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 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604261N *I Acoustic Search Sensors*							
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	486.905	28.940	37.167	42.485	-	42.485	47.083	48.074	49.003	49.998	Continuing	Continuing
0480: *ASW Sensors & Proc*	373.762	24.544	33.423	38.599	-	38.599	43.116	44.025	44.875	45.786	Continuing	Continuing
3224: *High Altitude ASW*	113.143	4.396	3.744	3.886	-	3.886	3.967	4.049	4.128	4.212	Continuing	Continuing

A. Mission Description and Budget Item Justification

Includes RDT&E funds for engineering development and operational test and evaluation of acoustic search sensors/systems and complementary equipment for Anti-Submarine Warfare (ASW) aircraft.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	34.525	37.167	28.962	-	28.962
Current President's Budget	28.940	37.167	42.485	-	42.485
Total Adjustments	-5.585	0.000	13.523	-	13.523
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.020	0.000			
• SBIR/STTR Transfer	-0.564	0.000			
• Rate/Misc Adjustments	-0.001	0.000	13.523	-	13.523
• Congressional Directed Reductions Adjustments	-5.000	-	-	-	-

Change Summary Explanation

Funding: Funds Multi-Static Active Coherent Enhancements (MAC-E) development.

Technical: Not applicable.

Schedule:

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 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604261N *I Acoustic Search Sensors*

0480 Schedule 1. Added 2Q/FY17 Integration Contract Award; MAC-E Critical Design Review (CDR); and Next Generation MAC-E Contract Award.

0480 Schedule 2. Not applicable.

0480 Schedule 3. Not applicable.

3224 Schedule. Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / *Acoustic Search Sensors*	Project (Number/Name) 0480 / *ASW Sensors & Proc*	

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
0480: *ASW Sensors & Proc*	373.762	24.544	33.423	38.599	-	38.599	43.116	44.025	44.875	45.786	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Anti-Submarine Warfare (ASW) Sensors and Processing project provides the tools and methods necessary to maintain naval superiority by preventing threat submarines from disrupting the U.S. Navy's ability to control the sea lines of communication and completing their hostile missions. This project encompasses the Engineering & Manufacturing Development phase and the follow on Production and Deployment Phase of sensor systems to improve the mission effectiveness of airborne ASW platforms in cueing, searching, localizing, tracking, and attacking subsurface targets. Smaller and quieter threat submarines drive the requirement for continued advancement in ASW sensor capabilities for both blue water and littoral environments. The littoral regions of the world create an additional ASW challenge to overcome the increase in background clutter caused by the shallow water depth, high volume of shipping, and commercial radio frequency interference. Project 0480 provides funding to the passive and active ASW family of systems for the engineering development of solutions that detect, classify, and track threat submarines. The Multi-Static Active Coherent (MAC) program encompasses modifications to the active coherent (electronic) source sonobuoy and the Air Deployable Active Receiver sonobuoy and development, integration, and test of aircraft software. It also provides upgrades to the Multi-static mission planning tool, the tactical crew trainers and the tactical ground replay system. This program includes MAC Enhancements (MAC-E) that will shorten the ASW kill chain by enabling the warfighter to search larger areas in less time with more precision.

