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 0604558N *I New Design SSN*							
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	2,200.067	81.162	62.446	72.695	-	72.695	92.810	100.404	111.578	86.275	Continuing	Continuing
1947: *New Design SSN HM&E*	1,389.220	30.160	29.781	36.011	-	36.011	50.544	61.225	75.564	47.801	Continuing	Continuing
1950: *New Design SSN Combat Sys Dev*	771.359	25.810	29.876	34.114	-	34.114	34.698	36.541	33.345	35.749	Continuing	Continuing
3062: *Submarine Multi-Mission Team Trainer*	24.488	2.467	2.789	2.570	-	2.570	7.568	2.638	2.669	2.725	Continuing	Continuing
4500: *VIRGINIA Payload Module*	0.000	9.007	-	-	-	-	-	-	-	-	-	9.007
9999: *Congressional Adds*	15.000	13.718	-	-	-	-	-	-	-	-	-	28.718
MDAP/MAIS Code: 516												

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

A. Mission Description and Budget Item Justification

The U.S. Navy must maintain a submarine fleet that is of sufficient capability and numbers to defend American interests. The VIRGINIA Class Submarine, formerly the New Attack Submarine (New SSN), is being designed to fulfill this need. It will counter the potential threats of the next century in a multi- mission capable submarine that has the ability to provide covert, sustained combat presence in denied waters. The primary goal of the program is to develop an affordable yet capable submarine by evaluating a broad range of system and technology alternatives, and pursuing cost reduction, producibility improvement, and technical risk management. This Program Element (PE) provides the technology, prototype components, and systems engineering needed to design and construct the VIRGINIA Class Submarine and build its Command, Control, Communications, and Intelligence (C3I) System. This PE directly supports the following VIRGINIA Class Submarine missions: (1) covert strike warfare; (2) anti-submarine warfare; (3) covert intelligence collection/surveillance, indication and warning, and electronic warfare; (4) anti-surface ship warfare; (5) special warfare; (6) mine warfare; and (7) battle group support.

Project 9999: FY13 Congressional Add includes funding for Small Business Technology Insertion.

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 0604558N *I New Design SSN*

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	165.230	121.566	252.117	-	252.117
Current President's Budget	81.162	62.446	72.695	-	72.695
Total Adjustments	-84.068	-59.120	-179.422	-	-179.422
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-59.120			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.357	-			
• Program Adjustments	-	-	-11.500	-	-11.500
• Rate/Misc Adjustments	0.001	-	-167.922	-	-167.922
• Congressional General Reductions Adjustments	-7.712	-	-	-	-
• Congressional Directed Reductions Adjustments	-90.000	-	-	-	-
• Congressional Add Adjustments	15.000	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2013	FY 2014
Project: 9999: *Congressional Adds*		
Congressional Add: *New Design SSN SBIR (Cong)*	13.718	-
Congressional Add Subtotals for Project: 9999	13.718	-
Congressional Add Totals for all Projects	13.718	-

Change Summary Explanation

Reduced FY13 funding for Sequestration reductions.

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

Note: Beginning in 2015, there is an administrative change that will shift efforts funded from PE 0604558N (New Design SSN) / Project 4500 to PE 0604580N (VIRGINIA Payload Module) / Project 4500. This shift is consistent with Congressional intent identified in the FY14 Appropriations Act Committee Report. Technical: Not applicable.

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 0604558N *I New Design SSN*

Schedule: Not applicable.

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 0604558N / *New Design SSN*	Project (Number/Name) 1947 / *New Design SSN HM&E*	

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
1947: *New Design SSN HM&E*	1,389.220	30.160	29.781	36.011	-	36.011	50.544	61.225	75.564	47.801	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 project encompasses all the ship system development efforts for the VIRGINIA Class Submarine and the Technology Insertion Program for reducing cost and upgrading performance of future hulls by virtue of improvements in ship systems. Technology development implementation and logistics for developmental items, and VIRGINIA Class test & evaluation are included. This project is essential for pursuit of high priority Design For Affordability (DFA) and Reduced Total Ownership Cost (RTOC) initiatives while achieving platform requirements and providing mission capability and flexibility. The thrust of these efforts will be to develop and apply multiple advanced system technologies which are integrated into the design of the VIRGINIA Class Submarine. Technologies developed in this program will be considered for applicability to the Ohio Replacement Program (ORP) for commonality opportunities. New technologies are being transitioned from industry and government research and development programs where doing so offers substantial performance improvement and/or affordability payoffs. Transition opportunities include those from the Defense Advanced Research Projects Agency (DARPA) Sensors & Payloads program and Office of Naval Research (ONR) Future Naval Capabilities Program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: New Design SSN HM&E	24.620	13.217	19.335
Articles:	-	-	-

FY 2013 Accomplishments:

Continued block upgrades of Ship Control algorithms and software. Continued software development for Advanced Electromagnetic silencing capability. Completed design and development of Block III Cost Reduction components and technologies including, for example, Large Area Bow (LAB) array, large diameter Virginia Payload Tube (VPT) and hatches, improved reverse osmosis units, low cost sound isolation coupling, and optimized ballast tank damping. Transitioned products from ONR's Manufacturing Technology Program (MANTECH). Continued development of concepts and technologies for Block IV Reduced Total Ownership Cost (RTOC) such as the Advanced Integrated Low Pressure Electrolyzer. Completed development of Block IV Technical Baseline. Addressed emergent reliability issues associated with HM&E components. Initiated HM&E obsolescence redesign for Block IV.

FY 2014 Plans:

Complete block upgrades of Ship Control algorithms and software. Complete software development for Advanced Electromagnetic silencing capability. Continue development of concepts and technologies for Block IV Reduced Total Ownership Cost (RTOC) and integrate into Block IV design/build contract. Address emergent reliability issues associated with HM&E components. Continue HM&E obsolescence redesign for Block IV. Initiate development of acoustic performance improvements

