

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy **Date:** May 2021

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>							
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	770.883	7.175	11.759	1.862	-	1.862	-	-	-	-	-	-
0225: <i>Surface Ship Torpedo Defense (SSTD)</i>	770.883	7.175	11.759	1.862	-	1.862	-	-	-	-	-	-

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). FY22 funding supports mission readiness for Anti-Torpedo Torpedo Defense System (ATTDS) equipped CVNs. The CAT program developed a canisterized Anti-Torpedo Torpedo (ATT). The TWS and CAT systems make-up the ATTDS.

The ATTDS provides a hard kill torpedo defensive capability on High Value Units (HVV's). The program has developed and fielded five ATTDS Engineering Design Model (EDM) systems on CVNs. Each EDM system is one TWS with a load out of a maximum of eight CATs. In FY20, the ATTDS Program commenced sundown efforts to return the five CVNs to their original configuration. FY 22 funding does not support this effort.

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. In FY22, there is no development or evaluation of new or existing torpedo defense capabilities.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	7.242	12.816	1.942	-	1.942
Current President's Budget	7.175	11.759	1.862	-	1.862
Total Adjustments	-0.067	-1.057	-0.080	-	-0.080
• Congressional General Reductions	-	-0.057			
• Congressional Directed Reductions	-	-1.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.067	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.080	-	-0.080

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy **Date:** May 2021

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

R-1 Program Element (Number/Name)
PE 0603506N / *Surface Ship Torpedo Defense*

Change Summary Explanation

FY2021 to FY2022 funding decreased, FY22 funding supports QTR 1 ATTDS Fleet use only.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy										Date: May 2021		
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
0225: <i>Surface Ship Torpedo Defense (SSTD)</i>	770.883	7.175	11.759	1.862	-	1.862	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Countermeasure Anti-Torpedo (CAT) program developed a canisterized Anti-Torpedo Torpedo (ATT). The Torpedo Warning System (TWS) developed the required torpedo detection, classification and localization (TDCL) systems. The countermeasure TWS and CAT systems make up the Anti-Torpedo Torpedo Defense System (ATTDS). The funding supports mission readiness for Anti-Torpedo Torpedo Defense System (ATTDS) equipped CVNs. In FY21, funding supports the sundown of two systems and mission readiness for four (4) CVN deployment cycles prior to their CVN system shutdown.

The ATTDS provides a hard kill torpedo defensive capability on High Value Units (HVV's). The program has developed and fielded five ATTDS Engineering Design Model (EDM) systems on CVNs. Each EDM system consists one TWS with a load out of a maximum of eight CATs. The program delivered its first prototype system in FY13 and has delivered and installed its fifth and final system in FY17. Along with delivering and installing systems on CVN's, the ATTDS Program developed system salvo software through five test events and executed three Quick Reaction Assessment (QRA) tests.

Research and development 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 hardware and software in representative acoustic environments, against projected threats using both digital and hardware-in-the-loop simulations. Incorporation of the technology into the appropriate product line upon successful evaluation.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Countermeasure Anti-Torpedo (CAT)	2.242	4.712	0.321	0.000	0.321
Articles:	-	-	-	-	-
FY 2021 Plans:					
Continue the FY20 CVN system sundown plan, with NIXIE System Restoration, on two CVNs. Continue fleet support with CAT system loadout for four CVNs prior to deployment.					
FY 2022 Base Plans:					
Land based Fleet support of the system in the first quarter of the year.					
FY 2022 OCO Plans:					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
N/A					
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> FY2021 to FY2022 decrease of -\$4.391 million due to FY2018 Navy decision to sundown CAT.					
<i>Title:</i> Torpedo Warning System (TWS)	4.933	7.047	1.541	0.000	1.541
<i>Articles:</i>	-	-	-	-	-
<i>FY 2021 Plans:</i> Continue FY20 CVN system sundown plan, with NIXIE System Restoration on two CVNs. Support of deployments for the four CVNs prior to their sundown.					
<i>FY 2022 Base Plans:</i> Land based Fleet support of the system in the first quarter of the year.					
<i>FY 2022 OCO Plans:</i> N/A					
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> FY2021 to FY2022 decrease of -\$5.506 million due to FY2018 Navy decision to sundown TWS.					
Accomplishments/Planned Programs Subtotals	7.175	11.759	1.862	0.000	1.862

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN/2213: <i>Surface Ship Torpedo Def (SSTD)</i>	12.439	13.241	11.010	-	11.010	-	-	-	-	-	-
• WPN/3113: <i>Surface Ship Torpedo Def (SSTD)</i>	5.561	5.811	4.545	-	4.545	-	-	-	-	-	-

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.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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>

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 operational and is currently in fleet use.

