

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy	Date: February 2015
---	----------------------------

Appropriation/Budget Activity <i>1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) <i>PE 0206623M / MC Ground Cmbt Spt Arms Sys</i>											
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	563.093	116.944	52.377	56.769	-	56.769	57.213	53.407	49.581	50.800	Continuing	Continuing
0021: Assault Amphibious Vehicle 7A1	137.062	31.543	-	-	-	-	-	-	-	-	-	168.605
1555: Lt Armored Vehicle Prog	79.232	21.568	5.156	11.297	-	11.297	14.541	14.653	9.327	9.526	Continuing	Continuing
1901: MC Grnd Wpnry Prod Improvement	25.812	12.743	5.537	3.719	-	3.719	4.357	3.413	4.719	4.805	Continuing	Continuing
2086: Soldier/Marine Enhancement	16.718	5.952	4.656	3.253	-	3.253	3.786	3.604	3.862	3.943	Continuing	Continuing
2112: Lightweight 155mm Howitzer	0.000	0.193	0.204	0.207	-	0.207	0.003	0.003	0.003	0.003	Continuing	Continuing
2237: Amphibious Vehicle Test	1.274	2.283	0.836	0.994	-	0.994	1.002	0.991	0.916	0.935	Continuing	Continuing
2315: Training Devices/ Simulators	99.516	12.854	10.210	14.882	-	14.882	16.467	13.315	13.114	14.051	Continuing	Continuing
2503: Initial Issue	37.833	8.227	5.498	4.050	-	4.050	4.482	4.018	4.554	4.423	Continuing	Continuing
2513: Body Armor	39.571	5.529	3.431	3.160	-	3.160	3.812	4.733	4.684	4.771	Continuing	Continuing
2928: Exp Indirect Fire Gen Supt Wpn Sys	9.656	0.001	1.953	2.763	-	2.763	1.986	2.575	2.361	2.172	Continuing	Continuing
3098: Fire Support System	113.476	15.709	14.400	11.940	-	11.940	6.274	5.580	5.508	5.628	Continuing	Continuing
4002: Family of Raid Reconnaissance	2.943	0.342	0.496	0.504	-	0.504	0.503	0.522	0.533	0.543	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.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy	Date: February 2015
---	----------------------------

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
---	---

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	116.061	156.626	105.124	-	105.124
Current President's Budget	116.944	52.377	56.769	-	56.769
Total Adjustments	0.883	-104.249	-48.355	-	-48.355
• Congressional General Reductions	-	-0.042			
• Congressional Directed Reductions	-	-104.207			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	5.070	-			
• SBIR/STTR Transfer	-4.187	-			
• Program Adjustments	-	-	7.715	-	7.715
• Rate/Misc Adjustments	-	-	-56.070	-	-56.070

Change Summary Explanation

The FY 2016 funding request was reduced by \$10.000M to account for the availability of prior year execution balances. The funding increase from FY15 to FY16 can be attributed to LAV modifications and development testing, as well as Deployable Virtual Training Environment and High Mobility Artillery Rocket Systems (HIMARS) development efforts.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 0021 / Assault Amphibious Vehicle 7A1			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
0021: Assault Amphibious Vehicle 7A1	137.062	31.543	-	-	-	-	-	-	-	-	-	168.605
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Assault Amphibious Vehicle (AAV) program provides life-cycle support and sustainment improvement initiatives to ensure cost-effective combat readiness for the AAV Family of Vehicles (FOV). This is accomplished through engineering changes resulting from continuous review of sub-systems to maintain system supportability, safety, reduce total ownership costs, improve fleet readiness, address obsolescence issues, and improve vehicle survivability and performance. The AAV program also includes a survivability upgrade which will increase AAVP7A1 survivability and force protection while maintaining the required land and water mobility performance. This upgrade is derived from the need for an operationally effective amphibious armored personnel carrier capability bridge until the future amphibious combat vehicle reaches full operational capability.

NOTE: AAV funding for FY15 and beyond was realigned to Program Element 0206629M Project 2938.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Product Development	22.502	-	-	-	-
Articles:	-	-	-	-	-
Description: AAV Survivability Upgrade will improve the legacy AAV Force Protection capability. Improvements include improved underbelly protection, integrated blast mitigating seats, integrated spall liners, protected fuel storage, sponson armor, and selected improvements to maintain required water and land mobility.					
FY 2014 Accomplishments: -Completed automotive hull and suspension analysis, RAM baseline testing, and AAV mobility technical demonstration testing. Received a successful Milestone B decision. -Awarded EMD design and development contract. -Conducted preliminary design reviews for survivability upgrade.					
FY 2015 Plans: Funding moved to PE 0206629M Project 2938.					
FY 2016 Base Plans:					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys		Project (Number/Name) 0021 / Assault Amphibious Vehicle 7A1		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Funding moved to PE 0206629M Project 2938.						
FY 2016 OCO Plans: N/A						
Title: Support		1.798	-	-	-	-
Articles:		-	-	-	-	-
Description: Provide engineering and technical support for AAV sustainment modifications, and Survivability Upgrade efforts.						
FY 2014 Accomplishments: -Continued engineering and technical support for human systems integration, other nonrecurring engineering services in support of AAV obsolescence and performance modifications and travel associated with these efforts. -Provided technical and engineering support for electrical modernization and 3D modeling for the P7 variant.						
FY 2015 Plans: Funding moved to PE 0206629M Project 2938.						
FY 2016 Base Plans: Funding moved to PE 0206629M Project 2938.						
FY 2016 OCO Plans: N/A						
Title: Test and Evaluation		2.912	-	-	-	-
Articles:		-	-	-	-	-
Description: AAV operations Support: Evaluation and testing of safety improvements and fact-of-life changes to maintain the AAV Family of Vehicles.						
FY 2014 Accomplishments: -Completed AAV performance baseline and water testing, soft soil testing, and aluminum alloy evaluation. -Continued evaluation and testing of safety improvements and fact-of-life changes to maintain the AAV Family of Vehicles.						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy							Date: February 2015				
Appropriation/Budget Activity 1319 / 7			R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys			Project (Number/Name) 0021 / Assault Amphibious Vehicle 7A1					
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)							FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Completed modeling and simulation and testing of vehicles launching from naval ships.											
FY 2015 Plans: Funding moved to PE 0206629M Project 2938.											
FY 2016 Base Plans: Funding moved to PE 0206629M Project 2938.											
FY 2016 OCO Plans: N/A											
Title: Management Services							4.331	-	-	-	-
Articles:							-	-	-	-	-
Description: Management support services technical support for program office and field activities.											
FY 2014 Accomplishments: -Provided program management services in support of ECP development, trade studies and analysis, supply chain and government property management in support of AAV sustainment and modification efforts. -Provided program support for acquisition documentation development in support of AAV Survivability Upgrade Milestone B.											
FY 2015 Plans: Funding moved to PE 0206629M Project 2938.											
FY 2016 Base Plans: Funding moved to PE 0206629M Project 2938.											
FY 2016 OCO Plans: N/A											
Accomplishments/Planned Programs Subtotals							31.543	-	-	-	-
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• PMC/2021: AAV Product Improvement Program	32.036	15.356	26.744	-	26.744	114.291	115.154	153.174	137.520	1,289.892	2,812.185

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015	
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 0021 / Assault Amphibious Vehicle 7A1			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTEN/0206629M: Amphibious Assault Vehicle	-	96.207	48.535	-	48.535	49.414	65.038	14.631	12.280	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
The USMC competitively awarded two contracts for development efforts in support of upgrading 392 Assault Amphibious Vehicles in FY14. Down select to one contractor for manufacture of prototype vehicles occurs in FY15. The program's main focus is on improving Marine force protection capabilities. To support the required capabilities, the Survivability Upgrade program will seek to incorporate Non-Developmental Item (NDI) and/or Commercial off the Shelf (COTS) solutions into the existing AAVP7A1 Reliability, Availability, Maintainability/Rebuild to Standard (RAM/RS). The acquisition strategy seeks to minimize cost and schedule, and maximize value, technology readiness, and commonality, while ensuring the selected manufacturer meets selected capability attributes established for the AAVP7A1 RAM/RS. R&D funds competitive designs followed by contract options for EMD and production.											
E. Performance Metrics											
Milestone Reviews: Milestone B: 3rd quarter of FY14											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 0021 / Assault Amphibious Vehicle 7A1					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Syst Design & Dev / EMD	C/FFP	MCSC : Quantico, VA	72.108	22.502	May 2014	-		-		-		-	-	94.610	-
Prior Years Cumulative Funding	Various	Various : Various	5.868	-		-		-		-		-	-	5.868	-
Subtotal			77.976	22.502		-		-		-		-	-	100.478	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Travel	Various	MCSC : Quantico, VA	2.172	0.115	Oct 2013	-		-		-		-	-	2.287	-
Prior Years Cumulative Funding	Various	Various : Various	0.265	-		-		-		-		-	-	0.265	-
In-House Technical Support	Various	Various : Various	2.349	0.280	Feb 2014	-		-		-		-	-	2.629	-
Engineering and Technical Services	Various	Various : Various	35.681	1.403	Mar 2014	-		-		-		-	-	37.084	-
Subtotal			40.467	1.798		-		-		-		-	-	42.265	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 and Evaluation	Various	ATC/AVTB : APG, MD; Camp Pendleton, CA	3.531	2.912	Mar 2014	-		-		-		-	-	6.443	-
Subtotal			3.531	2.912		-		-		-		-	-	6.443	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys						Project (Number/Name) 0021 / Assault Amphibious Vehicle 7A1			

Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	Award Date	Cost To Complete	Total Cost	Target Value of Contract
Management Support Svcs	C/FFP	MCSC : Quantico, VA	15.088	4.331	Apr 2014	-		-		-		-		-	19.419	-
Subtotal			15.088	4.331		-		-		-		-		-	19.419	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	137.062	31.543	-	-	-	-	-	168.605	-

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy

Date: February 2015

Appropriation/Budget Activity

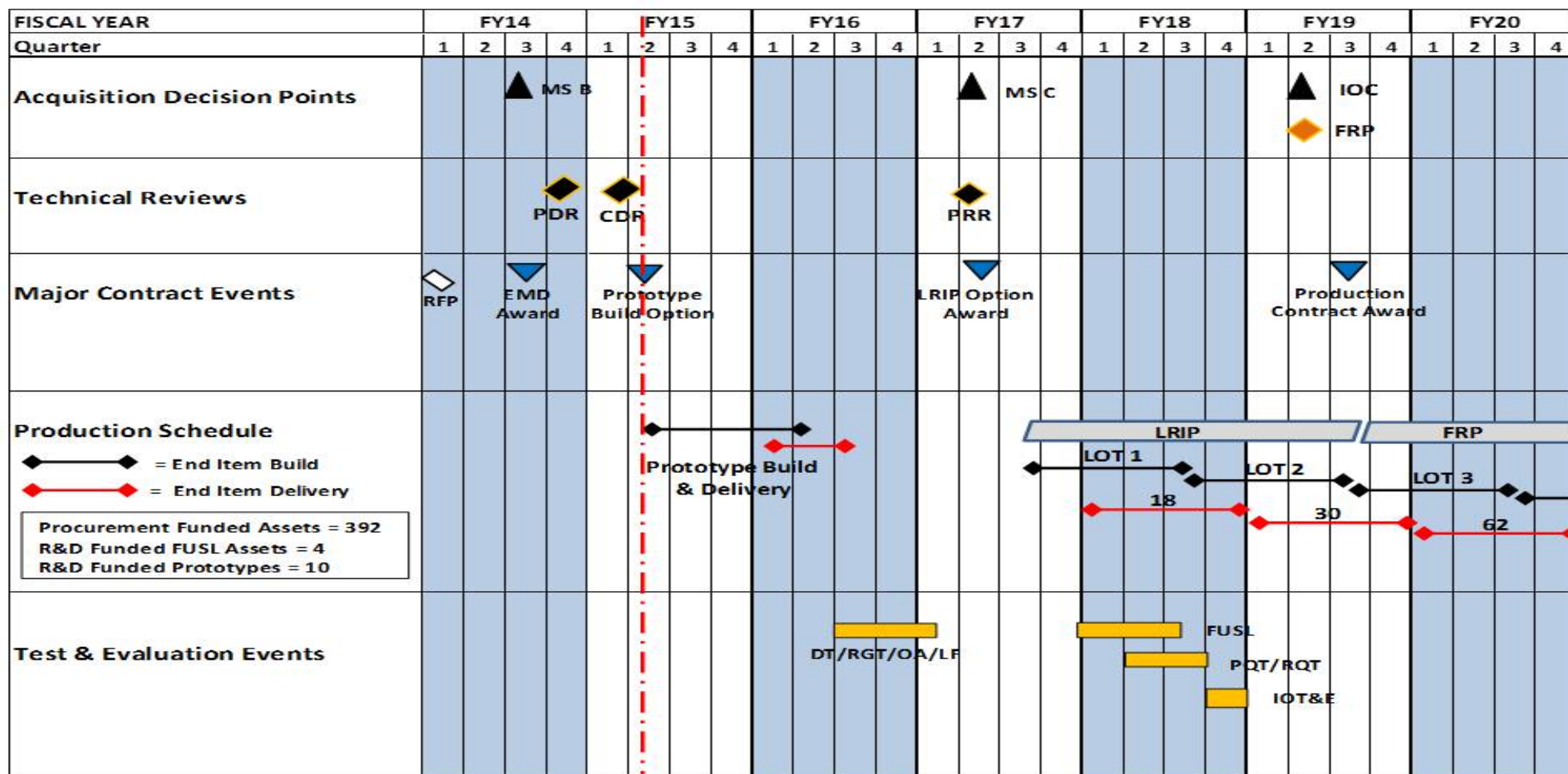
1319 / 7

R-1 Program Element (Number/Name)

PE 0206623M / MC Ground Cmbt Spt Arms Sys

Project (Number/Name)

0021 / Assault Amphibious Vehicle 7A1



UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 0021 / Assault Amphibious Vehicle 7A1	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0021				
MS B	3	2014	3	2014
EMD CONTRACT AWARD	3	2014	3	2014

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
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			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
1555: Lt Armored Vehicle Prog	79.232	21.568	5.156	11.297	-	11.297	14.541	14.653	9.327	9.526	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The Light Armored Vehicle Family of Vehicles (LAV FOV) consists of six fielded LAV configurations and one communications/intelligence-configured asset on a LAV chassis. The LAV FOV 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 of three programs; the LAV Modification Program, the LAV Anti-Tank Modernization (ATM) Program, and the LAV Survivability Upgrades Program. These programs will ensure that the LAV FOV 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.												
The funding increase from FY15 to FY16 reflects the cost estimate and options for the Mobility & Obsolescence contract and initiation of developmental testing.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: LAV MODIFICATIONS								14.063	5.156	11.297	-	11.297
								Articles: -	-	-	-	-
FY 2014 Accomplishments: -Continued development of the Mobility and Obsolescence Kits consisting of Powerpack, Driveline, Steering, Electrical Upgrade, Suspension, Hull Modifications and Ballistic Protection Upgrade Package (BPUP) Kits. MS B approval, RFP Release, Research & Development (R&D) Contract award, Power Pack, Driveline, Steering, Suspension, Hull Modifications and Electrical Upgrade, Developmental Test and Operational Assessment Planning, Preliminary Design Review (PDR), supportability analysis, provisioning and PM support.												
								FY 2015 Plans: -Continue Engineering Change Proposal (ECP), Integrated Logistic Support (ILS) data development, Technical Publications Development, Integrated Baseline Review (IBR), PDR#2 and Critical Design Review for the Mobility and Obsolescence Kits consisting of Powerpack, Driveline, Steering, Electrical Upgrade, Suspension, Hull Modifications, BPUP Kits and PM support.				
								FY 2016 Base Plans: -Initiate support of Developmental Testing				

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Continue Engineering Change Proposal (ECP), Integrated Logistic Support (ILS) data development, Technical Publications Development, Critical Design Review #2, PDR #3 and LRIP Material Approval for the Mobility and Obsolescence Kits consisting of Powerpack, Driveline, Steering, Electrical Upgrade, Suspension, Hull Modifications, BPUP Kits and PM support. FY 2016 OCO Plans: N/A						
Title: LAV ANTI-TANK SYSTEM FY 2014 Accomplishments: -Completed Technical Manual Updates and Developmental Testing. -Initiated and prepared Independent Logistics Assessment (ILA) pre-brief and ILA Certification, began Operational Assessment Testing, Milestone C (MS C) Preparation, PM support and the following Technical Reviews: Functional Configuration Audit, System Verification Review, Operational Test Readiness Review & Operational Test Readiness Review Board. FY 2015 Plans: N/A FY 2016 Base Plans: N/A FY 2016 OCO Plans: N/A		Articles: 4.753 -	- -	- -	- -	- -
Title: LAV SURVIVABILITY UPGRADES FY 2014 Accomplishments: -Completed modeling and simulation testing for ballistic seats, ballistic seats initial capabilities document P-spec completion, LAV-25 fuel cell space claim analysis, drivers seat lift safety improvement, ballistic floor protection design, turret fence design and PM Support. FY 2015 Plans: N/A FY 2016 Base Plans:		Articles: 2.752 -	- -	- -	- -	- -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015							
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					
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	
N/A											
FY 2016 OCO Plans: N/A											
Accomplishments/Planned Programs Subtotals						21.568	5.156	11.297	-	11.297	
C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PMC/2038: LAV PIP	5.981	72.736	54.879	-	54.879	96.776	122.094	112.870	111.628	Continuing	Continuing
• PMC/7000: LAV Spares	-	4.767	1.288	-	1.288	1.529	3.335	4.145	5.973	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
The LAV Modification & Sustainment program funds numerous low-dollar, yet extremely important minor modifications, support equipment and tools and other projects that increase LAV reliability and readiness while simultaneously reducing operations and support costs. The Marine Corps PM-LAV Modification Team uses multi-disciplined integrated project teams consisting of engineering, logistical, contracting and financial personnel to manage Modification projects. The majority of contracts issued under the Modification line are subject to the competitive acquisition process. Currently the LAV Modification and Sustainment program will capture the Mobility and Obsolescence kits consisting of Power Pack, Driveline, Steering, Electrical Upgrade, Suspension, Hull Modifications and Ballistic Protection Upgrade Package (BPUP) Kits. The Mobility and 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 Powerpack, Driveline, Steering, Electrical Upgrade, Suspension, Hull Modifications and Ballistic Protection Upgrade Package (BPUP) Kits. 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. The LAV Anti-Tank Modernization (ATM) program will focus on integrating a new turret into the LAV-AT variant with options for production. The LAV-ATM is a replacement for the obsolete M901A1 turret to correct operational and readiness deficiencies. It will be capable of firing the current family of Tube-launched, Optically tracked, Wire-guided (TOW) missiles and be forward compatible with the next generation of heavy anti-armor missiles. The program was approved in December of 2009 as part of the Material Development Decision to enter at Milestone B (MS B) based on the technical maturity of the capabilities required, schedule, and budget. Milestone B approval was achieved in Mar 2011 and the EMD contract was awarded in Apr 2012. Once the EMD phase is complete, a combined MS C and Full Rate Production Review (FRPR) are planned to be followed by a Production and Deployment Phase and Operations and Support Phase.											

