Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy											Date: February 2015	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603595N *I (U)Ohio Replacement*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	-	853.277	971.393	-	971.393	712.354	766.528	484.920	205.999	Continuing	Continuing
3220: *SBSD Advanced Submarine System Development*	0.000	-	816.807	971.393	-	971.393	712.354	766.528	484.920	205.999	Continuing	Continuing
3237: *Launch Test Facility*	0.000	-	36.470	-	-	-	-	-	-	-	-	36.470
Program MDAP/MAIS Code: P444												

A. Mission Description and Budget Item Justification

This program element supports innovative research and development in submarine Hull, Mechanical and Electrical (HM&E) and combat systems technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently feasible. The program element also supports programs transitioning from Science and Technology (S&T), Defense Advanced Research Projects Agency (DARPA), Independent Research and Development, and Small Business Innovation Research (SBIR) projects.

Project Unit 3220:

The objective of the Sea Based Strategic Deterrent (SBSD) Advanced Submarine System Development project is to design and prepare for construction of the replacement of the OHIO Class SSBN.

Project Unit 3237:

The Launch Test Facility project constructs the Launch Test Facility at Naval Air Warfare Center, China Lake, CA to enable Full Scale Surface Launch Testing and evaluation / qualification of the TRIDENT II D5LE SWS missile launcher subsystem for the OHIO Replacement Submarine. The project construction will be authorized by 10 U.S.C. Section 2353, funded from Research, Development, Test, and Evaluation (RDT&E) appropriations, and will have no general utility and will be utilized solely to meet RDT&E contractual requirements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy					Date: February 2015
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*		R-1 Program Element (Number/Name) PE 0603595N *I (U)Ohio Replacement*			
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	-	849.277	994.926	-	994.926
Current President's Budget	-	853.277	971.393	-	971.393
Total Adjustments	-	4.000	-23.533	-	-23.533
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	4.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	-16.826	-	-16.826
• Rate/Misc Adjustments	-	-	-6.707	-	-6.707

Change Summary Explanation

Note: Beginning in 2015, there is an administrative change that shifts efforts funded from PE 0603561N (Advanced Submarine System Development) / Project 3220 to PE 0603595N (Ohio Replacement) / Project 3220. This shift is consistent with Congressional intent identified in the FY13 Appropriation Act.

Reduced FY 16 funding due to the Department's decision to reduce contracted services.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603595N / *(U)Ohio Replacement*	Project (Number/Name) 3220 / *SBSD Advanced Submarine System Development*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
3220: *SBSD Advanced Submarine System Development*	-	-	816.807	971.393	-	971.393	712.354	766.528	484.920	205.999	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Note: Beginning in 2015, there is an administrative change that will shift efforts funded from PE 0603561N (Advanced Submarine System Development) / Project 3220 to PE 0603595N (OHIO Replacement) / Project 3220. This shift is consistent with Congressional intent identified in the FY13 Appropriation Act.

Reduced FY16 funding due to the Department's decision to reduce contracted services.

A. Mission Description and Budget Item Justification

The Sea Based Strategic Deterrent (SBSD) Advanced Submarine System Development project supports the OHIO Replacement (OR) program. The funding applies to the design, systems engineering, prototyping, and vendor qualification activities needed to execute the schedule for Common Missile Compartment (CMC) design, whole ship design, and component technologies development for the next generation U.S. ballistic missile submarine. This RDT&E program supports cooperation with the United Kingdom (UK) to maintain strategic deterrence, based on a single effort to develop a CMC as agreed by the UK Secretary of State for Defence and the U.S. Secretary of Defense in 2009.

The OHIO Replacement program strategy is to maximize the re-use of existing OHIO systems and new designs from the SEAWOLF and VIRGINIA Classes (as applicable), focus on Life Cycle Total Ownership Cost (TOC) affordability, and meet the military requirements established for this SSBN to achieve mission success in a challenging environment. The requested funding levels provide for the Technology Development, Design, and Engineering Integration efforts necessary to support the OHIO Replacement SSBN lead ship construction start in FY 2021.

The following key activities support a ship acquisition program to replace the OHIO Class SSBNs:

1. Design and development of a missile compartment, launch system, and strategic support systems to meet U.S. strategic requirements while cooperating with the UK on modernizing its strategic deterrent in accordance with Presidential direction (December 2006).
2. Concept and System Definition for remaining portions of the ship will be accomplished through a Design/Build/Sustain approach modeled after the approach used by the VIRGINIA Class program.
3. Engineering and integration of existing technologies and development of new technologies required to provide the capabilities needed to ensure platform operational effectiveness and minimize life cycle cost.

