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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 0603506N / <i>Surface Ship Torpedo Defense</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	755.458	8.573	0.473	0.730	-	0.730	4.912	6.514	0.494	0.000	0.000	777.154
0225: <i>Surface Ship Torpedo Defense (SSTD)</i>	755.458	1.820	0.473	0.730	-	0.730	4.912	6.514	0.494	0.000	0.000	770.401
9999: <i>Congressional Adds</i>	0.000	6.753	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.753

A. Mission Description and Budget Item Justification

The Surface Ship Torpedo Defense (SSTD) program provides a detect-to-engage layered torpedo defense capability. The four (4) major efforts that comprise SSTD are the AN/SLQ-25 (NIXIE) system, Torpedo Warning System (TWS), the Countermeasure Anti-Torpedo (CAT), and Acoustic Device Countermeasure (Surface ADC MK2).

The ATTDS provides a hard kill torpedo defensive capability on High Value Units (HVU's). The SSTD program has developed and fielded five (5) ATTDS Engineering Design Models (EDMs) systems on CVNs. Each EDM system is one (1) TWS with a load out of a maximum of eight (8) CATs. In FY20, the ATTDS Program commenced sundown efforts to return the five (5) CVNs to their original configuration. Two (2) system removals completed in FY22, with one (1) more scheduled for FY23. FY23 and FY24 funding will provide minimal support to the 2 remaining CVN installations with system preservation the primary focus.

Research and development in torpedo defense of new technologies and capabilities developed under the Future Naval Capabilities (FNC), Small Business and Innovative Research (SBIR), and other Research, Development, Test & Evaluation (RDT&E) initiatives are evaluated to determine their effectiveness and impact on improving ship survivability. Evaluations of new and emerging torpedo defense hardware and software in representative acoustic environments, against projected threats using both digital and hardware-in-the-loop simulations is performed. The AN/SLQ-25 (NIXIE) program has built an ECP package for technical refresh designated as the AN/SLQ-25E. This ECP is a form-fit-function replacement of the AN/ SLQ-25C, which is widely fielded across the surface fleet. The AN/SLQ-25E is more modular, maintainable, and will meet all current and future cybersecurity requirements. The modular and Commercial-Off-The-Shelf (COTS) design of AN/SLQ-25E will allow for future capability growth to outpace the threat in torpedo defense. Two (2) FY22 Congressional adds support research and development of new torpedo defense capabilities specifically on the 25E effort, as well as improve the safety and reliability of the 25E towed winch and reel system.

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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 0603506N / <i>Surface Ship Torpedo Defense</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	8.862	0.473	0.000	-	0.000
Current President's Budget	8.573	0.473	0.730	-	0.730
Total Adjustments	-0.289	0.000	0.730	-	0.730
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.289	0.000			
• Program Adjustments	0.000	0.000	0.718	-	0.718
• Rate/Misc Adjustments	0.000	0.000	0.012	-	0.012

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

Congressional Add: *SLQ-25 capability improvements*

Congressional Add: *Surface ship torpedo defense towed decoys*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2022	FY 2023
	2.894	0.000
	3.859	0.000
	6.753	0.000
	6.753	0.000

Change Summary Explanation

FY2022 SBIR reduction of \$0.289 million. FY2024 program increase by \$0.730 million to support functionality of TWS prior to schedule DEMIL on two (2) CVN platforms. Changes to the program's schedule (R-4 and R-4A) beginning in FY2023, reflect the addition of funding to support program requirements across the FYDP.

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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 0603506N / <i>Surface Ship Torpedo Defense</i>				Project (Number/Name) 0225 / <i>Surface Ship Torpedo Defense (SSTD)</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
0225: <i>Surface Ship Torpedo Defense (SSTD)</i>	755.458	1.820	0.473	0.730	-	0.730	4.912	6.514	0.494	0.000	0.000	770.401
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

