernization reconfigurable lab assets.
(4) FY14 mod kit procurements reduced from 13 to 11 due to Program Decrease in the FY2014 Consolidated Appropriations Act.
(5) Installation of 2 mod kits delayed from FY14 to FY15 due to Fleet rescheduling of availability periods.

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604503N / *SSN-688 & Trident Modernization*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1411				
Fielding Decision (Increment 1 Version 4)	4	2018	4	2018
Technical Reviews (Increment 1 Version 4 Preliminary Design Review (PDR))	4	2015	4	2015
Technical Reviews (Increment 1 Version 4 Critical Design Review (CDR))	3	2016	3	2016
Technical Reviews (Increment 1 Version 5 Preliminary Design Review (PDR))	4	2018	4	2018
Technical Reviews (Increment 1 Version 5 Critical Design Review (CDR))	3	2019	3	2019
System Development (Increment 1 Version 3)	1	2014	4	2014
System Development (Increment 1 Version 4)	4	2014	4	2018
System Development (Increment 1 Version 5)	4	2017	4	2020
Contracts (Software---Lockheed Martin)	1	2014	1	2014
Contracts (Software---Lockheed Martin)	1	2014	4	2018
Contracts (Software-Follow-on)	3	2018	4	2020
Emergency Action Message (EAM) Certification (Increment 1 Version 3)	1	2014	3	2014
Emergency Action Message (EAM) Certification (Increment 1 Version 4)	2	2018	3	2018
Increment 1 Version 3 Operational Test (OT) deferrals & Special Operations Forces (SOF) testing	4	2014	2	2015
Increment 1 Version 3 Joint Interoperability Test Command (JITC) Re-Certification	2	2017	2	2017
Increment 1 Version 4 Joint Interoperability Test Command (JITC) Re-Certification	4	2018	4	2018
Developmental Test (DT) (Increment 1 Version 4)	2	2018	2	2018
Operational Test (OT) (Increment 1 Version 4)	3	2018	3	2018
Procurement (Increment 1 Modernization Kits)	1	2014	4	2020
Installation (Increment 1 Modernization Kits)	1	2014	4	2020