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 0604558N / *New Design SSN*	**Project (Number/Name)** 1947 / *New Design SSN HM&E*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
for full scale demonstration and refine design requirements for future Virginia blocks. Continue transition of products from the Office of Naval Research Manufacturing Technology Program (MANTECH). ***FY 2015 Plans:*** Complete development of concepts and technologies for Block IV Reduced Total Ownership Cost (RTOC) and integration into Block IV technical baseline. Address emergent reliability issues associated with HM&E components. Complete HM&E obsolescence redesign for Block IV. Continue development of acoustic performance improvements for full scale demonstration and refine design requirements for future blocks with regard to updated threats. Continue transition of products from the Office of Naval Research Manufacturing Technology Program (MANTECH).			
Title: TEST AND EVALUATION	5.540	16.564	16.676
Articles:	-	-	-
FY 2013 Accomplishments: Continue responding to SSN774 OPEVAL, Arctic, TI-08/APB-09, and DDS FOT&E deficiencies identified by COTF and support OPNAV in adjudication of DOT&E recommendations, as well as prepare for future FOT&E events. Conduct DDS FOT&E testing, post-test analysis and reporting. Initiate developmental test plans/procedures to test the first Block III ships. ***FY 2014 Plans:*** Continue responding to SSN774 OPEVAL, Arctic, TI-08/APB-09, and DDS FOT&E deficiencies identified by COTF and support OPNAV in adjudication of DOT&E recommendations, as well as prepare for future FOT&E events. Conduct DOTS FOT&E testing, verification and reporting. Finalize detailed plan to test a VIRGINIA Class in a Low Frequency Active (LFA) environment and execute LFA FOT&E testing, analysis and reporting. Finalize detailed developmental test plans/procedures to test the first Block III ships. Conduct Information Awareness Vulnerability/Penetration Testing FOT&E, post-test analysis and reporting. Develop a detailed plan and conduct an operational assessment of VIRGINIA Class during CCSM Off-Hull Assembly & Test Site (COATS). ***FY 2015 Plans:*** Continue responding to SSN774 OPEVAL, Arctic, TI-08/APB-09, and DDS FOT&E deficiencies identified by COTF and support OPNAV in adjudication of DOT&E recommendations, as well as prepare for future FOT&E events. Make preparations to conduct the start of Block III FDT&E and FOT&E testing consisting of the Accreditation of Modeling & Simulation and Strike Warfare, post-test analysis and reporting. The remainder of testing (Anti-Submarine Warfare in Open Ocean and Littorals; High Density Contact Mgmt; Surface Warfare TrackEx and TorpEx is scheduled to take place in FY2016.			
Accomplishments/Planned Programs Subtotals	30.160	29.781	36.011

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 0604558N / *New Design SSN*	**Project (Number/Name)** 1947 / *New Design SSN HM&E*

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
• SCN/2013: *VA CL*	4,636.630	6,462.316	5,883.579	-	5,883.579	5,450.298	5,223.103	5,481.305	5,884.914	-	83,123.088
• O&M,N/0204283N: *Sub Ops & Safety*	32.433	38.919	33.938	-	33.938	32.472	28.746	29.971	30.894	Continuing	Continuing
• OPN/0942: *VA CL Support Equipment*	70.995	69.241	74.129	-	74.129	56.775	46.593	65.738	79.903	Continuing	Continuing

Remarks

D. Acquisition Strategy

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN), now Huntington Ingalls Industries (HII), to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and HII became a part of the IPPD process. The Program Office is managing two Multi-Year Procurement (MYP) contracts the first is for the FY04-08 ships and the second was awarded in December 2008 for the FY09-13 ships. The last Block II ship, SSN 783, was delivered in June 2013. All Block III ships are awarded and under construction. The Block IV MYP is in progress with second quarter FY14 planned award date.

E. Performance Metrics

Successful completion of Milestone III Review. Successful completion of Final Operational Test and Evaluation (FOT&E) for Technology Insertion (TI)-08 and Block III.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / *New Design SSN*	Project (Number/Name) 1947 / *New Design SSN HM&E*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Component Development	WR	NSWC : Carderock, MD	232.239	2.433	Dec 2012	2.750	Nov 2013	3.250	Nov 2014	-		3.250	Continuing	Continuing	Continuing
Component Development	WR	NUWC : Newport, RI	106.367	2.365	Dec 2012	1.250	Nov 2013	1.250	Nov 2014	-		1.250	Continuing	Continuing	Continuing
Component Development	WR	NRL : Washington, DC	5.218	1.100	Dec 2012	0.350	Nov 2013	0.350	Nov 2014	-		0.350	Continuing	Continuing	Continuing
Component Development	C/CPFF	Electric Boat : Groton, CT	589.879	15.105	Dec 2012	6.117	Nov 2013	9.635	Nov 2014	-		9.635	Continuing	Continuing	Continuing
Component Development	C/CPFF	Electric Boat : Groton, CT	22.964	-		-		-		-		-	Continuing	Continuing	Continuing
Component Development	C/CPFF	Electric Boat : Groton, CT	39.819	-		-		-		-		-	Continuing	Continuing	Continuing
Component Development	PO	SUPSHIP : Groton, CT	64.930	1.460	Dec 2012	0.600	Dec 2013	1.200	Dec 2014	-		1.200	Continuing	Continuing	Continuing
Component Development	SS/CPFF	Lockheed Martin : Not Specified	16.524	-		-		-		-		-	Continuing	Continuing	Continuing
Component Development	SS/CPFF	Lockheed Martin : Not Specified	2.070	-		-		-		-		-	Continuing	Continuing	Continuing
Component Development	SS/CPFF	Applied Research Laboratory : Penn State University	22.021	0.350	Dec 2012	0.200	Dec 2013	0.500	Dec 2014	-		0.500	Continuing	Continuing	Continuing
Component Development	SS/FP	National Shipbuilding Research Program : Not Specified	3.028	0.217	Mar 2013	0.200	Mar 2014	0.400	Mar 2015	-		0.400	Continuing	Continuing	Continuing
Component Development	Various	Micellaneous : Not Specified	14.671	1.090	Dec 2012	1.250	Dec 2014	2.250	Dec 2014	-		2.250	Continuing	Continuing	Continuing
		Subtotal	1,119.730	24.120		12.717		18.835		-		18.835	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation - DT&E	WR	NSWC : Carderock, MD	90.243	1.068	Nov 2012	0.849	Nov 2013	0.488	Nov 2014	-		0.488	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / *New Design SSN*	Project (Number/Name) 1947 / *New Design SSN HM&E*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation - LFT&E	WR	NSWC : Carderock, MD	1.070	0.517	Nov 2012	0.730	Nov 2013	0.730	Nov 2014	-		0.730	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	WR	NSWC : Dahlgren, VA	0.315	-		-		-		-		-	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	WR	NUWC : Newport, RI	104.479	1.620	Nov 2012	11.933	Nov 2013	12.594	Nov 2014	-		12.594	Continuing	Continuing	Continuing
Test and Evaluation - OT&E	PO	COMOPTEVFOR : Norfolk, VA	14.428	0.485	Nov 2012	1.000	Nov 2013	0.900	Nov 2014	-		0.900	Continuing	Continuing	Continuing
Test and Evaluation - LFT&E	C/CPFF	Electric Boat : Groton, CT	1.290	0.125	Dec 2012	0.105	Dec 2013	0.225	Dec 2014	-		0.225	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	C/CPAF	SEAPORT : Rockville, MD	19.407	0.780	Nov 2012	0.800	Nov 2013	0.700	Nov 2014	-		0.700	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	C/CPFF	Progeny : Manassas, VA	4.375	0.855	Dec 2012	1.147	Dec 2013	0.999	Dec 2014	-		0.999	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	Various	Micellaneous : Not Specified	11.842	0.090	Dec 2012	-		0.040	Nov 2014	-		0.040	Continuing	Continuing	Continuing
		Subtotal	247.449	5.540		16.564		16.676		-		16.676	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPAF	SEAPORT : Rockville, MD	19.525	0.500	Nov 2012	0.500	Nov 2013	0.500	Nov 2014	-		0.500	Continuing	Continuing	Continuing
Travel	PO	Not Specified : Not Specified	1.919	-		-		-		-		-	Continuing	Continuing	Continuing
DAWDF	Various	Not Specified : Not Specified	0.597	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	22.041	0.500		0.500		0.500		-		0.500	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / *New Design SSN*	Project (Number/Name) 1947 / *New Design SSN HM&E*	

