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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy **Date:** February 2020

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 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	21.314	27.495	31.000	12.100	-	12.100	0.000	0.000	0.000	0.000	0.000	91.909
0385: <i>Rapid Prototype Development</i>	21.314	23.600	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	44.914
1036: <i>TETRA</i>	0.000	2.095	9.900	2.500	-	2.500	0.000	0.000	0.000	0.000	0.000	14.495
1037: <i>MK 38 MOD 4</i>	0.000	1.800	21.100	9.600	-	9.600	0.000	0.000	0.000	0.000	0.000	32.500

A. Mission Description and Budget Item Justification

The Rapid Prototyping, Experimentation, and Demonstration (RPED) Program accelerates and increases our Naval technology advantage. It's aligned to capability gaps and naval warfighting priorities. RPED leverages resources to provide rapid development of technologies into products that deliver urgently needed capability solutions. The FY2021 budget request reflects reduction as the DON pursues alternative funding strategies to support rapid development efforts. In accordance with the 2018 National Defense Strategy (NDS) and leveraging National Defense Authorization Act authorities for Middle Tier Acquisition and Acquisition Agility to support 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.

TETRA is a remotely operated vehicle (ROV) with the capacity for multiple mission payloads as key enabler to Subsea and Seabed Warfare (SSW) as identified in the SSW Initial Capabilities Document (ICD) signed March 2019.

The MK 38 MOD 4 30mm gun weapon system (GWS) will provide surface ship defense capability addressing unmanned aerial systems (UAS) and high speed maneuverable unmanned surface vehicle (USV) threats. This is a Maritime Accelerated Acquisition (MAA) starting in FY19 and will field an Initial Capability (IC) in FY22 on DDG-51 ship class with AEGIS Baseline 9 combat system.

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.

Advanced Component Development and Prototypes (ACD&P) efforts necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment are funded in this PE. Most of the work in this PE can be classified between Technology Readiness Level (TRL) 6 (system/subsystem model or prototype demonstration in a relevant environment) and TRL 7 (system prototype demonstration in an operational environment).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy	Date: February 2020
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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 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>
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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	28.596	36.197	41.977	-	41.977
Current President's Budget	27.495	31.000	12.100	-	12.100
Total Adjustments	-1.101	-5.197	-29.877	-	-29.877
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-5.197			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.101	0.000			
• Program Adjustments	0.000	0.000	-29.897	-	-29.897
• Rate/Misc Adjustments	0.000	0.000	0.020	-	0.020

Change Summary Explanation

Funding: The funding decrease in FY 2021 for Project 0385 (Rapid Prototype Development) is due to realignment of funding for Project 1036 - TETRA and Project 1037 - MK38 Mod 4 30MM Gun Weapon System. Both projects were designated as Maritime Accelerated Acquisition (MAA) Rapid Prototyping programs in FY 2019. FY 2021 funding decrease is due to ramping down of development efforts for PRJ 1036 and PRJ 1037.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy										Date: February 2020		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>					Project (Number/Name) 0385 / <i>Rapid Prototype Development</i>		
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
0385: <i>Rapid Prototype Development</i>	21.314	23.600	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	44.914
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Rapid Prototyping, Experimentation, and Demonstration (RPED) Program accelerates and increases our naval technology advantage. It's aligned to capability gaps and naval warfighting priorities. RPED leverages resources to provide rapid development of technologies into products that deliver urgently needed capability solutions. RPED gives 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Rapid Prototype Development, Experimentation and Demonstration	23.600	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2020 Plans: N/A					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: The funding decrease from FY 2020 to FY 2021 for Project 0385 (Rapid Prototype Development) reflects the establishment of Project 1036 - TETRA and Project 1037 - MK38 Mod 4 30MM Gun Weapon System and the					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 0385 / <i>Rapid Prototype Development</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
associated transfer of funds from Project 0385 required to support these projects in FY 2021. Both projects were designated as Maritime Accelerated Acquisition (MAA) Rapid Prototyping programs in FY 2019.					
Accomplishments/Planned Programs Subtotals	23.600	0.000	0.000	0.000	0.000