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
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
The Survivability Upgrades program will include replacing and relocating the legacy LAV-25 fuel cells (currently located under the scout seats in the LAV-25) with self sealing fuel cells and adding blast attenuating seats for all 7 LAV variants. These projects are being executed as ECPs. <u>E. Performance Metrics</u> Milestone Reviews		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
SYS DEV/INTEGRATION (Surv Upgrades)	MIPR	TARDEC : Warren, MI	8.922	2.133	Nov 2013	-		-		-		-	-	11.055	-
Proj 1555: Prior Years Cumulative Funding	Various	N/A : N/A	24.125	-		-		-		-		-	-	24.125	-
ILS DATA DEV (MOD)	C/CPFF	GDLS : London Ontario, Canada	4.071	6.642	May 2014	2.109	May 2015	3.610	Nov 2015	-		3.610	Continuing	Continuing	Continuing
PRODUCT DEV/ PROTOTYPES (MOD)	C/CPFF	GDLS : London Ontario, Canada	22.597	5.325	May 2014	0.731	May 2015	3.596	Nov 2015	-		3.596	Continuing	Continuing	Continuing
ILS DATA DEVELOPMENT (Anti-Tank)	C/CPFF	Raytheon : McKinney, TX	1.385	0.832	Apr 2014	-		-		-		-	-	2.217	-
Subtotal			61.100	14.932		2.840		7.206		-		7.206	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Program Mgmt (Surv Upgrades)	MIPR	TACOM : Warren, MI	1.130	0.619	Dec 2013	-		-		-		-	-	1.749	-
Program Mgmt (MOD)	MIPR	TACOM : Warren, MI	3.588	2.096	Dec 2013	2.316	Dec 2014	1.652	Dec 2015	-		1.652	Continuing	Continuing	Continuing
Program Mgmt (Anti-Tank)	MIPR	TACOM : Warren, MI	6.727	2.029	Dec 2013	-		-		-		-	-	8.756	-
Subtotal			11.445	4.744		2.316		1.652		-		1.652	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Operation Assessment (Anti-Tank)	MIPR	MCOTEA : Quantico, VA	4.643	1.462	Aug 2014	-		-		-		-	-	6.105	-
Devl/Oper T&E (MOD)	MIPR	RTC : AL	1.394	-		-		2.439	Oct 2015	-		2.439	Continuing	Continuing	Continuing
Subtotal			6.037	1.462		-		2.439		-		2.439	-	-	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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			

Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Tech Eng Services (Anti-Tank)	C/FP	Camber Corp. : Huntsville, AL	0.650	0.430	Jan 2015	-		-		-		-	-	1.080	-
Subtotal			0.650	0.430		-		-		-		-	-	1.080	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	79.232	21.568	5.156	11.297	-	11.297	-	-	-

Remarks

UNCLASSIFIED

PE 0206623M: MC *Ground Cmbt Spt Arms Sys*
Navy

R-1 Line #198

Project (Number/Name)
1555 / Lt Armored Vehicle Prog

LAV Anti-Tank System	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
	DT																											
																		</										

2016PB - 0206623M - 1555

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015
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 Anti-Tank System</i>				
Developmental Testing	1	2014	1	2015
Operational Assessment	1	2015	2	2015
MS-C	3	2015	3	2015
Production Contract Award	4	2015	4	2015
IOC	4	2017	4	2017
<i>LAV Modification and Sustainment</i>				
MS-B	3	2014	3	2014
Developmental Testing	1	2016	3	2016
Pre-LRIP Approval	4	2016	4	2016
Operational Assessment	3	2016	2	2017
LRIP Contract Award/IDIQ Contract	1	2017	1	2017
MS-C	3	2017	3	2017
IOC	1	2020	1	2020

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
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			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
1901: MC Grnd Wpnry Prod Improvement	25.812	12.743	5.537	3.719	-	3.719	4.357	3.413	4.719	4.805	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. The decrease in funding from FY15 to FY16 supports the revised acquisition strategy to develop a dual channel short-wave infrared and long wave infrared weapons mounted optic within Combat Optics.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Mission Payload Module (MPM) Articles: Description: The Mission Payload Module (MPM) launches non-lethal payloads to greater ranges with broader area coverage, greater 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. This program will be supported by the Joint Non Lethal Directorate beginning in FY15. FY 2014 Accomplishments: -Initiated system design, functional review and Joint Service Fuse and Initiator System Safety Activity (JS-FISSA) Board. System design will be further developed through the Preliminary Design Review and post-PDR assessment. FY 2015 Plans: N/A FY 2016 Base Plans: N/A FY 2016 OCO Plans: N/A								6.775	-	-	-	-
								-	-	-	-	-
Title: Escalation of Force-Equipment (EoF-E)								-	0.066	0.089	-	0.089

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Articles:		-	-	-	-	-
Description: Escalation of Force Equipment (EoF-E) is a mod funding line to support/sustain all fielded Escalation of Force (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). FY 2014 Accomplishments: N/A FY 2015 Plans: -Initiate evaluation and upgrade of the Translation capability within the Escalation of Force - Mission Module. -Initiate evaluation and upgrade of the Halogen Lighting in legacy systems to the new Light Emitting Diode Lighting System. -Initiate assessment of upgrades to the EoF-MM, Non-Lethal/Tube launched Munition System (NL/TLMS), and LA-9/P Lasers to sustain/support equipment and capabilities. FY 2016 Base Plans: -Continue assessment of upgrades and replacements to the EoF-MM, Non-Lethal/Tube launched Munition System (NL/TLMS), and LA-9/P Lasers to sustain/support equipment and capabilities. FY 2016 OCO Plans: N/A						
Title: Ocular Interruption (OI)		0.988	-	-	-	-
Articles:		-	-	-	-	-
Description: Ocular Interruption (OI) is the replacement of the 'Dazzling Laser' program for the LA-9/P and the Glare Mount 532P-M (Mini Green) laser. OI is a 'non-damaging' dazzling system that will be used in Escalation of Force Missions. This emerging technology will be supported by the Joint Non Lethal Directorate beginning in FY15. FY 2014 Accomplishments: -Completed system verification testing. FY 2015 Plans:						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A						
FY 2016 Base Plans: N/A						
FY 2016 OCO Plans: N/A						
Title: Sniper System Capability Set (SSCS)		0.399	-	-	-	-
Articles:		-	-	-	-	-
Description: The intent of the Scout Sniper Capability Set (SSCS) program is to establish a consolidated kit that includes common items that are needed by sniper elements throughout the Marine Corps. The SSCS program is composed of a suite of items designed to support scout sniper employment. It includes precision rifles as well as ancillary equipment such as the Scout Sniper Ballistic Computer (SSBC) and Sniper Tripod. The SSCS is employed by sniper teams throughout the Marine Corps within infantry battalions, reconnaissance elements, and the Marine Corps Special Operations Command.						
FY 2014 Accomplishments: -Completed testing and evaluation of modifications to the M40 Series Sniper Rifle.						
FY 2015 Plans: N/A						
FY 2016 Base Plans: N/A						
FY 2016 OCO Plans: N/A						
Title: Disable Point Target (DPT)		0.022	-	-	-	-
Articles:		-	-	-	-	-
Description: The Disable Point Target (DPT) is a Non-Lethal System(s) that will accurately engage/incapacitate a single individual or multiple engagements from 10-50 meters Threshold(T); 2-100 meters Objective(O) for a duration of 30 seconds(T) and 60 seconds(O). Capability provides the Marine with an increased standoff distance during crowd control/human shield situations while simultaneously keeping Marines beyond the reach of a hostile threat. This program is leveraging Joint Non Lethal Weapons (JNLW) Science & Technology funding						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
for FY15-FY17 and will resume Technology Maturation and Risk Reduction (TMRR) efforts with JNLW funding in FY18. FY 2014 Accomplishments: -Completed Milestone A Technology Development (TD) Phase Decision. -Completed the RFP, the Human Effects Evaluation plan, and the development of a draft Test Operations procedure. FY 2015 Plans: N/A FY 2016 Base Plans: N/A FY 2016 OCO Plans: N/A						
Title: Combat Optics Articles: Description: Program title changed from Family of Optical Systems and Modifications (FOSAM) to Combat Optics. Combat Optics is a program that provides for research and development, procurement, 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 and thermal imaging) 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, 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. FY 2014 Accomplishments: -Completed Human Systems Integration of Display Presentation (HSIDP) Study -Completed activities to support evaluation of ONR Integrated Day-Night Sight Technology (IDNST) prototypes -Completed evaluation of Multi-Color Infrared Imaging (MCIRI). FY 2015 Plans:		3.577 -	3.198 -	1.751 -	- -	1.751 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Complete design of a Dual-Channel Heavy Sight (DCHS) prototype to inform the development of a joint capability document for future production. -Initiate technology development and evaluation to support life cycle extension and improvement of current optics and inform future optics requirements generation to address capability gaps. FY 2016 Base Plans: -Initiate fabrication and testing of DCHS prototypes. -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. FY 2016 OCO Plans: N/A						
Title: Company and Battalion Mortars Articles: 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. FY 2014 Accomplishments: N/A FY 2015 Plans: -Initiate system development and demonstration efforts. -Initiate 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. FY 2016 Base Plans: -Continue system development and demonstration efforts. -Complete pre-Milestone C activities. -Complete 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. FY 2016 OCO Plans:		- -	1.195 -	0.986 -	- -	0.986 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy							Date: February 2015				
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A											
Title: Family of Infantry Weapons Systems (FIWS)							0.982	1.078	0.893	-	0.893
Articles:							-	-	-	-	-
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 and/or improve the performance, maintainability, supportability, service life, ergonomics, and safety enhancements.											
FY 2014 Accomplishments: -Continued Product Improvement Program testing for various Machine Gun Mounts, to evaluate performance of various types of ammunition currently under development. -Continued efforts to analyze, design, develop, and field modifications.											
FY 2015 Plans: -Continue Product Improvement Program testing for various Machine Gun Mounts. -Continue efforts to analyze, design, develop, and field modifications for Infantry Weapons, such as Rifle Barrel Modifications, Rifle Barrel Twist study, and M27 Infantry Automatic Rifle ammo compatibility study. -Initiate performance evaluation of various types of ammunition currently under development.											
FY 2016 Base Plans: -Continue to conduct Product Improvement Program testing for various emergent requirements. -Continue to evaluate performance of various types of ammunition currently under development. -Continue efforts to analyze, design, develop, and field modifications.											
FY 2016 OCO Plans: N/A											
Accomplishments/Planned Programs Subtotals							12.743	5.537	3.719	-	3.719
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTEN/2319 - MPM: Mission Payload Module-Joint Non-Lethal Weapons Directorate	3.683	4.236	6.826	-	6.826	7.273	-	-	-	Continuing	Continuing

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015	
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			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• PMC/2208-01: <i>Escalation of Force - Equip (EoF-E)</i>	1.108	0.289	0.488	-	0.488	1.917	1.761	1.407	1.435	Continuing	Continuing
• PMC/4930: <i>Night Vision Equipment (NVE)</i>	6.100	7.472	2.018	-	2.018	3.303	6.593	9.394	9.564	Continuing	Continuing
• PMC/2220-02: <i>Family of Infantry Weapons Systems</i>	3.529	1.840	7.102	-	7.102	5.341	5.019	5.105	5.199	Continuing	Continuing
• PMC/2220-03: <i>Company and Battalion Mortars</i>	0.838	0.890	1.122	-	1.122	-	0.816	3.362	3.429	Continuing	Continuing
• RDTEN/2319 - OI: <i>Ocular Interruption-Joint Non-Lethal Weapons Directorate</i>	-	2.376	1.608	-	1.608	-	-	-	-	-	3.984
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											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Mission Payload Module	C/CPFF	GDIT : Orlando, FL	3.229	4.550	Nov 2014	-		-		-		-	Continuing	Continuing	Continuing
Mission Payload Module	Various	AFRL : San Antonio,TX	1.446	0.643	Feb 2014	-		-		-		-	Continuing	Continuing	Continuing
Company and Battalion Mortars	MIPR	Picatinny Arsenal : Picatinny, NJ	0.882	-		0.800	May 2015	0.866	May 2016	-		0.866	Continuing	Continuing	Continuing
Esacalation of Force Equipment	Various	MCSC : QUANTICO, VA	0.394	-		0.066	May 2015	0.089	May 2016	-		0.089	-	0.549	-
Family of Infantry Weapons Systems	WR	NSWC : Dahlgren, VA	0.000	0.272	Dec 2014	0.442	Mar 2015	-		-		-	Continuing	Continuing	Continuing
Combat Optics	Various	MCSC : Quantico, VA	0.000	1.853	Nov 2013	1.212	Nov 2014	1.361	Mar 2016	-		1.361	Continuing	Continuing	Continuing
Combat Optics	Various	Night Vision Lab : Ft. Belvoir, VA	1.283	0.573	Nov 2013	1.257	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Combat Optics	Various	MCSC : Travel	0.008	-		-		0.050	Jan 2016	-		0.050	-	0.058	-
Proj 1901: Prior Years Cum Funding (Product Dev)	Various	Not Specified : Not Specified	0.954	-		-		-		-		-	-	0.954	-
Subtotal			8.196	7.891		3.777		2.366		-		2.366	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Mission Payload Module	Various	MCSC : Travel	0.026	0.026	Aug 2014	-		-		-		-	-	0.052	-
Family of Infantry Weapons Systems	Various	Travel/IMPAC : Quantico, VA	0.000	0.077	Sep 2014	0.066	Sep 2015	0.072	Sep 2016	-		0.072	Continuing	Continuing	Continuing
Ocular Interruption	Various	Travel : Quantico, VA	0.078	0.082	Aug 2014	-		-		-		-	Continuing	Continuing	Continuing
Ocular Interruption	C/FFP	CD&I : Quantico, VA	0.000	0.055	Apr 2014	-		-		-		-	Continuing	Continuing	Continuing
Combat Optics	C/FFP	MCSC : Quantico, VA	0.939	0.287	Nov 2013	0.729	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Disable Point Target	Various	MCSC : TRAVEL	0.096	0.007	Aug 2014	-		-		-		-	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Disable Point Target	C/FFP	MCSC : Quatico, VA	0.175	0.015	May 2014	-		-		-		-	Continuing	Continuing	Continuing
Company and Battalion Mortars	WR	NSWC : Various Navy Labs	0.000	-		0.275	May 2015	-		-		-	Continuing	Continuing	Continuing
Combat Optics	C/FFP	NSCW : Crane, IN	0.000	-		-		0.340	Dec 2015	-		0.340	-	0.340	-
Proj 1901: Prior Years Cum Funding (Support)	Various	Not Specified : Not Specified	9.210	-		-		-		-		-	-	9.210	-
Subtotal			10.524	0.549		1.070		0.412		-		0.412	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	Various	NSWC Dahlgren : Dahlgren, VA	0.556	0.400	Nov 2013	-		-		-		-	Continuing	Continuing	Continuing
Combat Optics	WR	NSWC : Crane, IN	0.023	-		-		-		-		-	Continuing	Continuing	Continuing
Combat Optics	Various	MCSC : Quantico, VA	0.000	0.464	Nov 2014	-		-		-		-	Continuing	Continuing	Continuing
Family of Infantry Weapons Systems	WR	NSWC : Crane, IN	0.000	0.205	Jan 2014	0.220	Dec 2014	0.242	Dec 2015	-		0.242	Continuing	Continuing	Continuing
Family of Infantry Weapons Systems	WR	NSWC : Various Navy Labs	0.000	-		0.108	Aug 2015	0.329	Aug 2016	-		0.329	Continuing	Continuing	Continuing
Mission Payload Module	C/FFP	MCOTEA : Quantico, VA	0.163	0.228	Dec 2013	-		-		-		-	-	0.391	-
Mission Payload Module	WR	NSWC : Crane, IN	0.252	0.176	Nov 2013	-		-		-		-	-	0.428	-
Mission Payload Module	WR	NSWC : Dalhgren, VA	0.442	1.152	Nov 2013	-		-		-		-	-	1.594	-
Ocular Interruption	WR	NSWC : Crane, IN	0.075	0.122	Jun 2014	-		-		-		-	-	0.197	-
Ocular Interruption	WR	NSWC : Dalhgren, V A	0.984	0.138	Jun 2014	-		-		-		-	-	1.122	-
Family of Infantry Weapons Systems	WR	PM Ammo : Quantico, VA	0.000	0.190	Sep 2014	-		-		-		-	-	0.190	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	NSWC : Various Navy Labs	0.000	-		0.120	Aug 2015	0.120	Aug 2016	-		0.120	Continuing	Continuing	Continuing
Scout Sniper Cap Set	Various	MCSC : Quantico, VA	0.006	0.399	Aug 2014	-		-		-		-	-	0.405	-
Proj 1901: Prior Years Cum Funding (T&E Eval)	Various	Not Specified : Not Specified	4.155	-		-		-		-		-	-	4.155	-
Subtotal			6.656	3.474		0.448		0.691		-		0.691	-	-	-
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Ocular Interruption	C/FFP	MCSC : Quantico, VA	0.000	0.591	May 2014	-		-		-		-	-	0.591	-
Family of Infantry Weapons Systems	C/FFP	MCSC : Quantico, VA	0.000	0.238	Mar 2014	0.242	Mar 2015	0.250	Mar 2016	-		0.250	-	0.730	-
Proj 1901: Prior Years Cum Funding (Mgmt Services)	Various	Not Specified : Not Specified	0.436	-		-		-		-		-	-	0.436	-
Subtotal			0.436	0.829		0.242		0.250		-		0.250	-	1.757	-
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			25.812	12.743		5.537		3.719		-		3.719	-	-	-
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy																								Date: February 2015								
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												
Company and Battalion Mortars	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020							
	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				
Milestones						M/S B ◆											M/S C ◆			IOC ◆												
Reviews						PDR ◆									CDR ◆																	
System Development																																
Software Development																																
Information Assurance Certification and Accreditation													◆																			
Test and Evaluation											DT							OT														
2016OSD - 0206623M - 1901																																

