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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>					R-1 Program Element (Number/Name) PE 0604030N I (U) <i>Rapid Prototyping, Experimentation and Dem</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	0.000	25.225	28.596	36.197	-	36.197	41.977	42.358	43.266	44.131	Continuing	Continuing
0385: <i>Rapid Prototype Development</i>	0.000	21.314	28.596	36.197	-	36.197	41.977	42.358	43.266	44.131	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.000	3.911	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.911

Note

FY 2018 funding for Project Unit (PU) 0385 reflects the congressionally directed transfer of \$20 million from PE 0603382N Advanced Combat Systems Tech PU 0385 to PE 0604030N Rapid Prototyping, Experimentation and Demonstration (RPED) PU 0385 to support the Expeditionary Surveillance Towed Array Sensor System (SURTASS-E) RPED project. FY 2018 funding for PU 9999 reflects the Congressional Add of \$3.911M to support the SURTASS-E RPED project.

A. Mission Description and Budget Item Justification

The Rapid Prototyping, Experimentation, and Demonstration (RPED) Program provides Department of the Navy (DON) leadership the ability to respond to urgent and emergent operational needs that require immediate actions to mitigate current threats, offset future threats, and leverage advances in technology that will enable Naval forces to maintain their operational and technological superiority over potential adversaries. In accordance with the 2018 National Defense Strategy (NDS) this program enables a more agile, lethal, and resilient force by rapidly developing and fielding needed warfighting capabilities. Projects funded in this program are aligned with the tenants of the Chief of Naval Operations Design for Maritime Superiority Version 2.0 to rapidly acquire key platforms and payloads to achieve high velocity outcomes. Concepts and enabling technologies include; directed energy weapons, hypersonics, autonomous and unmanned systems, artificial intelligence, machine learning, and multi-domain operations.

Oversight and accountability of projects funded by this program is provided by the DON Accelerated Acquisition Board of Directors (AABoD). Specific projects under this program will be selected and executed in accordance with the DON Accelerated Acquisition Process as described in SECNAVINST 5000.42.

Due to the number of efforts in this PE, the programs described herein are representative of the work included in this PE.

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PE 0604030N: (U)Rapid Prototyping, Experimentation an...
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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0604030N I (U)Rapid Prototyping, Experimentation and Dem				Project (Number/Name) 0385 I Rapid Prototype Development			
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
0385: Rapid Prototype Development	0.000	21.314	28.596	36.197	-	36.197	41.977	42.358	43.266	44.131	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Efforts in this Project Unit (PU) 0385 were previously funded in PE 0603382N Advanced Combat Systems Tech; PU 0385 Rapid Prototype Development and PU 0399 Unmanned Rapid Prototype Development. Funds were transferred to this PU beginning in FY2019.

A. Mission Description and Budget Item Justification

The Rapid Prototyping, Experimentation, and Demonstration (RPED) Program provides Department of the Navy (DON) leadership the ability to respond to urgent and emergent operational needs that require immediate actions to mitigate current threats, offset future threats, and leverage advances in technology that will enable Naval forces to maintain their operational and technological superiority over potential adversaries. In accordance with the 2018 National Defense Strategy (NDS) this program enables a more agile, lethal, and resilient force by rapidly developing and fielding needed warfighting capabilities. Projects funded in this program are aligned with the tenants of the Chief of Naval Operations Design for Maritime Superiority Version 2.0 to rapidly acquire key platforms and payloads to achieve high velocity outcomes. Concepts and enabling technologies include; directed energy weapons, hypersonics, autonomous and unmanned systems, artificial intelligence, machine learning, and multi-domain operations.

Oversight and accountability of projects funded by this program is provided by the DON Accelerated Acquisition Board of Directors (AABoD). Specific projects under this program will be selected and executed in accordance with the DON Accelerated Acquisition Process as described in SECNAVINST 5000.42.

