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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	496.490	49.176	48.590	47.877	-	47.877	47.582	45.514	43.622	44.522	Continuing	Continuing
1555: <i>Lt Armored Vehicle Prog</i>	100.800	6.671	11.297	13.879	-	13.879	4.503	2.491	2.490	2.485	Continuing	Continuing
1901: <i>MC Grnd Wpnry Prod Improvement</i>	28.687	7.958	3.719	3.689	-	3.689	4.305	5.432	5.186	5.293	Continuing	Continuing
2086: <i>Soldier/Marine Enhancement</i>	22.670	5.777	2.253	2.760	-	2.760	4.184	4.175	3.888	3.974	Continuing	Continuing
2112: <i>Lightweight 155mm Howitzer</i>	0.193	1.987	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.180
2237: <i>Amphibious Vehicle Test</i>	4.843	2.075	0.994	0.991	-	0.991	0.979	0.903	0.921	0.942	Continuing	Continuing
2315: <i>Training Devices/Simulators</i>	112.370	5.668	12.101	13.605	-	13.605	14.791	14.014	13.856	14.161	Continuing	Continuing
2503: <i>Initial Issue</i>	39.700	4.783	1.241	3.462	-	3.462	4.385	4.794	4.351	4.450	Continuing	Continuing
2513: <i>Body Armor</i>	45.100	2.764	3.160	2.746	-	2.746	4.814	4.728	4.704	4.809	Continuing	Continuing
2928: <i>Exp Indirect Fire Gen Supt Wpn Sys</i>	9.657	1.807	1.381	1.054	-	1.054	2.976	2.614	2.142	2.189	Continuing	Continuing
3098: <i>Fire Support System</i>	129.185	9.207	11.940	5.242	-	5.242	6.099	5.818	5.549	5.671	Continuing	Continuing
4002: <i>Family of Raid Reconnaissance</i>	3.285	0.479	0.504	0.449	-	0.449	0.546	0.545	0.535	0.548	Continuing	Continuing

Note
NOTE: Funding for the Assault Amphibious Vehicle (AAV) program for FY 2015 and beyond was realigned to Program Element 0206629M Project 2938.

A. Mission Description and Budget Item Justification
This PE provides modification to Marine Corps Expeditionary Ground Force Weapon Systems to increase lethality, range, survivability and operational effectiveness. In addition, the PE provides for the development of AAV7A1 reliability, maintainability, operational and safety modifications, improvements in command and control, and product improvements to the family of LAVs. The AVTB provides facilities and personnel which perform a broad range of testing, repair and technical services to amphibious vehicles. This program is funded under Operational Systems Development Program Element (PE) because it encompasses engineering and manufacturing and manufacturing development for upgrades of existing systems.

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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	52.377	56.769	57.213	-	57.213
Current President's Budget	49.176	48.590	47.877	-	47.877
Total Adjustments	-3.201	-8.179	-9.336	-	-9.336
• Congressional General Reductions	-	-0.063			
• Congressional Directed Reductions	-	-8.116			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.995	0.000			
• SBIR/STTR Transfer	-1.210	0.000			
• Program Adjustments	0.000	0.000	-10.649	-	-10.649
• Rate/Misc Adjustments	0.004	0.000	1.313	-	1.313

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 1555 / Lt Armored Vehicle Prog
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1555: Lt Armored Vehicle Prog	100.800	6.671	11.297	13.879	-	13.879	4.503	2.491	2.490	2.485	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Family of Light Armored Vehicles (FOLAV) consists of six fielded LAV configurations and one communications/intelligence-configured asset on a LAV chassis. The FOLAV provides a logistically self-contained, highly mobile, and lethal combined arms combat system to the Marine Air Ground Task Force (MAGTF). The LAV Product Improvement Program funds modification and sustainment activities and the development and testing of modifications. These programs will ensure that the FOLAV will be capable of conducting its assigned missions by enhancing lethality and survivability; reliability, availability, maintainability and durability; as well as reducing operations and support costs.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: LAV MODIFICATIONS	6.671	11.297	13.879	0.000	13.879
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
-Continued the development of the Engineering Change Proposal (ECP), Integrated Logistic Support (ILS) data, Modification Instructions, and Technical Publications, for the Mobility and Obsolescence Kits. The MOB Kit consists of Power pack, Driveline, Steering, Electrical Upgrade, Suspension, Hull Modifications, and Ballistic Protection Upgrade Package (BPUP). Development includes holding Systems Engineering Technical Reviews to include Integrated Baseline Review (IBR), Preliminary Design Review (PDR) #1 & #2, Critical Design Review #1 and #2 and Program Management (PM) Support.					
FY 2016 Plans:					
-Continue Engineering Change Proposal (ECP), Integrated Logistic Support (ILS) data development, Technical Publications Development, Critical Design Review #3, PDR #3, for the Obsolescence Kits consisting of Power pack, Driveline, Steering, Drivers Instrument Panel (DIP), Hull Modifications, and Slip Ring and PM support. Start Modification Instruction development for the LAV and deliver initial vehicle prototypes.					
FY 2017 Base Plans:					
- Continue Engineering Change Proposal (ECP).					
- Initiate Test Planning to include Developmental Test and Operational Assessment.					
- Initiate Milestone (MS) C Preparation; Integrated Logistic Support (ILS) data development, and Technical Publications Development.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Initiate preparation of Long Lead Item and Obsolescence Production Kit contract. Production Kits for the Obsolescence efforts consists of Power pack, Driveline, Steering, DIP, Hull Modifications, and Slip Ring and PM support. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	6.671	11.297	13.879	0.000	13.879

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PMC/2038: LAV PIP	72.736	85.979	53.423	-	53.423	73.785	62.330	125.653	114.803	Continuing	Continuing
• PMC/7000: LAV Spares	1.452	1.288	0.628	-	0.628	1.829	5.804	5.949	6.110	Continuing	Continuing

Remarks

D. Acquisition Strategy
The LAV Modification & Sustainment program funds important vehicle modifications, support equipment and tools and other projects that increase LAV reliability and readiness while simultaneously reducing operations and support costs. The Marine Corps Program Management LAV Modification Team uses multi-disciplined integrated project teams consisting of engineering, logistical, contracting and financial personnel to manage Modification projects. The contract for the Obsolescence project was issued as a Sole Source contract to the Original Equipment Manufacturer (OEM). Currently the LAV Modification and Sustainment program will capture the Obsolescence kits consisting of Power Pack, Driveline, Steering, Drivers Instrument Panel (DIP), Hull Modifications and Slip Ring. The Obsolescence program will address the Family of Light Armored Vehicles (FOLAV) automotive system obsolescence and reduced performance due to increased Gross Vehicle Weight (GVW). This will be achieved through acquisition and the integration of replacement Power pack, Driveline, Steering, DIP, Hull Modifications, and Slip Ring. This effort will require deliverable kits during the Engineering & Manufacturing Development (EMD) phase, such as Engineering Change Proposals (ECPs) and Modification Instructions (MI) for each of the 7 LAV variants and all Integrated Logistics Support (ILS) products (training, technical publications, tools, test equipment, provisioning, etc.) to support Developmental Testing, Operational Assessment, Initial Operational Test and Evaluation and fielding.

E. Performance Metrics
Milestone Reviews

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 1555 / Lt Armored Vehicle Prog
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Proj 1555: Prior Years Cumulative Funding	Various	N/A : N/A	37.397	0.000		0.000		0.000		-		0.000	0.000	37.397	-
ILS DATA DEV (MOD)	C/CPFF	GDLS : London Ontario, Canada	10.713	2.638	May 2015	2.300	Feb 2016	2.200	Feb 2017	-		2.200	Continuing	Continuing	Continuing
PRODUCT DEV/ PROTOTYPES (MOD)	C/CPFF	GDLS : London Ontario, Canada	27.922	0.900	May 2015	7.028	Feb 2016	9.393	Feb 2017	-		9.393	Continuing	Continuing	Continuing
Subtotal			76.032	3.538		9.328		11.593		-		11.593	-	-	-

Remarks

The increase from FY16 to FY17 is in support of the installation of obsolescence kits onto test vehicles.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Proj 1555: Prior Years Cumulative Funding	Various	N/A : N/A	10.505	0.000		0.000		0.000		-		0.000	0.000	10.505	-
Program Mgmt (MOD)	MIPR	TACOM : Warren, MI	5.684	1.712	Apr 2015	1.969	Dec 2015	2.186	Dec 2016	-		2.186	Continuing	Continuing	Continuing
Swim Study(MOD)	MIPR	TARDEC : Warren, MI	0.000	1.351	Jul 2015	0.000		0.000		-		0.000	0.000	1.351	-
Subtotal			16.189	3.063		1.969		2.186		-		2.186	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Proj 1555: Prior Years Cumulative Funding	Various	N/A : N/A	6.105	0.000		0.000		0.000		-		0.000	0.000	6.105	-
Devl/Oper T&E (MOD)	MIPR	RTC : AL	1.394	0.070	May 2015	0.000		0.100	Oct 2016	-		0.100	Continuing	Continuing	Continuing
Subtotal			7.499	0.070		0.000		0.100		-		0.100	-	-	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 1555 / Lt Armored Vehicle Prog

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>LAV Modification and Sustainment</i>				
Integration Contract	1	2015	4	2018
Developmental Testing/Operational Assessment	1	2018	4	2018
Long Lead Material Contract Award	3	2018	3	2018
MS-C	1	2019	1	2019
IOC	2	2020	2	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 1901 / MC Grnd Wpnrty Prod Improvement			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1901: MC Grnd Wpnrty Prod Improvement	28.687	7.958	3.719	3.689	-	3.689	4.305	5.432	5.186	5.293	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops joint and Marine Corps unique improvements to infantry weapons technology, non-lethal systems technology, improvements for Night Vision Equipment, Rifle Combat Optics, Family of Individual Optics, and monitors national and international weapons developments.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Mission Payload Module (MPM)	3.175	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The Mission Payload Module (MPM) launches non-lethal payloads to ranges with broad area coverage, duration of effects, and volume of fire. This will be initially deployed from the Marine Corps Transparent Armored Gun Shield (MCTAGS). MPM will deliver counter-personnel, non-lethal effects applicable to controlling crowds, denying/defending areas, controlling access, and engaging threats. As of FY15, investments in this program are leveraged with funding from the Joint Non-Lethal Weapons Program, PE 0603851M.					
FY 2015 Accomplishments: -Initiated preliminary design review (PDR).					
FY 2016 Plans: - MPM Engineer and Manufacturing Development (EMD) contract terminated for convenience and the program was returned to Technology Maturation and Risk Reduction acquisition phase under the purview of the Joint Non-Lethal Weapons Program, PE 0603851M.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Title: Escalation of Force-Equipment (EoF-E)	0.135	0.089	0.038	0.000	0.038
Articles:	-	-	-	-	-

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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 1901 / MC Grnd Wpnry Prod Improvement

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Escalation of Force Equipment (EoF-E) is a mod funding line to support/sustain all fielded EoF equipment and capabilities. Additionally, EoF-E supports type-classification, testing and procurement of new advancements and technologies to provide an increased capability over existing or obsolescent equipment currently in or associated with the Escalation of Force Mission Modules (EoF-MMs).</p> <p>FY 2015 Accomplishments: -Completed evaluation and upgrade of the translation capability within the EoF-MM. -Initiated assessment of upgrades to the EoF-MM and LA-9/P Lasers to sustain/support equipment and capabilities.</p> <p>FY 2016 Plans: -Continue assessment of upgrades and replacements to the EoF-MM to sustain/support equipment and capabilities. -Complete assessment of upgrades and replacements to the LA-9/P Lasers to sustain/support equipment and capabilities.</p> <p>FY 2017 Base Plans: -Continue assessment of upgrades and replacements to the EoF-MM to sustain/support equipment and capabilities. -Continue assessment of upgrades and replacements to the OI Lasers to sustain/support equipment and capabilities. -Initiate upgrade of EoF Capabilities.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Combat Optics</p> <p align="right">Articles:</p> <p>Description: Combat Optics is a program that provides for research and development, as well as ammunition to support testing and assessment of optical systems and implementation of modifications for these systems as well as life-cycle management efforts. The research and development of future capabilities include, but are not limited to, fused/multi-spectral (e.g., combined image intensifier, thermal imaging, and short wave infrared) optical and laser systems. Additionally, this line supports the procurement of over 600,000 magnified day optics, thermal imagers, image intensifier, lasers, and illuminators principle end items (PEI) due to combat losses,</p>	2.575	1.751	1.748	0.000	1.748
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>wash-outs, and increases in Approved Acquisition Objectives. Sustainment efforts include sustainment of optics capabilities and/or improvements to the performance, maintainability, supportability, service life, ergonomics, and safety enhancements.</p> <p>FY 2015 Accomplishments: -Initiated technology development and evaluation to support life cycle extension and improvement of current optics and inform future optics requirements generation to address capability gaps. -Initiated coordination with United States Army on long wave and short wave infrared technologies.</p> <p>FY 2016 Plans: -Continue technology development and evaluation to support life cycle extension and improvement of current optics and inform future optics requirements generation to address capability gaps. -Continue coordination with United States Army on long wave and short wave infrared technologies. -Initiate and complete design of a Dual-Channel Heavy Sight (DCHS) prototype to inform the development of a joint capability document for future production.</p> <p>FY 2017 Base Plans: -Continue technology development and evaluation to support life cycle extension and improvement of current optics and inform future optics requirements generation to address capability gaps. -Continue coordination with United States Army on long wave and short wave infrared technologies. -Initiate fabrication and testing of DCHS prototypes, and purchase ammunition to support testing and evaluation.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Company and Battalion Mortars</p> <p align="right">Articles:</p> <p>Description: This funding is used to provide system development and demonstration efforts and pre-Milestone C activities, for the Next Generation of Lightweight Handheld Mortar Ballistic Computer software and hardware.</p> <p>FY 2015 Accomplishments: -Initiated system development and demonstration efforts. -Initiated pre-Milestone C activities. -Initiated development of software for Lightweight Handheld Mortar Ballistic Computer.</p> <p>FY 2016 Plans:</p>	1.075	0.986	0.494	0.000	0.494
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>-Continue system and software development and demonstration efforts. -Continue pre-Milestone C activities. -Initiate purchase of Non-developmental Items (NDI) for testing and evaluation of candidate systems and modifications for Company and Battalion Mortars, and for the development of software for Lightweight Handheld Mortar Ballistic Computer.</p> <p>FY 2017 Base Plans: -Continue pre-Milestone C activities (including Developmental Testing). -Continue purchase of NDI for testing and evaluation of candidate systems and modifications for Company and Battalion Mortars, and for the development of software for Lightweight Handheld Mortar Ballistic Computer. -Complete system and software development, and demonstration efforts.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Family of Infantry Weapons Systems (FIWS)</p> <p align="right">Articles:</p> <p>Description: Family of Infantry Weapons Systems (FIWS) is a program that provides for continuous monitoring, research and development, assessment of and implementation of Joint Service and USMC unique system modifications. Efforts such as: sustain weapon capability, enhance gunner's protection kits and/or improve the performance, maintainability, supportability, service life, ergonomics, and safety enhancements.</p> <p>FY 2015 Accomplishments: -Continued Product Improvement Program testing for various Machine Gun Mounts. -Continued efforts to analyze, design, develop, and field modifications for Infantry Weapons (to include Rifle Barrel Modifications, Rifle Barrel Twist study, and M27 Infantry Automatic Rifle ammo compatibility study). -Initiated performance evaluation of various types of ammunition currently under development.</p> <p>FY 2016 Plans: -Continue Product Improvement Program testing for various emergent requirements. -Continue efforts to analyze, design, develop, and field modifications for Infantry Weapons (to include gunner's protection kits). -Continue performance evaluation on various types of ammunition currently under development. -Initiate product improvement of Gunner Protection Kits (GPK) in order to meet emerging requirements outlined in Capability Production Document.</p>	0.998	0.893	1.409	0.000	1.409
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Initiate efforts to analyze, design, and develop a GPK that meets emergent requirements for vehicle stowage aboard ships while maintaining existing protection levels.					
<i>FY 2017 Base Plans:</i> -Continue Product Improvement Program testing for various emergent requirements. -Continue efforts to analyze, design, develop, and field modifications (to include gunner's protection kits). -Continue performance evaluation of various types of ammunition currently under development. -Continue product improvement of GPK in order to meet emerging requirements outlined in Capability Production Document. -Continue efforts to analyze, design, and develop a GPK that meets emergent requirements for vehicle stowage aboard ships while maintaining existing protection levels.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	7.958	3.719	3.689	0.000	3.689

C. Other Program Funding Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDTEN/2319 - MPM: Mission Payload Module-Joint Non-Lethal Weapons Directorate	4.236	6.826	6.700	-	6.700	0.000	0.000	0.000	0.000	Continuing	Continuing
• PMC/2208: Escalation of Force - Equip (EoF-E)	0.623	0.488	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	53.082
• PMC/4930: Combat Optics	4.444	2.018	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,503.177
• PMC/2220-01: Family of Infantry Weapons Systems	3.122	6.802	4.675	0.572	5.247	5.287	5.273	5.162	5.263	Continuing	Continuing
• PMC/2220-02: Company and Battalion Mortars	0.881	1.122	0.000	-	0.000	0.810	3.339	3.407	3.474	Continuing	Continuing
• RDTEN/2319 - OI: Ocular Interruption-Joint Non-Lethal Weapons Directorate	2.376	1.608	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.984
• PMC/4620: Combat Optics	0.000	0.000	3.272	-	3.272	6.544	9.329	9.502	9.688	Continuing	Continuing

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

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	Total Cost
			Base	OCO	Total					Complete	
• PMC/2220-03: <i>Escalation of Force - Equip (EoF-E)</i>	0.000	0.000	1.898	-	1.898	1.748	1.398	1.426	1.454	Continuing	Continuing

Remarks

D. Acquisition Strategy

These programs range from off-the-shelf modifications to developmental items for safety, reliability, and technology upgrades to meet Marine Corps requirements.

