Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy											Date: February 2016	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604558N *I New Design SSN*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	2,304.347	85.786	157.056	113.013	-	113.013	150.700	88.337	78.194	88.084	Continuing	Continuing
1947: *New Design SSN HM&E*	1,448.383	35.533	80.498	83.586	-	83.586	98.206	46.387	39.163	48.248	Continuing	Continuing
1950: *New Design SSN Combat Sys Dev*	826.236	33.187	31.508	26.977	-	26.977	49.862	39.261	36.286	37.032	Continuing	Continuing
3062: *Submarine Multi-Mission Team Trainer*	29.728	2.561	7.550	2.450	-	2.450	2.632	2.689	2.745	2.804	Continuing	Continuing
9999: *Congressional Adds*	0.000	14.505	37.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	52.005
Program MDAP/MAIS Code: 516												

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.

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	87.695	122.556	115.333	-	115.333
Current President's Budget	85.786	157.056	113.013	-	113.013
Total Adjustments	-1.909	34.500	-2.320	-	-2.320
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	37.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.908	0.000			
• Program Adjustments	0.000	0.000	0.001	-	0.001
• Rate/Misc Adjustments	-0.001	0.000	-2.321	-	-2.321

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604558N *I New Design SSN*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2015	FY 2016
Project: 9999: *Congressional Adds*		
Congressional Add: *Small Business Technology Insertion*	0.000	12.500
Congressional Add: *New Design SSN SBIR (Cong)*	14.505	25.000
Congressional Add Subtotals for Project: 9999	14.505	37.500
Congressional Add Totals for all Projects	14.505	37.500

Change Summary Explanation

Decrease in New Design SSN RDTEN by $4.913M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The FY 2017 funding request was reduced by $14.332 million to account for the availability of prior years execution balance.

The FY 2017 funding request was increased to support ongoing Acoustic Superiority tasking, specifically the South Dakota Improvement Program.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / *New Design SSN*	Project (Number/Name) 1947 / *New Design SSN HM&E*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1947: *New Design SSN HM&E*	1,448.383	35.533	80.498	83.586	-	83.586	98.206	46.387	39.163	48.248	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: New Design SSN HM&E	19.130	61.179	79.595	0.000	79.595
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued concept development for Acoustic Superiority prototype systems. These included the Large Vertical Array, new hull treatments and machinery changes: Concept development entailed the production and test of several system sub-components that were used to validate performance and functionality. Developed overall system and sub-system performance specifications. Developed a full schedule for design, test and material procurement to support prototype installation on SSN South Dakota (SSN790) during a planned FY18 availability via the South Dakota Insertion Program (SDIP), the resulting efforts support entry into preliminary design and risk reduction efforts of the systems in FY16. Continued development of concepts and technologies for Reduced Total Ownership Cost (RTOC) and integration into VIRGINIA Class technical baseline. Continued to address emergent reliability issues associated with HM&E components. Continued HM&E obsolescence redesign for Block IV and Block V. Continued transition of products from the Office of Naval Research Manufacturing Technology Program (MANTECH). Initiated the transition of products from the Office of Naval Research (ONR) Future Naval Capability (FNC) Program.					
FY 2016 Plans: Complete development of Acoustic Superiority prototype systems. Begin preliminary design of all necessary systems and subsystem components required to support the installation on SSN790. Initiate critical item					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1947 / *New Design SSN HM&E*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
qualification testing. Conduct risk reduction efforts and refine prototype designs. Initiate procurement of long lead materials to support production of prototype systems. Initiate planning for full scale testing of improvements during post availability period. Transition development, material qualification, and prototype manufacturing efforts for the Improved Advanced Hybrid (IAH) propulsor for planned full scale demonstration. Continue development of concepts and technologies for Reduced Total Ownership Cost (RTOC) and integration into VIRGINIA Class technical baseline. Continue to address emergent reliability issues associated with HM&E components. Continue HM&E obsolescence redesign for Block IV and Block V. Continue transition of products from the Office of Naval Research Manufacturing Technology Program (MANTECH). Continue the transition of products from the Office of Naval Research (ONR) Future Naval Capability (FNC) Program. ***FY 2017 Base Plans:*** Complete preliminary design and risk reduction efforts of Acoustic Superiority prototype systems. Complete qualification testing of all system subcomponents. Complete detailed installation and arrangement drawings for shipboard demonstration. Oversee expanded design/build efforts between shipbuilder and qualified vendors for material design acceptance, fabrication and qualification. Integrate quality control solutions into component design/build process. Begin production of all system components and installation fixtures. Continue planning for full scale testing of improvements during post availability period. Transition development, material qualification, and prototyped development efforts for the Improved Advanced Hybrid (IAH) propulsor for planned full scale demonstration. Continue to address emergent reliability issues associated with HM&E components. Continue HM&E obsolescence redesign for Block IV and Block V. Continue transition of products from the Office of Naval Research Manufacturing Technology Program (MANTECH). Continue the transition of products from the Office of Naval Research (ONR) Future Naval Capability (FNC) Program. ***FY 2017 OCO Plans:*** N/A					
Title: TEST AND EVALUATION	16.403	19.319	3.991	0.000	3.991
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continue work associated with previous test events (IOT&E, Arctic environment, Low Frequency Active, Dry-Deck Shelter). This consists mainly of documenting and testing fixes to noted deficiencies identified by COTF as well as addressing recommendations from DOT&E.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1947 / *New Design SSN HM&E*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Commenced preparations for Block III FOT&E that will begin in FY16. The testing is required by law to demonstrate effectiveness of the affordability enhancements that were included in all Block III submarines which included a major redesign of the submarine bow, thus necessitating an increase in funding from FY15 to FY16. The VIRGINIA Class Mission Areas that will be tested are Strike Warfare, Anti-Submarine Warfare, Anti-Surface Warfare, Intelligence, and Cybersecurity. Modeling and Simulation applications necessary to support Block III FOT&E commenced the necessary Verification, Validation and Accreditation efforts to ensure they can supplement test results as necessary. Additionally, conducted required studies to ensure the planned testing will accomplish all objectives (Live Fire, Tomahawk Flight Safety) as well as pay some upfront costs associated with the test events.					
FY 2016 Plans: Continue work associated with previous test events (IOT&E, Arctic environment, Low Frequency Active, Dry-Deck Shelter). This consists mainly of documenting and testing fixes to noted deficiencies identified by COTF as well as addressing recommendations from DOT&E. Commence Block III FOT&E. The testing is required by law to demonstrate effectiveness of the affordability enhancements that were included in all Block III submarines which included a major redesign of the submarine bow. The VIRGINIA Class Mission Areas that will be tested are Strike Warfare, Anti-Submarine Warfare, Anti-Surface Warfare, Intelligence, and Cybersecurity. Also plan to conduct the second Low Frequency Active test period. Plan to complete Anti-Surface, Intelligence, Cybersecurity Mission Areas, and make final preparations for the TLAM Flight Test scheduled to occur in first quarter FY17. Purchase materials (including Exercise Torpedoes) and secure test ranges to complete Mission Area testing. Prepare for required Strike testing and support Cruise Missile Material Certification. The program must launch two missiles during the test event. The Flight Test will certify Block III submarines to load and shoot Tomahawk Missiles.					
FY 2017 Base Plans: Continue work associated with previous test events (IOT&E, Arctic environment, Low Frequency Active, Dry-Deck Shelter). This consists mainly of documenting and testing fixes to noted deficiencies identified by COTF as well as addressing recommendations from DOT&E. Complete Block III FOT&E. The testing is required by law to demonstrate effectiveness of the affordability enhancements that were included in all Block III submarines which included a major redesign of the submarine bow. The VIRGINIA Class Mission Areas that will be tested are Strike Warfare, Anti-Submarine Warfare, Anti-Surface Warfare, Intelligence, and Cybersecurity. Plan to complete Anti-Submarine Warfare and Strike Mission Areas to include the TLAM Flight Test.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1947 / *New Design SSN HM&E*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Complete all post-test analysis and publish required reports. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	35.533	80.498	83.586	0.000	83.586

