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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
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Appropriation/Budget Activity	R-1 Program Element (Number/Name)											
1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603553N / <i>Surface ASW</i>											
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	185.861	1.039	1.136	1.122	-	1.122	1.145	1.170	1.195	1.220	Continuing	Continuing
1704: <i>Undersea Warfare</i>	185.861	1.039	1.136	1.122	-	1.122	1.145	1.170	1.195	1.220	Continuing	Continuing

A. Mission Description and Budget Item Justification

The FY 2019 funding request was reduced by \$.006 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 Rest-of-the-World (ROW) continues to produce quieter, more lethal submarine technologies. Adaptable commercial technologies are readily available to the ROW navies. These trends increase the threats to United States (US) surface combatants, thus requiring a focused effort to identify the most promising Anti-Submarine Warfare (ASW) technologies through a process of discovery, assessment, experimentation, and analysis.

This project will pursue the development of technologies with the goal of improving ASW effectiveness to the point of rendering the enemy submarine irrelevant against US and coalition forces. Studies, experiments and/or technology developments under this project will seek to improve the ability of surface combatants to detect, classify, localize, and track submerged contacts and detect and defend against modern torpedoes. To achieve these objectives, it is essential to develop new ASW technologies and conduct at-sea experiments to prove/disprove technology concepts and collect corroborating data. The product of these efforts will be provided to the Advanced Capability Build (ACB) program supporting the continuing improvement of the AN/SQQ-89 Surface ASW Combat System.

B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	1.081	1.136	1.159	-	1.159
Current President's Budget	1.039	1.136	1.122	-	1.122
Total Adjustments	-0.042	0.000	-0.037	-	-0.037
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.042	0.000			
• Program Adjustments	0.000	0.000	-0.024	-	-0.024
• Rate/Misc Adjustments	0.000	0.000	-0.013	-	-0.013

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Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 Program Element (Number/Name) PE 0603553N / Surface ASW	
<p><u>Change Summary Explanation</u></p> <p>Funding: The decrease in FY 2019 will result in less capabilities developed via the BAA process and transmitted to the ACB program and is attributable to inflation and contractor support services specific rate adjustments.</p> <p>Schedule: Broad Agency Announcement (BAAs) awards in FY 2019, FY 2021, and FY 2023 have been shifted from 1Q to 2Q to more accurately reflect funding availability and time required to make a new award.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603553N / <i>Surface ASW</i>				Project (Number/Name) 1704 / <i>Undersea Warfare</i>			
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
1704: <i>Undersea Warfare</i>	185.861	1.039	1.136	1.122	-	1.122	1.145	1.170	1.195	1.220	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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This project will pursue the development of technologies with the goal of improving ASW effectiveness to the point of rendering the enemy submarine irrelevant against US and coalition forces. Studies, experiments and/or technology developments under this project will seek to improve the ability of surface combatants to detect, classify, localize, and track submerged contacts and detect and defend against modern torpedoes. To achieve these objectives, it is essential to develop new ASW technologies and conduct at-sea experiments to prove/disprove technology concepts and collect corroborating data. The product of these efforts will be provided to the Advanced Capability Build (ACB) program supporting the continuing improvement of the AN/SQQ-89 Surface ASW Combat System.

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

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: ASW Concept Development/Studies	1.039	1.136	1.122	0.000	1.122
Articles:	-	-	-	-	-
FY 2018 Plans: Collect systems and performance data during select Fleet exercises and at-sea testing events, including one additional data collection event on relevant modern torpedo acoustic signature characteristics. Analyze and distribute collected data. Conduct studies and AoA in support of improved ASW operations. Continue advanced development efforts initiated in FY17 to prototype promising new ASW concepts applying Doppler Matched Processing techniques to ASW and Torpedo Defense.					
FY 2019 Base Plans: Award new development contract via BAA in support of AN/SQQ-89 Fleet requirements. Initiate capability development and submit to the ACB program from Step 1 (algorithm/technology assessment by peer review panel of Subject Matter Experts (SME)) and Step 2 (algorithm/technology testing with open and closed data sets to refine capabilities prior to integration) testing.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