E. Performance Metrics

Milestone Reviews

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Company and Battalion Mortars	MIPR	Aberdeen Test Center : Aberdeen, MD	0.000	0.154	Mar 2016	0.000		0.000		-		0.000	0.000	0.154	-
Company and Battalion Mortars	MIPR	Picatinny Arsenal : Picatinny, NJ	0.882	0.800	Jul 2015	0.736	Mar 2016	0.494	Mar 2017	-		0.494	Continuing	Continuing	Continuing
Escalation of Force Equipment	Various	MCSC : QUANTICO, VA	0.394	0.135	May 2015	0.089	May 2016	0.000		-		0.000	0.000	0.618	-
Family of Infantry Weapons Systems	C/FFP	MCSC : Quantico, VA	0.272	0.000		0.040	Mar 2016	0.718	Mar 2017	-		0.718	Continuing	Continuing	Continuing
Combat Optics	Various	MCSC : Quantico, VA	1.853	0.692	Nov 2014	1.361	Mar 2016	1.413	Nov 2016	-		1.413	Continuing	Continuing	Continuing
Combat Optics	Various	Night Vision Lab : Ft. Belvoir, VA	1.856	1.257	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Combat Optics	Various	MCSC : Travel	0.008	0.000		0.050	Jan 2016	0.000		-		0.000	0.000	0.058	-
Proj 1901: Prior Years Cum Funding (Product Dev)	Various	Various : Various	0.954	0.000		0.000		0.000		-		0.000	0.000	0.954	-
Subtotal			6.219	3.038		2.276		2.625		-		2.625	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Company and Battalion Mortars	WR	NSCW : Dahlgren, VA	0.000	0.121	Mar 2016	0.250	Mar 2016	0.000		-		0.000	0.000	0.371	-
Mission Payload Module	Various	Various : Various	0.000	1.879	Jan 2016	0.000		0.000		-		0.000	0.000	1.879	-
Escalation of Force Equipment	C/FFP	HECOE : San Antonio, TX	0.000	0.000		0.000		0.038	Oct 2016	-		0.038	0.000	0.038	-
Family of Infantry Weapons Systems	Various	Travel/IMPAC : Quantico, VA	0.077	0.062	Sep 2015	0.099	Sep 2016	0.151	Sep 2017	-		0.151	Continuing	Continuing	Continuing
Combat Optics	C/FFP	MCSC : Quantico, VA	1.226	0.626	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing

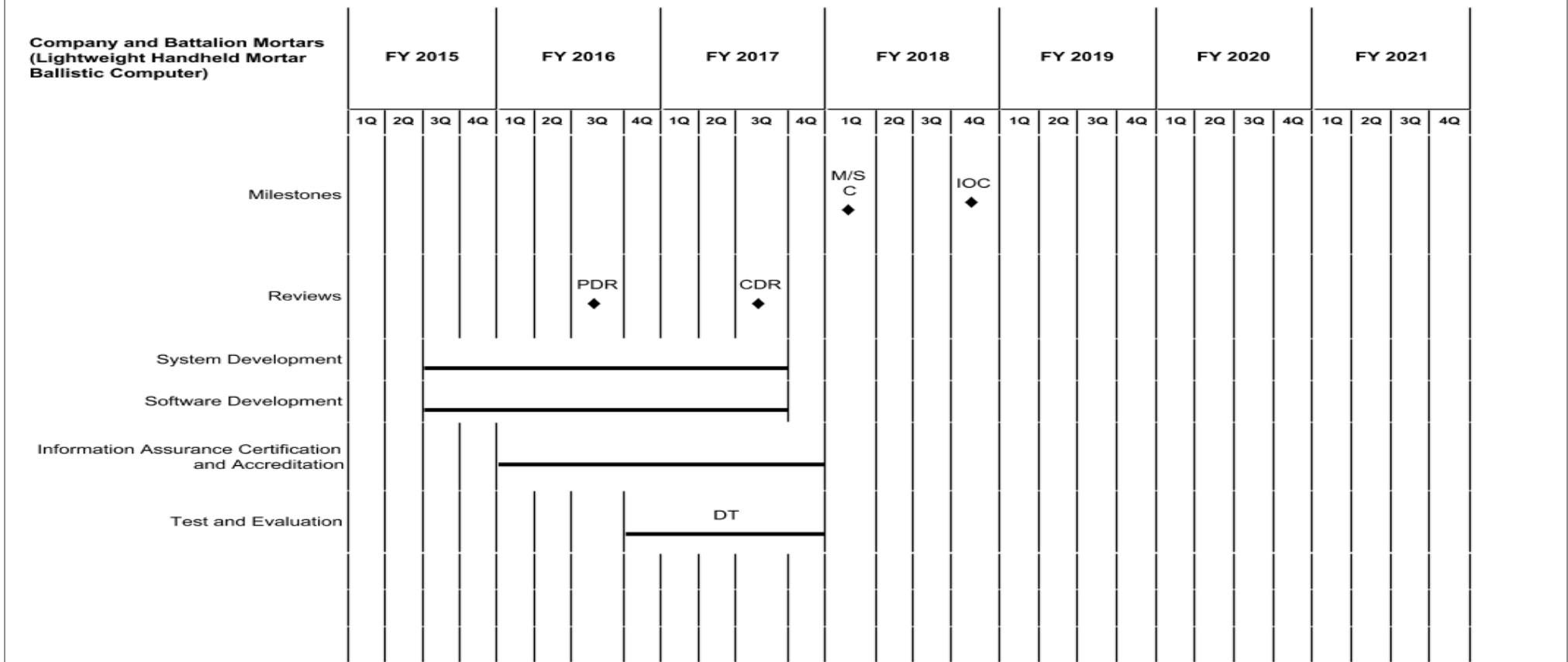
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
1319 / 7				PE 0206623M / MC Ground Cmbt Spt Arms Sys						1901 / MC Grnd Wpnry Prod Improvement Sys					
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Combat Optics	C/FFP	NSCW : Crane, IN	0.000	0.000		0.340	Jul 2016	0.301	Feb 2017	-		0.301	0.000	0.641	-
Proj 1901: Prior Years Cum Funding (Support)	Various	Various : Various	9.770	0.000		0.000		0.000		-		0.000	0.000	9.770	-
Subtotal			11.073	2.688		0.689		0.490		-		0.490	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Family of Infantry Weapons Systems	MIPR	Aberdeen Test Center : Aberdeen, MD	0.000	0.288	May 2016	0.240	May 2016	0.000		-		0.000	0.000	0.528	-
Mission Payload Module	C/CPFF	General Dynamics : Bothell, Washington	0.000	1.296	Oct 2015	0.000		0.000		-		0.000	0.000	1.296	-
Family of Infantry Weapons Systems	WR	NSWC Crane : Crane, IN	0.205	0.247	Dec 2014	0.260	Mar 2016	0.273	Jan 2017	-		0.273	Continuing	Continuing	Continuing
Family of Infantry Weapons Systems	WR	NSWC : Various Navy Labs	0.000	0.059	Sep 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Family of Infantry Weapons Systems	WR	NSWC : Crane, IN	0.000	0.100	May 2015	0.000		0.000		-		0.000	0.000	0.100	-
Family of Infantry Weapons Systems	WR	PM Ammo : Quantico, VA	0.190	0.000		0.000		0.000		-		0.000	0.000	0.190	-
Combat Optics	WR	PM Ammo : Quantico, VA	0.000	0.000		0.000		0.034	Dec 2016	-		0.034	0.000	0.034	-
Proj 1901: Prior Years Cum Funding (T&E Eval)	Various	Various : Various	9.735	0.000		0.000		0.000		-		0.000	0.000	9.735	-
Subtotal			10.130	1.990		0.500		0.307		-		0.307	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 1901 / MC Grnd Wpnry Prod Improvement
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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 1901 / MC Grnd Wpny Prod Improvement
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Escalation of Force Equipment (EoF-E)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
Management Support	Acq/Log/Engineering Support																											
Modifications and Upgrades					Laser to Sustain/Support Equipment and Capabilities Updrades																							
	Various EoF Upgrades																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 1901 / MC Grnd Wpnry Prod Improvement

Mission Payload Module (MPM)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
Production	EMD																											
				▲ PDR				▲ EMD Terminated																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 1901 / MC Grnd Wpnry Prod Improvement

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Company and Battalion Mortars (Lightweight Handheld Mortar Ballistic Computer)</i>				
Milestones: Milestone C	1	2018	1	2018
Milestones: IOC	4	2018	4	2018
Reviews: PDR	3	2016	3	2016
Reviews: CDR	3	2017	3	2017
System Development: System Development	3	2015	3	2017
Software Development: Software Development	3	2015	3	2017
Information Assurance Certification and Accreditation: Information Assurance Certification and Accreditation	1	2016	4	2017
Test and Evaluation: Developmental Test	4	2016	4	2017
<i>Escalation of Force Equipment (EoF-E)</i>				
Management Support: Acq/Log/Engineering Support	2	2015	3	2015
Modifications and Upgrades: Laser to Sustain/Support Equipment and Capabilities	1	2016	3	2016
Modifications and Upgrades: Various EoF Upgrades	2	2015	2	2019
<i>Mission Payload Module (MPM)</i>				
Production: Engineering, Manufacturing & Development (EMD)	1	2015	1	2016
Production: Production: Preliminary Design Review	4	2015	4	2015
Production: EMD Terminated	1	2016	1	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 2086 / Soldier/Marine Enhancement			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2086: <i>Soldier/Marine Enhancement</i>	22.670	5.777	2.253	2.760	-	2.760	4.184	4.175	3.888	3.974	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

The FY 2017 funding request was reduced by \$0.200 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

Marine Expeditionary Rifle Squad (MERS) mission is to manage the infantry squad, "squad as a system", by conducting integration, systems engineering, human factors, and modernization efforts across all the products that are worn, carried, and consumed by the rifle squad. Physical integration, capability analysis, modeling and simulation, ergonomics, and usability assessments are facilitated by this program in working with the various program managers and project officers in the development of their unique items that contribute to the squads overall capabilities. Weight and volume management are fundamental considerations in the insertion or modernization of any squad equipment. MERS works with Joint and NATO soldier modernization programs to harvest new technologies to increase the capability of the rifle squad. The program also ensures the integration of the rifle squad into the various mobility platforms currently in service and being developed to ensure a Marine and his equipment can operate effectively. This program is essential to ensure the combined synergistic equipment effects enhance the war-fighting functions of the Marine rifle squad towards the strategic Marine Corps war fighting vision for the future.

Marine Enhancement Program (MEP) provides Research, Development, Test and Evaluation funding for low visibility, low cost items. It focuses on items of equipment which will benefit the individual Marine by reducing the load, increasing survivability, enhancing safety, and improving combat effectiveness. The emphasis of the program is on non-developmental item/commercial off the shelf (NDI/COTS) available items which can be quickly evaluated and fielded. This program is coordinated with the Army's Soldier Enhancement Program (SEP).

Ammunition Life Cycle Management Program responsibility for Total Life Cycle Management for ground conventional munitions. Accordingly, PM Ammo is a member of the joint services Ammunition Logistics Research and Development IPT (ALR&D IPT). Each year the IPT solicits R&D projects from all of the services. The IPT looks for innovative ideas to enhance logistical support for munitions. Approximately 20 Ammo Logistics R&D projects are voted on each year by the IPT. They are prioritized by voting actions of the Senior Review Board and funding sources are identified. Since the funding for ammunition will likely decrease as the Marine Corps draws down and we end our participation in OEF, ammunition logistics R&D projects designed to extend the shelf life of our current inventory, provide enhanced packaging to protect our munitions, and other such projects will go a long way to ensure the Marine Corps can maintain a reliable conventional ammunition inventory into the future.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Marine Enhancement Program (MEP)	1.588	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2086 / Soldier/Marine Enhancement

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Continued to use funds based on the mission and the nature of the MEP as an accelerated acquisition process. The future MEP candidate submissions/selections will determine the projects that will be funded.</p> <p><i>FY 2016 Plans:</i> N/A</p> <p><i>FY 2017 Base Plans:</i> N/A</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> Marine Expeditionary Rifle Squad (MERS)</p> <p align="right"><i>Articles:</i></p>	3.726 -	1.753 -	2.441 -	0.000 -	2.441 -
<p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> -Continued to support all the Marine Corps Systems Command program offices that provide equipment to the Marine rifle squad or provide mobility platforms that support the squad. -Continued to resource and utilize the Gruntworks Squad Integration Facility as an asset to execute integration projects and usability trials. -Continued to conduct human performance trials utilizing MC-LEAP and other data collection methodologies. -Continued to conduct usability trials and limited user evaluations for hand held devices and digital interoperability at the infantry platoon and squad level. -Continued to support Modular Scalable Protection System and clothing projects with human factors expertise. -Continued to conduct experiments using the Marine Corps Load Effects Assessment Program. -Continued to conduct R&D on modeling and simulation to develop integrated seating solutions for combat equipped Marines for ACV 1.1, JLTV and other mobility programs and synchronize seat belt and retention systems among the platforms. -Continued to conduct R&D on squad systems in conjunction with Army squad system projects. -Continued to conduct surveys with post deploying infantry battalions on usability and integration of equipment utilized during deployment. -Continued to conduct human performance testing of Marines utilizing current and prototype configurations of infantry rifle squad equipment. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2086 / Soldier/Marine Enhancement

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>-Continued to evaluate and transition technologies from ONR and other S&T activities that enhance capabilities of the squad or provide a desired capability.</p> <p>-Continued to seek weight and volume reduction replacements for current infantry equipment that support integration of components.</p> <p>-Continued to implement requirements from MERS Initial Capabilities Document (ICD).</p> <p>FY 2016 Plans:</p> <p>-Continue to support all the Marine Corps Systems Command program offices that provide equipment to the Marine rifle squad or provide mobility platforms that support the squad.</p> <p>-Continue to resource, improve, and utilize the Gruntworks Squad Integration Facility as an asset to execute integration projects, prototyping, and usability trials.</p> <p>-Continue to conduct human performance trials utilizing MC-LEAP and other data collection methodologies in order to develop mobility metrics.</p> <p>-Continue to conduct usability trials, requirements generation workshops, and limited user evaluations for digital interoperability, handheld devices and applications at the infantry platoon and squad level.</p> <p>-Continue to support integration of body armor and load bearing systems with human factors expertise.</p> <p>-Continue to conduct mobility experiments using the Marine Corps Load Effects Assessment Program.</p> <p>-Continue to develop integrated seating solutions for combat equipped Marines for ACV 1.1, ACV 1.2, JLTV and other mobility programs and synchronize seat belt and retention systems among the platforms.</p> <p>-Continue to conduct R&D on squad systems in conjunction with Army squad system projects.</p> <p>-Continue to conduct surveys with post deploying infantry battalions on usability and integration of equipment utilized during deployment.</p> <p>-Continue to conduct human performance testing of Marines utilizing current and prototype configurations of infantry rifle squad equipment.</p> <p>-Continue to evaluate and transition technologies from ONR and other S&T activities that enhance capabilities of the squad or provide a desired capability.</p> <p>-Continue to seek weight and volume reduction replacements for current infantry equipment that support integration of components.</p> <p>-Continue to implement capability requirements from MERS Initial Capabilities Document (ICD).</p> <p>FY 2017 Base Plans:</p> <p>-Continue to support all the Marine Corps Systems Command program offices that provide equipment to the Marine rifle squad or provide mobility platforms that support the squad.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2086 / Soldier/Marine Enhancement

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>-Continue to resource, improve, and utilize the Gruntworks Squad Integration Facility as an asset to execute integration projects, prototyping, and usability trials.</p> <p>-Continue to conduct human performance trials utilizing MC-LEAP and other data collection methodologies in order to develop mobility metrics.</p> <p>-Continue to conduct usability trials, requirements generation workshops, and limited user evaluations for digital interoperability, handheld devices and applications at the infantry platoon and squad level.</p> <p>-Continue to support integration of body armor and load bearing systems with human factors expertise.</p> <p>-Continue to conduct mobility experiments using the Marine Corps Load Effects Assessment Program.</p> <p>-Continue to develop integrated seating solutions for combat equipped Marines for ACV 1.1, ACV 1.2, JLTV and other mobility programs and synchronize seat belt and retention systems among the platforms.</p> <p>-Continue to conduct R&D on squad systems in conjunction with Army squad system projects.</p> <p>-Continue to conduct surveys with post deploying infantry battalions on usability and integration of equipment utilized during deployment.</p> <p>-Continue to conduct human performance testing of Marines utilizing current and prototype configurations of infantry rifle squad equipment.</p> <p>-Continue to evaluate and transition technologies from ONR and other S&T activities that enhance capabilities of the squad or provide a desired capability.</p> <p>-Continue to seek weight and volume reduction replacements for current infantry equipment that support integration of components.</p> <p>-Continue to implement capability requirements from MERS Initial Capabilities Document (ICD).</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Ammunition Life Cycle Management</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: -Initiated support for the Ammunition Logistics R&D IPT by funding the ExpressPak Pallet and Airbag/Load Retention Programs; two of the fifteen projects that have the most logistical impact to the Marine Corps.</p> <p>FY 2016 Plans: -Continue to support the Ammunition Logistics R&D IPT by funding the projects (TBD) that have the most logistical impact to the Marine Corps.</p> <p>FY 2017 Base Plans:</p>	0.463	0.500	0.319	0.000	0.319
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2086 / Soldier/Marine Enhancement

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Continue to support the Ammunition Logistics R&D IPT by funding the projects (TBD) that have the most logistical impact to the Marine Corps. <i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	5.777	2.253	2.760	0.000	2.760

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PMC BLI 2208: <i>Marine Enhancement Program</i>	1.306	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	22.145

Remarks

D. Acquisition Strategy

Non Developmental Item/Commercial off the Shelf (NDI/COTS).