TWS Program: ULTRA/3Phoenix developed and produced of 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 is complete and is currently in fleet use. It is anticipated that ULTRA/3 Phoenix will continue to support the program until sun setting of the systems is complete.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy **Date:** May 2021

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)
--	--	--

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	51.431	1.500	Nov 2019	6.340	May 2021	0.100	Nov 2021	-		0.100	-	-	-
Systems Engineering ATT Dev.	C/CPFF	PSU/ARL : State College, PA	306.614	0.500	Dec 2019	0.000		0.100	Nov 2021	-		0.100	-	-	-
Systems Engineering	C/CPFF	JHU/APL : Baltimore , MD	1.740	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering Warhead Dev.	WR	NSWC : Indian Head, MD	81.190	0.500	Nov 2019	1.300	Nov 2020	0.274	Nov 2021	-		0.274	-	-	-
Systems Engineering	WR	NUWC : Keyport, WA	61.531	1.242	Feb 2020	1.781	Nov 2020	0.300	Nov 2021	-		0.300	-	-	-
Systems Engineering TDCL	C/CPFF	Ultra : Braintree, MA	11.640	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering ATT	WR	ONR : Arlington, VA	1.680	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering TDCL	C/CPFF	AAC : Hauppauge, NY	4.480	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	WR	OPTEVFOR : Norfolk, VA	2.430	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	C/CPFF	ArgonST : Manassas, VA	0.800	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering TDCL	WR	NSWC : Dahlgren, VA	10.032	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering TDCL	WR	SPAWAR : San Diego, CA	11.118	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	C/CPFF	UT/ARL : Arlington, TX	0.600	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	C/CPFF	Alion : Bridgeport, CT	14.858	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	WR	NUWC DET : Norfolk, VA	41.781	0.000		0.000		0.100	Oct 2021	-		0.100	-	-	-
Systems Development	C/CPFF	3 Phoenix : Fairfax, VA	128.019	1.500	Feb 2020	1.600	Dec 2020	0.626	Dec 2021	-		0.626	-	-	-
Integrated Logistic Spt	WR	NSWC Crane : Crane, IN	1.113	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	C/CPFF	PEI : Roca, NE	4.745	0.000		0.000		0.000		-		0.000	-	-	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy **Date:** May 2021

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)
--	--	--

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	CARDEROCK : Bethesda, MD	1.630	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	C/CPFF	CGI : Washington, DC	0.200	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	C/BA	Dam Neck : Virginia Beach, VA	0.022	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	C/BA	NSWC Panama City : Panama City, FL	0.255	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	C/BA	Devron 26 : Not Specified	0.139	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	WR	Puget Sounds : Norfolk, VA	0.200	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	WR	NAVAIR (NAWC WD) : Patuxent River, MD	0.140	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	WR	NORFOLK SHIPYARD : Norfolk, VA	0.150	0.000		0.000		0.000		-		0.000	-	-	-
Systems Engineering	WR	NORFOLK PLANNING YARD : Norfolk, VA	0.090	0.000		0.000		0.000		-		0.000	-	-	-
Subtotal			738.628	5.242		11.021		1.500		-		1.500	-	-	N/A

Remarks
FY2021 Systems Engineering delay due to fleet scheduling and decision to start the first CVN DEMIL in Q1 and Q2 of FY2021. This will not increase the cost of the CVN DEMIL starting in early Q4 FY2021.

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Earned Value Mgmt Spt	C/CPAF	Pioneer : Virginia	0.050	0.000		0.000		0.000		-		0.000	-	-	-

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
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)

	FY20				FY21				FY22			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
CAT	ATT PRE/ POST DEPLOYMENT MAINTENANCE											
TWS	TWS PRE/POST DEPLOYMENT MAINTENANCE											
CVN	CVN-77 MK48/LFA Improvement						CVN-71 DEMIL					
							CVN-69 DEMIL					

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
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>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0225				
CAT - Integration ECP	1	2020	4	2022
TWS - Integration ECP	1	2020	4	2022
SUNDOWN	1	2020	4	2022