Project 0480 also provides funding for the Advanced Product Build (APB) program which integrates Office of Naval Research (ONR) Future Naval Capabilities (FNCs), Small Business Innovation Research (SBIR), University Affiliated Research Center (UARC) and other mature technologies into the processing baseline. Efforts incorporate clutter reduction, automation, improved displays and controls, as well as improved communication links resulting in reduced operator workload, increased target detection opportunities, and improved classification techniques. APB also includes an Air ASW Engineering Measurement Program (AEMP) that collects ASW operational system performance data and identifies areas where beneficial improvements can be incorporated across all Air ASW platforms. APB will deliver a new software build nominally in two year increments following MAC-E. The sonobuoy test articles in FY17-FY23 will support software and hardware integration flight tests and Technical Evaluation/Follow-On Test & Evaluation for the MAC program. Additionally, this project funds an urgent effort in support of the Navy's Theater Anti-Submarine Warfare offset strategy. Funding supports the rapid development, fielding and evaluation of a prototype distributed and netted undersea sensor system to meet an urgent combatant commanders' (U.S. European Command, U.S. Northern Command, U.S. Strategic Command) requirement for additional maritime Intelligence, Surveillance and Reconnaissance (ISR) capabilities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: APB System Qualification Test/Fleet Release for P-3C. Rapid Capability Insertion (RCI)/Fleet Release for P-8A	2.200	11.423	11.391	0.000	11.391
Articles:	-	-	-	-	-
FY 2018 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604261N / *Acoustic Search Sensors*	**Project (Number/Name)** 0480 / *ASW Sensors & Proc*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue software development/EMP for P-8A RCI (2). Continue MAC FITs for P-8A squadrons. ***FY 2019 Base Plans:*** Continue software development/EMP for P-8A RCI (2). Continue MAC FITs for P-8A squadrons. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to Navy-wide efficiencies and rate adjustments.					
Title: Multi-static Active Coherent (MAC)	20.519	22.000	27.208	0.000	27.208
Articles:	200	75	100	-	100
FY 2018 Plans: Continue MAC-E software development. Deliver SSQ-125A for Production Readiness Model (PRM) units. Conduct SSQ-125A/MAC-E development test. ***FY 2019 Base Plans:*** Continue MAC-E software development. Deliver SSQ-125A PRM units. Conduct SSQ-125A/MAC-E development test. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY19 increase funds Increment 3 acoustics development/integration efforts and scheduled MAC-E risk reduction testing.					
Title: Navy Theater ASW Offset Strategy	1.825	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604261N / *Acoustic Search Sensors*	**Project (Number/Name)** 0480 / *ASW Sensors & Proc*

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:*** No change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	24.544	33.423	38.599	0.000	38.599

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/4048: *Sonobuoys - AN/SSQ-125 (Multistatic Coherent Source)*	25.978	41.169	72.455	0.403	72.858	52.222	57.059	59.953	51.707	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Multistatic Active Coherent (MAC) ASW system and associated sonobuoys are fully integrated on the P-3C and P-8A ASW platforms. MAC Enhancements (MAC-E) is a development program associated with P-8A increment 3 that will significantly increase the wide area search capability through Engineering Change Proposals (ECPs) to the sonobuoys, aircraft software modifications to reduce clutter and improve processing, and OMI improvements to reduce operator workload. S&T and early R&D ASW improvement programs are matured through the APB process for periodic Fleet software releases.

E. Performance Metrics

High level operational system requirements are documented in the MAC Capability Production Document (CPD). Cost, schedule, and performance metrics are tracked throughout the development phase of the program to ensure the operational requirements will be met or exceeded during an extensive DT/OT cycle.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / *Acoustic Search Sensors*	Project (Number/Name) 0480 / *ASW Sensors & Proc*	

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
Primary Hdw Development	SS/CPIF	ERAPSCO : FT. WAYNE IN	18.805	2.403	Dec 2016	3.592	Dec 2017	2.047	Dec 2018	-		2.047	17.500	44.347	44.347
Prior year Prod Dev no longer funded in the FYDP	Various	VARIOUS : VARIOUS	19.905	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development	C/CPIF	Boeing : Huntington Beach, CA	0.000	0.000		0.000		11.008	Dec 2018	-		11.008	0.000	11.008	-
		Subtotal	38.710	2.403		3.592		13.055		-		13.055	Continuing	Continuing	N/A

Support ($ 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
Software Development	WR	NAWCAD : PATUXENT RIVER, MD	28.304	2.436	Dec 2016	6.068	Dec 2017	5.553	Dec 2018	-		5.553	Continuing	Continuing	Continuing
Software Development	SS/CPIF	LOCKHEED MARTIN : MANASSAS VA	10.329	1.373	Dec 2016	1.870	Dec 2017	1.750	Dec 2018	-		1.750	3.727	19.049	18.749
Software Development	Various	VARIOUS : VARIOUS	15.073	6.369	Dec 2016	7.753	Dec 2017	6.750	Dec 2018	-		6.750	Continuing	Continuing	Continuing
Studies & Analysis	WR	NAWCAD : PATUXENT RIVER, MD	18.254	1.819	Dec 2016	2.807	Dec 2017	1.979	Dec 2018	-		1.979	Continuing	Continuing	Continuing
Technical Data	WR	NAWCAD : PATUXENT RIVER, MD	16.031	0.343	Dec 2016	0.337	Dec 2017	0.350	Dec 2018	-		0.350	Continuing	Continuing	Continuing
Training	WR	NAWCAD : PATUXENT RIVER, MD	2.114	2.095	Dec 2016	2.360	Dec 2017	2.528	Dec 2018	-		2.528	Continuing	Continuing	Continuing
		Subtotal	90.105	14.435		21.195		18.910		-		18.910	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / *Acoustic Search Sensors*	Project (Number/Name) 0480 / *ASW Sensors & Proc*	