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SCN/2013: *VA CL*	5,832.079	5,340.110	4,999.774	-	4,999.774	4,942.085	6,482.887	6,645.646	4,328.526	0.000	93,770.996
• O&M,N/0204283N: *Sub Ops & Safety*	33.938	31.355	23.828	-	23.828	25.738	27.175	27.731	29.305	Continuing	Continuing
• OPN/0942: *VA CL Support Equipment*	70.094	35.747	68.812	-	68.812	48.511	71.231	44.390	45.279	Continuing	Continuing
• RDT&E/0604580N: *VIRGINIA Payload Module*	116.222	167.719	107.234	-	107.234	71.989	0.000	0.000	0.000	0.000	520.446

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 three Multi-Year Procurement (MYP) contracts. The first and second contracts are for the Block II (FY04-08) and Block III (FY09-13) ships. The third contract is for Block IV (FY14-18) ships awarded April 2014. All Block I & II ships (SSNs 774-783) have been delivered. The lead and 2nd ship of Block III ship, SSN 784 and SSN 785, delivered in August 2014 and June 2015 with the remaining 6 ships awarded and under construction. The first three ships of Block IV have begun construction, with the remaining 7 under contract.

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. Ships continue to deliver with progressive schedule and quality improvement.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Component Development	WR	NSWC : Carderock, MD	237.422	3.045	Nov 2014	12.162	Nov 2015	6.000	Nov 2016	-		6.000	Continuing	Continuing	Continuing
Component Development	WR	NUWC : Newport, RI	109.982	1.250	Nov 2014	3.793	Nov 2015	2.840	Nov 2016	-		2.840	Continuing	Continuing	Continuing
Component Development	WR	NRL : Washington, DC	6.668	0.350	Feb 2015	1.282	Nov 2015	0.230	Nov 2016	-		0.230	Continuing	Continuing	Continuing
Component Development	C/CPFF	Electric Boat : Groton, CT	611.101	9.635	Nov 2014	34.223	Nov 2015	21.050	Nov 2016	-		21.050	Continuing	Continuing	Continuing
Component Development	C/CPFF	Electric Boat : Groton, CT	22.964	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	C/CPFF	Electric Boat : Groton, CT	39.819	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	PO	SUPSHIP : Groton, CT	66.990	1.200	Jan 2015	2.681	Dec 2015	49.475	Dec 2016	-		49.475	Continuing	Continuing	Continuing
Component Development	SS/CPFF	Lockheed Martin : Not Specified	16.524	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	SS/CPFF	Lockheed Martin : Not Specified	2.070	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	SS/CPFF	Applied Research Laboratory : Penn State University	22.571	0.500	Feb 2015	1.117	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	SS/FP	National Shipbuilding Research Program : Not Specified	3.445	0.400	Mar 2015	0.894	Mar 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	Various	Micellaneous : Not Specified	16.674	2.250	Feb 2015	5.027	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	1,156.230	18.630		61.179		79.595		-		79.595	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
		Subtotal	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation - DT&E	WR	NSWC : Carderock, MD	92.160	0.488	Nov 2014	0.370	Nov 2015	0.190	Nov 2016	-		0.190	Continuing	Continuing	Continuing
Test and Evaluation - LFT&E	WR	NSWC : Carderock, MD	2.317	0.730	Nov 2014	0.850	Nov 2015	0.850	Nov 2016	-		0.850	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	WR	NSWC : Dahlgren, VA	0.315	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	WR	NUWC : Newport, RI	117.591	9.161	Nov 2014	10.604	Nov 2015	0.300	Nov 2016	-		0.300	Continuing	Continuing	Continuing
Test and Evaluation - OT&E	PO	COMOPTEVFOR : Norfolk, VA	15.913	0.900	Feb 2015	0.670	Nov 2015	0.690	Nov 2016	-		0.690	Continuing	Continuing	Continuing
Test and Evaluation - LFT&E	C/CPFF	Electric Boat : Groton, CT	1.520	0.225	Feb 2015	0.125	Dec 2015	0.250	Dec 2016	-		0.250	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	C/CPAF	SEAPORT : Rockville, MD	20.987	0.700	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	C/CPFF	Progeny : Manassas, VA	6.377	0.999	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	Various	Micellaneous : Not Specified	11.932	0.000	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	WR	PMA 280 : Pax River, MD	0.000	3.200	Nov 2014	2.538	Dec 2015	0.000		-		0.000	0.000	5.738	-
Test and Evaluation - DT&E	C/CPFF	NUWC : Newport, RI - CORE Team	0.000	0.000		4.162	May 2016	1.711	Dec 2016	-		1.711	0.000	5.873	-
		Subtotal	269.112	16.403		19.319		3.991		-		3.991	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPAF	SEAPORT : Rockville, MD	20.525	0.500	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Travel	PO	Not Specified : Not Specified	1.919	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / *New Design SSN*	Project (Number/Name) 1947 / *New Design SSN HM&E*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DAWDF	Various	Not Specified : Not Specified	0.597	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	23.041	0.500		0.000		0.000		-		0.000	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,448.383	35.533		80.498		83.586		-		83.586	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1947 / *New Design SSN HM&E*

