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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy **Date:** February 2018

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 6: RDT&E Management Support</i>					R-1 Program Element (Number/Name) PE 0605873M / <i>Marine Corps Program Wide Supt</i>							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	19.142	21.751	24.303	-	24.303	20.267	20.668	21.070	21.479	Continuing	Continuing
0030: <i>Studies & Analysis/MC</i>	0.000	5.171	6.133	8.492	-	8.492	4.196	4.285	4.367	4.456	Continuing	Continuing
0033: <i>OT&E Support</i>	0.000	11.967	13.643	14.243	-	14.243	14.480	14.763	15.049	15.336	Continuing	Continuing
2330: <i>Chem Bio Consequence Mgmt</i>	0.000	2.004	1.975	1.568	-	1.568	1.591	1.620	1.654	1.687	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) provides the analytical foundation for the Marine Corps Studies System (MCSS), including mandated Mission Area Analyses and Cost and Operational Effectiveness Analyses. The MCSS is the front end of the Marine Corps' acquisition system. This PE also supports the material acquisition process as follows: managing the Marine Corps Operational Test and Evaluations (OT&E); providing Chem Bio Consequence Management of capabilities for Weapons of Mass Destruction (WMD) incident response forces; and conducting Phase A activities to investigate potential material solutions that validate needs, program costs, business decisions, and prevent undue delays in pursuing priority requirements.

B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	22.247	21.751	21.994	-	21.994
Current President's Budget	19.142	21.751	24.303	-	24.303
Total Adjustments	-3.105	0.000	2.309	-	2.309
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.357	0.000			
• SBIR/STTR Transfer	-0.238	0.000			
• Program Adjustments	0.000	0.000	2.457	-	2.457
• Rate/Misc Adjustments	0.001	0.000	-0.148	-	-0.148
• Congressional General Reductions	-0.030	-	-	-	-
Adjustments					
• Congressional Directed Reductions	-2.481	-	-	-	-
Adjustments					

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<u>Change Summary Explanation</u> The overall increase from FY18 to FY19 of \$2.552M can be attributed to the expansion of wargaming activities.		

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
Appropriation/Budget Activity 1319 / 6					R-1 Program Element (Number/Name) PE 0605873M / Marine Corps Program Wide Supt				Project (Number/Name) 0030 / Studies & Analysis/MC			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0030: Studies & Analysis/MC	0.000	5.171	6.133	8.492	-	8.492	4.196	4.285	4.367	4.456	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Marine Corps Requirements Oversight Council (MROC), has established Operations Analysis Directorate (OAD), as the sole operations research, analytic support, and studies management program for the Marine Corps Study System (MCSS). OAD provides Senior Military Leadership with a comprehensive understanding of operations and advanced analytic and statistical support. In compliance with Executive Order #13589 OAD's major focus is achieving greater efficiency, productivity, and innovation through operations research methodologies such as: statistical analysis, multi-objective decision methods, optimization, cost analysis, and a wide range of computer-based models and combat simulations. Division analysts are credited with innovations in analysis of amphibious operations and Irregular Warfare (IW) that have expanded state-of-the-art operations research methods across DOD. OAD quantifies resource allocation decisions pertaining to weapon systems, strategic personnel, training management, and equipment acquisition. OAD provides day-to-day oversight of Marine Corps M&S policy, standards, enterprise architecture, S&T requirements, and workforce development

Efforts are guided by the Commandant's Strategic Plan, Marine Corps Operating Concepts (MOC) which provides the foundation and context for subordinate operating and functional concepts; guides analysis; wargaming scenarios and experimentation; wargaming capability development designed to examine, scope and evaluate conceptual technological and operational principles and methods; informs capability development and budget programming decisions; CD&I Force Development Strategic Plan which provides Marine Corps Combat Development Command (MCCDC)/Combat Development and Integration (CD&I) personnel framework designed to promote collaborative, cohesive, "learning organization" that can effectively prepare the Nation's expeditionary force in readiness for a complex and uncertain future envisioned by the Department of Defense, the Department of the Navy, and the Commandant, and FRAGO 2017 to support the USMC to adapt, innovate, and change to meet future threats.

Future studies support Marine Air-Ground Task Forces (MAGTF's) and Marine Expeditionary Units (MEU's) with research analysis and modeling and simulation focused on aviation, amphibious, warfighting, and ground operations enhancing the ability of the Marine Corps to increase operational, logistical and equipment efficiencies and capabilities and provide a unique, well trained, equipped and educated force.