Test and Evaluation ($ 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
Test & Eval	WR	NAWCAD : PATUXENT RIVER, MD	29.635	2.668	Dec 2016	3.689	Dec 2017	3.050	Dec 2018	-		3.050	Continuing	Continuing	Continuing
		Subtotal	29.635	2.668		3.689		3.050		-		3.050	Continuing	Continuing	N/A

Management Services ($ 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
Contractor Eng Spt	Various	VARIOUS : VARIOUS	42.599	2.010	Dec 2016	2.050	Dec 2017	1.275	Dec 2018	-		1.275	Continuing	Continuing	Continuing
Contractor Eng Spt	C/CPFF	NAVMAR APPLIED SCIENCES CORP : WARMINSTER, PA	6.549	1.030	Dec 2016	1.011	Dec 2017	1.000	Dec 2018	-		1.000	2.810	12.400	11.400
Government Eng Spt	WR	NAWCAD : PATUXENT RIVER, MD	97.982	0.500	Dec 2016	0.386	Dec 2017	0.300	Dec 2018	-		0.300	Continuing	Continuing	Continuing
Eng & Tech Spt Srvc (NON-FFRDC)	Various	VARIOUS : VARIOUS	57.296	1.498	Dec 2016	1.500	Dec 2017	1.009	Dec 2018	-		1.009	Continuing	Continuing	Continuing
Mgt & Prof SptT Srvc (FFRDC)	Various	VARIOUS : VARIOUS	10.018	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Prior Years Mgmt Svcs no longer funded in the FYDP	Various	VARIOUS : VARIOUS	0.868	0.000		0.000		0.000		-		0.000	0.000	0.868	-
		Subtotal	215.312	5.038		4.947		3.584		-		3.584	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	373.762	24.544		33.423		38.599		-		38.599	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604261N / *Acoustic Search Sensors*	**Project (Number/Name)** 0480 / *ASW Sensors & Proc*