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,389.220	30.160		29.781		36.011		-		36.011	-	-	-

Remarks

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 0604558N / *New Design SSN*	**Project (Number/Name)** 1947 / *New Design SSN HM&E*

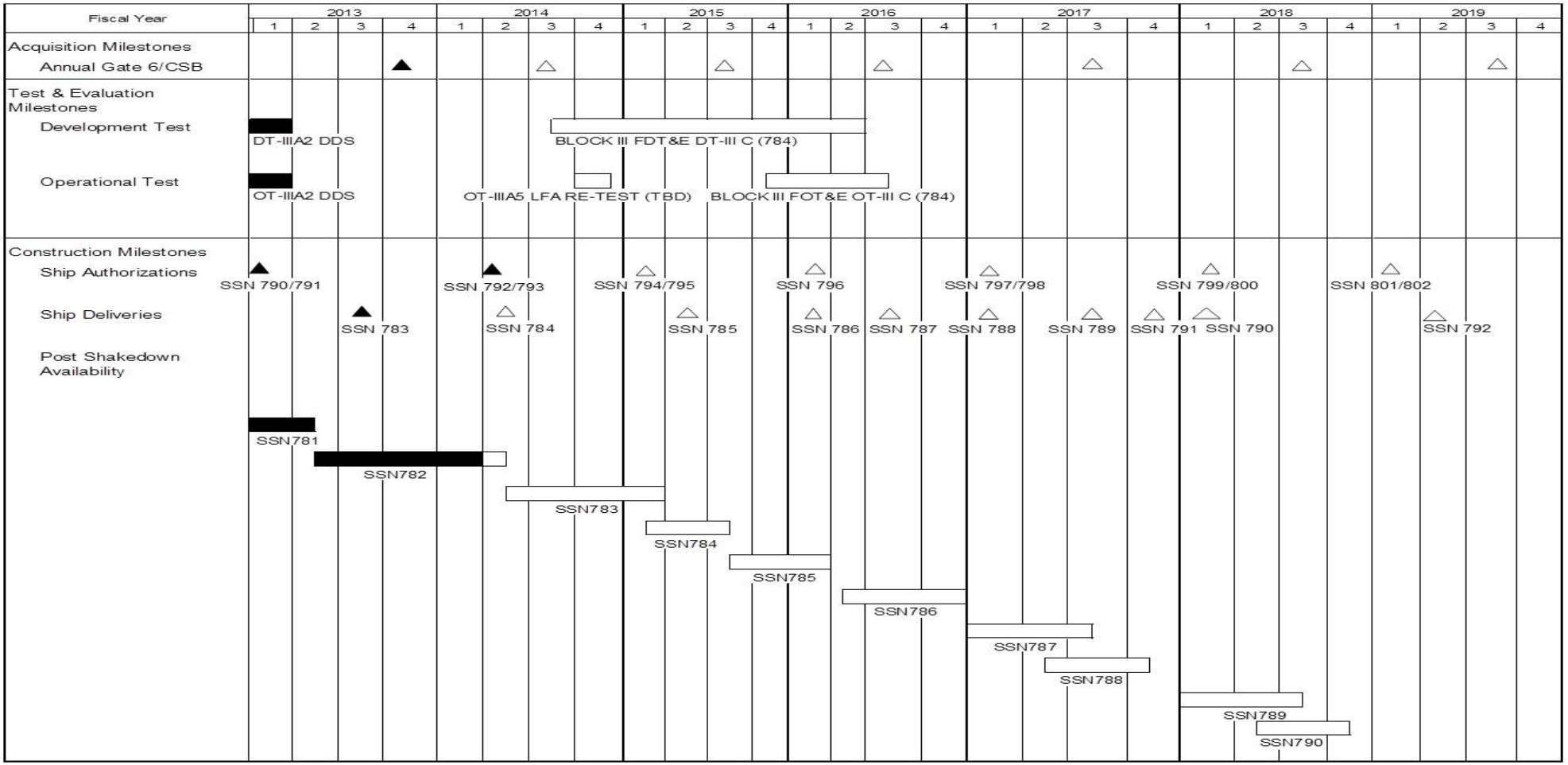


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1947 / *New Design SSN HM&E*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1947				
Post Shakedown Availability/Modernization (PSA SSN 781)	1	2013	2	2013
Ship Authorization (790/791)	1	2013	1	2013
DT-IIIA2 (DDS)	1	2013	1	2013
OT-IIIA2 (DDS)	1	2013	1	2013
Post Shakedown Availability/Modernization (PSA SSN 782)	2	2013	2	2014
Ship Delivery (SSN 783)	3	2013	3	2013
FY13 Annual Gate 6/CSB	4	2013	4	2013
Ship Authorization (792/793)	2	2014	2	2014
Post Shakedown Availability/Modernization (PSA SSN 783)	2	2014	1	2015
Block III FOT&E DT-III C	3	2014	2	2016
Ship Delivery (SSN 784)	2	2014	2	2014
FY14 Annual Gate 6/CSB	3	2014	3	2014
LFA Re-Test	4	2014	4	2014
Post Shakedown Availability/Modernization (PSA SSN 784)	1	2015	3	2015
Ship Authorization (794/795)	1	2015	1	2015
Ship Delivery (SSN 785)	2	2015	2	2015
Block III FOT&E OT-III C	4	2015	3	2016
FY15 Annual Gate 6/CSB	3	2015	3	2015
Post Shakedown Availability/Modernization (PSA SSN 785)	3	2015	1	2016
Ship Authorization (796)	1	2016	1	2016
Ship Delivery (SSN 786)	1	2016	1	2016
Post Shakedown Availability/Modernization (SSN 786)	2	2016	4	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1947 / *New Design SSN HM&E*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
FY16 Annual Gate 6/CSB	3	2016	3	2016
Ship Delivery (SSN 787)	3	2016	3	2016
Post Shakedown Availability/Modernization (PSA SSN 787)	1	2017	3	2017
Ship Authorization (SSNs 797/798)	1	2017	1	2017
Ship Delivery (SSN 788)	1	2017	1	2017
Post Shakedown Availability/Modernization (PSA SSN 788)	2	2017	4	2017
FY17 Annual Gate 6/CSB	3	2017	3	2017
Ship Delivery (SSN 789)	3	2017	3	2017
Post Shakedown Availability/Modernization (PSA SSN 789)	1	2018	3	2018
Ship Authorization (SSN 799/800)	1	2018	1	2018
Ship Delivery (SSN 790)	1	2018	1	2018
Post Shakedown Availability/Modernization (SSN 790)	2	2018	4	2018
FY18 Annual Gate 6/CSB	3	2018	3	2018
Ship Delivery (SSN 791)	4	2017	4	2017
Ship Authorization (SSNs 801/802)	1	2019	1	2019
FY19 Gate 6/CSB	3	2019	3	2019
Ship Delivery (SSN 792)	2	2019	2	2019