SSN790 LVA High Level Schedule and Milestones

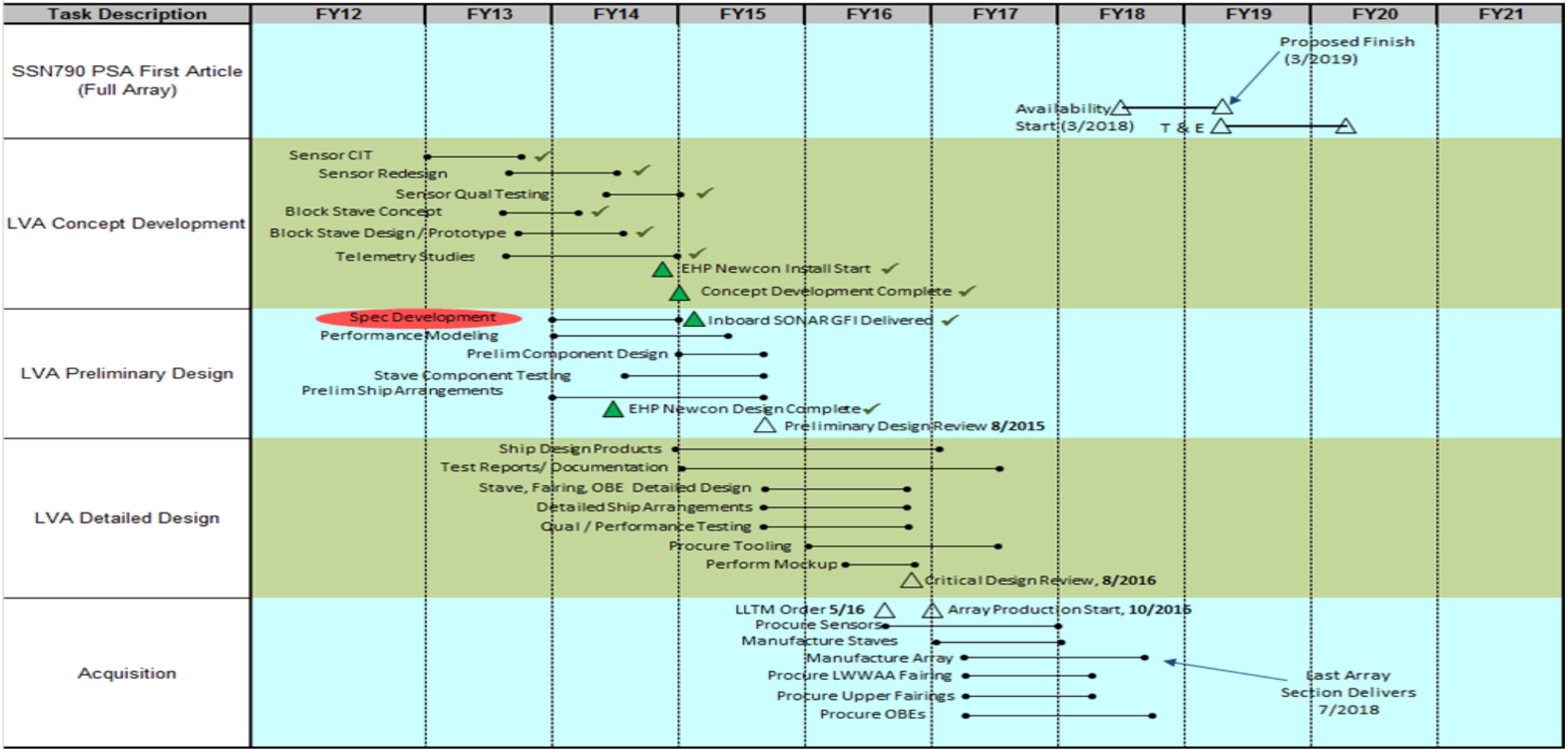

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1947 / *New Design SSN HM&E*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1947				
Block III FOT&E DT-III C	1	2015	3	2016
Block III FOT&E OT-III C	2	2016	2	2017
Post Shakedown Availability (PSA SSN 784)	4	2015	3	2016
Post Shakedown Availability (PSA SSN 785)	2	2016	4	2016
Post Shakedown Availability (SSN 786)	3	2016	1	2017
LFA Re-Test	4	2016	1	2017
Post Shakedown Availability (PSA SSN 787)	2	2017	3	2017
Post Shakedown Availability (PSA SSN 788)	3	2017	4	2017
Ship Delivery (SSN 790)	4	2017	4	2017
Post Shakedown Availability (PSA SSN 789)	2	2018	3	2018
Post Shakedown Availability with Acoustic Superiority Installation (SSN 790)	2	2018	2	2019
Post Shakedown Availability (PSA SSN 791)	1	2019	2	2019
Post Shakedown Availability (PSA SSN 792)	4	2019	2	2020
Post Shakedown Availability (PSA SSN 793)	1	2020	3	2020
Post Shakedown Availability (PSA SSN 794)	3	2020	1	2021
Post Shakedown Availability (PSA SSN 795)	1	2021	3	2021
Machinery Improvements Design / Modification (SSN 790)	1	2015	3	2018
Treatments Design / Acquistion (SSN 790)	3	2015	2	2018
LVA Preliminary Design Review (SSN 790)	3	2015	3	2015
New Treatment Large Patch Installation (SSN 784)	4	2015	2	2016
Large Vertical Array Detail Design/Acquisition (SSN 790)	1	2016	3	2018
Land / Install Improved Advanced Hybrid (IAH) Aft Assembly (SSN 790)	2	2016	2	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1947 / *New Design SSN HM&E*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
LVA Critical Design Review (SSN 790)	3	2016	3	2016
Install IAH Rotor and Tailcone (SSN 790)	1	2017	1	2017

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / *New Design SSN*	Project (Number/Name) 1950 / *New Design SSN Combat Sys Dev*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1950: *New Design SSN Combat Sys Dev*	826.236	33.187	31.508	26.977	-	26.977	49.862	39.261	36.286	37.032	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: C3I Systems Engineering	12.634	12.594	12.695	0.000	12.695
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Completed preliminary design of the BPS-xx Radar, and arrangements and ship interfaces for the replacement inertial navigation system targeted for inclusion in the Blk IV contract ship deliveries. Completed specifications and initiated preliminary design of Large Vertical Array outboard electronic bottles and inboard power supply and processing suite sizing estimates for the South Dakota Improvement Program.					