ATTDS is a system of systems, comprised of the Torpedo Warning System (TWS) and the Countermeasure Anti-Torpedo Torpedo (CAT). The CAT program developed a canisterized Anti-Torpedo Torpedo (ATT) that provides hard kill torpedo defensive capability for High Value Units (HVUs). The TWS program developed active and passive towed arrays, and electronics processing cabinets to provide Torpedo Detection, Classification, and Localization (TDCL). The SSTD program has developed and fielded five (5) ATTDS Engineering Design Models (EDMs) across five (5) CVNs. Each EDM system is one (1) TWS with a load out of a maximum of eight (8) CATs. In FY20, the ATTDS Program commenced sundown efforts to return the five (5) CVNs to their original configuration. Two (2) system removals completed in FY22, with one (1) more scheduled for FY23. FY22 fund supports the demilitarization and disposal of sixteen (16) CATs, and FY23 funding will support the demilitarization and disposal of the remaining eight (8) CATs. FY23 and FY24 funding will provide minimal support to the 2 remaining CVN installations with system preservation the primary focus. FY25 through FY27 funding will support completing the removal and disposition of the remaining ATTDS assets.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Countermeasure Anti-Torpedo (CAT)	0.321	0.108	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans:					
- Removal of eight (8) CATs following the final ATTDS deployment					
- Demilitarization and disposal of remaining eight (8) CAT units at NUWC Keyport, per the CAT Demilitarization/Disposal Plan (9-1356-PLAN-X02).					
- Execute removal of CAT equipment (SCD 25298) for one (1) CVN.					
FY 2024 Base Plans:					
N/A.					
FY 2024 OCO Plans:					
N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					
FY2023 to FY2024 decrease of \$0.108 million due to CAT program shutdown.					
Title: Torpedo Warning System (TWS)	1.499	0.365	0.730	0.000	0.730
Articles:	-	-	-	-	-

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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 0603506N / <i>Surface Ship Torpedo Defense</i>	Project (Number/Name) 0225 / <i>Surface Ship Torpedo Defense (SSTD)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p><i>FY 2023 Plans:</i></p> <ul style="list-style-type: none"> - TWS system preservation on two (2) CVNs as needed by fleet request. - Execute removal of TWS equipment (SCD 25298) from one (1) CVN. <p><i>FY 2024 Base Plans:</i></p> <ul style="list-style-type: none"> - TWS system preservation on two (2) CVNs as needed by fleet request. - Begin SCD documentation according to ship availability maintenance schedule to process SCD 25298 for the two (2) remaining CVNs. <p><i>FY 2024 OCO Plans:</i> N/A</p> <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> FY2023 to FY2024 increase of \$0.365 million due as part of the ATTDS sundown Plan, which now executes its last two (2) DEMILS in FY25 (long lead material and documentation) and FY26 (In Yard Availability Period).</p>					
Accomplishments/Planned Programs Subtotals	1.820	0.473	0.730	0.000	0.730

C. Other Program Funding Summary (\$ in Millions)											
Line Item	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
• OPN/2213: <i>Surface Ship Torpedo Def (SSTD)</i>	11.010	14.325	14.560	-	14.560	2.713	2.841	2.868	2.937	Continuing	Continuing
• WPN/3113: <i>Surface Ship Torpedo Def (SSTD)</i>	4.545	3.789	4.830	-	4.830	4.745	5.531	5.634	5.729	Continuing	Continuing

Remarks
 OPN/2213 funds the AN/SLQ-25 System. No ATTDS OPN funding in FY20 and out.
 WPN/3113 funds the Surface Acoustic Device Countermeasure, ADC MK2 Mod 6 and Surface ADC Ready Stowage Lockers. No WPN ATTDS funding in FY20 and out.

D. Acquisition Strategy
 CAT Program: The Program completed a Systems Requirements Review (SRR) and Preliminary Design Review (PDR) on the Engineering Development Model (EDM) design. ARL Penn State (ARL/PSU) has completed a Technical Data Package (TDP) to support the future system builds. CAT system SALVO Software was operational prior to ATTDS system preservation and is currently in fleet use.

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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 0603506N / <i>Surface Ship Torpedo Defense</i>	Project (Number/Name) 0225 / <i>Surface Ship Torpedo Defense (SSTD)</i>
<p>TWS Program: ULTRA developed and produced five complete sensor sets. Pacific Engineering Incorporated (PEI) and In-Depth Engineering INC. developed the stowage racks and fire control systems respectively. System integration supported fabrication and fielding of the five complete systems. Testing of TWS SALVO software was complete and is currently in Fleet use. ULTRA continues to provide Fleet support for the system.</p>		