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 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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 0385 / <i>Rapid Prototype Development</i>
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
SURTASS-E Mission System HW/SW Engineering	C/CPFF	Adaptive Methods : Centreville, VA	0.522	0.000		0.000		0.000		-		0.000	0.000	0.522	-
SURTASS-E Mission System HW/SW Integration	SS/CPFF	Johns Hopkins APL : Laurel, MD	4.848	0.000		0.000		0.000		-		0.000	0.000	4.848	-
SURTASS-E Mission System HW/SW Engineering	C/CPFF	L3/CSC : Millersville, MD	0.628	0.000		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	2.933	0.000		0.000		0.000		-		0.000	0.000	2.933	-
SURTASS-E Common Support Modules Dev Integration	MIPR	PMS 420 : Washington, DC	2.651	0.900	Dec 2018	0.000		0.000		-		0.000	0.000	3.551	-
SURTASS-E Winch Design and Procurement	WR	NAVFAC EXWC : Port Hueneme, CA	0.313	0.000		0.000		0.000		-		0.000	0.000	0.313	-
SURTASS-E Towed Array Test Equipment and VOO Assessment	WR	NSWC : Carderock: Carderock, MD	0.890	0.000		0.000		0.000		-		0.000	0.000	0.890	-
SURTASS-E Towed Array Towing	C/CPFF	Lockheed Martin : Manassas, Va	0.843	3.700	Dec 2018	0.000		0.000		-		0.000	0.000	4.543	-
SURTASS-E C4I Suite Development and Integration	WR	NSWC PCD : Panama City, FL	2.290	0.000		0.000		0.000		-		0.000	0.000	2.290	-
SURTASS-E Acoustic Processing support	WR	NUWC Keyport : Keyport, WA	0.218	0.000		0.000		0.000		-		0.000	0.000	0.218	-
SURTASS-E VOO Installation Hardware	C/CPFF	Oceaneering Intl : San Diego, CA	1.643	0.000		0.000		0.000		-		0.000	0.000	1.643	-
SURTASS-E Towed System Shore Support HW	WR	SSC LANT : Little Creek, VA	0.479	0.000		0.000		0.000		-		0.000	0.000	0.479	-
SURTASS-E Towed Array Towing HW	C/CPFF	Lockheed Martin : Manassas, VA	0.893	0.000		0.000		0.000		-		0.000	0.000	0.893	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 0385 / <i>Rapid Prototype Development</i>
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
SURTASS-E Program Management and Engineering Support	WR	Various : Various	0.163	0.000		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	2.000	17.000	Nov 2018	0.000		0.000		-		0.000	0.000	19.000	-
SM6 Engineering Support	WR	Naval Surface Warfare Center (NSWC), Indian Head : Indian Head, MD	0.000	1.000	Nov 2018	0.000		0.000		-		0.000	0.000	1.000	-
SM6 Systems Engineering Support	C/FFP	Johns Hopkins University Applied Physics Laborator : Laurel, MD	0.000	1.000	Dec 2018	0.000		0.000		-		0.000	0.000	1.000	-
AABoD Direct RPED Projects	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			21.314	23.600		0.000		0.000		-		0.000	0.000	44.914	N/A

Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		21.314	23.600	0.000	0.000	-	0.000	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 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 0385 / <i>Rapid Prototype Development</i>
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Proj 0385	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				
	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																													
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		▲	▲																										
AABoD Directed RPED Projects																													

2021DON - 0604030N - 0385

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & 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: Concept of Employment (CONEMP) development: Concept of Employment (CONEMP) development	1	2019	3	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 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 1036 / TETRA
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
1036: TETRA	0.000	2.095	9.900	2.500	-	2.500	0.000	0.000	0.000	0.000	0.000	14.495
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funds were transferred from the Rapid Prototype Development Project 0385 (PE0604030N) to this newly established TETRA Project 1036. TETRA was submitted to the Accelerated Acquisition Board of Directors (AABoD) and approved as a Maritime Accelerated Acquisition (MAA) program.