OR Concept and System Definition Prototyping, and Technology Development Efforts

The OR program supports design, systems engineering, prototyping and vendor qualification activities needed to develop CMC design, the OHIO Replacement whole ship design, and component development. The OR design timelines are based on the design approach proven on the VIRGINIA Class Program, adjusted for the additional complexity of a missile compartment and Strategic Weapons Systems (SWS). Planned technical studies and prototyping are necessary to reduce risks associated with updating SSBN system designs for current technical standards and demonstrating design feasibility of developmental technology to meet the ship design and construction schedule.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

The Navy continues investing in program funded affordability initiatives similar to those employed successfully for VIRGINIA Class, but tailored to the unique SSBN mission and operational tempo of OHIO Replacement to drive down overall program costs. Efforts will focus on reducing ship construction costs through implementing more effective design features to produce a more affordable/producible class. As part of this effort, alternative contracting strategies will be examined to include multi-class multiyear procurement (MYP) and economic order quantity (EOQ).
Activities planned for FY 2015 are being executed to ensure the first article quad pack prototype of the CMC is on schedule to support the UK SUCCESSOR Programme. The CMC program will mature required technologies and re-host the TRIDENT II D5 SWS (Launcher, Fire Control and Navigation) while ensuring no degradation to D5 security, safety and performance. In addition, whole ship design efforts are focused on technologies requiring significant engineering, integration and development time and those technologies that are required to support ship design and construction schedules such as the propulsor, maneuvering/ship control and signatures. These technologies are critical for stealth capability for a ship class that will be in service until the 2080s. Ship concept design efforts include important pre-construction activities such as finalizing ship requirements, risk characterization and mitigation, improvement and validation of performance prediction tools and improvement of design tools. Technology development will address engineering and integration of existing technologies as well as maturation of developmental technologies.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Lead Design Yard (CMC / Ship Study and Design)	-	425.044	517.316	-	517.316
Articles:	-	-	-	-	-
FY 2014 Accomplishments: N/A					
FY 2015 Plans: The combination of Common Missile Compartment (CMC) Design and Prototyping and Ship Study and Design represents the required Lead Design Yard (LDY) Shipbuilder effort for the OHIO Replacement (OR) Program. CMC: This funding applies to the design, systems engineering, prototyping, and vendor qualification activities needed to execute the schedule for Common Missile Compartment (CMC) design and component / technology development for the OHIO Replacement submarine. Included in this effort is prototyping of the Missile Tubes (MTs), Quad Packs (QPs) and ultimately the Missile Tube Module (MTM). Specific planned efforts in FY 2015 include commencing development of first article missile tubes. Also included are continuing efforts for the design and development of the MTs, MTM and entire CMC to include: completion of approximately 90 percent of Diagrams, 30 percent of Design Disclosures, and 70 percent of CMC arrangements in support of the MTs, First Article QP (FAQP), and MTM build. Additionally this effort will continue validation of missile tube to missile tube quad pack production techniques development, testing, and integration of missile tube to keel robotic welding techniques that support process certification; generate digital manufacturing data for the prototype FAQP; begin manufacturing of First Article MTs and place contract actions for long lead material to support development					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
of FAQP pressure hull; conduct final CMC pressure hull model testing at Government laboratory; and receive approvals for CMC Subsystem Hazard Analysis (SHAs). Ship Study and Design: This funding applies to the design, systems engineering, prototyping, and vendor qualification activities needed to execute the schedule for whole ship design, shipbuilder component / technology development for the OHIO Replacement submarine. Specific efforts in FY2015 include design of the forward and aft ends of OHIO Replacement including Rest of Ship (RoS) system integration, completion of approximately 80 percent of engineered component procurement specifications, 90 percent of System Diagrams, 15 percent of RoS Arrangements, as well as commencing RoS Design Disclosures to support program schedule. This funding also continues maintaining configuration control for all CMC interfaces with Rest of Ship, begins ship integration of the Generation 1 Propulsor design and completes development of a Non-Shipboard Prototype to validate the next generation design tool at the shipbuilder.					
FY 2016 Base Plans: The combination of Common Missile Compartment (CMC) Design and Prototyping and Ship Study and Design represents the required Lead Design Yard (LDY) Shipbuilder effort for the OHIO Replacement (OR) Program. CMC: This funding applies to the design, systems engineering, prototyping, and vendor qualification activities needed to execute the schedule for Common Missile Compartment (CMC) design and component / technology development for the OHIO Replacement submarine. Included in this effort is prototyping of the Missile Tubes (MTs), Quad Packs (QPs) and ultimately the Missile Tube Module (MTM). Specific planned efforts in FY 2016 include continued fabrication of First Article prototype MTs; completion of approximately 85 percent of CMC arrangements and over 60 percent of required Design Disclosures. This effort also includes receiving approvals for CMC System Hazard Analyses (SHAs); performing assembly, installation and test of manufacturing fixtures required to prove Integrated Tube and Hull (ITH) manufacturing; commencing manufacturing of the FAQP pressure hull; support of development of Strategic Weapons Support Systems (SWSS) for the land based test facility; and placement of contract actions for material to support the Prototype MTM. Ship Study and Design: Lead Design Yard (LDY) efforts increase by approximately 20 percent in FY 2016, driven by a 50 percent increase in labor hours and time related material associated with design disclosure and arrangement development as well as the accompanying engineering analysis. The increase in funding requirements from FY 2015 to FY 2016 supports the 83 percent design completion required for an FY 2021 Lead Ship construction start and the aggressive 84 month build necessary to support the first strategic deterrent					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
patrol in FY 2031. This funding applies to the shipbuilder design, systems engineering, prototyping, and vendor qualification activities needed to execute the schedule for whole ship design, component / technology development for the OHIO Replacement submarine. Specific efforts in FY 2016 include the completion of all RoS Systems Diagrams, issuing an additional four percent of Rest of Ship Design Disclosures, and completion of approximately 90 percent of engineered component procurement specifications. Additionally, the completion of arrangements in FY2016 will approach 50 percent. Efforts will also continue towards maintaining configuration control for all CMC interfaces with Rest of Ship and progressing ship integration of the Propulsor design. ***FY 2016 OCO Plans:*** N/A					
Title: NAVSEA R&D and Prototyping	-	152.606	184.978	-	184.978
Articles:	-	-	-	-	-
FY 2014 Accomplishments: N/A					
FY 2015 Plans: This funding applies to the Government combat systems, component and technology development for the OHIO Replacement (OR) submarine essential to achieving required signatures, maneuverability, combat and communications capabilities. Specific efforts in FY 2015 include testing of the Generation 1 Propulsor models on the large scale vehicle and commencement of the Generation 2 Propulsor design based on lessons learned from Generation 1 testing; Analysis of composite components in support of propulsor development efforts; commencing manufacturing of the full scale prototype propulsor rotor quick disconnect hardware; and initializing the full scale bearing test rig evaluation of candidate prototype OR bearing materials. Additional efforts include beginning Phase II of the Concept of Operations Experiment (COOPEX) to support Hovering and Missile Compensation Control System (HMCCS) and Ship Control System (SCS) designs; conducting a full scale at-sea test of signature control technologies on a surrogate platform to inform stern design; continuing Government Furnished Equipment (GFE) development studies to enable delivery of preliminary Government Furnished Information (GFI) for Non-Propulsion Electronics Systems (NPES); continued OR specific systems engineering efforts and arrangements trade studies to support AN/BRR-6 reliability updates; and conducting water tunnel and model testing to support control surface design. This effort also continues Government support and oversight of development of approximately 50 engineered components. ***FY 2016 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
