Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
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 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	1,062.304	130.364	135.219	157.679	-	157.679	141.154	147.506	135.781	164.087	Continuing	Continuing
0951: *Joint Warhead Fuze Sustainment Program*	392.257	111.857	109.730	62.203	-	62.203	28.820	21.777	0.000	0.000	0.000	726.644
2021: *Mk4A Shape Stable Nose Tip*	0.000	0.000	6.000	30.169	-	30.169	26.653	11.844	5.987	5.987	Continuing	Continuing
2228: *Technical Applications Programs*	643.469	15.989	16.695	14.509	-	14.509	82.821	110.958	126.806	155.049	Continuing	Continuing
3097: *W78/88-1 Life Extension Program*	0.000	0.000	0.000	48.000	-	48.000	0.000	0.000	0.000	0.000	0.000	48.000
3158: *Integrated Nuclear Weapons Security Sys Dev*	26.578	2.518	2.794	2.798	-	2.798	2.860	2.927	2.988	3.051	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 Mk4A Shape Stable Nose Tip (SSNT) (2021) effort will convert reentry body (RB) forward shell assemblies (FSA's) from legacy carbon composite nose tips to SSNT's. This will require ground and flight testing of SSNT RBA's, updates and modifications to RB documentation (Weapon Specifications, Interface Control Drawings, product drawings etc), updated Fire Control software for fleet implementation, conversion of war reserve RB's to FSA's with SSNT, procurement/conversion of surveillance and flight test units, Strategic Weapons Facility (SWF) logistics implementation planning and execution, review and update Mk4A surveillance planning and the DoD share of National Nuclear Security Administration (NNSA) Office of Secure Transportation (OST) for shipping.

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) project 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 subsystem, 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 COLUMBIA 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. Starting in FY 2020 this project will begin development for D5 life extension 2.

The Interoperable Warhead (IW) (3097) is the first of a series of interoperable ballistic missile warheads defined in the DASD(NM) FY16 Requirements and Planning Document (RPD) under the Nuclear Weapons Council's 3+2 stockpile plan. The IW-1 will contain an interoperable nuclear explosive package for use in both the Mk21A Intercontinental Ballistic Missile (ICBM) and the Mk5 Submarine Launched Ballistic Missile (SLBM) aeroshells with adaptable non-nuclear components.

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, 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.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	136.556	135.219	88.170	-	88.170
Current President's Budget	130.364	135.219	157.679	-	157.679
Total Adjustments	-6.192	0.000	69.509	-	69.509
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.026	0.000			
• SBIR/STTR Transfer	-0.666	0.000			
• Program Adjustments	0.000	0.000	72.169	-	72.169
• Rate/Misc Adjustments	0.000	0.000	-2.660	-	-2.660
• Congressional Directed Reductions Adjustments	-5.500	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
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*

Change Summary Explanation

The FY 2019 funding request was reduced by $0.777 million to reflect the Department of Navy's effort to support the Office of Management and Budget directed reforms for Efficiency and Effectiveness that include a lean, accountable, more efficient government.

The FY 2019 funding request was reduced by $1.771 million to account for the availability of prior year execution balances.

FY 2019 decrease of $0.889 million due to rate and inflation adjustments.

Funding decreased in FY 2017 for $6.192 million for Technical Applications contract delays, SBIR taxes and reprogramming.

Funding increased in FY 2019 for $48 million for Interoperable Warhead 6.2/6.2A study as well as the Shape Stable Nose Tip program for $24.169 million.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0951: *Joint Warhead Fuze Sustainment Program*	392.257	111.857	109.730	62.203	-	62.203	28.820	21.777	0.000	0.000	0.000	726.644
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: TRIDENT II	111.857	109.730	62.203	0.000	62.203
Articles:	-	-	-	-	-
Description: Identify, prioritize, develop, proof, and demonstrate advanced technologies that will be leveraged and incorporated into future AF&Fs.					
FY 2018 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 Continue Production Proof In (PPI) builds Conduct system vulnerability analysis					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Engineering support for Electromagnetic Environment testing and data analysis Conduct concept and design reviews Conduct telemetry analysis Conduct Thermal Battery Evaluations and Certifications Procurement of developmental hardware Qualification of developmental hardware					
FY 2019 Base Plans: Continue development, proofing, demonstration of identified advanced technologies for future AF&Fs Continue Support engineer working groups and program reviews. Continue AF&F sub-assembly design demonstrations Continue development of advanced safety and surety architecture solutions. 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 Continue flight test and integration Continue Production Proof In (PPI) builds Conduct system vulnerability analysis Continue engineering support for Electromagnetic Environment testing and data analysis Continue thermal Battery Evaluations and Certifications Continue procurement of developmental hardware Continue qualification of developmental hardware					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: The FY19 funding request was reduced by 1.771 million to account for the availability of prior year execution balances.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Decrease is attributed to rate adjustments & inflation as well as the program is transitioning from development to production (45.756M)					
Accomplishments/Planned Programs Subtotals	111.857	109.730	62.203	0.000	62.203

