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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy **Date:** March 2019

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	201.919	15.203	8.351	10.916	-	10.916	10.916	11.099	11.328	11.555	Continuing	Continuing
2473: <i>Airborne Mine Neutralization System</i>	149.840	3.346	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	153.186
4026: <i>Strat Into Medal, Tactics & Trng Organic Force</i>	44.967	10.647	7.439	9.984	-	9.984	9.963	10.127	10.336	10.543	Continuing	Continuing
9179: <i>Surf Navy Integ Undersea Tactical Tech</i>	7.112	1.210	0.912	0.932	-	0.932	0.953	0.972	0.992	1.012	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides resources to develop advanced Mine Countermeasures (MCM) equipment systems to counter known and projected mine threats. The MCM systems provide mobile, quick reaction forces capable of land or sea-based minehunting and minesweeping operations worldwide. Resources are for developing and deploying advanced mine-hunting systems and the intelligence and oceanographic capabilities that will enable mine warfare superiority. Tactics and techniques used vary across a diversity of environments and threats, including both asymmetric and emerging. Resources provide for systems and support of mine warfare systems, maritime systems, and expeditionary systems to allow for continuous operations of the Navy's warships and support vessels, other military vessels, and commercial vessels. Core capabilities include forward presence, deterrence, sea control, power projection, maritime security, humanitarian assistance and disaster response to maintain freedom of the seas. Capability improvements include conducting minefield reconnaissance (mine density and location) at high area search rates, improving detection capability, decreasing sensor false alarm rates, reducing post-mission analysis time, reducing detect, classify, and identify decision time, improving neutralization time, improving network communications, automatic target recognition, and achieving in-stride detect-to-engage capability. Concept of operations includes development of cooperative, modular systems with a common post mission analysis system providing advanced tools to automate the complex problem of contact management for the thousands of recorded detections, the establishment of capable networked command and control systems, and standing up an accurate and interactive environmental system with the ability to form and disseminate a Common Environmental Picture. Other areas of importance include search and rescue, surface fire support, ASW operations, protection/offense against small craft/vehicles, air to air operations, very shallow water MCM, swimmer defense and torpedo defense. Efforts benefit the MCM force by transforming the Navy from the platform-centered legacy set of systems to a capability-centered force that is distributed, networked, and able to provide unique maritime influence and access across the entire maritime domain.

The Airborne Mine Countermeasures (AMCM) programs will provide detection, classification, localization, identification, neutralization, and influence sweep capabilities. This capability will be of critical importance in littoral zones, confined straits, choke points, and the Amphibious Objective Area (AOA).

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Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
1319: Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)		PE 0604373N I Airborne Mine Countermeasures (AMCM)			
B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	15.734	10.831	10.916	-	10.916
Current President's Budget	15.203	8.351	10.916	-	10.916
Total Adjustments	-0.531	-2.480	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.480			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.531	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
Change Summary Explanation					
Program Adjustments:					
FY18: -\$531K total adjustments; SBIR -\$531K					
FY19: -\$2,480K total adjustments; -\$2,480K Congressional reduction for Project 4026 schedule delays					
FY20: No changes					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)				Project (Number/Name) 2473 / Airborne Mine Neutralization System			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2473: Airborne Mine Neutralization System	149.840	3.346	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	153.186
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Airborne Mine Neutralization System (AMNS) is deployed from the MH-60S and MH-53E helicopters.												
The AMNS (Archerfish) will be deployed from the MH-60S helicopter with the capability to neutralize bottom and moored mines using an expendable mine neutralization device. These systems will provide organic airborne mine neutralization capability which will be of critical importance in littoral zones, confined straits, choke points and the Amphibious Objective Area (AOA).												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: AMNS: Development/Engineering Support Articles: FY 2019 Plans: N/A FY 2020 Base Plans: N/A FY 2020 OCO Plans: N/A								3.046	0.000	0.000	0.000	0.000
								-	-	-	-	-
Title: AMNS: Test and Evaluation Articles: FY 2019 Plans: N/A FY 2020 Base Plans: N/A FY 2020 OCO Plans: N/A								0.138	0.000	0.000	0.000	0.000
								-	-	-	-	-
Title: AMNS: Management Services								0.162	0.000	0.000	0.000	0.000