FY 2016 Plans: Complete critical design of the BPS-xx Radar and initiate qualification testing. Initiate preliminary sub-system design for the replacement inertial navigation system targeted for inclusion in the Blk IV contract ship deliveries. Continue preliminary design of the Large Vertical Array inboard and outboard system for the South Dakota Improvement Program.					
FY 2017 Base Plans: Conduct testing of the SSN792 BPS-xx Radar system installed at the shipbuilding off-hull and assembly test site. Complete critical sub-system design of the replacement inertial navigation system targeted for inclusion in the Blk IV contract commencing SSN794. Initiate Large Vertical Array inboard electronics (Unit 6500) design, and develop FY18/FY19 plans and contracts to complete Test and Integration, test fixture development, outboard electronics bottle simulator development, upgrade of the data recording server, and maintenance strategy/ILS product development for this equipment.					
FY 2017 OCO Plans: N/A					
Title: Sonar Combat Control and Architecture Subsystems	20.553	18.914	14.282	0.000	14.282
Articles:	-	-	-	-	-
Description: Continued the development of S/CC/A System Improvements to maintain VIRGINIA Class Commonality to backfit fleet.					
FY 2015 Accomplishments: Continued development and C3I system level integration of the TI14/APB13 configuration slated for the last 4 hulls of the Block III contract (SSN788-791). Initiated the multi-year migration of the interface software from					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
CORBA to AMQP to mitigate obsolescence. Initiated environmental qualification testing of the TI14 pedigree hardware . ***FY 2016 Plans:*** Continue the development and C3I system level integration of the TI14/APB13 configuration slated for the last 4 hulls of the Block III contract (SSN788-791). Continue the multi-year migration of the interface software from CORBA to AMQP to mitigate obsolescence. Continue environmental qualification testing of the TI14 pedigree hardware. ***FY 2017 Base Plans:*** Initiate development and C3I system level integration of the TI14/APB15 configuration slated for the first hull of the Block IV contract (SSN792). Continue the multi-year migration of the interface software from CORBA to AMQP to mitigate obsolescence. Complete environmental qualification testing of the TI14 pedigree hardware. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	33.187	31.508	26.977	0.000	26.977