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• RDTEN/3219: *SBSD Nuclear Technology Development*	390.326	265.462	190.100	-	190.100	114.006	80.085	60.142	56.841	Continuing	Continuing
• RDTEN/3220: *Advanced Submarine System Development*	681.164	776.158	514.846	-	514.846	433.296	313.445	196.082	173.611	Continuing	Continuing
• OPN/5358: *SWS Modernization Funds*	215.138	246.221	271.817	-	271.817	274.440	241.396	254.053	259.020	Continuing	Continuing
• WPN/1250: *TRIDENT II Mods*	1,099.086	1,143.595	1,078.750	-	1,078.750	1,178.210	1,217.078	1,205.587	1,308.930	3,215.106	24,862.561
• SCN/1045: *OHIO Replacement Submarine*	0.000	842.853	3,005.330	-	3,005.330	1,453.159	4,214.573	4,198.025	3,875.888	90,686.558	108,276.386
• OMN/1D2D: *Fleet Ballistic Missile*	1,054.157	1,068.691	1,140.210	-	1,140.210	1,163.723	1,176.612	1,206.640	1,230.743	0.000	8,040.776

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 2019 Navy		Date: February 2018
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*

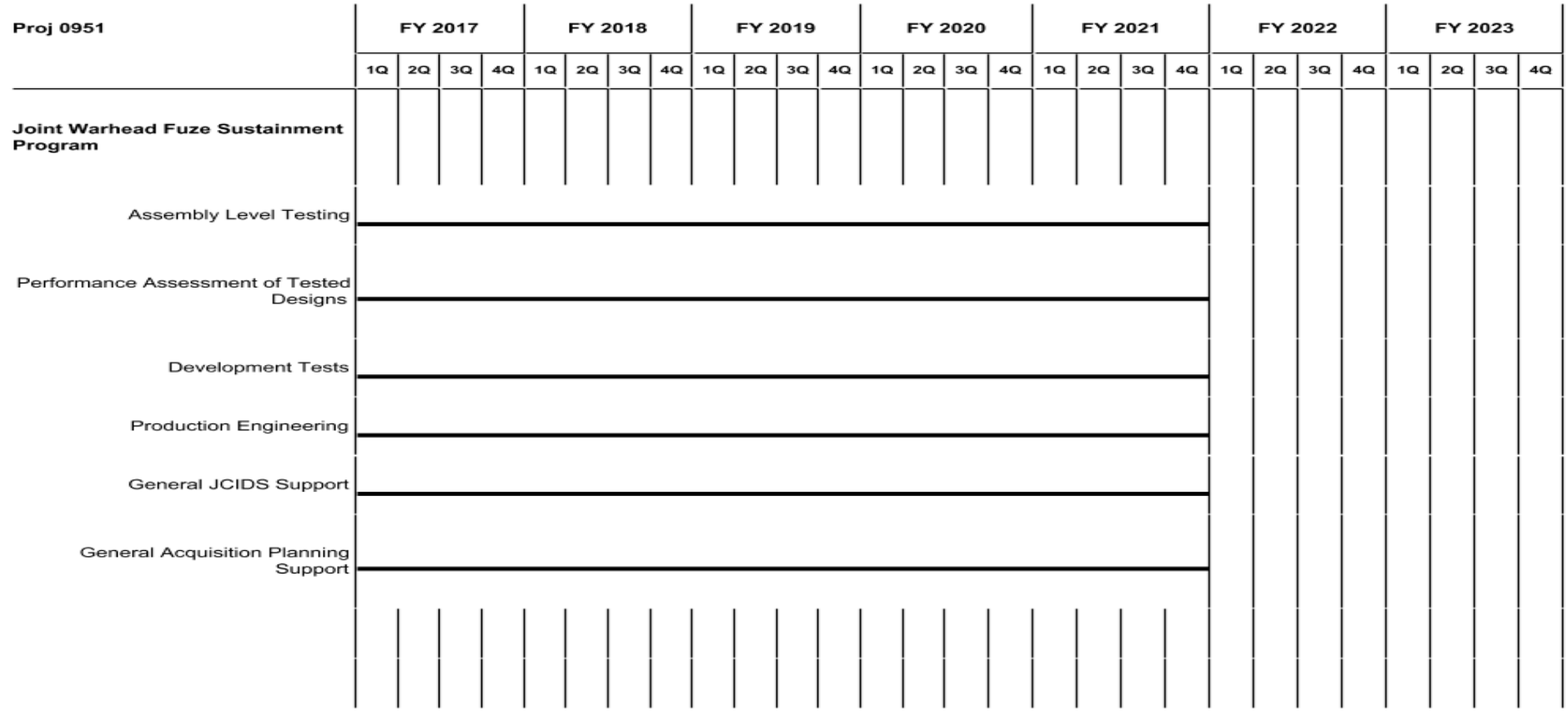
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Joint Warhead Fuze Sustainment DOE	MIPR	DOE : NM	324.328	91.257	Dec 2016	92.466	Feb 2018	48.855	Nov 2018	-		48.855	0.000	556.906	-
Joint Warhead Fuze Sustainment ITT	SS/CPFF	ITT : VA	14.907	4.000	Nov 2016	4.265	Feb 2018	3.851	Dec 2018	-		3.851	0.000	27.023	-
Joint Warhead Fuze Sustainment LMMS	SS/CPFF	LMMS : CA	34.887	11.930	Nov 2016	11.793	Feb 2018	7.931	Oct 2018	-		7.931	0.000	66.541	-
Joint Warhead Fuze Sustainment	WR	NSWC Dahlgren : VA	16.141	2.465	Dec 2016	0.318	Feb 2018	0.551	Nov 2018	-		0.551	0.000	19.475	-
Joint Warhead Fuze Sustainment	SS/CPFF	BAE : MD	0.729	0.505	Dec 2016	0.505	Mar 2018	0.150	Nov 2018	-		0.150	0.000	1.889	-
Joint Warhead Fuze Sustainment	SS/CPIF	APL : MD	0.785	0.000		0.144	Mar 2018	0.073	Dec 2018	-		0.073	0.000	1.002	-
Joint Warhead Fuze Sustainment	C/BA	GDAIS : MA	0.180	1.500	Dec 2016	0.000		0.000		-		0.000	0.000	1.680	-
Joint Warhead Fuze Sustainment	WR	CNSW : ID	0.200	0.200	Oct 2016	0.239	Feb 2018	0.000		-		0.000	0.000	0.639	-
Joint Warhead Fuze Sustainment	WR	NCCC : Not Specified	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-
Joint Warhead Fuze Sustainment	C/BA	Various : Not Specified	0.000	0.000		0.000		0.792	Nov 2018	-		0.792	0.000	0.792	-
		Subtotal	392.257	111.857		109.730		62.203		-		62.203	0.000	676.047	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	392.257	111.857		109.730		62.203		-		62.203	0.000	676.047	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
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*