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Appropriation/Budget Activity 1319 / 5		R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)		Project (Number/Name) 2473 / Airborne Mine Neutralization System	

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Articles:	-	-	-	-	-
FY 2019 Plans: N/A					
FY 2020 Base Plans: N/A					
FY 2020 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals					
	3.346	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN 4248: Aviation Mine Countermeasures	19.297	11.299	19.250	-	19.250	6.732	4.536	4.629	4.722	0.000	547.474
• WPN 4225: Airborne Mine Neutralization Systems	16.925	21.465	7.160	-	7.160	13.425	12.772	9.739	9.934	Continuing	Continuing
• OPN 1601: LCS MCM Mission Modules	45.146	98.901	197.129	-	197.129	222.831	222.523	233.151	243.503	1,213.078	2,655.367

Remarks

The above funding lines account for several programs, of which AMNS is only a portion.

D. Acquisition Strategy

The Navy has successfully completed Developmental Testing (Inert) on MH-60S, and conducted TECHEVAL tests on a littoral combat ship (LCS) with the MH-60S. The Navy has awarded a sole source contract to BAE for neutralizer procurements (WPN) to accompany the Launch and Handling Systems (LHS).

E. Performance Metrics

Successful completion of Testing and initial operating capability (IOC) was achieved in November 2016.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)				Project (Number/Name) 2473 / Airborne Mine Neutralization System					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AMNS Hardware/Software Development	Various	Various : Various	3.359	0.000		0.000		0.000		-		0.000	0.000	3.359	-
AMNS Hardware/Software Development	WR	NSWC PC : Panama City, FL	11.869	1.367	Oct 2017	0.000		0.000		-		0.000	0.000	13.236	-
AMNS Hardware/Software Development	C/CPAF	Raytheon : Portsmouth, RI	31.680	1.679	Nov 2017	0.000		0.000		-		0.000	0.000	33.359	-
AMNS Hardware/Software Development	SS/CPIF	Lockheed Martin : Syracuse, NY	3.331	0.000		0.000		0.000		-		0.000	0.000	3.331	-
Subtotal			50.239	3.046		0.000		0.000		-		0.000	0.000	53.285	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AMNS Development Test & Evaluation	SS/CPFF	Lockheed Martin : Syracuse, NY	1.254	0.000		0.000		0.000		-		0.000	0.000	1.254	-
AMNS Operational Test & Evaluation	SS/CPFF	Lockheed Martin : Syracuse, NY	0.767	0.000		0.000		0.000		-		0.000	0.000	0.767	-
AMNS Test Assets	C/CPIF	Raytheon : Portsmouth, RI	3.310	0.000		0.000		0.000		-		0.000	0.000	3.310	-
AMNS Development Test & Evaluation	WR	NSWC, PC : Panama City, FL	38.291	0.138	Nov 2017	0.000		0.000		-		0.000	0.000	38.429	-
AMNS Development Test & Evaluation	C/CPIF	Raytheon : Portsmouth, RI	17.543	0.000		0.000		0.000		-		0.000	0.000	17.543	-
AMNS Operational Test & Evaluation	WR	COTF : Norfolk, VA	20.095	0.000		0.000		0.000		-		0.000	0.000	20.095	-
Subtotal			81.260	0.138		0.000		0.000		-		0.000	0.000	81.398	N/A

