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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603553N / <i>Surface ASW</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	191.281	1.099	1.180	1.189	-	1.189	1.196	1.215	1.224	1.246	Continuing	Continuing
1704: <i>Undersea Warfare</i>	191.281	1.099	1.180	1.189	-	1.189	1.196	1.215	1.224	1.246	Continuing	Continuing

A. Mission Description and Budget Item Justification

The objective of this Program Element (PE) is to pursue the development of technologies with the goal of improving Anti-Submarine Warfare (ASW) effectiveness to the point of rendering the enemy submarine irrelevant against U.S. and coalition forces. U.S. adversaries continue to develop asymmetric capabilities and capacities to deter, disrupt, or delay the entry of U.S. and allied naval forces, and pose a constant challenge as we implement the Maritime Strategy. These trends increase the threats to U.S. surface combatants, thus requiring a focused effort to identify the most promising ASW technologies through a process of discovery, assessment, experimentation, and analysis. Studies, experiments, and/or technology developments under this PE 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. The products from these efforts will be provided to the Advanced Capability Build (ACB) program supporting the continuing improvement of the AN/SQQ-89A(V)15 Surface Ship ASW Combat System.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	1.144	1.180	1.197	-	1.197
Current President's Budget	1.099	1.180	1.189	-	1.189
Total Adjustments	-0.045	0.000	-0.008	-	-0.008
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.045	0.000			
• Program Adjustments	0.000	0.000	-0.013	-	-0.013
• Rate/Misc Adjustments	0.000	0.000	0.005	-	0.005

Change Summary Explanation

FUNDING CHANGES SINCE PREVIOUS PRESIDENT'S BUDGET:

- FY 2022 decrease of \$-0.045M reflects the Small Business Innovative Research (SBIR) transfer.
- FY 2024 decrease of \$-0.008M reflects the application of miscellaneous program and rate adjustments.

FY 2023 TO FY 2024 BUDGET REQUEST INCREASE:

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1319: *Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)*

R-1 Program Element (Number/Name)
PE 0603553N / *Surface ASW*

- FY 2023 (\$1.180M) to FY 2024 (\$1.189M) increase (\$+0.009M) is in line with the inflation expected with the RDT&EN appropriation.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1704: <i>Undersea Warfare</i>	191.281	1.099	1.180	1.189	-	1.189	1.196	1.215	1.224	1.246	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The objective of this Project is to pursue the development of technologies with the goal of improving Anti-Submarine Warfare (ASW) effectiveness to the point of rendering the enemy submarine irrelevant against U.S. and coalition forces. U.S. adversaries continue to develop asymmetric capabilities and capacities to deter, disrupt, or delay the entry of U.S. and allied naval forces, and pose a constant challenge as we implement the Maritime Strategy. These trends increase the threats to U.S. surface combatants, thus requiring a focused effort to identify the most promising ASW technologies through a process of discovery, assessment, experimentation, and analysis. Studies, experiments, and/or technology developments under this PE 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. The products from these efforts will be provided to the Advanced Capability Build (ACB) program supporting the continuing improvement of the AN/SQQ-89A(V)15 Surface Ship ASW Combat System.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: ASW Concept Development/Studies	1.099	1.180	1.189	0.000	1.189
Articles:	-	-	-	-	-
FY 2023 Plans:					
- Continue transition of Passive Coherent Processing (PiCP) technology into the AN/SQQ-89A(V)15 Surface Ship Anti-Submarine Warfare (ASW) Combat System production program for Torpedo Defense (TD).					
- Consolidate and integrate active TD and ASW code into a single common baseline.					
- Extend PiCP technology to perform cross-array association for TD.					
- Continue the development and testing of Doppler Matched Active Processing (DMAP)-for-ASW technology for towed arrays.					
- Investigate augmented Common Active Sonar (CAS) waveforms and processing and extend DMAP technology to CAS.					
- Initiate implementation of waveform optimization algorithms.					
- Initiate development and testing of Operator Machine Interface (OMI) enhancements to display DMAP and PiCP acoustic/automation data.					
- Awarded option under Broad Agency Announcement (BAA) development contract in support of AN/SQQ-89A(V)15 Surface Ship ASW Combat System Fleet requirements.					
FY 2024 Base Plans:					
- Continue development and testing of extending PiCP technology to perform cross-array association for TD.					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue investigating augmented CAS waveforms and processing, and extend DMAP technology to CAS. - Complete testing and integration of OMI enhancements to display DMAP and PiCP acoustic and automation data in the AN/SQQ-89A(V)15 Surface Ship ASW Combat System. - Investigate using Joint Passive Active Localization (JPAL) for TD and ASW. - Award option under BAA development contract in support of AN/SQQ-89A(V)15 Surface Ship ASW Combat System Fleet requirements. FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: - FY 2023 (\$1.180M) to FY 2024 (\$1.189M) increase (\$+0.009M) is in line with the inflation expected with the RDT&EN appropriation.					
Accomplishments/Planned Programs Subtotals	1.099	1.180	1.189	0.000	1.189