2019DON - 0101221N - 0951

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
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	2017	4	2021
Joint Warhead Fuze Sustainment Program: Performance Assessment of Tested Designs:	1	2017	4	2021
Joint Warhead Fuze Sustainment Program: Development Tests:	1	2017	4	2021
Joint Warhead Fuze Sustainment Program: Production Engineering:	1	2017	4	2021
Joint Warhead Fuze Sustainment Program: General JCIDS Support:	1	2017	4	2021
Joint Warhead Fuze Sustainment Program: General Acquisition Planning Support:	1	2017	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 2021 / *Mk4A Shape Stable Nose Tip*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2021: *Mk4A Shape Stable Nose Tip*	0.000	0.000	6.000	30.169	-	30.169	26.653	11.844	5.987	5.987	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 178

A. Mission Description and Budget Item Justification

The Mk4A Shape Stable Nose Tip (SSNT) effort will convert reentry body (RB) forward shell assemblies (FSA's) from legacy carbon composite nose tips to SSNT's. This will require ground and flight testing of SSNT RBA's, updates and modifications to RB documentation (Weapon Specifications, Interface Control Drawings, product drawings etc), updated Fire Control software for fleet implementation, conversion of war reserve RB's to FSA's with SSNT, procurement/conversion of surveillance and flight test units, Strategic Weapons Facility (SWF) logistics implementation planning and execution, review and update Mk4A surveillance planning and the DoD share of National Nuclear Security Administration (NNSA) Office of Secure Transportation (OST) for shipping.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Mk4A Shape Stable Nose Tip	0.000	6.000	30.169	0.000	30.169
Articles:	-	-	-	-	-
FY 2018 Plans: Strategic Systems Programs Alteration (SPALT) documentation Analyze & review reentry body (RB) aerodynamics data for future Fire Control updates Scaling laboratory conversion process of RB Forward Shell Assemblies (FSA's) to accept shape stable nose tips (SSNT's) in to a production environment Procure development nose tip billet material units to support material qualification testing OCO: Not Applicable					
FY 2019 Base Plans: Mk4A SSNT system requirements review SPALT/NWRO documentation Development of the reentry body aerodynamics model and associated fire control flight parameters Updates and modifications to requirements documentation Nosetip development hardware to support nosetip development testing					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4A Shape Stable Nose Tip*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Qualification and buildup for forward shell development testing. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding in FY 2018 initiated the program. The increase from FY 2018 to FY 2019 is attributable to FY 2019 being the first year of full development. The FY 2019 effort includes incorporation of SSNT and updates into the Mk4A reentry body aerodynamics model, nosetip hardware development builds that support nosetip qualification and forward shell build up for developmental testing prior to system flight tests, initiating system safety assessment, documenting and updating requirements specifications, system requirements review, and a complete review of impacted TRIDENT II (D5) and W76-1/Mk4A related documentation.					
Accomplishments/Planned Programs Subtotals	0.000	6.000	30.169	0.000	30.169

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 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