A. Mission Description and Budget Item Justification

TETRA is a remotely operated vehicle (ROV) with the capacity for multiple mission payloads as key enabler to Subsea and Seabed Warfare (SSW) as identified in the SSW Initial Capabilities Document (ICD) signed March 2019. TETRA is planned to be a future optional payload for SSNs and SSGNs by expanding current capabilities not offered by either submarines or unmanned undersea vehicles (UUV) through real time situational awareness and SSW effects. This is a Maritime Accelerated Acquisition (MAA) starting in FY19 and will field an Initial Capability (IC) in FY22.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: TETRA	2.095	9.900	2.500	0.000	2.500
Articles:	-	-	-	-	-
FY 2020 Plans:					
- Prototype demonstration					
- Continue Accelerated Acquisition Development					
- Continue overall vehicle endurance upgrade					
- Continue modular payload bay development					
- Begin semi-autonomous Launch & Recovery (L&R)					
- Conduct Payload Development Preliminary Design Review (PDR)					
- Conduct Payload Development Critical Design Review (CDR)					
- Complete fabrication of EDM unit					
- Procure payloads and begin integration & testing					
- Begin Cooperative development with IWS5 & PMS425					
- Begin VIRIGNIA Class (VCS) Stowage Development					
- Begin VCS TEMPALT package					
FY 2021 Base Plans:					
- Continue overall vehicle endurance upgrade					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 1036 / TETRA
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<ul style="list-style-type: none"> - Complete thruster upgrade - Complete modular payload bay development - Complete Autonomous Recovery and Docking - Complete system certification testing of upgrades - Complete fabrication of initial unit - Procure payloads and begin integration & testing - Continue VCS TEMPALT package - Release Request for Proposal (RFP) to Industry - Begin Integration into Submarine Warfare Federated Tactical Systems (SWFTS) Payload Control System (PCS) <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: FY 2020 to FY 2021 decrease due to TETRA efforts ramping down in FY21</p>					
Accomplishments/Planned Programs Subtotals	2.095	9.900	2.500	0.000	2.500

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603561N/2096: <i>Payload Delivery Development</i>	0.000	0.000	0.000	-	0.000	7.000	14.500	2.000	0.000	0.000	23.500

Remarks

D. Acquisition Strategy

Hardware and software development integration supporting product improvement addressing new mission area.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 1036 / TETRA
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Product Development	FFRDC	ARL/UT : Austin, TX	0.000	2.095	Sep 2019	8.730	Mar 2020	0.650	Nov 2020	-		0.650	0.000	11.475	-
Product Development	WR	NUWC NPT : Newport, RI	0.000	0.000		0.440	Feb 2020	0.220	Oct 2020	-		0.220	0.000	0.660	-
Product Development	WR	Portsmouth : Portsmouth, NH	0.000	0.000		0.330	Feb 2020	0.155	Oct 2020	-		0.155	0.000	0.485	-
Product Development	WR	NSWC CD : Carderock, MD	0.000	0.000		0.000		0.155	Oct 2020	-		0.155	0.000	0.155	-
Product Development	C/CPAF	HII : Newport News	0.000	0.000		0.000		1.320	Nov 2020	-		1.320	0.000	1.320	-
Subtotal			0.000	2.095		9.500		2.500		-		2.500	0.000	14.095	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Testing	WR	COMOPTEVFOR : Norfolk, VA	0.000	0.000		0.400	Feb 2020	0.000		-		0.000	0.000	0.400	-
Subtotal			0.000	0.000		0.400		0.000		-		0.000	0.000	0.400	N/A

Project Cost Totals	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	2.095	9.900	2.500	-	2.500	0.000	14.495	N/A

