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 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101221N *I Strategic Sub & Wpns Sys Supt*							
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	872.314	93.912	96.404	136.556	-	136.556	128.286	81.067	82.811	38.841	Continuing	Continuing
0951: *Joint Warhead Fuze Sustainment Program*	217.121	81.696	84.765	111.857	-	111.857	108.787	63.568	65.185	20.826	Continuing	Continuing
2228: *Technical Applications Programs*	633.772	9.697	9.000	22.123	-	22.123	16.744	14.700	14.760	15.084	Continuing	Continuing
3158: *Integrated Nuclear Weapons Security Sys Dev*	21.421	2.519	2.639	2.576	-	2.576	2.755	2.799	2.866	2.931	Continuing	Continuing
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 178												

A. Mission Description and Budget Item Justification

The Joint Warhead Fuze Sustainment Program (0951) is an effort to develop advanced components to improve the reliability, safety, and security of Arming, Fuzing and Firing (AF&F) systems for nuclear reentry systems. The current effort is focused on supporting the alteration of the AF&F system for the MK5/W88 system which will be five years beyond its design life at the scheduled deployment of the AF&F alteration. This effort also supports future utilization of the developed components by the US Air Force and United Kingdom.

The Technology Applications Program (2228) supports the TRIDENT II (D5) Submarine Launched Ballistic Missile (SLBM) that provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence providing a survivable, sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. The Multi-Star Enhanced Prelaunch (MEP) program commenced in FY16. This system leverages the capability of the D5 Life Extension Guidance (Mk6 Mod1) to sight two stars vice one combined with the interface updates to the Fire Control and Navigation. Allowing for in-flight correction, the potential to operate in environments where GPS is denied, and may provide future relief to the strict tolerance requirements of the strategic navigator on the current OHIO class submarines and the OHIO Class Replacement program. The Systems Engineering Modeling and Simulation capability will consist of three elements: Model Based Design, Strategic Weapon System (SWS) Integrated Modeling and Simulation/Common Architecture & Framework, and SWS Enhancement Ground Test. This effort will provide the capability to comprehensively evaluate and test the integrated SWS within representative operational environments, providing unprecedented visibility across the SWS and system performance characterization equivalent to flight testing. This capability will enable trade space analysis to identify technical margin, subsystem interactions, and lifecycle affordability opportunities to include other services and be able to identify the benefits and risks of commonality to the individual programs, requirements and CONOPs modifications that could facilitate commonality, potential common acquisition strategies between the services, and total life cycle cost implications.

The Integrated Nuclear Weapons Security System (INWSS) (3158) efforts support the Nuclear Weapons Security program and SSBN Escort mission. The policies and requirements regarding the safeguard of nuclear weapons within the Department of Defense is established by DoD S5210.41M. Within the Department of the Navy, nuclear weapons are limited to TRIDENT Fleet Ballistic Missiles (FBM), either deployed aboard TRIDENT submarines or located landside at Naval Submarine Base,

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 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101221N *I Strategic Sub & Wpns Sys Supt*

Kings Bay, or Naval Submarine Base, Bangor where missiles are first assembled as well as repaired. The Chief of Naval Operations (CNO) has assigned the Strategic Systems Programs (SSP), the FBM program manager, with mission responsibility for the safeguard of FBM nuclear technologies. This budget supports efforts directed at improving the current technological baseline through a series of studies. These efforts will improve countermeasure technologies to address detection, delay and denial.

FY15 Congressional add for Missile Component Development.

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	94.525	107.039	129.957	-	129.957
Current President's Budget	93.912	96.404	136.556	-	136.556
Total Adjustments	-0.613	-10.635	6.599	-	6.599
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-10.282			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.025	-0.353			
• SBIR/STTR Transfer	-0.589	0.000			
• Program Adjustments	0.000	0.000	9.600	-	9.600
• Rate/Misc Adjustments	0.001	0.000	-3.001	-	-3.001

Change Summary Explanation

Decrease in Strategic Sub & Wpns Sys Supt by $0.640M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Funding reduced in FY16 (10.282) for Joint Fuze program execution and (.353) for judgment fund claim.