This funding applies to the Government combat systems, component and technology development for the OHIO Replacement (OR) submarine essential to achieving required signatures, maneuverability, combat and communications capabilities. Efforts in FY 2016 represent a significant increase in the pace of Government design, prototyping, testing and analysis required. The combined Government design, manufacture and testing in FY 2016 for the Generation 1 and Generation 2 Propulsors will increase as the processes and feedback become more mature. This effort also includes the performance of various propulsor development related events including: completion of Generation 1 Propulsor testing on the Large Scale Vehicle and continued Generation 2 Propulsor design (including small and intermediate scale testing). Other efforts include performing a propulsor rotor quick disconnect demonstration and preparations for handling and assembly demonstrations for proof of concept testing; completion of candidate bearing material testing at the full scale bearing test rig; and completing Concept of Operations Experiment (COOPEX) Phase II & III to support Hovering and Missile Compensation and Missile Compensation Control System (HMCCS) and Ship Control System (SCS) designs. Specific efforts also include continued development, refinement, and delivery of GFI for NPES; continued assessment of AN/BRR-6 reliability based updates (including delivery of updated GFI); continued initial systems architecture assessment and development in conjunction with existing submarine classes to deliver increased GFI fidelity; commencement of development for the forward compartment structural configuration model; and completion of testing and analysis to support the finalization of control surface design. This effort also continues Government support and oversight of development of approximately 50 engineered components. ***FY 2016 OCO Plans:*** N/A					
Title: Systems Engineering/Program Management	-	86.569	71.896	-	71.896
Articles:	-	-	-	-	-
FY 2014 Accomplishments: N/A					
FY 2015 Plans: This funding applies to the Government technical and programmatic oversight including Program Office management and technical support from government laboratories for review, analysis and approval of lead design yard and various government performer's design deliverables. Specific efforts in FY 2015 include continued review and approval of Arrangements, System Descriptions/Diagrams, and Design Disclosures in accordance with the Integrated Master Schedule (IMS) via technical oversight, review and Government approval of all Lead Design Yard (LDY) developed design products. Continue maintenance planning and design for					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
sustainment activities to ensure SBSD availability requirements can be met. Complete the OHIO Replacement Capabilities Development Document (CDD) and submit the updated CDD to the Joint Requirements Oversight Counsel (JROC) for validation and approval. Conduct additional assessments, as required, to support the JROC CDD validation and approval process. Continue functional allocation of CDD requirements to platform design and system attributes and performance standards. Continue to identify and assess platform, shore facilities, and infrastructure characteristics to identify opportunities to positively impact program costs. Continue program affordability initiatives in order reduce overall out-year program costs. Specific initiatives include Integrated Product Development Environment (IPDE) process development and identification of candidates for material reuse. Continue program affordability efforts targeted to achieving potential savings associated with multi-year and/or Economic Order Quantity (EOQ) procurements across submarine classes, investigating the government vs. contractor furnished equipment mix for potential efficiencies, and potential savings associated with continuous missile tube and/or launch tube production runs. Continue efforts for Milestone B document preparation to fulfill OSD oversight requirements. ***FY 2016 Base Plans:*** This funding applies to the Government technical and programmatic oversight including Program Office management and technical support from government laboratories for review, analysis and approval of lead design yard and various government performer's design deliverables. Specific efforts in FY 2016 include continued review and approval of Arrangements, System Descriptions/Diagrams, and Design Disclosures in accordance with the Integrated Master Schedule (IMS) via technical oversight, review and Government approval of all Lead Design Yard (LDY) developed design products. After approval of the JROC CDD, complete development and gain approval of TEMP and LFT&E Master Plan. Obtain waiver for Full-Up-System Level (FUSL) testing. Continued program affordability efforts targeted to quantifying potential savings associated with multi-year and/or Economic Order Quantity (EOQ) procurements across submarine classes, investigating the government vs. contractor furnished equipment mix for potential efficiencies, and potential savings associated with continuous MT and/or launch tube production runs. ***FY 2016 OCO Plans:*** N/A					
Title: Strategic Weapons Systems Integration	-	152.588	197.203	-	197.203
Articles:	-	-	-	-	-
FY 2014 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A ***FY 2015 Plans:*** Continue system engineering efforts required for the re-hosting and integration of the TRIDENT II (D5) SWS on the OHIO Replacement submarine including review and modification of SWS Coordination, Interface and Arrangement Drawings for SWS equipment within the CMC and Missile Control Center Module (MCCM), SWS system and subsystem detailed preliminary design, and Hardware and Software requirements development. Continue SWS Test Systems material procurement and builds, test berth /facility modifications and development of special test vehicles. Continue SWS Ashore test capability development. Continue SWS training capability/ requirements development. Complete build and deliver Fire Control Engineering Test Systems. Continue design efforts for the development of a missile launch tube test capability and test stand including refurbishment of a test vehicle to support launch system prototype efforts and evaluation / qualification program. Continue design and development efforts for shipboard SWS Navigation. Continue systems engineering design efforts related to the OHIO Replacement guidance handling carts and procurement of a prototype guidance handling cart. ***FY 2016 Base Plans:*** Continue system engineering efforts required for the re-hosting and integration of the TRIDENT II (D5) SWS on the OHIO Replacement submarine including review and modification of SWS Coordination, Interface and Arrangement Drawings for SWS equipment within the CMC and Missile Control Center Module (MCCM), SWS system and subsystem preliminary design, and Hardware and Software requirements development. Continue SWS Test Systems material procurement and builds, test berth / facility modifications and development of special test vehicles. SWS Ashore test capability development. SWS training capability/requirements development. Continue design efforts for the development of a missile launch tube test capability to support launch system prototype efforts and evaluation / qualification program at the China Lake Launch Test Facility (LTF). Conduct a launcher evaluation test readiness review. Conduct integration and test of multiple components at the LTF. Continue design and development efforts for shipboard SWS Navigation. Complete build and test of the Inertial Navigation Simulator. Continue systems engineering design efforts related to the OHIO Replacement guidance handling carts. Conduct mechanical and electrical surface support equipment critical design reviews. Commence Reentry Body Simulator development. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	-	816.807	971.393	-	971.393

