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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy										Date: February 2018		
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	592.925	45.877	66.009	97.152	-	97.152	127.665	114.933	144.343	190.157	Continuing	Continuing
1555: Lt Armored Vehicle Prog	118.207	7.640	13.650	0.000	-	0.000	4.064	5.694	3.160	3.224	Continuing	Continuing
1557: Next Gen Armored Reconnaissance Vehicle (LAV replacement)	0.000	0.000	0.000	1.500	-	1.500	15.296	20.544	37.108	77.526	Continuing	Continuing
1901: MC Grnd Wpnry Prod Improvement	40.800	2.542	3.512	19.589	-	19.589	36.437	33.393	40.543	40.681	Continuing	Continuing
2086: Soldier/Marine Enhancement	30.587	2.328	3.340	3.353	-	3.353	3.640	3.378	3.447	3.517	Continuing	Continuing
2112: Lightweight 155mm Howitzer	4.426	0.543	0.000	1.800	-	1.800	2.000	2.000	2.000	2.000	Continuing	Continuing
2237: Amphibious Vehicle Test	9.188	1.135	2.861	2.297	-	2.297	2.820	2.886	2.947	3.007	Continuing	Continuing
2315: Training Devices/ Simulators	129.886	15.942	23.927	18.328	-	18.328	18.061	22.215	19.279	19.674	Continuing	Continuing
2503: Initial Issue	46.258	3.275	4.656	5.412	-	5.412	5.480	5.764	5.852	5.948	Continuing	Continuing
2513: Body Armor	48.364	2.712	4.380	4.970	-	4.970	4.773	4.697	4.794	4.892	Continuing	Continuing
2928: Exp Indirect Fire Gen Supt Wpn Sys	12.780	1.011	2.990	22.748	-	22.748	22.095	2.143	2.187	2.231	Continuing	Continuing
3098: Fire Support System	151.783	8.318	6.145	5.999	-	5.999	7.792	6.868	3.112	3.196	Continuing	Continuing
3774: Marine Corps Ammo	0.000	0.000	0.000	1.321	-	1.321	1.306	1.312	1.319	1.334	Continuing	Continuing
3775: Family of Internally Transportable Vehicles (FITV)	0.000	0.000	0.000	0.245	-	0.245	2.180	2.183	0.235	0.240	Continuing	Continuing
4002: Family of Raid Reconnaissance	0.646	0.431	0.548	9.590	-	9.590	1.721	1.856	18.360	22.687	Continuing	Continuing
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 Amphibious Vehicle Test Branch (AVTB) provides facilities and personnel which perform a broad range of testing,												

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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys
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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.

B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	51.835	66.009	72.811	-	72.811
Current President's Budget	45.877	66.009	97.152	-	97.152
Total Adjustments	-5.958	0.000	24.341	-	24.341
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	5.080	0.000			
• SBIR/STTR Transfer	-1.060	0.000			
• Program Adjustments	-3.958	0.000	25.301	-	25.301
• Rate/Misc Adjustments	0.000	0.000	-0.960	-	-0.960
• Congressional General Reductions Adjustments	-0.020	-	-	-	-
• Congressional Directed Reductions Adjustments	-6.000	-	-	-	-

Change Summary Explanation

The FY 2019 funding request was reduced by (\$6.149) million to account for the availability of prior year execution balances.

The increase of \$24.341M in FY19 can be attributed to the first year of development of the Advanced Capability Extended Range Mortar (ACERM) and initiation of the integration and test of an anti-ship missile capability into the USMC HIMARS battalions.

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1555: Lt Armored Vehicle Prog	118.207	7.640	13.650	0.000	-	0.000	4.064	5.694	3.160	3.224	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Note RDTEN efforts for OB kits complete in FY 2018.												
A. Mission Description and Budget Item Justification The Family of Light Armored Vehicles (FOLAV) consists of six fielded LAV configurations and one communications/intelligence-configured asset on an LAV chassis. The FOLAV provides a logistically self-contained, highly mobile, and lethal combined arms combat system to the Marine Air Ground Task Force (MAGTF). The LAV Product Improvement Program funds modification and sustainment activities and the development and testing of modifications. These programs will ensure that the FOLAV is capable of conducting its assigned missions by enhancing lethality and survivability; reliability, availability, maintainability and durability; as well as reducing operations and support costs.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: LAV Obsolescence (OB) Articles: FY 2018 Plans: -Complete modification instruction development, complete 8 vehicle prototype builds, technical manual development, and execute Developmental Testing. -Continue Obsolescence EMD PM support. -Initiate preparation towards Milestone C and preparation for Obsolescence Production Kit contract. Production contract consists of the OB Kits and completion of Logistics Products (technical manuals, provisioning, etc), Training (New Equipment Training, Instructor & Key Personnel Training, etc), Field Service Representative Support, Systems Technical Support, Initial Spares, Special Tools and Test Equipment, Test Vehicle Refurbishment, and Packaging support. FY 2019 Base Plans: N/A FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement:								7.640	13.650	0.000	0.000	0.000
								8	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
RDTEN efforts for OB kits complete in FY 2018.					
Accomplishments/Planned Programs Subtotals	7.640	13.650	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019 Base</u>	<u>FY 2019 OCO</u>	<u>FY 2019 Total</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PMC/2038: LAV PIP	32.575	17.244	43.701	-	43.701	61.185	64.837	56.240	60.174	Continuing	Continuing
• PMC/7000: LAV Spares	0.628	1.006	5.735	-	5.735	5.884	6.043	6.171	12.604	Continuing	Continuing

Remarks

D. Acquisition Strategy

The LAV Modification & Sustainment program funds important vehicle modifications, support equipment and tools, and other projects that increase LAV reliability and readiness while simultaneously reducing operations and support costs. The Marine Corps Program Management LAV Modification Team uses multi-disciplined integrated project teams consisting of engineering, logistical, contracting and financial personnel to manage Modification projects.

The LAV Obsolescence program(OB) is an ACAT IV(M). The OB program will address the Family of Light Armored Vehicles (FOLAV) automotive system obsolescence and reduced performance due to increased Gross Vehicle Weight (GVW). The OB program will improve fleet reliability and availability by addressing the three sub-systems (power pack, driveline and steering) that specifically account for 95% of total system downtime. Also, fields a modern driver's instrument panel and LAV-25 Slip Ring. This effort will require delivery of 8 kits (7 installed on vehicles, 1 stand-alone kit) during the Engineering & Manufacturing Development (EMD) phase to support Developmental Testing (DT), fielding, Integrated Logistics Support (ILS) products, Modification Instructions (MI) and Engineering Change Proposals (ECP).

E. Performance Metrics

Milestone Reviews

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
ILS DATA DEV (OB)	C/CPFF	GDLS : London Ontario, Canada	14.886	1.167	Apr 2017	1.608	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
PRODUCT DEV/ PROTOTYPES (OB)	C/CPFF	GDLS : London Ontario, Canada	35.687	4.565	Apr 2017	5.915	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Proj 1555: Prior Years Cumulative Funding	Various	N/A : N/A	37.397	0.000		0.000		0.000		-		0.000	0.000	37.397	-
Subtotal			87.970	5.732		7.523		0.000		-		0.000	Continuing	Continuing	N/A
Remarks The decrease from FY18 to FY19 is reduced effort on the Obsolescence EMD contract.															
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Proj 1555: Prior Years Cumulative Funding	Various	N/A : N/A	11.860	0.000		0.000		0.000		-		0.000	0.000	11.860	-
Program Mgmt (OB)	MIPR	TACOM : Warren, MI	9.728	1.749	Dec 2016	2.538	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			21.588	1.749		2.538		0.000		-		0.000	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Proj 1555: Prior Years Cumulative Funding	Various	N/A : N/A	6.105	0.000		0.000		0.000		-		0.000	0.000	6.105	-
Devl/Oper T&E (OB)	MIPR	RTC : AL	1.464	0.129	Nov 2016	3.467	Jan 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			7.569	0.129		3.467		0.000		-		0.000	Continuing	Continuing	N/A
Remarks The decrease from FY18 to FY19 is due to the completed support of the Obsolescence program developmental testing.															