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDTEN/0205620N/1916: <i>Surface ASW System Improvement</i>	27.781	28.999	29.973	-	29.973	30.077	30.542	30.822	31.311	Continuing	Continuing
• OPN/2136: <i>AN/SQQ-89 Surf ASW Cmbt Sys</i>	126.871	140.157	138.065	-	138.065	139.468	140.799	143.627	146.896	Continuing	Continuing

Remarks

D. Acquisition Strategy

Use competitively awarded contracts from Broad Agency Announcement (BAA) solicitations and Other Transaction Authority (OTA). Successful technologies are transitioned to the AN/SQQ-89A(V)15 Surface Ship Anti-Submarine Warfare (ASW) Combat System Advanced Capability Build (ACB) development program funded under PE 0205620N, Project 1916 for integration and testing. Technologies are delivered every two years to the AN/SQQ-89A(V)15 Surface Ship ASW Combat System production program via the ACB spiral development process (ACB-21, ACB-23, ACB-25, etc.).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy **Date:** March 2023

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>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ASW Concept Development/Studies	C/CPFF	AAC : NY	2.201	0.000		0.000		0.000		-		0.000	0.000	2.201	-
ASW Concept Development/Studies	C/CPFF	Adaptive Methods : VA	3.788	0.000		0.000		0.000		-		0.000	0.000	3.788	-
ASW Concept Development/Studies	C/CPFF	Alion Sciences : VA	8.749	0.000		0.000		0.000		-		0.000	0.000	8.749	-
ASW Concept Development/Studies	C/CPFF	Applied Physical Sciences : CT	2.433	0.675	Jan 2022	0.725	Jan 2023	0.725	Jan 2024	-		0.725	Continuing	Continuing	Continuing
ASW Concept Development/Studies	C/CPFF	In-Depth Engineering : VA	3.635	0.000		0.000		0.000		-		0.000	0.000	3.635	-
ASW Concept Development/Studies	C/CPFF	JHU/APL : MD	28.068	0.000		0.000		0.000		-		0.000	0.000	28.068	-
ASW Concept Development/Studies	C/CPFF	L-3 Communications : VA	3.000	0.000		0.000		0.000		-		0.000	0.000	3.000	-
ASW Concept Development/Studies	C/CPFF	Lockheed Martin - ISS : NY	7.110	0.000		0.000		0.000		-		0.000	0.000	7.110	-
ASW Concept Development/Studies	WR	NAVWAR : CA	0.277	0.000		0.000		0.000		-		0.000	0.000	0.277	-
ASW Concept Development/Studies	WR	NAWC/Pax River : MD	2.400	0.000		0.000		0.000		-		0.000	0.000	2.400	-
ASW Concept Development/Studies	WR	NFESC/PH : CA	5.350	0.000		0.000		0.000		-		0.000	0.000	5.350	-
ASW Concept Development/Studies	C/CPFF	Northrop Grumman : VA	4.684	0.000		0.000		0.000		-		0.000	0.000	4.684	-
ASW Concept Development/Studies	WR	NRL : DC	3.037	0.000		0.000		0.000		-		0.000	0.000	3.037	-
ASW Concept Development/Studies	WR	NSMA : VA	0.907	0.000		0.000		0.000		-		0.000	0.000	0.907	-
ASW Concept Development/Studies	WR	NSWC/Carderock : MD	4.373	0.000		0.000		0.000		-		0.000	0.000	4.373	-
ASW Concept Development/Studies	WR	NUWC/Keyport : WA	0.790	0.000		0.000		0.000		-		0.000	0.000	0.790	-