Funding increased in FY17 (9.600) within the Technical Applications Program project (2228). Funding reduced (2.361) for rate and inflation adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 0951 / *Joint Warhead Fuze Sustainment Program*	

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
0951: *Joint Warhead Fuze Sustainment Program*	217.121	81.696	84.765	111.857	-	111.857	108.787	63.568	65.185	20.826	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 178

A. Mission Description and Budget Item Justification

The Joint Warhead Fuze Sustainment Program is an effort to develop advanced components to improve the reliability, safety, and security of AF&F systems for nuclear reentry systems. The current effort is focused on supporting the alteration of the AF&F system for the MK5/W88 system which will be five years beyond its design life at the scheduled deployment of the AF&F alteration. This effort also supports future utilization of the developed components by the US Air Force and United Kingdom.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: TRIDENT II	81.696	84.765	111.857	0.000	111.857
Articles:	-	-	-	-	-
Description: Identify, prioritize, develop, proof, and demonstrate advanced technologies that will be leveraged and incorporated into future AF&Fs.					
FY 2015 Accomplishments: Continued development, proofing, demonstration, and technology maturation of identified advanced technologies for future AF&Fs Supported engineer working groups. Continued AF&F sub-assembly design demonstrations Continued development of advanced safety and surety architecture solutions. Continued detailed design Continued to develop and implement software changes due to AF&F Conducted performance assessment of tested designs Conducted production engineering Initiated pre-production line development and initial builds Procured material for qualification testing; Commercial-Off-The-Shelf (COTS) qualification testing					
FY 2016 Plans: Continue development, proofing, demonstration of identified advanced technologies for future AF&Fs Support engineer working groups and program reviews.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue AF&F sub-assembly design demonstrations Continue development of advanced safety and surety architecture solutions. Continue detailed design Continue to develop and implement software changes due to AF&F Conduct performance assessment of tested designs Conduct production engineering Begin missile integration of the Mk5A Alt 370 fuze development, and perform pre-flight test and analysis Design, develop and qualify production tools and processes, testers, gauges, AF&F simulators and trainers Due to the congressional reduction of $10.282M these efforts will be at a reduced level. The program is currently exploring options to keep FPU on schedule.					
FY 2017 Base Plans: Continue development, proofing, demonstration of identified advanced technologies for future AF&Fs Support engineer working groups and program reviews. Continue AF&F sub-assembly design demonstrations Continue development of advanced safety and surety architecture solutions. Continue detailed design Continue to develop and implement software changes due to AF&F Conduct performance assessment of tested designs Conduct production engineering Continue missile integration of the Mk5A Alt 370 fuze development, and perform pre-flight test and analysis Continue design, develop and qualify production tools and processes, testers, gauges, AF&F simulators and trainers Flight Test and integration Conduct FCET 53 flight experiment system test and integration, drawing & procedure updates, and SPALT proofing Begin Production Proof In (PPI) builds					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	81.696	84.765	111.857	0.000	111.857

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*	

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
• RDTEN/3219: *SBSD Nuclear Technology Development*	369.964	419.273	390.326	-	390.326	389.279	281.218	270.091	149.700	Continuing	Continuing
• RDTEN/3220: *Advanced Submarine System Development*	796.804	971.393	700.811	-	700.811	757.737	476.140	198.968	330.466	Continuing	Continuing
• RDTEN/3237: *Launch Test Facility*	36.470	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	36.470
• MILCON/0805376N: *Ohio Replacement Power and Propultion Facility*	25.985	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	25.985
• MILCON/0901211N: *MCON Design Funds*	0.364	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.364
• OPN/5358: *SWS Modernization Funds*	209.583	240.694	215.138	-	215.138	245.396	238.665	254.815	243.736	0.000	2,399.865
• WPN/1250: *TRIDENT II Mods*	1,161.342	1,089.064	1,103.086	-	1,103.086	1,140.542	1,182.066	1,235.327	1,259.934	5,194.683	24,531.857
• OMN/1D2D: *Fleet Ballistic Missile*	994.191	1,034.668	1,030.267	-	1,030.267	1,046.348	1,066.921	1,127.576	1,151.370	0.000	8,420.307
• SCN/1045: *OHIO Replacement Submarine*	0.000	0.000	773.138	-	773.138	787.130	2,766.991	1,311.541	3,611.187	0.000	9,249.987

Remarks

D. Acquisition Strategy

Contracts will continue to be awarded to those sources who were engaged in the Mk4LE Reentry Body development program and are currently engaged in the production and/or operational support of the deployed Mk4LE Reentry Body on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4