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Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 1555 / Lt Armored Vehicle Prog					
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Scheduler (OB)	C/FFP	FEDITC, LLC : Rockville, MD	0.000	0.030	Mar 2017	0.122	Mar 2018	0.000		-		0.000	0.000	0.152	-
Proj 1555: Prior Years Cumulative Funding	Various	N/A : N/A	1.080	0.000		0.000		0.000		-		0.000	0.000	1.080	-
Subtotal			1.080	0.030		0.122		0.000		-		0.000	0.000	1.232	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			118.207	7.640		13.650		0.000		-		0.000	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy

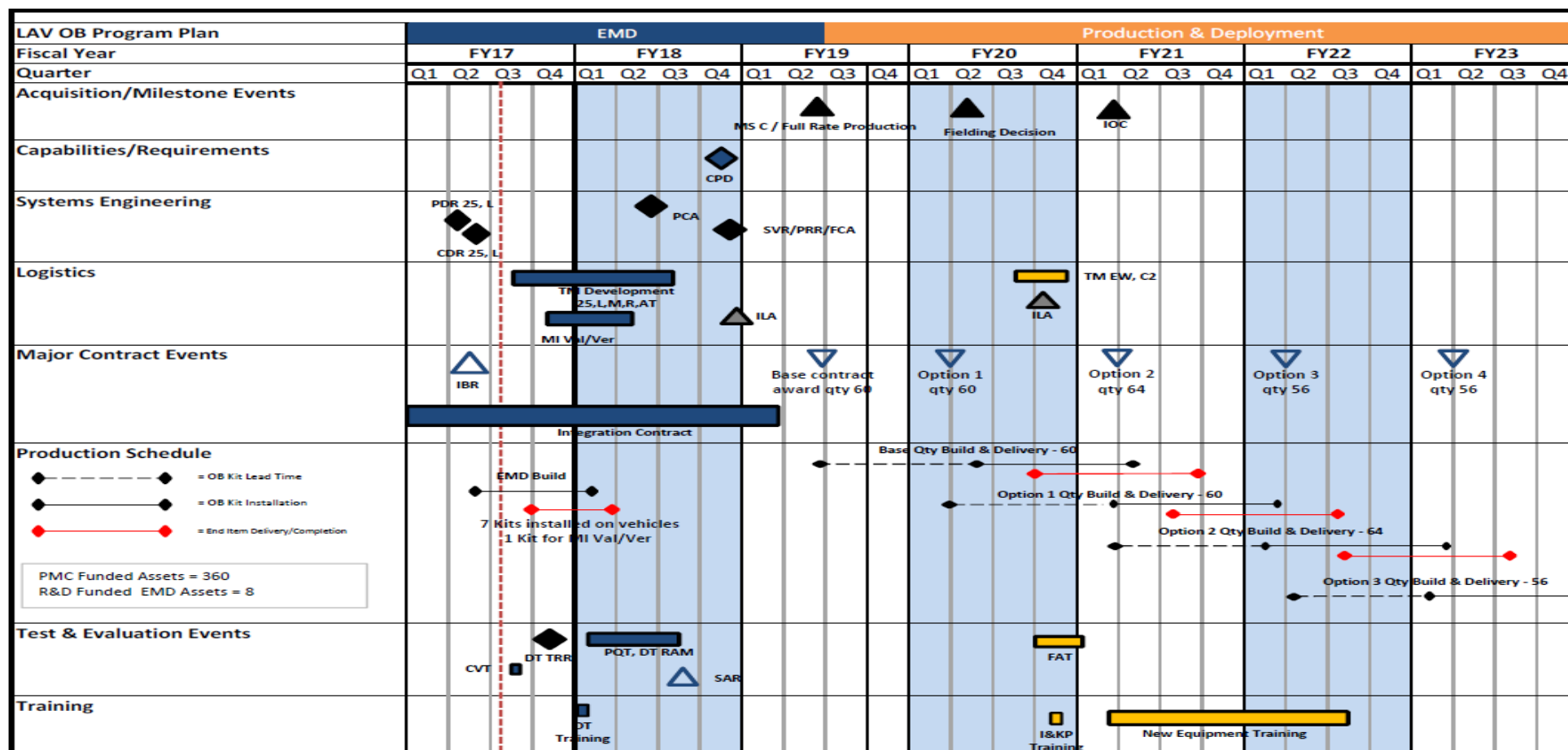
Date: February 2018

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

OB_Summary_Program_Plan_EMD.xlsx



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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018
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
LAV Obsolescence				
Integration Contract	1	2017	2	2019
TM Development	3	2017	3	2018
Contractor Verification Test	3	2017	3	2017
EMD Vehicle Delivery	3	2017	1	2018
Developmental Testing	1	2018	3	2018
Mod Instruction Val/Ver	4	2017	2	2018
MS-C	2	2019	2	2019
Base Contract Award	2	2019	2	2019
Option 1 Award	1	2020	1	2020
Fielding Decision	2	2020	2	2020
IOC	1	2021	1	2021
Option 2 Award	1	2021	1	2021
Option 3 Award	1	2022	1	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 1557 / Next Gen Armored Reconnaissance Vehicle (LAV replacement)			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1557: Next Gen Armored Reconnaissance Vehicle (LAV replacement)	0.000	0.000	0.000	1.500	-	1.500	15.296	20.544	37.108	77.526	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

This Project is a New Start for FY 2019.

A. Mission Description and Budget Item Justification

The Armored Reconnaissance Vehicle (ARV) is a replacement for the legacy light armored vehicle in the Light Armored Reconnaissance (LAR) battalions within the Marine Divisions. ARV equipped LAR Battalions perform combined arms, all weather, sustained reconnaissance and security missions in support the Ground Combat Element. The ARV is the core capability that underpins the next generation armored reconnaissance capability concept. The ARV will be a modern combat vehicle system, capable of fighting for information, that balances competing capability demands to sense, shoot, move, communicate and remain transportable as part of the naval expeditionary force.

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

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Next Gen Armored Reconnaissance Vehicle (LAV replacement)	0.000	0.000	1.500	0.000	1.500
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: -Initiate analysis of alternatives (AoA) to assess critical technology elements for future Light Armored Reconnaissance capabilities including: technology maturity, integration risk, and manufacturing feasibility. The initial capabilities document (ICD) is currently being developed by HQMC.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: The \$1.5M increase is due to the initiation of the Next Gen. Armored Reconnaissance Vehicle AoA.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.500	0.000	1.500

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 1557 / Next Gen Armored Reconnaissance Vehicle (LAV replacement)
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy The Armored Reconnaissance Vehicle (ARV) program will be focused on providing a base combat vehicle capable of meeting evolving threats via open systems architecture and sufficient size, weight, & power (SWAP) to accommodate future growth. Subsequent programs of record will expand the ARV capability to other mission roles and integrate capabilities that emerge from other programs to further develop and enhance LAR operations.		
E. Performance Metrics Milestone Reviews		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018		
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 1557 / Next Gen Armored Reconnaissance Vehicle (LAV replacement)				

Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	Cost To Complete	Total Cost	Target Value of Contract
Program Mgmt - AoA	MIPR	TBD : Not Specified	0.000	0.000		0.000		1.500	Nov 2018	-		1.500		1.500	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		1.500		-		1.500		1.500	Continuing	Continuing	N/A

Remarks
 Funding will be used by PM-Light Armored Vehicle (LAV) program office to resource an Analysis of Alternative (AoA) effort for the Armored Reconnaissance Vehicle program.
 The funding will be used for program mgmt. in the LAV PM and other Government agency offices.

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	0.000	1.500	-	1.500	Continuing	Continuing	N/A

Remarks

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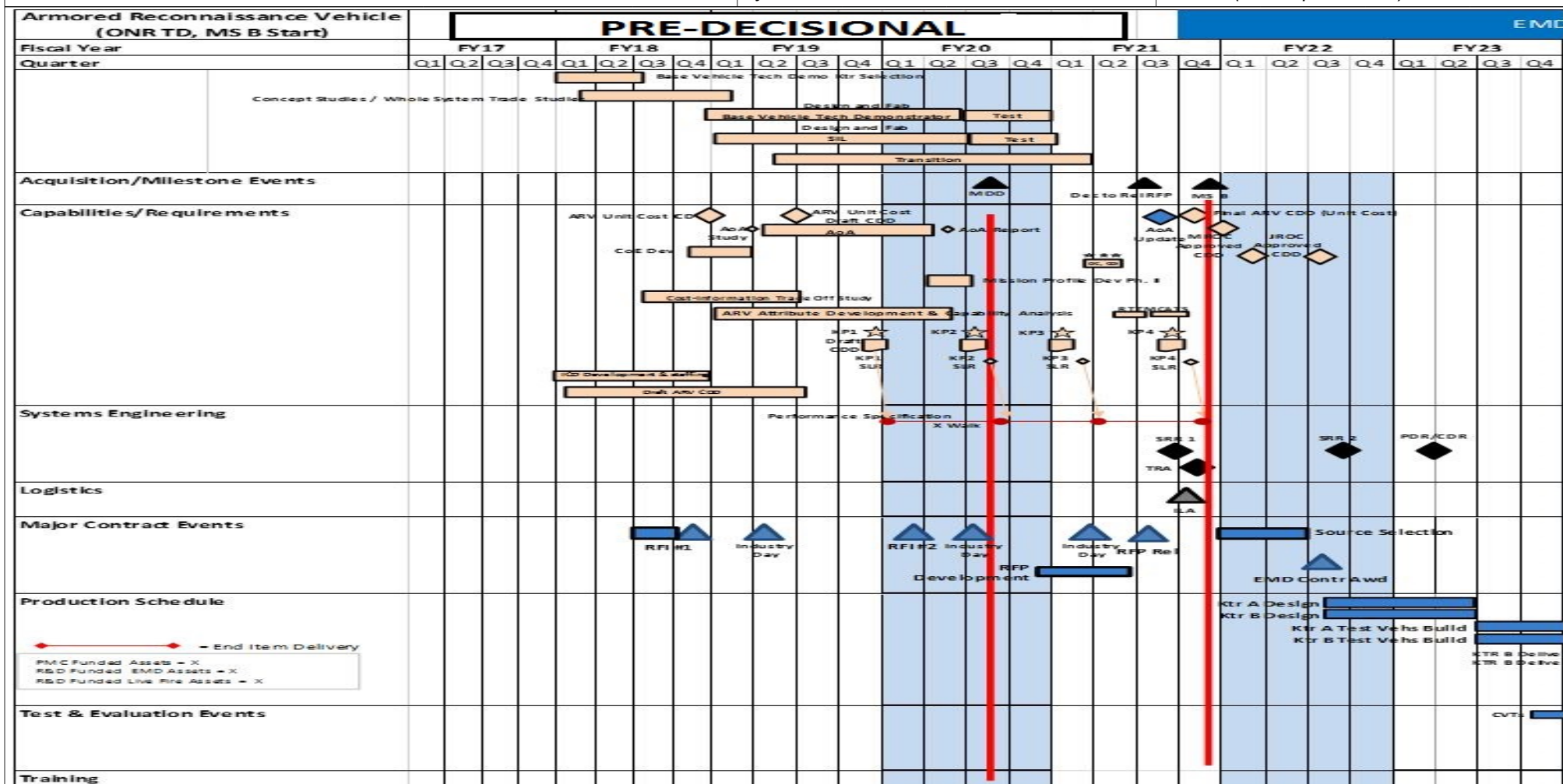
Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy