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTEN/3219: *SBSD Nuclear Technology Development*	296.050	369.964	422.661	-	422.661	411.598	401.698	291.302	278.600	Continuing	Continuing
• RDTEN/3220: *Advanced Submarine System Development*	760.134	-	-	-	-	-	-	-	-	-	2,747.327
• SCN/1045: *OHIO Replacement Submarine*	-	-	-	-	-	777.793	791.793	2,771.344	1,316.280	Continuing	Continuing
• RDTEN/3237: *ORP Launch Test Facility*	-	36.470	-	-	-	-	-	-	-	-	36.470
• MILCON/0805376N: *Ohio Replacement Power and Propulsion Facility*	-	23.985	-	-	-	-	-	-	-	-	23.985
• MILCON/0901211N: *MCON Design Funds*	-	0.364	-	-	-	-	-	-	-	-	0.364
• RDTEN/0951: *Joint Warhead Fuse Sustainment Program*	83.751	84.692	95.400	-	95.400	113.938	110.608	64.964	66.351	Continuing	Continuing
• OPN/5358: *SWS Modernization Fund*	224.484	201.832	240.694	-	240.694	200.789	222.157	227.140	231.945	Continuing	Continuing
• WPN/1250: *TRIDENT II Mods*	1,130.079	1,175.455	1,099.064	-	1,099.064	1,142.004	1,151.852	1,194.240	1,249.313	Continuing	Continuing
• OMN/12D2: *Fleet Ballistic Missile*	968.966	1,001.297	1,034.760	-	1,034.760	1,051.946	1,067.652	1,092.294	1,117.407	Continuing	Continuing