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Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)				Project (Number/Name) 2473 / Airborne Mine Neutralization System					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AMNS Management Support	WR	NSWC PC : Panama City, FL	0.591	0.081	Oct 2017	0.000		0.000		-		0.000	0.000	0.672	-
AMNS Program Management Support	C/CPFF	Various : Various	7.355	0.000		0.000		0.000		-		0.000	0.000	7.355	-
AMNS Program Management Support	C/CPIF	Raytheon : Portsmouth, RI	2.731	0.081	Nov 2017	0.000		0.000		-		0.000	0.000	2.812	-
AMNS Program Management Support	Various	Field Activity : Various	2.352	0.000		0.000		0.000		-		0.000	0.000	2.352	-
AMNS Travel	Allot	NAVSEA : Washington, DC	0.159	0.000		0.000		0.000		-		0.000	0.000	0.159	-
DAWDF	Sub Allot	NAVSEA : Washington, DC	5.153	0.000		0.000		0.000		-		0.000	0.000	5.153	-
Subtotal			18.341	0.162		0.000		0.000		-		0.000	0.000	18.503	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			149.840	3.346		0.000		0.000		-		0.000	0.000	153.186	N/A
Remarks															

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PE 0604373N: *Airborne Mine Countermeasures (AMCM)*
Navy

R-1 Line #123

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)
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Project (Number/Name)	2473 / Airborne Mine Neutralization System
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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2473 / Airborne Mine Neutralization System	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AMNS				
Milestones: Full Operational Capability	1	2024	1	2024
Contract Strategy: Low Rate Initial Production	1	2018	1	2019
Contract Strategy: Production Contract	1	2018	4	2021
Contract Strategy: Destructor Contract	1	2018	4	2019
Contract Strategy: Full Rate Production	1	2022	1	2022
Contract Strategy: Full Rate Production Contract	1	2022	4	2024
Test & Evaluation: Medium Current Test	1	2018	1	2018
Test & Evaluation: Engineering Change Proposal Testing	4	2018	4	2018

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Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)				Project (Number/Name) 4026 / Strat Into Medal, Tactics & Trng Organic Force			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
4026: Strat Into Medal, Tactics & Trng Organic Force	44.967	10.647	7.439	9.984	-	9.984	9.963	10.127	10.336	10.543	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The C4I, Tactics, Mission Planning (CTMP), and Post Mission Analysis (PMA) program is an initiative that has evolved into both developing MEDAL modules for each next generation MCM system as well as developing next generation Tactics. Additionally, CTMP provides threat data and system requirements and capabilities to the Mine Warfare and Environmental Decisions Aid Library (MEDAL) software development effort. Finally, CTMP develops Net-Centric Sensor Analysis for Mine Warfare (NSAM) as an open systems architecture (OSA) with compliant plug-ins of common post-mission analysis tools for next generation MCM sensor data. NSAM will replace the Organic Post-Mission Analysis (OPMA) system and other stand alone system PMA tools.

NSAM analysis tools will provide the capability to perform tactical and environmental PMA on data collected from various MCM sensor systems. NSAM will be developed in incremental builds. The goal is to reduce the mission timeline and increase the mission effectiveness with respect to mission analysis. NSAM will have a training mode to maintain operator proficiency and PMA skill set. NSAM will be the replacement for Organic Post Mission Analysis (OPMA) in the Fleet, integrating ALMDS, AMNS, AN/AQS-20 Sensor PMA into the first delivered Fleet Build. Future incremental builds will add support for additional MCM sensors and weapons systems. NSAM provides multi-data set, multi-user, tactical & environmental PMA, contact management. OSA and Agile software development processes will reduce the cost for adding future MCM systems. The analysis results from PMA are provided to the MEDAL, reducing false call reporting for tactical decision making. NSAM will implement cybersecurity requirements using the new Risk Management Framework (RMF) process.

The tactics training organic force is supported with integrated tactics development, theory development, and integrated tactics training. To date, the project has been focused on the Littoral Combat Ship (LCS) with support to MCM Mission Module (MM) detachments (DETs) and Aviation detachments (AVDETs) and all the related integrated tactics support from planning, execution, post-mission analysis and includes to contact management automation methods. Additional efforts that the project supports include doctrinal updates, as well as new overall MCM development.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: NSAM Product Development	5.092	3.831	5.127	0.000	5.127
Articles:	-	-	-	-	-
FY 2019 Plans: Deliver OPMA 1.3.11 update. Complete NSAM software development Build 1.0, which includes support for ALMDS AMNS, and AN/AQS-20A Mine hunting sonar. Begin development of requirements package for Build 1.1, defining functional capabilities for the build.					