Date: February 2018

Appropriation/Budget Activity
1319 / 7

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

Project (Number/Name)
1557 / Next Gen Armored Reconnaissance
Vehicle (LAV replacement)



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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 1557 / Next Gen Armored Reconnaissance Vehicle (LAV replacement)	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 1557</i>				
Armored Reconnaissance Vehicle (ARV) Analysis of Alternatives	2	2019	2	2020
Industry Day #1	2	2019	2	2019
Industry Day #2	3	2020	3	2020
Milestone Decision Document	3	2020	3	2020
RFP Release	3	2021	3	2021
Source Selection	4	2021	2	2022
EMD Contract Award	3	2022	3	2022

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Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 1901 / MC Grnd Wpnry Prod Improvement			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1901: MC Grnd Wpnry Prod Improvement	40.800	2.542	3.512	19.589	-	19.589	36.437	33.393	40.543	40.681	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

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

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Escalation of Force-Equipment (EoF-E) Articles: Description: Escalation of Force Equipment (EoF-E) is a mod funding line to support/sustain all fielded EoF equipment and capabilities. Additionally, EoF-E supports type-classification, testing and procurement of new advancements and technologies to provide an increased capability over existing or obsolescent equipment currently in or associated with the Escalation of Force Mission Modules (EoF-MMs). FY 2018 Plans: - Continue assessment of upgrades and replacements to the EoF-MM to sustain/support equipment and capabilities. FY 2019 Base Plans: - Continue assessment of upgrades and replacements to the EoF-MM to sustain/support equipment and capabilities. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: No significant change from FY 2018 to FY 2019.	0.037	0.085	0.078	0.000	0.078
Title: Combat Optics Articles:	0.911	1.722	2.927	0.000	2.927

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<p>Description: Combat Optics is a program that provides for research and development, as well as ammunition to support testing and assessment of optical systems and implementation of modifications for these systems as well as life-cycle management efforts. The research and development of future capabilities include, but are not limited to variable power day optics and, fused/multi-spectral (e.g., combined image intensifier, thermal imaging, and short wave infrared) optical and laser systems.</p> <p>FY 2018 Plans:</p> <p>-Complete Marine Corps specific evaluation of Squad Thermal System (STS).</p> <p>-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.</p> <p>-Initiate evaluation of potential solutions for variable power Squad Common Optic.</p> <p>FY 2019 Base Plans:</p> <p>- Increase of \$1.205M in FY19 is required to initiate product development, test and evaluation, and pre-EMD transition efforts for Advanced Sniper Rifle (ASR) Day and Night Sights.</p> <p>-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.</p> <p>-Complete evaluation of potential solutions for variable power Squad Common Optic.</p> <p>FY 2019 OCO Plans:</p> <p>N/A</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement:</p> <p>Increase of \$1.205M in FY19 is required to initiate product development, test and evaluation, and pre-EMD transition efforts for Advanced Sniper Rifle (ASR) Day and Night Sights.</p>						
<p>Title: Company and Battalion Mortars</p> <p align="right">Articles:</p> <p>Description: Company and Battalion Mortars is a program that provides for continuous monitoring, research and development, integration and qualification testing, certification and accreditation, assessment and implementation of multi-service and USMC unique system modifications and improvements for mortar and mortar fire control systems. Efforts include advance capability extended range mortar systems and mortar fire control systems using Android operating systems capable of digital communications, mapping and geo-location.</p> <p>FY 2018 Plans:</p>		0.353 -	0.399 -	14.686 -	0.000 -	14.686 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<p>-Complete system and software development, and demonstration efforts.</p> <p>-Complete Milestone C activities.</p> <p>-Purchase 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 LHMBC.</p> <p>FY 2019 Base Plans:</p> <p>Advanced Capability Extended Range Mortar (ACERM) Plans:</p> <p>-Type qualify the Extended Range Mortar Ammunition (ERMA) propellant charge for ACERM. ERMA addresses the increased mass of the ACERM cartridge and is compliant with Insensitive Munition requirements.</p> <p>-Develop a Navy Munitions Document (NMD) for ERMA. NMD is required for weapons safety review.</p> <p>-Miniature Mission Setter development and integration with ACERM. ACERM requires a precision weapon pre-launch programming device.</p> <p>-Lightweight Handheld Mortar Ballistic Calculator/Mortar Fire Control Application integration with ACERM. Required to compute aero-ballistic calculations for ACERM.</p> <p>-Design and development of mortar round packaging. Necessary to accommodate ACERM dimensional differences and environmental requirements.</p> <p>Other plans:</p> <p>-Continue LHMBC software upgrades to maintain legacy system configuration baseline.</p> <p>-Complete Mortar Fire Control Application (MFCA) development, qualification testing, certification and accreditation to achieve IOC.</p> <p>-Conduct MFCA integration testing against evolving common Marine Corps hardware solutions.</p> <p>-Initiate development, qualification testing, certification and accreditation of MFCA Increment 2 system Net-Ready key performance parameters required for digital communication, mapping and geo-location services.</p> <p>Purchase Non-Developmental Items (NDI)for testing and evaluation of candidate systems and modifications for company and battalion mortar fire control systems.</p> <p>FY 2019 OCO Plans:</p> <p>N/A</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement:</p> <p>The increase of \$14.3M in FY19 funds the first year of development of the Advanced Capability Extended Range Mortar (ACERM). ACERM is a mortar cartridge designed to extend the maximum range of 81mm high explosive munitions without the use of rocket motors; using high-lift aerodynamics (winged surfaces) instead. The control</p>						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018	
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
required to extend the range affords the system precision guidance capability when combined with Global Positioning System and Semi-Active Laser navigation systems. ACERMs precision delivery, combined with a new warhead and fuze, will provide greater lethality at ranges out to 20km.					
Title: Family of Infantry Weapons Systems (FIWS) 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, as well as new acquisition efforts. Efforts such as: sustain weapon capability, enhance Gunner's Protection Kits (GPK), and improve the performance, maintainability, supportability, service life, ergonomics, and safety enhancements of Infantry Weapons Systems. FY 2018 Plans: -Continue Product Improvement Program testing for various emergent requirements. -Continue efforts to analyze, design, develop, and field modifications (to include GPKs). -Continue performance evaluation of various types of ammunition currently under development. -Continue product improvement of TGPK and/or TOGPK 2.0 in order to meet requirements outlined in Requirements Memorandum for GPK. -Continue efforts to analyze, design, and develop a Reducible Height GPK that meets emergent requirements for vehicle stowage aboard ships while maintaining existing protection levels. -Continue product improvement of Sniper and Special Purpose systems and their ancillary support equipment in order to meet established or emerging requirements. FY 2019 Base Plans: Increase of \$0.592M from FY18 to FY19 is due to requirements for Advanced Sniper Rifle (ASR) Development effort, and for Infantry Service Rifle Product Improvement Program (PIP). Both the ASR and the Infantry Service Rifle PIP will close capability gaps and increase the lethality of our Infantry Marines. -Continue Product Improvement Program (PIP) testing for various emergent requirements, including Service Rifle PIP, and Advanced Sniper Rifle Development. -Continue efforts to analyze, design, develop, and field modifications (to include GPKs). -Continue performance evaluation of various types of ammunition currently under development. -Continue product improvement of TGPK and/or TOGPK 2.0 in order to meet requirements outlined in Requirements Memorandum for GPK.	1.241 -	1.306 -	1.898 -	0.000 -	1.898 -

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<p>-Continue efforts to analyze, design, and develop a Reducible Height GPK that meets emergent requirements for vehicle stowage aboard ships while maintaining existing protection levels.</p> <p>-Continue product improvement of Sniper and Special Purpose systems and their ancillary support equipment in order to meet established or emerging requirements.</p> <p>FY 2019 OCO Plans: N/A</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement: Increase of \$0.592M from FY18 to FY19 is due to requirements for Advanced Sniper Rifle (ASR) Development effort, and for Infantry Service Rifle Product Improvement Program (PIP). Both the ASR and the Infantry Service Rifle PIP will close capability gaps and increase the lethality of our Infantry Marines.</p>					
Accomplishments/Planned Programs Subtotals	2.542	3.512	19.589	0.000	19.589

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

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PMC/2220-01: Family of Infantry Weapons Systems	6.036	5.331	28.292	-	28.292	37.894	22.013	32.406	26.789	Continuing	Continuing
• PMC/2220-02: Company and Battalion Mortars	0.911	0.810	2.666	-	2.666	3.018	3.474	3.543	5.614	Continuing	Continuing
• PMC/2220-03: Escalation of Force - Equip (EoF-E)	2.898	1.748	1.099	-	1.099	1.426	1.454	1.483	1.513	Continuing	Continuing
• PMC/4620: Combat Optics	10.978	12.793	59.052	-	59.052	59.256	59.443	53.266	53.463	0.000	359.949

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.

