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

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0306250M / (U) <i>Cyber Operations Technology Development</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	2.960	6.546	19.874	26.173	-	26.173	31.972	32.444	31.286	31.632	Continuing	Continuing
2958: <i>Cyberspace Activities</i>	2.960	6.546	19.874	26.173	-	26.173	31.972	32.444	31.286	31.632	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

MARFORCYBER provides advanced cyber warfare capabilities in direct support of US Cyber Command (USCYBERCOM), Marine Corps Commanders, and national agencies to enable and accomplish global operations. Activities within the project deliver cyberspace superiority capabilities through the research, development, testing, evaluation, and integration of cyber technologies. The project enables Commanders to disrupt, deny, degrade, or destroy targets.

Research and develop software constructed cyber weapons disrupt rising advanced peer and near-peer threats, as well as violent extremist organizations seeking to do harm to the United States. The software constructed cyber weapons are target specific and require high quality, rapid adjustments to achieve desired effects at acceptable levels of risk.

The specific details and aspects of these cyber activities are held at a higher classification level.

Adversarial Cyber Developmental Test and Evaluation: Provides adversarial penetration testing services to Marine Corps Systems Command (MCSC) programs of record (PoRs) via Marine Corps Tactical Systems Support Activity (MCTSSA). MCTSSA serves as the Marine Corps Enterprise Network (MCEN) Cyber Developmental Test and Evaluation (DT&E) agent in accordance with NDAA 1640, PL-113 -283, DODI 8510. 01, DODI 5000.2, CNSS-1253, NIST-SP-800-53, and the DoD Cyber Security Test and Evaluation Guidebook. MCTSSA also serves as the USMC Cyber Developmental Test (DT) Center of Excellence, conducting mission-based cyber vulnerability assessments in accordance with policy-directed taskings. Assessments include, but are not limited to, (1) zero-day discoveries, (2) target maintenance resources to prove vulnerabilities vs. false positives, (3) informing Operational Commanders and Enterprise Leadership of mission critical Cyber security issues, (3) informing prioritization of cyber security threat investment decisions, (4) informing USMC DCO staff on advanced cyber threats to increase their skill set in detecting advanced cyber attacks and threats, and (5) ensuring Command & Control (C2) enhances the resiliency of the Marine Air-Ground Task Force (MAGTF) in a cyber-denied environment.

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<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0306250M / (U) <i>Cyber Operations Technology Development</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	6.808	26.406	26.322	-	26.322
Current President's Budget	6.546	19.874	26.173	-	26.173
Total Adjustments	-0.262	-6.532	-0.149	-	-0.149
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-6.532			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.262	0.000			
• Program Adjustments	0.000	0.000	2.500	-	2.500
• Rate/Misc Adjustments	0.000	0.000	-2.649	-	-2.649

**Change Summary Explanation**

The FY 2021 funding request was reduced by \$1.649 million to account for the availability of prior year execution balances.

The increase of \$6.299M from FY 2020 and FY 2021 is primarily attributed to efforts to reduce the cyber weapons backlog, make those weapons available to the Joint Force, improve the Commander's decision quality up to 80%, and decrease the overall cyber weapon deployment decision making timeline from 3 days to 6 hours. Additionally, funding also enables adversarial cyber developmental test services in support of Marine Corps Systems Command's (MCSC) Command, Control, Communications, Computers, and Intelligence (C4I) programs of record.

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0306250M / (U)Cyber Operations Technology Development	<b>Project (Number/Name)</b> 2958 / Cyberspace Activities
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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
2958: <i>Cyberspace Activities</i>	2.960	6.546	19.874	26.173	-	26.173	31.972	32.444	31.286	31.632	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**Note**

The FY21 funding request was reduced by \$1.649M to account for the availability of prior year execution balances.

**A. Mission Description and Budget Item Justification**

MARFORCYBERCOM: Develop software constructed cyber weapons that disrupt rising and near-peer threats, as well as violent extremist organizations seeking to do harm to the United States. The software constructed cyber weapons support operations in the Central Command area of responsibility. In addition, these software constructed cyber weapons directly support Special Operations Command, Marine Cyber Mission Forces, and Cyber Command in global operations. The software constructed cyber weapons are target specific and require high quality, rapid adjustments to achieve desired effects at acceptable levels of risk.