Remarks

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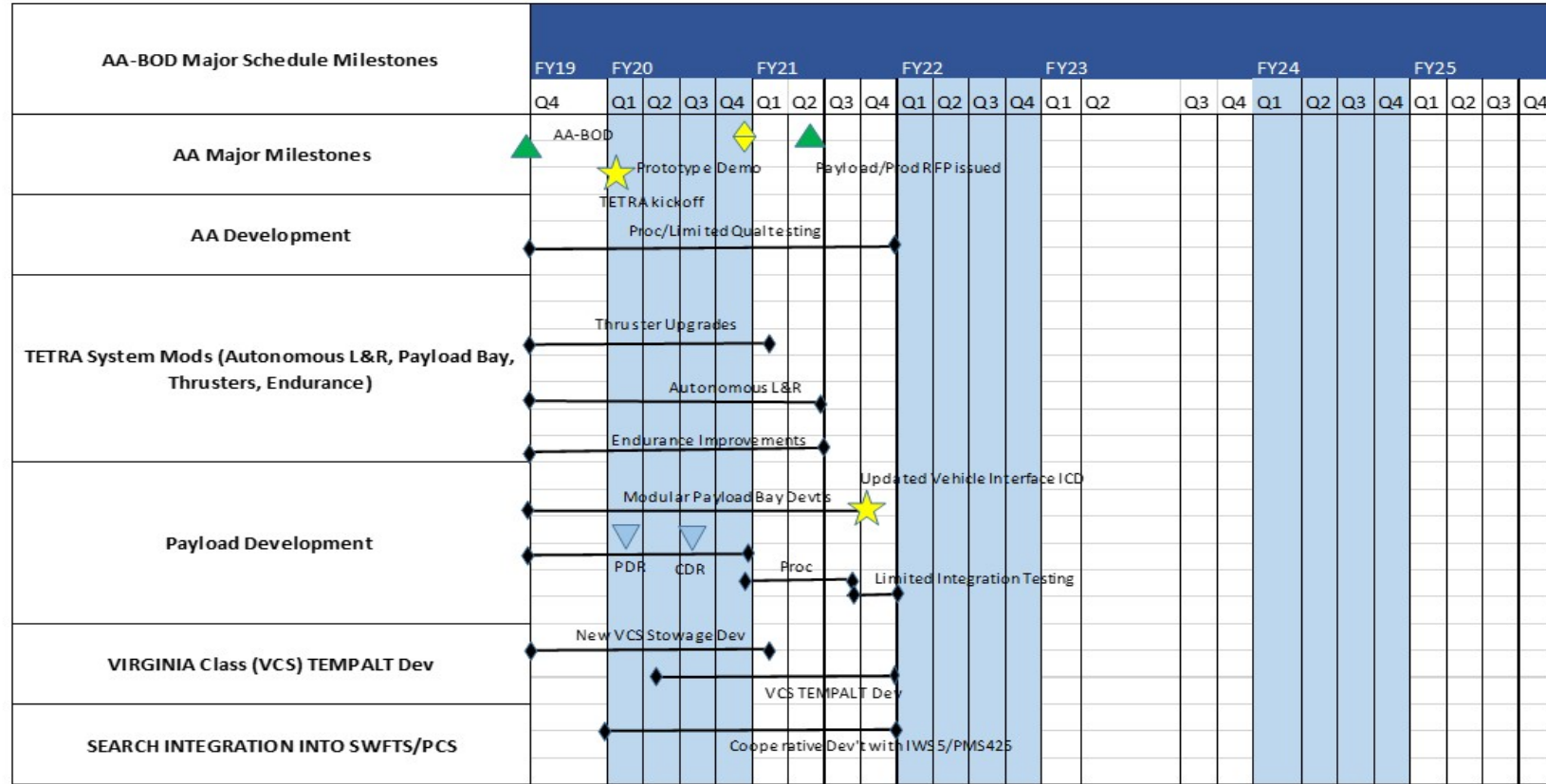
Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy

Date: February 2020

Appropriation/Budget Activity
1319 / 4

R-1 Program Element (Number/Name)
PE 0604030N / *Rapid Prototyping, Experimentation & Dem*

Project (Number/Name)
1036 / TETRA



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 1036 / TETRA
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 1036				
AA Major Milestones: AA Bod	4	2019	4	2019
AA Major Milestones: TETRA Kickoff	1	2020	1	2020
AA Major Milestones: Prototype Demo	4	2020	4	2020
AA Major Milestones: Payload RFP Issued	2	2021	2	2021
AA Development: Begin Proc/Limited Qualification Testing	4	2019	4	2021
Tetra System Mods: Thruster Upgrades	4	2019	1	2021
Tetra System Mods: Autonomous L&R	4	2019	2	2021
Tetra System Mods: Endurance Improvements	4	2019	2	2021
Payload Development: Modular Payload Bay Development	4	2019	3	2021
Payload Development: Updated Vehicle Interface Control Document	3	2021	3	2021
Payload Development: PDR	1	2020	1	2020
Payload Development: CDR	3	2020	3	2020
Payload Development: Procurement	4	2020	3	2021
Payload Development: Limited Integration Testing	3	2021	4	2021
Virginia CL (VCS) TEMPALT Development: New VCS Stowage Development	4	2019	1	2021
Virginia CL (VCS) TEMPALT Development: VCS TEMPALT Development	2	2020	4	2021
Search Integration Into Tech Baseline: Cooperative Development with IWS5 and PMS425	1	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 1037 / MK 38 MOD 4
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
1037: MK 38 MOD 4	0.000	1.800	21.100	9.600	-	9.600	0.000	0.000	0.000	0.000	0.000	32.500
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

FY19, FY20, and FY21 funds were transferred from the Rapid Prototype Development Project 0385 (PE0604030N) to this newly established MK38 Mod 4 30MM GWS Project 1037 as a Maritime Accelerated Acquisition (MAA) program. MK38 Mod 4 was submitted to the Accelerated Acquisition Board of Directors and approved as a Maritime Accelerated Acquisition (MAA) program.