E. Performance Metrics

Not applicable

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*

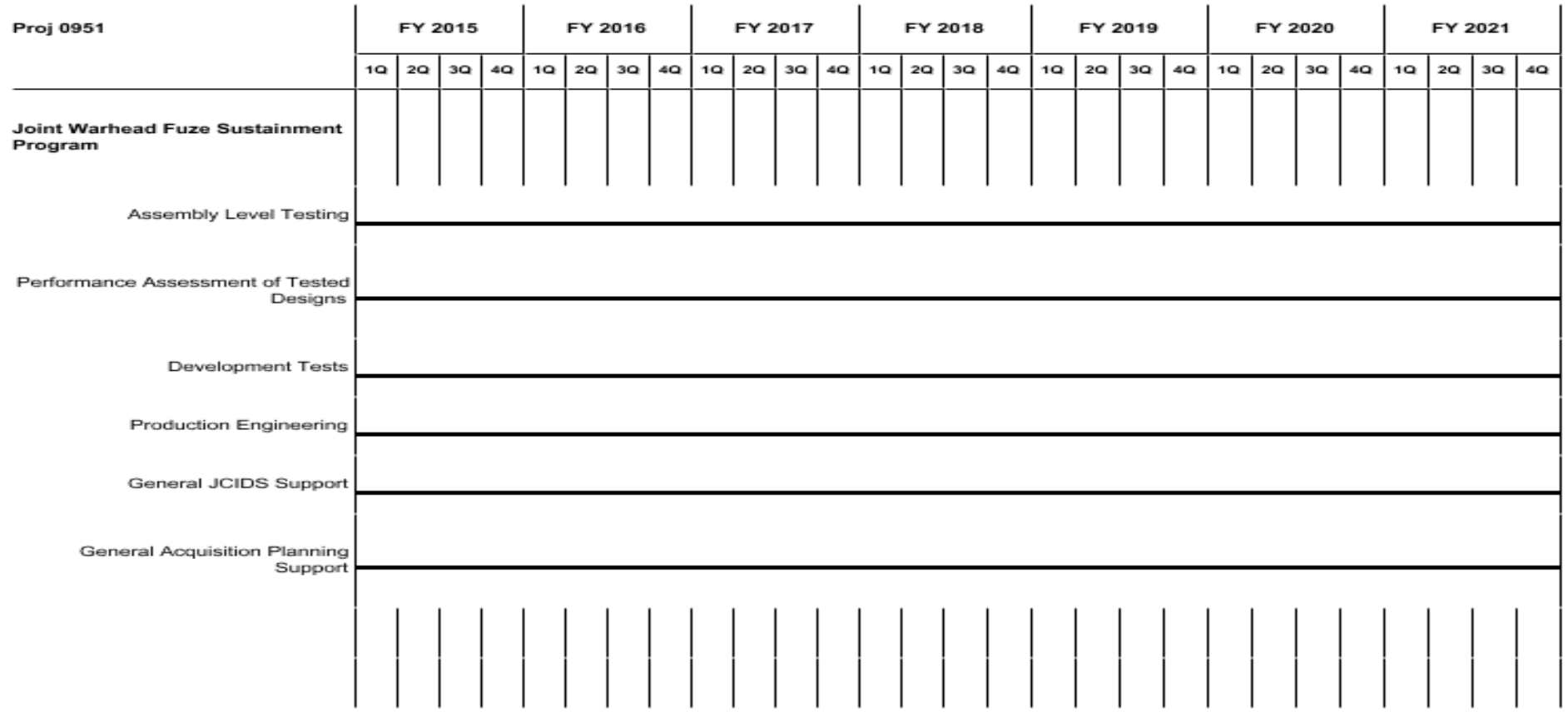
Product Development ($ in Millions)

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
Joint Warhead Fuze Sustainment DOE	MIPR	DOE : NM	190.073	62.973	Jan 2015	62.607	Nov 2015	91.257	Nov 2016	-		91.257	Continuing	Continuing	Continuing
Joint Warhead Fuze Sustainment ITT	SS/CPFF	ITT : VA	7.680	3.227	Nov 2014	4.000	Oct 2015	4.000	Nov 2016	-		4.000	Continuing	Continuing	Continuing
Joint Warhead Fuze Sustainment LMMS	SS/CPFF	LMMS : CA	13.000	10.185	Nov 2014	11.702	Nov 2015	11.930	Nov 2016	-		11.930	Continuing	Continuing	Continuing
Joint Warhead Fuze Sustainment	WR	NSWC Dahlgren : VA	6.094	4.769	Oct 2014	5.278	Oct 2015	2.465	Oct 2016	-		2.465	Continuing	Continuing	Continuing
Joint Warhead Fuze Sustainment	SS/CPFF	BAE : Not Specified	0.219	0.219	Dec 2014	0.291	Nov 2015	0.505	Dec 2016	-		0.505	Continuing	Continuing	Continuing
Joint Warhead Fuze Sustainment	SS/CPIF	APL : Not Specified	0.025	0.323	Dec 2014	0.437	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Joint Warhead Fuze Sustainment	C/BA	GDAIS : Not Specified	0.030	0.000	Jan 2015	0.150	Dec 2015	1.500	Nov 2016	-		1.500	Continuing	Continuing	Continuing
Joint Warhead Fuze Sustainment	WR	CNSW : Not Specified	0.000	0.000		0.200	Nov 2015	0.200	Oct 2016	-		0.200	0.000	0.400	-
Joint Warhead Fuze Sustainment	WR	NCCC : Not Specified	0.000	0.000		0.100	Oct 2015	0.000		-		0.000	0.000	0.100	-
		Subtotal	217.121	81.696		84.765		111.857		-		111.857	-	-	-