Family of Infantry Weapons Systems (FIWS):

The FIWS program strategy is to explore, research and recommend efforts to address and identify solutions to performance, reliability and safety design issues through various means, including commercial off-the-shelf (COTS) components. This includes efforts to improve Individual and Crew Served Weapon Systems, develop Gunner

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PE 0206623M: MC Ground Cmbt Spt Arms Sys
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Company and Battalion Mortars	MIPR	Picatinny Arsenal : Picatinny, NJ	2.369	0.353	Jul 2017	0.399	May 2018	3.208	Feb 2019	-		3.208	Continuing	Continuing	Continuing
Company and Battalion Mortars	WR	NSWC, Crane : Crane, IN	0.000	0.000		0.000		7.850	Feb 2019	-		7.850	0.000	7.850	-
Company and Battalion Mortars	WR	NSWC, Dahlgren : Dahlgren, VA	0.000	0.000		0.000		3.628	Feb 2019	-		3.628	0.000	3.628	-
Family of Infantry Weapons Systems	Various	DLA : Philadelphia, PA	0.432	0.019	Apr 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Escalation of Force Equipment	Various	NSWC, Crane : Crane, IN	0.614	0.037	May 2017	0.000		0.000	May 2019	-		0.000	0.000	0.651	-
Family of Infantry Weapons Systems	MIPR	ARDEC : Picatinny, NJ	0.621	0.200	Jun 2017	0.000		1.000	Mar 2019	-		1.000	0.000	1.821	-
Family of Infantry Weapons Systems	C/FFP	MCSC : Quantico, VA	0.000	0.000		0.479	Sep 2018	0.000		-		0.000	0.000	0.479	-
Family of Infantry Weapons Systems	WR	NSWC : Crane, IN	0.000	0.000		0.000		0.250	Apr 2019	-		0.250	0.000	0.250	-
Combat Optics	MIPR	NSWC : Dahlgren, VA	0.000	0.000		0.000		1.782	Mar 2019	-		1.782	0.000	1.782	-
Combat Optics	Various	MCSC : Quantico, VA	2.545	0.000		0.906	Oct 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Combat Optics	MIPR	Night Vision Lab : Ft. Belvoir, VA	3.273	0.000		0.000		0.000		-		0.000	0.000	3.273	-
Combat Optics	Various	MCSC : Travel	0.014	0.000		0.010	Jan 2018	0.000		-		0.000	0.000	0.024	-
Proj 1901: Prior Years Cum Funding (Product Dev)	Various	Various : Various	1.108	0.000		0.000		0.000		-		0.000	0.000	1.108	-
Subtotal			10.976	0.609		1.794		17.718		-		17.718	Continuing	Continuing	N/A
Remarks Increase of \$15.924M is primarily due to this being the first year of development of the Advanced Capability Extended Range Mortar (ACERM).															

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 : Dahlgren, VA	0.155	0.000		0.000		0.000		-		0.000	0.000	0.155	-
Family of Infantry Weapons Systems	Various	Travel/IMPAC : Quantico, VA	0.296	0.118	Nov 2017	0.151	Sep 2018	0.145	Aug 2019	-		0.145	Continuing	Continuing	Continuing
Family of Infantry Weapons Systems	WR	NSWC : Dahlgren, VA	0.000	0.052	Apr 2017	0.000		0.000		-		0.000	0.000	0.052	-
Combat Optics	C/FFP	MCSC : Quantico, VA	1.852	0.000		0.080	May 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Combat Optics	WR	NSWC : Crane, IN	0.470	0.369	Jul 2017	0.476	Dec 2017	0.257	Jul 2019	-		0.257	Continuing	Continuing	Continuing
Proj 1901: Prior Years Cum Funding (Support)	Various	Various : Various	11.649	0.000		0.000		0.000		-		0.000	0.000	11.649	-
Subtotal			14.422	0.539		0.707		0.402		-		0.402	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of Infantry Weapons Systems	WR	LogCom : Albany, GA	0.004	0.000		0.000		0.000		-		0.000	0.000	0.004	-
Family of Infantry Weapons Systems	MIPR	Aberdeen Test Center : Aberdeen, MD	1.128	0.000		0.000		0.000		-		0.000	0.000	1.128	-
Family of Infantry Weapons Systems	Reqn	MCSC Supply : Quantico, VA	0.017	0.000		0.000		0.000		-		0.000	0.000	0.017	-
Combat Optics	WR	NSWC : Crane, IN	0.000	0.184	Nov 2016	0.000		0.000		-		0.000	0.000	0.184	-
Combat Optics	MIPR	Army : Fort Belvoir, VA	0.000	0.109	Sep 2017	0.000		0.000		-		0.000	0.000	0.109	-
Family of Infantry Weapons Systems	WR	NSWC Crane : Crane, IN	0.620	0.255	May 2017	0.246	Dec 2017	0.399	Jan 2019	-		0.399	Continuing	Continuing	Continuing
Family of Infantry Weapons Systems	WR	NSWC : Crane, IN	0.194	0.258	Jun 2017	0.150	Dec 2017	0.000		-		0.000	0.000	0.602	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	MIPR	DLA : Philadelphia, PA	0.000	0.249	Nov 2016	0.000		0.892	Mar 2019	-		0.892	0.000	1.141	-
Family of Infantry Weapons Systems	WR	PM Ammo : Quantico, VA	0.015	0.000		0.000		0.000		-		0.000	0.000	0.015	-
Family of Infantry Weapons Systems	WR	NSWC : Dahlgren, VA	0.000	0.010	Jul 2017	0.000		0.000		-		0.000	0.000	0.010	-
Family of Infantry Weapons Systems	C/FFP	NSWC-DD : Dahlgren, VA	0.000	0.086	Aug 2017	0.000		0.000		-		0.000	0.000	0.086	-
Family of Infantry Weapons Systems	WR	ARL-PSU : State College, PA	0.273	0.000		0.000		0.000		-		0.000	0.000	0.273	-
Combat Optics	WR	PM Ammo : Quantico, VA	0.160	0.000		0.000		0.000		-		0.000	0.000	0.160	-
Proj 1901: Prior Years Cum Funding (T&E Eval)	Various	Various : Various	11.280	0.000		0.000		0.000		-		0.000	0.000	11.280	-
Subtotal			13.691	1.151		0.396		1.291		-		1.291	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of Infantry Weapons Systems	C/FFP	MCSC : Quantico, VA	0.684	0.243	May 2017	0.280	Mar 2018	0.050	Mar 2019	-		0.050	Continuing	Continuing	Continuing
Combat Optics	C/FFP	MCSC : Quantico, VA	0.000	0.000		0.250	Mar 2018	0.050	Mar 2019	-		0.050	0.000	0.300	-
Escalation of Force Equipment	C/FFP	MCSC : Quantico, VA	0.000	0.000		0.085	Mar 2018	0.078	Mar 2019	-		0.078	0.000	0.163	-
Proj 1901: Prior Years Cum Funding (Mgmt Services)	Various	Various : Various	1.027	0.000		0.000		0.000		-		0.000	0.000	1.027	-
Subtotal			1.711	0.243		0.615		0.178		-		0.178	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy											Date: February 2018			
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				
		Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		40.800	2.542		3.512		19.589		-		19.589	Continuing	Continuing	N/A

Remarks

Increase of \$16.077M is primarily due to this being the first year of development of the Advanced Capability Extended Range Mortar (ACERM).