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 0604558N / *New Design SSN*				Project (Number/Name) 1950 / *New Design SSN Combat Sys Dev*			
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**
1950: *New Design SSN Combat Sys Dev*	771.359	25.810	29.876	34.114	-	34.114	34.698	36.541	33.345	35.749	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 project encompasses the top level systems development, test and integration into the ship of the VIRGINIA Class Submarine C3I System, which includes multiple subsystems. The scope of the system is expanded from Sonar and Combat Control subsystems to include AN/BLQ-10 Electronic Support Measures, Exterior Communications, Submarine Regional Warfare System, Navigation, Total Ship Monitoring, Imaging, Tactical Acoustic Communications, Radar, Interior Communications, Tactical Support Devices, Fiber Optic Cable Subsystem, and Special Purpose Subsystems, such as Battle Force Team Trainer and others. VIRGINIA Class Submarine specific development efforts include requirements definition, software, hardware development, software/hardware test, prototype production, and electronic integration as well as physical integration into the platform.

The VIRGINIA Class Submarine implementation approach is based on Open System, Commercial-off-the-Shelf (COTS) Non-Developmental Items or subsystems. The program leverages on-going subsystems developments or developing new subsystems where needed to satisfy VIRGINIA Class requirements. The recurring cost of VIRGINIA Class Submarine C3I Systems is being reduced to meet the program's affordability goals. Modifications to many subsystems must be developed to: (1) reduce the shipbuilding and construction recurring costs through the use of COTS components; (2) use proven computer technologies to evolve to an Open System design; (3) enhance capabilities to support expanded operational
requirements, reduced manning, and reduced shipboard component footprint.

To meet the collective future threat, the submarine force must operate as effectively in littoral regions as it traditionally has in open ocean. Close coordination with surface battle groups and airborne units is essential to mission accomplishment. To meet the VIRGINIA Class Submarine mission, the following capabilities are provided by the
VIRGINIA Class Submarine C3I System: (1) passive and active detection of multiple contacts, including early warning threat determination through processing and analysis of sensor data; (2) classification of sensor data for the purpose of identifying contacts; (3) localization (tracking) of contacts through target motion analysis; (4) preset, launch, and control of weapons and countermeasures; (5) improved communication and connectivity with other battle group elements, airborne units, and special operations forces; (6) incorporation of vertical launch system to enhance strike warfare; and (7) more effective covert surveillance through video imaging with onboard digital enhancement capabilities, and improved electronic warfare analysis capabilities.

The F1950 project mission includes an ongoing post VIRGINIA Class TECH/OPEVAL RDT&E effort to continue the development of VIRGINIA Unique Combat System Improvements. The VIRGINIA Class C3I will continue to leverage backfit communities' efforts, but even with common systems that the Navy has developed there will continue to be VIRGINIA Unique capability improvements required. The FY09 and out funding identified is for those efforts.

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 0604558N / *New Design SSN*	**Project (Number/Name)** 1950 / *New Design SSN Combat Sys Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Sonar Combat Control and Architecture Subsystems	14.295	15.882	20.553
Articles:	-	-	-
Description: Continued the development of S/CC/A System Improvements to maintain VIRGINIA Class Commonality to backfit fleet. ***FY 2013 Accomplishments:*** Continue the development of S/CC/A System Improvements to maintain VIRGINIA Class Commonality to backfit fleet. ***FY 2014 Plans:*** Continue the development of S/CC/A System Improvements to maintain VIRGINIA Class Commonality to backfit fleet. ***FY 2015 Plans:*** Continue the development of S/CC/A System Improvements to maintain VIRGINIA Class Commonality to backfit fleet.			
Title: C3I Systems Engineering	11.515	13.994	13.561
Articles:	-	-	-
FY 2013 Accomplishments: Continued the development of System Level and other subsystem improvements to maintain VIRGINIA Class Commonality to backfit fleet. ***FY 2014 Plans:*** Continue the development of System Level and other subsystem Improvements to maintain VIRGINIA Class Commonality to backfit fleet. ***FY 2015 Plans:*** Continue the development of System Level and other subsystem Improvements to maintain VIRGINIA Class Commonality to backfit fleet.			
Accomplishments/Planned Programs Subtotals	25.810	29.876	34.114

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
• SCN/2013: *VA CL*	4,636.630	6,462.316	5,886.789	-	5,886.789	5,446.613	5,212.653	5,625.203	5,859.719	2,515.037	85,884.454
• O&M,N/0204283N: *Sub Ops & Safety*	32.433	38.919	33.938	-	33.938	32.472	28.746	29.971	30.894	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 0604558N / *New Design SSN*	**Project (Number/Name)** 1950 / *New Design SSN Combat Sys Dev*

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/0942: *VA CL Support Equipment*	70.995	69.241	74.129	-	74.129	56.775	46.593	65.738	79.903	Continuing	Continuing

Remarks

D. Acquisition Strategy

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN), now Huntington Ingalls Industries (HII), to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and HII became a part of the IPPD process. The Program Office is managing two Multi-Year Procurement (MYP) contracts the first is for the FY04-08 ships and the second was awarded in December 2008 for the FY09-13 ships. The last Block II ship, SSN 783, was delivered in June 2013. All Block III ships are awarded and under construction. The Block IV MYP is in progress with second quarter FY14 planned award date.