	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	217.121	81.696		84.765		111.857		-		111.857	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*



2017DON - 0101221N - 0951

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0951				
Joint Warhead Fuze Sustainment Program: Assembly Level Testing:	1	2015	4	2021
Joint Warhead Fuze Sustainment Program: Performance Assessment of Tested Designs:	1	2015	4	2021
Joint Warhead Fuze Sustainment Program: Development Tests:	1	2015	4	2021
Joint Warhead Fuze Sustainment Program: Production Engineering:	1	2015	4	2021
Joint Warhead Fuze Sustainment Program: General JCIDS Support:	1	2015	4	2021
Joint Warhead Fuze Sustainment Program: General Acquisition Planning Support:	1	2015	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 2228 / *Technical Applications Programs*	

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
2228: *Technical Applications Programs*	633.772	9.697	9.000	22.123	-	22.123	16.744	14.700	14.760	15.084	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Multi-Star Enhanced Prelaunch (MEP) program commenced in FY16. This system leverages the capability of the D5 Life Extension Guidance (Mk6 Mod1) to sight two stars vice one combined with the interface updates to the Fire Control and Navigation. Allowing for in-flight correction, the potential to operate in environments where GPS is denied, and may provide future relief to the strict tolerance requirements of the strategic navigator on the current OHIO class submarines and the OHIO Class Replacement program. The Systems Engineering Modeling and Simulation capability will consist of three elements: Model Based Design, Strategic Weapon System (SWS) Integrated Modeling and Simulation/Common Architecture & Framework, and SWS Enhancement Ground Test. This effort will provide the capability to comprehensively evaluate and test the integrated SWS within representative operational environments, providing unprecedented visibility across the SWS and system performance characterization equivalent to flight testing. This capability will enable trade space analysis to identify technical margin, subsystem interactions, and lifecycle affordability opportunities to include other services and be able to identify the benefits and risks of commonality to the individual programs, requirements and CONOPs modifications that could facilitate commonality, potential common acquisition strategies between the services, and total life cycle cost implications.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Multi-Star Enhanced Prelaunch (MEP)	0.000	9.000	8.757	0.000	8.757
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: Define interface specifications between Navigation, Fire Control and Guidance subsystems for executing MEP algorithm Begin early software engineering development					
FY 2017 Base Plans: Continue software engineering development Design Conformance Review Integration Testing Hardware in the Loop Testing Independent Verification and Validation Testing					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Guidance Demonstration and Shakedown Operation (DASO) Special Test Support Fire Control and Navigation DASO Software Development ***FY 2017 OCO Plans:*** N/A					
Title: Missile Component Development	9.697	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Congressional add for missile component development. ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** N/A ***FY 2017 OCO Plans:*** N/A					
Title: System Engineering Modeling and Simulation	0.000	0.000	13.366	0.000	13.366
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** Begin to develop model based design integration plan. Begin modeling and simulation gap analysis. Begin assessment on RadHard avionics and electronics technology and affordability. Begin assessment on propellant technologies. Begin assessment on new Post Boost Control and Electro-Mechanical Thrust Vector Control (TVC) systems for improved mission flexibility and affordability. Begin assessment of common serial bus architectures for future flexibility and commonality between the Navy and other services.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Begin assessment of common Fire Control/Ground architectures and software to support USSTRATCOM targeting requirements. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	9.697	9.000	22.123	0.000	22.123

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Contracts will continue to be awarded to those sources who were engaged in program and are currently engaged in the production and/or operational support on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4