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy

Date: February 2018

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

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
Company and Battalion Mortars (Lightweight Handheld Mortar Ballistic Computer)																												
Milestones: Milestone C																												
Milestones: IOC																												
Testing: Qualification Testing																												
System Development: System Development																												
Software Development: Software Development																												
Software upgrades, Information Assurance Certification and Accreditation:																												
Advanced Sniper Rifle (ASR) - Combat Optics and Family of Infantry Weapons																												
ASR Day and Night Sight Development: Schedule Detail																												
ASR Rifle Development: Schedule Detail																												
ASR Day and Night Sight Procurement: Schedule Detail																												
ASR Rifle Procurement: Schedule Detail																												
ASR Deployment: Schedule Detail																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy

Date: February 2018

Appropriation/Budget Activity

1319 / 7

R-1 Program Element (Number/Name)

PE 0206623M / MC Ground Cmbt Spt Arms
Sys

Project (Number/Name)

1901 / MC Grnd Wpnry Prod Improvement

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Company and Battalion Mortars (Lightweight Handheld Mortar Ballistic Computer)</i>				
Milestones: Milestone C	4	2018	4	2018
Milestones: IOC	2	2019	2	2019
Testing: Qualification Testing	1	2017	2	2019
System Development: System Development	1	2017	1	2019
Software Development: Software Development	1	2017	2	2018
Software upgrades, Information Assurance Certification and Accreditation:	3	2018	4	2023
<i>Advanced Sniper Rifle (ASR) - Combat Optics and Family of Infantry Weapons</i>				
ASR Day and Night Sight Development: Schedule Detail	1	2019	4	2020
ASR Rifle Development: Schedule Detail	1	2019	4	2020
ASR Day and Night Sight Procurement: Schedule Detail	1	2021	1	2023
ASR Rifle Procurement: Schedule Detail	1	2021	1	2022
ASR Deployment: Schedule Detail	3	2021	3	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2086: Soldier/Marine Enhancement	30.587	2.328	3.340	3.353	-	3.353	3.640	3.378	3.447	3.517	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. MERS operates and manages the Gruntworks Squad Integration Facility, including facilities sustainment, restoration and modernization of the facility, to meet mission requirements in order to support integration and assessments of equipment. MERS is engaging industry and academia in search of innovative technologies that can enhance infantry capabilities via a Partnership Intermediary Agreement. 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. The Marine Corps anthropometry survey will be initiated in FY18 for completion in FY20. This program is essential to ensure the combined synergistic equipment effects enhance the war-fighting functions of the Marine rifle squad towards the strategic Marine Corps war fighting vision for the future.

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 procurement is outpaced by annual expenditures, ammunition logistics R&D projects designed to extend the shelf life of our current inventory, provide enhanced packaging to "lighten the load" of our munitions, and other such projects will go a long way to ensure the Marine Corps can maintain combat readiness with a reliable conventional ammunition inventory into the future.

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

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Marine Expeditionary Rifle Squad (MERS)	2.019	2.731	3.353	0.000	3.353
Articles:	-	-	-	-	-
FY 2018 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.					

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018			
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<p>-Continue to resource improvements and operating costs to support the mission of Gruntworks Squad Integration Facility. This includes resourcing minor construction for facilities sustainment, restoration and modernization efforts, below the MILCON threshold.</p> <p>-Continue to utilize the Gruntworks Squad Integration Facility as an asset to execute innovation and technology searches and projects, R&D integration projects, prototyping, rapid assessment of technologies, and usability trials.</p> <p>-Continue investment into Gruntworks Squad Integration Facility enablers and capabilities.</p> <p>-Continue to conduct human performance trials utilizing MC-LEAP and other data collection methodologies in order to develop mobility metrics.</p> <p>-Continue to conduct usability trials, requirements generation workshops, and limited user evaluations for digital interoperability, handheld devices and applications at the infantry platoon and squad level.</p> <p>-Continue to support integration of body armor and load bearing systems with human factors expertise.</p> <p>-Continue to conduct mobility experiments using the Marine Corps Load Effects Assessment Program and associated Policy Letters and Requirements Documents.</p> <p>-Continue to develop integrated seating solutions for combat equipped Marines for ACV 1.1, ACV 1.2, JLTV and other mobility programs and synchronize seat belt and retention systems among the platforms.</p> <p>-Continue to conduct R&D on squad systems in conjunction with Army squad system projects.</p> <p>-Continue to conduct surveys with post deploying infantry battalions on usability and integration of equipment utilized during deployment.</p> <p>-Continue to conduct human performance testing of Marines utilizing current and prototype configurations of infantry rifle squad equipment.</p> <p>-Continue to evaluate and transition technologies from ONR and other S&T activities that enhance capabilities of the squad or provide a desired capability.</p> <p>-Continue to seek weight and volume reduction replacements for current infantry equipment that support integration of components.</p> <p>-Continue to implement capability requirements from MERS Initial Capabilities Document (ICD).</p> <p>-Continue to prioritize projects with the Infantry Working Group and utilize the Partnership Intermediary Agreement as mechanism to pursue innovation and technology.</p> <p>-Continue Marine Corps anthropometry survey in order to provide an updated database in 2020.</p> <p>FY 2019 Base Plans:</p> <p>-Continue to support all the Marine Corps Systems Command program offices that provide equipment to the Marine rifle squad or provide mobility platforms that support the squad.</p>						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018			
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<p>-Continue to resource improvements and operating costs to support the mission of Gruntworks Squad Integration Facility. This includes resourcing minor construction for facilities sustainment, restoration and modernization efforts, below the MILCON threshold.</p> <p>-Continue to utilize the Gruntworks Squad Integration Facility as an asset to execute innovation and technology searches and projects, R&D integration projects, prototyping, rapid assessment of technologies, and usability trials.</p> <p>-Continue investment into Gruntworks Squad Integration Facility enablers and capabilities.</p> <p>-Continue to conduct human performance trials utilizing MC-LEAP and other data collection methodologies in order to develop mobility metrics.</p> <p>-Continue to conduct usability trials, requirements generation workshops, and limited user evaluations for digital interoperability, handheld devices and applications at the infantry platoon and squad level.</p> <p>-Continue to support integration of body armor and load bearing systems with human factors expertise.</p> <p>-Continue to conduct mobility experiments using the Marine Corps Load Effects Assessment Program and associated Policy Letters and Requirements Documents.</p> <p>-Continue to develop integrated seating solutions for combat equipped Marines for ACV 1.1, ACV 1.2, JLTV and other mobility programs and synchronize seat belt and retention systems among the platforms.</p> <p>-Continue to conduct R&D on squad systems in conjunction with Army squad system projects.</p> <p>-Continue to conduct surveys with post deploying infantry battalions on usability and integration of equipment utilized during deployment.</p> <p>-Continue to conduct human performance testing of Marines utilizing current and prototype configurations of infantry rifle squad equipment.</p> <p>-Continue to evaluate and transition technologies from ONR and other S&T activities that enhance capabilities of the squad or provide a desired capability.</p> <p>-Continue to seek weight and volume reduction replacements for current infantry equipment that support integration of components.</p> <p>-Continue to implement capability requirements from MERS Initial Capabilities Document (ICD).</p> <p>-Continue to prioritize projects with the Infantry Working Group and utilize the Partnership Intermediary Agreement as mediation to pursue innovation and technology.</p> <p>-Continue Marine Corps anthropometry survey in order to provide an updated database in 2020.</p> <p>FY 2019 OCO Plans: N/A</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement:</p>						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018			
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The increase from FY18 to FY19 of \$.0622M supports additional integration and prototyping initiatives as digital interoperability to the squad will require significant effort. In addition, the Infantry Working Group will focus on prototyping 5th generation Marine/Squad capabilities based on requirements identified in FY18.						
Title: Ammunition Life Cycle Management		0.309	0.609	0.000	0.000	0.000
Articles:		-	-	-	-	-
FY 2018 Plans: - Continue to support the Ammunition Logistics R&D IPT by funding the Propellant Temperature project, Emergency Resupply project, thermoformed dunnage project, automated site planning project, and the Logistics Study for Additive Manufacturing (3D) printing project.						
FY 2019 Base Plans: Funds transferred to Project C3774.						
FY 2019 OCO Plans: N/A						
FY 2018 to FY 2019 Increase/Decrease Statement: The decrease of \$.609 is due to funding being transferred to Project C3774 Marine Corps Ammo						
Accomplishments/Planned Programs Subtotals		2.328	3.340	3.353	0.000	3.353
C. Other Program Funding Summary (\$ in Millions) N/A						
Remarks						
D. Acquisition Strategy Non Developmental Item/Commercial off the Shelf (NDI/COTS).						
E. Performance Metrics N/A						