E. Performance Metrics

Successful completion of Milestone III Review. Successful completion of Final Operational Test and Evaluation (FOT&E) for Technology Insertion (TI)-08 and Block III. Successful implementation of Reduced Total Ownership Costs (RTOC) initiatives.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1950 / *New Design SSN Combat Sys Dev*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PTR Corrections	Various	Various : TBD	30.088	-		-		-		-		-	Continuing	Continuing	Continuing
Unique Virginia Class Improvements	Various	Various : TBD	44.616	5.839	Mar 2013	7.853	Nov 2013	9.889	Nov 2014	-		9.889	Continuing	Continuing	Continuing
Advanced Display Sys (AN/UYQ-70)	SS/CPIF	Lockheed Martin : St. Paul, MN	33.202	1.085	Dec 2012	1.123	Nov 2013	1.179	Nov 2014	-		1.179	Continuing	Continuing	Continuing
Photonics	C/CPIF	Kollmorgen : Northampton, MA	54.323	1.569	May 2013	1.624	May 2014	1.753	May 2015	-		1.753	Continuing	Continuing	Continuing
Electronic Support Measures	C/FFP	Lockheed Martin : Syracuse, NY	38.067	-		-		-		-		-	Continuing	Continuing	Continuing
Platform Integration	SS/CPFF	Electric Boat : Groton, CT	46.800	1.255	Nov 2012	1.299	Nov 2013	1.589	Nov 2014	-		1.589	Continuing	Continuing	Continuing
Technology Refreshment	Various	Various : TBD	20.355	-		-		-		-		-	Continuing	Continuing	Continuing
Technical Direction Agent	WR	NUWC : Newport, RI	281.665	7.066	Jan 2013	7.153	Jan 2014	7.767	Jan 2015	-		7.767	Continuing	Continuing	Continuing
Technology Refreshment/ Info. Assurance	C/CPFF	Progeny Systems : Manassas, VA	33.216	1.568	Nov 2012	1.623	Nov 2013	1.998	Nov 2014	-		1.998	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Carderock, MD	10.259	0.837	Dec 2012	0.866	Nov 2013	0.891	Nov 2014	-		0.891	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC : Charleston, SC	6.556	0.522	Feb 2013	0.540	Nov 2013	0.550	Nov 2014	-		0.550	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC : Keyport, WA	10.708	0.236	Nov 2012	0.244	Nov 2013	0.348	Nov 2014	-		0.348	Continuing	Continuing	Continuing
Miscellaneous	Various	Various : TBD	130.676	3.118	Nov 2012	4.791	Nov 2013	5.310	Nov 2014	-		5.310	Continuing	Continuing	Continuing
		Subtotal	740.531	23.095		27.116		31.274		-		31.274	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Various	Various	Various : TBD	6.212	-		-		-		-		-	-	6.212	-
		Subtotal	6.212	-		-		-		-		-	-	6.212	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / *New Design SSN*	Project (Number/Name) 1950 / *New Design SSN Combat Sys Dev*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Support Services/ETS	C/CPAF	URS : Rockville, MD	24.421	2.715	Dec 2012	2.760	Dec 2013	2.840	Dec 2014	-		2.840	Continuing	Continuing	Continuing
DAWDF	Various	Various : Various	0.195	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	24.616	2.715		2.760		2.840		-		2.840	-	-	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	771.359	25.810		29.876		34.114		-		34.114	-	-	-

Remarks

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 0604558N / *New Design SSN*	**Project (Number/Name)** 1950 / *New Design SSN Combat Sys Dev*