E. Performance Metrics

Not applicable

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

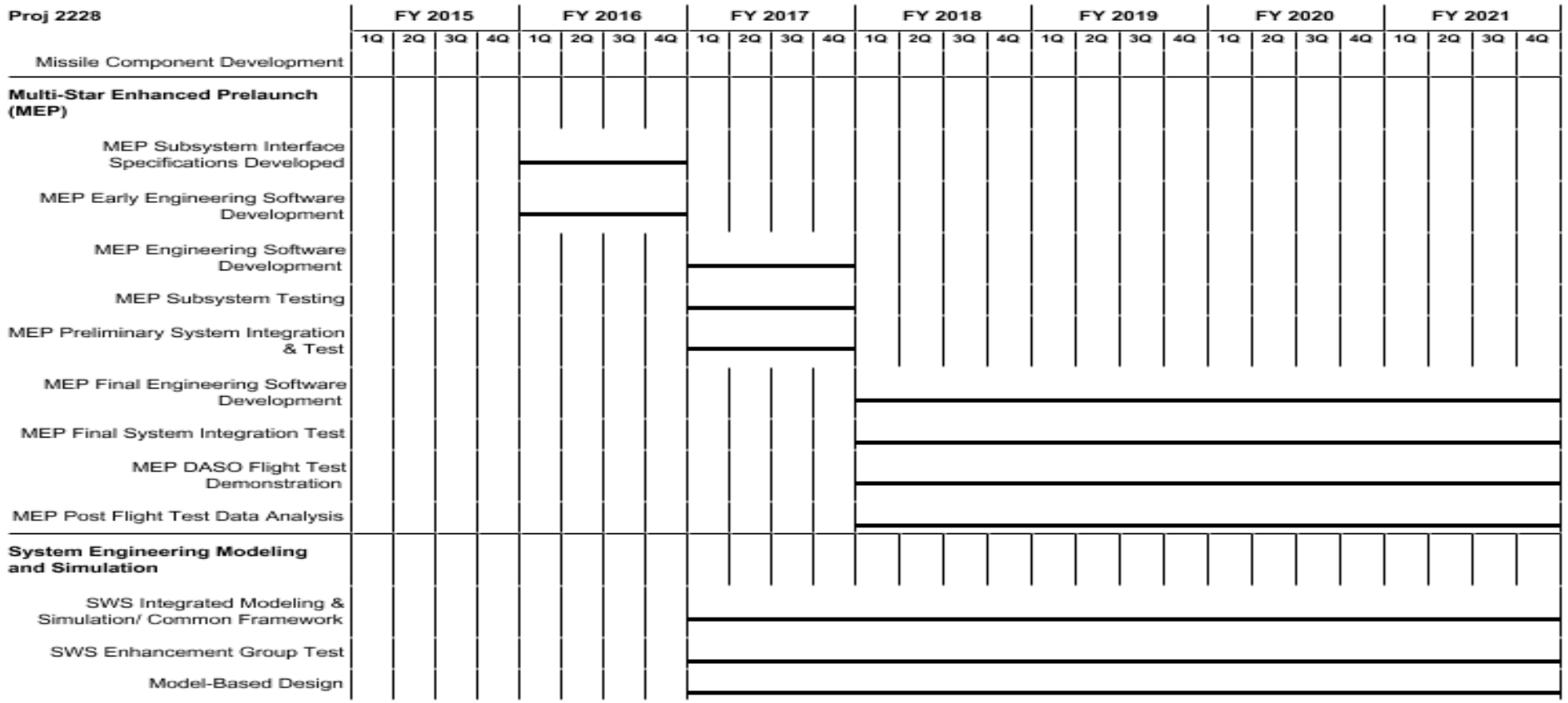
Product Development ($ in Millions)

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
Technology Applications LMSS	SS/CPFF	LMSS : CA	160.450	0.000		0.500	Jan 2016	3.822	Oct 2016	-		3.822	Continuing	Continuing	Continuing
Technology Applications NSWC	WR	NSWC : VA	92.504	0.970	Jul 2015	0.750	Jan 2016	0.844	Oct 2016	-		0.844	0.000	95.068	-
Technology Applications DOE	MIPR	DOE : NM	33.717	0.000		0.000		0.000		-		0.000	0.000	33.717	-
Technology Applications ITT	SS/CPFF	ITT : CO	12.194	0.000		0.000		0.000		-		0.000	0.000	12.194	-
Technology Applications CSDL	SS/CPFF	CSDL : MA	313.522	8.727	May 2015	7.500	Jan 2016	17.457	Oct 2016	-		17.457	0.000	347.206	-
Technology Applications AERO	SS/CPFF	AERO : CA	3.068	0.000		0.000		0.000		-		0.000	0.000	3.068	-
Technology Applications VAR	Various	Various : Various	18.317	0.000		0.000		0.000		-		0.000	0.000	18.317	-
Technology Applications GD-AIS	SS/CPFF	GDAIS : MA	0.000	0.000		0.250	Jan 2016	0.000		-		0.000	0.000	0.250	-
		Subtotal	633.772	9.697		9.000		22.123		-		22.123	-	-	-