Remarks

D. Acquisition Strategy

The common missile compartment will be designed and developed to support the U.S. and UK in development of the OHIO Replacement and SUCCESSOR SSBN programs enabling a common U.S.-UK CMC and maximizing the benefit of the ongoing U.S.-UK partnership in strategic deterrence. The OHIO Replacement R&D efforts will incentivize cost reduction initiatives in the design, construction and operations & support portions of the program. R&D efforts will be performed by Navy laboratories, shipyards, private industry, and University Affiliated Research Centers.

E. Performance Metrics

Updated Integrated Master Schedule and CMC build strategy down-select. Development of signature management efforts to address knowledge gap, concepts for propulsor and shafting, and design guidance and interface control requirements.

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

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	SS/CPFF	Ship Design Contractor-EB : Groton, CT	0.000	-		425.044	Oct 2014	517.316	Dec 2015	-		517.316	Continuing	Continuing	Continuing
Product Development	WR	NSWC : Carderock, MD	0.000	-		161.615	Oct 2014	171.125	Oct 2015	-		171.125	Continuing	Continuing	Continuing
Product Development	WR	NUWC : Newport, RI	0.000	-		14.808	Oct 2014	21.045	Oct 2015	-		21.045	Continuing	Continuing	Continuing
Product Development	Various	NAVSEA : Various	0.000	-		23.921	Oct 2014	23.297	Oct 2015	-		23.297	Continuing	Continuing	Continuing
Product Development	SS/CPFF	ARL Penn State University : State College, PA	0.000	-		0.377	Oct 2014	0.377	Oct 2015	-		0.377	Continuing	Continuing	Continuing
Product Development	SS/CPFF	NGMS : Sunnyvale, CA	0.000	-		32.859	Oct 2014	54.531	Oct 2015	-		54.531	Continuing	Continuing	Continuing
Product Development	SS/CPFF	JHU/APL : Laurel, MD	0.000	-		5.807	Oct 2014	7.073	Oct 2015	-		7.073	Continuing	Continuing	Continuing
Product Development	WR	NUWC : Keyport, WA	0.000	-		-		0.800	Oct 2015	-		0.800	-	0.800	-
Product Development	SS/CPFF	CSDL : Cambridge, MA	0.000	-		4.368	Oct 2014	4.788	Oct 2015	-		4.788	Continuing	Continuing	Continuing
Product Development	WR	NSWC : Corona, CA	0.000	-		0.300	Dec 2014	0.675	Oct 2015	-		0.675	-	0.975	-
Product Development	SS/CPFF	LMFS : Mitchel Field, NY	0.000	-		8.777	Oct 2014	8.835	Oct 2015	-		8.835	Continuing	Continuing	Continuing
Product Development	C/CPFF	EMCUBE : Alexandria, VA	0.000	-		0.669	Oct 2014	0.675	Oct 2015	-		0.675	-	1.344	-
Product Development	SS/CPFF	LMMSC : Sunnyvale, CA	0.000	-		29.744	Dec 2014	35.345	Dec 2015	-		35.345	Continuing	Continuing	Continuing
Product Development	SS/CPFF	JRC : Washington, DC	0.000	-		0.955	Oct 2014	0.993	Dec 2015	-		0.993	-	1.948	-
Product Development	C/CPFF	GDAIS : Pittsfield, MA	0.000	-		20.443	Nov 2014	17.582	Nov 2015	-		17.582	Continuing	Continuing	Continuing
Product Development	WR	CNSW : China Lake, CA	0.000	-		9.114	Nov 2014	15.377	Nov 2015	-		15.377	-	24.491	-
Product Development	SS/CPFF	IEC : Anaheim, CA	0.000	-		1.762	Oct 2014	6.761	Oct 2015	-		6.761	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	NSWC : Dahlgren, VA	0.000	-		4.524	Oct 2014	4.265	Oct 2015	-		4.265	Continuing	Continuing	Continuing
Product Development	SS/CPFF	BAE : Rockville, MD	0.000	-		7.768	Oct 2014	8.351	Oct 2015	-		8.351	Continuing	Continuing	Continuing
Product Development	SS/CPFF	BNA : Huntington Beach, CA	0.000	-		1.454	Dec 2014	1.218	Dec 2015	-		1.218	Continuing	Continuing	Continuing
Product Development	WR	NSWC Crane : Crane, IN	0.000	-		11.788	Nov 2014	16.880	Nov 2015	-		16.880	Continuing	Continuing	Continuing
Product Development	SS/CPFF	SPA : Alexandria, VA	0.000	-		3.921	Oct 2014	3.235	Oct 2015	-		3.235	Continuing	Continuing	Continuing
Product Development	Various	SSP : Various	0.000	-		7.958	Oct 2014	9.442	Oct 2015	-		9.442	Continuing	Continuing	Continuing
		Subtotal	0.000	-		777.976		929.986		-		929.986	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Management Support	C/CPFF	Various : Multiple Awards	0.000	-		19.938	Jan 2015	21.925	Oct 2015	-		21.925	Continuing	Continuing	Continuing
Government Management Support	WR	Various: NSWC : Carderock, MD	0.000	-		18.477	Oct 2014	19.032	Oct 2015	-		19.032	Continuing	Continuing	Continuing
Travel	WR	NAVSEA HQ : Washington, D.C.	0.000	-		0.416	Oct 2014	0.450	Oct 2015	-		0.450	Continuing	Continuing	Continuing
		Subtotal	0.000	-		38.831		41.407		-		41.407	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		816.807		971.393		-		971.393	-	-	-