UNCLASSIFIED

PE 0206623M: *MC Ground Cmbt Spt Arms Sys*
Navy

R-1 Line #198

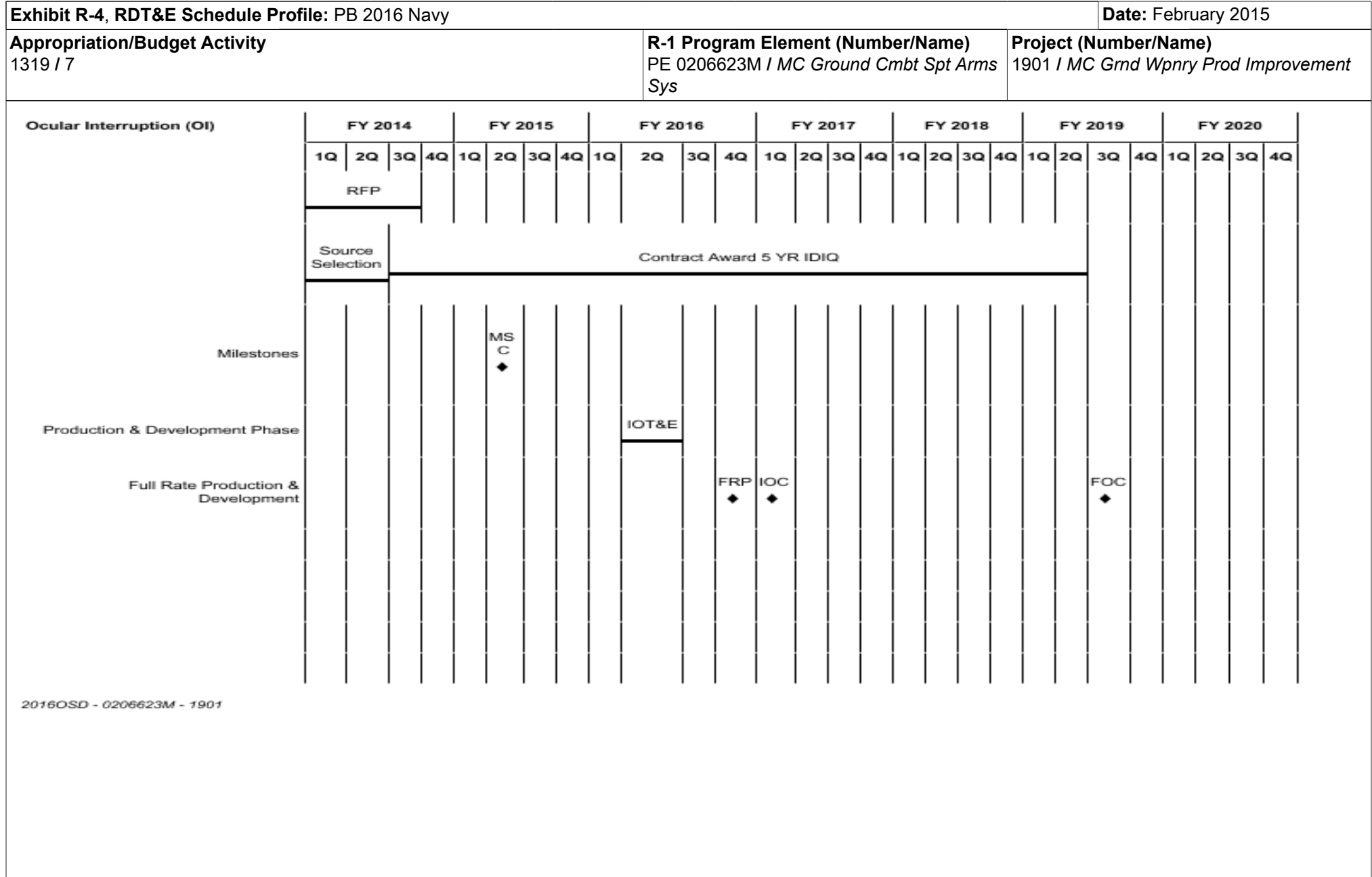
R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys
--

1901 / MC Grnd Wpnry Prod Improvement

Sys

2016OSD - 0206623M - 1901

UNCLASSIFIED



UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015
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</i>				
Milestones: Milestone B	2	2015	2	2015
Milestones: Milestone C	1	2018	1	2018
Milestones: IOC	4	2018	4	2018
Reviews: PDR	2	2015	2	2015
Reviews: CDR	3	2017	3	2017
System Development: System Development	2	2015	3	2016
Software Development: Software Development	2	2015	4	2017
Information Assurance Certification and Accreditation: Information Assurance Certification and Accreditation	1	2017	1	2017
Test and Evaluation: Developmental Test	2	2016	3	2017
Test and Evaluation: Operational Test	1	2018	3	2018
<i>Escalation of Force Equipment (EoF-E)</i>				
Management Support: Acq/Log/Engineering Support	2	2014	3	2015
Modifications and Upgrades: Light Kit Upgrades	3	2014	4	2014
Modifications and Upgrades: Explosive Detection Set Upgrades	2	2016	3	2017
Modifications and Upgrades: Vehicle Control Point Upgrades	3	2018	2	2019
<i>Mission Payload Module (MPM)</i>				
Production: Engineering, Manufacturing & Development	1	2014	2	2018
Production: Low Rate Initial Contract Award	2	2018	2	2018
Production: Production & Development Phase	3	2017	4	2019
Production: Low Rate Initial Production (LRIP)	2	2019	2	2019

UNCLASSIFIED

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

Date: February 2015

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

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production: Full Rate Production Contract Award	3	2019	3	2019
Disable Point Target (DPT)				
Technical Development Phase: Technical Maturation Readiness Review (TMRR)	3	2018	1	2020
Engineering, Manufacturing & Development Phase (EMD): EMD Contract Award	4	2020	4	2020
Ocular Interruption (OI)				
Request for Proposal (RFP)	1	2014	3	2014
Source Selection	1	2014	2	2014
Contract Award 5 Yr IDIQ	3	2014	2	2019
Milestones: Milestone C Decision	2	2015	2	2015
Production & Development Phase: Initial Operational Test & Evaluation (IOT&E)	2	2016	2	2016
Full Rate Production & Development: Full Rate Production Design	4	2016	4	2016
Full Rate Production & Development: Initial Operational Capability (IOC)	1	2017	1	2017
Full Rate Production & Development: Full Operational Capability (FOC)	3	2019	3	2019

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
2086: Soldier/Marine Enhancement	16.718	5.952	4.656	3.253	-	3.253	3.786	3.604	3.862	3.943	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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 warfighting 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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Marine Enhancement Program (MEP)	2.976	1.750	-	-	-
Articles:	-	-	-	-	-
FY 2014 Accomplishments:					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Initiated the new Modular/Scalable Vest, Hearing Protection, Boot Dry System and the Patrol Planning Tool. FY 2015 Plans: Continue 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. FY 2016 Base Plans: N/A FY 2016 OCO Plans: N/A						
Title: Marine Expeditionary Rifle Squad (MERS) Articles:		2.976 -	2.406 -	2.753 -	- -	2.753 -
FY 2014 Accomplishments: -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 provide the Gruntworks Squad Integration Facility as an asset to execute integration projects and usability trials. -Completed human performance trials utilizing Marine Corps Load Effects Assessment Program (MC-LEAP) and other data collection methodologies. -Continued usability trials and limited user evaluations for Joint Battle Command Platform at the infantry platoon and squad level. -Completed Modular Scalable Protection System and Tropical Uniform projects with human factors expertise. -Completed experiments using the Marine Corps Load Effects Assessment Program. -Continued integrated seating solutions for combat equipped Marines for Amphibious Combat Vehicle (ACV), Marine Personnel Carrier (MPC), Joint Light Tactical Vehicle (JLTV) and other mobility programs and synchronized seat belt and retention systems among the platforms. -Continued R&D on squad systems in conjunction with Army squad system projects. -Completed surveys with post deploying infantry battalions on usability and integration of equipment utilized during deployment. -Completed human performance testing of Marines utilizing current and prototype configurations of infantry rifle squad equipment. -Completed and transitioned technologies from ONR and other S&T activities that enhance capabilities of the squad or provide a desired capability.						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015				
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Continued weight and volume reduction replacements for current infantry equipment that support integration of components. -Completed MERS Initial Capabilities Document (ICD) that will be finalized in FY14. FY 2015 Plans: -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. -Continue to resource and utilize the Gruntworks Squad Integration Facility as an asset to execute integration projects and usability trials. -Continue to conduct human performance trials utilizing MC-LEAP and other data collection methodologies. -Continue to conduct usability trials and limited user evaluations for Joint Battle Command Platform at the infantry platoon and squad level. -Continue to support Modular Scalable Protection System and Tropical Uniform projects with human factors expertise. -Continue to conduct experiments using the Marine Corps Load Effects Assessment Program. -Continue to develop integrated seating solutions for combat equipped Marines for ACV, MPC, JLTV and other mobility programs and synchronize seat belt and retention systems among the platforms. -Continue to conduct R&D on squad systems in conjunction with Army squad system projects. -Continue to conduct surveys with post deploying infantry battalions on usability and integration of equipment utilized during deployment. -Continue to conduct human performance testing of Marines utilizing current and prototype configurations of infantry rifle squad equipment. -Continue to evaluate and transition technologies from ONR and other S&T activities that enhance capabilities of the squad or provide a desired capability. -Continue to seek weight and volume reduction replacements for current infantry equipment that support integration of components. -Continue to implement requirements from MERS Initial Capabilities Document (ICD). FY 2016 Base Plans: -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. -Continue to resource and utilize the Gruntworks Squad Integration Facility as an asset to execute integration projects and usability trials.							

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Improve and invest in the R&D capabilities within the Gruntworks Squad Integration Facility by adding test equipment and hardware to conduct research and testing. -Continue to conduct human performance trials utilizing MC-LEAP and other data collection methodologies. -Continue to conduct usability trials and limited user evaluations for Joint Battle Command Platform at the infantry platoon and squad level. -Continue to support Modular Scalable Protection System and Tropical Uniform projects with human factors expertise. -Continue to conduct experiments using the Marine Corps Load Effects Assessment Program. -Continue to develop integrated seating solutions for combat equipped Marines for ACV, MPC, JLTV and other mobility programs and synchronize seat belt and retention systems among the platforms. -Continue to conduct R&D on squad systems in conjunction with Army squad system projects. -Continue to conduct surveys with post deploying infantry battalions on usability and integration of equipment utilized during deployment. -Continue to conduct human performance testing of Marines utilizing current and prototype configurations of infantry rifle squad equipment. -Continue to evaluate and transition technologies from ONR and other S&T activities that enhance capabilities of the squad or provide a desired capability. -Continue to seek weight and volume reduction replacements for current infantry equipment that support integration of components. -Continue to implement requirements from MERS Initial Capabilities Document (ICD). FY 2016 OCO Plans: N/A						
Title: Ammunition Life Cycle Management FY 2014 Accomplishments: N/A FY 2015 Plans: -Initiate support for the Ammunition Logistics R&D IPT by funding two of the fifteen projects that have the most logistical impact to the Marine Corps. FY 2016 Base Plans:		- Articles: -	0.500 -	0.500 -	- -	0.500 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015	
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	

<u>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</u>	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 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 2016 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	5.952	4.656	3.253	-	3.253

<u>C. Other Program Funding Summary (\$ in Millions)</u>											
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PMC BLI 2208: <i>Marine Enhancement Program</i>	1.300	1.319	-	-	-	-	-	-	-	-	22.158
<u>Remarks</u>											
<u>D. Acquisition Strategy</u> Non Developmental Item/Commercial off the Shelf (NDI/COTS).											
<u>E. Performance Metrics</u> N/A											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
MERS Product Development	C/FFP	Various : Various	0.000	0.700	Jul 2014	0.821	Mar 2015	1.100	Jan 2016	-		1.100	-	2.621	-
MEP Product Development	C/FFP	Marine Corps : Quantico, VA	3.528	1.926	Apr 2014	1.520	Mar 2015	-		-		-	-	6.974	-
Prior Years Cumulative Funding	Various	Marine Corps Systems Command : Quantico, VA	4.429	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			7.957	2.626		2.341		1.100		-		1.100	-	-	-
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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
MERS Prior Year Cumulative Funding	Various	Marine Corps Systems Command : Quanico, VA	0.600	-		-		-		-		-	-	0.600	-
MEP Operational Technical Support	WR	Various : Various	0.000	0.700	Apr 2014	-		-		-		-	-	0.700	-
Ammunition Life Cycle Management	MIPR	Defense Ammo Ctr : McAlester, OK	0.000	-		0.247	Jan 2015	0.263	Jan 2016	-		0.263	-	0.510	-
Ammunition Life Cycle Management	WR	NSWC : Indian Head, MD	0.000	-		0.253	Jan 2015	0.237	Jan 2016	-		0.237	-	0.490	-
MERS Technical Support	WR	Various : Various	0.000	1.303	Jun 2014	0.934	Jan 2015	1.400	Mar 2016	-		1.400	-	3.637	-
Subtotal			0.600	2.003		1.434		1.900		-		1.900	-	5.937	-
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.															