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys						Project (Number/Name) 2086 / Soldier/Marine Enhancement			

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
MERS Product Development	C/FFP	Various : Various	0.700	0.821	Mar 2015	1.100	Jan 2016	1.038	Feb 2017	-		1.038	0.000	3.659	-
MERS Product Development	C/FFP	Marine Corps : Quantico	0.000	0.000		0.000		0.150	May 2017	-		0.150	0.000	0.150	-
MEP Product Development	C/FFP	Marine Corps : Quantico, VA	5.454	1.388	Mar 2015	0.000		0.000		-		0.000	0.000	6.842	-
Prior Years Cumulative Funding	Various	Marine Corps Systems Command : Quantico, VA	4.429	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			10.583	2.209		1.100		1.188		-		1.188	-	-	-

Remarks

Various contracts, MIPRS, Work Requests and Supply Requisitions are awarded through the year for the various initiatives in the MEP and MERS programs. Contract Method reflects where the majority of the funding is allocated. Contract award date reflects the first of multiple awards.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
MERS Prior Year Cumulative Funding	Various	Marine Corps Systems Command : Quanico, VA	0.600	0.000		0.000		0.557	Dec 2016	-		0.557	0.000	1.157	-
MEP Operational Technical Support	WR	Various : Various	0.700	0.000		0.000		0.000		-		0.000	0.000	0.700	-
Ammunition Life Cycle Management	MIPR	Defense Ammo Ctr : McAlester, OK	0.000	0.229	Jan 2015	0.263	Jan 2016	0.168	Jan 2017	-		0.168	0.000	0.660	-
Ammunition Life Cycle Management	WR	NSWC : Indian Head, MD	0.000	0.234	Jan 2015	0.237	Jan 2016	0.151	Jan 2017	-		0.151	0.000	0.622	-
MERS Technical Support	WR	Various : Various	1.303	2.254	Jan 2015	0.400	Mar 2016	0.285	Jun 2017	-		0.285	0.000	4.242	-
Subtotal			2.603	2.717		0.900		1.161		-		1.161	0.000	7.381	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2086 / Soldier/Marine Enhancement
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			

Remarks
Various contracts, MIPRS, Work Requests and Supply Requisitions are awarded through the year for the various initiatives in the MERS programs. Contract method reflects where the majority of the funding is allocated. Contract award date reflects the first of multiple awards.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
MERS Developmental Test & Eval	C/FFP	Marine Corps Systems Command : Quantico, VA	4.768	0.651	Mar 2015	0.253	Mar 2016	0.411	Feb 2017	-		0.411	Continuing	Continuing	Continuing
MEP Developmental Test & Eval	C/FFP	Marine Corps Systems Command : Quantico, VA	4.716	0.200	Mar 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			9.484	0.851		0.253		0.411		-		0.411	-	-	-

Remarks
Various contracts, MIPRS, Work Requests and Supply Requisitions are awarded through the year for the various initiatives in the MEP and MERS programs, therefore a specific contract award date cannot be identified. Contract award date reflects the first of multiple awards.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	22.670	5.777	2.253	2.760	-	2.760	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2086 / Soldier/Marine Enhancement
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Proj 2086	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
MERS Research/Int of Infantry Squad																												
Marine Enhancement Prog Equipment																												
ALCM Munitions RDTE Logistice																												
Empty grid for data entry																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2086 / Soldier/Marine Enhancement

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2086				
MERS research/integration of Infantry Squad - No major milestones	1	2015	4	2021
Marine Enhancement Program Equipment - No major milestones	1	2015	4	2021
ALCM - Munitions RDTE Logistics - No major milestones	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 2112 / Lightweight 155mm Howitzer			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2112: <i>Lightweight 155mm Howitzer</i>	0.193	1.987	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.180
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Lightweight 155mm Howitzer (LW155), also known as the M777A2, provides direct, reinforcing, and general support fires to maneuver forces. It replaces all howitzers in all missions in the USMC and replaces the M198 howitzer as the general support artillery for light forces in the Army. The LW155 fires unassisted projectiles to a range of 15 miles and assisted projectiles to 19 miles. The addition of the digital fire control system enables the weapon to program and fire the improved Excalibur precision-guided munition to ranges in excess of 25 miles with better than 10-meter Circular Error Probable (CEP) accuracy. The LW155 is the first ground combat system whose major structures are made of high strength titanium alloy and the system makes extensive use of hydraulics to operate the breech, load tray, recoil and wheel arms. The combination of titanium structures and the use of hydraulic systems resulted in a significant weight savings over the M198 system (7000 lbs.). Compared to the M198, the LW155 emplaces three-times faster and displaces four-times faster. It traverses 32 percent more terrain worldwide and is 70 percent more survivable than the M198. The LW155 was first introduced into the Marine Corps in April 2005 and since then 10th, 11th, 12th and 14th Marines and the schoolhouses have been fielded. The Army has fielded the system to its Stryker Brigades and Fires Brigades and is currently fielding to its Infantry Brigades. The LW155 is currently in OEF with both Services.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: ECP Material Solutions	1.987	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: -Continued to support engineering analysis such as Digital Fire Control System component upgrades as well as concepts to increase M777A2 range and future power technology solutions.					
FY 2016 Plans: N/A					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	1.987	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2112 / Lightweight 155mm Howitzer

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• 218500: PMC - LW155	4.487	7.177	3.318	-	3.318	0.476	0.208	0.068	0.068	0.000	1,333.471

Remarks

D. Acquisition Strategy

Production and fielding of the LW155 has concluded and the program has entered into the Sustainment Life Cycle Phase. The program will continue to perform research and development to remedy obsolescence issues, diminishing manufacturing sources, technical issues and emergent threats.

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2112 / Lightweight 155mm Howitzer
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Proj 2112	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021						
	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			
Weapons Engineering Study																															

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2112 / Lightweight 155mm Howitzer

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2112				
Weapons Engineering Study	1	2015	1	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 2237 / Amphibious Vehicle Test			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2237: Amphibious Vehicle Test	4.843	2.075	0.994	0.991	-	0.991	0.979	0.903	0.921	0.942	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Amphibious Vehicle Test Branch (AVTB) is a component of Marine Corps Systems Command (MCSC) and is the Department of Defense's only certified amphibious vehicle test capability. The AVTB plans, executes, analyzes and reports results of developmental and integrated test and evaluation events, predominately supporting the development and performance validation of amphibious and ground combat vehicle system capabilities. The AVTB conducts or supports testing for the MCSC; Navy PEOs and Program Management Offices; the Office of Naval Research; and HQMC PP&O and CD&I, as directed. The AVTB mission is to plan, execute, analyze and report developmental and integrated test and evaluation of USMC and Joint Service tracked, wheeled and ground combat vehicles and other demonstration events in order to characterize the performance of amphibious and ground combat vehicle systems and enable informed acquisition decisions for the future warfighting capabilities.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Contracts and Test and Evaluation Support Assets	2.075	0.994	0.991	0.000	0.991
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
-Continued high water speed testing of the Hydrodynamic Test Rig (HTR) to support the Amphibious Combat Vehicle (ACV) design development and technology risk reduction efforts.					
-Continued Light Armored Vehicle (LAV) variant water testing; AAV baseline and track with focused testing to inform the upgrade acquisition and contracting process for survivability upgrade.					
-Continued to provide resources and technical expertise to ONR's Exercise Trident Warrior.					
-Continued test support to other MCSC, Navy PEO and PM requirements such as PM GBAD and PM MC3.					
-Initiated Joint Service acquisitions support, such as the United States Special Operations Command, including multiple ground mobility systems, maritime systems and target engagement systems.					
FY 2016 Plans:					
-Continue HTR testing					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2237 / Amphibious Vehicle Test

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Continue ACV inc 1.1 Reliability Growth Testing (RGT), Survivability, Human Factors, C2, Water mode Operational Assessments, and support the ACV design development and technology risk reduction efforts.					
-Continue LAV variant water testing.					
-Continue AAV baseline and survivability upgrade DT&E RGT with increase focus testing to inform the upgrade acquisition and contracting process for survivability upgrade.					
-Continue to provide resources and technical expertise to ONR's Exercise Trident Warrior; and provide test support to other MCSC, Navy PEOs, and Joint Service acquisitions.					
<i>FY 2017 Base Plans:</i>					
-Continue ACV inc 1.1 DT&E water testing					
-Continue LAV variant water testing.					
-Continue AAV baseline and survivability upgrade DT&E RGT with increase focus testing to inform the upgrade acquisition and contracting process for survivability upgrade.					
-Continue to provide resources and technical expertise to ONR's Exercise Trident Warrior; and provide test support to other MCSC, Navy PEOs, and Joint Service acquisitions.					
<i>FY 2017 OCO Plans:</i>					
N/A					
Accomplishments/Planned Programs Subtotals	2.075	0.994	0.991	0.000	0.991

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

N/A

Remarks

D. Acquisition Strategy

Work will be led in-house by the Amphibious Vehicle Test Branch (AVTB). As DoD's only certified amphibious test and evaluation capability, AVTB will provide technical and user information regarding the performance of amphibious and ground combat vehicles during developmental testing, capabilities demonstrations and assessments,

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2237 / Amphibious Vehicle Test

integrated and follow-on test evaluations events for Marine Corps and Joint Service Program Managers of system activities to support future warfighting capabilities. Required DT&E test assets will be resourced organically with military and civilian personnel, and as required contracted by the MCSC, such as boat operations and maintenance, professional data collection and reduction, test instrumentation and test-peculiar programming and technical writing.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
1319 / 7				PE 0206623M / MC Ground Cmbt Spt Arms Sys					2237 / Amphibious Vehicle Test						
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Facility/Test Infrastructure	C/FFP	NAVFAC, SW : Camp Pendleton, CA	0.240	0.061	Apr 2015	0.065	May 2016	0.080	May 2017	-		0.080	Continuing	Continuing	Continuing
Test Assets/Boat Operators	C/FFP	RCO Camp Pend : Camp Pendleton	2.400	0.850	Aug 2015	0.133	Aug 2016	0.082	Aug 2017	-		0.082	0.000	3.465	-
Data Collections	WR	ATC : Camp Pendleton, CA	0.256	0.498	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Hazmat POL PPE	Various	Camp Pendleton : Camp Pendleton CA	0.060	0.050	Jul 2015	0.030	Jul 2016	0.040	Jul 2017	-		0.040	0.000	0.180	-
Subtotal			2.956	1.459		0.228		0.202		-		0.202	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Test Article Ops& Maint/ Fuel Consumables and Materials	Various	AVTB : Camp Pendelton, CA	0.943	0.095	Jun 2015	0.056	Jun 2016	0.060	Jul 2017	-		0.060	Continuing	Continuing	Continuing
Prior Years Cumulative Funding	WR	AVTB : Camp Pendleton	0.020	0.000		0.000		0.000		-		0.000	0.000	0.020	-
Subtotal			0.963	0.095		0.056		0.060		-		0.060	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Data Management	C/FFP	MCSC : Quantico, VA	0.924	0.521	Jun 2015	0.710	Jun 2016	0.729	Jun 2017	-		0.729	Continuing	Continuing	Continuing
Subtotal			0.924	0.521		0.710		0.729		-		0.729	-	-	-

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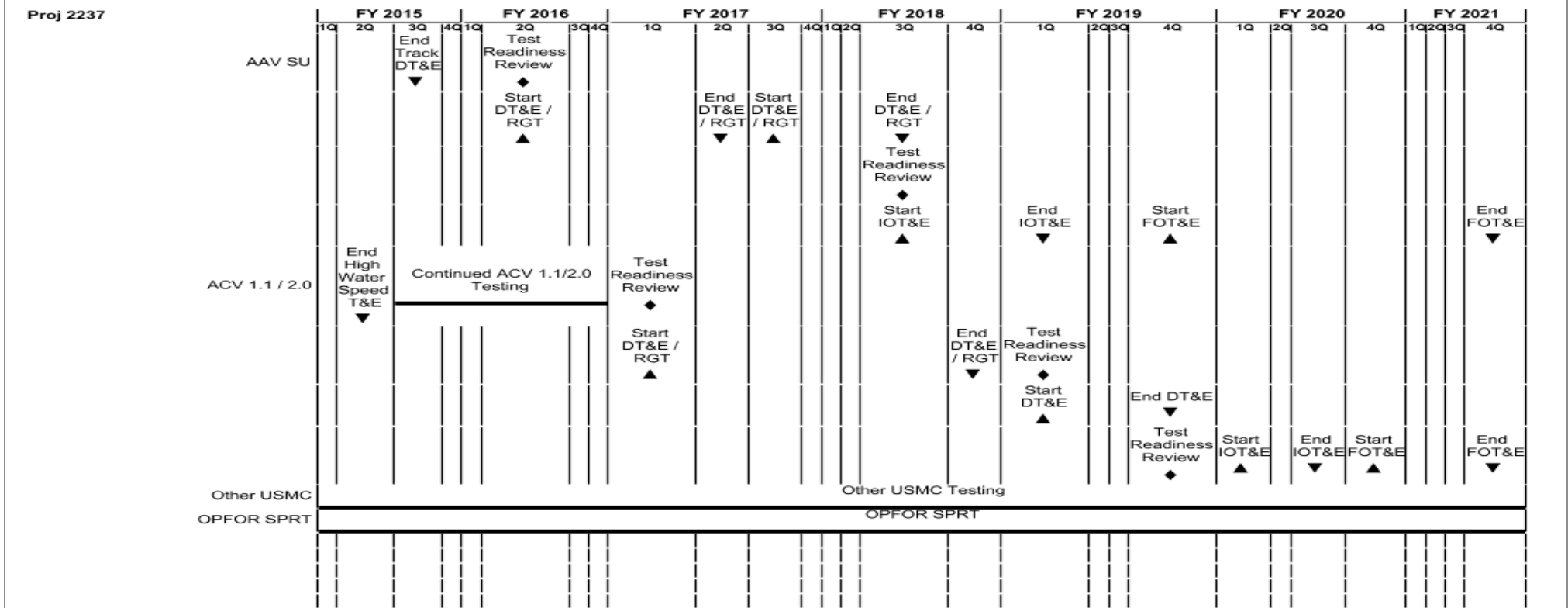
Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy								Date: February 2016					
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 2237 / Amphibious Vehicle Test					
	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.843	2.075		0.994		0.991		-		0.991	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2237 / Amphibious Vehicle Test
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2237 / Amphibious Vehicle Test

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2237				
AAV SU: FY15 End Track DT&E	3	2015	3	2015
AAV SU: FY16 Test Readiness Review	2	2016	2	2016
AAV SU: FY16 Start DT&E / RGT	2	2016	2	2016
AAV SU: FY17 End DT&E / RGT	2	2017	2	2017
AAV SU: FY17 Start DT&E / RGT	3	2017	3	2017
AAV SU: FY18 End DT&E / RGT	3	2018	3	2018
AAV SU: FY18 Test Readiness Review	3	2018	3	2018
AAV SU: FY18 Start IOT&E	3	2018	3	2018
AAV SU: FY19 End IOT&E	1	2019	1	2019
AAV SU: FY19 Start FOT&E	4	2019	4	2019
AAV SU: FY20 End FOT&E	4	2021	4	2021
ACV 1.1 / 2.0: FY15 End High Water Speed T&E	2	2015	2	2015
ACV 1.1 / 2.0: Continued ACV Testing	3	2015	4	2016
ACV 1.1 / 2.0: FY17 Test Readiness Review	1	2017	1	2017
ACV 1.1 / 2.0: FY17 Start DT&E / RGT	1	2017	1	2017
ACV 1.1 / 2.0: FY18 End DT&E / RGT	4	2018	4	2018
ACV 1.1 / 2.0: FY19 (1) Test Readiness Review	1	2019	1	2019
ACV 1.1 / 2.0: FY19 Start DT&E	1	2019	1	2019
ACV 1.1 / 2.0: FY20 End DT&E	4	2019	4	2019
ACV 1.1 / 2.0: FY19 (2) Test Readiness Review	4	2019	4	2019
ACV 1.1 / 2.0: FY20 Start IOT&E	1	2020	1	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2237 / Amphibious Vehicle Test
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ACV 1.1 / 2.0: FY20 End IOT&E	3	2020	3	2020
ACV 1.1 / 2.0: FY20 Start FOT&E	4	2020	4	2020
ACV 1.1 / 2.0: FY21 End FOT&E	4	2021	4	2021
Other USMC: Other USMC Testing	1	2015	4	2021
OPFOR SPRT: OPFOR SPRT	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 2315 / Training Devices/Simulators			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2315: Training Devices/Simulators	112.370	5.668	12.101	13.605	-	13.605	14.791	14.014	13.856	14.161	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

The FY 2017 funding request was reduced by \$0.150 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

(U) Training simulators supported by this program element include Combined Arms Command & Control Training Upgrade System (CACCTUS), Deployable Virtual Training Environment (DVTE), Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) Enhancements, Ranges and Training Area Management (RTAM) [Formerly Range Modernization/Transformation], Squad Immersive Training Environment (SITE) and Training Support. These training systems provide tactical weapons and decision-making skill training from entry level through MAGTF staff level. Systems will be interoperable and will allow for mission planning, mission rehearsal and concept evaluation in a valid synthetic environment with objective and timely feedback. Through live, virtual and constructive simulation, the Marine Corps will have the means to train jointly, educate, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations, and define operational requirements.

The \$.973M decrease from FY16 to FY 17 reflects re-phasing of funds to better align with the Training Devices/Simulators program schedule.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Combined Arms Command and Control Trainer Upgrade System (CACCTUS)	0.199	6.993	6.603	0.000	6.603
Articles:	-	-	-	-	-
Description: CACCTUS is a combined arms staff training system that when fully fielded will enable comprehensive Marine Corps staff, unit, and team training both at home station Combined Arms Staff Training (CAST) facilities and through distributed training involving CAST facilities across the Marine Corps. CACCTUS is an upgrade to the USMC's CAST that provides fire support training for the Marine Air Ground Task Force (MAGTF) elements up to and including Marine Expeditionary Brigade (MEB) level. Using the system components and simulation capabilities, two dimensional (2D) and three dimensional (3D) visuals, interfaced Command, Control, Communications, Computers and Intelligence (C4I), synthetic terrain, and an After Action Review (AAR), the concept of operations for the CACCTUS system is to immerse the trainees in a realistic, scenario-driven environment to enable commands and their battle staffs to train or rehearse combined arms tactics, techniques and procedures for decision-making processes.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2315 / Training Devices/Simulators