Remarks

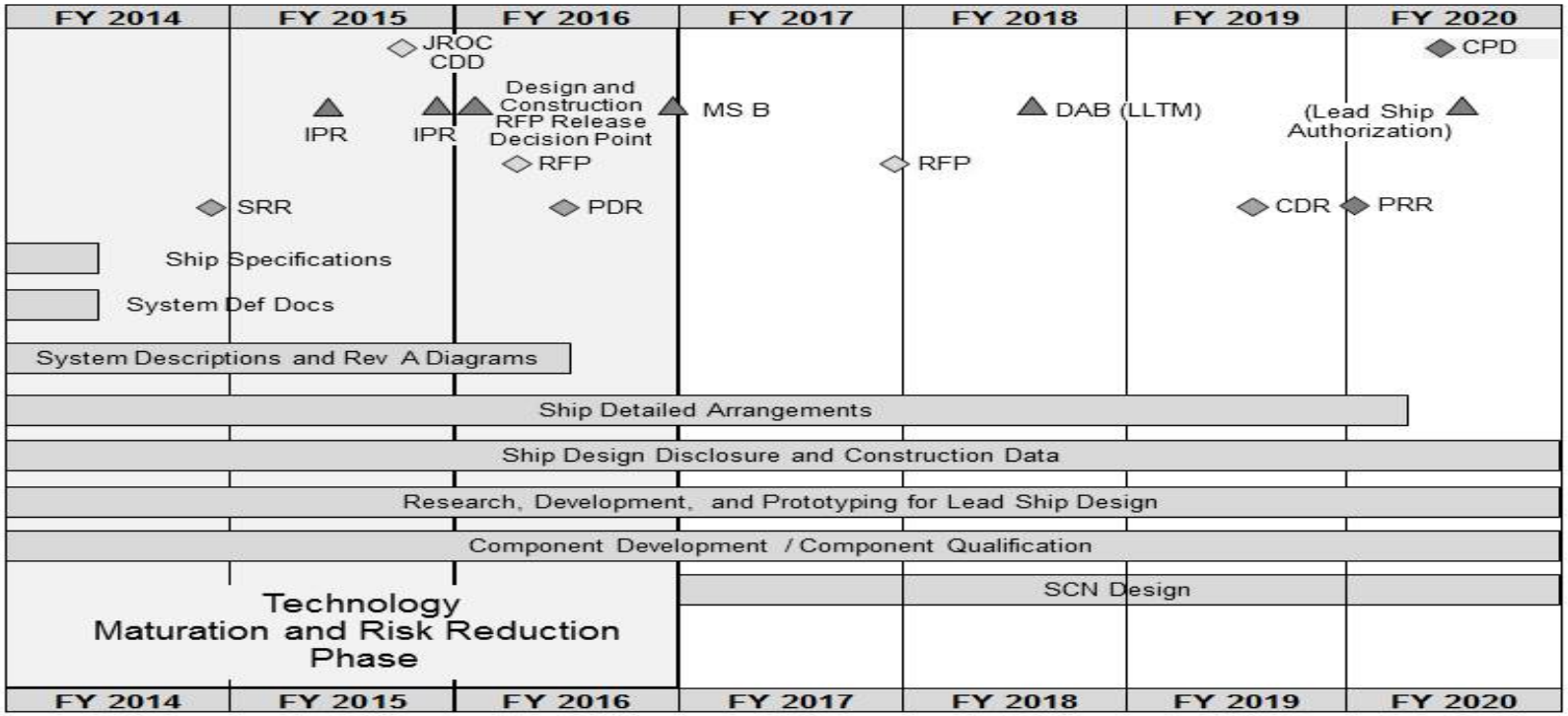
The listed Award Dates represent the date on which initial obligations occur for the effort.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603595N / *(U)Ohio Replacement*	Project (Number/Name) 3220 / *SBSD Advanced Submarine System Development*	