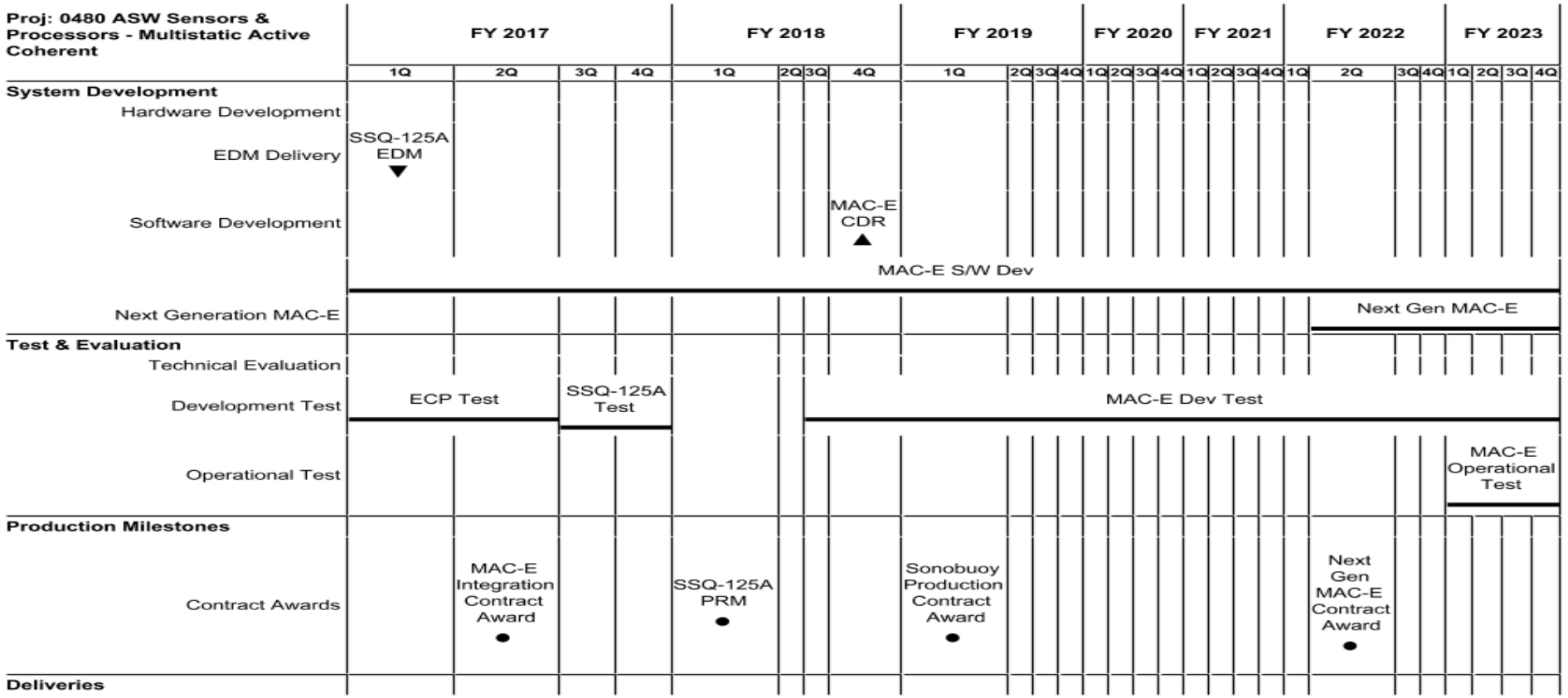

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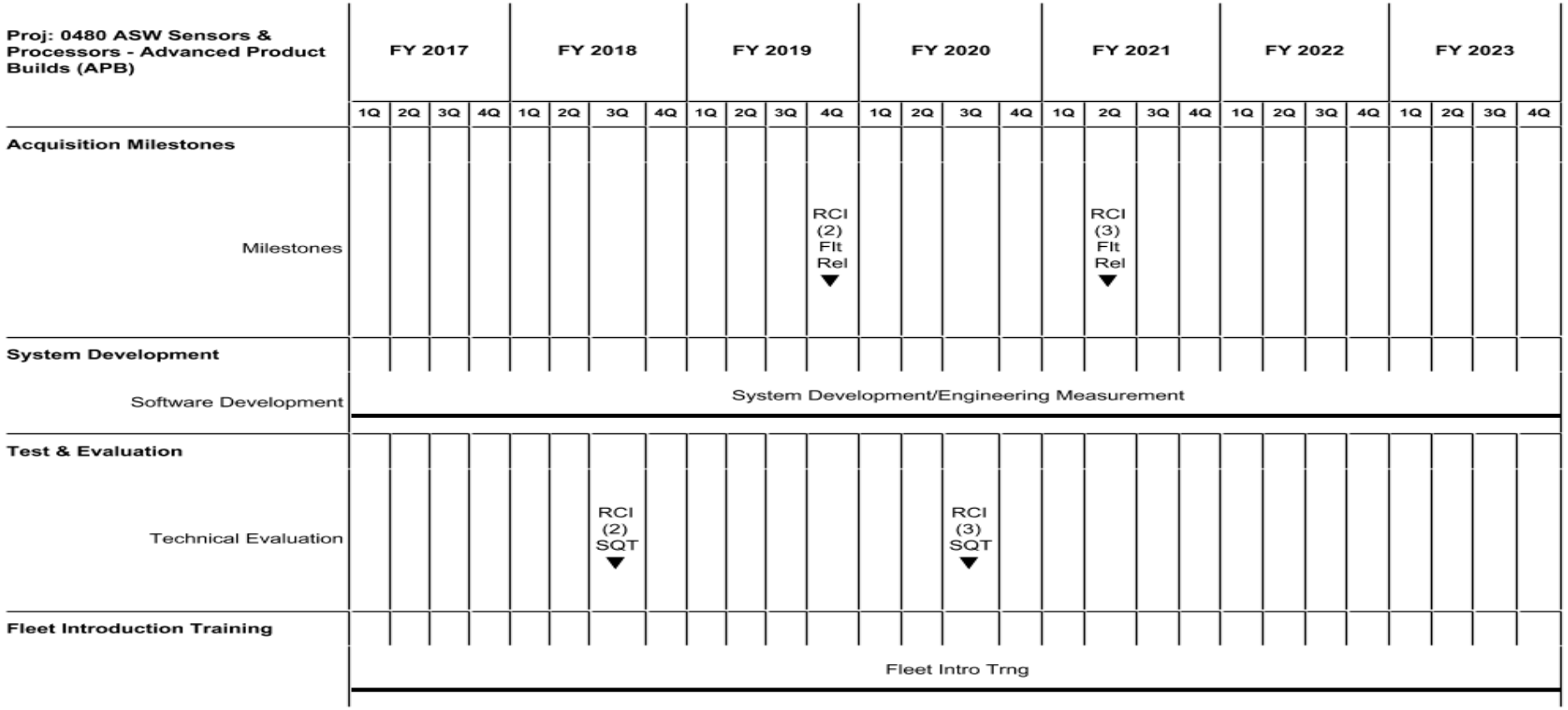
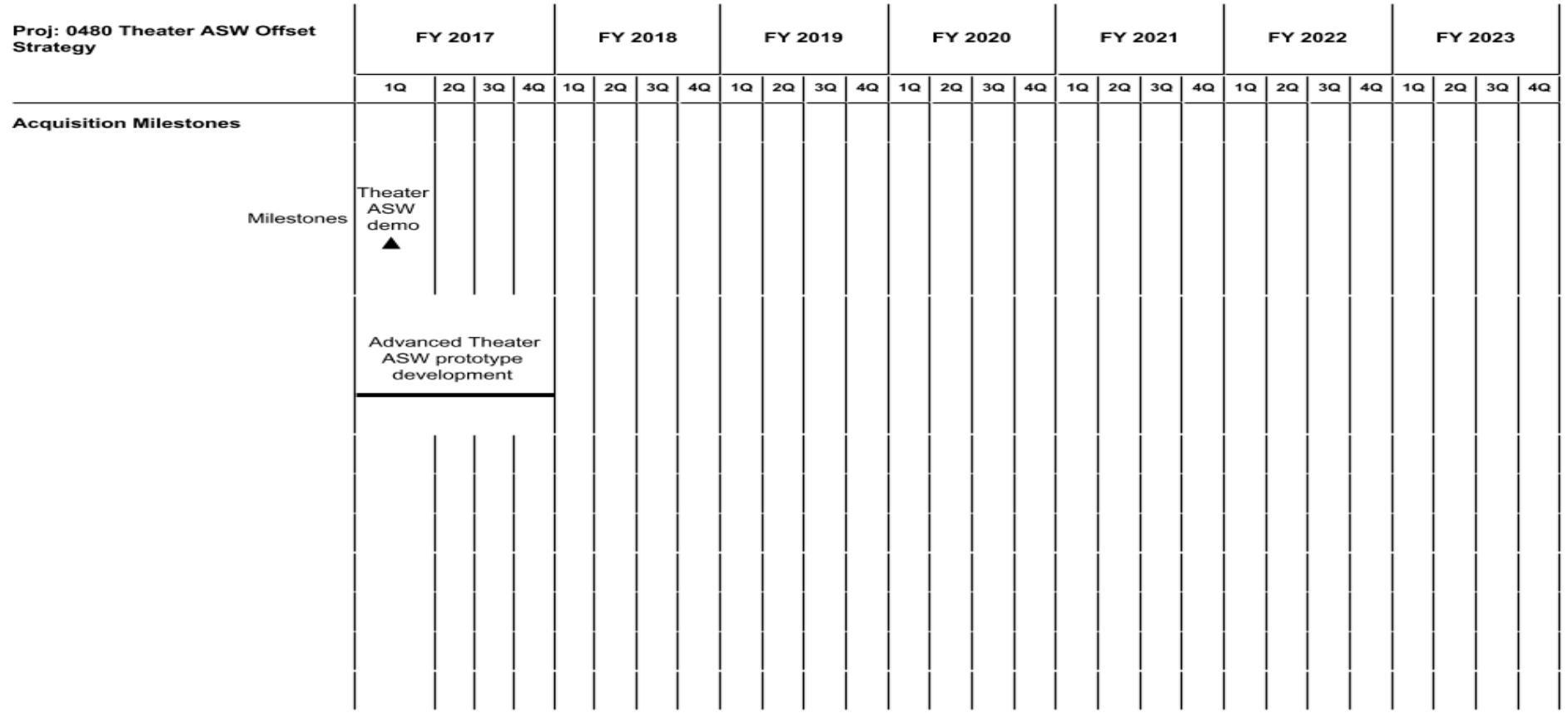
Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604261N / *Acoustic Search Sensors*	**Project (Number/Name)** 0480 / *ASW Sensors & Proc*