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

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Rapid Prototype Development, Experimentation and Demonstration	21.314	28.596	36.197	0.000	36.197
Articles:	-	-	-	-	-
<i>FY 2019 Plans:</i> Complete SURTASS-E RDT&E activities to support initial fielding of capability in FY2019. Specific FY19 activities include: completion of training of operational personnel; completion of system certifications including TEMPEST, cybersecurity, system safety, and full operation acceptance; transportation of system to operational location; completion of integration and system mobilization on to selected vessel of opportunity (VOO); conduct system-level operational demonstration of SURTASS-E as installed on the selected VOO; and correct deficiencies identified in the operational demonstration prior to operational deployment of the full system capability.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy				Date: March 2019	
Appropriation/Budget Activity 1319 / 4		R-1 Program Element (Number/Name) PE 0604030N / (U) <i>Rapid Prototyping, Experimentation and Dem</i>		Project (Number/Name) 0385 / <i>Rapid Prototype Development</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Plans and associated resources in this project support the completion of the Standard Missile-6 (SM-6) Block (Blk) 1B Phase 1A Rocket Motor rapid prototyping project. The SM-6 Blk 1B Phase 1A rapid prototyping project was designated by the AABoD in February of 2018 as the initial phase of the SM-6 Blk 1B accelerated acquisition program. SM-6 Blk 1B Phase 1A will provide a prototype rocket motor to support the operational requirements of the SM-6 Blk 1B Phase 1A All Up Round (AUR) accelerated acquisition program. Specific FY19 activities include: complete engineering, design, integration, and static firing of a 21-inch diameter 73-inch length "pathfinder" prototype rocket motor; apply lessons learned from 73-inch prototype to complete engineering, design, integration, and static firing of a 21-inch diameter 96-inch tactical length final prototype rocket motor with flight-weight nozzle to verify system performance; conduct insensitive munitions testing.</p> <p>FY 2020 Base Plans: Continue to fund RPED projects designated by the AABoD. Potential RPED projects may include, but are not limited to; directed energy weapons, hypersonics, unmanned systems, artificial intelligence, machine learning, and multi-domain operations.</p> <p>FY 2020 OCO Plans: N/A</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The funding increase between FY19 and FY20 is due to the Navy's continued emphasis on innovation, speed and agility to meet urgent/emergent priority needs, mitigate current threats, offset future threats, and leverage advances in technology to maintain operational and technological superiority over potential adversaries.</p>					
Accomplishments/Planned Programs Subtotals	21.314	28.596	36.197	0.000	36.197
C. Other Program Funding Summary (\$ in Millions)					
N/A					
Remarks					
D. Acquisition Strategy					
Projects identified for execution under this project number are non-acquisition programs. Each project will develop a project plan to support project execution. Project plans will include a project schedule and technical requirements and objectives to measure project performance. The selected technical solutions will be demonstrated in operationally relevant environments to assess their ability to meet warfighter requirements. Project deliverables include actual integrated hardware/software prototype systems, CONOPS, requirements, test reports, technical data, and associated doctrine, organization, training, leadership and education, and personnel aspects					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / (U) <i>Rapid Prototyping, Experimentation and Dem</i>	Project (Number/Name) 0385 / <i>Rapid Prototype Development</i>

necessary to support decision making. These deliverables will be used to support project disposition decisions to include transition of technologies to acquisition, further refinement of the technology, or termination and reinvestment of remaining funds to other technologies that add military value.