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Note: Beginning in 2015, there is an administrative change that shifts efforts funded from PE 0603561N (Advanced Submarine System Development) / Project 3220 to PE 0603595N (Ohio Replacement) / Project 3220. This shift is consistent with Congressional intent identified in the FY13 Appropriation Act.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*



CDD - Capabilities Development Document
CDR - Critical Design Review
CPD - Capability Production Document
DAB - Defense Acquisition Board
IPR - In Progress Review
JROC - Joint Requirements Oversight Council
LLTM - Long Lead Time Material
MS - Milestone
PDR - Preliminary Design Review
PRR – Production Readiness Review
RDT&E - Research, Development, Test, & Evaluation
RFP - Request for Proposal
SCN - Shipbuilding and Conversion, Navy
SRR - System Requirements Review

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Notes: * Effort began prior to 1st Quarter FY 2014. ** Effort continues past 4th Quarter FY 2020				
Ship Specifications*	1	2014	2	2014
System Definition Documents*	1	2014	2	2014
System Descriptions and Rev A Diagrams*	1	2014	2	2016
Ship Detailed Arrangements*	1	2014	1	2020
Ship Design Disclosure and Construction Data*	1	2014	4	2020
Research, Development, and Prototyping for Lead Ship*, **	1	2014	4	2020
Component Development/Component Qualification* , **	1	2014	4	2020
SCN Design**	1	2017	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603595N / *(U)Ohio Replacement*	Project (Number/Name) 3237 / *Launch Test Facility*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
3237: *Launch Test Facility*	-	-	36.470	-	-	-	-	-	-	-	-	36.470
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project Unit 3237: Project constructs a new Launch Test Facility to support surface launch testing and evaluation of full-scale launch technologies. The project construction is authorized by 10 U.S.C. Section 2353, funded from Research, Development, Test, and Evaluation (RDT&E) appropriations, and will have no general utility and utilized solely to meet RDT&E contractual requirements. This project enables full-scale testing of a Trident II D5LE SWS missile launcher subsystem to collect launch event information for verification and validation of modeling and simulation software, to evaluate and demonstrate launcher subsystem performance, and to qualify the launcher subsystem hardware. This project provides a test facility to conduct qualification testing of full-scale launcher hardware. The project will provide performance and safety data to mitigate the risk of a tactical failure in the fleet.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: OR Launch Test Facility	-	36.470	-	-	-
Articles:	-	-	-	-	-
FY 2014 Accomplishments: N/A					
FY 2015 Plans: Construct the Launch Test Facility at Naval Air Warfare Center, China Lake, CA to enable Full Scale Launch Testing and evaluation / qualification of the TRIDENT II D5LE missile launcher subsystem for the OHIO Replacement Submarine. Additional details are contained in the form DD1391 provided as a supplement to the budget materials.					
FY 2016 Base Plans: N/A					
FY 2016 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	-	36.470	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3237 / *Launch Test Facility*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE/PE0603561N/3220: *Advanced Submarine System Development*	784.823	-	-	-	-	-	-	-	-	Continuing	Continuing
• RDTEN/3219: *SBSD Nuclear Technology Development*	296.050	369.964	422.661	-	422.661	411.598	401.698	291.302	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

FFP Contract executed through NAVFAC Multiple Award Construction Contract.