2019PB - 0604261N - 0480

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604261N / *Acoustic Search Sensors*	**Project (Number/Name)** 0480 / *ASW Sensors & Proc*



2019PB - 0604261N - 0480

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604261N / *Acoustic Search Sensors*	**Project (Number/Name)** 0480 / *ASW Sensors & Proc*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj: 0480 ASW Sensors & Processors - Multistatic Active Coherent				
System Development: EDM Delivery: Eng Dev Model (H/W EDM) 2	1	2017	1	2017
System Development: Software Development: Critical Design Review	4	2018	4	2018
System Development: Software Development: MAC-E Software Development	1	2017	4	2023
System Development: Next Generation MAC-E: Next Gen MAC-E	2	2022	4	2023
Test & Evaluation: Development Test: Engineering Change Proposal Test	1	2017	2	2017
Test & Evaluation: Development Test: SSQ-125A Test	3	2017	4	2017
Test & Evaluation: Development Test: MAC-E Development Test	3	2018	4	2023
Test & Evaluation: Operational Test: MAC-E Operational Test	1	2023	4	2023
Production Milestones: Contract Awards: SSQ-125A PRM	1	2018	1	2018
Production Milestones: Contract Awards: MAC-E Integration Contract Award	2	2017	2	2017
Production Milestones: Contract Awards: Sonobuoy Production Contract Award	1	2019	1	2019
Production Milestones: Contract Awards: Next Gen MAC-E Contract Award	2	2022	2	2022
Proj: 0480 ASW Sensors & Processors - Advanced Product Builds (APB)				
Acquisition Milestones: Milestones: RCI (2) Fleet Release	4	2019	4	2019
Acquisition Milestones: Milestones: RCI (3) Fleet Release	2	2021	2	2021
System Development: Software Development: System Development/Engineering Measurement	1	2017	4	2023
Test & Evaluation: Technical Evaluation: RCI (2) SQT	3	2018	3	2018
Test & Evaluation: Technical Evaluation: RCI (3) SQT	3	2020	3	2020
Fleet Introduction Training: Fleet Introduction Training	1	2017	4	2023
Proj: 0480 Theater ASW Offset Strategy				
Acquisition Milestones: Milestones: Theater ASW Demonstration	1	2017	1	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604261N / *Acoustic Search Sensors*	**Project (Number/Name)** 0480 / *ASW Sensors & Proc*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones: Milestones: Advanced Theater ASW prototype development	1	2017	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / *Acoustic Search Sensors*	Project (Number/Name) 3224 / *High Altitude ASW*	

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
3224: *High Altitude ASW*	113.143	4.396	3.744	3.886	-	3.886	3.967	4.049	4.128	4.212	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The High Altitude Anti-Submarine Warfare (HAASW) program increases P-8A operational flexibility and effectiveness throughout the kill chain at higher than traditional ASW altitudes. FY10-FY16 activities included Sonobuoy Technology Development (TD), P-8A Aircraft integration, Training, Test & Evaluation, and Initial Operational Capability. TD includes hardware modifications to current production sonobuoys and software development for the aircraft. Global Positioning System (GPS) integration will provide precise sonobuoy location regardless of aircraft altitude/location to enhance wide area ASW search, localization, track and targeting. The digital telemetry will improve sonobuoy communication performance in high Radio Frequency Interference environments, increase Air Deployable Active Receiver (SSQ-101) channel availability, and provide NATO compatibility. FY16-FY18 activities include the integration of an algorithm that will adjust sonobuoy release/drop points for more accurate sonobuoy placement. FY16-FY22 activities include the integration of cyber security protections.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: High Altitude Enablers	4.396	3.744	3.886	0.000	3.886
Articles:	-	-	-	-	-
FY 2018 Plans: Continue ECP 3 FOT&E. Continue digital telemetry/cyber security requirements analysis. Initiate digital telemetry integration.					
FY 2019 Base Plans: Continue ECP 3 FOT&E. Continue digital telemetry/cyber security requirements analysis. Initiate digital telemetry integration.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Funds HAASW digital telemetry/cyber security requirements analysis.					
Accomplishments/Planned Programs Subtotals	4.396	3.744	3.886	0.000	3.886