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SCN/2013: *VA CL*	5,832.079	5,340.110	4,999.774	-	4,999.774	4,942.085	6,482.887	6,645.646	4,328.526	0.000	93,770.996
• O&M,N/0204283N: *Sub Ops & Safety*	33.938	31.355	23.828	-	23.828	25.738	27.175	27.731	29.305	Continuing	Continuing
• OPN/0942: *VA CL Support Equipment*	70.094	35.747	79.412	-	79.412	46.283	71.231	44.390	45.279	Continuing	Continuing
• RDT&E/0604580N: *Virginia Payload Module*	120.602	167.719	100.234	-	100.234	68.989	0.000	0.000	0.000	0.000	514.826

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

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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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 three Multi-Year Procurement (MYP) contracts. The first and second contracts are for the Block II (FY04-08) and Block III (FY09-13) ships. The third contract is for Block IV (FY14-18) ships awarded April 2014. All Block I & II ships (SSNs 774-783) have been delivered. The first 2 ships of the Block III contract, SSN784 and SSN785 delivered in August 2014 and June 2015, respectively, and the remaining 6 ships of the Block will deliver at an increased construction rate of 2 ships/year. The first three ships of Block IV have begun construction, with the remaining 7 under contract.

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. Improved state of readiness at delivery as measured by the Board of Inspection and Survey and reported in their findings.

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

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PTR Corrections	Various	Various : TBD	30.088	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Unique Virginia Class Improvements	Various	Various : TBD	58.308	9.889	Feb 2015	10.057	Nov 2015	9.932	Feb 2017	-		9.932	Continuing	Continuing	Continuing
Advanced Display Sys (AN/UYQ-70)	SS/CPIF	Lockheed Martin : St. Paul, MN	35.410	1.179	Feb 2015	1.200	Nov 2015	0.000	Feb 2017	-		0.000	Continuing	Continuing	Continuing
Photonics	C/CPIF	Kollmorgen : Northampton, MA	57.516	1.753	May 2015	1.782	May 2016	0.650	Jan 2017	-		0.650	Continuing	Continuing	Continuing
Electronic Support Measures	C/FFP	Lockheed Martin : Syracuse, NY	38.067	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Platform Integration	SS/CPFF	Electric Boat : Groton, CT	49.354	1.589	Jan 2015	1.617	Nov 2015	2.450	Nov 2016	-		2.450	Continuing	Continuing	Continuing
Technology Refreshment	Various	Various : TBD	20.355	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Technical Direction Agent	WR	NUWC : Newport, RI	295.884	7.767	Jan 2015	7.900	Jan 2016	7.550	Nov 2016	-		7.550	Continuing	Continuing	Continuing
Technology Refreshment/ Info. Assurance	C/CPFF	Progeny Systems : Manassas, VA	36.407	1.998	Feb 2015	2.030	Nov 2015	0.810	Jan 2017	-		0.810	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Carderock, MD	11.962	0.891	Jan 2015	0.906	Nov 2015	0.690	Nov 2016	-		0.690	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC : Charleston, SC	7.618	0.550	Feb 2015	0.559	Nov 2015	0.550	Nov 2016	-		0.550	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC : Keyport, WA	11.188	0.348	Jan 2015	0.354	Nov 2015	0.895	Nov 2016	-		0.895	Continuing	Continuing	Continuing
Miscellaneous	Various	Various : TBD	137.776	4.383	Feb 2015	2.183	Nov 2015	1.350	Feb 2017	-		1.350	Continuing	Continuing	Continuing
		Subtotal	789.933	30.347		28.588		24.877		-		24.877	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Various	Various	Various : TBD	6.212	0.000		0.000		0.000		-		0.000	0.000	6.212	-
		Subtotal	6.212	0.000		0.000		0.000		-		0.000	0.000	6.212	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Support Services/ETS	C/CPAF	URS : Rockville, MD	29.896	2.840	Feb 2015	2.920	Dec 2015	2.100	Dec 2016	-		2.100	Continuing	Continuing	Continuing
DAWDF	Various	Various : Various	0.195	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	30.091	2.840		2.920		2.100		-		2.100	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	826.236	33.187		31.508		26.977		-		26.977	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1950 / *New Design SSN Combat Sys Dev*