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
MERS Developmental Test & Eval	C/FFP	Marine Corps Systems Command : Quantico, VA	3.795	0.973	May 2014	0.651	Mar 2015	0.253	Mar 2016	-		0.253	Continuing	Continuing	Continuing
MEP Developmental Test & Eval	C/FFP	Marine Corps Systems Command : Quantico, VA	4.366	0.350	Apr 2014	0.230	Mar 2015	-		-		-	Continuing	Continuing	Continuing
Subtotal			8.161	1.323		0.881		0.253		-		0.253	-	-	-
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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			16.718	5.952		4.656		3.253		-		3.253	-	-	-
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy														Date: February 2015																			
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									
Proj 2086	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020								
	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																																
2016PB - 0206623M - 2086																																	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
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	2014	4	2020
Marine Enhancement Program Equipment - No major milestones	1	2014	4	2020
ALCM - Munitions RDTE Logistics - No major milestones	1	2015	4	2020

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
2112: Lightweight 155mm Howitzer	-	0.193	0.204	0.207	-	0.207	0.003	0.003	0.003	0.003	Continuing	Continuing
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: ECP Material Solutions	0.193	0.204	0.207	-	0.207
Articles:	-	-	-	-	-
FY 2014 Accomplishments: Awarded contract to the Defense Ordinance Technology Consortium for industry studies on technology related to the Hydrostrut re-design for the howitzer.					
FY 2015 Plans: Continue 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 Base Plans: Continue to support assessment of concepts such as increasing LW155 range. In addition, funds will assess alternative power solutions such as improvements to the Digital Fire Control System (DFCS) operation with respect to run time, cold weather adaption and the reduction of external power source reliance.					
FY 2016 OCO Plans:					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015							
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							
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)											
	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total						
n/a											
Accomplishments/Planned Programs Subtotals	0.193	0.204	0.207	-	0.207						
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 218500: PMC - LW155	4.226	4.532	7.482	-	7.482	2.581	0.262	0.065	0.068	-	1,332.659
Remarks											
D. Acquisition Strategy											
Production and fielding of the LW155 has concluded and has now 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											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy													Date: February 2015		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)					
1319 / 7					PE 0206623M / MC Ground Cmbt Spt Arms Sys					2112 / Lightweight 155mm Howitzer					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Weapons Eng	C/T&M	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	0.000	0.193	May 2014	-		-		-		-	-	0.193	-
System Engineering	C/T&M	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	0.000	-		-		0.207	Mar 2016	-		0.207	-	0.207	-
Subtotal			0.000	0.193		-		0.207		-		0.207	-	0.400	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Weapons Engineering	C/T&M	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	0.000	-		0.204	Mar 2015	-		-		-	Continuing	Continuing	Continuing
Subtotal			0.000	-		0.204		-		-		-	-	-	-
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.193		0.204		0.207		-		0.207	-	-	-
Remarks															

UNCLASSIFIED

Appropriation/Budget Activity
1319 / 7

R-1 Program Element (Number/Name)
PE 0206623M / MC Ground Cmbt Spt Arms
Sys

Project (Number/Name)	2112 / <i>Lightweight 155mm Howitzer</i>
------------------------------	--

Proj 2112	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020					
	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																											

2016OSD - 0206623M - 2112

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015
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	3	2014	1	2020
Systems Engineering Study	2	2016	2	2017

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
2237: Amphibious Vehicle Test	1.274	2.283	0.836	0.994	-	0.994	1.002	0.991	0.916	0.935	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.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Contracts and Test and Evaluation Support Assets								2.283	0.836	0.994	-	0.994
								Articles: -	-	-	-	-
FY 2014 Accomplishments: -Continued to provide the necessary support resources to safely and effectively conduct simultaneous developmental testing and feasibility assessments on amphibious vehicles and other prototype systems. -Continued support for Hydrodynamic Test Rig (HTR) focused technology demonstrations in support of the Amphibious Combat Vehicle (ACV) 2.0 program effort. -Completed Light Armored Vehicle (LAV) variant water testing. -Completed testing Networking on the Move (NOTM) integrated with the Amphibious Assault Vehicle (AAV). -Completed conducting AAV baseline in support of PEO LS / PM AAA and, specifically, the AAV survivability upgrade testing the Topographic Production Capability (TPC) system to validate MilStd 810 compliance. -Completed planning, witness and evaluation of the Ground Based Air Defense A/MANPADS system integrated on a new HMMWV variant.												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015			
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Continued to improve and expand on existing personnel and facility capabilities in preparation for the ACV Inc 1.1 and upgraded AAV system testing beginning during FY16. FY 2015 Plans: -Continue high water speed testing of the HTR to support the ACV design development and technology risk reduction efforts. -Continue LAV variant water testing; AAV baseline and track with focused 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. -Continue test support to other MCSC, Navy PEO and PM requirements such as PM GBAD and PM MC3. -Initiate 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 Base Plans: -Continue testing of the HTR. -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 increased focused 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. FY 2016 OCO Plans: N/A						
Accomplishments/Planned Programs Subtotals		2.283	0.836	0.994	-	0.994

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
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
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, integrated and follow-on test evaluations events for Marine Corps and Joint Service Program Managers. 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		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	0.298	0.106	Sep 2014	0.061	Apr 2015	0.045	May 2016	-		0.045	Continuing	Continuing	Continuing
Test Support Assets	C/FFP	MCTSSA : Camp Pendleton	0.087	1.194	Aug 2014	0.036	Aug 2015	-		-		-	-	1.317	-
Prior Years Cumulative Funding	C/FFP	MCTSSA : Camp Pendleton Ca	0.010	-		-		-		-		-	-	0.010	-
Data Collections	WR	ATC : Camp Pendleton, CA	0.216	0.040	Jun 2014	-		-		-		-	Continuing	Continuing	Continuing
Hazmat POL PPE	Various	Camp Pendleton : Camp Pendleton CA	0.000	0.060	Jul 2014	0.050	Jul 2015	0.040	Jul 2016	-		0.040	-	0.150	-
Test/Equipment/NMCI Support	Various	Camp Pendleton : Camp Pendleton CA	0.039	0.020	Apr 2014	0.020	Dec 2014	0.020	Dec 2015	-		0.020	Continuing	Continuing	Continuing
Subtotal			0.650	1.420		0.167		0.105		-		0.105	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	0.466	0.477	Aug 2014	0.148	Apr 2015	0.460	Jun 2016	-		0.460	Continuing	Continuing	Continuing
Prior Years Cumulative Funding	WR	AVTB : Camp Pendleton	0.020	-		-		-		-		-	-	0.020	-
Subtotal			0.486	0.477		0.148		0.460		-		0.460	-	-	-
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	0.138	0.386	Jun 2014	0.521	Jun 2015	0.429	Jun 2016	-		0.429	Continuing	Continuing	Continuing

UNCLASSIFIED

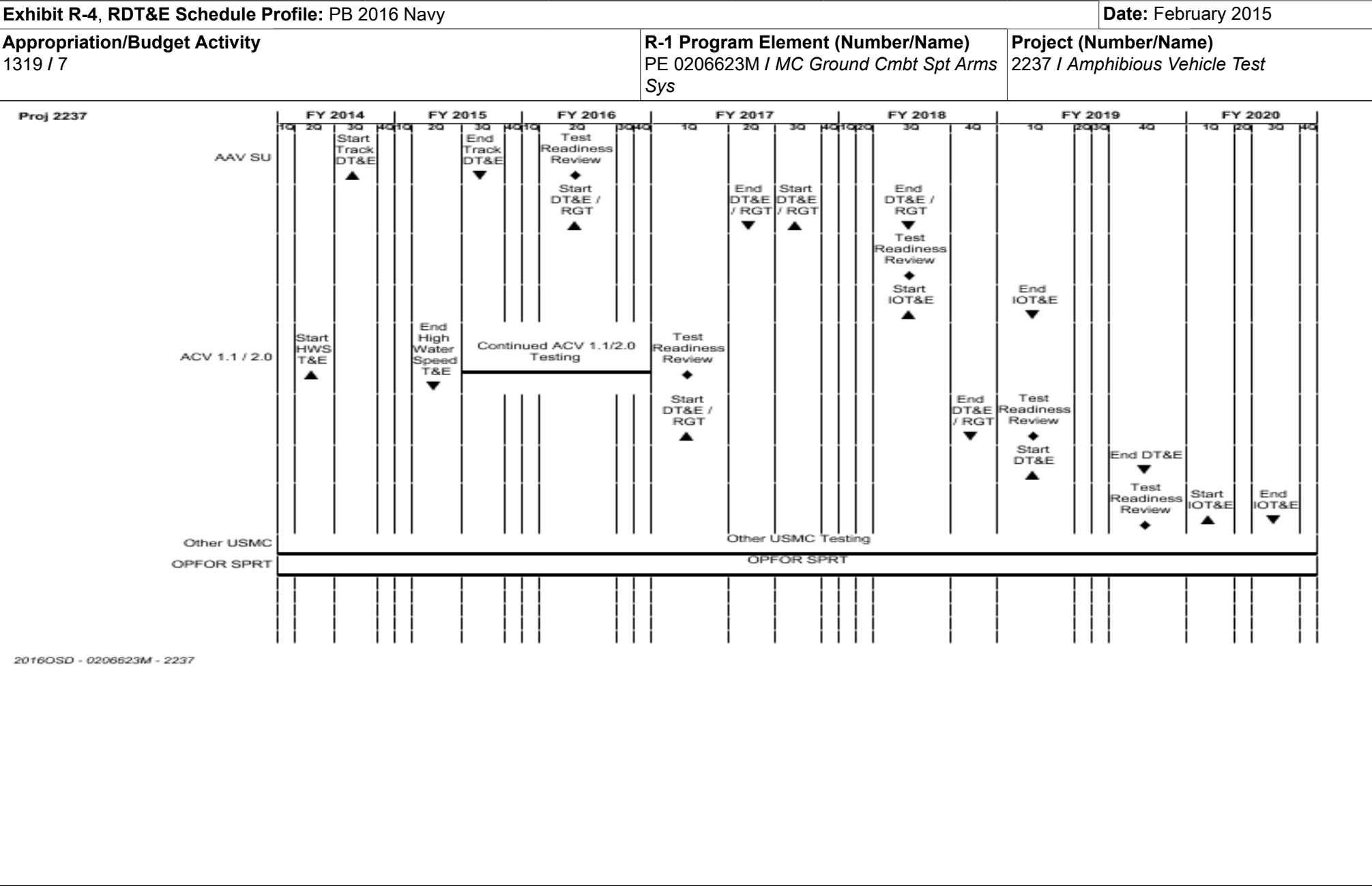
Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015		
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 2237 / Amphibious Vehicle Test				

Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Subtotal			0.138	0.386		0.521		0.429		-		0.429	-	-	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.274	2.283	0.836	0.994	-	0.994	-	-	-

Remarks

UNCLASSIFIED



UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015
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: FY14 Start Track DT&E	3	2014	3	2014
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
ACV 1.1 / 2.0: FY14 Start High Water Speed T&E	2	2014	2	2014
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

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015		
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	
		Start		End	
Events by Sub Project		Quarter	Year	Quarter	Year
ACV 1.1 / 2.0: FY20 End IOT&E		3	2020	3	2020
Other USMC: Other USMC Testing		1	2014	4	2020
OPFOR SPRT: OPFOR SPRT		1	2014	4	2020

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy									Date: February 2015			
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
2315: Training Devices/ Simulators	99.516	12.854	10.210	14.882	-	14.882	16.467	13.315	13.114	14.051	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
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, Range Modernization/Transformation (RM/T), Supporting Arms Virtual Trainer (SAVT), 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.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Combined Arms Command and Control Trainer Upgrade System (CACCTUS) 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. The increase in funding from FY15 to FY16 enables additional Software Development. FY 2014 Accomplishments: - Continued development of Distributed Ops and Virtualization. - Continued development of Live, Virtual and Constructive (LVC) training capabilities.								3.625	6.088	7.023	-	7.023
								-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Continued development of warfare specific software applications in support of Battalion Regimental staffs to Marine Expeditionary Brigade (MEB) training requirements. - Continued development of After Action Review (AAR) functionality. - Initiated and completed development of Backward Compatibility for scenario development. FY 2015 Plans: - Continue development of Distributed Ops and Virtualization. - Continue development of Live, Virtual and Constructive (LVC) training capabilities. - Continue development of warfare specific software applications in support of Battalion Regimental staffs to Marine Expeditionary Brigade (MEB) training requirements. - Continue development of After Action Review (AAR) functionality. - Initiate development of new architecture to support maturing hardware platforms FY 2016 Base Plans: - Continue development of Distributed Ops and Virtualization. - Continue development of Live, Virtual and Constructive (LVC) training capabilities. - Continue development of warfare specific software applications in support of Battalion Regimental staffs to Marine Expeditionary Brigade (MEB) training requirements. - Continue development of After Action Review (AAR) functionality. - Continue development of new architecture to support maturing hardware platforms. - Initiate additional training system interoperability to include aviation. - Initiate prototype development for shipboard training. FY 2016 OCO Plans: N/A						
Title: Deployable Virtual Training Environment (DVTE) Articles: Description: DVTE is a laptop Personal Computer (PC) based simulation system capable of emulating organic and supporting Infantry Battalion weapons systems and training scenarios to facilitate training and readiness based training. Its portable configuration allows Marines to train in areas where there are few options for training in garrison, aboard ship, at remote reserve locations, and deployed. DVTE training includes language and 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.		0.261 -	0.587 -	3.305 -	- -	3.305 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015				
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
In late FY15, DVTE becomes MAGTF Integration Plan compliant. As a result, the funding increase from FY15 to FY16 is to develop Command and Control (C2) systems (Tactical Air Control Party Green Gear modeling and Digital Fire Control System (DFCS) modeling). In addition, enhance and integrate Next generation Warfare - Intelligent Training (NEW-IT), Entities and Weapons, Comm Gear and After Action Review (AAR). FY 2014 Accomplishments: - 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 that includes improved Call For Fire (CFF) and Close Air Support (CAS) capability to replace/decrease actual live training events. FY 2015 Plans: - 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 that includes improved Call For Fire (CFF) and Close Air Support (CAS) capability to replace/decrease actual live training events. FY 2016 Base Plans: - 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 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. - Initiate action to improve Flight Dynamics of Close Air Support (CAS) weapon platforms to more accurately represent live Joint Terminal Attack Controller (JTAC) training. - Initiate enhancement and integration of Next generation Expeditionary Warfare - Intelligent Training (NEW-IT) and Entities and Weapons.							

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Initiate enhancement and integration of Comm Gear and After Action Review (AAR).						
FY 2016 OCO Plans: N/A						
Title: Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) Enhancements		2.564	1.962	2.095	-	2.095
Articles:		-	-	-	-	-
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 2014 Accomplishments:						
- Completed interoperability development of the MTWS High Level Architecture (HLA) bridge.						
- 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.						
- Initiated design/development and test of a detailed unified architecture in support U.S. Korea Command (KORCOM) interoperability.						
- Initiated server virtualization testing.						
FY 2015 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.						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Complete design/development and test of a detailed unified architecture in support U.S. Korea Command (KORCOM) interoperability. - Continue server virtualization testing. FY 2016 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. - Complete server virtualization testing. - Initiate Live, Virtual and Constructive (LVC) simulation integration. FY 2016 OCO Plans: N/A						
Title: Range Modernization/Transformation (RM/T) Articles: Description: RM/T 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. The increase from FY15 to FY16 result of buyback initiative which enables continued investment in range modernization and transformation efforts. FY 2014 Accomplishments: - Continued to perform minimum software upgrades to the Range Instrumentation Systems Exercise Controller (RISCon) and ensured integration of numerous target systems. FY 2015 Plans: N/A FY 2016 Base Plans:		0.974	-	0.992	-	0.992
		-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- 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 2016 OCO Plans: N/A						
Title: Supporting Arms Virtual Trainer (SAVT) Articles: 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. FY 2014 Accomplishments: - Completed Government Engineering Labor support for modeling and simulation for aircraft enhancements to SAVT. - Completed Government Engineering Labor support for enhancements of Digital Channel Associated Signalling (CAS) to integrate Marine organic equipment and Digital CAS providing interoperability amongst virtual training systems. - Completed SW development and upgrade to Windows 7 OS and Voice Recognition package. - Completed SAVT interoperability for the Large Scale Exercise (LSE-14) trainer proof of concept. - Completed analysis of limited technical refresh of key component replacements. - Initiated and completed contract action for SW development for new visual attributes and necessary interoperability. FY 2015 Plans: N/A FY 2016 Base Plans: N/A FY 2016 OCO Plans:		3.585 -	- -	- -	- -	- -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015	
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A					
Title: Squad Immersive Training Environment (SITE)	1.787	1.518	1.426	-	1.426
Articles:	-	-	-	-	-
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.					
FY 2014 Accomplishments: - 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. - Continued Live Core System Instrumented-Tactical Engagement Simulation System II (I-TESS II) upgrades to include One Tactical Engagement Simulation System (OneTESS) integration. - Completed capability upgrades to the Virtual Battle Space 2 (VBS2) environment for realistic After Action Review and Operations. - Initiated and completed transition of Office of Naval Research Technology Insertion Program for Savings (TIPS) project Squad Leader Decision Trainer, cost analysis activities for transition of Perceptual Training System & Tools (PercepTs), and Augmented Immersive Team Training (AITT) transition deliverables to provide immersive training capabilities with existing programs of record.					
FY 2015 Plans: - 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. - Continue to provide 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).					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015				
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Initiate 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). - Initiate transition of Office of Naval Research project Perceptual Training System & Tools (PercepTs) and complete Augmented Immersive Team Training (AITT) products and deliverables. FY 2016 Base Plans: - 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. - Continue 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). - Complete transition of Office of Naval Research (ONR) project Perceptual Training System & Tools (PercepTs) product and deliverable to PM TRASYS. - Initiate integration of Augmented Immersive Team Training (AITT) system upon completion of transition from ONR into existing programs of record. - Initiate System Training Effectiveness Evaluation Event. Decrease from FY15 to FY16 due to under execution mark per RMD700A2 INV001. FY 2016 OCO Plans: N/A							
Title: Training Support Articles: 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. FY 2014 Accomplishments:			0.058 -	0.055 -	0.041 -	- -	0.041 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy									Date: February 2015				
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Completed the development of tools that will provide Return on Investment (ROI) capability for training events. - Continued interoperability development of MAGTF Tactical Warfare Simulation (MTWS) integration to Joint Live, Virtual and Constructive (JLVC) Federation, with primary focus on amphibious landings. - Initiated server virtualization testing. FY 2015 Plans: - 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 server virtualization testing. - Initiate and complete design/development and test of a detailed unified architecture in support U.S. Korea Command (KORCOM) interoperability and amphibious landings for MTWS. FY 2016 Base Plans: - 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. FY 2016 OCO Plans: N/A													
Accomplishments/Planned Programs Subtotals									12.854	10.210	14.882	-	14.882
C. Other Program Funding Summary (\$ in Millions)													
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost		
• PMC/6532-01: Training Devices, CACCTUS	3.236	2.520	2.601	-	2.601	3.604	4.322	3.936	4.015	Continuing	Continuing		
• PMC/6532-02: Training Devices, RM/T	2.497	2.000	12.391	-	12.391	14.930	13.284	23.189	13.009	Continuing	Continuing		
• PMC/6532-03: Training Devices, DVTE	1.270	-	-	-	-	2.250	2.288	1.457	1.486	Continuing	Continuing		
• PMC/4630: Common Computer Resources, MTWS	0.578	0.546	0.718	-	0.718	0.731	0.744	0.757	0.770	Continuing	Continuing		