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Appropriation/Budget Activity 1319 / 5		R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)		Project (Number/Name) 4026 / Strat Into Medal, Tactics & Trng Organic Force		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continue applying risk management framework (RMF) processes to achieve an authority to operate (ATO) for Build 1.0. Continue tailoring and generating logistics documents as required for supporting software intensive systems. FY 2020 Base Plans: Continue NSAM software development based on the requirements package for Build 1.1. Continue applying RMF guidelines and implement continuous monitoring strategy to continue to adhere to the ATO requirements. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: Apparent increase in funding from FY19 to FY20 reflects FY19 Congressional reduction. Funding in FY20 supports deferred scope of Build 1.1 efforts.						
Title: Engineering Services/ILS: Articles:		3.809 -	2.455 -	3.285 -	0.000 -	3.285 -
FY 2019 Plans: Commence the NSAM software engineering and requirements review for Build 1.1, establish the build requirements definition package (BDP) and obtain approvals to initiate NSAM Build 1.1. Assess requirements and maturity of candidate systems for potential inclusion in NSAM Build 1.1. Provide dedicated engineering support for integration with the Mission Package Application Software (MPAS) lab. Develop specifications and interface documentation to inform future systems' integration with NSAM. Execute tactics development in accordance with fleet-determined priorities established through the Integrated MCM Overarching Technical Group (IMCM OTG) that give the Fleet staffs a voice for reporting and addressing tactical issues at the integrated level. Complete the Attrition Tactics guidance and include the effects of enemy minefield re-seeding; perform the analysis to expand the Navy Tactical Reference Publication (NTRP) 3-15.2.2 Susceptibility of Ships to Threat Mines with additional mine chapters for various Navy ships. Complete investigation and document Intelligence Preparation of the Environment (IPOE) gaps in LCS MCM MP Tactics. FY 2020 Base Plans: Perform systems engineering and cybersecurity tasks to support NSAM Build 1.1 development. Continue development of specifications and interface documentation to inform future systems' integration with NSAM.						

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Appropriation/Budget Activity 1319 / 5		R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)		Project (Number/Name) 4026 / Strat Into Medal, Tactics & Trng Organic Force		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continue updates for the "Susceptibility of Ships to Threat Mines," Navy Tactical Reference Publication (NTRP) 3-15.2.2: Complete chapters for additional Mines for Fleet validated ship list. Support training needs for AMNS, ALMDS and AN/ AQS-20 post IOT&E and for Increment 2 of the MCM MP. Develop "Airborne Mine Countermeasures (AMCM) (U) Navy Tactics, Training, and Procedure (NTTP) Volume II, 3.15.22". FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: Apparent increase in funding from FY19 to FY20 reflects FY19 Congressional reduction. Funding in FY20 supports deferred scope of Build 1.1 efforts.						
Title: Test and Evaluation Articles: FY 2019 Plans: Continue development of NSAM Build 1.0 test procedures and support quarterly engineering deliveries to the LCS mission package application software lab for preliminary integration. FY 2020 Base Plans: Complete test preparations and begin NSAM Build 1.0 developmental test and evaluation. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: Apparent increase in funding from FY19 to FY20 reflects FY19 Congressional reduction. Funding in FY20 supports deferred scope of Build 1.1 efforts.		1.458 -	0.921 -	1.249 -	0.000 -	1.249 -
Title: Management Support Articles: FY 2019 Plans: Plan, track, follow-up and report on cost, schedule, and performance status of the project. FY 2020 Base Plans: Continue to plan, track, follow-up and report on cost, schedule, and performance status of the project. FY 2020 OCO Plans:		0.288 -	0.232 -	0.323 -	0.000 -	0.323 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)				FY 2018	FY 2019
N/A					
FY 2019 to FY 2020 Increase/Decrease Statement: No significant change from FY 2019 to FY 2020.					
Accomplishments/Planned Programs Subtotals				10.647	7.439
				9.984	0.000
					9.984
C. Other Program Funding Summary (\$ in Millions) N/A					
Remarks					
D. Acquisition Strategy The Organic Post-Mission Analysis (OPMA) capability for the OAMCM systems was developed by NSWCD, Panama City, FL. NSAM will merge capabilities of OPMA and NAVO's Environmental PMA (EPMA) capabilities into an Open Architecture framework. Build 1 will utilize government teams NSWCD and Naval Research Laboratory - Stennis Space Center (NRL-SSC) to expedite fielding significant contact management improvements, data fusion techniques, and environmental PMA.					
The tactics development, tactics training, and tactics algorithms/database efforts are performed by NSWCD. These efforts will provide reach back support as the OAMCM systems begin to be fielded; will develop modifications to environmental databases necessary to support OAMCM mission planning; will update the MIW Tactics Continuum to address OAMCM; and will update the gear and mine database for threats addressed by the OAMCM systems.					
E. Performance Metrics Successfully integrate NSAM into LCS Mission Package and provide Training Material to AMCM Detachments. Deliver Mine Warfare Naval Tactical Publications and TACMEMOs to NWDC in publication-ready formats in support of MCM Staffs and LCS MCM MP Operators.					