Adversarial Cyber Developmental Test and Evaluation: Provides adversarial penetration testing services to Marine Corps Systems Command (MCSC) programs of record (PoRs) via Marine Corps Tactical Systems Support Activity (MCTSSA). MCTSSA serves as the Marine Corps Enterprise Network (MCEN) Cyber Developmental Test and Evaluation (DT&E) agent in accordance with NDAA 1640, PL-113 -283, DODI 8510. 01, DODI 5000.2, CNSS-1253, NIST-SP-800-53, and the DoD Cyber Security Test and Evaluation Guidebook. MCTSSA also serves as the USMC Cyber Developmental Test (DT) Center of Excellence, conducting mission-based cyber vulnerability assessments in accordance with policy-directed taskings. Assessments include, but are not limited to, (1) zero-day discoveries, (2) target maintenance resources to prove vulnerabilities vs. false positives, (3) informing Operational Commanders and Enterprise Leadership of mission critical Cyber security issues, (3) informing prioritization of cyber security threat investment decisions, (4) informing USMC DCO staff on advanced cyber threats to increase their skill set in detecting advanced cyber attacks and threats, and (5) ensuring Command & Control (C2) enhances the resiliency of the Marine Air-Ground Task Force (MAGTF) in a cyber-denied environment.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<b>Title:</b> Combat Support Team	6.546	6.808	5.773	0.000	5.773
<b>Articles:</b>	-	-	-	-	-
<b>Description:</b> Combat Support Team supports existing cyber mission teams with cyber weapons developers.					
<b>FY 2020 Plans:</b>					

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<p>Continue the cyber tool development process for MARFORCYBERCOM. The task requires complex and experienced skill sets in order to write code and perform: technology research, software and engineering development, integration of systems concepts, prevention of adversary presence, product development.</p> <p><b>FY 2021 Base Plans:</b> FY21 funding will enable combat support personnel to develop prototypes for testing new cyber weapons to outpace modernized defenses used by peer adversaries and enhance the lethality and relevance of software constructed cyber weapons that disrupt near peer, violent extremist organizations, and adversaries to the United States. Efforts are required because software constructed cyberspace weapons degrade in operational efficacy once a weapon is used. Its efficacy deteriorates as adversaries learn how to mitigate the weapon's effects.</p> <p><b>FY 2021 OCO Plans:</b> N/A</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> The decrease of \$1.035M from FY20 to FY21 reduces combat support team weapons developers and cyber weapons based on the availability of prior year funding. Contract restructure in FY21 and out will lead to more efficient use of resources to meet mission requirements.</p>					
<p><b>Title:</b> Joint Cyberspace Weapons</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Develop new and specialized cyber weapons targeted at advanced threats in cyberspace.</p> <p><b>FY 2020 Plans:</b> Initiate the development of Joint Cyberspace Weapons. Starting in Fiscal Year 2020, MARFORCYBER was directed to man, train, and equip a Joint Mission Operation Center (JMOC) at Fort Meade. This is one of four JMOCs in support of United States Cyberspace Command (USCC) and Joint Forces Headquarters Cyber (JFHQ-C) mission. This funding will develop tools, platforms, and infrastructure for various Offensive Cyberspace Operations (OCO) requirements to develop an appropriate Service-Level capability for the Joint Mission Operations Center (JMOC) Meade requirement in support of United States Cyberspace Command (USCC) and Joint Forces Headquarters Cyber (JFHQ-C) mission.</p> <p><b>FY 2021 Base Plans:</b> Develop new and specialized cyber weapons targeted at near peer and advanced threats in cyberspace. FY19/ FY20 research and development efforts led to the development of a plethora of cyber weapons. FY21 will see</p>	0.000	13.066	18.000	0.000	18.000
	-	-	-	-	-