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>culture training, platoon and squad level tactics, employment of supporting arms, and various Recognition of Combatants (ROC) packages. DVTE is part of a Commander's "training toolkit" contributing to the building block approach to standards based training focusing on achieving an improved level of combat readiness.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued incremental DVTE network infrastructure development by focusing on capabilities identified as DVTE application enhancements in the development plan. - Continued the additional efforts specified under the DVTE Software Capability Development Document (CDD) Increment II for Virtual Battlespace (VBS) release that includes improved Call For Fire (CFF) and Close Air Support (CAS) capability to replace/decrease actual live training events. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue incremental DVTE network infrastructure development by focusing on capabilities identified as DVTE application enhancements in the development plan. - Continue the additional efforts specified under the DVTE Software Capability Development Document (CDD) Increment II for Virtual Battlespace (VBS) release that includes improved Call For Fire (CFF) and Close Air Support (CAS) capability to replace/decrease actual live training events. - Initiate development of Tactical Air Control Party Green Gear modeling and Digital Fire Control System (DFCS) modeling for the Virtual Battlespace (VBS) release. - Initiate action to improve Flight Dynamics of Close Air Support (CAS) weapon platforms to more accurately represent live Joint Terminal Attack Controller (JTAC) training for the Virtual Battlespace (VBS) release. - Initiate enhancement and integration of Comm Gear and After Action Review (AAR) for the Virtual Battlespace (VBS) release. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue incremental DVTE network infrastructure development by focusing on capabilities identified as DVTE application enhancements in the development plan. - Continue the additional efforts specified under the DVTE Software Capability Development Document (CDD) Increment II for Virtual Battlespace (VBS) release that includes improved Call For Fire (CFF) and Close Air Support (CAS) capability to replace/decrease actual live training events. - Continue development of Tactical Air Control Party Green Gear modeling and Digital Fire Control System (DFCS) modeling for the Virtual Battlespace (VBS) release. - Continue to improve Flight Dynamics of Close Air Support (CAS) weapon platforms to more accurately represent live Joint Terminal Attack Controller (JTAC) training for the Virtual Battlespace (VBS) release. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2315 / Training Devices/Simulators			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Continue enhancement and integration of Comm Gear and After Action Review (AAR) for the Virtual Battlespace (VBS) release. FY 2017 OCO Plans: N/A					
Title: Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) Enhancements Description: MTWS is the only Marine Corps aggregate-level constructive simulation system designed to support the training of Senior Commanders and their staffs in command and control processes and procedures. The system provides interactive, multi-sided, force-on-force, real-time modeling and simulation with stand-alone tactical combat scenarios for air ground, surface, and amphibious operations that interfaces to fielded Marine Corps Command, Control, Communications Computers and Intelligence (C4I) systems such as Command and Control Personal Computer (C2PC) and Intelligence Operations Server (IOS). MTWS provides the battle staff the ability to seamlessly train with and use other C4I systems during the execution on an MTWS supported training event. Through the implementation of a High Level Architecture (HLA) interface between MTWS and the entity-level Joint Conflict and Tactical Simulation (JCATS) system, high resolution tactical objectives can be simulated in JCATS and reflected within the context of a larger operation scenario conducted in MTWS. FY 2015 Accomplishments: - Continued interoperability development of MTWS integration into Joint Live Virtual and Constructive (JLVC) Federation, with primary focus on amphibious landings. - Continued development to increase levels of software capability to meet the changing operational environment that Marines fight in daily. - Continued server virtualization testing. - Completed design/development and test of a detailed unified architecture in support U.S. Korea Command (KORCOM) interoperability. FY 2016 Plans: - Continue interoperability development of MTWS integration into Joint Live Virtual and Constructive (JLVC) Federation, with primary focus on amphibious landings. - Continue development to increase levels of software capability to meet the changing operational environment that Marines fight in daily. - Complete server virtualization testing.	1.341	2.086	2.533	0.000	2.533
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy				Date: February 2016	
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys		Project (Number/Name) 2315 / Training Devices/Simulators	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
- Initiate Live, Virtual and Constructive (LVC) simulation integration.					
FY 2017 Base Plans:					
- Continue interoperability development of MTWS integration into Joint Live Virtual and Constructive (JLVC) Federation, with primary focus on amphibious landings.					
- Continue development to increase levels of software capability to meet the changing operational environment that Marines fight in daily.					
- Continue Live, Virtual and Constructive (LVC) simulation integration.					
FY 2017 OCO Plans:					
N/A					
Title: Ranges and Training Area Management (RTAM) [formerly Range Modernization/Transformation (RM/T)]					
Articles:					
	0.000	0.982	0.783	0.000	0.783
	-	-	-	-	-
Description: Ranges and Training Area Management (RTAM) developments are associated with modernizing live training ranges at major USMC bases and stations. This development effort enhances After Action Review (AAR) with ground truth feedback, realistic representation of Opposing Forces (OPFOR), and will upgrade the range and exercise control capabilities. RM/T integrates Live, Virtual, and Constructive training technologies, thereby, enhancing fielded live-fire, force-on-target, and force-on-force training capabilities.					
FY 2015 Accomplishments:					
N/A					
FY 2016 Plans:					
- Continue to perform minimum software upgrades to add capability to the Range Instrumentation Systems Exercise Controller (RISCon) through the integration of numerous live/target systems.					
FY 2017 Base Plans:					
- Continue to perform minimum software upgrades to add capability to the Range Instrumentation Systems Exercise Controller (RISCon) through the integration of numerous live/target systems.					
FY 2017 OCO Plans:					
N/A					
Title: Supporting Arms Virtual Trainer (SAVT)					
	0.828	0.000	0.000	0.000	0.000
	-	-	-	-	-
Articles:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2315 / Training Devices/Simulators

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: The SAVT will advance the training capability, operational readiness, and tactical proficiency of USMC Joint Terminal Attack Controllers (JTACS), Forward Observers (FOs), and Forward Air Controllers (FACs). The personnel will use training scenarios that require the placement of tactical ordnance on selected targets using Joint Close Air Support (JCAS) procedures and observed fire procedures for Naval Surface Fire Support (NSFS), artillery and mortar fire to perform destruction, neutralization, suppression, illumination/coordinated illumination, interdiction and harassment fire missions.</p> <p>FY 2015 Accomplishments: - Initiated and completed software development, integration, testing, and delivery of simulated bomb damage assessment, aircraft flight behaviors, and Joint Simulated Automated Forces (JSAF) functionality to meet the DoD mandate for migration to Windows 7 OS and to meet the DoD objective of improving accreditation via simulation for Joint Close Air Support (JCAS) procedures.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Squad Immersive Training Environment (SITE)</p> <p align="right">Articles:</p> <p>Description: SITE is an integrating construct or "toolkit" of Live, Virtual and Constructive (LVC) training capabilities used to significantly improve infantry squad operational readiness and squad leader tactical decision-making skills. The collection of LVC training capabilities within SITE will enhance opportunities for squad collective training to increase tactical proficiency, confidence, and readiness for real world operations. SITE will enhance skill transfer and assessment by enabling squads to finish, test, and remediate training in preparation for a capstone exercise such as pre-deployment training.</p> <p>FY 2015 Accomplishments:</p>	2.705	1.426	1.952	0.000	1.952
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2315 / Training Devices/Simulators

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Continued to produce additional documentation associated with product development to include (1) Systems Design Specification; (2) Interface Design Document; and (3) an overarching System Engineering Master Plan (SEMP) crossing current training systems to steer development of standards and a roadmap for system capability upgrades and sustained interoperability.</p> <p>- Completed immersive training capabilities with existing programs of record systems and develop capability upgrades to include integration of Instrumented-Tactical Engagement Simulation System II (I-TESS II) enhancements with Range Instrumentation Systems Exercise Controller (RISCon).</p> <p>- Initiated Training Effectiveness Evaluation events for system enhancements for I-TESS II Shoulder-Launched Multipurpose Assault Weapon (SMAW) and Javelin weapons, and One Tactical Engagement Simulation System (OneTESS) with RISCon.</p> <p>- Initiated transition of Office of Naval Research (ONR) project Perceptual Training System & Tools (PercepTs) and complete Augmented Immersive Team Training (AITT) products and deliverables.</p> <p>- Initiated development efforts for the anti-armor TOW/Saber and MK19 simulated weapons systems capability.</p> <p>FY 2016 Plans:</p> <p>- Continue to produce additional documentation associated with product development to include (1) Systems Design Specification; (2) Interface Design Document; and (3) an overarching System Engineering Master Plan (SEMP) crossing current training systems to steer development of standards and a roadmap for system capability upgrades and sustained interoperability.</p> <p>- Complete Training Effectiveness Evaluation events for system enhancements for Instrumented-Tactical Engagement Simulation System II (I-TESS II) Shoulder-Launched Multipurpose Assault Weapon (SMAW) and Javelin weapons, and One Tactical Engagement Simulation System (OneTESS) with Range Instrumentation Systems Exercise Controller (RISCon).</p> <p>- Complete transition of Office of Naval Research (ONR) project Perceptual Training System & Tools (PercepTs) product and deliverable to PM TRASYs.</p> <p>- Complete development efforts for the anti-armor TOW/Saber and MK19 simulated weapons systems capability.</p> <p>- Initiate integration of Augmented Immersive Team Training (AITT) system upon completion of transition from ONR into existing programs of record.</p> <p>- Initiate System Training Effectiveness Evaluation Event for Tube-launched Optically-tracked Wire-guided (TOW)/Saber and MK19 capability.</p> <p>FY 2017 Base Plans:</p> <p>- Continue to produce additional documentation associated with product development to include (1) Systems Design Specification; (2) Interface Design Document; and (3) an overarching System Engineering Master</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Plan (SEMP) crossing current training systems to steer development of standards and a roadmap for system capability upgrades and sustained interoperability.</p> <ul style="list-style-type: none"> - Complete integration of Augmented Immersive Team Training (AITT) system upon completion of transition from ONR into existing programs of record. - Complete System Training Effectiveness Evaluation Event for TOW/Saber and MK19 capability. - Initiate development of the Employ Munitions capability within I-TESS II. - Initiate the training effectiveness evaluation of the Employ Munitions development. - Initiate the integration of the Augmented Immersive Team Trainer within the OneTESS Mortar capability and produce the prototype items for testing. - Initiate the Live and Virtual integration activities for I-TESS II with Virtual Battle Space (VBS). <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Training Support</p> <p align="right">Articles:</p> <p>Description: Provide training solution development efforts for the modernization of training systems by providing high fidelity, immersive simulations and capabilities. Integrates existing live, virtual, and constructive training capabilities to provide fully coordinated Marine Air Ground Training Force (MAGTF) training exercises that realistically simulate the operating environment.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued interoperability development of MAGTF Tactical Warfare Simulation (MTWS) integration to Joint Live, Virtual and Constructive (JLVC) Federation, with primary focus on amphibious landings. - Continued server virtualization testing. - Initiated and completed design/development and test of a detailed unified architecture in support U.S. Korea Command (KORCOM) interoperability and amphibious landings for MTWS. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue interoperability development of MAGTF Tactical Warfare Simulation (MTWS) integration to Joint Live, Virtual and Constructive (JLVC) Federation, with primary focus on amphibious landings. - Complete server virtualization testing. - Initiate Live, Virtual and Constructive (LVC) simulation integration. <p>FY 2017 Base Plans:</p>	0.051	0.041	0.038	0.000	0.038
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2315 / Training Devices/Simulators
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Continue interoperability development of MAGTF Tactical Warfare Simulation (MTWS) integration to Joint Live, Virtual and Constructive (JLVC) Federation, with primary focus on amphibious landings. - Continue Live, Virtual and Constructive (LVC) simulation integration.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	5.668	12.101	13.605	0.000	13.605

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	<u>Cost To Complete</u>	<u>Total Cost</u>
• PMC/6532-01: <i>Training Devices, CACCTUS</i>	0.447	2.601	3.515	-	3.515	4.290	3.909	3.990	4.067	Continuing	Continuing
• PMC/6532-02: <i>Training Devices, RTAM</i>	4.739	11.869	14.766	-	14.766	13.168	18.180	12.904	15.461	Continuing	Continuing
• PMC/4630: <i>Common Computer Resources, MTWS</i>	0.541	0.718	0.724	-	0.724	0.738	0.752	0.765	0.779	Continuing	Continuing
• PMC/6532-03: <i>Training Devices, SAVT</i>	0.000	0.000	4.061	-	4.061	4.070	0.000	0.000	0.000	0.000	8.131
• PMC/6532-04: <i>Training Devices, DVTE</i>	0.000	0.000	2.229	-	2.229	2.271	1.447	1.476	1.505	Continuing	Continuing
• PMC/6532-05: <i>Training Devices, SITE</i>	0.000	0.000	0.000	-	0.000	25.012	0.000	0.000	0.000	0.000	25.012

Remarks

D. Acquisition Strategy
 (U) CACCTUS - MIPR to Army & Work Request to Navy-NAWCTSD for reimbursable Engineering support; Exercise task order on new Competitive contract (C/IDIQ).
 (U) DVTE - Exercise task orders off of new sole source IDIQ for Virtual Battleship Space (VBS) Software (SW) Development.
 (U) MTWS - Extended existing contract 9 months in order to continue activities in support of federate status with the Joint Live Virtual Constructive (JLVC) federation v.8, and complete in-process enhancements for Ulchi Freedom Guardian-15 (UFG-15); Exercise task order on new competitive contract(C/IDIQ).
 (U) RTAM - MIPR to the Army-PEO STRI planned for award on existing Consolidated Product-line Management Contract; and send Work Request to NAWC-TSD for reimbursable support.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 7	PE 0206623M / <i>MC Ground Cmbt Spt Arms Sys</i>	2315 / <i>Training Devices/Simulators</i>

(U) SITE - MIPR to the Army-PEO STRI planned for award on existing Consolidated Product-line Management Contract; and exercise option on existing MCSC RDTE contract M67854-13-C-7802 (C/FFP).

(U) SAVT - Leveraging an NAWC-TSD existing C/FFP contract for engineering support.

(U) Training Support - Extended existing contract 9 months in order to continue activities in support of federate status with the Joint Live Virtual Constructive (JLVC) federation v.8, and complete in-process enhancements for Ulchi Freedom Guardian-15 (UFG-15); Exercise task order on new competitive contract (C/IDIQ).

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 2315 / Training Devices/Simulators							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
CACCTUS - SW Dev Task 1	C/IDIQ	Riptide Software, Inc. : Oviedo, FL	0.363	0.000		4.655	Dec 2015	2.897	Nov 2016	-		2.897	Continuing	Continuing	Continuing
CACCTUS - SW Dev Task 2	C/IDIQ	Riptide Software, Inc. : Oviedo, FL	0.000	0.000		1.090	Mar 2016	1.162	Mar 2017	-		1.162	Continuing	Continuing	Continuing
CACCTUS - SW Dev Task 3	C/IDIQ	Riptide Software, Inc. : Oviedo, FL	0.000	0.000		0.929	Jul 2016	2.341	Jul 2017	-		2.341	Continuing	Continuing	Continuing
DVTE - SW Dev - VBS	SS/IDIQ	Bohemia Interactive : Orlando, FL	12.711	0.544	Jul 2015	0.573	Mar 2016	1.696	Mar 2017	-		1.696	Continuing	Continuing	Continuing
SITE - Combat Vehicle Upgrades	C/FFP	Cubic Defense : San Diego, CA	0.000	0.000		0.400	Jan 2016	0.000		-		0.000	0.000	0.400	-
MTWS - SW Dev Extension	SS/FFP	Cole Engineering Services Inc. : Orlando, FL	0.000	1.341	Mar 2015	0.000		0.000		-		0.000	0.000	1.341	-
MTWS - SW Dev Task 1	C/IDIQ	Cole Engineering Services Inc. : Orlando, FL	0.415	0.000		1.986	Jan 2016	2.433	Jan 2017	-		2.433	Continuing	Continuing	Continuing
MTWS - SW Dev Task 2	C/IDIQ	Cole Engineering Services Inc. : Orlando, FL	0.000	0.000		0.100	May 2016	0.100	May 2017	-		0.100	Continuing	Continuing	Continuing
Training Support - MTWS - SW Dev Task 1	SS/FFP	Cole Engineering Services Inc. : Orlando, FL	0.000	0.051	Mar 2015	0.000		0.000		-		0.000	0.000	0.051	-
Training Support - MTWS - SW Dev Task 2	C/IDIQ	Cole Engineering Services Inc. : Orlando, FL	0.002	0.000		0.041	Jan 2016	0.038	Jan 2017	-		0.038	Continuing	Continuing	Continuing
RTAM RISCon Development	MIPR	PEOSTRI/TRADE : Orlando, FL	7.028	0.000		0.618	Nov 2015	0.419	Dec 2016	-		0.419	Continuing	Continuing	Continuing
SAVT - SW Dev	C/FFP	NAWC/Alion Science and Technology Corp : Burr Ridge, IL	0.000	0.470	Apr 2015	0.000		0.000		-		0.000	0.000	0.470	-
SITE - Live Core System Upgrades	C/FFP	Cubic Defense : San Diego, CA	1.383	1.939	Jan 2015	0.241	Dec 2015	1.467	Dec 2016	-		1.467	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2315 / Training Devices/Simulators
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
SITE - Consolidated Product Line Dev	MIPR	PEOSTRI/TRADE : Orlando, FL	0.864	0.162	Jul 2015	0.770	Dec 2015	0.470	Dec 2016	-		0.470	Continuing	Continuing	Continuing
Prior Year Cumulative Funding	Various	Not Specified : Not Specified	71.474	0.000		0.000		0.000		-		0.000	0.000	71.474	-
Subtotal			94.240	4.507		11.403		13.023		-		13.023	-	-	-

Remarks

- CACCTUS - SW Dev - The New Competitive contract awarded 4th quarter FY15, with 1st FY16 Development Task Order awarded in 1st quarter 2016.
- MTWS - SW Dev - New Competitive contract awarded in 1st quarter FY16, with 1st FY16 Development Task Order to award 2nd quarter FY16.
- Training Support - SW Dev - New Competitive contract awarded in 1st quarter FY16, with 1st FY16 Development Task Order to award 2nd quarter FY16.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
CACCTUS - Govt Eng Support	MIPR	Night Vision & Electronic Sensors Directorate : Ft Belvoir, VA	0.000	0.000		0.119	Mar 2016	0.000		-		0.000	0.000	0.119	-
CACCTUS - SW Dev Support	WR	NAWCTSD : Orlando, FL	2.468	0.199	Oct 2014	0.200	Oct 2015	0.203	Oct 2016	-		0.203	Continuing	Continuing	Continuing
RTAM - SW Dev Support	WR	NAWCTSD : Orlando, FL	0.802	0.000		0.364	Oct 2015	0.364	Oct 2016	-		0.364	Continuing	Continuing	Continuing
SITE - SW Dev Support	WR	NAWCTSD : Orlando, FL	0.129	0.383	Jan 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
SITE - Navy Support	WR	NSWC Corona : Corona, CA	0.000	0.202	Jun 2015	0.000		0.000		-		0.000	0.000	0.202	-
SITE - Travel	Various	DTS : Various	0.023	0.000		0.015	Dec 2015	0.015	Dec 2016	-		0.015	0.000	0.053	-
SITE-Laser Hazard Evaluation	WR	NSWC Dahlgren : Dahlgren, VA	0.000	0.019	Feb 2015	0.000		0.000		-		0.000	0.000	0.019	-
SAVT - SW Installation	C/FFP	TJ, Inc. : Orlando, FL	0.000	0.205	Mar 2015	0.000		0.000		-		0.000	0.000	0.205	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2315 / Training Devices/Simulators
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Combined Arms Command & Control Training Upgrade System (CACCTUS)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	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				
Program Contractor Support	-----																															
Govt Engineering Support	-----																															
Software Development Reviews	-----																															
Development Contract Awards					◆	◆			◆	◆	◆		◆	◆	◆		◆	◆	◆		◆	◆	◆		◆	◆	◆		◆	◆	◆	
Annual SW Release						◆				◆				◆				◆				◆				◆				◆		
Test and Validation, All Sites	-----																															
Mid Year Release											◆																					
Full Operating Capability (FOC) Combined																																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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Deployable Virtual Training Environment (DVTE)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
Software Development - Contract Award				◆		◆				◆				◆				◆				◆				◆		
Software Development Version Release - VBS				◆				◆				◆				◆				◆				◆				◆

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	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				
MTWS IPT/CCB	◆			◆																												
Contract Award	◆					◆	◆			◆	◆			◆	◆			◆	◆			◆	◆			◆	◆			◆	◆	
Version 3.5.1 SW																																
SW Release	◆																															
Version 3.5.2 SW																																
User Acceptance Testing		◆																														
SW Release			◆																													
Version 3.5.3 SW																																
User Acceptance Testing				◆																												
SW Release					◆																											
Version 3.5.5 SW																																
User Acceptance Testing								◆																								
SW Release										◆																						
Version 3.5.7 SW																																
User Acceptance Testing												◆																				
SW Release													◆																			
Version 3.5.9 SW																																
User Acceptance Testing																◆																
SW Release																	◆															
Version 3.5.11 SW																																
User Acceptance Testing																				◆												
SW Release																					◆											
Version 3.5.13 SW																																
User Acceptance Testing																								◆								
SW Release																									◆							
Version 3.5.15 SW																																
User Acceptance Testing																																◆