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4A Shape Stable Nose Tip*

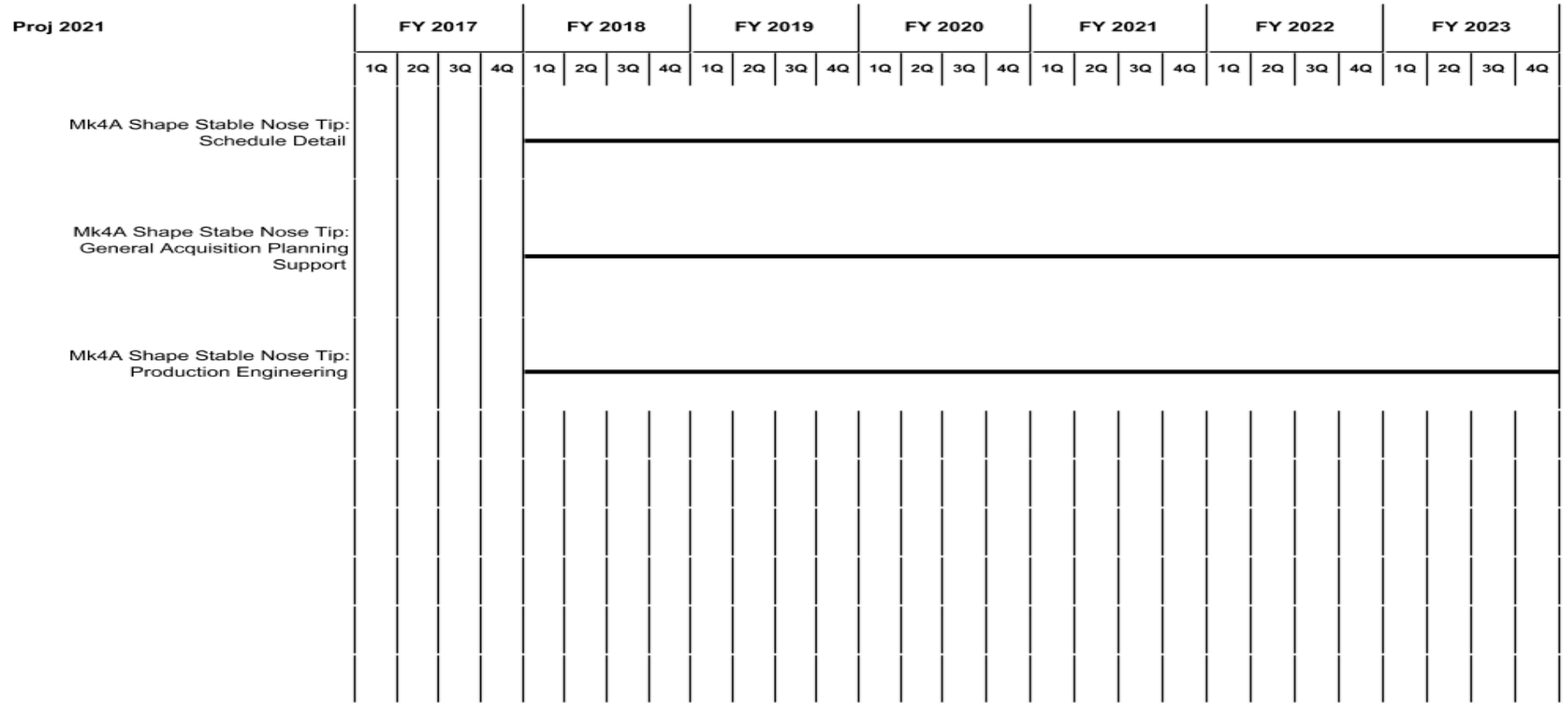
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SSNT LMSS	TBD	LMSS : CA	0.000	0.000		5.000	Apr 2018	27.000	Dec 2018	-		27.000	Continuing	Continuing	Continuing
SSNT NSWC	TBD	NSWC : VA	0.000	0.000		1.000	Apr 2018	3.169	Dec 2018	-		3.169	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		6.000		30.169		-		30.169	Continuing	Continuing	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		6.000		30.169		-		30.169	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4A Shape Stable Nose Tip*



2019PB - 0101221N - 2021

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4A Shape Stable Nose Tip*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2021				
Mk4A Shape Stable Nose Tip: Schedule Detail: Schedule Detail	1	2018	4	2023
Mk4A Shape Stabe Nose Tip: General Acquisition Planning Support: Schedule Detail	1	2018	4	2023
Mk4A Shape Stable Nose Tip: Production Engineering: Schedule Detail	1	2018	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2228: *Technical Applications Programs*	643.469	15.989	16.695	14.509	-	14.509	82.821	110.958	126.806	155.049	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Multi Star Enhanced Prelaunch (MEP) project 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 subsystem, allowing for in-flight correction, the potential to operate in environments where Global Positioning System (GPS) is denied, and potential future relief to the strict tolerance requirements of the strategic navigator on the current OHIO class submarines and the COLUMBIA Class 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.