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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 0603506N / Surface Ship Torpedo Defense	Project (Number/Name) 0225 / Surface Ship Torpedo Defense (SSTD)
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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			
Systems Engineering	WR	NUWC : Newport, RI	59.271	0.100	Nov 2021	0.100	Nov 2022	0.270	Nov 2023	-		0.270	0.000	59.741	Continuing
Systems Engineering ATT Dev.	C/CPFF	PSU/ARL : State College, PA	307.114	0.100	Feb 2022	0.030	Nov 2022	0.000		-		0.000	0.000	307.244	-
Systems Engineering Warhead Dev.	WR	NSWC : Indian Head, MD	82.990	0.274	Nov 2021	0.000		0.042	Nov 2023	-		0.042	0.000	83.306	-
Systems Engineering	WR	NUWC : Keyport, WA	64.554	0.258	Nov 2021	0.080	Nov 2022	0.288	Nov 2023	-		0.288	0.000	65.180	-
Systems Engineering TDCL	C/CPFF	Ultra : Braintree, MA	11.640	0.000		0.000		0.000		-		0.000	0.000	11.640	Continuing
Systems Engineering TDCL	C/CPFF	AAC : Hauppauge, NY	4.480	0.000		0.000		0.000		-		0.000	0.000	4.480	Continuing
Systems Engineering	C/CPFF	ArgonST : Manassas, VA	0.800	0.000		0.000		0.000		-		0.000	0.000	0.800	Continuing
Systems Engineering TDCL	WR	NSWC : Dahlgren, VA	10.032	0.000		0.000		0.000		-		0.000	0.000	10.032	Continuing
Systems Engineering TDCL	WR	SPAWAR : San Diego, CA	11.118	0.000		0.000		0.000		-		0.000	0.000	11.118	Continuing
Systems Engineering	C/CPFF	UT/ARL : Arlington, TX	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	Continuing
Systems Engineering	C/CPFF	Alion : Bridgeport, CT	14.858	0.000		0.000		0.000		-		0.000	0.000	14.858	Continuing
Systems Engineering	WR	NUWC DET : Norfolk, VA	41.781	0.100	Oct 2021	0.000		0.000		-		0.000	0.000	41.881	-
Systems Development	C/CPFF	Ultra : Braintree, MA	131.119	0.626	Dec 2021	0.207	Dec 2022	0.100	Dec 2023	-		0.100	0.000	132.052	Continuing
Subtotal			740.357	1.458		0.417		0.700		-		0.700	0.000	742.932	N/A

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	C/FFP	EG&G : Gaithersburg, Md.	2.846	0.000		0.000		0.000		-		0.000	0.000	2.846	Continuing

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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 0603506N / Surface Ship Torpedo Defense	Project (Number/Name) 0225 / Surface Ship Torpedo Defense (SSTD)
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	FY22				FY23				FY24				FY25				FY26				FY27				FY28			
	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
CAT	CAT Fleet Support				CAT DEMIL																							
TWS	TWS Fleet Support																											
CVN	CVN69-DEMIL				CVN71-DEMIL				CVN75-DEMIL								CVN68-DECOM											
	CVN77-INSTALL																CVN77-DEMIL											

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

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0225				
CAT - Preservation	1	2022	4	2023
TWS - Preservation	1	2022	2	2027

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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 0603506N / <i>Surface Ship Torpedo Defense</i>	Project (Number/Name) 9999 / <i>Congressional Adds</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
9999: <i>Congressional Adds</i>	0.000	6.753	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.753
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Surface Ship Torpedo Defense (SSTD) provides a layered torpedo defense capability to protect surface ships. The AN/SLQ-25 (NIXIE) is the Navy's primary SSTD program of record, providing persistent towed torpedo countermeasure capability, currently protecting over 180 surface ships.

Project C750: Congressional Add (\$3.000M) - AN/SLQ-25 Capability improvements to the ongoing technical refresh of the AN/SLQ - Legacy System. \$0.106M realigned for SBIR.

Project C751: Congressional Add (\$4.000M) - AN/SLQ25 Development of capability. Improvements of the Towed Systems and Towing Systems. \$0.141M realigned for SBIR.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023
Congressional Add: SLQ-25 capability improvements	2.894	0.000
FY 2022 Accomplishments: - Capabilities improvements in the AN/SLQ-25 Tech refresh effort to include software development and hardware development of the electronic packages. Development will also include safety and reliability improvements to the towed winch and reel system. - Integrate capability improvements realized in FY22 into the AN/SLQ-25 Tech refresh effort.		
FY 2023 Plans: N/A		
Congressional Add: Surface ship torpedo defense towed decoys	3.859	0.000
FY 2022 Accomplishments: - Capabilities improvements to the AN/SLQ-25 Tech refresh effort, to include, technical data package completion, electronics design and development, towed system improvements to include the development of the towed decoy and towing system. - Integrate capability improvements realized in FY22 into the AN/SLQ-25 Tech refresh effort.		
FY 2023 Plans: N/A		
Congressional Adds Subtotals	6.753	0.000

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy

Single year congressional funding to increase the capability of the AN/SLQ-25 Tow Acoustic System.

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

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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 9999	
Congressional Adds: Project C750 SLQ-25 Improvements	████████████████████
Congressional Adds: Project C751 SSTD Towed Decoys	████████████████████

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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 0603506N / <i>Surface Ship Torpedo Defense</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
Congressional Adds: Project C750 SLQ-25 Improvements	3	2022	4	2023
Congressional Adds: Project C751 SSTD Towed Decoys	3	2022	4	2023