	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	633.772	9.697		9.000		22.123		-		22.123	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*



2017DON - 0101221N - 2228

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2228				
Multi-Star Enhanced Prelaunch (MEP): MEP Subsystem Interface Specifications Developed:	1	2016	4	2016
Multi-Star Enhanced Prelaunch (MEP): MEP Early Engineering Software Development:	1	2016	4	2016
Multi-Star Enhanced Prelaunch (MEP): MEP Engineering Software Development:	1	2017	4	2017
Multi-Star Enhanced Prelaunch (MEP): MEP Subsystem Testing:	1	2017	4	2017
Multi-Star Enhanced Prelaunch (MEP): MEP Preliminary System Integration & Test:	1	2017	4	2017
Multi-Star Enhanced Prelaunch (MEP): MEP Final Engineering Software Development:	1	2018	4	2021
Multi-Star Enhanced Prelaunch (MEP): MEP Final System Integration Test:	1	2018	4	2021
Multi-Star Enhanced Prelaunch (MEP): MEP DASO Flight Test Demonstration:	1	2018	4	2021
Multi-Star Enhanced Prelaunch (MEP): MEP Post Flight Test Data Analysis:	1	2018	4	2021
System Engineering Modeling and Simulation: SWS Integrated Modeling & Simulation/ Common Framework:	1	2017	4	2021
System Engineering Modeling and Simulation: SWS Enhancement Group Test:	1	2017	4	2021
System Engineering Modeling and Simulation: Model-Based Design:	1	2017	4	2021
Missile Component Development:	1	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 3158 / *Integrated Nuclear Weapons Security 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
3158: *Integrated Nuclear Weapons Security Sys Dev*	21.421	2.519	2.639	2.576	-	2.576	2.755	2.799	2.866	2.931	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Enhanced Special Weapons effort supports the Nuclear Weapons Security program and SSBN Escort mission. The policies and requirements regarding the safeguard of nuclear weapons within the Department of Defense is established by DoD S5210.41M. Within the Department of the Navy, nuclear weapons are limited to TRIDENT Fleet Ballistic Missiles (FBM), either deployed aboard TRIDENT submarines or located landside at Naval Submarine Base, Kings Bay or Naval Submarine Base, Bangor where missiles are first assembled as well as repaired. The CNO has assigned SSP, the FBM program manager, with mission responsibility for the safeguard of FBM nuclear assets. More specifically, the mission includes landside and pier operations as well as transits to and from the dive point, each of which present challenges to personnel as well as existing technologies. This budget supports efforts directed at improving the current technological baseline through a series of studies focusing on land and in transit requirements. Collectively, these efforts will improve countermeasure technologies addressing detection, delay and denial.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Integrated Nuclear Weapons Security Sys Dev	2.519	2.639	2.576	0.000	2.576
Articles:	-	-	-	-	-
FY 2015 Accomplishments: - Sensor developed for: Land Water Interface project (LWI), underwater Sonar Track Association Research (STAR), Waterside Detection System (WDS) - Developed technologies: for refresh of electronic systems in the Waterfront Restricted Area (WRA), increase detection and tracking capabilities, and to reduce manpower by automating processed and enhancing security technologies. - Enhanced the Marine Mammal System (MMS) - Continued Multi-Static/Bi-Static Sensor Development: Enhances waterside detection of swimmers/divers by integrating passive hydrophone arrays with current active elements to increase capability of detection without adding any new active elements. - Wide Area/Extended Detection: Development of technologies to increase detection, localization, classification, and tracking capabilities beyond the perimeter of the limited area, waterfront restricted area, along the convoy route and transit route. This effort includes technologies to detect intruders in difficult environments such as dense foliage, marsh, fog and heavy rain.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3158 / *Integrated Nuclear Weapons Security 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
- Continued research and development efforts towards the improvement of countermeasures technologies addressing detection, delay and denial. ***FY 2016 Plans:*** - WDS Upstream Data Fusion: Development of software and hardware to fuse low level sensor data from multiple WDS sensors to increase capability for tracking and classification of current sensors. - NWS Technology Refresh: Development of technologies for refresh of electronic security systems for the Limited Area and Electronic Harbor Security System in the Waterfront Restricted Area (WRA). This includes electronic hardware and algorithms. - Continue Wide Area/Extended Detection: Development of technologies to increase detection, localization, classification, and tracking capabilities beyond the perimeter of the limited area, waterfront restricted area, along the convoy route and transit route. This effort includes technologies to detect intruders in difficult environments such as dense foliage, marsh, fog and heavy rain. - FOPEN Sensor Transition: OSD(NM) is funding evaluation and demonstration of a variety of FOPEN Sensors. This effort will fund in situ demonstration as well as necessary transition planning and development to facilitate transition of down selected sensors for incorporation into NWS POR. - Continue research and development efforts towards the improvement of countermeasures technologies addressing detection, delay and denial. ***FY 2017 Base Plans:*** - Continue Wide Area/Extended Detection: Development of technologies to increase detection, localization, classification, and tracking capabilities beyond the perimeter of the limited area, waterfront restricted area, along the convoy route and transit route. This effort includes technologies to detect intruders in difficult environments such as dense foliage, marsh, fog and heavy rain. - Continue research and development efforts towards the improvement of countermeasures technologies addressing detection, delay and denial. - Conduct Analysis of Alternatives on WQX-2 follow on Sensor Selection & Transition ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	2.519	2.639	2.576	0.000	2.576