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/4048: *Sonobuoys - All Types*	158.588	173.616	177.891	21.156	199.047	177.906	181.402	188.877	192.752	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604261N / *Acoustic Search Sensors*	**Project (Number/Name)** 3224 / *High Altitude ASW*

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

Remarks

D. Acquisition Strategy

A 15 March 12 Acquisition Decision Memorandum (ADM) from PEO(A) (Milestone Decision Authority) approved the transition from a planned Acquisition Category (ACAT) Program to a series of Engineering Change Proposal (ECP) modifications to the AN/SSQ-53, AN/SSQ-62 and AN/SSQ-101 sonobuoys. Affordability deferred the digital telemetry requirement in the SSQ-53, SSQ-62 and SSQ-125 sonobuoys to FY16-FY22. All major contracts (ERAPSCO & Boeing) to meet P-8A Inc 2 ECP 2 and ECP 3 requirements have been awarded. Integrate cyber security protections.

E. Performance Metrics

Schedule and cost variances are used to track sonobuoy development. Should Cost methodology has also been employed to manage the development and production costs of the HAASW capable sonobuoys.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / *Acoustic Search Sensors*	Project (Number/Name) 3224 / *High Altitude ASW*	

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
Primary Hdw Development	SS/CPIF	ERAPSCO : FT. WAYNE IN	36.917	1.500	Nov 2016	0.000		0.000		-		0.000	0.000	38.417	38.417
Primary Hdw Development	C/CPFF	VARIOUS : VARIOUS	0.600	1.300	Nov 2016	0.850	Nov 2017	1.000	Nov 2018	-		1.000	2.600	6.350	-
Prior year Prod Dev no longer funded in the FYDP	Various	VARIOUS : VARIOUS	5.863	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	43.380	2.800		0.850		1.000		-		1.000	Continuing	Continuing	N/A

Support ($ 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
INC 2 A/C Software Integration	C/CPFF	BOEING : SEATTLE WA	30.519	0.000		0.000		0.000		-		0.000	0.000	30.519	30.519
INC 3 A/C Software Integration	TBD	TBD : TBD	0.000	0.000		1.500	Nov 2017	1.368	Nov 2018	-		1.368	0.000	2.868	-
Prior year Support cost no longer funded in the FYDP	Various	VARIOUS : VARIOUS	4.861	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	35.380	0.000		1.500		1.368		-		1.368	Continuing	Continuing	N/A

Test and Evaluation ($ 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
Test & Eval	Various	VARIOUS : VARIOUS	4.736	0.767	Nov 2016	0.644	Nov 2017	0.750	Nov 2018	-		0.750	Continuing	Continuing	Continuing
		Subtotal	4.736	0.767		0.644		0.750		-		0.750	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / *Acoustic Search Sensors*	Project (Number/Name) 3224 / *High Altitude ASW*	