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

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Ranges and Training Area Management	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
RISCon Development					◆																							
Contract Award					◆					◆					◆					◆								◆
Systems Integration																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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Squad Immersive Training Environment (SITE)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
Virtual System Upgrade Deliverables																												
Live Core System Upgrades Contract Awards		◆				◆				◆				◆				◆				◆				◆		
Consolidated Product Line Development Awards				◆		◆				◆				◆				◆				◆				◆		

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

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Appropriation/Budget Activity
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R-1 Program Element (Number/Name)
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Sys

Project (Number/Name)
2315 / Training Devices/Simulators

Training Support	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	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				
Annual Software Release	◆		◆		◆				◆				◆				◆				◆				◆							
Contract Awards		◆				◆				◆				◆				◆				◆				◆						

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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Supporting Arms Virtual Trainer (SAVT)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
SW Development and Install		◆	◆																									
Eng Lab Support				◆																								

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Combined Arms Command & Control Training Upgrade System (CACCTUS)				
Program Contractor Support: Program Contractor Support	1	2015	4	2021
Govt Engineering Support: Govt Engineering Support	1	2015	4	2021
Software Development Reviews: Software Development Reviews	1	2015	4	2021
Development Contract Awards: FY16 Award 1	1	2016	1	2016
Development Contract Awards: FY16 Award 2	2	2016	2	2016
Development Contract Awards: FY16 Award 3	4	2016	4	2016
Development Contract Awards: FY17 Award 1	1	2017	1	2017
Development Contract Awards: FY17 Award 2	2	2017	2	2017
Development Contract Awards: FY17 Award 3	4	2017	4	2017
Development Contract Awards: FY18 Award 1	1	2018	1	2018
Development Contract Awards: FY18 Award 2	2	2018	2	2018
Development Contract Awards: FY18 Award 3	4	2018	4	2018
Development Contract Awards: FY19 Award 1	1	2019	1	2019
Development Contract Awards: FY19 Award 2	2	2019	2	2019
Development Contract Awards: FY19 Award 3	4	2019	4	2019
Development Contract Awards: FY20 Award 1	1	2020	1	2020
Development Contract Awards: FY20 Award 2	2	2020	2	2020
Development Contract Awards: FY20 Award 3	4	2020	4	2020
Development Contract Awards: FY21 Award 1	1	2021	1	2021
Development Contract Awards: FY21 Award 2	2	2021	2	2021
Development Contract Awards: FY21 Award 3	4	2021	4	2021

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Annual SW Release: Annual SW Release 2016	2	2016	2	2016
Annual SW Release: Annual SW Release 2017	2	2017	2	2017
Annual SW Release: Annual SW Release 2018	2	2018	2	2018
Annual SW Release: Annual SW Release 2019	2	2019	2	2019
Annual SW Release: Annual SW Release 2020	2	2020	2	2020
Annual SW Release: Annual SW Release 2021	2	2021	2	2021
Test and Validation, All Sites: Test and Validation 1, All Sites 2016	1	2016	4	2021
Mid Year Release: Mid Year Release 2016	4	2016	4	2016
Mid Year Release: Mid Year Release 2017	4	2017	4	2017
Mid Year Release: Mid Year Release 2018	4	2018	4	2018
Mid Year Release: Mid Year Release 2019	4	2019	4	2019
Mid Year Release: Mid Year Release 2020	4	2020	4	2020
Mid Year Release: Mid Year Release 2021	4	2021	4	2021
Full Operating Capability (FOC) Combined: Full Operating Capability (FOC)/Full Development (FD)	2	2019	2	2019
Deployable Virtual Training Environment (DVTE)				
Software Development - Contract Award: Software Development - Contract Award (2021)	2	2021	2	2021
Software Development - Contract Award: Software Development - Contract Award (2020)	2	2020	2	2020
Software Development - Contract Award: Software Development - Contract Award (2019)	2	2019	2	2019
Software Development - Contract Award: Software Development - Contract Award (2018)	2	2018	2	2018
Software Development - Contract Award: Software Development - Contract Award (2017)	2	2017	2	2017

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Software Development - Contract Award: Software Development - Contract Award (2016)	2	2016	2	2016
Software Development - Contract Award: Software Development - Contract Award (2015)	4	2015	4	2015
Software Development Version Release - VBS: Software Development Version Release - VBS (2015)	4	2015	4	2015
Software Development Version Release - VBS: Software Development Version Release - VBS (2016)	4	2016	4	2016
Software Development Version Release - VBS: Software Development Version Release - VBS (2017)	4	2017	4	2017
Software Development Version Release - VBS: Software Development Version Release - VBS (2018)	4	2018	4	2018
Software Development Version Release - VBS: Software Development Version Release - VBS (2019)	4	2019	4	2019
Software Development Version Release - VBS: Software Development Version Release - VBS (2020)	4	2020	4	2020
Software Development Version Release - VBS: Software Development Version Release - VBS (2021)	4	2021	4	2021
Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS)				
MTWS IPT/CCB: MTWS IPT/CCB 2015 - 1	2	2015	2	2015
MTWS IPT/CCB: MTWS IPT/CCB 2015 - 2	4	2015	4	2015
MTWS IPT/CCB: MTWS IPT/CCB 2016	3	2016	3	2016
MTWS IPT/CCB: MTWS IPT/CCB 2017	3	2017	3	2017
MTWS IPT/CCB: MTWS IPT/CCB 2018	3	2018	3	2018
MTWS IPT/CCB: MTWS IPT/CCB 2019	3	2019	3	2019
MTWS IPT/CCB: MTWS IPT/CCB 2020	3	2020	3	2020
MTWS IPT/CCB: MTWS IPT/CCB 2021	3	2021	3	2021

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Contract Award: Contract Award 2015	2	2015	2	2015
Contract Award: Contract Award 2016 - 1	2	2016	2	2016
Contract Award: Contract Award 2016 - 2	3	2016	3	2016
Contract Award: Contract Award 2017 - 1	2	2017	2	2017
Contract Award: Contract Award 2017 - 2	3	2017	3	2017
Contract Award: Contract Award 2018 - 1	2	2018	2	2018
Contract Award: Contract Award 2018 - 2	3	2018	3	2018
Contract Award: Contract Award 2019 - 1	2	2019	2	2019
Contract Award: Contract Award 2019 - 2	3	2019	3	2019
Contract Award: Contract Award 2020 - 1	2	2020	2	2020
Contract Award: Contract Award 2020 - 2	3	2020	3	2020
Contract Award: Contract Award 2021 - 1	2	2021	2	2021
Contract Award: Contract Award 2021 - 2	3	2021	3	2021
Version 3.5.1 SW: SW Release: SW Release	1	2015	1	2015
Version 3.5.2 SW: User Acceptance Testing: User Acceptance Testing	2	2015	2	2015
Version 3.5.2 SW: SW Release: SW Release	3	2015	3	2015
Version 3.5.3 SW: User Acceptance Testing: User Acceptance Testing	4	2015	4	2015
Version 3.5.3 SW: SW Release: SW Release	1	2016	1	2016
Version 3.5.5 SW: User Acceptance Testing: User Acceptance Testing	4	2016	4	2016
Version 3.5.5 SW: SW Release: SW Release	1	2017	1	2017
Version 3.5.7 SW: User Acceptance Testing: User Acceptance Testing	4	2017	4	2017
Version 3.5.7 SW: SW Release: SW Release	1	2018	1	2018
Version 3.5.9 SW: User Acceptance Testing: User Acceptance Testing	4	2018	4	2018
Version 3.5.9 SW: SW Release: SW Release	1	2019	1	2019
Version 3.5.11 SW: User Acceptance Testing: User Acceptance Testing	4	2019	4	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy			Date: February 2016	
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1319 / 7	PE 0206623M / MC Ground Cmbt Spt Arms Sys	2315 / Training Devices/Simulators		
Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Version 3.5.11 SW: SW Release: SW Release	1	2020	1	2020
Version 3.5.13 SW: User Acceptance Testing: User Acceptance Testing	4	2020	4	2020
Version 3.5.13 SW: SW Release: SW Release	1	2021	1	2021
Version 3.5.15 SW: User Acceptance Testing: User Acceptance Testing	4	2021	4	2021
Ranges and Training Area Management				
RISCon Development: RISCon Development	1	2016	1	2016
Contract Award: Contract Award (2016)	1	2016	1	2016
Contract Award: Contract Award (2017)	1	2017	1	2017
Contract Award: Contract Award (2018)	1	2018	1	2018
Contract Award: Contract Award (2019)	1	2019	1	2019
Contract Award: Contract Award (2020)	1	2020	1	2020
Contract Award: Contract Award (2021)	1	2021	1	2021
Systems Integration: Systems Integration	1	2016	4	2021
Squad Immersive Training Environment (SITE)				
Virtual System Upgrade Deliverables: Virtual System Upgrade Deliverables	1	2015	4	2015
Live Core System Upgrades Contract Awards: Live Core System Upgrades Contract Awards (2015)	2	2015	2	2015
Live Core System Upgrades Contract Awards: Live Core System Upgrades Contract Awards (2016)	1	2016	1	2016
Live Core System Upgrades Contract Awards: Live Core System Upgrades Contract Awards (2017)	1	2017	1	2017
Live Core System Upgrades Contract Awards: Live Core System Upgrades Contract Awards (2018)	1	2018	1	2018
Live Core System Upgrades Contract Awards: Live Core System Upgrades Contract Awards (2019)	1	2019	1	2019
Live Core System Upgrades Contract Awards: Live Core System Upgrades Contract Awards (2020)	1	2020	1	2020

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Live Core System Upgrades Contract Awards: Live Core System Upgrades Contract Awards (2021)	1	2021	1	2021
Consolidated Product Line Development Awards: Consolidated Product Line Development (2015)	4	2015	4	2015
Consolidated Product Line Development Awards: Consolidated Product Line Development (2016)	1	2016	1	2016
Consolidated Product Line Development Awards: Consolidated Product Line Development (2017)	1	2017	1	2017
Consolidated Product Line Development Awards: Consolidated Product Line Development (2018)	1	2018	1	2018
Consolidated Product Line Development Awards: Consolidated Product Line Development (2019)	1	2019	1	2019
Consolidated Product Line Development Awards: Consolidated Product Line Development (2020)	1	2020	1	2020
Consolidated Product Line Development Awards: Consolidated Product Line Development (2021)	1	2021	1	2021
Training Support				
Annual Software Release: Version 3.5.1	1	2015	1	2015
Annual Software Release: Version 3.5.2	3	2015	3	2015
Annual Software Release: Version 3.5.3	1	2016	1	2016
Annual Software Release: Version 3.5.5	1	2017	1	2017
Annual Software Release: Version 3.5.7	1	2018	1	2018
Annual Software Release: Version 3.5.9	1	2019	1	2019
Annual Software Release: Version 3.5.11	1	2020	1	2020
Annual Software Release: Version 3.5.13	1	2021	1	2021
Contract Awards: FY15 Award	2	2015	2	2015
Contract Awards: FY16 Award	2	2016	2	2016

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Contract Awards: FY17 Award	2	2017	2	2017
Contract Awards: FY18 Award	2	2018	2	2018
Contract Awards: FY19 Award	2	2019	2	2019
Contract Awards: FY20 Award	2	2020	2	2020
Contract Awards: FY21 Award	2	2021	2	2021
Supporting Arms Virtual Trainer (SAVT)				
SW Development and Install: FY15 Award Dev Installation	2	2015	2	2015
SW Development and Install: FY15 Award SW Development	3	2015	3	2015
Eng Lab Support: FY15 Eng Lab Labor Support	4	2015	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2503 / Initial Issue
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2503: <i>Initial Issue</i>	39.700	4.783	1.241	3.462	-	3.462	4.385	4.794	4.351	4.450	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

- Name change from Improved Load Bearing Equipment to Individual Load Bearing Equipment (ILBE).
- Name change from Clothing and Flame Resistant Organizational Gear (FROG) to Marine Corps Uniforms (MCU).
- Name change from Family of Mountain Cold Weather Clothing & Equipment (FMCWCE) to Cold Weather and Mountaineering (CWM).
- Name change from Family of Individual Warfighting Equipment (FIWE) to Individual Warfighting Equipment (IWE).

The Family of Combat Equipment Support and Services portfolio was split into the Infantry Combat Equipment, Family of Field Medical Equipment, Family of Shelters, and Combat Feeding System portfolios in FY11.

The FY 2017 funding request was reduced by \$0.193 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

This funding provides research, development, test and evaluation on low cost items with an emphasis on Non-Developmental Items/Commercial-Off-the-Shelf (NDI/COTS) available items. Much of the RDT&E is conducted in coordination/concert with other services and joint organizations, and in consideration of RDT&E efforts being pursued by the other Services. Items approved for procurement will transition into Operation and Maintenance Marine Corps accounts for Individual Combat Equipment, Family of Field Medical Equipment, Family of Shelters, and Combat Field Feeding Systems. The benefits will be reduced logistics, less weight, improved combat effectiveness, better echelon I and II care for Marines, improved individual and unit protection, expeditionary feeding platforms, tactical mobility, etc. The employment of state of the art equipment will ensure Marines are equipped and supported with the best items that technology can offer.

The Infantry Combat Equipment portfolio of capabilities encompasses Marine Corps Uniforms, Cold Weather and Mountaineering, Individual Load Bearing Equipment, and Individual Warfighter Equipment research, development and testing of enhancements, upgrades and modifications to legacy systems and new developments. Funding for this capability area leverages other Services' and governmental partners' efforts to maximize returns on investment and promote coordination and cooperation for same or similar requirements and capabilities. The objective is to equip individual Marines with uniforms and combat equipment to maximize effectiveness in every environment across the full range of military operations.

The Family of Field Medical Equipment, Family of Shelters, and Combat Field Feeding System portfolio focus is to provide state of the art medical equipment (e.g. Authorized Medical Allowance (AMAL)/Authorized Dental Allowance (ADAL), Enroute Care, Mobile Medical Monitors, etc.), Family of Shelters (soft wall, different frames and fabrics, etc.), and Combat Field Feeding Systems (technology insertion for the Expeditionary Field Kitchen (EFK), Modernized Tray Ration Heating System. etc.).

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Marine Corps Uniforms (MCU)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued testing and evaluating Marine Corps Uniform Board (MCUB) and CMC Uniform initiatives for shade and female dress coat. - Continued clothing and fabric improvement efforts leveraging advanced technologies in uniform durability, design, and footwear development. - Continued research on tropical uniforms and development of affordable alternative to the Marine Corps Combat Utility Uniform (MCCUU). - Continued to support Marine clothing efforts, to include field and dress uniforms and certification of their associated accoutrements which includes badges, ribbons and devices. - Continued research, development and testing to increase effectiveness of Flame Resistant clothing, enhance appearance and service life of Seabag issued, which consist of initial basic training clothing, footwear, and associated individual uniform items. - Initiated research to reduce the load the Marines are required to transport by minimizing equipment. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue testing and evaluation of emerging MCUB and CMC uniform initiatives. - Continue clothing and fabric improvement efforts leveraging advanced technologies in uniform durability, design, and footwear development. - Continue research and development of tropical uniforms, including footwear, and develop affordable alternatives. - Continue to support Marine clothing efforts, to include field and dress uniforms and certification of their associated accoutrements which includes badges, ribbons and devices. - Continue research, development and testing to increase effectiveness of Flame Resistant clothing, enhance appearance and service life of Seabag issue, which consists of initial basic training clothing, footwear and associated accoutrements which includes badges, ribbons and devices. - Continue research to reduce the load the Marines are required to transport by minimizing equipment. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue testing and evaluation of MCUB and CMC Uniform initiatives. - Continue clothing and fabric improvement efforts leveraging advanced technologies in uniform durability, design, and footwear development. 	0.614	0.670	0.556	0.000	0.556
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Continue research and development of tropical uniforms, including footwear, and develop affordable alternatives. - Continue to support Marine clothing efforts, to include field and dress uniforms and certification of their associated accoutrements which includes badges, ribbons and devices. - Continue research, development and testing to increase effectiveness of Flame Resistant clothing, enhance appearance and service life of Seabag issue which consists of initial basic training clothing, footwear and associated accoutrements which includes badges, ribbons and devices. - Continue research on reducing the load the Marines are required to transport by minimizing equipment. <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Cold Weather and Mountaineering (CWM)</p> <p align="right">Articles:</p>	0.861	0.092	0.827	0.000	0.827
<p>Description: Increase in funding from FY16 to FY17 (\$0.735M) supports the development efforts on the Extreme Cold Weather boot, ski systems, and all other components required for the cold weather environment that are in need of upgrade.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued to conduct research and development of industry technology to further enhance existing equipment effectiveness while lightening the load of the individual Marine. - Continued research, development and design modifications to the Marine Corps sleep system to reduce load, increase insulation values, and maximize comfort levels. - Continued to develop and field test ski systems and all components in order to further redefine stated requirements. - Continued and validated cold weather boot that would function as a Ski boot and boot for non-ski borne Marines. - Continued a comparative analysis of sister services clothing items (cold weather warming layers) to leverage like items and technology, minimizing sustainment cost. - Initiated equipment technology advances which will drive the development of the Marine Assault Climbers Kit (MACK) to effectively and safely negotiate horizontal and vertical obstacles. - Completed Marine Corps Cold Weather Infantry Kit (MCCWIK) assessment and evaluation. <p>FY 2016 Plans:</p>	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016			
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A						
Title: Individual Warfighter Equipment (IWE)		0.097	0.001	0.217	0.000	0.217
		Articles:	-	-	-	-
FY 2015 Accomplishments:						
- Continued cataloging for future sustainment of Mechanical Breachers Kit (MBK) through DLA.						
- Continued modernization of existing projects by leveraging the technological advances of industry.						
FY 2016 Plans:						
- Continue cataloging for future sustainment of MBK through DLA.						
- Continue modernization of existing projects by leveraging the technological advances of industry.						
FY 2017 Base Plans:						
Continue cataloging for future sustainment of MBK through DLA.						
- Continue modernization of existing projects by leveraging the technological advances of industry.						
FY 2017 OCO Plans:						
N/A						
Title: *Family of Field Medical Equipment (FFME)		1.872	0.000	1.386	0.000	1.386
		Articles:	-	-	-	-
Description: Increase of \$1.386M from FY16 to FY17 will support the initiation of BLAST Load Assessment testing in order to reduce Traumatic Brain Injury effects.						
FY 2015 Accomplishments:						
- Continued to test COTS/NDI medical equipment items for the Enroute Care System (ECSR) and Forward Resuscitative Surgical System (FRSS) to determine future viability in an operational environment.						
- Continued testing of medical equipment items to evaluate their energy efficiency, functionality and ability to improve the quality of healthcare provided to the warfighter and reduce the logistics footprint of USMC medical equipment.						
- Continued testing for possible application technology for insertion.						
- Continued collaborative testing with Army for patient movement research.						
- Completed COTS/NDI testing for X-Ray medical equipment for viability in operational environments.						