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 3158 / *Integrated Nuclear Weapons Security Sys Dev*	

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/Various-2: *OPN (Nuclear Weapons Security)*	170.605	33.253	38.410	-	38.410	28.377	29.991	42.182	34.590	Continuing	Continuing
• OMN/11D2D-3: *Fleet Ballistic Missile (Nuclear Weapons Security)*	83.319	75.723	77.356	-	77.356	89.990	83.069	84.482	86.162	Continuing	Continuing
• OMN/11D2D-5: *Fleet Ballistic Missile (Transit/Escort)*	82.207	95.067	109.829	-	109.829	81.890	90.845	92.886	94.835	Continuing	Continuing
• MCN/Various-1: *MILCON (CNI) (Nuclear Weapons Security)*	20.638	34.177	0.000	-	0.000	0.000	87.871	0.000	0.000	0.000	186.528
• WPN/4217/0101228N: *WPN (Gun Mount Mods)*	0.000	4.029	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.029
• WPN/4129/0101228N: *Small Arms*	0.000	0.000	7.007	-	7.007	1.422	0.000	0.000	0.000	0.000	8.429

Remarks

D. Acquisition Strategy

Procurements are being executed through a combination of private contractors (large and small business), government Centers of Excellence (COEs), other government agencies and the Naval Submarine Bases, Kitsap and Kings Bay. Contract awards are based upon "best value" determinations, and where practical will be performance based or include incentive provisions.

E. Performance Metrics

Not applicable

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 3158 / *Integrated Nuclear Weapons Security Sys Dev*	

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
Integrated Nuclear Weapons Security Sys Dev	WR	NFESC : CA	2.347	0.353	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	CNWS : CA	0.404	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	SS/CPFF	JHU APL : MD	3.437	0.183	Nov 2014	0.275	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	SNWS : CA	4.252	0.306	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NSWC : VA	2.877	0.191	Oct 2014	0.607	Oct 2015	0.680	Oct 2016	-		0.680	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	SS/CPFF	JRC : VA	1.887	0.458	Oct 2014	0.275	Oct 2015	0.400	Oct 2016	-		0.400	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NUWC : RI	0.893	0.049	Dec 2014	0.636	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NEDU : FL	0.383	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	SS/CPFF	LMSS : CA	1.001	0.180	Dec 2014	0.846	Oct 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	MIPR	DOEI : ID	0.180	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	MIPR	DOE : NM	0.425	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 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3158 / *Integrated Nuclear Weapons Security Sys Dev*