This program element has been revised into two specialized analytical divisions: (1) External Analysis Division (EAD) - responsible for providing joint external analysis is the Marine Corps' sole representative in the joint modeling arenas. Provides deployed on site professional operations analysis support to Special Purpose MAGTFs in CENTCOM and AFRICOM. (2) Combat Development Analysis Division responsible for executing a select portfolio of studies for senior leadership, Capabilities Based Assessment (CAB) and Marine Corps Enterprise Integration Plan (MCEIP).

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

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Studies & Analysis/MC	5.171	6.133	8.492	0.000	8.492

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Appropriation/Budget Activity 1319 / 6		R-1 Program Element (Number/Name) PE 0605873M / Marine Corps Program Wide Supt		Project (Number/Name) 0030 / Studies & Analysis/MC		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Articles:		-	-	-	-	-
<p>Description: The Marine Corps Studies System (MCSS), the sole responsibility of the Operations Analysis Directorate (OAD), Combat Development and Integration (CD&I), Marine Corps Combat Development Command (MCCDC) provides research and analysis to ensure a greater understanding of issues and alternatives concerning organizations, tactics, doctrine, policies, force plans, strategies, procedures, intelligence, weapon selection, systems' programs and resource allocation. Through the MCSS, the Marine Corps nominates, approves, commences, manages and distributes the resultant analytical products. Efforts are evaluated and selected by the Studies Requirements Review Board (SRRB) and approved by the CG, Combat Development and Integration (CD&I)and is targeted to a particular audience that understands current and future USMC mission requirements and the need for comprehensive analyses that meets the Commandant's Strategic Goals, supports and protects forces in theater, and utilizes funds efficiently. Research conducted produces comprehensive and integrated analyses aligned to Senior Leadership's requirements and decision timelines.</p> <p>FY 2018 Plans:</p> <ul style="list-style-type: none">- Continue and complete all efforts not completed in FY17.- Initiate: Modeling Simulation and Analytical Support Toolkit (MSAT) Phase V.- Initiate: Phase II and Phase III prior year efforts in areas of concentrated Manpower/Personnel; Intelligence, Information and Networks; Plans, Policy, and Operations; Infrastructure and Readiness; Resources, Programs, and Assessments; Capability Integration; Research, Development and Acquisition; General Concept Development; Wargaming, and Weapons Systems and Space Based Capabilities studies. Results provide the analyses required to fully integrate Marine Corps concepts and requirements based warfighting capabilities; including doctrine, organization, training, materiel, leadership and education, personnel and facilities in order to ensure the Marine Corps is properly organized, trained and equipped under current within evolutionary environments.- Complete: Modeling Simulation and Analytical Support Toolkit (MSAT) Phase IV. Phase I of FY17 Studies. <p>FY 2019 Base Plans:</p> <ul style="list-style-type: none">- Continue all efforts not completed in FY18.						

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<p>- Initiate: Modeling Simulation and Analytical Support Toolkit (MSAT) Phase VI. Phase III and Phase IV prior year efforts and new studies in areas of concentrated Manpower/Personnel; Intelligence, Information and Networks; Plans, Policy, and Operations; Infrastructure and Readiness; Resources, Programs, and Assessments; Capability Integration; Research, Development and Acquisition; General Concept Development; Wargaming, and Weapons Systems and Space Based Capabilities studies.</p> <p>- Complete: Phase II and Phase III studies initiated in prior year. Modeling Simulation and Analytical Support Toolkit (MSAT) Phase V.</p> <p>- Continue the expansion of wargaming capability efforts in areas of identifying, defining and documenting requirements and capabilities; directed cyber security support for initiatives to support information assurance in the areas of modeling & simulation, network configuration, security control validation and type accreditation; preparation for and conduct of an Assessment of Alternatives.</p> <p>- Initiate: Wargaming capability Milestone B activities; refinement of requirements; development of performance specification; modeling and simulation prototyping efforts.</p> <p>FY 2019 OCO Plans: N/A</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement: The increase of \$2.359M from FY18 to FY19 can be attributed to the expansion of wargaming activities required to develop and prototype modeling and simulation capabilities and conduct analyses of concepts and principles of a data-driven wargaming capability.</p>					
Accomplishments/Planned Programs Subtotals	5.171	6.133	8.492	0.000	8.492
C. Other Program Funding Summary (\$ in Millions) N/A					
Remarks					
D. Acquisition Strategy N/A					