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy								Date: February 2015			
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			
C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2016</u>	<u>FY 2016</u>	<u>FY 2016</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Complete</u>	<u>Total Cost</u>
Remarks											
D. Acquisition Strategy											
(U) CACCTUS - Exercised option on existing contract (T&M); Work Request to Navy-NAWCTSD; and exercise task orders on new Competitive contract (C/CPFF) planned for 2nd quarter FY15.											
(U) DVTE - Exercised final option in FY14 for developmental hardware and exercise task orders off of new sole source FFP for Virtual Battleship Space (VBS) SW Dev to award in FY15.											
(U) MTWS - Exercise Option 2 on a existing Sole Source Firm Fix Price (SS/FFP). A new Competitive contract (C/CPFF) planned for 3rd quarter award in FY15.											
(U) RM/T - MIPR to the Army-PEO STRI planned for award on existing Consolidated Product-line Management Contract, Work Request to Navy-NAWCTSD, and new Army Competitive Firm Fixed Price (C/FFP) for software development.											
(U) SAVT - Work Request to Navy-NAWCTSD and leverage off of an existing Seaport-E contract.											
(U) SITE - MIPR to the Army-PEO STRI planned for award on existing Consolidated Product-line Management Contract and exercise option on existing contract (C/FFP).											
(U) Training Support - Exercise Option 2 on a existing Sole Source Firm Fix Price (SS/FFP). A new Competitive contract (C/CPFF) planned for 3rd quarter award in FY15.											
E. Performance Metrics											
N/A											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 - Option 2	C/T&M	Riptide : Oviedo, FL	0.274	2.663	Dec 2013	-		-		-		-	-	2.937	-
CACCTUS - SW Dev Task 1	C/CPFF	TBD : TBD	0.000	0.363	Mar 2015	4.366	Mar 2015	3.119	Oct 2015	-		3.119	Continuing	Continuing	Continuing
CACCTUS - SW Dev Task 2	C/CPFF	TBD : TBD	0.000	-		1.522	Jun 2015	1.000	Feb 2016	-		1.000	Continuing	Continuing	Continuing
CACCTUS - SW Dev Task 3	C/CPFF	TBD : TBD	0.000	-		-		1.143	Jun 2016	-		1.143	Continuing	Continuing	Continuing
DVTE - SW Dev - VBS	SS/FFP	Bohemia Interactive : Orlando, FL	12.450	0.261	Feb 2014	0.587	Jul 2015	3.305	Jul 2016	-		3.305	Continuing	Continuing	Continuing
MTWS - SW Dev Option 2	SS/FFP	Cole Engineering Services Inc : Orlando, FL	0.214	2.149	Mar 2014	-		-		-		-	-	2.363	-
MTWS - SW Dev	C/FFP	TBD : TBD	0.000	0.415	May 2015	1.962	May 2015	2.095	May 2016	-		2.095	Continuing	Continuing	Continuing
Training Support - MTWS SW Dev	SS/FFP	Cole Engineering Services Inc : Orlando, FL	0.058	0.056	Mar 2014	-		-		-		-	-	0.114	-
Training Support - MTWS SW Dev	C/FFP	TBD : TBD	0.000	0.002	May 2015	0.055	May 2015	0.041	May 2016	-		0.041	Continuing	Continuing	Continuing
RM/T RISCon Development	MIPR	PEOSTRI/TRADE : Orlando, FL	6.264	0.764	Feb 2014	-		0.835	Jul 2016	-		0.835	Continuing	Continuing	Continuing
RM/T - ITESS II Lab Assets	C/IDIQ	Cubic Defense : San Diego, CA	0.000	0.049	Jun 2014	-		-		-		-	-	0.049	-
SAVT - HW Upgrade Test Berth	C/FFP	T.J. Inc. : Christmas, FL	0.000	3.015	Aug 2014	-		-		-		-	-	3.015	-
SAVT - SW Dev	WR	NAWC-AD : Orlando, FL	1.007	0.005	Dec 2013	-		-		-		-	-	1.012	-
SAVT - SW Dev - Task 1	WR	NAWC-TSD : Orlando, FL	0.000	0.093	Oct 2013	-		-		-		-	-	0.093	-
SAVT - SW Dev - Task 2	WR	NAWC-TSD : Orlando, FL	0.000	0.200	Oct 2014	-		-		-		-	-	0.200	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
SAVT - SW Dev - Task 3	WR	NAWC-TSD : Orlando, FL	0.000	0.264	Feb 2015	-		-		-		-	-	0.264	-
SAVT - SW Dev	C/FFP	MCSELMS : Quantico, VA	0.000	0.008	Apr 2015	-		-		-		-	-	0.008	-
SITE - Material Solution Anlaysia	C/CPFF	Bohemia : Orlando, FL	1.331	0.415	Nov 2013	-		-		-		-	-	1.746	-
SITE - Live Core System Upgrades	C/FFP	Cubic Defense : San Diego, CA	1.237	0.146	Jan 2015	0.634	Jan 2015	0.832	Jan 2016	-		0.832	Continuing	Continuing	Continuing
SITE - Consolidated Product Line Dev	MIPR	PEOSTRI/TRADE : Orlando, FL	0.000	0.864	Feb 2014	0.191	Jul 2015	0.500	Jul 2016	-		0.500	Continuing	Continuing	Continuing
Prior Year Cumulative Funding	Various	Not Specified : Not Specified	59.673	-		-		-		-		-	-	59.673	-
Subtotal			82.508	11.732		9.317		12.870		-		12.870	-	-	-
Remarks															
- CACCTUS - SW Dev - The New Competitive contract to award 2nd quarter FY15. - MTWS - SW Dev - New Competitive contract projected to award in 3rd quarter FY15. - Training Support - MTWS SW Dev - New Competitive contract projected to award in 3rd quarter FY15.															
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 - Joint Simulation Bus (JBUS)	MIPR	Defense Technical Information Center : Ft Belvoir, VA	0.000	0.032	May 2014	-		-		-		-	-	0.032	-
CACCTUS - SW Dev Support	WR	NAWCTSD : Orlando, FL	1.940	0.528	Oct 2013	0.200	Oct 2014	1.761	Oct 2015	-		1.761	Continuing	Continuing	Continuing
CACCTUS - CEOSS Support	C/FFP	URS : Germantown, MD	0.585	0.039	Jun 2014	-		-		-		-	-	0.624	-
RM/T - SW Dev Support	WR	NAWCTSD : Orlando, FL	0.641	0.161	Feb 2014	-		0.157	Oct 2015	-		0.157	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
SITE - SW Dev Support	WR	NAWCTSD : Orlando, FL	0.000	0.129	Feb 2014	0.521	Jan 2015	0.094	Oct 2015	-		0.094	Continuing	Continuing	Continuing
SITE - CEOSS Support	C/FFP	URS : Germantown, MD	1.113	0.210	Jun 2014	-		-		-		-	-	1.323	-
SITE - Navy Support	WR	NSWC Corona : Corona, CA	0.000	-		0.172	Jan 2015	-		-		-	-	0.172	-
SITE - Travel	Various	DTS : Various	0.000	0.023	Sep 2015	-		-		-		-	-	0.023	-
Prior Year Cumulative Funding	Various	Not Specified : Not Specified	12.727	-		-		-		-		-	-	12.727	-
Subtotal			17.006	1.122		0.893		2.012		-		2.012	-	-	-
Remarks															
- MTWS MIPR to CECOM is no longer required in FY 15. High Level Architecture (HLA) software development (SW Dev) was previously supported by CECOM on their MITRE contract. This effort has transitioned into Post Deployment Software Support (PDSS) which will go on the new MTWS competitive contract under the Product Development category.															
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	Not Specified : Not Specified	0.002	-		-		-		-		-	-	0.002	-
Subtotal			0.002	-		-		-		-		-	-	0.002	-
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			99.516	12.854		10.210		14.882		-		14.882	-	-	-
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy																Date: February 2015												
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								
Combined Arms Command & Control Training Upgrade System (CACCTUS)	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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																												
Software Development Reviews																												
Development Contract Awards	◆					◆	◆			◆	◆	◆			◆	◆	◆			◆	◆	◆			◆	◆	◆	
Annual SW Release	◆							◆				◆				◆				◆				◆				◆
Test and Validation, All Sites			◆				◆				◆				◆				◆			◆					◆	
Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release		◆				◆				◆				◆				◆			◆					◆		
Full Operating Capability (FOC) Combined																						■						
2016PB - 0206623M - 2315																												

UNCLASSIFIED

PE 0206623M: MC Ground Cmbt Spt Arms Sys
Navy

R-1 Line #198

Project (Number/Name)	2315 / <i>Training Devices/Simulators</i>
------------------------------	---

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy

Date: February 2015

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

Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS)	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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 3.4.6 SW																												
User Acceptance Testing	◆																											
SW Release	◆																											
Version 3.5.1 SW																												
User Acceptance Testing				◆																								
SW Release					◆																							
Version 3.5.2 SW																												
User Acceptance Testing								◆																				
SW Release									◆																			
Version 3.5.3 SW																												
User Acceptance Testing											◆																	
SW Release												◆																
Version 3.5.4 SW																												
User Acceptance Testing																◆												
SW Release																	◆											
Version 3.5.5 SW																												
User Acceptance Testing																			◆									
SW Release																				◆								
Version 3.5.6 SW																												
User Acceptance Testing																							◆					
SW Release																								◆				
Version 3.5.7 SW																												
User Acceptance Testing																											◆	

2016PB - 0206623M - 2315

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy																							Date: February 2015					
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							
Range Modernization/Transformation (RMT)	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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																												
2016PB - 0206623M - 2315																												

UNCLASSIFIED

PE 0206623M: MC Ground Cmbt Spt Arms Sys
Navy

R-1 Line #198

Project (Number/Name)	2315 / <i>Training Devices/Simulators</i>
------------------------------	---

UNCLASSIFIED

PE 0206623M: MC Ground Cmbt Spt Arms Sys
Navy

R-1 Line #198

R-1 Program Element (Number/Name)
PE 0206623M / MC Ground Cmbt Spt Arms
Sys

Page 77 of 131

UNCLASSIFIED

PE 0206623M: MC *Ground Cmbt Spt Arms Sys*
Navy

R-1 Line #198

R-1 Program Element (Number/Name)
PE 0206623M / MC Ground Cmbt Spt Arms
Sys

Project (Number/Name)	2315 / <i>Training Devices/Simulators</i>
------------------------------	---

[illegible]

UNCLASSIFIED

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

Date: February 2015

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

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	2014	4	2020
Software Development Reviews: Software Development Reviews	1	2014	4	2020
Development Contract Awards: FY14 Award	1	2014	1	2014
Development Contract Awards: FY15 Award 1	2	2015	2	2015
Development Contract Awards: FY15 Award 2	3	2015	3	2015
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	3	2016	3	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	3	2017	3	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	3	2018	3	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	3	2019	3	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	3	2020	3	2020
Annual SW Release: Annual SW Release 2014	1	2014	1	2014

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015	
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	
	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
Annual SW Release: Annual SW Release 2015	4	2015	4	2015
Annual SW Release: Annual SW Release 2016	4	2016	4	2016
Annual SW Release: Annual SW Release 2017	4	2017	4	2017
Annual SW Release: Annual SW Release 2018	4	2018	4	2018
Annual SW Release: Annual SW Release 2019	4	2019	4	2019
Annual SW Release: Annual SW Release 2020	4	2020	4	2020
Test and Validation, All Sites: Test and Validation, All Sites 2014	3	2014	3	2014
Test and Validation, All Sites: Test and Validation, All Sites 2015	3	2015	3	2015
Test and Validation, All Sites: Test and Validation, All Sites 2016	3	2016	3	2016
Test and Validation, All Sites: Test and Validation, All Sites 2017	3	2017	3	2017
Test and Validation, All Sites: Test and Validation, All Sites 2018	3	2018	3	2018
Test and Validation, All Sites: Test and Validation, All Sites 2019	3	2019	3	2019
Test and Validation, All Sites: Test and Validation, All Sites 2020	3	2020	3	2020
Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release: Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release 2014	2	2014	2	2014
Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release: Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release 2015	2	2015	2	2015
Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release: Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release 2016	2	2016	2	2016
Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release: Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release 2017	2	2017	2	2017
Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release: Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release 2018	2	2018	2	2018
Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release: Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release 2019	2	2019	2	2019
Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release: Information Assurance Vulnerability Assessment (IAVA)/Mid Year Release 2020	2	2020	2	2020

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015	
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		
	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
Full Operating Capability (FOC) Combined: Full Operating Capability (FOC) Combined	4	2018	4	2018
Deployable Virtual Training Environment (DVTE)				
Software Development Version Release - VBS: Software Development Version Release - VBS (2014)	2	2014	2	2014
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
Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS)				
MTWS IPT/CCB: MTWS IPT/CCB	1	2014	1	2014
MTWS IPT/CCB: MTWS IPT/CCB 2015	2	2015	2	2015
MTWS IPT/CCB: MTWS IPT/CCB 2016	1	2016	1	2016
MTWS IPT/CCB: MTWS IPT/CCB 2017	1	2017	1	2017
MTWS IPT/CCB: MTWS IPT/CCB 2018	1	2018	1	2018
MTWS IPT/CCB: MTWS IPT/CCB 2019	1	2019	1	2019
MTWS IPT/CCB: MTWS IPT/CCB 2020	1	2020	1	2020
Contract Award: Contract Award 2014	3	2014	3	2014
Contract Award: Contract Award 2015	3	2015	3	2015
Contract Award: Contract Award 2016	3	2016	3	2016

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015	
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	
	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
Contract Award: Contract Award 2017	3	2017	3	2017
Contract Award: Contract Award 2018	3	2018	3	2018
Contract Award: Contract Award 2019	3	2019	3	2019
Contract Award: Contract Award 2020	3	2020	3	2020
Version 3.4.6 SW: User Acceptance Testing: User Acceptance Testing	1	2014	1	2014
Version 3.4.6 SW: SW Release: SW Release	1	2014	1	2014
Version 3.5.1 SW: User Acceptance Testing: User Acceptance Testing	4	2014	4	2014
Version 3.5.1 SW: SW Release: SW Release	1	2015	1	2015
Version 3.5.2 SW: User Acceptance Testing: User Acceptance Testing	4	2015	4	2015
Version 3.5.2 SW: SW Release: SW Release	1	2016	1	2016
Version 3.5.3 SW: User Acceptance Testing: User Acceptance Testing	4	2016	4	2016
Version 3.5.3 SW: SW Release: SW Release	1	2017	1	2017
Version 3.5.4 SW: User Acceptance Testing: User Acceptance Testing	4	2017	4	2017
Version 3.5.4 SW: SW Release: SW Release	1	2018	1	2018
Version 3.5.5 SW: User Acceptance Testing: User Acceptance Testing	4	2018	4	2018
Version 3.5.5 SW: SW Release: SW Release	1	2019	1	2019
Version 3.5.6 SW: User Acceptance Testing: User Acceptance Testing	4	2019	4	2019
Version 3.5.6 SW: SW Release: SW Release	1	2020	1	2020
Version 3.5.7 SW: User Acceptance Testing: User Acceptance Testing	4	2020	4	2020
Range Modernization/Transformation (RMT)				
RISCon Development: RISCon Development	2	2014	2	2014
Contract Award: Contract Award (2016)	4	2016	4	2016
Contract Award: Contract Award (2017)	4	2017	4	2017
Contract Award: Contract Award (2018)	4	2018	4	2018
Contract Award: Contract Award (2019)	4	2019	4	2019

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015	
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	
	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
Contract Award: Contract Award (2020)	4	2020	4	2020
Systems Integration: Systems Integration	1	2016	4	2020
Supporting Arms Virtual Trainer (SAVT)				
Govt Engineering Labor: Govt Engineering Labor	1	2014	4	2015
SW Development Contract Award: Upgrade Test Berth & First Article	4	2014	4	2014
SW Development Contract Award: SW Development	1	2015	1	2015
Squad Immersive Training Environment (SITE)				
Program Contractor Support: Program Contractor Support	1	2014	4	2015
Virtual System Upgrade Deliverables: Virtual System Upgrade Deliverables	1	2014	4	2015
Live Systems Upgrade Contract Awards: Live Systems Upgrade Contract Awards (2014)	4	2014	4	2014
Live Systems Upgrade Contract Awards: Live Systems Upgrade Contract Awards (2015)	2	2015	2	2015
Live Systems Upgrade Contract Awards: Live Systems Upgrade Contract Awards (2016)	2	2016	2	2016
Live Systems Upgrade Contract Awards: Live Systems Upgrade Contract Awards (2017)	2	2017	2	2017
Live Systems Upgrade Contract Awards: Live Systems Upgrade Contract Awards (2018)	2	2018	2	2018
Live Systems Upgrade Contract Awards: Live Systems Upgrade Contract Awards (2019)	2	2019	2	2019
Live Systems Upgrade Contract Awards: Live Systems Upgrade Contract Awards (2020)	2	2020	2	2020
Consolidated Product Management: Consolidated Product Management	2	2014	4	2020
Training Support				
Annual Software Release: Version 3.4.6	1	2014	1	2014
Annual Software Release: Version 3.5.1	1	2015	1	2015