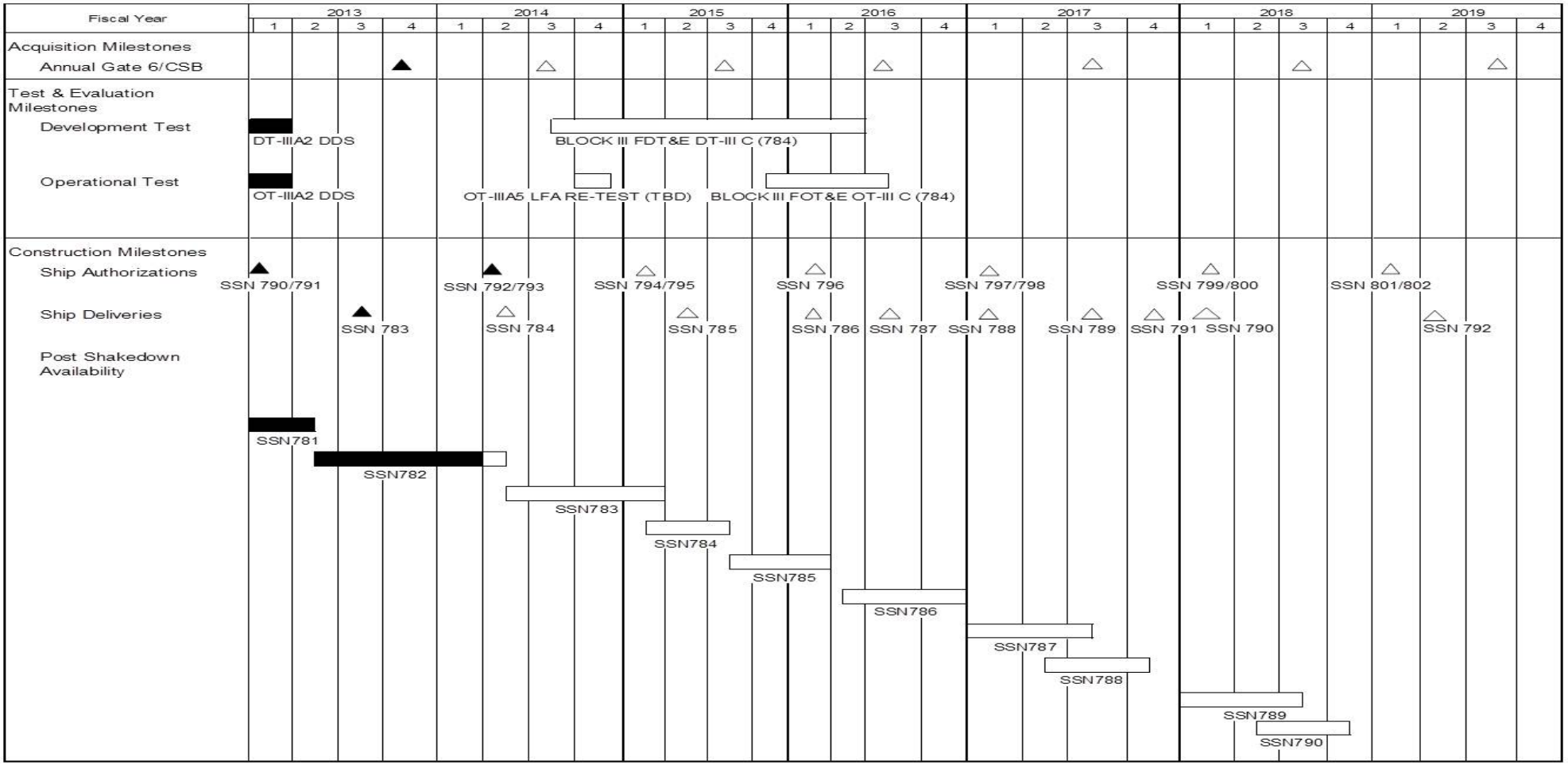


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1950 / *New Design SSN Combat Sys Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1950				
Post Shakedown Availability/Modernization (PSA SSN 781)	1	2013	2	2013
Ship Authorization (SSN 790/791)	1	2013	1	2013
DT-IIIA2 (DDS)	1	2013	1	2013
OT-IIIA2 (DDS)	1	2013	1	2013
Post Shakedown Availability/Modernization (PSA SSN 782)	2	2013	2	2014
Ship Delivery (SSN 783)	3	2013	3	2013
FY13 Annual Gate 6/CSB	4	2013	4	2013
Ship Authorization (SSN 792/793)	2	2014	2	2014
Post Shakedown Availability/Modernization (PSA SSN 783)	2	2014	1	2015
Block III FOT&E DT-III C	3	2014	2	2016
Ship Delivery (SSN 784)	2	2014	2	2014
FY14 Annual Gate 6/CSB	3	2014	3	2014
LFA Re-Test	4	2014	4	2014
Post Shakedown Availability/Modernization (PSA SSN 784)	1	2015	3	2015
Ship Authorization (SSN 794/795)	1	2015	1	2015
Ship Delivery (SSN 785)	2	2015	2	2015
Block III FOT&E OT-III C	4	2015	2	2016
FY15 Annual Gate 6/CSB	3	2015	3	2015
Post Shakedown Availability/Modernization (PSA SSN 785)	3	2015	1	2016
Ship Authorization (SSN 796)	1	2016	1	2016
Ship Delivery (SSN 786)	1	2016	1	2016
Post Shakedown Availability/Modernization (SSN 786)	2	2016	4	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1950 / *New Design SSN Combat Sys Dev*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
FY16 Annual Gate 6/CSB	3	2016	3	2016
Ship Delivery (SSN 787)	3	2016	3	2016
Post Shakedown Availability/Modernization (SSN 787)	1	2017	3	2017
Ship Authorization (SSNs 797/798)	1	2017	1	2017
Ship Delivery (SSN 788)	1	2017	1	2017
Post Shakedown Availability/Modernization (SSN 788)	2	2017	4	2017
FY17 Annual Gate 6/CSB	3	2017	3	2017
Ship Delivery (SSN 789)	3	2017	3	2017
Post Shakedown Availability/Modernization (SSN 789)	1	2018	3	2018
Ship Authorization (SSNs 799/800)	1	2018	1	2018
Ship Delivery (SSN 790)	1	2018	1	2018
Post Shakedown Availability/Modernization (SSN 790)	2	2018	4	2018
FY18 Annual Gate 6/CSB	3	2018	3	2018
Ship Delivery (SSN 791)	4	2017	4	2017
Ship Authorization (SSNs 801/802)	1	2019	1	2019
FY19 Annual Gate 6/CSB	3	2019	3	2019
Ship Delivery (SSN 792)	2	2019	2	2019

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 0604558N / *New Design SSN*	Project (Number/Name) 3062 / *Submarine Multi-Mission Team Trainer*	

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
3062: *Submarine Multi-Mission Team Trainer*	24.488	2.467	2.789	2.570	-	2.570	7.568	2.638	2.669	2.725	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

To achieve desired submarine force readiness levels, it is necessary to construct highly sophisticated shore based Combat System Team Trainers capable of training personnel in all aspects of submarine approach, attack and surveillance operations in a controlled, simulated environment. The Combat Control System (CCS) MK1, CCS MK2, and AN/BYG-1, along with sonar systems AN/BSY-1, AN/BQQ-5, and AN/BQQ-10 are installed on SSN and SSGN class submarines. These tactical systems are planned for future upgrades with the next hardware and software revisions which will provide enhanced War Fighter capabilities. The Tactical Acoustic Rapid COTS (commercial-off-the-shelf) Insertion (ARCI) phased upgrades are also being installed with future revisions. The Advanced Processing Builds (APB) and Technical Insertion (TI) sensors, which feed technology insertion into the CCS/Acoustic development, directly impact the trainers.

The Submarine Multi-Mission Team Trainer (SMMTT) supports operator, employment, strike, and Battle Group training for enlisted and officer pipelines. The SMMTT provides operators and combat teams the opportunity to train ashore, prior to, and between deployments. The shore based training provides a means of maintaining team proficiency in stand alone or in combined team mode prior to ship deployment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Submarine Multi-Mission Team Trainer	2.467	2.789	2.570
Articles:	-	-	-
Description: To achieve desired submarine force readiness levels, it is necessary to construct highly sophisticated shore based Combat System Team Trainers capable of training personnel in all aspects of submarine approach, attack and surveillance operations in a controlled, simulated environment.			
FY 2013 Accomplishments: FY13 Developed implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. This effort included new sensor developments and simulations to match advancements in tactical systems supported by SMMTT. This effort also integrated the APB into the SMMTT baseline along with completing and integrating the LCCA sensor.			
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 0604558N / *New Design SSN*	**Project (Number/Name)** 3062 / *Submarine Multi-Mission Team Trainer*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Develop implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. This effort includes new sensor developments and simulations to match advancements in tactical systems supported by SMMTT. This effort also integrates the APB into the SMMTT baseline along with completing and integrating the LCCA sensor. ***FY 2015 Plans:*** Develop implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. These efforts include new sensor developments and simulations to match advancements in tactical systems supported by SMMTT. These efforts will also integrate the APB into the SMMTT baseline along with completing and integrating the LCCA sensor.			
Accomplishments/Planned Programs Subtotals	2.467	2.789	2.570

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/5661: *Submarine Training Device Mods*	16.438	19.599	13.498	-	13.498	20.454	23.126	21.095	31.498	Continuing	Continuing

Remarks

D. Acquisition Strategy

The SMMTT program software development is accounted for in this RDTE,N line. All production kits are procured in OPN PE 0804731N BLI 566100 and 566200, cost code TD009.

E. Performance Metrics

Within 90 days of introduction to the Fleet, this RDTE,N project shall develop required changes to the Control and Display Documentation and Interface Description Language (IDL) Interfaces for the initial development for new sensors that are required to simulate/stimulate the TI/APB for the AN/BQQ-5 and AN/BYG-1 in the SMMTT Trainer.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 3062 / *Submarine Multi-Mission Team Trainer*