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<p>E. Performance Metrics</p> <p>Provide analytical documentation and support to decision makers for resolution of current and future operational and logistical issues identified by operating forces. Utilize OAD Subject Matter Experts (SME), Marine Corps University, and Naval Post Graduate School to conduct studies and analysis projects in basic and applied research and advanced technology development. Develop and maintain a current operations analysis reachback network with other government and Coalition agencies such as Center for Army Analysis, Joint Capabilities Integration and Development System (JCIDS), JIEDDO J9, Joint Trauma Analysis and Prevention of Injury in Combat (JTAPIC) program, The Technical Cooperation Program (TTCP), NATO Systems Analysis & Studies (SAS), etc.</p> <p>Analysis results are employed to assist the Commandant, Assistant Commandants, Unit Commanders and the Commanding General (CG), Combat Integration Division, Marine Corps Combat Development Command (CD&I,MCCDC), Crisis Response (CR) Special Purpose Marine Air-Ground Task Forces (SPMAGTFs; CENTCOM, AFRICOM and SOUTHCOM), in addition to the Marine Expeditionary Units that are deployed around the globe and provide a continuous program of mission area analyses, formal studies, rapid response analytic efforts, and the supervision of research projects to fulfill mission. OAD provides combat analyst assessment teams for national emergencies and contingencies; is responsible for initiating, conducting or supervising all official Marine Corps studies; maintaining official Marine Corps scenarios; and participating in and reviewing the efforts of external activities such as the Office of Secretary of Defense and the Joint Staff. Baseline analysis supports Mission Capability Packages (MCPs), Investment Strategy, Joint Capability Areas (JCAs), and the Naval Strategic Plan providing the DoN assessments for future force development. Operations data and analysis support provided to USMC organizations: MCCDC, Marine Corps Intelligence Activity (MCIA), Marine Corps Warfighting Lab (MCWL), Marine Corps Central Command (MARCENT), Systems Command, Training and Education Command (TECOM). The Modeling and Simulation Analytical Toolkit (MSAT) supports analysis involving irregular warfare missions executed in a future Defense Planning Guidance scenario. These missions include information operations, offensive tactical and operational CYBER operations, foreign internal defense, special direct action arising from intelligence gathered from HUMINT and technical (SIGINT,CYBER) means.</p> <p>Wargaming capability results are used to develop, assess, and refine future operating and functional concepts across the full ROMO, test current OPLANS and CONOPS; examine operational and tactical actions through repeated, multiple iterations; enable the full development of concepts through multiple opportunities for examination and evaluation; assess capability investments to inform POM development and guide capability resourcing actions; and provide education and leadership development.</p>		

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Appropriation/Budget Activity 1319 / 6					R-1 Program Element (Number/Name) PE 0605873M / Marine Corps Program Wide Supt				Project (Number/Name) 0033 / OT&E Support			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0033: OT&E Support	0.000	11.967	13.643	14.243	-	14.243	14.480	14.763	15.049	15.336	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Marine Corps Operational Test and Evaluation Activity (MCOTEA) supports the material acquisition process by managing the Marine Corps Operational Test (OT) programs for Acquisition Categories (ACAT) I through ACAT IV (less OT of manned aircraft) and performs other functions that may be directed by the Commandant of the Marine Corps. The primary purpose of Operational Test and Evaluation (OT&E) is to provide information to the Milestone Decision Authority (MDA) regarding the Operational Effectiveness (OE) and Operational Suitability (OS) of the system addressed at a decision point. MCOTEA must ensure that the Marines in the Operating Forces receive the very best possible equipment and support. MCOTEA must also ensure each system proposed for acquisition is tested adequately, evaluated objectively and reported independently.

Marine Corps Operational Test and Evaluation Activity (MCOTEA) is the only unit that provides the Marine Corps with required operational test and evaluation (OT&E) capability, ensuring the Marine Corps is compliant with laws and regulations, and ensuring that training and equipment are operationally effective, relevant, and suitable. Additionally, MCOTEA's early involvement, coordination, and oversight in developmental testing and evaluation of new combat and combat support systems ensures that our Marines are the best trained, and have the best equipment, with the lowest test costs for taxpayers. Finally, MCOTEA's support of rapid acquisitions ensures that Marines in the fight are supported with the newest and most advanced equipment and that the Marine Corps is compliant with regulations.