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)						Project (Number/Name) 4026 / Strat Into Medal, Tactics & Trng Organic Force			
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Software Development	WR	NSWC PCD : Panama City FL	25.043	4.084	Oct 2017	3.241	Nov 2018	4.230	Nov 2019	-		4.230	Continuing	Continuing	Continuing
Hardware/Software Development	WR	NRL-SSC : Bay St. Louis, MS	2.443	1.008	Dec 2017	0.590	Dec 2018	0.897	Nov 2019	-		0.897	Continuing	Continuing	Continuing
Subtotal			27.486	5.092		3.831		5.127		-		5.127	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services	WR	SSC-PAC : Various	0.040	0.000		0.000		0.000		-		0.000	0.000	0.040	-
Engineering Services	WR	NSWC PCD : Panama City FL	11.739	2.790	Nov 2017	1.512	Nov 2018	2.098	Nov 2019	-		2.098	Continuing	Continuing	Continuing
Engineering Services	WR	NRL-SSC : Bay St. Louis, MS	0.844	0.238	Dec 2017	0.327	Dec 2018	0.328	Nov 2019	-		0.328	Continuing	Continuing	Continuing
ILS	WR	NSWC PC : Panama City FL	2.158	0.781	Nov 2017	0.616	Nov 2018	0.859	Nov 2019	-		0.859	Continuing	Continuing	Continuing
Subtotal			14.781	3.809		2.455		3.285		-		3.285	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NSAM Test and Evaluation	WR	NSWC PC : Panama City, FL	0.612	1.054	Oct 2017	0.806	Nov 2018	0.775	Nov 2019	-		0.775	0.000	3.247	-
NSAM Test and Evaluation	WR	NRL-SSC : Bay St Louis, MS	0.128	0.404	Nov 2017	0.115	Dec 2018	0.124	Nov 2019	-		0.124	0.000	0.771	-
NSAM Test & Evaluation	WR	JHU-APL : Laurel, MD	0.000	0.000		0.000		0.350	Nov 2019	-		0.350	0.000	0.350	-
Subtotal			0.740	1.458		0.921		1.249		-		1.249	0.000	4.368	N/A

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Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)				Project (Number/Name) 4026 / Strat Into Medal, Tactics & Trng Organic Force					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Support	WR	NSWC PC : Panama City FL	1.947	0.288	Nov 2017	0.232	Nov 2018	0.323	Nov 2019	-		0.323	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various	Various : Various	0.013	0.000		0.000		0.000		-		0.000	0.000	0.013	-
Subtotal			1.960	0.288		0.232		0.323		-		0.323	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			44.967	10.647		7.439		9.984		-		9.984	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy