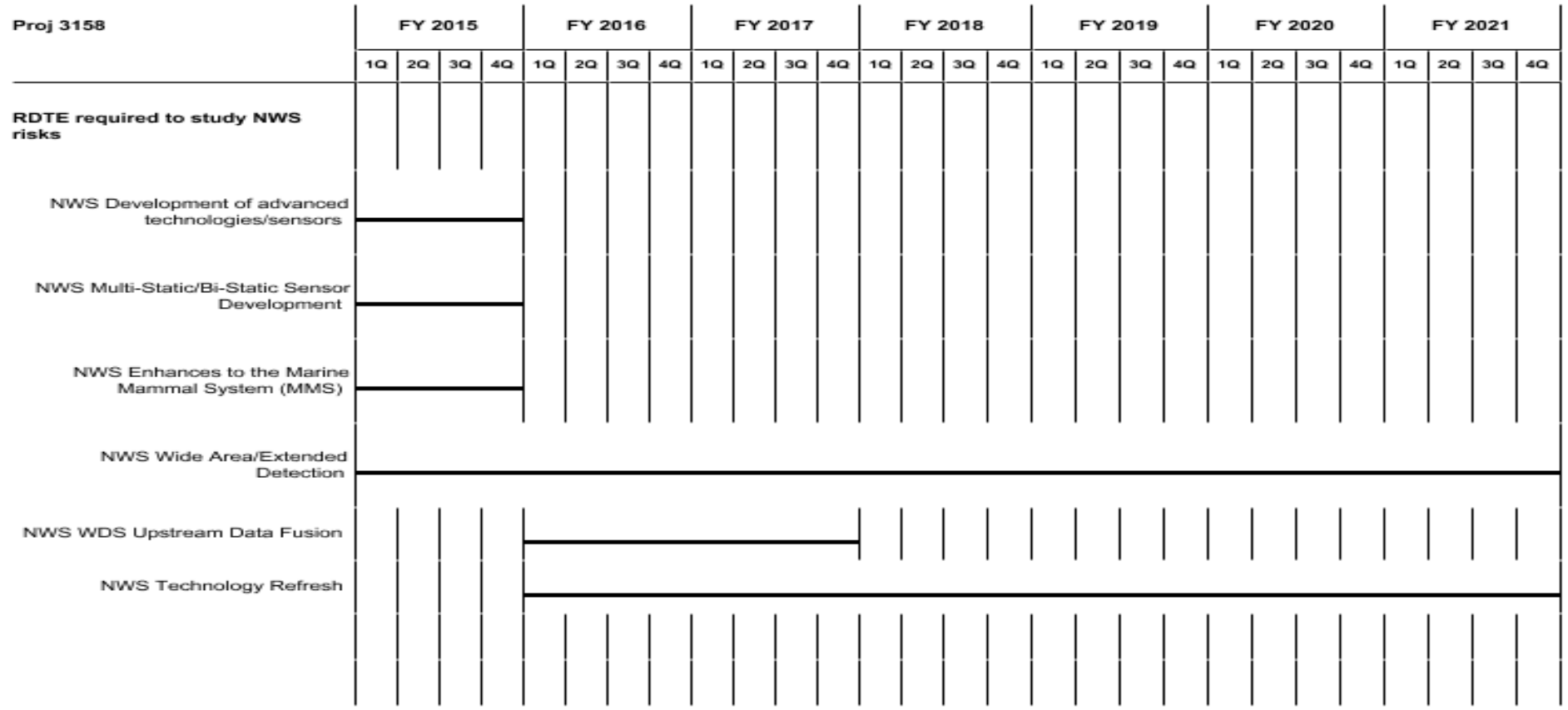
Product Development ($ in Millions)

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
Integrated Nuclear Weapons Security Sys Dev	SS/CPFF	ARL : TX	1.432	0.448	Oct 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NUWD : WA	0.530	0.351	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	C/BA	NRL : DC	0.628	0.000		0.000		0.560	Oct 2016	-		0.560	0.000	1.188	-
Integrated Nuclear Weapons Security Sys Dev	C/BA	DRAPER : DC	0.355	0.000		0.000		0.000		-		0.000	0.000	0.355	-
Integrated Nuclear Weapons Security Sys Dev	C/BA	SPAWAR : DC	0.390	0.000		0.000		0.000		-		0.000	0.000	0.390	-
Integrated Nuclear Weapons Security Sys Dev	C/BA	SPA : VA	0.000	0.000		0.000		0.475	Oct 2016	-		0.475	0.000	0.475	-
Integrated Nuclear Weapons Security Sys DevNeed Item Text	MIPR	ATC : TX	0.000	0.000		0.000		0.461	Oct 2016	-		0.461	0.000	0.461	-
		Subtotal	21.421	2.519		2.639		2.576		-		2.576	-	-	-

	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	21.421	2.519		2.639		2.576		-		2.576	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3158 / *Integrated Nuclear Weapons Security Sys Dev*



2017DON - 0101221N - 3158

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3158 / *Integrated Nuclear Weapons Security Sys Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3158				
RDTE required to study NWS risks: NWS Development of advanced technologies/ sensors:	1	2015	4	2015
RDTE required to study NWS risks: NWS Multi-Static/Bi-Static Sensor Development:	1	2015	4	2015
RDTE required to study NWS risks: NWS Enhances to the Marine Mammal System (MMS):	1	2015	4	2015
RDTE required to study NWS risks: NWS Wide Area/Extended Detection:	1	2015	4	2021
RDTE required to study NWS risks: NWS WDS Upstream Data Fusion:	1	2016	4	2016
RDTE required to study NWS risks: NWS Technology Refresh:	1	2016	4	2016
RDTE required to study NWS risks: AoA WQX-2 Sensor Selection & Transition: Schedule Detail	1	2017	4	2021

THIS PAGE INTENTIONALLY LEFT BLANK