E. Performance Metrics

Performance metrics are specific to each of the projects funded. All will include measures identified in the Statement of Objectives (SOO), including completions, successes, terminations, and iterative prototype cycle times reported against schedules and deliverables stated in the requirement documents.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0604030N / (U)Rapid Prototyping, Experimentation and Dem				Project (Number/Name) 0385 / Rapid Prototype Development					
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
SURTASS-E Mission System HW/SW Engineering	C/CPFF	Adaptive Methods : Centreville, VA	0.000	0.522	Jul 2018	0.000		0.000		-		0.000	0.000	0.522	-
SURTASS-E Mission System HW/SW Integration	SS/CPFF	Johns Hopkins APL : Laurel, MD	0.000	4.848	May 2018	0.000		0.000		-		0.000	0.000	4.848	-
SURTASS-E Mission System HW/SW Engineering	C/CPFF	L3/CSC : Millersville, MD	0.000	0.628	Jul 2018	0.000		0.000		-		0.000	0.000	0.628	-
SURTASS-E Vessel of Opportunity (VOO) Evaluation and Leasing	WR	Military Sealift Command : Norfolk, VA	0.000	2.933	Jul 2018	0.000		0.000		-		0.000	0.000	2.933	-
SURTASS-E Common Support Modules Dev Integration	MIPR	PMS 420 : Washington, DC	0.000	2.651	Jul 2018	0.900	Dec 2018	0.000		-		0.000	5.000	8.551	-
SURTASS-E Winch Design and Procurement	WR	NAVFAC EXWC : Port Hueneme, CA	0.000	0.313	Jul 2018	0.000		0.000		-		0.000	0.000	0.313	-
SURTASS-E Towed Array Test Equipment and VOO Assessment	WR	NSWC : Carderock: Carderock, MD	0.000	0.890	Jul 2018	0.000		0.000		-		0.000	0.000	0.890	-
SURTASS-E Towed Array Towing	C/CPFF	Lockheed Martin : Manassas, Va	0.000	0.843	May 2018	3.700	Dec 2018	0.000		-		0.000	3.700	8.243	-
SURTASS-E C4I Suite Development and Integration	WR	NSWC PCD : Panama City, FL	0.000	2.290	Jul 2018	0.000		0.000		-		0.000	0.000	2.290	-
SURTASS-E Acoustic Processing support	WR	NUWC Keyport : Keyport, WA	0.000	0.218	Jul 2018	0.000		0.000		-		0.000	0.000	0.218	-
SURTASS-E VOO Installation Hardware	C/CPFF	Oceaneering Intl : San Diego, CA	0.000	1.643	Jul 2018	0.000		0.000		-		0.000	0.000	1.643	-
SURTASS-E Towed System Shore Support HW	WR	SSC LANT : Little Creek, VA	0.000	0.479	May 2018	0.000		0.000		-		0.000	0.000	0.479	-
SURTASS-E Towed Array Towing HW	C/CPFF	Lockheed Martin : Manassas, VA	0.000	0.893	Jul 2018	0.000		0.000		-		0.000	0.000	0.893	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0604030N / (U)Rapid Prototyping, Experimentation and Dem				Project (Number/Name) 0385 / Rapid Prototype Development					
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
SURTASS-E Program Management and Engineering Support	WR	Various : Various	0.000	0.163	Jul 2018	0.000		0.000		-		0.000	0.000	0.163	-
SM6 Rocket Motor Design, Integration, and Test	WR	Naval Air Warfare Center, Weapons Division (NAWCW : China Lake, CA	0.000	2.000	Oct 2018	17.000	Nov 2018	0.000		-		0.000	0.000	19.000	-
SM6 Engineering Support	WR	Naval Surface Warfare Center (NSWC), Indian Head : Indian Head, MD	0.000	0.000		1.000	Nov 2018	0.000		-		0.000	0.000	1.000	-
SM6 Systems Engineering Support	C/FFP	Johns Hopkins University Applied Physics Laborator : Laurel, MD	0.000	0.000		1.000	Dec 2018	0.000		-		0.000	Continuing	Continuing	Continuing
AABoD Direct RPED Projects	Various	Various : Various	0.000	0.000		4.996	Mar 2019	36.197	Jan 2020	-		36.197	0.000	41.193	-
Subtotal			0.000	21.314		28.596		36.197		-		36.197	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			0.000	21.314		28.596		36.197		-		36.197	Continuing	Continuing	N/A
Remarks															
Support and Test and Evaluation costs are directly associated with the delivery of the primary product and included in the product development cost category for rapid prototype development, experimentation and demonstration cost categories.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy																	Date: March 2019											
Appropriation/Budget Activity 1319 / 4										R-1 Program Element (Number/Name) PE 0604030N / (U)Rapid Prototyping, Experimentation and Dem								Project (Number/Name) 0385 / Rapid Prototype Development										
Proj 0385	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
SURTASS-E																												
System Design and Engineering																												
Software Development/Hardware Lab Testing																												
Concept of Employment (CONEMP) development																												
System Integration and Assembly																												
Vessel of Opportunity (VOO) Integration and At-sea Shakedown Testing																												
Operational Demonstration and System Evaluation																												
Quick Reaction Assessment																												
Fully Supported Capability																												
SM-6 Blk 1B Phase 1A																												
System Design, Integration and Test																												
Static Firing Events																												
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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / (U) <i>Rapid Prototyping, Experimentation and Dem</i>	Project (Number/Name) 0385 / <i>Rapid Prototype Development</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0385				
SURTASS-E: System Design and Engineering: System Design and Engineering	1	2018	2	2018
SURTASS-E: Software Development/Hardware Lab Testing: Software Development/ Hardware Lab Testing	2	2018	4	2018
SURTASS-E: Concept of Employment (CONEMP) development: Concept of Employment (CONEMP) development	2	2018	3	2019
SURTASS-E: System Integration and Assembly: System Integration and Assembly	4	2018	1	2019
SURTASS-E: Vessel of Opportunity (VOO) Integration and At-sea Shakedown Testing: Vessel of Opportunity (VOO) Integration and At-sea Shakedown Testing	2	2019	3	2019
SURTASS-E: Operational Demonstration and System Evaluation: Operational Demonstration and System Evaluation	3	2019	4	2019
SURTASS-E: Quick Reaction Assessment: Quick Reaction Assessment	1	2020	1	2020
SURTASS-E: Fully Supported Capability: Fully Supported Capability	2	2020	2	2020
SM-6 Blk 1B Phase 1A: System Design, Integration and Test: System Design, Integration and Test	1	2019	2	2019
SM-6 Blk 1B Phase 1A: Static Firing Events: Static Firing Event 1	2	2019	2	2019
SM-6 Blk 1B Phase 1A: Static Firing Events: Static Firing Event 2	3	2019	3	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0604030N / (U)Rapid Prototyping, Experimentation and Dem				Project (Number/Name) 9999 / Congressional Adds			
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
9999: Congressional Adds	0.000	3.911	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.911
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification
FY18 Congressional Add to support the SURTASS-E RPED project.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019
Congressional Add: Expeditionary SURTASS	3.911	0.000
FY 2018 Accomplishments: This Congressional Add funded Vessel of Opportunity (VOO) evaluation and leasing to support integration of SURTASS-E components and subsystems in preparation for the operational demonstration.		
FY 2019 Plans: N/A		
Congressional Adds Subtotals	3.911	0.000