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	Various	Marine Corps Systems Command : Quantico, VA	0.000	0.000		0.000		0.750	Sep 2019	-		0.750	0.000	0.750	-
Prior Years Cumulative Funding	Various	Marine Corps Systems Command : Quantico, VA	12.792	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			12.792	0.000		0.000		0.750		-		0.750	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 Support	Various	Marine Corps Systems Command : Quanico, VA	0.926	0.000		0.000		0.000		-		0.000	0.000	0.926	-
Ammunition Life Cycle Management	MIPR	Defense Ammo Ctr : McAlester, OK	0.492	0.036	Jan 2017	0.000		0.000		-		0.000	0.000	0.528	-
Ammunition Life Cycle Management	WR	NSWC : Indian Head, MD	0.446	0.273	Jan 2017	0.000		0.000		-		0.000	0.000	0.719	-
Ammunition Life Cycle Management	MIPR	ARDEC : Picatinny Arsenal, NJ	0.000	0.000		0.609	Mar 2018	0.000		-		0.000	0.000	0.609	-
MERS Technical Support	C/IDIQ	Various : Various	0.000	0.320	Mar 2018	0.394	Mar 2018	0.000		-		0.000	Continuing	Continuing	Continuing
MERS Technical Support - PIA	C/CPFF	MCSC : Quantico, VA	0.000	1.128	Jan 2018	1.200	Jan 2018	1.900	Dec 2018	-		1.900	0.000	4.228	Continuing
Ammunition Life Cycle Management	MIPR	US Army SMCA : Picatinny, NJ	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
MERS Technical Support	C/CPFF	MCSC : Quantico, VA	0.000	0.000		0.600	Feb 2018	0.000		-		0.000	0.000	0.600	Continuing
Ammunition Life Cycle Management	WR	NSWC : Crane, IN	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
MERS Prior Years Cumulative Funding	Various	Various : Various	4.257	0.000		0.000		0.000		-		0.000	0.000	4.257	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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					
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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			6.121	1.757		2.803		1.900		-		1.900	Continuing	Continuing	N/A
Remarks															
Various contracts, MIPRS, Work Requests and Supply Requisitions are awarded through the year for the various initiatives in the MERS programs. Contract method reflects where the majority of the funding is allocated. Contract award date reflects the first of multiple awards.															
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	AFRL : WPAFB	0.454	0.000	Nov 2016	0.000		0.000		-		0.000	0.000	0.454	-
MERS Developmental Test & Eval	C/FFP	MCSC : TBD	0.255	0.140	Feb 2018	0.285	Feb 2018	0.000		-		0.000	0.000	0.680	-
MERS Developmental Test & Eval	MIPR	AFB : Hanscom	0.200	0.091	May 2018	0.112	Apr 2018	0.120	Dec 2018	-		0.120	0.000	0.523	-
MERS Developmental Test & Eval (Articles)	C/FFP	MCSC : Quantico, VA	0.000	0.150	May 2018	0.140	Feb 2018	0.121	Jul 2019	-		0.121	0.000	0.411	-
MERS Developmental Test & Eval	C/FFP	MCSC : Quantico, VA	0.000	0.190	Mar 2018	0.000		0.462	Feb 2019	-		0.462	0.000	0.652	-
MEP Developmental Test & Eval	C/FFP	MCSC : TBD	5.346	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
MERS Prior Years Cumulative Funding	C/FFP	MITLLTech : Lexington, MA	5.419	0.000		0.000		0.000		-		0.000	0.000	5.419	-
Subtotal			11.674	0.571		0.537		0.703		-		0.703	Continuing	Continuing	N/A
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.															

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy											Date: February 2018			
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				
		Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		30.587	2.328		3.340		3.353		-		3.353	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy										Date: February 2018																			
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									

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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 2086																												
MERS research/integration of Infantry Squad - No major milestones																												
Marine Enhancement Program Equipment - No major milestones																												
ALCM - Munitions RDTE Logistics - No major milestones																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
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	2017	4	2023
Marine Enhancement Program Equipment - No major milestones	1	2017	4	2023
ALCM - Munitions RDTE Logistics - No major milestones	1	2017	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2112: <i>Lightweight 155mm Howitzer</i>	4.426	0.543	0.000	1.800	-	1.800	2.000	2.000	2.000	2.000	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification
 LW155 (also known as the M777A2 howitzer) provides direct, reinforcing, and general support fires to maneuver forces as well as direct support artillery. It is a joint program between the Marine Corps and Army, which is additionally supporting various foreign military purchases of the weapon system. The LW155 was first fielded by the Marine Corps in April 2005 and since then the 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 being significantly utilized in operations.

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

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Lightweight 155mm Howitzer Product Improvements	0.543	0.000	1.800	0.000	1.800
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: -Initiate acquisition of prototyped hardware components.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: FY18 to FY19 increase of \$1.800M provides for hardware components for M777 Extended Range objective prototyping (i.e., to extend the range of artillery), in support of the system demonstration in FY21.					
Accomplishments/Planned Programs Subtotals	0.543	0.000	1.800	0.000	1.800

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

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 2185: 155MM Ltwt Towed Howitzer	17.318	20.259	47.158	-	47.158	26.065	0.072	0.074	0.075	0.000	1,440.282

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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
D. Acquisition Strategy Production and fielding of the LW155 has concluded and has now entered into the Sustainment Life Cycle Phase. However, the program will continue, in coordination with its partners, to perform research and development to remedy obsolescence issues, diminishing manufacturing sources, technical issues and emergent threats as well as investigate technologies to extend the range of USMC artillery to enhance operational capabilities and engage the threat at greater distances.		
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
LW155 Product Improvements	MIPR	ARDEC : Picatinny Arsenal, NJ	4.426	0.543	Aug 2017	0.000		1.800	Oct 2018	-		1.800	Continuing	Continuing	Continuing
Subtotal			4.426	0.543		0.000		1.800		-		1.800	Continuing	Continuing	N/A
Remarks FY17 funding provided for the M777 Extended Range Muzzle Brake prototyping. FY19 funding provided for M777 Extended Range objective hardware prototyping for system demonstration in FY21.															
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			4.426	0.543		0.000		1.800		-		1.800	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy																Date: February 2018			
Appropriation/Budget Activity 1319 / 7								R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys								Project (Number/Name) 2112 / Lightweight 155mm Howitzer			

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018	
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				
Muzzle Brake Prototype	4	2017	2	2018
Hardware Prototype	1	2019	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2237: Amphibious Vehicle Test	9.188	1.135	2.861	2.297	-	2.297	2.820	2.886	2.947	3.007	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 responsible for the operation and management of the amphibious vehicle test facility, which is the Department of Defense's only certified amphibious vehicle test capability. The AVTB generates test plans, executes, analyzes and reports results of developmental and integrated test and evaluation events. They predominately support the development and performance validation of amphibious and ground combat vehicle system capabilities. The AVTB conducts and supports testing for the MCSC; Navy PEOs and Program Management Offices; the Office of Naval Research; and HQMC PP&O and CD&I, as directed. The AVTB mission is to plan, execute, analyze and report developmental and integrated test and evaluation of USMC and Joint Service tracked, wheeled and ground combat vehicles and other demonstration events in order to characterize the performance of amphibious and ground combat vehicle systems and enable informed acquisition decisions for the future warfighting capabilities.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Contracts and Test and Evaluation Support Assets								1.135	2.861	2.297	0.000	2.297
								Articles: -	-	-	-	-
FY 2018 Plans:												
-Finalize AAV Survivability Upgrade DT&E.(EMD Phase)												
-Finalize ACV 1.1 Baseline, DT&E, and RGT.(EMD Phase)												
-Provide support for ACV 1.1 operation tests.(EMD Phase)												
-Commence AAV Survivability Upgrade Test Readiness Review, Water Mobility testing, and Reliability Qualification Testing.(PD Phase)												
-Commence ACV 1.1 Test Readiness Review. (PD Phase)												
-Commence ACV 1.1 DT&E (PD Phase)												
-Continue LAV-OB variant water testing.												
-Continue to test other MCSC, Navy PEOs, and Joint Service programs.												
FY 2019 Base Plans:												
-Finalize AAV Survivability Upgrade Water Mobility testing.(PD Phase)												
-Provide support for AAV Survivability Upgrade operation tests (IOT&E.).(PD Phase)												
-Finalize ACV 1.1 Test Readiness Review												
-Commence ACV 1.1 Water Mobility testing, Communications Testing, Supportability/Human Factor testing, and Reliability Qualification Testing.(PD Phase)												

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue to test other MCSC, Navy PEOs, and Joint Service programs.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: -No significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	1.135	2.861	2.297	0.000	2.297
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 of system activities to support future warfighting capabilities. Required DT&E test assets will be resourced organically with military and civilian personnel, and as required contracted by the MCSC, such as boat operations and maintenance, professional data collection and reduction, test instrumentation and test-peculiar programming and technical writing.					
E. Performance Metrics N/A					

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 Years Cumulative FUnding	Various	Various : Various	2.430	0.000		0.000		0.000		-		0.000	0.000	2.430	-
Subtotal			2.430	0.000		0.000		0.000		-		0.000	0.000	2.430	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 Infrastucture	C/FFP	NAVFAC, SW : Camp Pendleton, CA	0.403	0.080	May 2017	0.087	Oct 2017	0.250	Oct 2018	-		0.250	Continuing	Continuing	Continuing
Test Assets/Boat Operators	C/FFP	MCTSSA Camp Pend : Camp Pendleton, CA	0.637	0.000	Apr 2017	0.682	Apr 2018	0.664	Dec 2018	-		0.664	0.000	1.983	-
Test Assets/AAV Operators	C/FFP	MCTSSA Camp Pend : Camp Pendleton CA	0.624	0.000	Apr 2017	0.666	Apr 2018	0.648	Dec 2018	-		0.648	0.000	1.938	-
Vehicle Support	WR	RCO Camp Pendleton : Camp Pendleton, CA	0.065	0.000	Oct 2016	0.107	Oct 2017	0.070	Oct 2018	-		0.070	Continuing	Continuing	Continuing
Hazmat POL PPE	Various	MCTSSA Camp Pendleton : Camp Pendleton, CA	0.290	0.040	Oct 2016	0.055	Oct 2017	0.060	Oct 2018	-		0.060	0.000	0.445	-
Crane Test Support	C/IDIQ	MCTSSA Camp Pendleton : Camp Pendleton, CA	0.085	0.000	Jun 2017	0.085	Jun 2018	0.065	Jun 2019	-		0.065	0.000	0.235	-
Test article fuel (J8)	Various	AVTB : Camp Pendleton, CA	0.500	0.181	Oct 2016	0.150	Oct 2017	0.064	Oct 2018	-		0.064	0.000	0.895	-
Test support Fuel (Deisel)	Various	AVTB : Camp Pendleton, CA	0.450	0.150	Oct 2016	0.070	Oct 2017	0.000	Oct 2018	-		0.000	0.000	0.670	-
Dive Team Support	C/CPFF	MCTSSA : Camp Pendleton, CA	0.000	0.150	Dec 2016	0.096	Mar 2018	0.000	Dec 2018	-		0.000	0.000	0.246	-
Subtotal			3.054	0.601		1.998		1.821		-		1.821	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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					
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 & Main	Various	AVTB : Camp Pendelton, CA	1.348	0.085	Oct 2016	0.150	Oct 2017	0.080	Oct 2018	-		0.080	Continuing	Continuing	Continuing
Test Equipment	WR	AVTB : MCTSSA Camp Pendleton	0.315	0.000	Oct 2016	0.071	Oct 2017	0.025	Oct 2018	-		0.025	0.000	0.411	-
Subtotal			1.663	0.085		0.221		0.105		-		0.105	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	MCTSSA Camp Pendleton : Camp Pendleton	1.618	0.000	Oct 2017	0.193	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Lab and Tech Writer Supt.	C/FFP	MCTSSA Camp Pendleton : Camp Pendleton	0.423	0.449	Jun 2017	0.449	Dec 2017	0.371	Nov 2018	-		0.371	0.000	1.692	-
Subtotal			2.041	0.449		0.642		0.371		-		0.371	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			9.188	1.135		2.861		2.297		-		2.297	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy