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy				Date: February 2016		
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Initiate development of energy efficient ECP's for FSSE.</p> <p>FY 2017 Base Plans:</p> <p>- Continue development of energy efficient ECP's for FSSE.</p> <p>- Initiate NGH System development testing.</p> <p>- Initiate rigid wall composite shelter prototype development.</p> <p>FY 2017 OCO Plans:</p> <p>N/A</p>						
<p>Title: *Family of Combat Field Feeding (CFFS)</p> <p align="right">Articles:</p> <p>Description: The increase of \$104K from FY16 to FY17 will support the continuation of testing.</p> <p>FY 2015 Accomplishments:</p> <p>- Continued evaluation of options to reduce the footprint size of the current Tray Ration Heater System (TRHS).</p> <p>- Continued testing of technological improvements for use in CFFS that will reduce the overall logistics burden.</p> <p>- Completed testing of alternative energy sources (burners) for use in future systems negating the requirement for vehicle power to heat rations on the-move.</p> <p>- Completed design activities for the Enhanced Tray Ration Heating System Sink (E-TRHSS) sanitation capability.</p> <p>FY 2016 Plans:</p> <p>N/A</p> <p>FY 2017 Base Plans:</p> <p>- Continue testing of technological improvements for use in CFFS that will reduce the overall logistics burden.</p> <p>- Initiate testing of phase III Small Business Innovative Research (SBIR) for M-TRHS.</p> <p>FY 2017 OCO Plans:</p> <p>N/A</p>		0.212	0.000	0.104	0.000	0.104
		-	-	-	-	-
Accomplishments/Planned Programs Subtotals		4.783	1.241	3.462	0.000	3.462
C. Other Program Funding Summary (\$ in Millions)						
N/A						

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy

Cold Weather and Mountaineering, Individual Load Bearing Equipment, Individual Warfighter Equipment, Marine Corps Uniforms: Items utilize various acquisition strategies. These programs leverage heavily on current developments and technology in commercial industry. As a result, the government's R&D phase is relatively short. Contracting is performed by either Marine Corps Systems Command Contracting Directorate, the Naval Research Laboratory or the U.S. Army Natick Soldier Research, Development and Engineering Center via Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts. ID/IQ contracts are used to decrease the government risk, allow maximum contract flexibility and capitalize on the savings realized by utilizing Economic Order (EO) Quantities.

Family of Shelters: The Shelter acquisition strategy is to modify NDI to further meet the requirements of the Marine Corps, to support development of multi-service items through inter-service agreements and to adopt COTS items.

Family of Field Medical Equipment: These programs leverage heavily on current development and technology in the commercial medical industry. The field medical acquisition strategy is to modify NDI and adopt COTS items.

Combat Field Feeding Systems: This program utilized various acquisition strategies and leverages heavily on current developments and technology in commercial industry and other Service field feeding systems. As a result, the government's RDTE phase is relatively short. Contracting is performed by either Marine Corps Systems Command Contracting Directorate or the U.S. Army Natick Soldier Research, Development and Engineering Center (DoD Executive Agent for Field Feeding) via ID/IQ contracts. ID/IQ contracts are used to decrease the government risk, allow maximum contract flexibility and capitalize on the savings realized by utilizing EO Quantities.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Family of Shelters and Shelter Equipment	MIPR	NSWC PCD : Panama City, FL	0.000	0.400	Sep 2015	0.000		0.000		-		0.000	0.000	0.400	-
Family of Combat Field Feeding Systems	WR	NSWC PCD : Panama City, FL	0.547	0.008	Mar 2015	0.000		0.000		-		0.000	0.000	0.555	-
Family of Shelters and Shelter Equipment	MIPR	USA NSRDEC : Natick, MA	0.500	0.188	Jul 2015	0.000		0.130	May 2017	-		0.130	0.000	0.818	-
Individual Load Bearing Equipment	MIPR	AFRL : Wright Patterson AFB	0.000	0.000		0.298	Dec 2015	0.242	Jan 2017	-		0.242	Continuing	Continuing	Continuing
Prior Year Cumulative Funding	Various	Various : Various	18.508	0.000		0.000		0.000		-		0.000	0.000	18.508	-
Family of Field Medical	MIPR	Natick : Natick, MA	0.000	0.398	Jun 2015	0.000	Mar 2016	0.000		-		0.000	0.000	0.398	-
Family of Combat Field Feeding Systems	MIPR	USA NSRDEC : Natick, MA	2.207	0.090	Sep 2015	0.000	Jan 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Individual Warfighter Equipment	MIPR	USA NSRDEC : Natick, MA	0.352	0.097	Nov 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Marine Corps Uniforms	MIPR	USA NSRDEC : Natick, MA	4.126	0.437	Feb 2015	0.481	Jun 2016	0.422	Jun 2017	-		0.422	Continuing	Continuing	Continuing
Family of Field Medical	MIPR	AFMESA : Ft. Detrick, MD	0.000	0.000		0.000	Jan 2016	0.000		-		0.000	0.000	0.000	-
Subtotal			26.240	1.618		0.779		0.794		-		0.794	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Prior Year Cumulative Funding	Various	Various : Various	1.096	0.000		0.000		0.000		-		0.000	0.000	1.096	-
Subtotal			1.096	0.000		0.000		0.000		-		0.000	0.000	1.096	-

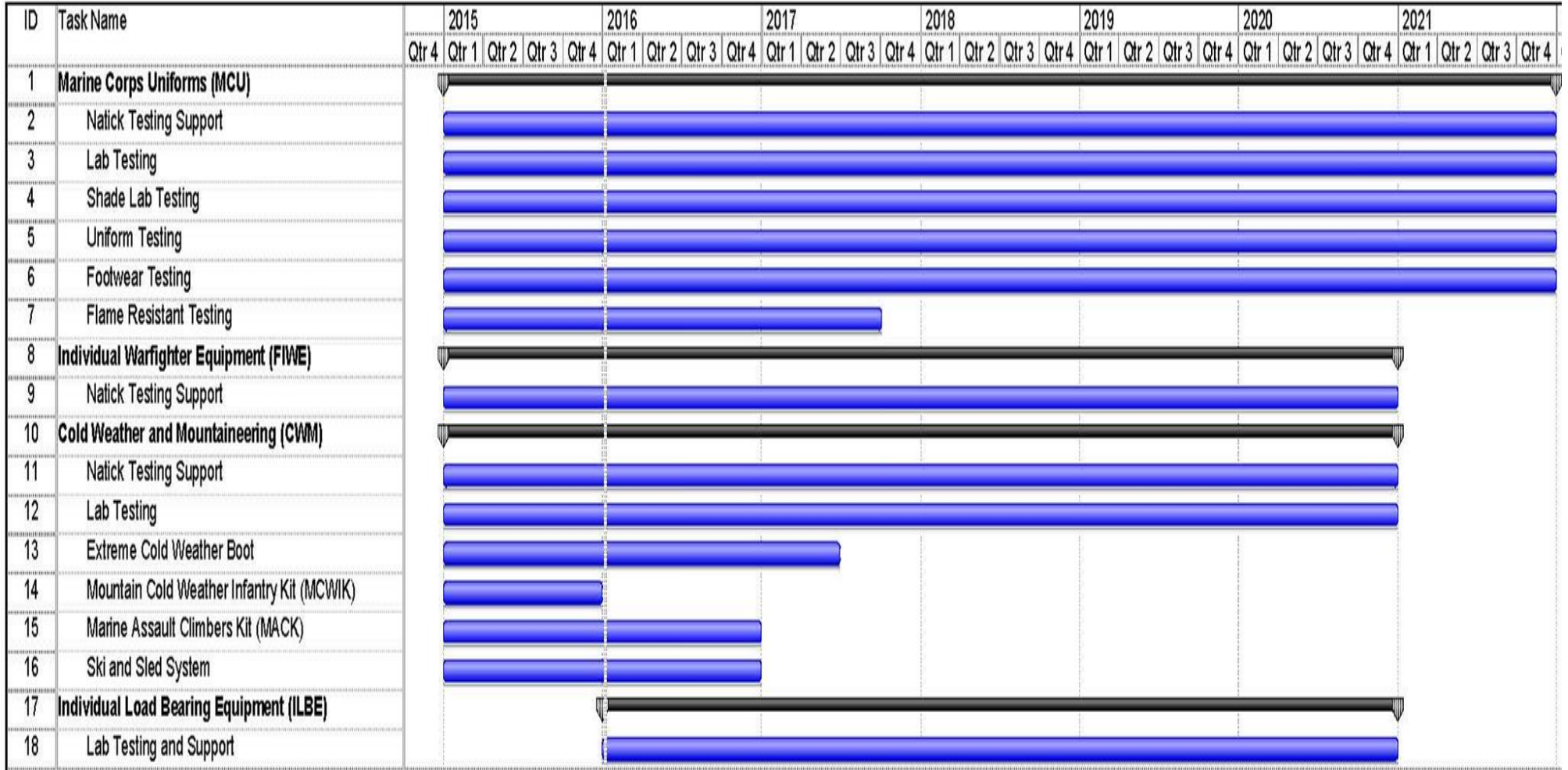
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 2503 / Initial Issue							
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Family of Shelters and Shelter Equipment	MIPR	NSRDEC : Natick, MA	0.000	0.011	Sep 2015	0.000		0.000		-		0.000	0.000	0.011	-
Family of Combat Field Feeding Systems	MIPR	ABERDEEN TEST CENTER : Aberdeen Proving Grounds, MD	0.000	0.056	Jun 2015	0.000		0.000		-		0.000	0.000	0.056	-
Family of Combat Field Feeding	MIPR	USA NSRDEC : Natick, MA	0.575	0.059	Oct 2015	0.000	Mar 2016	0.104	Jan 2017	-		0.104	Continuing	Continuing	Continuing
Marine Corps Uniforms	MIPR	USA NSRDEC : Natick, MA	0.301	0.177	Feb 2015	0.189	Jun 2016	0.134	Jun 2017	-		0.134	Continuing	Continuing	Continuing
Family of Shelter and Shelter Equipment	MIPR	REDSTONE TEST CENTER : Redstone Arsenal, AL	0.000	0.117	Feb 2015	0.000		0.000		-		0.000	0.000	0.117	-
Prior Year Cumulative Funding	Various	Various : Various	8.054	0.000		0.000		0.000		-		0.000	0.000	8.054	-
Family of Field Medical	WR	NMRC : Silver Spring, MD	0.093	0.302	Feb 2015	0.000		0.000		-		0.000	0.000	0.395	-
Family of Field Medical	MIPR	USAARL : Ft. Rucker, AL	0.574	0.882	Mar 2015	0.000	Jun 2016	1.159	Jul 2017	-		1.159	Continuing	Continuing	Continuing
Family of Field Medical	MIPR	USA NSRDEC : Natick, MA	1.383	0.000		0.000		0.000		-		0.000	0.000	1.383	-
Family of Shelters & Shelter Equipment	MIPR	USA NSRDEC : Natick, MA	0.456	0.125	Jan 2015	0.180	Mar 2016	0.000		-		0.000	0.000	0.761	-
Cold Weather and Mountaineering	MIPR	USA NSRDEC : Natick, MA	0.555	0.860	Jan 2015	0.092	Nov 2015	0.827	Jul 2017	-		0.827	Continuing	Continuing	Continuing
Family of Field Medical	WR	NHRC : San Diego, CA	0.000	0.270	Nov 2015	0.000	Jun 2016	0.000		-		0.000	0.000	0.270	-
Family of Field Medical	MIPR	AFMESA : Ft. Detrick, MD	0.000	0.000		0.000	Jan 2016	0.227	Mar 2017	-		0.227	0.000	0.227	-
Subtotal			11.991	2.859		0.461		2.451		-		2.451	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2503 / Initial Issue
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2503 / Initial Issue

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Infantry Combat Equipment (ICE)				
Marine Corps Uniforms (MCU): Navy Natick Testing Effort Support:	1	2015	4	2021
Marine Corps Uniforms (MCU): Lab Testing:	1	2015	4	2021
Marine Corps Uniforms (MCU): Shade Lab Testing:	1	2015	4	2021
Marine Corps Uniforms (MCU): Uniform Testing:	1	2015	4	2021
Marine Corps Uniforms (MCU): Footwear Testing:	1	2015	4	2021
Marine Corps Uniforms (MCU): Flame Resistant Testing:	1	2015	3	2017
Individual Warfighter Equipment (IWE): Natick Lab Testing:	1	2015	4	2020
Cold Weather and Mountaineering (CWM): Natick Testing Effort Support:	1	2015	4	2020
Cold Weather and Mountaineering (CWM): Lab Testing:	1	2015	4	2020
Cold Weather and Mountaineering (CWM): Extreme Cold Weather Boot:	1	2015	2	2017
Cold Weather and Mountaineering (CWM): Mountain Cold Weather Infantry Kit (MCWIK):	1	2015	4	2015
Cold Weather and Mountaineering (CWM): Marine Assault Climbers Kit (MACK):	1	2015	4	2016
Cold Weather and Mountaineering (CWM): Ski and Sled System:	1	2015	4	2016
Individual Load Bearing Equipment (ILBE): Lab Testing and Support:	1	2016	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2513 / Body Armor
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2513: <i>Body Armor</i>	45.100	2.764	3.160	2.746	-	2.746	4.814	4.728	4.704	4.809	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

This program was previously justified in PE 0206623M Project 2503 Initial Issue under Family of Ballistic Protection Systems (FBPS) has changed to Ballistic Protection Systems (BPS). Body Armor Development (BAD) has changed to Next Generation Personal Protective Equipment (PPE).

The FY 2017 funding request was reduced by \$0.222 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

Ballistic Protection Systems (BPS) provides the most technologically advanced protection at the lightest weight available in the world today. With current combat operations these items have generated considerable Congressional and public interest because the items are considered life-saving equipment. When evaluated in total, personal protective equipment programs provide the critical systems that save lives, reduce the severity of combat injuries, and increase combat effectiveness by keeping more Marines in the fight. These programs are truly force multipliers today and will be for the future. The major focus of PPE programs is to address emergent threats on the battlefield. PPE must consistently adapt to combat new threats. Next Generation PPE programs include body armor (both hard and soft armor-formally known as Modular Scalable Vest), Enhanced Small Arms Protective Inserts (ESAPI), Helmets (i.e. Enhanced Capabilities Helmet-ECH), Eye and Hearing protection.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Ballistic Protection Systems	2.764	3.160	2.746	0.000	2.746
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
-Continued research with industry partners towards understanding and developing the future technology associated with next generation PPE (i.e. helmets, body armor, eyewear, and hearing protection).					
-Continued to research active and passive hearing protection products that provide a sense of presence and protection against transient impact noise and blocks and/or reflects harmful blast shock wave in the ear canal.					
-Initiated testing for the next generation of eyewear, specifically the capability to adjust rapidly in varying light conditions in order to gap the need for rapid situational awareness in different light environments.					
-Initiated testing on the efficacy of plates as they age over time in order to obtain a clear understanding of the need to consistently sustain and maintain current plates, as well as, their future ballistic capability.					
-Initiated ECH Characterization Testing.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2513 / Body Armor
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>-Continue research with industry partners towards understanding and developing the future technology associated with next generation PPE (i.e. helmets, body armor, eyewear, and hearing protection).</p> <p>-Continue to research active and passive hearing protection products that provide a sense of presence and protection against transient impact noise and blocks and/or reflects harmful blast shock wave in the ear canal.</p> <p>-Continue testing on the efficacy of plates as they age over time in order to obtain a clear understanding of the need to consistently sustain and maintain current plates, as well as, their future ballistic capability.</p> <p>-Continue testing for the next generation of eyewear, specifically the capability to adjust rapidly in varying light conditions in order to gap the need for rapid situational awareness in different light environments.</p> <p>-Complete ECH Characterization Testing.</p> <p>FY 2017 Base Plans:</p> <p>-Continue research with industry partners towards understanding and developing the future technology associated with next generation PPE (i.e. helmets, body armor, eyewear, and hearing protection).</p> <p>-Continue to research active and passive hearing protection products that provide a sense of presence and protection against transient impact noise and blocks and/or reflects harmful blast shock wave in the ear canal.</p> <p>-Continue testing for the next generation of eyewear, specifically the capability to adjust rapidly in varying light conditions in order to gap the need for rapid situational awareness in different light environments.</p> <p>-Continue testing towards the need for active and passing hearing protection for Marines in high auditory environments in order to increase situational awareness, while maintaining healthy auditory health.</p> <p>-Continue testing on the efficacy of plates as they age over time in order to obtain a clear understanding of the need to consistently sustain and maintain current plates, as well as, their future ballistic capability.</p> <p>FY 2017 OCO Plans:</p> <p>N/A</p>					
Accomplishments/Planned Programs Subtotals	2.764	3.160	2.746	0.000	2.746

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

Remarks

D. Acquisition Strategy
Marine Corps Ballistic Protection Systems (BPS) research, development, testing & evaluation activities include seeking new developments in ballistic technology that feature reductions in weight, improvements in ballistic performance, enhanced operational effectiveness through improved product designs and the application of new

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 7	PE 0206623M / <i>MC Ground Cmbt Spt Arms Sys</i>	2513 / <i>Body Armor</i>

material technologies to reduce total ownership costs by improving the expected service life of fielded systems. In order to accomplish these goals, Product Manager-Infantry Combat Equipment uses a broad array of government and contractor performers to achieve the desired end state. This includes partnerships with government performers and research and development contracts and partnership intermediaries where applicable. The Marine Corps also leverages advancements in industry capabilities to rapidly field non-developmental and commercially available off the shelf armor solutions. Performance is confirmed by characterizing ballistic performance and data collected during user evaluations.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2513 / Body Armor
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Prior Year Cumulative Funding	Various	Various : Various	2.363	0.000		0.000		0.000		-		0.000	0.000	2.363	-
Ballistic Protection Systems	MIPR	USA NSRDEC : Natick, MA	8.700	0.045	Mar 2015	0.542	Apr 2016	0.651	Feb 2017	-		0.651	Continuing	Continuing	Continuing
Ballistic Protection Systems	C/FFP	NRL : Washington DC	16.138	0.000		0.275	Feb 2016	0.277	Apr 2017	-		0.277	Continuing	Continuing	Continuing
Ballistic Protection Systems	MIPR	NCTRF : Natick MA	1.200	0.084	Jan 2015	0.136	Jan 2016	0.136	Apr 2017	-		0.136	Continuing	Continuing	Continuing
Ballistic Protection Systems	MIPR	AFRL/MILTECH : Wright Patterson, OH	3.292	0.200	Apr 2015	0.290	Nov 2015	0.560	Mar 2017	-		0.560	Continuing	Continuing	Continuing
Ballistic Protection Systems	C/CPFF	MCSC : Quantico, VA	0.000	0.000		0.200	Apr 2016	0.000		-		0.000	0.000	0.200	-
Ballistic Protection Systems	WR	OFC NAVAL RESEARCH : Arlington, VA	0.000	0.000		0.080	Feb 2016	0.000		-		0.000	0.000	0.080	-
Subtotal			31.693	0.329		1.523		1.624		-		1.624	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Prior Year Cumulative Funding	Various	Various : Various	3.296	0.000		0.000		0.000		-		0.000	0.000	3.296	-
Ballistic Protection Systems	MIPR	USA NSRDEC : Natick, MA	7.380	0.157	Feb 2015	0.295	Dec 2016	0.000		-		0.000	0.000	7.832	-
Ballistic Protection Systems	MIPR	USA ATC : Aberdeen Prv Grnd, MD	0.458	0.275	Jun 2015	0.300	Apr 2016	0.377	Apr 2017	-		0.377	Continuing	Continuing	Continuing
Ballistic Protection Systems	MIPR	AFRL : Wright Patterson, OH	0.340	0.045	Jan 2016	0.000		0.245	Jan 2017	-		0.245	Continuing	Continuing	Continuing
Ballistic Protection Systems	WR	NRL : Washington, DC	1.571	1.420	Feb 2015	0.310	Jan 2016	0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2513 / Body Armor
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ID	Name	2015				2016				2017				2018				2019				2020				2021			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
1	Plate Carrier (PC) Improvements, LDS, Fit Study																												
2	Marine Corps Body Armor Surveillance Program (MC BASP)																												
3	Modular Scalable Plate (MSP)																												
4	Body Armor Base Layer (BBL)																												
5	Enhanced Combat Helmet (ECH)																												
6	Next Generation Helmet																												
7	Hearing Protection																												
8	Eye Protection																												