In FY 2020, development for D5 Life Extension 2 (D5LE2) commences. The D5LE2 will include System Level Architecture Trades and Design Processes in which initial planning and system technology trade actives are necessary to begin preparing for D5LE2 SRR currently scheduled for FY 2025. (Investments are required starting in FY20 to begin trading system architecture concepts and implementing modern model based design and system engineering practices.) D5LE2 Avionics Architecture & Technology Development will include legacy D5 and D5LE electronic technologies now obsolete and manufacturing lines shutdown. Avionics architectures, sensor, bus and component designs are inherently complex with design and manufacturing technologies continuously evolving. Technology advancements and improved system architecture concepts have the potential to improve system capability, modularity, manufacturability, SWS operations and sustainability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Multi-Star Enhanced Prelaunch (MEP)	8.757	13.030	9.973	0.000	9.973
Articles:	-	-	-	-	-
FY 2018 Plans:					
MEP DASO 30 Critical Design Review					
DASO 30 Hardware in the Loop Testing					
Fire Control DASO 30 Software Integrated Baseline Development					
Navigation DASO 30 Software Integration Build Development					
Guidance DASO 30 Software Independent Verification and Validation Testing					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
DASO 30 SWS Subsystem Integrated Testing and Analysis DASO 30 Interface Coordination Documentation finalized ***FY 2019 Base Plans:*** Continue DASO 30 Hardware in the Loop Testing Navigation DASO 30 Software Integration Development Continue DASO 30 SWS Subsystem Integrated Testing and Analysis DASO 30 Interface Coordination Documentation complete Software design readiness review DASO Shipment ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease is attributed to completion of the Fire Control DASO 30 software integrated baseline development & the Navigation DASO 30 software integration build development					
Title: System Engineering Modeling and Simulation	7.232	3.665	4.536	0.000	4.536
Articles:	-	-	-	-	-
FY 2018 Plans: Continue develop model based design integration plan. Continue modeling and simulation gap analysis. Continue assessment on RadHard avionics and electronics technology and affordability. Continue assessment on propellant technologies. Continue assessment on new Post Boost Control and Electro-Mechanical Thrust Vector Control (TVC) systems for improved mission flexibility and affordability. ***FY 2019 Base Plans:*** Continue develop model based design integration plan. Continue modeling and simulation gap analysis. Continue assessment on RadHard avionics and electronics technology and affordability. Continue assessment on propellant technologies. Continue assessment on new Post Boost Control and Electro-Mechanical Thrust Vector Control (TVC) systems for improved Mission flexibility and affordability.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Begin Functional Simulation Development. Begin system Behavioral Model Development. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase is attributed to beginning functional simulation development & beginning system behavioral model development.					
Accomplishments/Planned Programs Subtotals	15.989	16.695	14.509	0.000	14.509

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 2019 Navy		Date: February 2018
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*

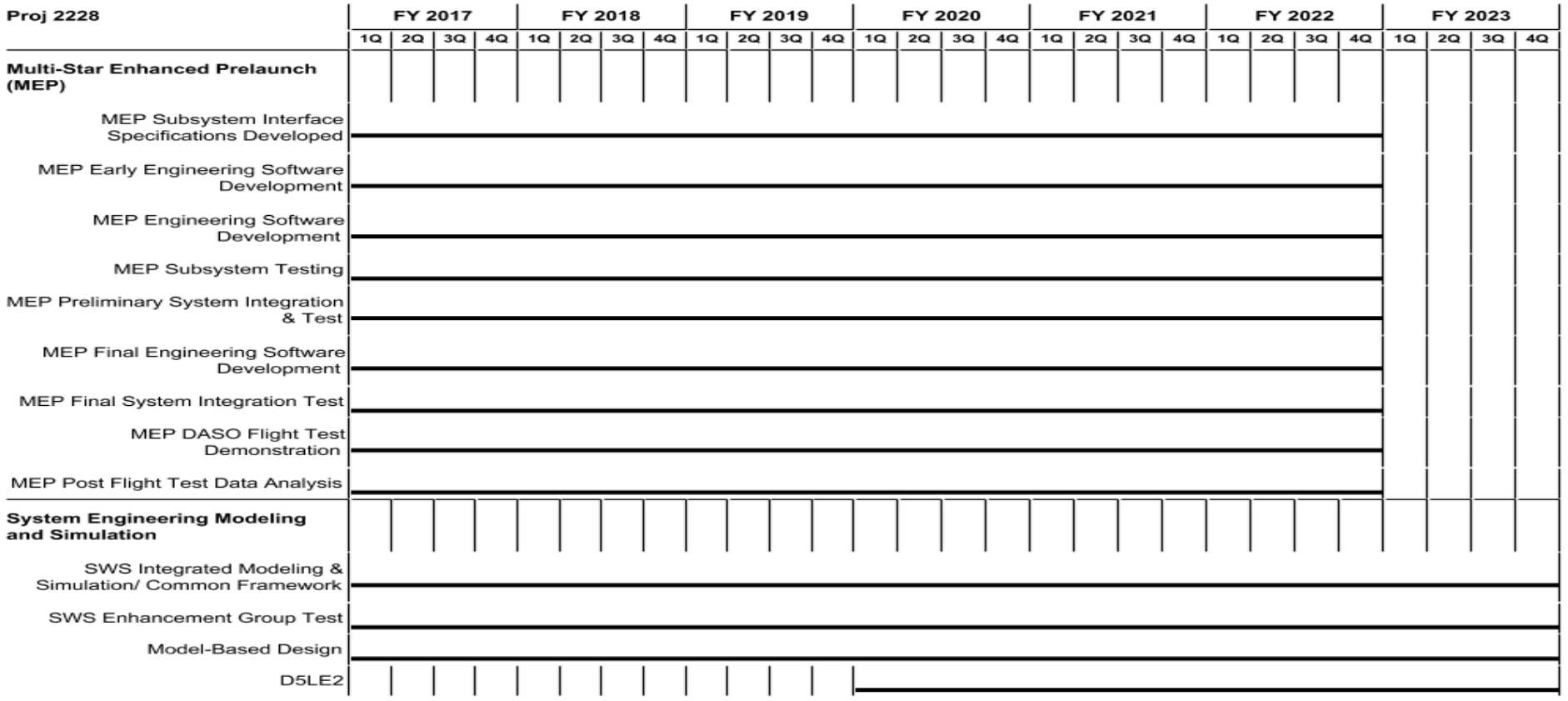
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Applications CSDL	SS/CPFF	CSDL : MA	322.249	11.323	May 2017	13.750	Feb 2018	11.757	Nov 2018	-		11.757	Continuing	Continuing	Continuing
Technical Applications NSWC	WR	NSWC : VA	93.474	0.844	May 2017	0.300	Feb 2018	0.352	Nov 2018	-		0.352	Continuing	Continuing	Continuing
Technical Applications DOE	MIPR	DOE : NM	33.717	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications ITT	SS/CPFF	ITT : CO	12.194	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications LMSS	SS/CPFF	LMSS : CA	160.450	3.822	May 2017	1.000	Feb 2018	1.800	Nov 2018	-		1.800	Continuing	Continuing	Continuing
Technical Applications AERO	SS/CPFF	AERO : CA	3.068	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications VAR	Various	Various : Various	18.317	0.000		1.345	Feb 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications GD-AIS	SS/CPFF	GDMS : MA	0.000	0.000		0.300	Oct 2017	0.600	Nov 2018	-		0.600	Continuing	Continuing	Continuing
		Subtotal	643.469	15.989		16.695		14.509		-		14.509	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	643.469	15.989		16.695		14.509		-		14.509	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
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*