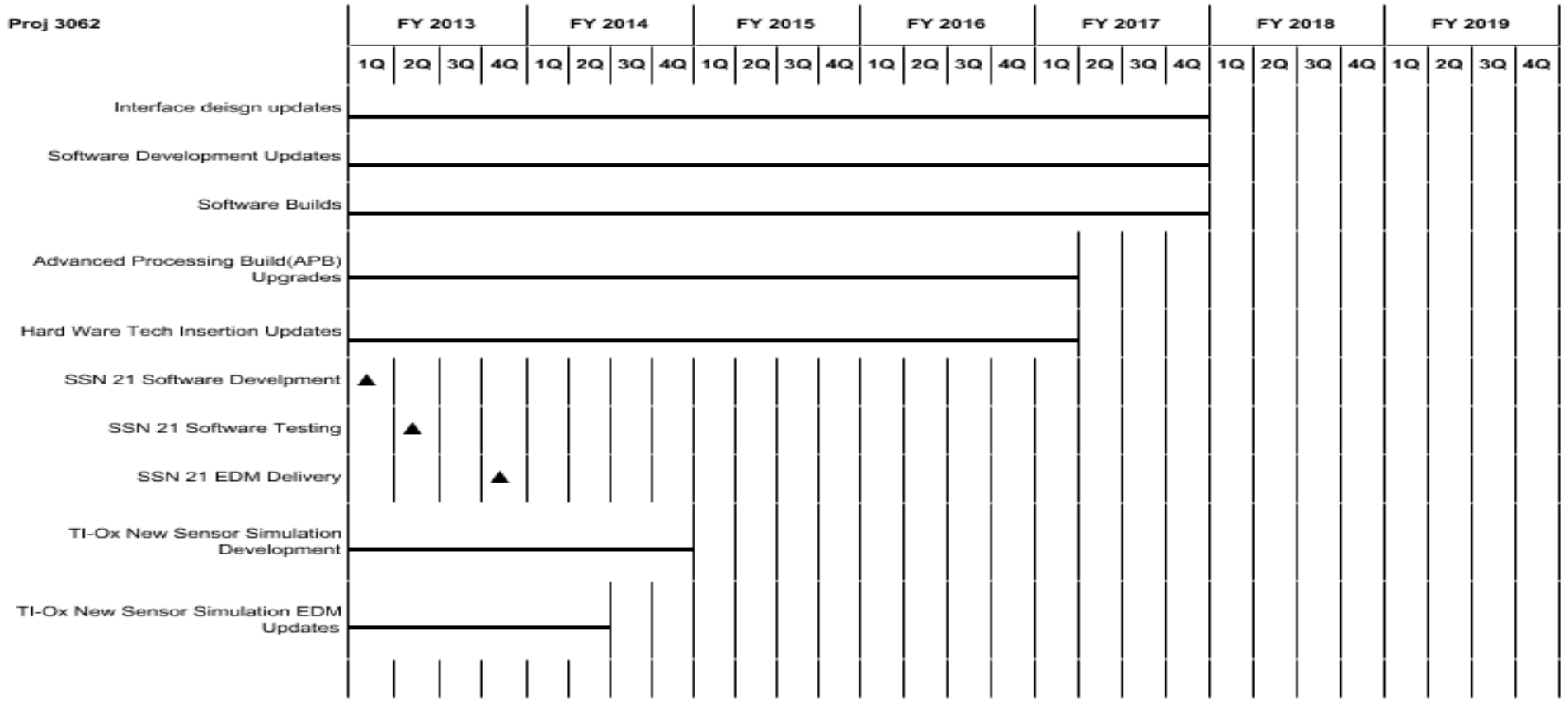
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Component Development	Reqn	NSWC/CD : Bethesda, MD	21.533	1.237	Dec 2012	1.789	Dec 2013	1.570	Oct 2014	-		1.570	Continuing	Continuing	Continuing
Component Development	C/CPFF	ARL : UT Austin	1.955	0.230	Jan 2013	-	Jan 2014	-		-		-	Continuing	Continuing	Continuing
Component Development	Reqn	NSWC/NPT : Newport, RI	1.000	1.000	Dec 2012	1.000	Dec 2013	1.000	Oct 2014	-		1.000	-	4.000	-
		Subtotal	24.488	2.467		2.789		2.570		-		2.570	-	-	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	24.488	2.467		2.789		2.570		-		2.570	-	-	-

Remarks

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 0604558N / *New Design SSN*	**Project (Number/Name)** 3062 / *Submarine Multi-Mission Team Trainer*



2015PB - 0604558N - 3062

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 3062 / *Submarine Multi-Mission Team Trainer*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3062				
Interface deisgn updates: Interface Design Updates	1	2013	4	2017
Software Development Updates: Software Development Updates (SIM/STIM)	1	2013	4	2017
Software Builds: Software Builds	1	2013	4	2017
Advanced Processing Build(APB) Upgrades: Advanced Processing Build (APB) Upgrades	1	2013	1	2017
Hard Ware Tech Insertion Updates: Hard Ware Tech Insertion Updates	1	2013	1	2017
SSN 21 Software Develpment: SSN 21 Software Development	1	2013	1	2013
SSN 21 Software Testing: SSN 21 Software Testing	2	2013	2	2013
SSN 21 EDM Delivery: SSN 21 EDM Delivery	4	2013	4	2013
TI-Ox New Sensor Simulation Development: TI-0x New Sensor Simulation Development	1	2013	4	2014
TI-Ox New Sensor Simulation EDM Updates: TI-0x New Sensor Simulation EDM Updates	1	2013	2	2014

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 0604558N / *New Design SSN*				Project (Number/Name) 4500 / *VIRGINIA Payload Module*			
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**
4500: *VIRGINIA Payload Module*	-	9.007	-	-	-	-	-	-	-	-	-	9.007
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

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

Note

Beginning in FY2014, there is an administrative change that will shift efforts funded from PE 0604558N (New Design SSN) / Project 4500 to PE 0604580N (VIRGINIA Payload Module) / Project 4500. This shift is consistent with Congressional intent identified in the FY14 Appropriations Act Committee Report.

A. Mission Description and Budget Item Justification

This project encompasses Navy RDT&E efforts required to incorporate a modular design for future VIRGINIA Class Submarines (VCS) which integrates strike payload capacity for Tomahawk Land Attack and follow on missiles. The design is targeted for VCS Block V (FY19-23 ships).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Non-Propulsion Electronics System (NPES) Engineering	0.760	-	-
Articles:	-	-	-
FY 2013 Accomplishments: Develop requirements for VPM system launch control and evaluate candidate configurations for integration with existing VIRGINIA Class combat systems. Integrate and automate launch processes to enable efficient launch of payloads. Assess launcher electronics and software design to support rapid, low cost integration and testing of payloads. Reduce overall launch electronics weight and footprint, and provide increased unit space for future payload electronics. ***FY 2014 Plans:*** Beginning in FY2014, there is an administrative change that will shift efforts funded from PE 0604558N (New Design SSN) / Project 4500 to PE 0604580N (VIRGINIA Payload Module) / Project 4500. This shift is consistent with Congressional intent identified in the FY14 Appropriations Act Committee Report. ***FY 2015 Plans:*** N/A			
Title: Hull, Mechanical, and Electrical (HM&E) Systems Engineering	8.247	-	-
Articles:	-	-	-
FY 2013 Accomplishments: Concept Design integration of the VPM including insertion of payload tube module to existing hull structure, hydrodynamic assessments, hydraulic system design, tube control interface, and internal arrangements to accommodate hardware, electronics			