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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ASW Concept Development/Studies	WR	NUWC/Newport : RI	44.915	0.000		0.000		0.000		-		0.000	0.000	44.915	-
ASW Concept Development/Studies	MIPR	SSGC : MS	3.253	0.000		0.000		0.000		-		0.000	0.000	3.253	-
ASW Concept Development/Studies	C/CPFF	UT/ARL : TX	6.752	0.000		0.000		0.000		-		0.000	0.000	6.752	-
ASW Concept Development/Studies	C/CPFF	VAR : VAR*	34.522	0.324	Dec 2021	0.355	Dec 2022	0.364	Dec 2023	-		0.364	Continuing	Continuing	Continuing
Subtotal			170.244	0.999		1.080		1.089		-		1.089	Continuing	Continuing	N/A

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

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	ONR : VA	5.500	0.000		0.000		0.000		-		0.000	0.000	5.500	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	C/CPFF	JHU/APL : MD	4.462	0.000		0.000		0.000		-		0.000	0.000	4.462	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	C/CPFF	UT/ARL : TX	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	-
Subtotal			11.962	0.000		0.000		0.000		-		0.000	0.000	11.962	N/A

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

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Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support - Acquisition, Business & Finance	C/CPAF	EG&G : VA	2.050	0.000		0.000		0.000		-		0.000	0.000	2.050	-
Program Management Support - Acquisition, Business & Finance	C/CPAF	BAE Systems : MD	4.824	0.000		0.000		0.000		-		0.000	0.000	4.824	-
Program Management Support - Systems Engineering and Technical Assistance (SETA)	C/CPFF	CGI Federal : VA	1.751	0.000		0.000		0.000		-		0.000	0.000	1.751	-
Program Management Support - Systems Engineering and Technical Assistance (SETA)	C/CPFF	KMS Solutions* : VA	0.100	0.100	Mar 2022	0.100	Dec 2022	0.100	Dec 2023	-		0.100	Continuing	Continuing	Continuing
Program Office Travel	Allot	NAVSEA PEO IWS 5 : DC	0.350	0.000		0.000		0.000		-		0.000	0.000	0.350	-
Subtotal			9.075	0.100		0.100		0.100		-		0.100	Continuing	Continuing	N/A

Remarks
 *In addition to program office support, KMS Solutions provides technical planning, systems engineering, and test support. KMS Solutions also provides Subject Matter Experts (SMEs) as members of AN/SQQ-89 Surface Ship Anti-Submarine Warfare (ASW) Combat System Advanced Capability Build (ACB) technical Peer Review Working Groups and Integrated Product Teams (IPTs) in support of designing and refining candidate technologies for inclusion into ACB deliveries.

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	191.281	1.099	1.180	1.189	-	1.189	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy **Date:** March 2023

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>
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Project 1704	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Broad Agency Announcement (BAA) Awards	▲ BAA Award				▲ BAA Award				△ BAA Award				△ BAA Award				△ BAA Award				△ BAA Award				△ BAA Award			
Technology Development and Analysis	Technology Development and Analysis																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
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
Proj 1704.L24				
Broad Agency Announcement (BAA) Awards: BAA Award - 2022	2	2022	2	2022
Broad Agency Announcement (BAA) Awards: BAA Award - 2023	2	2023	2	2023
Broad Agency Announcement (BAA) Awards: BAA Award - 2024	2	2024	2	2024
Broad Agency Announcement (BAA) Awards: BAA Award - 2025	2	2025	2	2025
Broad Agency Announcement (BAA) Awards: BAA Award - 2026	2	2026	2	2026
Broad Agency Announcement (BAA) Awards: BAA Award - 2027	2	2027	2	2027
Broad Agency Announcement (BAA) Awards: BAA Award - 2028	2	2028	2	2028
Technology Development and Analysis: Technology Development and Analysis	1	2022	4	2028