2019PB - 0101221N - 2228

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
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	2017	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Early Engineering Software Development:	1	2017	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Engineering Software Development:	1	2017	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Subsystem Testing:	1	2017	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Preliminary System Integration & Test:	1	2017	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Final Engineering Software Development:	1	2017	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Final System Integration Test:	1	2017	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP DASO Flight Test Demonstration:	1	2017	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Post Flight Test Data Analysis:	1	2017	4	2022
System Engineering Modeling and Simulation: SWS Integrated Modeling & Simulation/ Common Framework:	1	2017	4	2023
System Engineering Modeling and Simulation: SWS Enhancement Group Test:	1	2017	4	2023
System Engineering Modeling and Simulation: Model-Based Design:	1	2017	4	2023
System Engineering Modeling and Simulation: D5LE2:	1	2020	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 3097 / *W78/88-1 Life Extension Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3097: *W78/88-1 Life Extension Program*	0.000	0.000	0.000	48.000	-	48.000	0.000	0.000	0.000	0.000	0.000	48.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

FY 2019 NEW Start effort (IW-1); The Interoperable Warhead (IW) is the first of a series of interoperable ballistic missile warheads defined in the DASD(NM) FY1 206 Requirements and Planning Document (RPD) under the Nuclear Weapons Council's 3+2 stockpile plan. The IW-1 will contain an interoperable nuclear explosive package for use in both the Mk21A Intercontinental Ballistic Missile (ICBM) and the Mk5 Submarine Launched Ballistic Missile (SLBM) aeroshells with adaptable non-nuclear components.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: IW	0.000	0.000	48.000	0.000	48.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: Systems Engineering Program Plan (SEMP) System Qualification and SPALT planning Ground and flight test program planning System requirements definition. System Requirements Review (SRR) DoD/DoE and Missile/Reentry/Fire Control interface definition Subsystem design integration and assessments System assessment tools and models development System Safety Program Plan Thermal Protection System/ Release Assembly (TPS/RA) conceptual design Technology Readiness Level/ Manufacturing Readiness Level (TRL/MRL) assessment Nuclear Explosive Package (NEP) design integration Radar Module, pathlength Module,and missile Interface and Controller Module Fire Control requirements definition & software development					
FY 2019 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W78/88-1 Life Extension Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 increase of $48 million due to funding Interoperable Warhead (IW)-1 for the 6.2/6.2A Study.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	48.000	0.000	48.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Contracts will be awarded to those sources who were engaged in the W78/88-1 Life Extension Program and are currently engaged in the production and/or operational support of the deployed W78/88-1 Systems 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 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W78/88-1 Life Extension Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DOE	C/BA	Not Specified : Not Specified	0.000	0.000		0.000		24.000	Oct 2018	-		24.000	0.000	24.000	-
LMSSC	C/BA	Not Specified : Not Specified	0.000	0.000		0.000		24.000	Oct 2018	-		24.000	0.000	24.000	-
		Subtotal	0.000	0.000		0.000		48.000		-		48.000	0.000	48.000	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		48.000		-		48.000	0.000	48.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W78/88-1 Life Extension Program*