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 0604558N / *New Design SSN*	**Project (Number/Name)** 4500 / *VIRGINIA Payload Module*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
and personnel. Design studies to assess all ship characteristics including maneuvering, signature levels, shock survivability, operational impacts and life cycle support. Products include concept arrangements. ***FY 2014 Plans:*** Beginning in FY2014, there is an administrative change that will shift efforts funded from PE 0604558N (New Design SSN) / Project 4500 to PE 0604580N (VIRGINIA Payload Module) / Project 4500. This shift is consistent with Congressional intent identified in the FY14 Appropriations Act Committee Report. ***FY 2015 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	9.007	-	-

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
• SCN 2013: *VA CL*	4,636.630	6,462.316	5,886.789	-	5,886.789	5,446.613	5,212.653	5,463.844	5,859.719	2,515.037	85,642.328
• O&M,N/0204283N: *Sub Ops & Safety*	32.433	38.919	33.938	-	33.938	32.472	28.746	29.971	30.894	Continuing	Continuing
• OPN/0942: *VA CL Support Equipment*	70.995	69.241	74.129	-	74.129	56.775	46.593	65.738	79.903	Continuing	Continuing

Remarks

D. Acquisition Strategy

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN), now Huntington Ingalls Industries (HII), to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and HII became a part of the IPPD process. The Program Office is managing two Multi-Year Procurement (MYP) contracts the first is for the FY04-08 ships and the second was awarded in December 2008 for the FY09-13 ships. The last Block II ship, SSN 783, was delivered in June 2013. All Block III ships are awarded and under construction. The Block IV MYP is in progress with second quarter FY14 planned award date. Developmental efforts began in FY13 and will be executed via current Lead Design Yard Agent contract with Electric Boat.

E. Performance Metrics

Preliminary Design Review

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 0604558N / *New Design SSN*	**Project (Number/Name)** 4500 / *VIRGINIA Payload Module*

Critical Design Review

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 4500 / *VIRGINIA Payload Module*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Component Development	WR	NSWC : Carderock, MD	0.000	1.319	Apr 2013	-		-		-		-	-	1.319	-
Component Development	WR	NUWC : Newport, RI	0.000	1.538	Apr 2013	-		-		-		-	-	1.538	-
Component Development	C/CPFF	Electric Boat : Groton, CT	0.000	5.900	Apr 2013	-		-		-		-	-	5.900	-
		Subtotal	0.000	8.757		-		-		-		-	-	8.757	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPAF	URS : Rockville, MD	0.000	0.250	Apr 2013	-		-		-		-	-	0.250	-
		Subtotal	0.000	0.250		-		-		-		-	-	0.250	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	9.007		-		-		-		-	-	9.007	-

Remarks

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 0604558N / *New Design SSN*	**Project (Number/Name)** 4500 / *VIRGINIA Payload Module*

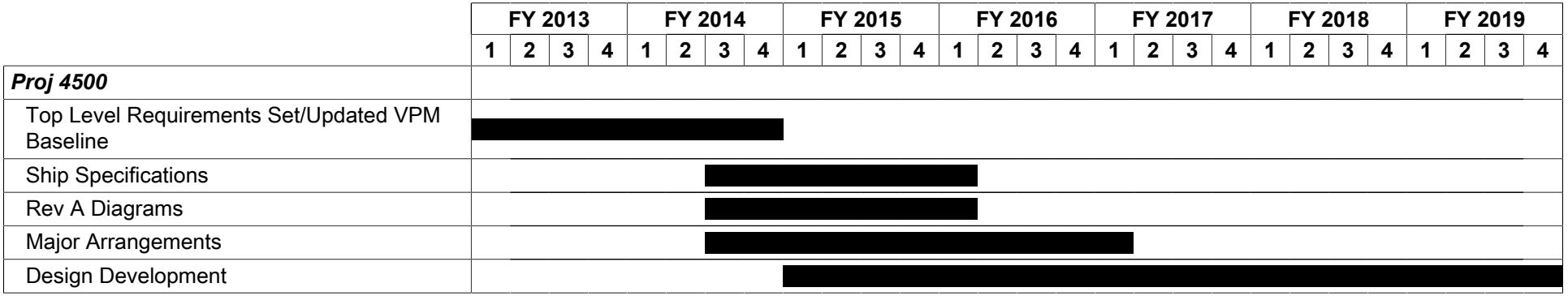


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 4500 / *VIRGINIA Payload Module*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4500				
Top Level Requirements Set/Updated VPM Baseline	1	2013	4	2014
Ship Specifications	3	2014	1	2016
Rev A Diagrams	3	2014	1	2016
Major Arrangements	3	2014	1	2017
Design Development	1	2015	4	2019

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 0604558N / *New Design SSN*				Project (Number/Name) 9999 / *Congressional Adds*			
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**
9999: *Congressional Adds*	15.000	13.718	-	-	-	-	-	-	-	-	-	28.718
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

Congressional Adds.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014
Congressional Add: New Design SSN SBIR (Cong)	13.718	-
FY 2013 Accomplishments: N/A		
FY 2014 Plans: N/A		
Congressional Adds Subtotals	13.718	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Adds.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / *New Design SSN*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Rapid COTS Development	C/CPFF	Progeny Systems : Manassas, VA	15.000	13.718	Jun 2013	-		-		-		-	-	28.718	-
		Subtotal	15.000	13.718		-		-		-		-	-	28.718	-

Remarks

Funding used to support a number of efforts that have high potential for increasing performance and/or reducing cost and risk for future VIRGINIA Class submarines:
Leveraging previous development of the Common Weapon Launcher (CWL), efforts will include:
Development of future technology insertion strategies and plans and critical item testing of components
Development of CONOPs, architectures, OMI concepts and prototype displays for future payloads associated with VIRGINIA Blocks IV/V
Addressing the cost and performance issues associated with current design, a new low cost replacement EDM will be developed as a potential alternative for the Light Weight Wide Aperture Array (LWWAA) electro-optic receiver cabinet
In response to operational fleet concerns regarding combat system reliability and data collection, a NPES wide reliability data collection, monitoring, analysis and performance prediction system will be matured for potential introduction during a future Advanced Processing Build (APB)
In order to support Imaging subsystem processing, a number of new technologies will be matured and introduced in future APBs to improve photonics performance to rapidly detect and classify contacts of interest in challenging environments
Development of vector sensors for next generation fat-line towed array to increase array acoustic performance and to support target bearing ambiguity
Development, prototype and maturation of wireless component sensing and network technology that will facilitate low power, non-intrusive automatic integrated monitoring of critical ship systems, in support of reduced manning initiatives.

	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.000	13.718		-		-		-		-	-	28.718	-

Remarks