Project: Body Armor & Load Bear Task
 Date: Mon 1/4/16

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2513 / Body Armor

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2513				
Plate Carrier (PC) Improvements, LDS, Fit Study:	1	2015	4	2021
Marine Corps Body Armor Surveillance Program (MC BASP):	1	2015	4	2021
Modular Scalable Plate (MSP):	1	2015	2	2016
Body Armor Base Layer (BBL):	1	2015	4	2016
Enhanced Combat Helmet (ECH):	1	2015	3	2016
Next Generation Helmet:	1	2015	4	2021
Hearing Protection:	1	2015	4	2021
Eye Protection:	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 2928 / Exp Indirect Fire Gen Supt Wpn Sys			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2928: Exp Indirect Fire Gen Supt Wpn Sys	9.657	1.807	1.381	1.054	-	1.054	2.976	2.614	2.142	2.189	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

High Mobility Artillery Rocket Systems (HIMARS) is a C-130 transportable, wheeled, indirect fire, rocket/missile system capable of firing all rockets and missiles in the current and future Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM). The system includes one launcher, two Re-Supply Systems, and the MFOM. HIMARS will provide the Fleet Marine Force with 24 hour ground-based, responsive General Support/General Support Reinforcing (GS/GSR) indirect fires which accurately engage targets at long range (60+km), with high volumes of lethal fire under all weather conditions throughout all phases of combat operations ashore, to include irregular warfare and distributed operations. HIMARS is a significant improvement over previously fielded ground fire support systems. During a 24 hour period, the system is expected to conduct multiple moves and multiple fire missions. Guided Multiple Launch Rocket System (GMLRS) is the primary munition for USMC units fielded with the HIMARS. GMLRS provides medium, and long range precision and area fires to destroy and/or suppress threat forces. GMLRS integrates GPS guidance to achieve accuracy, requiring fewer rockets to defeat targets, and thus reduces the logistics burden.

The three fielded variants are GMLRS with Dual Purpose Improved Conventional Munitions (DPICM/Increment 1) and GMLRS Unitary (U/Increment 2), a 200 pound class high explosive warhead and the alternative warhead (AW). The GMLRS U integrates a multi-mode fuse and high explosive warhead making it an all-weather, low collateral damage, precision strike rocket. GMLRS U expands the MLRS target set into urban and complex environments by adding point, proximity, and delay fusing modes. GMLRS U was fired in support of Overseas Contingency Operations (OCO), and has demonstrated high effectiveness and low collateral damage while supporting Marines in combat. A third variant of GMLRS, the alternative warhead (AW/Increment 3) is being developed to replace DPICM and meet the requirements outlined in a 25 June 2008 cluster munitions policy, which requires all cluster munitions by 2019 to produce less than 1% Unexploded Ordinance (UXO) on the battlefield. GMLRS/AWP begins production in FY15. HIMARS satisfies the Marine Corps requirement for an indirect fire system that is responsive, maneuverable, and is capable of engaging targets at long range. The Reduced Range Practice Rocket (RRPR) includes training devices for tactical training, classroom training and handling exercises.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: HIMARS Testing	0.500	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Executed in conjunction with the U.S. Army, the Support Test and Evaluation Program for Marine Corps Principle End Items. The U.S. Army Program Office continues to provide improvements to these end items (e.g. alternate warheads). This funding will be used to provide adequate support and oversight to ensure testing supports Marine Corps requirements					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2928 / Exp Indirect Fire Gen Supt Wpn Sys

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Initiated Guided Multiple Launch Rocket System (GMLRS) follow on testing consisting of any testing required due to deficiencies discovered during U.S. Army E3 testing at Redstone Test Center (RTC) or during Shipboard Shock & Vibration testing at NSWCDD and as required by the Marine Corps Systems Command and NSWCDD.</p> <p><i>FY 2016 Plans:</i> N/A</p> <p><i>FY 2017 Base Plans:</i> N/A</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> HIMARS Fire Control Obsolescence</p> <p align="right"><i>Articles:</i></p> <p><i>FY 2015 Accomplishments:</i> Continued evaluation efforts that focus on improving HIMARS readiness, reliability and maintainability by eliminating obsolete parts and reducing the number of Line Replaceable Units (LRUs) by consolidating Fire Control System functions.</p> <p><i>FY 2016 Plans:</i> N/A</p> <p><i>FY 2017 Base Plans:</i> N/A</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>	1.307 -	0.000 -	0.000 -	0.000 -	0.000 -
<p><i>Title:</i> HIMARS Expeditionary & Naval Integration Capabilities</p> <p align="right"><i>Articles:</i></p> <p><i>FY 2015 Accomplishments:</i> N/A</p> <p><i>FY 2016 Plans:</i></p>	0.000 -	1.381 -	1.054 -	0.000 -	1.054 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2928 / Exp Indirect Fire Gen Supt Wpn Sys

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Continue the Marine Corps study of the capability to employ HIMARS from distributed locations and naval platforms, or surface connectors to support distributed maneuvers. -Continue development of long range precision fires capabilities for HIMARS from austere and expeditionary bases. FY 2017 Base Plans: -Integrate and test new radios that meet new NSA encryption standards. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	1.807	1.381	1.054	0.000	1.054

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PMC/BLI 221200: High Mobility Artillery Rocket System (HIMARS)	22.913	16.330	33.725	-	33.725	40.521	36.345	35.451	36.141	Continuing	Continuing

Remarks

D. Acquisition Strategy

USMC HIMARS is procuring the Army rocket launcher, the current/future Multiple Launch Rocket System Family of Munitions (MFOM) and a Medium Tactical Vehicle Replacement (MTVR) based Resupply System (truck(s) with associated trailer(s)). The Marine Corps launcher and ammo requirements closely match U.S. Army requirements. The U.S. Army HIMARS program received increased funding and is now an Acquisition Category (ACAT) IC level program. Marine Corps Resupply System requirements are unique. Accordingly, the Marine Corps is an integrator and must ensure the required warfighting capability is fielded to the Marine Corps operating forces. The USMC has aligned funds to reflect an emphasis on not only hardware development, but also the integration of these principle end items while providing associated evaluation and oversight, and the development of associated rocket munitions in conjunction with the Army. Additionally, the Marine Corps program is establishing the training and support methodologies that will result in associated skill sets required within the Marine Corps. The Marine Corps strategy is incorporating acquisition and capability upgrades to both the systems and rocket munitions. These improvements parallel the U.S. Army's acquisition strategy.

E. Performance Metrics

Milestone Reviews

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2928 / Exp Indirect Fire Gen Supt Wpn Sys
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Expeditionary radio capabilities	WR	NSWC DD : Dahlgren, VA	0.000	0.000		0.600	Feb 2016	1.054	Dec 2016	-		1.054	0.000	1.654	-
Expeditionary capabilities	MIPR	RDEC : Redstone Arsenal, AL	0.000	0.000		0.781	Feb 2016	0.000		-		0.000	0.000	0.781	-
Subtotal			0.000	0.000		1.381		1.054		-		1.054	0.000	2.435	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
GMLRS follow on testing	MIPR	Redstone Test Ctr : Redstone, AL	0.000	0.500	Feb 2015	0.000		0.000		-		0.000	0.000	0.500	-
Fire Control Obsolescence	MIPR	Redstone Test Ctr : Redstone, AL	0.000	1.307	Feb 2015	0.000		0.000		-		0.000	0.000	1.307	-
Prior year cumulative funding	Various	various : various	4.013	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			4.013	1.807		0.000		0.000		-		0.000	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Prior year cumulative funding	Various	Various : Various	5.644	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			5.644	0.000		0.000		0.000		-		0.000	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		9.657	1.807	1.381	1.054	1.054	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2928 / Exp Indirect Fire Gen Supt Wpn Sys
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Proj 2928	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
GMLRS																												
GMLRS Alternative Warhead Milestone C			▲																									
GMLRS Alternative Warhead Operational Test		▲																										
GMLRS Alternative Warhead Full Rate Production			▲																									
Expeditionary Radio Capabilities																												
Radio Capability Testing																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2928 / Exp Indirect Fire Gen Supt Wpn Sys

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2928				
GMLRS: GMLRS Alternative Warhead Milestone C: GMLRS Alternative Warhead Milestone C	3	2015	3	2015
GMLRS: GMLRS Alternative Warhead Operational Test: GMLRS Alternative Warhead Operational Test	2	2015	2	2015
GMLRS: GMLRS Alternative Warhead Full Rate Production: GMLRS Alternative Warhead Full Rate Production	3	2015	3	2015
Expeditionary Radio Capabilities: Radio Capability Testing:	2	2016	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 3098 / Fire Support System			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3098: <i>Fire Support System</i>	129.185	9.207	11.940	5.242	-	5.242	6.099	5.818	5.549	5.671	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops Joint and Marine Corps unique improvements to artillery fire support technology that supports the artillery triad of fires and fire support equipment. These initiatives include but are not limited to the following: the Expeditionary Fire Support System (EFSS), munitions development & testing (to include rocket munitions), as well as testing and development of the Family of Artillery Munitions (FAM), Common Laser Ranger Finder (CLRF) integrated capability, and the Modeled Meteorological Information Manager (MMIM).

EFSS is an all-weather, ground based indirect fire system designed to support the vertical assault element of the Ship-To-Objective Maneuver (STOM) force. The EFSS is defined as a Launcher, Mobility Platform (prime mover), Ammunition, Ammunition Supply Vehicle, and Technical Fire Direction and Control equipment necessary for orienting weapons to an azimuth of fire. EFSS supports irregular warfare and distributed operations. The decrease of \$6.698M from FY16 to FY17 is due to the Precision Extended Range Munition (PERM) round which is currently in the final stages of development. FY17 will complete qualification.

FAM is used to develop and mature artillery munitions for the Marine Corps triad of fire. This includes conducting safety analysis and ship compatibility studies.

The Modeled Meteorological Information Manager (MMIM) is the primary artillery meteorological capability at the artillery battalion and regiment providing the ability to create, receive, manage, and transmit near real time gridded meteorological information supporting artillery and target acquisition systems.

The Fire Support Mod Line (FSML) is a set of Marine Corps efforts to address critical operational and logistics deficiencies in existing, fielded fire support/weapons systems and equipment. FSML provides technical refresh and development of target acquisition, artillery survey, meteorological systems, weapon systems, and fire direction control. Funding is used to ensure Clinger Cohen Act (CCA) and Information Assurance (IA) requirements are met, execution of product improvements/modifications, and upgrades to system hardware and software for the Ground Counter Fire Sensor (GCFS), Marine Artillery Survey Set (MASS), Meteorological Station Group (MSG), Global Positioning System Survey (GPS-S) and the Improved Position Azimuth Determining System (IPADS), Lightweight Target Designator (LTD), the Joint Terminal Attack Controller-Laser Target Designator (JTAC-LTD), and the CLRF as well as for upgrades, engineering change proposals, and modifications for guided munitions and fire control systems. Funding is also used for upgrades, engineering change proposals (ECPs) and modifications for guided munitions and fire control systems which falls within Fire Support Systems for the Marine Corps.

The Family of Internally Transportable Vehicles (FITV) consists of two variants of tactical ground vehicles for use by the Ground Combat Element (GCE) of a Marine Air Ground Task Force (MAGTF). The ITV Light Strike Variant (LSV) is outfitted primarily with a heavy machine gun or grenade launcher and transports four Marines plus 2000 lbs of cargo. The ITV Prime Mover (PM) is used to support the Expeditionary Fire Support System (EFSS), towing the 120MM Mortar and Ammo Trailer, while transporting two Marines. Both the LSV and PM are internally transportable inside the MV-22 and CH-53 aircraft.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 3098 / Fire Support System
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Conventional Ground Ammunition is a project that identifies and develops Insensitive Munitions (IM) Technologies to address IM shortfalls in new Marine Corps development or improvements to legacy Conventional Ground Ammunition to meet OSD mandated IM compliance requirements. These IM Technology investments directly support the development of the bi-annual Marine Corps Insensitive Munitions Strategic Plan (IMSP) to address the identified IM technology needs of the Marine Corps.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Modeled Meteorological Information Manager (MMIM)</p> <p align="right">Articles:</p> <p>Description: The Modeled Meteorological Information Manager (MMIM) is the primary artillery meteorological capability at the artillery battalion and regiment providing the ability to create, receive, manage, and transmit near real time gridded meteorological information supporting artillery and target acquisition systems significantly enhancing the accuracy of meteorological information. MMIM is saving over \$1.3 million in annual operations, maintenance, and fuel costs by eliminating the requirement for 42 M1152 High Mobility Multi-purpose Wheeled Vehicles, 21 M101A3 Trailers and 21 OV-103 Generator Groups associated with the current legacy capability.</p> <p>FY 2015 Accomplishments: -Continued testing and integration of the MMIM to support software development and information assurance activities.</p> <p>FY 2016 Plans: -Initiate research and technical support efforts to enhance communication of meteorological data that will support the production of computer meteorological messages for use with Advanced Field Artillery Tactical Data System (AFATDS) to support battalion artillery operations.</p> <p>FY 2017 Base Plans: -Complete testing of MMIM forecast capability.</p> <p>FY 2017 OCO Plans: N/A</p>	0.210	0.261	0.242	0.000	0.242
	-	-	-	-	-
<p>Title: Expeditionary Fire Support Systems (EFSS)</p> <p align="right">Articles:</p> <p>Description: EFSS is an all-weather, ground based indirect fire system designed to support the vertical assault element of the Ship-To-Objective Maneuver (STOM) force. EFSS is defined as a Launcher, Mobility Platform (prime mover), Ammunition, Ammunition Supply Vehicle, and Technical Fire Direction and control equipment</p>	6.634	8.729	2.868	0.000	2.868
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
necessary for orienting weapons to an azimuth of fire. EFSS supports irregular warfare and distributed operations.					
FY 2015 Accomplishments: -Completed Precision Extended Range Munition (PERM) demonstration testing. -Initiated engineering and safety analysis of the demonstration test results.					
FY 2016 Plans: -Initiate the development of Low Rate Initial Production (LRIP) test assets that will be destroyed during test. -Initiate the development of Tabular Firing Tables, Centaur and Advanced Field Artillery Tactical Data System (AFATDS) updates and final Gunner Display Unit - Marine (GDU-M) software development, all for use in support of PERM Type Qualification Testing (TQT) and LRIP testing. The increase of \$2.095M from FY15 to FY16 is due to the Precision Extended Range Munition (PERM) round production contract and the related engineering support, type qualification testing, and tabular firing table development.					
FY 2017 Base Plans: -Complete PERM qualification testing. -Tabular Firing Table development for PERM. The decrease of \$5.861M from FY16 to FY17 is due to the Precision Extended Range Munition (PERM) round which is currently in the final stages of development.					
FY 2017 OCO Plans: N/A					
Title: Fire Support Mods (FSM)					
Articles:					
	1.616	1.790	1.099	0.000	1.099
	-	-	-	-	-
Description: Funding is used for upgrades, engineering change proposals (ECP), and modifications to system hardware and software for the Ground Counter Fire Sensor (GCFS), Marine Artillery Survey Set (MASS), Meteorological Station Group (MSG), Global Positioning System Survey (GPS-S), the Improved Position Azimuth Determining System (IPADS), and the Joint Terminal Attack Controller-Laser Target Designator (JTAC-LTD) as well as technical refresh for target acquisition, and artillery survey and meteorological systems. Funding is also used for upgrades, Engineering Change Proposals (ECPs) and modifications for guided munitions and fire control systems which falls within Fire Support Systems for the Marine Corps.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> - Initiated research and analysis efforts to determine acoustic requirements to support the development of future acoustic sensor capabilities. - Initiated the development of an ECP to transition the Azimuth and Inertial Micro-Electromechanical System (MEMS) Future Naval Capability (AIM/FNC) into fielded targeting systems. <p><i>FY 2016 Plans:</i></p> <ul style="list-style-type: none"> -Complete integration of AIM/FNC into fire support systems which will provide near 100% 2 mil azimuth availability to support targeting. The AIM/FNC program goal is to demonstrate a handheld, lightweight, affordable inertial navigation system (INS) capable of accurate azimuth determination in all environments, which will significantly improve the capabilities of ground-based, small unit fires. -Initiate engineering and research efforts to determine future IPADS capability requirements to support future artillery survey. -Initiate efforts to demonstrate GCFS digital communications capability in a breadboard configuration. <p><i>FY 2017 Base Plans:</i></p> <ul style="list-style-type: none"> - Initiate development of advanced components for the IPADS replacement system. - Initiate developmental testing of acoustic detection system to replace GCFS system. - Initiate product improvements to increase performance capability of legacy targeting systems. <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> Family of Artillery Munitions (FAM)</p> <p align="right"><i>Articles:</i></p> <p><i>Description:</i> FAM - Efforts include acquisition planning for future munitions, replacement of existing stockpiles, and providing technologically enhanced artillery munitions in order to mitigate/fill capability gaps in range, accuracy, and lethality and reduce undue logistical burden. Additionally, the program office addresses Weapon System Explosives Safety Review Board (WSESRB) requirements for naval transportation issues for all artillery projectiles, propellants, and fuzes.</p> <p><i>FY 2015 Accomplishments:</i></p>	0.284	0.310	0.310	0.000	0.310
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
for follow-on procurement and incorporation into existing system component upgrades, Service Life Extension Programs (SLEPs), or rapid COTS/NDI fielding for the Fleet Marine Forces (FMF). FY 2017 OCO Plans: N/A					
Title: Conventional Ground Ammunition Description: All DoD services are required to field munitions that are insensitive munitions (IM) compliant. IM compliancy is measured by the performance of munitions to six tests; Fast Cook-Off, Slow Cook-Off, Bullet Impact, Fragment Impact, Sympathetic Detonation, and Shape Charge Jet. Services are required to submit IM Strategic Plans annually delineating how they intend on executing their Service IM effort to maximize IM improvements to both new development and legacy conventional ground ammunition. These IM Strategic Plans, Supporting Plan of Actions, and Milestones, with funding trial, are submitted to the JROC, demonstrating each Service's commitment to the continuing effort to improve IM characteristics of Conventional Ground Ammunition, for approval. In order to achieve the system's IM performance, the Conventional Ground Ammunition developer/owner must have new technology identified and available to address IM shortfalls at the onset of the ammunition development or available for insertion during improvement opportunities for legacy ammunition. Under this program, the USMC invests in IM technology which will improve its existing munitions IM reactions or ability to reliably initiate IM technologies and complies with the OSD mandate for maximum feasible IM compliance. FY 2015 Accomplishments: Continued - (1) Fire-From-Enclosure Rocket IM Propulsion (U.S. Army Armament Research Development and Engineering Center, Picatinny, NJ) - Venting design development - Eutectic material proof of concept - Slow Cook-Off testing (design verification/improvement) (2) IM Compliant 120mm Tail Charge (U.S. Army Armament Research Development and Engineering Center, Picatinny, NJ) - Continued Propellant Characterization assessments/tests - Continued Fiber Reinforced Plastic Fin Boom development & testing - Slow Cook-Off Testing to determine auto-ignition temperature of components	0.463	0.500	0.470	0.000	0.470
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016			
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 3098 / Fire Support System				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	
<p>-Perform follow on Slow Cook-Off Testing and Fast Cook-Off Testing (3) Multi Point Initiation System (Naval Surface Warfare Center Indian Head Explosive Ordnance Disposal Technology Division, Indian Head, MD) - Completed testing of new array designs against NTO/HMX explosive fills - Completed characterization output of array</p> <p>FY 2016 Plans: Continue - (1) Fire-From-Enclosure Rocket IM Propulsion (U.S. Army Armament Research Development and Engineering Center, Picatinny, NJ) -Final vent design verification/qualification (2) IM Compliant 120mm Tail Charge (U.S. Army Armament Research Development and Engineering Center, Picatinny, NJ) -Complete IM propellant formulation -Initiate Full scale IM testing. (3) Thermally Initiated Venting System (Systema Technologies, Inc., Kirkland, WA) -Evaluate feasibility and develop a concepts of operation for a TIVS for the Mk 22 Rocket Motor</p> <p>FY 2017 Base Plans: Continue - (1) Fire-From-Enclosure Rocket IM Propulsion (U.S. Army Armament Research Development and Engineering Center, Picatinny, NJ) -Integrate IM technology into weapon (2) IM Compliant 120mm Tail Charge (U.S. Army Armament Research Development and Engineering Center, Picatinny, NJ) -Integrate IM technology into weapon</p> <p>FY 2017 OCO Plans: N/A</p>						
Accomplishments/Planned Programs Subtotals		9.207	11.940	5.242	0.000	5.242