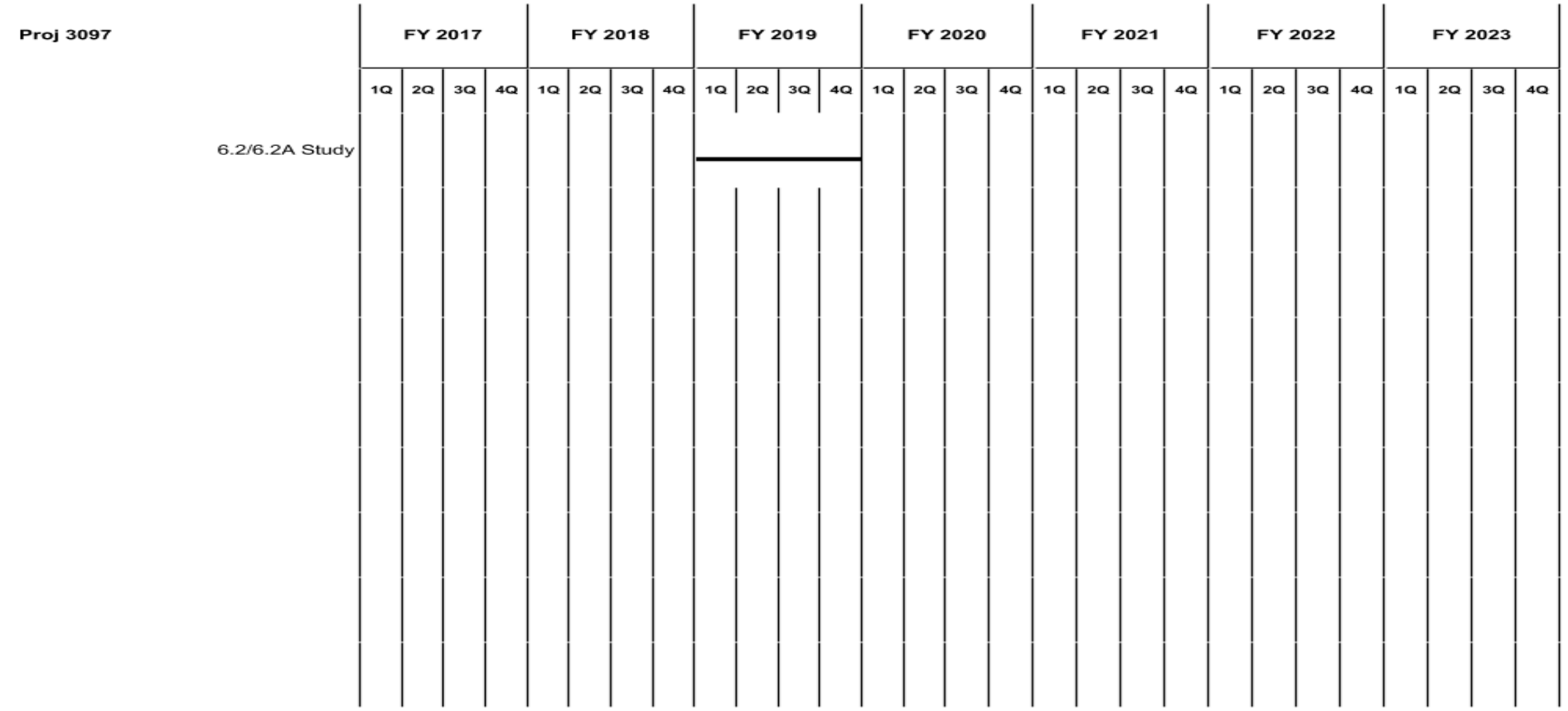


Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W78/88-1 Life Extension Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3097				
6.2/6.2A Study:	1	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3158: *Integrated Nuclear Weapons Security Sys Dev*	26.578	2.518	2.794	2.798	-	2.798	2.860	2.927	2.988	3.051	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Enhanced Special Weapons effort supports the Nuclear Weapons Security (NWS) 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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Integrated Nuclear Weapons Security Sys Dev	2.518	2.794	2.798	0.000	2.798
Articles:	-	-	-	-	-
FY 2018 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. Continue Analysis of Alternatives on WQX-2 follow on Sensor Selection & Transition					
FY 2019 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.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue Analysis of Alternatives on WQX-2 follow on Sensor Selection & Transition ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No significant changes from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	2.518	2.794	2.798	0.000	2.798

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• OPN/Various-2: *OPN (Nuclear Weapons Security)*	37.810	28.513	29.852	-	29.852	41.991	34.427	35.098	35.791	Continuing	Continuing
• OMN/11D2D-3: *Fleet Ballistic Missile (Nuclear Weapons Security)*	76.415	89.045	81.424	-	81.424	82.935	84.507	86.103	87.865	Continuing	Continuing
• OMN/11D2D-5: *Fleet Ballistic Missile (Transit/Escort)*	110.522	90.816	110.641	-	110.641	102.697	105.874	107.790	109.659	Continuing	Continuing
• MCN/Various-1: *MILCON (CNI) (Nuclear Weapons Security)*	0.000	0.000	88.960	-	88.960	0.000	0.000	0.000	155.440	0.000	386.589
• WPN/4129/0101228N: *Small Arms*	7.007	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.307