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Appropriation/Budget Activity 1319 / 4				R-1 Program Element (Number/Name) PE 0603553N / <i>Surface ASW</i>				Project (Number/Name) 1704 / <i>Undersea Warfare</i>			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	
The decrease in FY 2019 due to rate adjustments.											
Accomplishments/Planned Programs Subtotals						1.039	1.136	1.122	0.000	1.122	
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
• RD TEN/0205620N/1916: <i>Surface ASW System Improvement</i>	23.779	29.351	28.421	-	28.421	29.766	29.476	30.000	30.629	Continuing	Continuing
• OPN/2136: <i>AN/SQQ-89 Surf ASW Cmbt Sys</i>	87.824	102.222	115.459	-	115.459	125.586	127.452	132.673	135.329	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
Use competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.											
E. Performance Metrics											
Investigate promising ASW technologies via the four step ACB spiral development/improvement process.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0603553N / <i>Surface ASW</i>						Project (Number/Name) 1704 / <i>Undersea Warfare</i>			
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Technology Development	C/CPFF	AAC : NY	1.134	0.000		0.000		0.000		-		0.000	0.000	1.134	-
Technology Development	C/CPFF	Adaptive Methods : VA	3.788	0.000		0.000		0.000		-		0.000	0.000	3.788	-
Technology Development	C/CPFF	Alion Sciences : VA	8.000	0.000		0.000		0.000		-		0.000	0.000	8.000	-
Technology Development	C/CPAF	EG&G : VA	2.050	0.000		0.000		0.000		-		0.000	0.000	2.050	-
Technology Development	C/CPFF	In-Depth Engineering : VA	3.635	0.000		0.000		0.000		-		0.000	0.000	3.635	-
Technology Development	C/CPFF	JHU/APL : MD	25.333	0.000		0.000		0.000		-		0.000	0.000	25.333	-
Technology Development	C/CPFF	L-3 Communications : VA	3.000	0.000		0.000		0.000		-		0.000	0.000	3.000	-
Technology Development	C/CPFF	Lockheed Martin - ISS : NY	7.110	0.000		0.000		0.000		-		0.000	0.000	7.110	-
Technology Development	WR	NSWC/Carderock : MD	3.201	0.000		0.000		0.000		-		0.000	0.000	3.201	-
Technology Development	WR	NUWC/Keyport : WA	0.790	0.000		0.000		0.000		-		0.000	0.000	0.790	-
Technology Development	WR	NUWC/Newport : RI	33.260	0.000		0.000		0.000		-		0.000	0.000	33.260	-
Technology Development	C/CPFF	Northrop Grumman : VA	4.684	0.000		0.000		0.000		-		0.000	0.000	4.684	-
Technology Development	C/CPFF	UT/ARL : TX	4.908	0.000		0.000		0.000		-		0.000	0.000	4.908	-
Technology Development	C/CPFF	VAR : VAR*	4.694	0.000		0.000		0.000		-		0.000	0.000	4.694	-
Technology Development	WR	NFESC/PH : CA	5.350	0.000		0.000		0.000		-		0.000	0.000	5.350	-
Technology Development	MIPR	SSGC : MS	3.253	0.000		0.000		0.000		-		0.000	0.000	3.253	-
Detection/Classification Algorithms (LRS)	WR	NAWC/Pax River : MD	2.400	0.000		0.000		0.000		-		0.000	0.000	2.400	-
Detection/Classification Algorithms (LRS)	C/CPFF	VAR : VAR*	8.600	0.000		0.000		0.000		-		0.000	0.000	8.600	-
Technology Development (LRS)	WR	NRL : DC	2.500	0.000		0.000		0.000		-		0.000	0.000	2.500	-
Technology Development (LRS)	C/CPFF	VAR : VAR*	14.950	0.000		0.000		0.000		-		0.000	0.000	14.950	-
Subtotal			142.640	0.000		0.000		0.000		-		0.000	0.000	142.640	N/A