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

Remarks

D. Acquisition Strategy
N/A

E. Performance Metrics
Performance metrics will include measures identified in the Statement of Objectives (SOO), including completions, successes, and iterative prototype cycle times reported against schedules and deliverables stated in the requirement documents.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019					
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0604030N I (U)Rapid Prototyping, Experimentation and Dem						Project (Number/Name) 9999 I Congressional Adds					
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		
Vessel of Opportunity (VOO) Evaluation and Leasing	WR	Military Sealift Command : Norfolk, VA	0.000	3.911	Jul 2018	0.000		0.000		-		0.000	0.000	3.911	-		
Subtotal			0.000	3.911		0.000		0.000		-		0.000	0.000	3.911	N/A		
Remarks																	
Support and Test and Evaluation costs are directly associated with the delivery of the primary product and included in the product development cost category for rapid prototype development, experimentation and demonstration cost categories.																	
			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			0.000	3.911		0.000		0.000		-		0.000	0.000	3.911	N/A		
Remarks																	

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy																							Date: March 2019						
Appropriation/Budget Activity 1319 / 4												R-1 Program Element (Number/Name) PE 0604030N I (U)Rapid Prototyping, Experimentation and Dem										Project (Number/Name) 9999 I Congressional Adds							
Proj 9999		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
SURTASS-E																													
System Integration and Assembly																													

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / (U)Rapid Prototyping, Experimentation and Dem	Project (Number/Name) 9999 / Congressional Adds

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
SURTASS-E: System Integration and Assembly: System Integration and Assembly	4	2018	1	2019