Date: March 2019

Appropriation/Budget Activity

1319 / 5

R-1 Program Element (Number/Name)

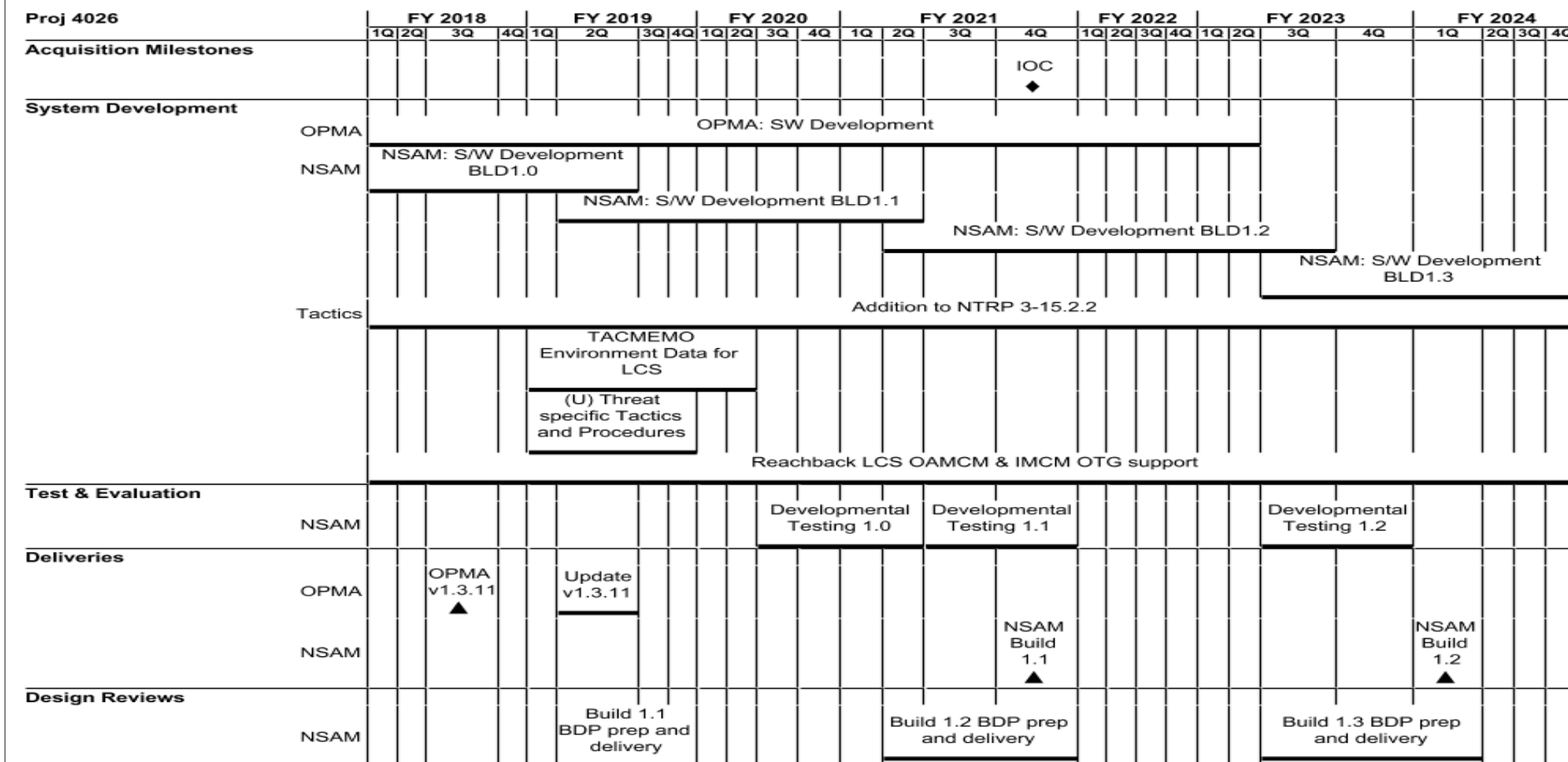
PE 0604373N / Airborne Mine

Countermeasures (AMCM)