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy **Date:** February 2015

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
--	---	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Annual Software Release: Version 3.5.2	1	2016	1	2016
Annual Software Release: Version 3.5.3	1	2017	1	2017
Annual Software Release: Version 3.5.4	1	2018	1	2018
Annual Software Release: Version 3.5.5	1	2019	1	2019
Annual Software Release: Version 3.5.6	1	2020	1	2020
Contract Awards: FY14 Award	2	2014	2	2014
Contract Awards: FY15 Award	3	2015	3	2015
Contract Awards: FY16 Award	3	2016	3	2016
Contract Awards: FY17 Award	3	2017	3	2017
Contract Awards: FY18 Award	3	2018	3	2018
Contract Awards: FY19 Award	3	2019	3	2019
Contract Awards: FY20 Award	3	2020	3	2020

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
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			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
2503: Initial Issue	37.833	8.227	5.498	4.050	-	4.050	4.482	4.018	4.554	4.423	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The Family of Combat Equipment Support and Services provides research, development, test and evaluation on low cost items with an emphasis on non-developmental/ commercially 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 Procurement Marine Corps and the Operation and Maintenance Marine Corps accounts for Individual Combat Equipment, Medical Equipment, Shelters and Combat Field Feeding Systems. The focus is to provide state of the art combat equipment (e.g. lightweight helmet, sleeping bags, load bearing systems, etc.), 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 Family of Combat Field Feeding Systems (technology insertion for the Expeditionary Field Kitchen (EFK), Modernized Tray Ration Heating System. etc.). 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 decrease in funding from FY15 to FY16 reflects rephasing of development funds to better align with the program development schedule.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: *Clothing and Flame Resistant Organizational Gear (CFROG) Articles: FY 2014 Accomplishments: -Continued to test and evaluate emerging Marine Corps Uniform Board (MCUB) and CMC uniform initiatives. -Continued fabric improvement efforts leveraging advanced technologies in uniform durability, design, and test footwear. -Initiated Flame and Footwear research, development and testing for the tropical boot and Male Dress Cap. FY 2015 Plans: -Continue to test and evaluate emerging Marine Corps Uniform Board (MCUB) and CMC uniform initiatives. -Continue fabric improvement efforts leveraging advanced technologies in uniform durability, design, and test footwear. -Continue Flame and Footwear research, development and testing for the tropical boot and Male Dress Cap. FY 2016 Base Plans:								0.836	0.664	0.670	-	0.670
								-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Continue to test and evaluate emerging Marine Corps Uniform Board (MCUB) and CMC uniform initiatives. -Continue fabric improvement efforts leveraging advanced technologies in uniform durability, design, and test footwear. -Continue Flame and Footwear research, development and testing for the tropical boot and Male Dress Cap. FY 2016 OCO Plans: N/A						
Title: *Family of Mountain Cold Weather Clothing & Equipment (FMCWCE) Articles: FY 2014 Accomplishments: -Continued research and development of the current industry technology to further increase existing equipment effectiveness while lightening the load of the individual Marine in both weight and volume. -Continued to further research, develop, and evaluate reduced load while increasing insulation values of Desert and Woodland Fleece, Cold Weather Gloves, and Extreme Cold Weather Boots. -Initiated the development of the Marine Corps Cold Weather Infantry Kit and over the snow mobility in both snowshoes, skis, and sleds and Three Season Sleep System. FY 2015 Plans: -Continue the research and development of industry technology to further increase existing equipment effectiveness while lightening the load of the individual Marine in both weight and volume. -Continue to further research, develop, and evaluate reduced load while increasing insulation values of Desert and Woodland Fleece, Extreme Cold Weather Parkas, and Extreme Cold Weather Boots. -Continue research in equipment technology advances which drive the development of the Marine Assault Climbers Kit (MACK) to effectively and safely negotiate horizontal and vertical obstacles. -Continue the development of the Marine Corps Cold Weather Infantry Kit (MCCWIK) and over the snow mobility in both skis and sleds. FY 2016 Base Plans: -Continue equipment technology advances which will drive the development of the Marine Assault Climbers Kit (MACK) to effectively and safely negotiate horizontal and vertical obstacles. -Continue the development of the Marine Corps Cold Weather Infantry Kit (MCCWIK) and over the snow mobility in both skis and sleds. FY 2016 OCO Plans:		1.187	0.930	0.092	-	0.092
		-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A						
Title: *Family of Improved Load Bearing Equipment		0.035	0.308	0.298	-	0.298
Articles:		-	-	-	-	-
FY 2014 Accomplishments:						
-Continued product improvements and advanced technology for the Family of Improved Load Bearing Systems.						
-Continued research, development and evaluation for Block II Individual Water Purification System (IWPS).						
FY 2015 Plans:						
-Continue to explore product improvements and advanced technology for the Family of Improved Load Bearing Systems.						
-Continue research, development and evaluation of Individual Water Purification System (IWPS) de-salinization effort.						
FY 2016 Base Plans:						
-Continue to explore product improvements and advanced technology for the Family of Improved Load Bearing Systems.						
-Continue research, development and evaluation of Individual Water Purification System (IWPS) de-salinization effort.						
FY 2016 OCO Plans:						
N/A						
Title: *Family of Individual Warfighter Equipment (formerly Combat Support Equipment)		0.029	0.105	0.001	-	0.001
Articles:		-	-	-	-	-
FY 2014 Accomplishments:						
-Continued to explore the industry's development of technological advances in Mechanical Breachers Kit and Waterproof Bags for USMC Pack.						
-Continued to test and evaluate to ensure operational effectiveness of the IWE components.						
-Continued the modernization of existing programs through Minor Modification, leveraging the technological advances of industry.						
FY 2015 Plans:						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015			
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		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Continue to explore industry's development of technological advances in Mechanical Breachers Kit and Waterproof Bags for USMC Pack. Continue to test and evaluate to ensure operational effectiveness of the IWE components. -Continue the modernization of existing programs through Minor Modification, leveraging the technological advances of industry. FY 2016 Base Plans: - Continue to test and evaluate to ensure operational effectiveness of the IWE components. FY 2016 OCO Plans: N/A						
Title: *Family of Field Medical Equipment Articles: FY 2014 Accomplishments: -Continued to test Commercial-Off-The-Shelf/Non-developmental (COTS/NOI) medical equipment items for the Enroute Care System, Forward Resuscitative Surgical System to determine future viability in an operational environment. -Continued testing of medical equipment items to evaluate their 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. -Completed Research and Development Studies on the application of Freeze Dried Pooled Plasma within the USMC Health Service Support organization. -Continued collaborative testing with Army for patient movement research. -Continued development of Plasma Sterilizer with Naval Medical Research Unit San Antonio (NAMRUSA). FY 2015 Plans: -Continue to test Commercial-Off-The-Shelf/Non-developmental (COTS/NOI) medical equipment items for the Enroute Care System, Forward Resuscitative Surgical System, and X-ray equipment to determine future viability in an operational environment. -Continue testing of medical equipment items to evaluate their functionality and ability to improve the quality of healthcare provided to the warfighter and reduce the logistics footprint of USMC medical equipment. -Continue testing for possible application technology for insertion.		2.901 -	2.467 -	2.437 -	- -	2.437 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Initiate collaborative development efforts with other services on the Autonomous Critical Care System. FY 2016 Base Plans: -Continue to test Commercial-Off-The-Shelf/Non-developmental (COTS/NOI) medical equipment items for the Enroute Care System and Forward Resuscitative Surgical System to determine future viability in an operational environment. -Continue testing of medical equipment items to evaluate their functionality and ability to improve the quality of healthcare provided to the warfighter and reduce the logistics footprint of USMC medical equipment. -Continue testing for possible application technology for insertion. -Continue collaborative development efforts with other services on the Autonomous Critical Care System. -Continue collaborative testing with Army for patient movement research. -Continue development of Plasma Sterilizer with NAMRUSA. FY 2016 OCO Plans: N/A						
Title: *Family of Shelters and Shelter Equipment (FSSE) Articles:		2.413	0.560	0.180	-	0.180
FY 2014 Accomplishments: - Completed testing of energy efficient LED lighting technologies for shelters and shelters equipment. - Initiated contract award for testing of energy efficient technologies for new composite materials for rigid wall shelters and energy efficient field heating systems. - Initiated contract award to develop and test next generation heating system for soft walled shelters. FY 2015 Plans: - Complete testing of energy efficient technologies for new composite materials for rigid wall shelters and energy efficient field heating systems. - Complete testing of next generation heaters for the Arctic Shelter and compatibility with soft wall shelters in inventory. - Continue enhancing energy efficient technologies for shelters, lighting and shelter equipment; develop energy efficient Engineering Change Proposals (ECP) for FSSE. The current inventory of general purpose medium tents is adequate to meet mission requirements. FY 2016 Base Plans: - Complete design of next generation heating system for soft walled shelters.		-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
- Initiate development of energy efficient ECP's for FSSE.						
FY 2016 OCO Plans: N/A						
Title: *Family of Combat Field Feeding		0.826	0.464	0.372	-	0.372
Articles:		-	-	-	-	-
FY 2014 Accomplishments: - Initiated testing of alternative rechargeable/regenerative energy sources for field feeding systems in preparation for replacement of Tray Ration Heating System (TRHS) rendered obsolete by the up -armoring of tactical vehicles. Tested thermoelectric generator energy capture systems in Tray Ration Heating Systems. - Initiated testing of alternative burners for use in combat field feeding solutions with the goal of reduced life cycle cost and mitigation of sole source burner provider. - Completed testing of Riello burners in field feeding systems. - Initiated design of sanitation capability for the Enhanced Tray Ration Heating System (E-TRHS).						
FY 2015 Plans: - Continue testing options to reduce the footprint size of the current Tray Ration Heater System. - Continue testing of alternative energy sources (burners) for use in future systems negating the requirement for vehicle power to heat rations on the-move. - Continue testing of technological improvements for use in the family of combat field feeding systems. - Complete design activities for the E-TRHSS sanitation capability.						
FY 2016 Base Plans: - Complete testing of alternative energy sources and initiate design of Modernized Tray Ration Heating System (M-TRHS) to replace current TRHS rendered obsolete by up-armoring of tactical vehicles. This enhanced capability will allow Commanders to continue to provide hot meals to warfighters throughout tactical operations.						
FY 2016 OCO Plans: N/A						
Accomplishments/Planned Programs Subtotals		8.227	5.498	4.050	-	4.050

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015	
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			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• PMC/6522-01: Field Medical Equipment	25.796	-	-	-	-	-	-	-	-	-	112.405
• PMC/6613: Combat Field Feeding System	1.652	-	-	-	-	-	-	-	-	-	45.563
• PMC/6522-02: Family of Shelters & Shelter Equipment	1.586	-	-	-	-	-	-	-	-	-	42.262
Remarks											
D. Acquisition Strategy											
Family of Mountain Cold Weather Clothing and Equipment, Family of Improved Load Bearing Equipment, Family of Individual Warfighter Equipment, Clothing and Flame Resistant Organizational Gear, 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 Quantities.											
Shelters: The Shelter acquisition strategy is to modify Non-Developmental Items (NDI) to further meet the requirements of the Marine Corps, to support development of multi-service items through inter-service agreements and to adopt Commercial-Off-the-Shelf (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 Non-Developmental Items (NDI) and adopt Commercial-Off-the-Shelf (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 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 Quantities.											
E. Performance Metrics											
N/A											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Combat Field Feeding Systems	WR	NSWC PCD : Panama City, FL	0.000	0.547	Aug 2014	-		-		-		-	-	0.547	-
Family of Shelters and Shelter Equipment	MIPR	USA NSRDEC : Natick, MA	0.000	0.500	May 2014	-		-		-		-	-	0.500	-
Prior Year Cumulative Funding	Various	Various : Various	8.006	-		-		-		-		-	-	8.006	-
Family of Shelters and Shelters Equipment	WR	NSWC PCD : Panama City, FL	0.000	1.457	May 2014	-		-		-		-	-	1.457	-
Family of Field Medical	WR	NAMRUSA : San Antonia, TX	0.000	0.500	Sep 2014	-		0.509	Jan 2016	-		0.509	-	1.009	-
Family of Field Medical	MIPR	USAARL : Ft Rucker, AL	0.000	-		-		0.700	Mar 2016	-		0.700	-	0.700	-
Improved Load Bearing Equipment	MIPR	USA NSRDEC : Natick, MA	3.333	0.035	Dec 2014	0.308	Jan 2015	0.298	Jan 2016	-		0.298	Continuing	Continuing	Continuing
Family of Mountain Cold Weather	MIPR	USA NSRDEC : Natick, MA	4.535	0.192	Jan 2014	-		-		-		-	Continuing	Continuing	Continuing
Family of Combat Field Feeding Systems	MIPR	USA NSRDEC : Natick, MA	2.207	-		0.214	Feb 2015	0.070	Jan 2016	-		0.070	Continuing	Continuing	Continuing
Family Individual Warfighter Equipment	MIPR	USA NSRDEC : Natick, MA	0.323	0.029	Sep 2014	-		-		-		-	Continuing	Continuing	Continuing
Clothing & FR Organizational Gear	MIPR	USA NSRDEC : Natick, MA	3.714	0.412	Sep 2014	0.477	Feb 2015	0.481	Jun 2016	-		0.481	Continuing	Continuing	Continuing
Family of Field Medical	MIPR	AFMESA : Ft. Detrick, MD	0.000	-		-		0.030	Jan 2016	-		0.030	-	0.030	-
Subtotal			22.118	3.672		0.999		2.088		-		2.088	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	1.096	-		-		-		-		-	-	1.096	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Subtotal			1.096	-		-		-		-		-	-	1.096	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Individual Warfighter Equipment	C/FP	MCSC : Quantico, VA	0.013	-		-		-		-		-	-	0.013	-
Family of Combat Field Feeding	MIPR	USA NSRDEC : Natick, MA	0.296	0.279	Mar 2014	0.250	Jan 2015	0.302	Mar 2016	-		0.302	-	1.127	-
Clothing & FR Organizational Gear	MIPR	USA NSRDEC : Natick, MA	0.000	0.301	Sep 2014	0.187	Feb 2015	0.189	Jun 2016	-		0.189	-	0.677	-
Family of Shelter and Shelter Equipment	TBD	TBD : TBD	0.000	-		0.100	Mar 2015	-		-		-	-	0.100	-
Prior Year Cumulative Funding	Various	Various : Various	7.565	-		-		-		-		-	-	7.565	-
Family of Field Medical	WR	NMRC : Silver Spring, MD	0.000	0.093	Jul 2014	-		-		-		-	-	0.093	-
Family of Field Medical	MIPR	USAARL : Ft. Rucker, AL	0.000	0.574	Feb 2014	0.454	Dec 2014	0.250	Jun 2016	-		0.250	-	1.278	-
Family of Field Medical	MIPR	USA NSRDEC : Natick, MA	0.000	1.383	Sep 2014	-		-		-		-	-	1.383	-
Family of Shelters & Shelter Equipment	MIPR	USA NSRDEC : Natick, MA	0.000	0.456	Sep 2014	0.460	Dec 2014	0.180	Mar 2016	-		0.180	-	1.096	-
Family of Mountain Cold Weather	MIPR	USA NSRDEC : Natick, MA	0.000	0.555	Sep 2014	0.930	Jan 2015	0.092	Mar 2016	-		0.092	Continuing	Continuing	Continuing
Family of Mountain Cold Weather	MIPR	AFRL/MILTECH : Wright Patterson, OH	0.000	0.125	Jan 2014	-		-		-		-	Continuing	Continuing	Continuing
Family of Field Medical	WR	NAMRUSA : San Antonio, TX	0.000	0.351	Jan 2014	-		0.748	Feb 2016	-		0.748	-	1.099	-
Family of Field Medical	WR	NHRC : San Diego, CA	0.000	-		1.500	Feb 2015	-		-		-	-	1.500	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Field Medical	MIPR	AFMESA : Ft. Detrick, MD	0.000	-		-		0.200	Jan 2016	-		0.200	-	0.200	-
Subtotal			7.874	4.117		3.881		1.961		-		1.961	-	-	-
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	1.850	-		-		-		-		-	-	1.850	-
Family of Field Medical	MIPR	USAARL : Ft. Rucker, AL	0.000	-		0.513	Feb 2015	-		-		-	-	0.513	-
Family of Mountain Cold Weather	MIPR	USA NSRDEC : Natick, MA	2.906	0.315	Sep 2014	-		-		-		-	Continuing	Continuing	Continuing
Family of Individual Warfighter Equipment	C/FP	MCSC : Quantico, VA	0.373	-		0.105	Jul 2015	0.001	Jul 2016	-		0.001	-	0.479	-
Clothing & FR Organizational Gear	MIPR	USA NSRDEC : Natick, MA	1.616	0.123	Sep 2014	-		-		-		-	Continuing	Continuing	Continuing
Subtotal			6.745	0.438		0.618		0.001		-		0.001	-	-	-
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			37.833	8.227		5.498		4.050		-		4.050	-	-	-
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy