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 2019 Navy		Date: February 2018
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 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Nuclear Weapons Security Sys Dev	SS/CPFF	JHU APL : MD	3.895	0.000		0.275	Feb 2018	0.199	Oct 2018	-		0.199	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NSWC : VA	3.675	0.622	May 2017	0.252	Oct 2017	0.201	Dec 2018	-		0.201	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	SS/CPFF	JRC : VA	2.620	0.400	Mar 2017	0.276	Feb 2018	0.233	Oct 2018	-		0.233	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	C/BA	DRAPER : MA	0.355	0.000		0.000		0.201	Nov 2018	-		0.201	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	CNSW : ID	0.000	0.000		0.720	Feb 2018	1.300	Nov 2018	-		1.300	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/CPFF	GDMS : MA	0.000	0.000		0.442	Feb 2018	0.456	Nov 2018	-		0.456	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/BA	ONR : DC	0.000	0.000		0.000		0.208	Dec 2018	-		0.208	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NFESC : CA	2.700	0.000		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	WR	SNWS : CA	4.558	0.000		0.222	Feb 2018	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
Integrated Nuclear Weapons Security Sys Dev	SS/CPFF	ARL : TX	1.880	0.000		0.225	Feb 2018	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Nuclear Weapons Security Sys Dev	WR	NUWD : WA	0.881	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	C/BA	NRL : DC	0.628	0.560	May 2017	0.262	Oct 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NUWC : RI	1.578	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	C/BA	SPAWAR : CA	0.390	0.000		0.120	Feb 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	C/BA	SPA : VA	0.000	0.475	May 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	MIPR	ATC : TX	0.000	0.461	May 2017	0.000		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	2.026	0.000		0.000		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
		Subtotal	26.578	2.518		2.794		2.798		-		2.798	Continuing	Continuing	N/A

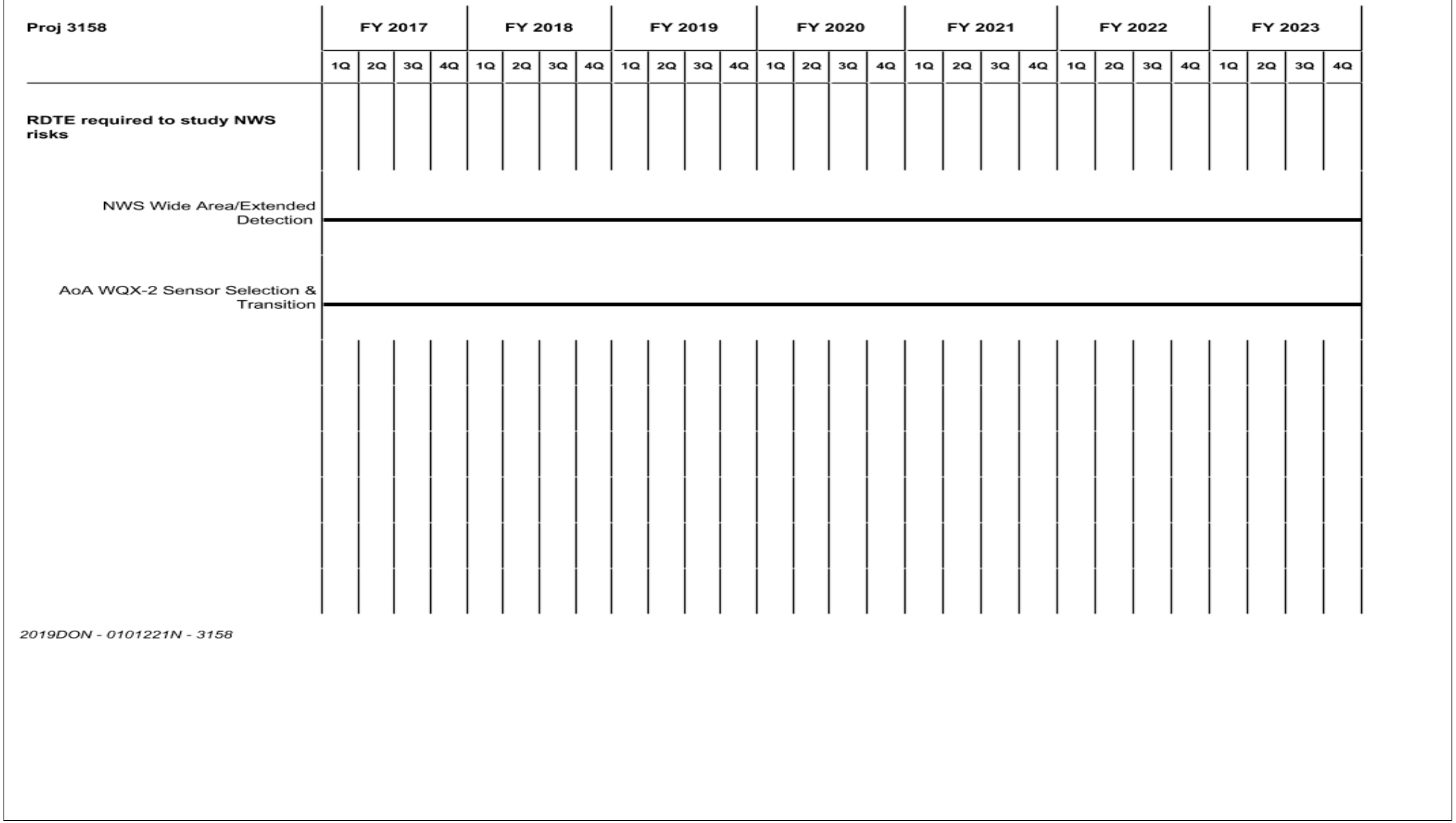
	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.578	2.518		2.794		2.798		-		2.798	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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*	

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
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*



2019DON - 0101221N - 3158

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
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 Wide Area/Extended Detection:	1	2017	4	2023
RDTE required to study NWS risks: AoA WQX-2 Sensor Selection & Transition: Schedule Detail	1	2017	4	2023