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Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Remarks															
*Consists of multiple performing activities with funding for each not greater than \$1M per year.															
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
At-Sea Test/Experiment	WR	ONR : VA	5.500	0.000		0.000		0.000		-		0.000	0.000	5.500	-
Developmental Test & Evaluation	C/CPFF	AAC : NY	1.067	0.000		0.000		0.000		-		0.000	0.000	1.067	-
Developmental Test & Evaluation	C/CPFF	ALION : IL	0.749	0.000		0.000		0.000		-		0.000	0.000	0.749	-
Developmental Test & Evaluation	C/CPFF	Applied Physical Sciences : CT	0.000	0.749	Feb 2017	0.750	Jan 2018	0.731	Dec 2018	-		0.731	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	JHU/APL : MD	2.735	0.000		0.000		0.000		-		0.000	0.000	2.735	-
Developmental Test & Evaluation	WR	NRL : DC	0.537	0.000		0.000		0.000		-		0.000	0.000	0.537	-
Developmental Test & Evaluation	WR	NSMA : VA	0.907	0.000		0.000		0.000		-		0.000	0.000	0.907	-
Developmental Test & Evaluation	WR	NSWC/Carderock : MD	1.172	0.000		0.000		0.000		-		0.000	0.000	1.172	-
Developmental Test & Evaluation	WR	NUWC/Newport : RI	11.453	0.000		0.000		0.000		-		0.000	0.000	11.453	-
Developmental Test & Evaluation	WR	SPAWAR : CA	0.277	0.000		0.000		0.000		-		0.000	0.000	0.277	-
Developmental Test & Evaluation	C/CPFF	UT/ARL : TX	1.844	0.000		0.000		0.000		-		0.000	0.000	1.844	-
Developmental Test & Evaluation	C/CPFF	VAR : VAR*	5.224	0.170	Jan 2017	0.266	Feb 2018	0.289	Dec 2018	-		0.289	Continuing	Continuing	Continuing
Enhanced Data Collection	C/CPFF	JHU/APL : MD	4.462	0.000		0.000		0.000		-		0.000	0.000	4.462	-
Enhanced Data Collection	C/CPFF	UT/ARL : TX	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	-

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Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Subtotal			37.927	0.919		1.016		1.020		-		1.020	Continuing	Continuing	N/A

Remarks
*Consists of multiple performing activities with funding for each not greater than \$1M per year.

Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Program Management Support	C/CPAF	BAE Systems : MD	4.824	0.000		0.000		0.000		-		0.000	0.000	4.824	-
Program Management Support	C/CPIF	CGI Federal : VA	0.120	0.120	Nov 2016	0.120	Feb 2018	0.102	Dec 2018	-		0.102	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA PEO IWS 5 : DC	0.300	0.000		0.000		0.000		-		0.000	0.000	0.300	-
Travel (LRS)	Allot	ONR : DC	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	-
Subtotal			5.294	0.120		0.120		0.102		-		0.102	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			185.861	1.039		1.136		1.122		-		1.122	Continuing	Continuing	N/A

Remarks

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PE 0603553N: *Surface ASW*
Navy

R-1 Line #44

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603553N / <i>Surface ASW</i>	Project (Number/Name) 1704 / <i>Undersea Warfare</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 1704.L24</i>				
ASW Concept Development/Studies: BAA Award / Technology Development: BAA Award - 2017	2	2017	2	2017
ASW Concept Development/Studies: BAA Award / Technology Development: BAA Award - 2019	2	2019	2	2019
ASW Concept Development/Studies: BAA Award / Technology Development: BAA Award - 2021	2	2021	2	2021
ASW Concept Development/Studies: BAA Award / Technology Development: BAA Award - 2023	2	2023	2	2023
ASW Concept Development/Studies: BAA Award / Technology Development: Data Collection/Analysis	1	2017	4	2023