Date: February 2015

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

InFantry Combat Equipment (ICE)	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Clothing and Flame Resistant Organizational Gear (CFROG)																												
Navy Natick Testing Effort Support																												
Lab Testing																												
Shade Lab Testing																												
Uniform Testing																												
Footwear Testing																												
Flame Testing																												
Family of Improved Load Bearing Equipment (FILBE)																												
Air Force REsearch Laboratory (AFRL)																												
Family of Individual Warfighter Equipment (FIWE)																												
Natick Lab Testing																												
Family of Mountain Cold Weather Clothing and Equipment Program (MCWCEP)																												
Natick Testing Effort Support																												
Lab Testing																												
Extreme Cold Weather Boot																												
Mountain Cold Weather Infantry Kit (MCWIK)																												
Marine Assault Climbers Kit																												
Skii and Sled System																												

2016DON - 0206623M - 2503

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015
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
<i>InFantry Combat Equipment (ICE)</i>				
Clothing and Flame Resistant Organizational Gear (CFROG): Navy Natick Testing Effort Support: Navy Natick Testing Effort Support	2	2015	1	2016
Clothing and Flame Resistant Organizational Gear (CFROG): Shade Lab Testing:	2	2015	4	2015
Clothing and Flame Resistant Organizational Gear (CFROG): Uniform Testing:	2	2015	4	2015
Clothing and Flame Resistant Organizational Gear (CFROG): Footwear Testing:	2	2015	4	2015
Clothing and Flame Resistant Organizational Gear (CFROG): Flame Testing:	1	2015	4	2015
Family of Improved Load Bearing Equipment (FILBE): Air Force Research Laboratory (AFRL):	2	2015	1	2017
Family of Individual Warfighter Equipment (FIWE): Natick Lab Testing:	4	2015	1	2017
Family of Mountain Cold Weather Clothing and Equipment Program (MCWCEP): Natick Testing Effort Support: Lab Testing	2	2015	1	2016
Family of Mountain Cold Weather Clothing and Equipment Program (MCWCEP): Extreme Cold Weather Boot:	1	2015	1	2015
Family of Mountain Cold Weather Clothing and Equipment Program (MCWCEP): Mountain Cold Weather Infantry Kit (MCWIK):	1	2015	1	2015
Family of Mountain Cold Weather Clothing and Equipment Program (MCWCEP): Marine Assault Climbers Kit:	1	2015	4	2015
Family of Mountain Cold Weather Clothing and Equipment Program (MCWCEP): Ski and Sled System:	1	2015	4	2018

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
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			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
2513: Body Armor	39.571	5.529	3.431	3.160	-	3.160	3.812	4.733	4.684	4.771	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.												
A. Mission Description and Budget Item Justification Body Armor Development (BAD) provides the most technologically advanced ballistics protection at the lightest weight 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, BAD 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. The major focus of all of the BAD programs is to address emergent threats on the battlefield; BAD equipment must constantly adapt to combat these new threats. BAD programs are truly a force multiplier on the battlefield of today and tomorrow. It includes Modular Scalable Vest (MSV), Enhanced Small Arms Protective Inserts (ESAPI), Helmet, and Eye Protection.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Body Armor Development Articles:								5.529	3.431	3.160	-	3.160
								-	-	-	-	-
FY 2014 Accomplishments: -Continued to develop the Headborne and Modular Scalable Vest (MSV) systems to increase the survivability, lethality and mobility of the individual Marine. -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. -Completed hard armor development for the Enhanced Capability Helmet. FY 2015 Plans: -Continue to develop the Headborne and Modular Scalable Vest (MSV) systems to increase the survivability, lethality and mobility of the individual Marine. -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. FY 2016 Base Plans: -Continue to develop the Headborne, Modular Scalable Vest (MSV) systems and Hard Armor Systems to increase the survivability, lethality and mobility of the individual Marine.												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015	
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	

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-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.					
FY 2016 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	5.529	3.431	3.160	-	3.160

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• OMMC/ 1A1A: Operational Forces	24.637	17.957	-	-	-	-	-	-	-	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
Marine Corps Body Armor 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 material technologies to reduce total ownership costs by improving the expected service life of fielded systems. In order to accomplish these goals, PdM-Infantry Combat Equipment (ICE) 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											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Ballistic Protection	MIPR	USA NSRDEC : Natick, MA	8.168	0.532	Jul 2014	-		0.240	Apr 2016	-		0.240	Continuing	Continuing	Continuing
Family of Ballistic Protection	C/FFP	NRL : Washington DC	16.138	-		0.498	Mar 2015	0.297	Sep 2016	-		0.297	-	16.933	-
Family of Ballistic Protection	MIPR	NCTRF : Natick MA	0.856	0.172	Apr 2014	-		-		-		-	Continuing	Continuing	Continuing
Family of Ballistic Protection	C/FFP	CERADYNE : Costa Mesa, CA	0.445	1.548	Oct 2014	-		1.000	Aug 2016	-		1.000	-	2.993	-
Family of Ballistic Protection	MIPR	AFRL/MILTECH : Wright Patterson,OH	1.822	1.470	Aug 2014	0.980	Mar 2015	1.000	Aug 2016	-		1.000	-	5.272	-
Prior Year Cumulative Funding	Various	Various : Various	0.370	-		-		-		-		-	-	0.370	-
Family of Ballistic Protection	WR	USN NCTRF : Natick, MA	0.000	0.172	Jun 2014	0.126	Jan 2015	0.130	Jun 2016	-		0.130	-	0.428	-
Subtotal			27.799	3.894		1.604		2.667		-		2.667	-	-	-
Remarks															
Revised FY14 Product Development to reflect actual Product Development efforts. Refined FY15 Product Development to accurately reflect Future year tasks.															
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Ballistic Protection	MIPR	USA NSRDEC : Natick, MA	7.262	0.118	Feb 2015	0.387	Feb 2015	-		-		-	-	7.767	-
Prior Year Cumulative Funding	Various	Various : Various	3.296	-		-		-		-		-	-	3.296	-
Family of Ballistic Protection	MIPR	USA ATC : Aberdeen Prv Grnd, MD	0.378	0.080	Sep 2014	-		-		-		-	-	0.458	-
Family of Ballistic Protection	MIPR	AFRL : Wright Patterson, OH	0.340	-		-		0.293	Aug 2016	-		0.293	-	0.633	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy													Date: February 2015		
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					

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Ballistic Protection	WR	NRL : Washington, DC	0.431	1.140	Sep 2014	1.440	Feb 2015	0.200	Sep 2016	-		0.200	-	3.211	-
Family of Ballistic Protection	WR	NSWC : Dahlgren, VA	0.065	0.297	Jul 2014	-		-		-		-	-	0.362	-
Subtotal			11.772	1.635		1.827		0.493		-		0.493	-	15.727	-

Remarks
 Revised FY14 Test and Evaluation to reflect actual Test and Evaluation efforts.
 Refined FY15 Test and Evaluation to accurately reflect Future year tasks.

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	39.571	5.529	3.431	3.160	-	3.160	-	-	-

Remarks

UNCLASSIFIED

PE 0206623M: MC Ground Cmbt Spt Arms Sys
Navy

R-1 Line #198

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
--	--	---

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015
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
<i>Proj 2513</i>				
Modular Scalable Protective System (MSPS): MSPS Development Schedule Detail	1	2014	4	2020
Modular Scalable Vest (MSV): MSV Efforts Schedule Detail	1	2014	3	2017
Hard Armor Development: Hard Armor Development Schedule Detail	1	2014	2	2017
Next Generation Helmet Studies: Next Generation Helmet Studies Schedule Detail	4	2014	3	2020
Next Generation Eye Protection Efforts: Next Generation Eye Protection Efforts Schedule Detail	4	2014	3	2020

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
2928: Exp Indirect Fire Gen Supt Wpn Sys	9.656	0.001	1.953	2.763	-	2.763	1.986	2.575	2.361	2.172	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 units fielded with the HIMARS and MLRS rocket and missile platforms. GMLRS provides close, medium, and long range precision and area fires to destroy, suppress, and shape threat forces and protect friendly forces against cannon, mortar, rocket and missile artillery, light material and armor, personnel, command and control, and air defense surface targets. GMLRS integrates guided and control packages and an improved rocket motor achieving greater range and precision accuracy, requiring fewer rockets to defeat targets, thereby reducing the logistics burden.

The two 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. 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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: HIMARS Testing	-	0.500	-	-	-
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					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
items (e.g. alternate warheads). This funding will be used to provide adequate support and oversight to ensure testing supports Marine Corps requirements						
FY 2014 Accomplishments: N/A						
FY 2015 Plans: Initiate 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.						
FY 2016 Base Plans: N/A						
FY 2016 OCO Plans: N/A						
Title: HIMARS Fire Control Obsolesence		-	1.453	-	-	-
Articles:		-	-	-	-	-
FY 2014 Accomplishments: N/A						
FY 2015 Plans: Continue 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.						
FY 2016 Base Plans: N/A						
FY 2016 OCO Plans: N/A						
Title: HIMARS Program Support		0.001	-	-	-	-
Articles:		-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Description: HIMARS is a joint program run from the Army Program Office in Huntsville, AL. Funding supports Program Management at Quantico, Marine Corps Liaison Officer at Army Program Office (Huntsville) and contractor support. Marine Corps onsite liaison officer resides at Huntsville to support joint acquisition and program planning.						
FY 2014 Accomplishments: N/A						
FY 2015 Plans: N/A						
FY 2016 Base Plans: N/A						
FY 2016 OCO Plans: N/A						
Title: HIMARS Expeditionary & Naval Integration Capabilities		-	-	2.763	-	2.763
Articles:		-	-	-	-	-
FY 2014 Accomplishments: N/A						
FY 2015 Plans: N/A						
FY 2016 Base Plans: -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 2016 OCO Plans: N/A						
Accomplishments/Planned Programs Subtotals		0.001	1.953	2.763	-	2.763

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015	
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			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• PMC/BLI 221200: High Mobility Artillery Rocket System (HIMARS)	5.799	19.474	17.181	-	17.181	34.056	40.824	36.595	35.682	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											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Expeditionary capabilities	WR	NSWC DD : Dahlgren, VA	0.000	-		-		0.600	Feb 2016	-		0.600	-	0.600	-
Expeditionary capabilities	MIPR	RDEC : Redstone Arsenal, AL	0.000	-		-		2.163	Feb 2016	-		2.163	-	2.163	-
Subtotal			0.000	-		-		2.763		-		2.763	-	2.763	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
GMLRS follow on testing	MIPR	Redstone Test Ctr : Redstone, AL	0.000	-		0.500	Feb 2015	-		-		-	-	0.500	-
Fire Control Obsolesence	MIPR	Redstone Test Ctr : Redstone, AL	0.000	-		1.453	Feb 2015	-		-		-	-	1.453	-
Prior year cumulative funding	Various	various : various	4.013	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			4.013	-		1.953		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Program Managment	Various	Various : Various	0.000	0.001	Sep 2014	-		-		-		-	-	0.001	-
Prior year cumulative funding	Various	Various : Various	5.643	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			5.643	0.001		-		-		-		-	-	-	-
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			9.656	0.001		1.953		2.763		-		2.763	-	-	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy							Date: February 2015			
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				
	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy										Date: February 2015									
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									

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 2928																												
GMLRS: GMLRS Alternative Warhead Milestone C: GMLRS Alternative Warhead Milestone C																												
GMLRS: GMLRS Alternative Warhead Operational Test: GMLRS Alternative Warhead Operational Test																												
GMLRS: GMLRS Alternative Warhead Full Rate Production: GMLRS Alternative Warhead Full Rate Production																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
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

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
3098: Fire Support System	113.476	15.709	14.400	11.940	-	11.940	6.274	5.580	5.508	5.628	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 \$2.889M from FY15 to FY16 is due to the Precision Extended Range Munition (PERM) round which is currently in the final stages of development and the funds required for development are beginning to ramp down.

FAM is used to develop and mature artillery munitions for the Marine Corps triad of fire.

The CLRF is a lightweight, eye-safe target laser rangefinder capable of being carried and employed by a single Marine. CLRF Integrated Capability (CLRF IC) is a replacement to the existing CLRF Suite of Equipment. CLRF IC provides the observer the ability to perform target detection, recognition, identification, and location determination in a suite of systems.

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.

The Fire Support Mod Line is a set of Marine Corps efforts to address critical operational and logistics deficiencies in existing, fielded fire support/weapons systems and equipment. The line 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.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015			
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				
Family of Internally Transportable Vehicles (FITV): 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.						
Conventional Ground Ammunition: The project 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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Common Laser Range Finder (CLRF)		0.387	-	-	-	-
Articles:		-	-	-	-	-
Description: The Common Laser Range Finder (CLRF) is a lightweight, eye-safe target laser rangefinder capable of being carried and employed by a single Marine. CLRF Integrated Capability (CLRF IC) is a replacement to the existing CLRF Suite of Equipment. CLRF IC provides the observer the ability to perform target detection, recognition, identification, and location determination in a suite of systems.						
FY 2014 Accomplishments: -Completed the Engineering and Manufacturing Development Phase for CLRF IC with technical engineering services provided by NSWCCD.						
FY 2015 Plans: N/A						
FY 2016 Base Plans: N/A						
FY 2016 OCO Plans: N/A						
Title: Modeled Meteorological Information Manager (MMIM)		0.241	0.228	0.261	-	0.261
Articles:		-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
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. FY 2014 Accomplishments: -Completed Test & Evaluation of enhanced resolution model for the MMIM. FY 2015 Plans: -Continue testing and integration of the MMIM to support software development and information assurance activities. FY 2016 Base 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 AFATDS to support battalion artillery operations. FY 2016 OCO Plans: N/A						
Title: Expeditionary Fire Support Systems (EFSS) Articles: 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 necessary for orienting weapons to an azimuth of fire. EFSS supports irregular warfare and distributed operations. FY 2014 Accomplishments: -Continued development of the Precision Extended Range Munition (PERM). FY 2015 Plans: -Complete PERM demonstration testing.		11.512 -	11.618 -	8.729 -	- -	8.729 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Initiate engineering and safety analysis of the demonstration test results.						
FY 2016 Base 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 decrease of \$2.889M from FY15 to FY16 is due to the Precision Extended Range Munition (PERM) round which is currently in the final stages of development and the funds required for development are beginning to ramp down.						
FY 2016 OCO Plans: N/A						
Title: Fire Support Mods (FSM)		1.917	1.747	1.790	-	1.790
Articles:		-	-	-	-	-
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.						
FY 2014 Accomplishments: -Continued Software Integration Support - development of software to integrate digital message formats from the IPADS, GCFS & MMIM to meet required standards associated with new digital transmission kernels. Requirements to transmit information digitally to support current artillery and target acquisition systems dictates that survey, meteorological, and targeting information conform to current and anticipated established variable message formatting to ensure continued compatibility with communication and fire support systems. -Completed FSS IA activities. Met Clinger-Cohen requirements for FSS systems.						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Completed the Acoustics analysis of the GCFS capability to determine sustainment, enhancement, suitability and affordability opportunities associated with continued development of a system that meets the CPD & MROC validated capability. FY 2015 Plans: -Initate research and analysis efforts to determine acoustic requirements to support the development of future acoustic sensor capabilities. -Initate the development of an ECP to transition the Azimuth and Inertial MEMS Future Naval Capability (AIM/FNC) into fielded targeting systems. FY 2016 Base Plans: -Initiate efforts to demonstate GCFS digital communications capability in a breadboard configuration. -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. FY 2016 OCO Plans: N/A						
Title: Family of Artillery Munitions (FAM) Articles: Description: 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. FY 2014 Accomplishments: -Completed WSESRB actions for Excalibur 1A. Received all Class B shipboard shock transportation approval for Excalibur. FY 2015 Plans:		0.323 -	0.307 -	0.310 -	- -	0.310 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
-Initiate efforts to monitor and support U.S. Army artillery ammunition programs in order to leverage and influence Army developmental efforts. Resolve outstanding PGK WSESRB actions. FY 2016 Base Plans: -Continue to monitor and support joint development with U.S. Army artillery ammunition programs in order to leverage and influence Army developmental efforts. Provide USMC specific safety analysis for M1123 (IR) and M1124 (VL). FY 2016 OCO Plans: N/A						
Title: Family of Internally Transportable Vehicle (FITV) Articles: Description: Internally Transportable Vehicle (ITV) program fields expeditionary vehicles to ground units to support various operations. Provides the Marine Air-Ground Task Force (MAGTF) ground combat units with a vehicle transportable in the MV-22 and CV-22 tilt-rotor aircraft as well as the CH53. The ITV is an integral part of the Expeditionary Fire Support System (EFSS). FY 2014 Accomplishments: -Completed the review of Test Incident Reports (TIRs) and incorporated recommendations in the performance work statement for the safety and reliability enhancement effort in support of ITV. FY 2015 Plans: N/A FY 2016 Base Plans: - Continue engineering efforts to improve the system readiness of the FITV. FY15 to FY16 increase will be used to conduct comparative analysis and modeling to support proposed modification recommendations required to increase the FITV system readiness, safety and reliability. FY 2016 OCO Plans: N/A		0.207 -	- -	0.350 -	- -	0.350 -
Title: Conventional Ground Ammunition Articles: Description: All DoD services are required to field munitions that are insensitive munitions (IM) compliant. IM		1.122 -	0.500 -	0.500 -	- -	0.500 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015			
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
compliance 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 2014 Accomplishments: Continued - (1) Fire-From-Enclosure Rocket IM Propulsion (472K @ U.S. Army Armament Research Development and Engineering Center, Picatinny, NJ) - Final propellant iteration development (Test Material) - Propellant Sensitivity Testing - Engineering IM Tests - Full Scale IM Testing - Ballistic Testing (2) Multi Point Initiation System (100K @ Naval Surface Warfare Center Indian Head, Indian Head, MD) - Additional multi point array design and reliability testing - Go/No-Go Billet Testing - Advanced Characterization - MPI/Meduim Caliber incorporation guidelines development (3) Micro Electro Mechanical System Fuzing (200K @ Naval Surface Warfare Center Indian Head, Indian Head, MD) - Laboratory/Field survivability testing of all up configuration - All-Up Round Fabrication (Design improvements based on initial testing) - Live Fire Demonstration (Functionality & Survivability)						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015			
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
(4) IM Compliant 120mm Tail Charge (350K @ U.S. Army Armament Research Development and Engineering Center, Picatinny, NJ) - CHEETAH Modeling of propellant - Fiber Reinforced Plastic Fin Boom development FY 2015 Plans: Continue - (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) - Final vent design verification (2) IM Compliant 120mm Tail Charge (U.S. Army Armament Research Development and Engineering Center, Picatinny, NJ) - Continue Propellant Characterization assessments/tests - Continue Fiber Reinforced Plastic Fin Boom development & testing - Slow Cook-Off Testing to determine auto-ignition temperature of components - Propellant Characterization Tests (Closed Bomb, Mechanical Properties, Heat Flow Calorimetry) (3) Multi Point Initiation System (Naval Surface Warfare Center Indian Head Explosive Ordnance Disposal Technology Division, Indian Head, MD) - Test new array designs against NTO/HMX explosive fills - Characterize output of array FY 2016 Base Plans: Continue - (1) Fire-From-Enclosure Rocket IM Propulsion (U.S. Army Armament Research Development and Engineering Center, Picatinny, NJ) (2) IM Compliant 120mm Tail Charge (U.S. Army Armament Research Development and Engineering Center, Picatinny, NJ) -Initiate Full scale IM testing. FY 2016 OCO Plans:						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015	
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total			
N/A											
Accomplishments/Planned Programs Subtotals				15.709	14.400	11.940	-	11.940			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• PMC/206400: Expeditionary Fire Support Systems	0.583	0.642	2.652	-	2.652	6.435	0.629	0.064	0.066	-	100.035
• PMC/473300: Common Laser Range Finder (CLRF)	0.001	8.178	5.154	-	5.154	9.448	10.679	9.670	9.866	-	56.273
• PMC/473301: Modeled Meteorological Information Manager (MMIM)	0.511	0.250	0.450	-	0.450	0.500	0.509	0.466	0.476	-	8.998
• PMC/473302: Fire Support Mods	2.813	3.432	3.532	-	3.532	3.642	3.703	3.776	3.852	-	76.828
• PMC/523000: Items less Than \$5 Million	2.856	2.964	1.108	-	1.108	4.344	4.023	3.325	3.392	Continuing	Continuing
• PMC/654500: Family of ITV	-	-	7.533	-	7.533	2.206	-	-	-	-	9.739
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) and a priced option for the procurement of the vendor's Technical Data Package (TDP) for the approved material solution. PERM will supplement the capability of EFSS by increasing the effective range from 8km to up to 20 km.											
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											