Date: February 2018

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

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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 2237																												
AAV SU: FY18 End DT&E / RGT(EMD Phase)																												
AAV SU: FY18 Test Readiness Review (PD Phase)																												
AAV SU: FY18 Start DT&E (PD Phase)																												
AAV SU: DT&E Testing (PD Phase)																												
AAV SU: FY 19 End DT&E (PD Phase)																												
AAV SU: FY19 Start OT&E Testing (PD Phase)																												
AAV SU: FY19 OT&E Testing (PD Phase)																												
AAV SU: FY19 End OT&E Testing (PD Phase)																												
ACV 1.1: FY18 End DT&E / RGT (EMD Phase)																												
ACV 1.1: FY18 (1) Test Readiness Review																												
ACV 1.1: FY18 Start DT&E (PD Phase)																												
ACV 1.1: FY 19 DT&E Tesing (PD Phase)																												
ACV 1.1: FY19 End DT&E (PD Phase)																												
ACV 1.1: FY19 (2) Test Readiness Review (PD Phase)																												
ACV 1.1: FY20 Start OT&E Testing (PD Phase)																												
ACV 1.1: FY 20 OT&E Testing (PD Phase)																												
ACV 1.1: FY20 End OT&E Testing (PD Phase)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy																								Date: February 2018													
Appropriation/Budget Activity										R-1 Program Element (Number/Name)										Project (Number/Name)																	
1319 / 7										PE 0206623M / MC Ground Cmbt Spt Arms Sys										2237 / Amphibious Vehicle Test																	
										FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Other USMC: Other USMC Testing																																					
Other USMC: USMC Testing																																					
Other USMC: End of Other USMC Testing																																					
OPFOR SPRT: OPFOR Support																																					
OPFOR SPRT: OPFOR Support Testing																																					
OPFOR SPRT: End of OPFOR Support																																					

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy

Date: February 2018

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: FY18 End DT&E / RGT(EMD Phase)	1	2018	1	2018
AAV SU: FY18 Test Readiness Review (PD Phase)	3	2018	3	2018
AAV SU: FY18 Start DT&E (PD Phase)	3	2018	3	2018
AAV SU: DT&E Testing (PD Phase)	3	2018	1	2019
AAV SU: FY 19 End DT&E (PD Phase)	1	2019	1	2019
AAV SU: FY19 Start OT&E Testing (PD Phase)	2	2019	2	2019
AAV SU: FY19 OT&E Testing (PD Phase)	2	2019	3	2019
AAV SU: FY19 End OT&E Testing (PD Phase)	3	2019	3	2019
ACV 1.1: FY18 End DT&E / RGT (EMD Phase)	1	2018	1	2018
ACV 1.1: FY18 (1) Test Readiness Review	3	2018	3	2018
ACV 1.1: FY18 Start DT&E (PD Phase)	4	2018	4	2018
ACV 1.1: FY 19 DT&E Tesing (PD Phase)	4	2018	1	2020
ACV 1.1: FY19 End DT&E (PD Phase)	1	2020	1	2020
ACV 1.1: FY19 (2) Test Readiness Review (PD Phase)	2	2019	2	2019
ACV 1.1: FY20 Start OT&E Testing (PD Phase)	2	2020	2	2020
ACV 1.1: FY 20 OT&E Testing (PD Phase)	2	2020	4	2020
ACV 1.1: FY20 End OT&E Testing (PD Phase)	4	2020	4	2020
Other USMC: Other USMC Testing	1	2018	1	2018
Other USMC: USMC Testing	1	2018	4	2023
Other USMC: End of Other USMC Testing	4	2023	4	2023
OPFOR SPRT: OPFOR Support	1	2018	1	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018	
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
OPFOR SPRT: OPFOR Support Testing		1	2018	4 2023
OPFOR SPRT: End of OPFOR Support		4	2023	4 2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2315: Training Devices/ Simulators	129.886	15.942	23.927	18.328	-	18.328	18.061	22.215	19.279	19.674	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), Force on Force Training Systems (FoFTS), Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) Enhancements, Ranges and Training Area Management (RTAM) [Formerly Range Modernization/Transformation], Supporting Arms Virtual Trainer (SAVT), Immersive Training Range Support (ITRS) [formerly Squad Immersive Training Environment (SITE)], Tactical Decision Kits 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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 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. FY 2018 Plans: - Continue integration of new 3D viewer software. - Continue additional training system interoperability to include new C4i devices. - Continue development of After Action Review (AAR) functionality.								1.335	5.719	3.021	0.000	3.021
								-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<div>- Continue transition to new system communication environment.</div> <div>- Continue development of new architecture to support maturing hardware platforms.</div> <div>- Complete development of Distributed Ops.</div> <div>FY 2019 Base Plans:</div> <div>- Continue integration of 3D viewer software.</div> <div>- Continue additional training system interoperability to include additional C4i devices.</div> <div>- Continue development of After Action Review (AAR) functionality.</div> <div>- Initiate development to retain currency of training and readiness tasks and tactics, techniques and procedures with combined arms efforts.</div> <div>- Complete transition to a new communications environment.</div> <div>- Complete development of new architecture to support maturing hardware platforms.</div> <div>FY 2019 OCO Plans:</div> <div>N/A</div> <div>FY 2018 to FY 2019 Increase/Decrease Statement:</div> <div>The \$2.698M decrease from FY18 to FY19 is due to the completion of the transition to a new communications environment and completion of development to new architecture to support maturing hardware platforms.</div>						
<div>Title: Force on Force Training Systems (FoFTS)</div> <div>Articles:</div> <div>Description: FoFTS provides realistic, non-live-fire capabilities to perform force-on-force training and supports realistic, live-fire force-on-target training. The program develops, fields, and supports for a suite of tactical engagement systems that allow Marines to receive feedback in non-live fire FOF training by using low velocity projectiles or advanced, instrumented, laser-based tactical engagement systems.</div> <div>FY 2018 Plans:</div> <div>- Initiate the Combat Vehicle-Tactical Engagement Simulation System (CV-TESS) integration for LAV-25, LAV-AT and M1A1 simulators.</div> <div>- Initiate Augmented Immersive Team Trainer (AITT) Joint Tactical Air Controller (JTAC) task enhancements.</div> <div>FY 2019 Base Plans:</div> <div>- Continue the Combat Vehicle-Tactical Engagement Simulation System (CV-TESS) integration for LAV-25, LAV-AT and M1A1 simulators.</div>		0.000 -	1.914 -	6.450 -	0.000 -	6.450 -

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<p>- Continue Augmented Immersive Team Trainer (AITT) Joint Tactical Air Controller (JTAC) task enhancements.</p> <p>- The increase of \$4.8M in FY19 will provide additional capabilities to test out the expanded Long Term Evolution (LTE) wireless data communication network for Range 220 (29 Palms, CA) large scale exercises with communications back haul.</p> <p>- Development of the close combat instrumentation for the I-TESS III training system with a limited user evolution of new technologies to meet the urban training requirements for within 10 m range engagements. This will support the integration of the Mobile Fire Support Trainer (MFST) into the I-TESS III environment developing technology to allow for freedom of movement throughout the training area. These three areas of development will support the future objectives for I-TESS III by expanding the training radius, allowing for close combat effective training and augmented reality throughout the training area.</p> <p>FY 2019 OCO Plans: N/A</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement: Increase of \$4.536M from FY18 to FY19 will be used to finish development of Instrumented - Tactical Engagement Simulations Systems (I-TESS) III that enhances battlefield experiences at home station and developed venues.</p>						
<p>Title: Deployable Virtual Training Environment (DVTE)</p> <p>Articles:</p> <p>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.</p> <p>FY 2018 Plans:</p> <p>- Continue incremental DVTE network infrastructure development by focusing on capabilities identified as DVTE application enhancements in the development plan.</p> <p>- Continue the additional efforts specified under the DVTE Software Capability Development Document (CDD) Increment II for Virtual Battlespace (VBS) release that includes improved Call For Fire (CFF) and Close Air</p>		0.000 -	2.369 -	2.408 -	0.000 -	2.408 -