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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
<p>test and evaluation activities on the cyber weapons backlog increase in order to make weapons available to the Joint Force. Building on FY19/FY20 development efforts, in FY21, MARFORCYBER will increase the currency, relevancy, and availability of cyber weapons by reducing the backlog through continued process development. Further refinement of the intelligence cycle and its development to decipher actionable targets, increase overall speed and efficiency, and decrease overall concept-to-delivery timelines, also based on FY19/FY20 efforts, will continue in FY21.</p> <p>The specific details and aspects of these cyber activities are held at a higher classification level.</p> <p><b>FY 2021 OCO Plans:</b> N/A</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> The increase of \$4.934M from FY20 to FY21 increases efforts to reduce the cyber weapons backlog, make those weapons available to the Joint Force, improve the Commander's decision quality up to 80%, and decrease the overall cyber weapon deployment decision making timeline from 3 days to 6 hours.</p>					
<p><b>Title:</b> Cybersecurity Engineering Analysis</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2020 Plans:</b> N/A</p> <p><b>FY 2021 Base Plans:</b> FY21 funding will initiate adversarial cyber developmental testing in support of Marine Corps Systems Command's (MCSC) Command, Control, Communications, Computers, and Intelligence (C4I) programs of record (PoR).</p> <p><b>FY 2021 OCO Plans:</b> N/A</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Increase of \$2.400M from FY 2020 to FY 2021 provides for adversarial cyber developmental testing in support of Marine Corps Systems Command's (MCSC) Command, Control, Communications, Computers, and Intelligence (C4I) programs of record (PoR).</p>	0.000	0.000	2.400	0.000	2.400
	-	-	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	6.546	19.874	26.173	0.000	26.173

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

N/A

**Remarks**

**D. Acquisition Strategy**

The contract period of performance will be 12 months with options into future fiscal years. The contract place of performance will be located at Fort Meade, Maryland. The contracting authority will be Naval Information Warfare Center (NIWC).

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

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<b>Support (\$ in Millions)</b>				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			
Combat Support Team	Various	MARFORCYBER : Fort Meade, MD	2.960	6.546	Mar 2019	6.808	Mar 2020	5.773	Mar 2021	-		5.773	Continuing	Continuing	Continuing
<b>Subtotal</b>			2.960	6.546		6.808		5.773		-		5.773	Continuing	Continuing	N/A

<b>Test and Evaluation (\$ in Millions)</b>				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			
Cybersecurity Engineering Analysis	Various	Various : Various	0.000	0.000		0.000		2.400	Mar 2021	-		2.400	0.000	2.400	-
Joint Cyberspace Weapons Enhancements	Various	MARFORCYBER : Fort Meade, MD	0.000	0.000		13.066	May 2020	18.000	Jan 2021	-		18.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.000		13.066		20.400		-		20.400	Continuing	Continuing	N/A

**Remarks**  
 JCW - increase of \$4.934M from FY20 to FY21 increases efforts to reduce the cyber weapons backlog, make those weapons available to the Joint Force, improve the Commander's decision quality up to 80%, and decrease the overall cyber weapon deployment decision making timeline from 3 days to 6 hours.  
 CEA - Increase of \$2.400M from FY 2020 to FY 2021 provides for adversarial cyber developmental testing in support of Marine Corps Systems Command's (MCSC) Command, Control, Communications, Computers, and Intelligence (C4I) programs of record (PoR).

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	2.960	6.546	19.874	26.173	-	26.173	Continuing	Continuing	N/A

**Remarks**

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0306250M / (U)Cyber Operations Technology Development	<b>Project (Number/Name)</b> 2958 / Cyberspace Activities
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Proj 2958	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
Cyber Tool Development																												
Joint Cyberspace Weapons Enhancements																												
Cybersecurity Engineering Analysis																												
Empty grid for data entry																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Navy		<b>Date:</b> February 2020
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2958</b>				
Combat Support Team	2	2021	2	2021
Joint Cyberspace Weapons Enhancements	2	2021	2	2021
Cybersecurity Engineering Analysis	2	2021	4	2025