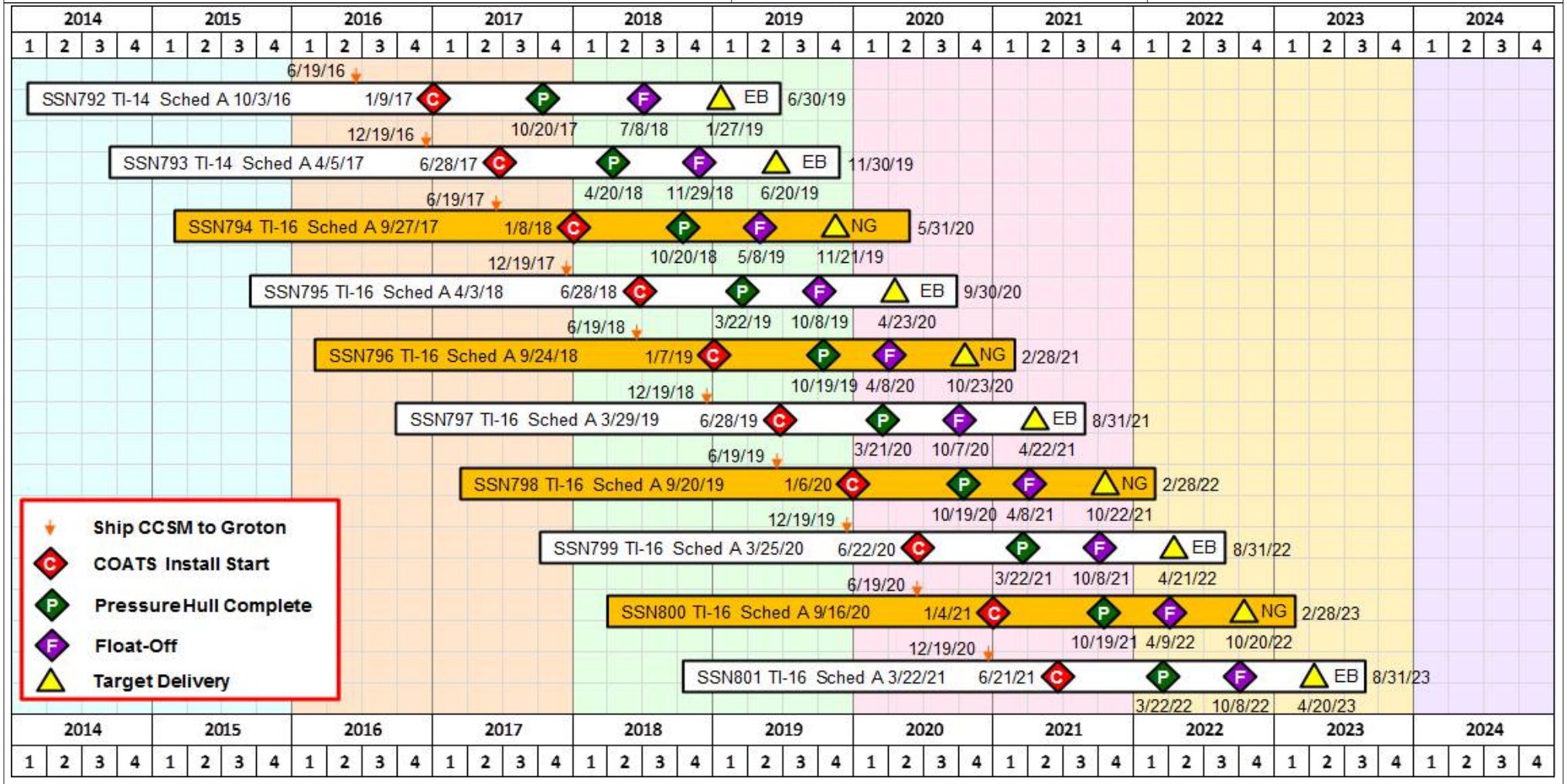

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1950 / *New Design SSN Combat Sys Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1950				
Pressure Hull Complete SSN (786)	1	2015	1	2015
COATS Install Start (SSN 788)	2	2015	2	2015
Target Delivery (SSN 785)	3	2015	3	2015
COATS Install Start (SSN 789)	4	2015	4	2015
Pressure Hull Complete SSN (787)	4	2015	4	2015
Float-Off (SSN 786)	4	2015	4	2015
Pressure Hull Complete SSN (788)	1	2016	1	2016
COATS Install Start (SSN 790)	2	2016	2	2016
Float-Off (SSN 787)	2	2016	2	2016
Target Delivery (SSN 786)	2	2016	2	2016
COATS Install Start (SSN 791)	3	2016	3	2016
Float-Off (SSN 788)	3	2016	3	2016
Pressure Hull Complete SSN (789)	4	2016	4	2016
Target Delivery (SSN 787)	4	2016	4	2016
Pressure Hull Complete SSN (790)	1	2017	1	2017
Target Delivery (SSN 788)	1	2017	1	2017
COATS Install Start (SSN 792)	2	2017	2	2017
Float-Off (SSN 789)	2	2017	2	2017
COATS Install Start (SSN 793)	3	2017	3	2017
Pressure Hull Complete SSN (791)	3	2017	3	2017
Float-Off (SSN 790)	3	2017	3	2017
Target Delivery (SSN 789)	4	2017	4	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1950 / *New Design SSN Combat Sys Dev*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Pressure Hull Complete SSN (792)	1	2018	1	2018
Float-Off (SSN 791)	1	2018	1	2018
Target Delivery (SSN 790)	1	2018	1	2018
COATS Install Start (SSN 794)	2	2018	2	2018
COATS Install Start (SSN 795)	3	2018	3	2018
Pressure Hull Complete SSN (793)	3	2018	3	2018
Target Delivery (SSN 791)	3	2018	3	2018
Float-Off (SSN 792)	4	2018	4	2018
Pressure Hull Complete SSN (794)	1	2019	1	2019
Float-Off (SSN 793)	1	2019	1	2019
COATS Install Start (SSN 796)	2	2019	2	2019
Pressure Hull Complete SSN (795)	2	2019	2	2019
Target Delivery (SSN 792)	2	2019	2	2019
COATS Install Start (SSN 797)	3	2019	3	2019
Float-Off (SSN 794)	3	2019	3	2019
Target Delivery (SSN 793)	3	2019	3	2019
Pressure Hull Complete SSN (796)	1	2020	1	2020
Float-Off (SSN 795)	1	2020	1	2020
Target Delivery (SSN 794)	1	2020	1	2020
COATS Install Start (SSN 798)	2	2020	2	2020
Pressure Hull Complete SSN (797)	2	2020	2	2020
COATS Install Start (SSN 799)	3	2020	3	2020
Float-Off (SSN 796)	3	2020	3	2020
Target Delivery (SSN 795)	3	2020	3	2020
Pressure Hull Complete SSN (798)	1	2021	1	2021
Float-Off (SSN 797)	1	2021	1	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 1950 / *New Design SSN Combat Sys Dev*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Target Delivery (SSN 796)	1	2021	1	2021
COATS Install Start (SSN 800)	2	2021	2	2021
Pressure Hull Complete SSN (799)	2	2021	2	2021
COATS Install Start (SSN 801)	3	2021	3	2021
Float-Off (SSN 798)	3	2021	3	2021
Target Delivery (SSN 797)	3	2021	3	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / *New Design SSN*	Project (Number/Name) 3062 / *Submarine Multi-Mission Team Trainer*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3062: *Submarine Multi-Mission Team Trainer*	29.728	2.561	7.550	2.450	-	2.450	2.632	2.689	2.745	2.804	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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.