NAVFAC has the contractual warrant to buy design services. NAVFAC/Southwest executes the technical administration, planning, and scheduling for the overall design of the Launch Test Facility (LTF) based on the Facility Design Criteria executed by NAVFAC/SW. NAVFAC/SW Construction effort is led by NAVFAC/SW and executed by NAVFAC/SW Facilities Engineering and Acquisition Division (FEAD) for construction, certification and validation of the facility.

The facility will provide the necessary foundations, buildings, cranes, infrastructure, ordnance storage, test vehicle arrestment and other services & amenities needed to conduct full-scale surface launch test, integration testing, arrestment, and recovery/reuse of D5LE SWS test vehicles. Operation of the LTF requires interactions with NAWS & NAWCWD at China Lake, CA and its existing infrastructure, the environment, and operators & maintenance personnel. The facility is being developed to support the Surface Launch Test system capabilities which will provide a full scale, reusable launch test capability to support Launcher Subsystem development, evaluation and qualification, and Trident II D5LE SWS Missile Subsystem risk reduction.

E. Performance Metrics

Authority to Construct (ATC)
Authority to Operate (ATO)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603595N / *(U)Ohio Replacement*	Project (Number/Name) 3237 / *Launch Test Facility*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	NAWC CL : China Lake, CA	0.000	-		36.470	Oct 2014	-		-		-	-	36.470	-
		Subtotal	0.000	-		36.470		-		-		-	-	36.470	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		36.470		-		-		-	-	36.470	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3237 / *Launch Test Facility*

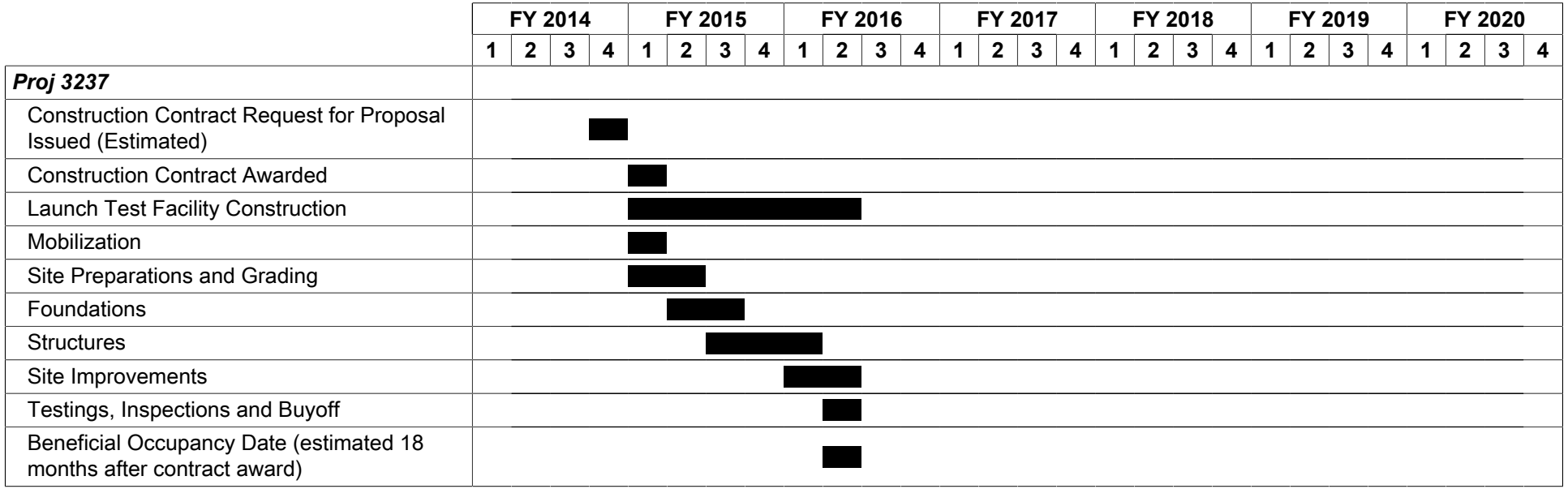


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3237 / *Launch Test Facility*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3237				
Construction Contract Request for Proposal Issued (Estimated)	4	2014	4	2014
Construction Contract Awarded	1	2015	1	2015
Launch Test Facility Construction	1	2015	2	2016
Mobilization	1	2015	1	2015
Site Preparations and Grading	1	2015	2	2015
Foundations	2	2015	3	2015
Structures	3	2015	1	2016
Site Improvements	1	2016	2	2016
Testings, Inspections and Buyoff	2	2016	2	2016
Beneficial Occupancy Date (estimated 18 months after contract award)	2	2016	2	2016