Project 1037 is the next version of the MK38 Gun Weapon System (GWS) that addresses increased threats in theatre. MK38 Mod 2 is currently in production under the WPN Gun Mount Mods BLI 4217; the MK38 Mod 3 upgrade is currently under development in PE0603795N Project 2038.

A. Mission Description and Budget Item Justification

The MK 38 MOD 4 30mm gun weapon system (GWS) will provide surface ship defense capability addressing unmanned aerial systems (UAS) and high speed maneuverable unmanned surface vehicle (USV) threats. This is a Maritime Accelerated Acquisition (MAA) starting in FY19 and will field an Initial Capability (IC) in FY22 on DDG-51 ship class with AEGIS Baseline 9 combat system.

Additional details can be provided at a higher classification

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: MK 38 MOD 4 30mm Gun Weapon System	1.800	21.100	9.600	0.000	9.600
Articles:	-	-	-	-	-
<i>FY 2020 Plans:</i>					
-Initiate fire control software development.					
-Initiate systems engineering and requirements analysis.					
-Initiate logistics development.					
-Initiate GWS development.					
-Initiate combat system integration.					
<i>FY 2021 Base Plans:</i>					
-Continue fire control software development.					
-Conduct various systems engineering reviews.					
-Continue logistics development.					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 1037 / <i>MK 38 MOD 4</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
-Continue GWS development. -Continue combat system integration. FY 2021 OCO Plans: N/A FY 2020 to FY 2021 Increase/Decrease Statement: FY2020 to FY2021 decrease due to reduced amount of development work in FY2021. Most development & integration effort is focused in FY2020.					
Accomplishments/Planned Programs Subtotals	1.800	21.100	9.600	0.000	9.600

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

N/A

Remarks

D. Acquisition Strategy

Hardware and software development and integration supporting product improvement addressing new threats.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 1037 / MK 38 MOD 4
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
MOD 4 GWS Development	WR	NSWC DD : Dahlgren, VA	0.000	0.000		5.000	Feb 2020	6.600	Nov 2020	-		6.600	0.000	11.600	-
Prototype Procurement	WR	NSWC CR : Crane, IN	0.000	0.000		4.700	May 2020	0.000		-		0.000	0.000	4.700	-
Logistics Development	WR	NSWC IHD Picatinny : Picatinny, NJ	0.000	0.000		0.250	Feb 2020	1.000	Nov 2020	-		1.000	0.000	1.250	-
Combat System Integration	WR	NSWC DD : Dahlgren, VA	0.000	0.000		2.200	Feb 2020	2.000	Nov 2020	-		2.000	0.000	4.200	-
Procurement of two (2) 30/40mm MK 44S cannons	WR	NSWC CR : Crane, IN	0.000	0.800	Aug 2019	0.000		0.000		-		0.000	0.000	0.800	-
Fire Control System and Gun Mount Systems Engineering	WR	NSWC DD : Dahlgren, VA	0.000	0.350	Nov 2019	4.300	Feb 2020	0.000		-		0.000	0.000	4.650	-
Operations Gun Mount Systems Engineering	WR	NSWC IHD Picatinny : Picatinny, NJ	0.000	0.350	Oct 2019	0.250	Feb 2020	0.000		-		0.000	0.000	0.600	-
Electro-optical Sensor Systems Engineering and Interface Design	WR	NSWC CR : Crane, IN	0.000	0.300	Nov 2019	1.400	Feb 2020	0.000		-		0.000	0.000	1.700	-
Combat System Interface Update	C/CPFF	TBD : TBD	0.000	0.000		3.000	May 2020	0.000		-		0.000	0.000	3.000	-
Subtotal			0.000	1.800		21.100		9.600		-		9.600	0.000	32.500	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.800	21.100	9.600	-	9.600	0.000	32.500	N/A

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604030N / <i>Rapid Prototyping, Experimentation & Dem</i>	Project (Number/Name) 1037 / <i>MK 38 MOD 4</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 1037				
MOD 4 Gun Weapon System Development	1	2019	3	2021
Fire Control System Software and Interface Development	1	2020	1	2022
Combat System Element Integration	1	2020	4	2022