FY-16 RDTE,N Line 3062 was increased in support of SSBN Modernization. This funding will be used for the development, test and evaluation of new sensors and stimulation/simulation hardware and software required to integrate with tactical systems to build new SSBN Attack Centers.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Submarine Multi-Mission Team Trainer	2.561	7.550	2.450	0.000	2.450
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 2015 Accomplishments: Developed implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. These efforts included new sensor developments and simulations to match advancements in					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
tactical systems supported by SMMTT. These efforts integrated the APB into the SMMTT baseline along with completing and integrating the LCCA sensor. ***FY 2016 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. In addition, the 3062 RDTE,N line was increased in support of SSBN Modernization. This funding will be used for the development, test and evaluation of new sensors and stimulation/simulation hardware and software required to integrate with tactical systems to build new SSBN Attack Centers. ***FY 2017 Base 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. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	2.561	7.550	2.450	0.000	2.450

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/5661/Attack Cent: *Submarine Training Device Mods*	0.000	0.000	13.663	-	13.663	11.722	21.153	22.750	23.524	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.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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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 2017 Navy		Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Component Development	Reqn	NSWC/CD : Bethesda, MD	24.543	1.239	Mar 2015	3.990	Dec 2015	1.200	Dec 2016	-		1.200	Continuing	Continuing	Continuing
Component Development	C/CPFF	ARL : UT Austin	2.185	0.250	Apr 2015	0.310	Jan 2016	0.250	Dec 2016	-		0.250	Continuing	Continuing	Continuing
Component Development	Reqn	NUWC/NPT : Newport, RI	3.000	1.072	Jan 2015	3.250	Dec 2015	1.000	Dec 2016	-		1.000	0.000	8.322	-
		Subtotal	29.728	2.561		7.550		2.450		-		2.450	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.728	2.561		7.550		2.450		-		2.450	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 3062 / *Submarine Multi-Mission Team Trainer*