Project (Number/Name)

4026 / Strat Into Medal, Tactics & Trng

Organic Force



2020PB - 0604373N - 4026

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 4026 / Strat Into Medal, Tactics & Trng Organic Force	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 4026				
Acquisition Milestones: NSAM: Initial Operational Capability	4	2021	4	2021
System Development: OPMA: OPMA: Maintain & Support; Software	1	2018	2	2023
System Development: NSAM: NSAM: S/W Development Build 1.0	1	2018	2	2019
System Development: NSAM: NSAM: S/W Development Build 1.1	2	2019	2	2021
System Development: NSAM: NSAM: S/W Development Build 1.2	2	2021	3	2023
System Development: NSAM: NSAM: S/W Development Build 1.3	3	2023	4	2024
System Development: Tactics: Add additional Mines to NTRP 3-15.2.2 Susceptibility of Ships to Threat Mines	1	2018	4	2024
System Development: Tactics: Tactics: TACMEMO Environment Data for LCS MCM Systems	1	2019	2	2020
System Development: Tactics: Tactics: (U) Threat specific Tactics and Procedures	1	2019	4	2019
System Development: Tactics: Tactics: Reachback LCS OAMCM & IMCM OTG support	1	2018	4	2024
Test & Evaluation: NSAM: NSAM: Developmental Testing 1.0	3	2020	2	2021
Test & Evaluation: NSAM: NSAM: Developmental Testing 1.1	3	2021	4	2021
Test & Evaluation: NSAM: NSAM: Developmental Testing 1.2	3	2023	4	2023
Deliveries: OPMA: OPMA: Deliver OPMA v1.3.11 for LCS	3	2018	3	2018
Deliveries: OPMA: OPMA: Update OMN v1.3.11 for LCS	2	2019	2	2019
Deliveries: NSAM: NSAM: Capability Drop Build 1.1	4	2021	4	2021
Deliveries: NSAM: NSAM: Capability Drop Build 1.2	1	2024	1	2024
Design Reviews: NSAM: NSAM: Build 1.1 Build Development Package (BDP)	2	2019	4	2019
Design Reviews: NSAM: NSAM: Build 1.2 Build Development Package (BDP)	2	2021	4	2021

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 4026 / Strat Into Medal, Tactics & Trng Organic Force

	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
Design Reviews: NSAM: NSAM: Build 1.3 Build Development Package (BDP)	3	2023	1	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)				Project (Number/Name) 9179 / Surf Navy Integ Undersea Tactical Tech			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
9179: Surf Navy Integ Undersea Tactical Tech	7.112	1.210	0.912	0.932	-	0.932	0.953	0.972	0.992	1.012	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Surface Navy Integrated Undersea Tactical Technology (SNIUTT) is software that provides Post Mission Analysis (PMA) classroom and operator training to teach mine contact recognition when performing PMA for MCM sonar, Light Detecting and Ranging (LIDAR), Electro Optical Identification, and camera sensors. This same application at the squadron level allows operators to maintain and even improve proficiency. SNIUTT will be used to develop an AN/SQQ-32, and AN/AQS-24B/C sensor training modules. SNIUTT is also used for LCS MCM Mission Package Airborne Mine Countermeasures (AMCM) sensor training modules for systems such as ALMDS, COBRA and MCM-USV towed AN/AQS-20A/C sensor training modules. The software runs in conjunction existing PMA systems to both reinforce training of PMA procedures and present real sensor data.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Hardware and Software Development Articles: FY 2019 Plans: Continue to update the AN/AQS-24B, and ALMDS sonar training modules and support development for imbedded operator training in the Net-Centric Sensor Analysis for Mine Warfare (NSAM) application. Begin development of a capability to track individual operator PMA performance as the individual uses the training software over time. FY 2020 Base Plans: Complete update to the AN/AQS-24B, and ALMDS sonar training module. Support development for imbedded operator training in the Net-Centric Sensor Analysis for Mine Warfare (NSAM) application, and Complete capability to track individual operator PMA performance over time. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: No significant change from FY 2019 to FY 2020.								0.965	0.819	0.827	0.000	0.827
								-	-	-	-	-
Title: Engineering and Integration and Logistics Services Articles:								0.245	0.093	0.105	0.000	0.105
								-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy				Date: March 2019	
Appropriation/Budget Activity 1319 / 5		R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)		Project (Number/Name) 9179 / Surf Navy Integ Undersea Tactical Tech	