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

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: MCOTEA	11.967	12.643	14.243	0.000	14.243
Articles:	-	-	-	-	-
FY 2018 Plans: Continue with evaluating, quantifying and reporting on programs for the operational effectiveness, suitability and survivability of planned acquisitions to meet warfighting capabilities and will be providing Milestone Decision Authority (MDAs) to programs that are inherently governmental and a comprehensive understanding of operational risk associated with ACAT programs.					
FY 2019 Base Plans: Continue with evaluating, quantifying and reporting on programs for the operational effectiveness, suitability and survivability of planned acquisitions to meet warfighting capabilities and will be providing Milestone Decision					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Authority (MDAs) to programs that are inherently governmental and a comprehensive understanding of operational risk associated with ACAT programs. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: FY19's funding increase of \$1.600M, will support labor costs that were previously funded through the Naval Test branch in support of operational testing requirements.					
Title: Cyber Awareness Red Team Support Articles: - Description: This effort supports NDAA S. 1647 requirements. FY 2018 Plans: Initiate Vulnerability Assessments and Adversarial Assessments in support of the Marine Corps Cyber Awareness Red Team. Initiate efforts to train and equip the Cyber Threat Assessment Team (CTE) to meet all DoD Red Team established standards. FY 2019 Base Plans: N/A FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: In FY19 this effort moves to PE 0606942M project 4038.	0.000 -	1.000 -	0.000 -	0.000 -	0.000 -
Accomplishments/Planned Programs Subtotals	11.967	13.643	14.243	0.000	14.243
C. Other Program Funding Summary (\$ in Millions) N/A Remarks					
D. Acquisition Strategy N/A					

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E. Performance Metrics N/A		

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Appropriation/Budget Activity 1319 / 6					R-1 Program Element (Number/Name) PE 0605873M / Marine Corps Program Wide Supt				Project (Number/Name) 2330 / Chem Bio Consequence Mgmt			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2330: Chem Bio Consequence Mgmt	0.000	2.004	1.975	1.568	-	1.568	1.591	1.620	1.654	1.687	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The Family of Incident Response Systems (FIRS) consists of equipment, systems, and services designed to provide Weapons of Mass Destruction (WMD) incident response forces the capabilities needed to effectively respond to a terrorist attack using Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives (CBRNE). FIRS meets the mission requirements for the detection; mass casualty decontamination; force protection; responder inter-agency interoperability; Command, Control, Communications, Computers & Intelligence (C4I); urban search and rescue; medical and general support requirements needed by these forces to mitigate the effects of a CBRNE terrorist attack. FIRS relies primarily on Commercial Off-The-Shelf/Non-Developmental Items (COTS/NDI) equipment and systems that meet the particular mission requirements of Consequence Management (CM). Nuclear, Biological, and Chemical (NBC) systems are adopted if they meet the CM mission requirements. FIRS Research & Development effort allows the program to keep abreast of emerging technologies in the commercial sector and address operational capability gaps that cannot be met by commercial items.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: FIRS: Reconnaissance Mission Area. Articles: FY 2018 Plans: - Continue chemical contamination early warning research in support of technical refresh/replacement material solutions. - Initiate Common Analytical Laboratory System-Field Confirmatory Integrated System (CALS FC-IS) naval system integration. FY 2019 Base Plans: - Continue chemical contamination early warning research in support of technical refresh/replacement material solution. - Continue CALS FC-IS naval system integration. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement:								0.761	0.985	0.603	0.000	0.603
								-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The decrease from FY18 to FY19 reflects re-phasing of development funds to better align with revised program development schedule.					
Title: FIRS: Force Protection Mission Area <div style="text-align: right;">Articles:</div>	1.243	0.990	0.965	0.000	0.965
FY 2018 Plans: - Continue verification and validation testing at Dugway Proving Ground in support of the Operating Forces that employ Dismounted Reconnaissance Sets, Kits and Outfits (DRSKO) sets and the Chemical Biological Incident Response Force (CBIRF) in support of technical refreshes of new area monitoring devices. - Initiate performance and durability testing for low profile self contained breathing apparatus masks in support of explosive ordnance disposal (EOD) bomb suit integration. FY 2019 Base Plans: - Continue verification and validation testing at Dugway Proving Ground in support of the Operating Forces that employ DRSKO sets and the CBIRF in support of technical refreshes of new area monitoring devices. - Continue performance and durability test for low profile self contained breathing apparatus masks in support of EOD bomb suit integration. - Initiate durability test of CBIRF's CBRN personal protection equipment items, including Class 2 and Class 3 suits. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: The decrease from FY18 to FY19 reflects re-phasing of development funds to better align with revised program development schedule.	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	2.004	1.975	1.568	0.000	1.568

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PMC/2220-FIRS: Wpns & Cmbt Vehs under \$5 million	0.000	0.806	0.476	-	0.476	0.540	0.556	0.000	0.000	Continuing	Continuing
Remarks											

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D. Acquisition Strategy N/A		
E. Performance Metrics N/A		