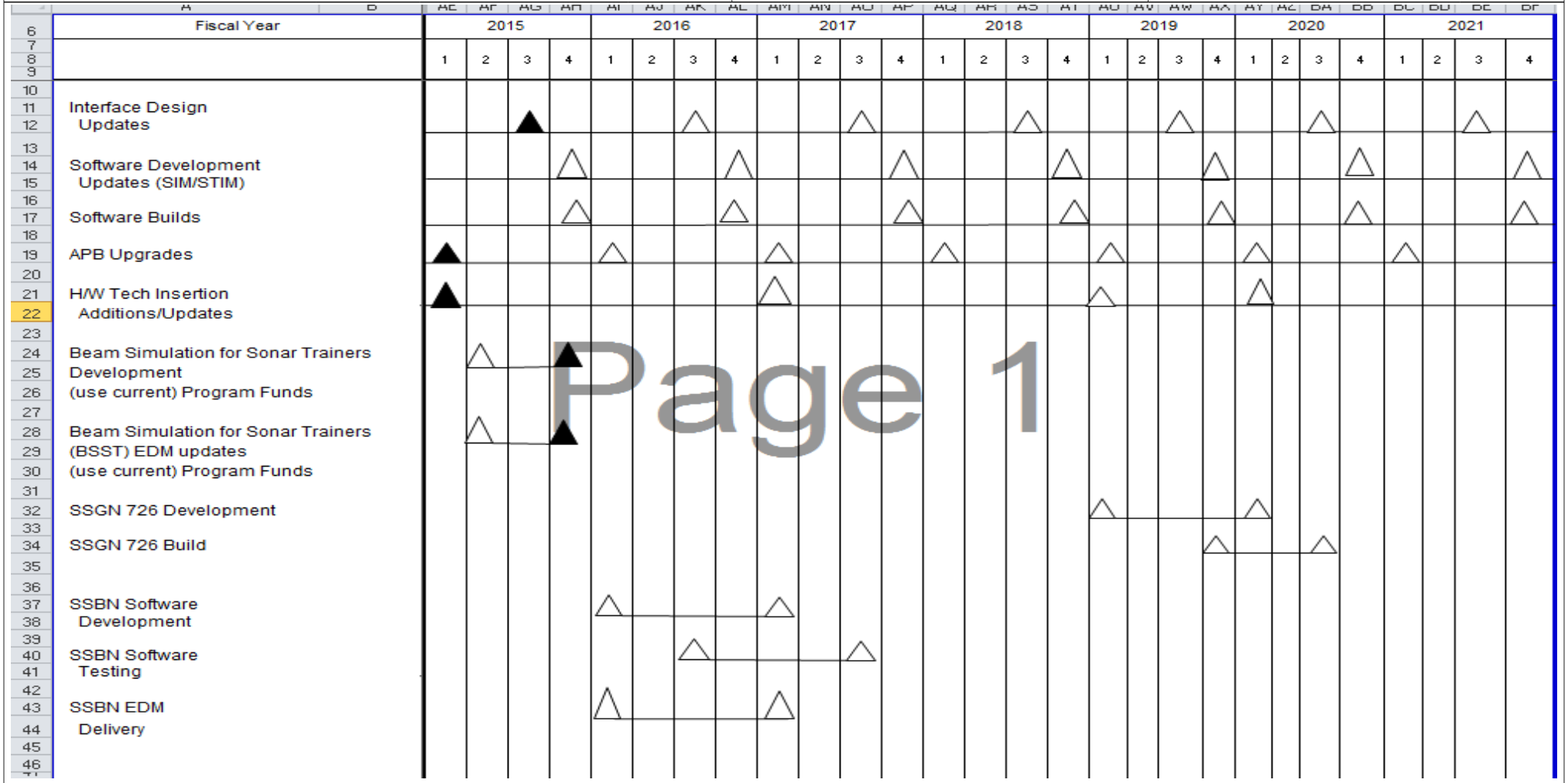

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 3062 / *Submarine Multi-Mission Team Trainer*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3062				
Interface design updates: Interface Design Updates	1	2015	4	2021
Software Development Updates: Software Development Updates (SIM/STIM)	1	2015	4	2021
Software Builds: Software Builds	1	2015	4	2021
Advanced Processing Build(APB) Upgrades: Advanced Processing Build (APB) Upgrades	1	2015	4	2021
Hard Ware Tech Insertion Updates: Hard Ware Tech Insertion Updates	1	2015	4	2021
Beam Simulation for Sonar Trainers: Beam Simulation for Sonar Trainers	2	2015	4	2015
Beam Simulation for Sonar Trainers BSST EDM Updates: Beam Simulation for Sonar Trainers BSST EDM	2	2015	4	2015
SSGN 726 Development: SSSGN Development	1	2019	1	2020
SSGN 726 Build: SSGN 726 Build	4	2019	3	2020
SSBN Software Development: SSBN Software Development	1	2016	1	2017
SSBN Software Testing: SSBN Software Testing	3	2016	3	2017
SSBN EOM Delivery: EOM Delivery	1	2016	1	2017

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / *New Design SSN*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	14.505	37.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	52.005
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This FY 15 RDT&E Congressional add for small business technology insertion will be applied to existing small business contracts to continue VA Class combat systems development in the areas of sonar, electronic warfare, weapons systems launch, information assurance and advanced submarine control systems.

The FY16 RDT&E Congressional add for small business technology insertion will be applied to existing small business contracts to continue VA Class combat systems development in the areas of sonar, electronic warfare, weapons systems launch, information assurance and advanced submarine control systems.

The FY16 RDT&E Congressional add for New Design SSN SBIR (Cong) is for VA Class submarine hydro-dynamic enhancements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016
Congressional Add: Small Business Technology Insertion ***FY 2015 Accomplishments:*** N/A ***FY 2016 Plans:*** N/A	0.000	12.500
Congressional Add: New Design SSN SBIR (Cong) ***FY 2015 Accomplishments:*** N/A ***FY 2016 Plans:*** N/A	14.505	25.000
Congressional Adds Subtotals	14.505	37.500

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

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 2017 Navy			Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Component Development	TBD	TBD : TBD	0.000	0.000		25.000	Mar 2016	0.000		-		0.000	0.000	25.000	-
		Subtotal	0.000	0.000		25.000		0.000		-		0.000	0.000	25.000	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR	TBD	TBD : TBD	0.000	14.505	Mar 2015	12.500	Mar 2016	0.000		-		0.000	0.000	27.005	-
		Subtotal	0.000	14.505		12.500		0.000		-		0.000	0.000	27.005	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	14.505		37.500		0.000		-		0.000	0.000	52.005	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 9999 / *Congressional Adds*

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 9999																												
VA Class Small Business Technology Insertion: VA Class Small Business Technology Insertion																												

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604558N / *New Design SSN*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
VA Class Small Business Technology Insertion: VA Class Small Business Technology Insertion	2	2015	4	2015