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
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
transportation. The munitions include but are not limited to; XM1156 Precision Guidance Kit (PGK), Excalibur, 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. CLRF IC: Having completed the Engineering and Manufacturing Development phase, CLRF-IC will be procured using a firm fixed price contract in the second quarter of FY15. 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: Acoustic sensors: Maintain current acoustic capability while developing an integrated platform capable of transmitting digital information to AFATDS in support of artillery operations. Complete development of AIM/FNC to support a production contract. IPADS: Conduct engineering analysis of requirements to identify new technologies for future procurement. 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. 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. <u>E. Performance Metrics</u> N/A		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	-		-		-		-		-	-	81.913	-
FITV Rollover Protection Mod	C/FFP	NATC : Carson City, NV	0.000	0.147	Dec 2014	-		-		-		-	-	0.147	-
Fire Support Mod	WR	NAVSEA : Washington, DC	0.000	-		1.307	Jan 2015	-		-		-	-	1.307	-
FAM Capability Enhancement	WR	NSWC Safety : Dahlgren, VA	0.000	-		0.154	Jan 2015	-		-		-	-	0.154	-
Fire Support Mods	MIPR	PM MATIC : Aberdeen, MD	0.000	0.679	Nov 2013	-		-		-		-	-	0.679	-
Fire Support Mods	WR	NAVSEA : Washington, DC	0.000	-		0.440	May 2015	-		-		-	-	0.440	-
Conventional Ground Ammunition	MIPR	ARDEC : Picatanny, NJ	0.000	0.822	Jan 2014	0.200	Jan 2015	0.250	Jan 2016	-		0.250	-	1.272	-
EFSS (PERM)	C/CPFF	Various : Contractors	6.741	11.512	May 2014	1.186	Dec 2014	-		-		-	-	19.439	-
Conventional Ground Ammunition	MIPR	U.S. Army Armament : Picatanny, NJ	0.000	-		0.300	Jan 2015	0.250	Jan 2016	-		0.250	-	0.550	-
Fire Support Mods	MIPR	ARDEC : Picatinny, NJ	0.000	-		-		0.500	Jan 2016	-		0.500	-	0.500	-
Conventional Ground Ammunition	C/FFP	NSWC : Indian Head, MD	0.000	0.300	Jan 2014	-		-		-		-	-	0.300	-
Fire Support Mods	WR	NSWC : Dahlgren, VA	0.000	-		-		0.400	Jan 2016	-		0.400	-	0.400	-
EFSS (PERM LRIP)	C/FFP	TBD : TBD	0.000	-		7.937	Feb 2016	7.557	Feb 2016	-		7.557	-	15.494	-
Fire Support Mods	MIPR	Army Research Lab : Adelphi, MD	10.688	0.321	Nov 2013	-		-		-		-	-	11.009	-
MMIM	MIPR	Army Research Lab : Adelphi, MD	0.186	-		0.228	Dec 2014	-		-		-	-	0.414	-
Subtotal			99.528	13.781		11.752		8.957		-		8.957	-	134.018	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
EFSS & PERM Safety Support	WR	NSWC : Dahlgren, Va	0.000	-		0.100	Nov 2014	0.175	Dec 2015	-		0.175	-	0.275	-
EFSS, PERM Engineeing Support	WR	NSWC : Dahlgren, Va	0.000	-		0.394	Nov 2014	0.788	Dec 2015	-		0.788	-	1.182	-
EFSS & PERM FSS Support	SS/CPFF	TBD : TBD	0.000	-		0.243	Apr 2015	-		-		-	-	0.243	-
Fire Support Mods	WR	SPAWAR : Charleston, SC	0.000	0.175	Nov 2013	-		-		-		-	-	0.175	-
CLRF	WR	NSWC : Dahlgren	0.000	0.387	Nov 2013	-		-		-		-	-	0.387	-
MMIM	WR	ARDEC : Picatinny	0.000	-		-		0.261	Jan 2016	-		0.261	-	0.261	-
Fire Support Mods	MIPR	ARDEC : Picatinny, NJ	0.000	-		-		0.275	Jan 2016	-		0.275	-	0.275	-
Fire Support Mods	WR	NSWC DD : Dahlgren, VA	0.000	-		-		0.215	Nov 2015	-		0.215	-	0.215	-
FAM Engineering Support	WR	NSWC : Dahlgren, Va	2.009	-		0.153	Apr 2015	0.310	Mar 2016	-		0.310	-	2.472	-
Subtotal			2.009	0.562		0.890		2.024		-		2.024	-	5.485	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
FAM	MIPR	Aberdeen : Aberdeen, MD	0.308	0.323	Jan 2014	-		-		-		-	-	0.631	-
Fire Support Mods	MIPR	Army Research Lab : Adelphi, MD	0.000	0.425	May 2014	-		-		-		-	-	0.425	-
MMIM	MIPR	Army Research Lab : Adelphi, MD	0.238	0.241	Dec 2013	-		-		-		-	-	0.479	-
Prior Year Cumulative Funding: Fire Support Mods	Various	Various : Various	7.014	-		-		-		-		-	-	7.014	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy													Date: February 2015		
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							
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
EFSS (PERM)	WR	NSWCDD : Dahlgren, VA	4.379	-		1.661	Nov 2014	-		-		-	-	6.040	-
Subtotal			11.939	0.989		1.661		-		-		-	-	14.589	-
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
FITV Engineering Programmatic Support	MIPR	SURVICE : Dumfries, VA	0.000	0.060	Aug 2014	-		0.350	Nov 2015	-		0.350	Continuing	Continuing	Continuing
EFSS (PERM)	C/FFP	SEAPORT : Quantico, VA	0.000	-		0.097	Apr 2015	0.209	Apr 2016	-		0.209	-	0.306	-
Fire Support Mods	C/FFP	SEAPORT : Quantico, VA	0.000	0.317	Apr 2014	-		0.400	Mar 2016	-		0.400	-	0.717	-
Subtotal			0.000	0.377		0.097		0.959		-		0.959	-	-	-
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			113.476	15.709		14.400		11.940		-		11.940	-	-	-
Remarks															

UNCLASSIFIED

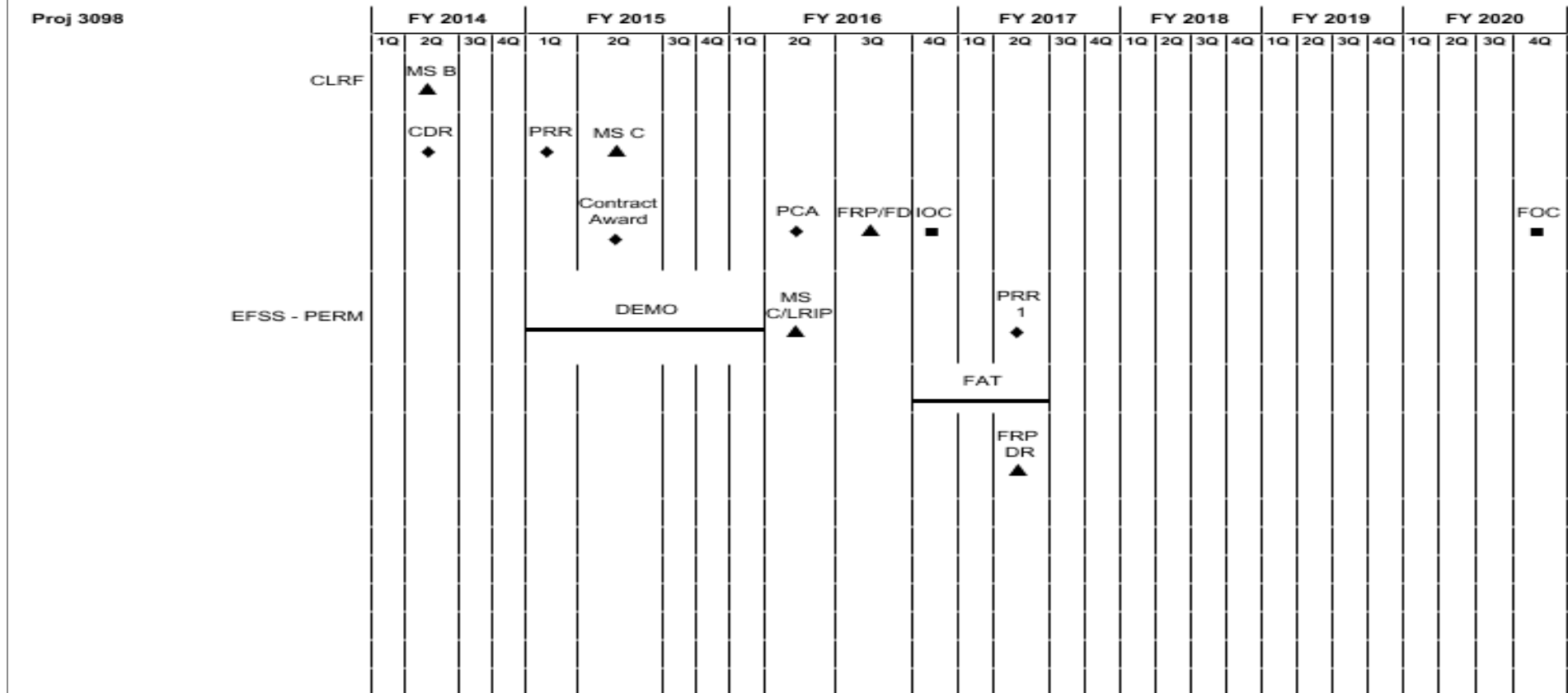
Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy

Date: February 2015

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



2016PB - 0206623M - 3098

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015
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				
CLRF: MS B	2	2014	2	2014
CLRF: CDR	2	2014	2	2014
CLRF: PRR	1	2015	1	2015
CLRF: MS C	2	2015	2	2015
CLRF: Production Contract Award	2	2015	2	2015
CLRF: PCA	2	2016	2	2016
CLRF: FRP/FIELDING DECISION	3	2016	3	2016
CLRF: IOC	4	2016	4	2016
CLRF: FOC	4	2020	4	2020
EFSS - PERM: DEMO	1	2015	1	2016
EFSS - PERM: MS C/LRIP	2	2016	2	2016
EFSS - PERM: PRR 1	2	2017	2	2017
EFSS - PERM: FAT/TYPE QUAL/USER TEST	4	2016	2	2017
EFSS - PERM: FRP DR	2	2017	2	2017

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
4002: Family of Raid Reconnaissance	2.943	0.342	0.496	0.504	-	0.504	0.503	0.522	0.533	0.543	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.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Family of Raid/Reconnaissance Equipment (FRRE) Articles:								0.342	0.390	0.395	-	0.395
								-	-	-	-	-
FY 2014 Accomplishments: - Continued technology upgrades and evaluation of emerging reliability challenges presented by fielded systems, such as Automatic Activation Device. FY 2015 Plans: - Continue technology upgrades and evaluation of emerging reliability challenges presented by fielded systems, such as Automatic Activation Device. FY 2016 Base Plans: - Initiate Research and Development on personnel parachute and aerial delivery fielded programs, such as parachute performance testing. FY 2016 OCO Plans: N/A												
Title: Underwater Reconnaissance Capability (URC) Articles:								-	0.106	0.109	-	0.109
								-	-	-	-	-
FY 2014 Accomplishments: N/A FY 2015 Plans:												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: February 2015							
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total						
- Initiate test and evaluation of new Combatant Rubber Raiding Craft (CRRC) technology. FY 2016 Base Plans: - Initiate research and development efforts on improved amphibious support equipment to fulfill the Underwater Reconnaissance Capability (URC). FY 2016 OCO Plans: N/A											
Accomplishments/Planned Programs Subtotals		0.342	0.496	0.504	-						
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• PMC/6518: AMPHIB SPT EQUIP	4.779	4.418	3.235	-	3.235	7.477	5.959	4.843	4.940	-	65.913
Remarks											
D. Acquisition Strategy											
(U) Family of Raid and Reconnaissance Equipment (FRRE) acquisition strategy is to fund engineering changes and product upgrade testing and development for various Reconnaissance Special Purpose Equipment for aerial delivery, parachuting, and close quarter combat, such as the Parachutist's High Altitude Oxygen System (PHAOS); Automatic Activation Device (AAD); Tandem Offset Resupply Delivery System (TORDS)/Military Tandem Tethered Bundle (MTTB) System; and the Marine Individual Assault Kit (MIAC). (U) Underwater Reconnaissance Capability (URC) acquisition strategy for the Diver Reconnaissance Vehicle (DRV) program consists of a single 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 DRV systems, associated training, and Initial Issue Provisioning (IIP) Package.											
E. Performance Metrics											
Milestone reviews.											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
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					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Raid/Recon Equip	MIPR	US Army RDECOM : Natick, MA	0.035	0.342	Aug 2014	0.390	Jan 2015	-		-		-	-	0.767	-
Prior year cumulative funding	Various	Various : Various	1.680	-		-		-		-		-	-	1.680	-
Underwater Recon Capability	MIPR	NSWC : Carderock, MD	0.000	-		0.106	Jul 2015	-		-		-	Continuing	Continuing	Continuing
Family of Raid/Recon Equip	TBD	TBD : TBD	0.000	-		-		0.216	Jul 2016	-		0.216	-	0.216	-
Family of Raid/Recon Equip	MIPR	Yuma Test Center : Yuma, AZ	0.000	-		-		0.179	Jun 2016	-		0.179	-	0.179	-
Underwater Recon Capability	TBD	TBD : TBD	0.000	-		-		0.109	Jun 2016	-		0.109	-	0.109	-
Subtotal			1.715	0.342		0.496		0.504		-		0.504	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 fudning	Various	various : various	1.146	-		-		-		-		-	-	1.146	-
Subtotal			1.146	-		-		-		-		-	-	1.146	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	0.082	-		-		-		-		-	-	0.082	-
Subtotal			0.082	-		-		-		-		-	-	0.082	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy										Date: February 2015			
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			
	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.943	0.342		0.496		0.504		-		0.504	-	-	-
Remarks													

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy			Date: February 2015		
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	

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 4002																												
Tech upgrades																												
R&D parachutes																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015
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	2014	4	2015
R&D parachutes	1	2016	1	2016