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

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

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PMC/2064: Expeditionary Fire Support Systems	0.514	0.000	3.360	-	3.360	0.624	0.063	0.065	0.066	0.000	94.240
• PMC/473301: Modeled Meterological Information Manager (MMIM)	1.335	0.450	0.488	-	0.488	0.505	0.462	0.472	0.482	0.000	10.541
• PMC/473302: Fire Support Mods	2.649	3.532	3.552	-	3.552	3.675	3.750	3.828	3.903	0.000	79.780
• PMC/5230: Motor Transport Modification	4.418	1.108	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• PMC/6545: Family of ITV	0.000	7.533	9.654	-	9.654	1.545	0.562	0.573	0.584	0.000	102.851
• PMC/5050: Motor Transport Modification	0.000	0.000	4.302	-	4.302	3.993	3.302	3.370	3.436	Continuing	Continuing

Remarks

D. Acquisition Strategy

These programs range from off-the-shelf modifications to developmental items. Development will typically be conducted at government labs.

Expeditionary Fire Support System (EFSS) and the Precision Extended Range Munition (PERM):

The acquisition approach for PERM is being conducted in two phases; In Step 1, two CPFF contracts were awarded to two vendors for the development and delivery of production representative rounds. Step 1 allows the development of existing technology, the management of technology risks, and demonstration of PERM designs prior to Milestone C (MS C). In Step 2 one FFP contract will be awarded for the production and delivery of the Total Munitions Requirement (TMR). PERM will provide EFSS GPS precision guidance and double the current max range.

Family of Artillery Munitions (FAM):

Program includes four (4) artillery munitions which are being developed by the Army. The Army is the lead service for these programs but continues to interact with the FAM IPT to ensure USMC requirements and capability needs are met. This allows the USMC to become users of the munition and certify the round for naval transportation. The munitions include but are not limited to; XM1156 Precision Guidance Kit (PGK), M1122 and M1123 Infrared (IR) and M1124 Visual Light (VL) 155mm RAP Round. Each munitions' status is tracked to ensure Marine Corps requirements are satisfied throughout the systems lifecycle.

MMIM: The Marine Corps is an active participant in the Army-led program and continues to support development of enhancements designed to increase availability of meteorological capability.

Fire Support Mods:

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<p>Acoustic sensors: Maintain current acoustic capability while developing an integrated platform capable of transmitting digital information to AFATDS in support of artillery operations.</p> <p>AIM/FNC: Complete development of AIM/FNC to support a production contract.</p> <p>IPADS: Conduct engineering analysis of requirements to identify new technologies for future procurement.</p> <p>Legacy targeting systems: Conduct engineering analysis to identify product improvements to increase performance capabilities.</p> <p>Family of Internally Transportable Vehicles (FITV): The FITV program strategy is to develop solutions under the ongoing Nevada Automotive Test Center effort to address eighteen identified reliability and safety design issues through government off-the-shelf (GOTS), commercial off-the-shelf (COTS) or modified off-the-shelf (MOTS) components. The government will select from two potential component upgrade solutions for each of the eighteen deficiencies and conduct competition to procure and integrate modification kits, develop logistics products and conduct training.</p> <p>Conventional Ground Ammunition: The Conventional Ground Ammunition strategy is to invest in Insensitive Munitions (IM) technologies to address IM shortfalls of priority programs identified in the bi-annual Marine Corps Insensitive Munitions Strategic Plan (IMSP). Once the IM technologies have been successfully demonstrated and matured, the intent is to insert the new technologies into new conventional ground ammunition development as well as provide opportunities to improve legacy munitions IM characteristics. The IM R&D effort directly addresses the mandated OSD requirement to obtain incremental IM improvement in pursuit of becoming fully IM compliant to the maximum extent practicable.</p> <p><u>E. Performance Metrics</u> N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 3098 / Fire Support System							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Prior Year Cumulative Funding	Various	Various : Various	81.913	0.000		0.000		0.000		-		0.000	0.000	81.913	-
FITV Rollover Protection Mod	C/FFP	NATC : Carson City, NV	0.147	0.000		0.000		0.000		-		0.000	0.000	0.147	-
Fire Support Mod	WR	NAVSEA : Washington, DC	0.000	1.176	Jan 2015	0.000		0.000		-		0.000	0.000	1.176	-
FAM Capability Enhancement	WR	NSWC Safety : Dahlgren, VA	0.000	0.131	Jan 2015	0.000		0.000		-		0.000	0.000	0.131	-
Fire Support Mods	MIPR	PM Mission Command : Aberdeen, MD	0.679	0.000		0.000		0.000		-		0.000	0.000	0.679	-
Fire Support Mods	WR	NAVSEA : Washington, DC	0.000	0.440	Apr 2015	0.000		0.000		-		0.000	0.000	0.440	-
PERM TFT Development	MIPR	U.S. Army Armament : Picatinny, NJ	0.000	0.000		0.000		0.337	Jan 2017	-		0.337	0.000	0.337	-
Conventional Ground Ammunition	MIPR	ARDEC : Picatanny, NJ	0.822	0.200	Jan 2015	0.250	Jan 2016	0.245	Jan 2017	-		0.245	0.000	1.517	-
FITV Engineering Programmatic Support	Various	Various : Various	0.060	0.000		0.350	Nov 2015	0.253	Nov 2016	-		0.253	Continuing	Continuing	Continuing
EFSS (PERM)	C/CPFF	Various : Contractors	18.253	1.186	Dec 2014	0.000		0.000		-		0.000	0.000	19.439	-
Conventional Ground Ammunition	MIPR	U.S. Army Armament : Picatinny, NJ	0.000	0.263	Jan 2015	0.250	Jan 2016	0.225	Jan 2017	-		0.225	0.000	0.738	-
Fire Support Mods	MIPR	ARDEC : Picatinny, NJ	0.000	0.000		0.500	Jan 2016	0.000		-		0.000	0.000	0.500	-
Conventional Ground Ammunition	C/FFP	NSWC : Indian Head, MD	0.300	0.000		0.000		0.000		-		0.000	0.000	0.300	-
Fire Support Mods	WR	NSWC : Dahlgren, VA	0.000	0.000		0.400	Jan 2016	1.099	Jan 2017	-		1.099	0.000	1.499	-
EFSS (PERM LRIP)	C/FFP	TBD : TBD	0.000	3.705	Dec 2015	7.557	Dec 2015	0.000		-		0.000	0.000	11.262	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 7				PE 0206623M / MC Ground Cmbt Spt Arms Sys				3098 / Fire Support System								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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				
Fire Support Mods	MIPR	Army Research Lab : Adelphi, MD	11.009	0.000		0.000		0.000		-		0.000	0.000	11.009	-	
MMIM	MIPR	Army Research Lab : Adelphi, MD	0.186	0.210	Dec 2014	0.000		0.242	Jan 2017	-		0.242	0.000	0.638	-	
Subtotal			113.369	7.311		9.307		2.401		-		2.401	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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				
EFSS & PERM Safety Support	WR	NSWC : Dahlgren, Va	0.000	0.100	Nov 2014	0.175	Dec 2015	0.000		-		0.000	0.000	0.275	-	
EFSS, PERM Engineeing Support	WR	NSWC : Dahlgren, Va	0.000	0.394	Nov 2014	0.788	Dec 2015	0.000		-		0.000	0.000	1.182	-	
EFSS & PERM FSS Support	SS/CPFF	TBD : TBD	0.000	0.243	Apr 2015	0.000		0.000		-		0.000	0.000	0.243	-	
Fire Support Mods	WR	SPAWAR : Charleston, SC	0.175	0.000		0.000		0.000		-		0.000	0.000	0.175	-	
Prior Years Cumulative Funding	Various	Various : Various	0.387	0.000		0.000		0.000		-		0.000	0.000	0.387	-	
MMIM	WR	ARDEC : Picatinny	0.000	0.000		0.261	Jan 2016	0.000		-		0.000	0.000	0.261	-	
Fire Support Mods	MIPR	ARDEC : Picatinny, NJ	0.000	0.000		0.275	Jan 2016	0.000		-		0.000	0.000	0.275	-	
Fire Support Mods	WR	NSWC DD : Dahlgren, VA	0.000	0.000		0.215	Jan 2016	0.000		-		0.000	0.000	0.215	-	
FAM Engineering Support	WR	NSWC : Dahlgren, Va	2.009	0.153	Apr 2015	0.310	Mar 2016	0.310	Mar 2017	-		0.310	0.000	2.782	-	
Subtotal			2.571	0.890		2.024		0.310		-		0.310	0.000	5.795	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
FAM	MIPR	Aberdeen : Aberdeen, MD	0.631	0.000		0.000		0.000		-		0.000	0.000	0.631	-
Fire Support Mods	MIPR	Army Research Lab : Adelphi, MD	0.425	0.000		0.000		0.000		-		0.000	0.000	0.425	-
MMIM	MIPR	Army Research Lab : Adelphi, MD	0.479	0.000		0.000		0.000		-		0.000	0.000	0.479	-
Prior Year Cumulative Funding: Fire Support Mods	Various	Various : Various	7.014	0.000		0.000		0.000		-		0.000	0.000	7.014	-
EFSS (PERM)	WR	NSWCDD : Dahlgren, VA	4.379	1.006	Nov 2014	0.000		2.531	Dec 2016	-		2.531	0.000	7.916	-
Subtotal			12.928	1.006		0.000		2.531		-		2.531	0.000	16.465	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
EFSS (PERM)	C/FFP	SEAPORT : Quantico, VA	0.000	0.000		0.209	Apr 2016	0.000		-		0.000	0.000	0.209	-
Fire Support Mods	C/FFP	SEAPORT : Quantico, VA	0.317	0.000		0.400	Mar 2016	0.000		-		0.000	0.000	0.717	-
Subtotal			0.317	0.000		0.609		0.000		-		0.000	0.000	0.926	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	129.185	9.207	11.940	5.242	-	5.242	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 3098 / Fire Support System
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Proj 3098	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	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				
EFSS - PERM	DEMO				MS C/LRIP ▲					FAT				PRR 1 ◆																		
														FRP DR ▲																		

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 3098 / Fire Support System

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3098				
EFSS - PERM: DEMO	1	2015	3	2015
EFSS - PERM: MS C/LRIP	1	2016	1	2016
EFSS - PERM: PRR 1	2	2018	2	2018
EFSS - PERM: FAT/TYPE QUAL/USER TEST	3	2017	1	2018
EFSS - PERM: FRP DR	2	2018	2	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 4002 / Family of Raid Reconnaissance			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
4002: <i>Family of Raid Reconnaissance</i>	3.285	0.479	0.504	0.449	-	0.449	0.546	0.545	0.535	0.548	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project supports multiple airborne/parachuting and specialized reconnaissance related programs focusing on immediate capability enhancements to numerous insertion and personnel equipment shortfalls currently existing in reconnaissance units throughout the operating forces; such as improving airborne capability equipment and items for direct action missions that use specialized raid equipment.

Name change from PB16 to PB17: Family of Raids/Reconnaissance Equipment (FRRE) to Airborne Reconnaissance Equipment (ARE).

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Airborne Reconnaissance Equipment (ARE) - formerly Family of Raids/Reconnaissance Equipment (FRRE)	0.282	0.395	0.347	0.000	0.347
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
- Continued technology upgrades and evaluation of emerging reliability challenges presented by fielded systems, such as Automatic Activation Device and system safety verification.					
FY 2016 Plans:					
- Continue technology upgrades and evaluation of emerging reliability challenges presented by fielded systems, such as Automatic Activation Device and system safety verification.					
- Initiate research and development on personnel parachute and aerial delivery fielded programs, to parachute performance testing.					
FY 2017 Base Plans:					
- Continue technology upgrades and evaluation of emerging reliability challenges presented by fielded systems, such as Automatic Activation Device and system safety verification.					
- Continue research and development on personnel parachute and aerial delivery fielded programs, such as parachute performance testing.					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 4002 / Family of Raid Reconnaissance

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: Underwater Reconnaissance Capability (URC)	0.197	0.109	0.102	0.000	0.102
Articles:	-	-	-	-	-
FY 2015 Accomplishments: - Continued test and evaluation of new Combatant Rubber Raiding Craft (CRRC) technology. - Initiated research and development efforts on improved amphibious support equipment to fulfill URC.					
FY 2016 Plans: - Complete test and evaluation of new Combatant Rubber Raiding Craft (CRRC) technology. - Continue research and development efforts on improved amphibious support equipment; to include evaluation of the Diver Propulsion Device (DPD) upgrades to support the propulsion solution to the DRV to fulfill URC.					
FY 2017 Base Plans: - Continue research and development efforts on improved amphibious support equipment to fulfill URC, to include battery development and testing.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.479	0.504	0.449	0.000	0.449

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PMC/6518: Amphibious Support Equipment	4.354	3.235	7.371	-	7.371	5.914	4.807	4.906	5.004	Continuing	Continuing

Remarks

D. Acquisition Strategy

(U) Airborne Reconnaissance Equipment (ARE) acquisition strategy is to fund engineering changes and product upgrade testing and development for various reconnaissance special purpose equipment for aerial delivery and parachuting, such as the Parachutist's High Altitude Oxygen System (PHAOS); Automatic Activation Device (AAD); and the Tandem Offset Resupply Delivery System (TORDS)/Military Tandem Tethered Bundle (MTTB) System.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 4002 / Family of Raid Reconnaissance

(U) Underwater Reconnaissance Capability (URC) acquisition strategy for the underwater capabilities program consists of a multi-step to full capability approach. Using a tradeoff source selection process, a full and open competition will be executed for a commercial material solution. A single Firm Fixed Price (FFP) IDIQ contract will be awarded for the acquisition of the underwater reconnaissance propulsion capabilities systems, associated training, and Initial Issue Provisioning (IIP) Package.

E. Performance Metrics

Milestone reviews.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 4002 / Family of Raid Reconnaissance
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Prior year cumulative funding	Various	Various : Various	1.680	0.000		0.000		0.000		-		0.000	0.000	1.680	-
Airborne Recon Equipment	MIPR	US Army RDECOM : Natick, MA	0.377	0.000		0.008	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Airborne Recon Equipment	WR	NSWC : Carderock, MD	0.000	0.100	Feb 2015	0.000		0.000		-		0.000	0.000	0.100	-
Airborne Recon Equipment	WR	Naval Air Systems : China Lake, CA	0.000	0.000		0.123	Feb 2016	0.000		-		0.000	0.000	0.123	-
Airborne Recon Equipment	WR	TBD : TBD	0.000	0.000		0.034	Apr 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Airborne Recon Equipment	MIPR	Yuma Test Center : Yuma, AZ	0.000	0.182	Jan 2015	0.030	Mar 2016	0.147	Mar 2017	-		0.147	Continuing	Continuing	Continuing
Underwater Recon Capability	WR	NSWC : Carderock, MD	0.000	0.197	Feb 2015	0.030	Jan 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Underwater Recon Capability	WR	TBD : TBD	0.000	0.000		0.079	Mar 2016	0.102	Feb 2017	-		0.102	Continuing	Continuing	Continuing
Subtotal			2.057	0.479		0.304		0.249		-		0.249	-	-	-

Remarks
Name change from PB16 to PB17: Family of Raids/Reconnaissance Equipment (FRRE) to Airborne Reconnaissance Equipment (ARE).

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Prior year cumulative funding	Various	Various : Various	1.146	0.000		0.000		0.000		-		0.000	0.000	1.146	-
Airborne Recon Equipment	MIPR	US Army RDECOM : NATICK, MA	0.000	0.000		0.200	Nov 2015	0.200	Mar 2017	-		0.200	Continuing	Continuing	Continuing
Subtotal			1.146	0.000		0.200		0.200		-		0.200	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 4002 / Family of Raid Reconnaissance
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Proj 4002	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				
	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	
	Tech upgrades																												
	R&D parachutes																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 4002 / Family of Raid Reconnaissance

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 4002				
Tech upgrades	1	2015	4	2021
R&D parachutes	1	2015	4	2021

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