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
FY 2019 Plans: Continue to provide SNIUTT In Service Engineering Agent (ISEA) training, and documentation support.					
FY 2020 Base Plans: Continue to provide SNIUTT In Service Engineering Agent (ISEA) training, and documentation support.					
FY 2020 OCO Plans: N/A					
FY 2019 to FY 2020 Increase/Decrease Statement: No significant change from FY 2019 to FY 2020.					
Accomplishments/Planned Programs Subtotals	1.210	0.912	0.932	0.000	0.932

C. Other Program Funding Summary (\$ in Millions)
 N/A

Remarks

D. Acquisition Strategy
 Surface Navy Integrated Undersea Tactical Technology(SNIUTT) has been used to develop AN/SQQ-32, AN/AQS-24 and AN/AQS-20A sensor training modules. Funds will continue to support training for these sonar systems, as well as training for the Remote Environmental Measuring Units (REMUS) sonar systems and other OAMCM systems such as AMNS, ALMDS and COBRA in the same format as previous training. The SNIUTT sensor training modules will be developed by NSWC PCD, Panama City, FL. Funds are being provided for development and delivery of refresher scenario based contact recognition training, and the update and modification of contact recognition training (interactive web based training) to support the delivery of SNIUTT to fleet operators.

E. Performance Metrics
 Successfully integrate SNIUTT into the school house training facility and provide to AMCM detachments for operator PMA refresher and proficiency training.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)				Project (Number/Name) 9179 / Surf Navy Integ Undersea Tactical Tech					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Software Development	WR	NSWC PC : Panama City FL	6.088	0.965	Oct 2017	0.819	Oct 2018	0.827	Oct 2019	-		0.827	Continuing	Continuing	Continuing
Subtotal			6.088	0.965		0.819		0.827		-		0.827	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ISEA	WR	NSWC, PC : Panama City FL	1.021	0.245	Oct 2017	0.093	Oct 2018	0.105	Oct 2019	-		0.105	Continuing	Continuing	Continuing
Subtotal			1.021	0.245		0.093		0.105		-		0.105	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DAWDF	Various	Various : Various	0.003	0.000		0.000		0.000		-		0.000	0.000	0.003	-
Subtotal			0.003	0.000		0.000		0.000		-		0.000	0.000	0.003	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			7.112	1.210		0.912		0.932		-		0.932	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy															Date: March 2019				
Appropriation/Budget Activity 1319 / 5										R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)					Project (Number/Name) 9179 / Surf Navy Integ Undersea Tactical Tech				

SNIUTT	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
System Development																												
SNIUTT	SNIUTT Development																											
	COBRA Training Module																											
	NSAM imbedded PMA Training Modules																											
					ALMDS & AQS-24C Trianing Module																							
					PMA Operator Performance Tracking																							
													COBRA BLK 2 & AQS-20C Training Module															

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>	Project (Number/Name) 9179 / <i>Surf Navy Integ Undersea Tactical Tech</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>SNIUTT</i>				
System Development: SNIUTT: SNIUTT	1	2018	4	2024
System Development: SNIUTT: COBRA Training Module	1	2018	3	2019
System Development: SNIUTT: NSAM imbedded PMA Training Modules	1	2018	4	2020
System Development: SNIUTT: ALMDS and AQS-24C Training Module	1	2019	1	2020
System Development: SNIUTT: PMA Operator Performance Tracking	1	2019	2	2021
System Development: SNIUTT: COBRA BLK 2 & AQS-20C Training Module	1	2021	4	2022