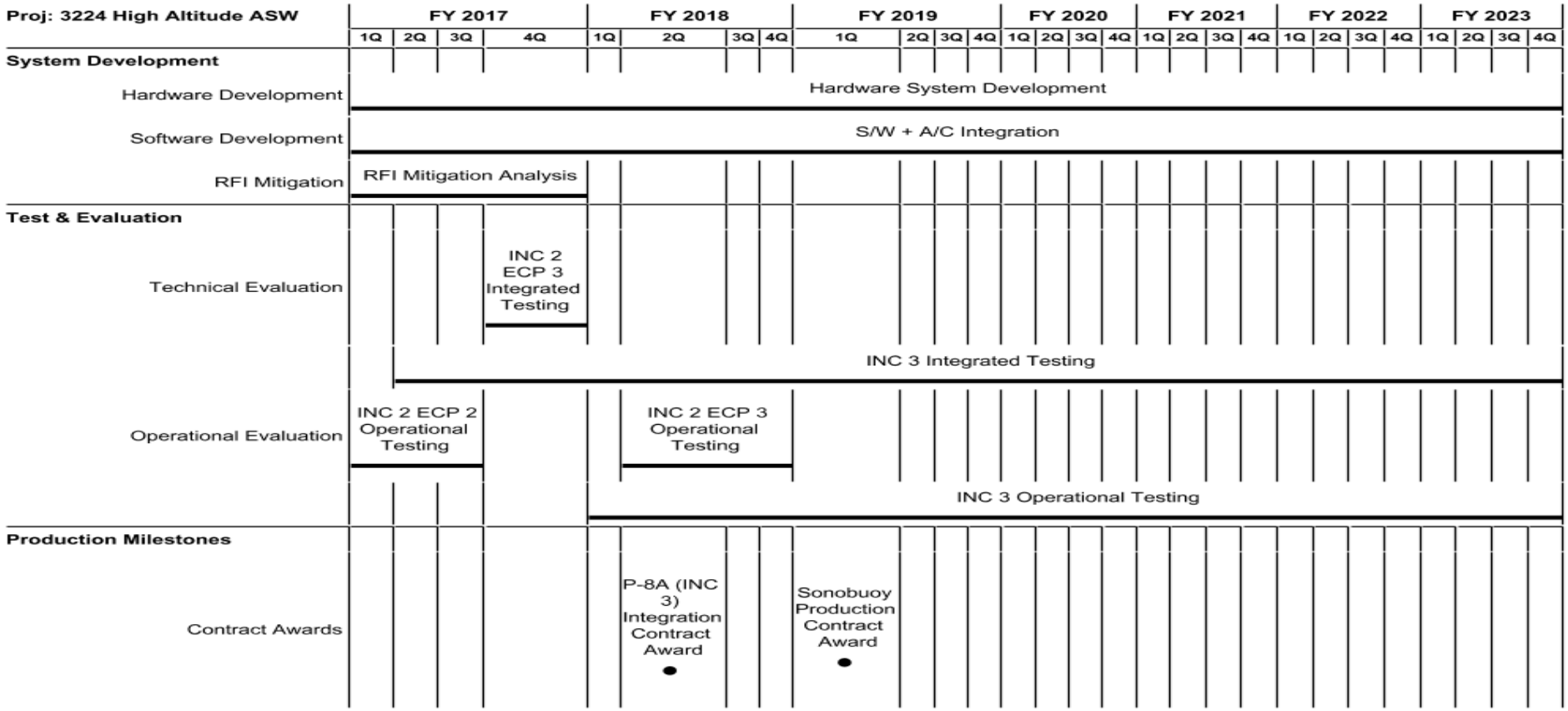
Management Services ($ in Millions)

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
Contractor Eng Spt	Various	VARIOUS : VARIOUS	3.122	0.200	Nov 2016	0.152	Nov 2017	0.200	Nov 2018	-		0.200	Continuing	Continuing	Continuing
Government Eng Spt	WR	NAWCAD : PATUXENT RIVER, MD	22.936	0.629	Nov 2016	0.598	Nov 2017	0.568	Nov 2018	-		0.568	Continuing	Continuing	Continuing
Travel	C/T&M	VARIOUS : VARIOUS	0.576	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Prior Year Mngmt Svcs no longer funded in the FYDP	Various	VARIOUS : VARIOUS	3.013	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	29.647	0.829		0.750		0.768		-		0.768	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	113.143	4.396		3.744		3.886		-		3.886	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604261N / *Acoustic Search Sensors*	**Project (Number/Name)** 3224 / *High Altitude ASW*



2019DON - 0604261N - 3224

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604261N / *Acoustic Search Sensors*	**Project (Number/Name)** 3224 / *High Altitude ASW*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj: 3224 High Altitude ASW				
System Development: Hardware Development: Hardware System Development	1	2017	4	2023
System Development: Software Development: Aircraft Software Development/ Integration	1	2017	4	2023
System Development: RFI Mitigation: RFI Mitigation Analysis	1	2017	4	2017
Test & Evaluation: Technical Evaluation: INC 2 ECP 3 Integrated Testing	4	2017	4	2017
Test & Evaluation: Technical Evaluation: INC 3 Integrated Testing	2	2017	4	2023
Test & Evaluation: Operational Evaluation: INC 2 ECP 2 Operational Testing	1	2017	3	2017
Test & Evaluation: Operational Evaluation: INC 2 ECP 3 Operational Testing	2	2018	4	2018
Test & Evaluation: Operational Evaluation: INC 3 Operational Testing	1	2018	4	2023
Production Milestones: Contract Awards: P-8A (INC 3) Integration Contract Award	2	2018	2	2018
Production Milestones: Contract Awards: Sonobuoy Production Contract Award	1	2019	1	2019