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Support (CAS) capability and Combined Arms Planning Enhancements (CAPE) to replace/decrease actual live training events. - Continue development of Tactical Air Control Party Green Gear modeling and Digital Fire Control System (DFCS) modeling for the Virtual Battlespace (VBS) release. - Continue to improve Flight Dynamics of Close Air Support (CAS) weapon platforms to more accurately represent live Joint Terminal Attack Controller (JTAC) training for the Virtual Battlespace (VBS) release. - Continue enhancement and integration of Comm Gear and After Action Review (AAR) for the Virtual Battlespace (VBS) release. - Initiate and complete Enhancements to Combined Arms Planning functionality that will improve the DVTE system ability to replace live events. FY 2019 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 for Virtual Battlespace (VBS) release that includes improved Call For Fire (CFF) and Close Air Support (CAS) capability and Combined Arms Planning Enhancements (CAPE) to replace/decrease actual live training events. - Continue development of Tactical Air Control Party Green Gear modeling and Digital Fire Control System (DFCS) modeling for the Virtual Battlespace (VBS) release. - Continue to improve Flight Dynamics of Close Air Support (CAS) weapon platforms to more accurately represent live Joint Terminal Attack Controller (JTAC) training for the Virtual Battlespace (VBS) release. - Continue enhancement and integration of Comm Gear and After Action Review (AAR) for the Virtual Battlespace (VBS) release. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: The \$0.039 increase from FY18 to FY19 is due to software development schedule.						
Title: Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) Enhancements <div>Articles:</div> Description: The MAGTF Tactical Warfare Simulation (MTWS) is the Marine Corps' only constructive, aggregate-level simulation system used to support the training of Marine commanders and their battle staffs		2.473 -	7.757 -	2.995 -	0.000 -	2.995 -

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
in MAGTF war-fighting principles/concepts and associated command and control procedures. Using complex computer-simulated behavior models, MTWS provides an interactive, decision-based, real-time, war game representing the six war-fighting functional areas of fires, command and control, force protection, logistics, maneuver, and intelligence. It's modeling breadth and flexibility enables users to represent and exercise a wide variety of combat scenarios to prepare leaders to face the military challenges of today's world. MTWS is designed to support the training of commanders and their staffs in exercises involving live and simulated land, air, and naval forces at all operational command levels. The system supports all levels of command throughout the Marine Expeditionary Force (MEF) and Joint Task Force (JTF). MTWS can be used as a multi-sided war game, including red, blue, civilian, and non-aligned sides. The system can also be used to validate specific operational plans against a variety of enemy and environmental situations. Thus command personnel may examine alternative tactical solutions on a "what if" basis.						
FY 2018 Plans: - Continue interoperability development of MTWS integration into Joint Live Virtual and Constructive (JLVC) Federation. - Continue development to increase levels of software capability to meet the changing operational environment that Marines fight in daily. - Continue Live, Virtual and Constructive (LVC) simulation integration. - Initiate contractual efforts to re-engineer the MTWS software baseline.						
FY 2019 Base Plans: - Continue interoperability development of MTWS integration into Joint Live Virtual and Constructive (JLVC) Federation. - Continue development to increase levels of software capability to meet the changing operational environment that Marines fight in daily. - Continue Live, Virtual and Constructive (LVC) simulation integration. - Continue contractual efforts to re-engineer the MTWS software baseline.						
FY 2019 OCO Plans: N/A						
FY 2018 to FY 2019 Increase/Decrease Statement: The \$4.762M decrease from FY18 to FY19 is due to software refresh schedule.						
Title: Ranges and Training Area Management (RTAM)		0.753	1.101	1.068	0.000	1.068

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Articles:		-	-	-	-	-
<p>Description: Ranges and Training Area Management (RTAM) developments are associated with modernizing live training ranges at major USMC bases and stations. This development effort enhances After Action Review (AAR) with ground truth feedback, realistic representation of Opposing Forces (OPFOR), and will upgrade the range and exercise control capabilities. RTAM integrates Live, Virtual, and Constructive training technologies, thereby, enhancing fielded live-fire, force-on-target, and force-on-force training capabilities.</p> <p>FY 2018 Plans:</p> <ul style="list-style-type: none">- 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.- Continue enhancements of TRACR software for Friend-and-Foe target control and scenario development, to include integration with Range Instrumentation System Controller (RISCon)- Continue enhancements of the Tactical Video Capture System (TVCS) Mobile (RISCon) <p>FY 2019 Base Plans:</p> <ul style="list-style-type: none">- 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.- Continue enhancements of TRACR software for Friend-and-Foe target control and scenario development, to include integration with Range Instrumentation System Controller (RISCon)- Continue enhancements of the Tactical Video Capture System (TVCS) Mobile (RISCon) <p>FY 2019 OCO Plans:</p> <p>N/A</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement:</p> <p>The \$0.033M decrease from FY 18 to FY 19 will result in minimum software upgrades and enhancements associated with the Range Instrumentation System Controller (RISCon)</p>						
Title: Supporting Arms Virtual Trainer (SAVT)		0.000	2.203	0.000	0.000	0.000
Articles:		-	-	-	-	-
<p>Description: The SAVT will advance the training capability, operational readiness, and tactical proficiency of USMC Joint</p>						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
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 2018 Plans: - Initiate and complete development and integration of Battlefield effects and aircraft behaviors software. - Initiate and complete information Assurance and networkability in order to interoperate with other Simulations in Live Virtual Constructive (LVC). - Initiate and complete enhancements of command features and flight models. - Initiate and complete development and integration of Fixed and Rotary Wing flight profiles. - Initiate and complete post engineer support and developmental installation and operational testing. FY 2019 Base Plans: N/A FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: The decrease of \$2.203 down to \$0.00 from FY 18 to FY 19 is due to scheduled completion of the development, enhancements and integration in FY 18 for SAVT.						
Title: Immersive Training Range Support (ITRS) [formerly Squad Immersive Training Environment (SITE)] Articles: Description: The Immersive Training Range Support (ITRS) [formerly Squad Immersive Training Environment (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.		3.506 -	2.829 -	2.386 -	0.000 -	2.386 -

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 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. - Complete the integration of the AITT within the OneTESS Mortar capability and produce the prototype items for testing. - Initiate virtual integration tasks for Combat Convoy Simulator (CCS), SAVT, DVTE gateways and database commonality.						
FY 2019 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 virtual integration tasks for CCS, SAVT, DVTE gateways and database commonality.						
FY 2019 OCO Plans: N/A						
FY 2018 to FY 2019 Increase/Decrease Statement: The \$.443M decrease from FY18 to FY19 will result in the removal of of the virtual integration tasks for CCS.						
Title: Training Support		0.675	0.035	0.000	0.000	0.000
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 2018 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.						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue Live, Virtual and Constructive (LVC) simulation integration. FY 2019 Base Plans: Decrease from FY18 to FY19 is due to technical correction to Program Objective Memorandum (POM) 19 to permanently realign funding to MTWS for software development. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: Decrease of .035M from FY18 to FY19 is due to technical correction to Program Objective Memorandum (POM) 19 to permanently realign funding to MTWS for software development.						
Title: Tactical Decision Kits (TDK) Articles: Description: The Tactical Decision Kit (TDK) is a small unit decision-making capability toolkit. Components can be applied in unison or stand-alone. Kits consist of laptop computers with specific software to create virtual "decision rooms" which enhance force on force training. TDK also includes augmented reality which superimposes a computer-generated image in the headsets and network storage for map data. Map data is gathered by small, hobby shop quality, remote control helicopters with cameras (Phantom 4 Pro Plus). TDK allows Marines the ability to conduct live and virtual tactical decision games, develop graphic-based orders, mission plan in augmented reality, and subsequently brief, execute and debrief live missions. FY 2018 Plans: N/A FY 2019 Base Plans: N/A FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: No change from FY 2018 to FY 2019.		7.200 -	0.000 -	0.000 -	0.000 -	0.000 -
Accomplishments/Planned Programs Subtotals		15.942	23.927	18.328	0.000	18.328

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018	
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)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PMC/6532-01: Training Devices, CACCTUS	3.515	4.659	2.909	-	2.909	4.590	4.467	4.148	4.231	Continuing	Continuing
• PMC/6532-02: Training Devices, RTAM	14.766	19.481	22.476	-	22.476	17.838	37.835	29.156	31.541	Continuing	Continuing
• PMC/6532-03: Training Devices, SAVT	1.419	4.212	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.631
• PMC/6532-04: Training Devices, DVTE	2.229	2.538	0.947	-	0.947	1.776	4.276	4.158	4.241	Continuing	Continuing
• PMC/6532-05: Training Devices, Force on Force Training Systems	0.000	7.456	20.942	-	20.942	67.187	56.888	54.463	9.652	Continuing	Continuing
• PMC/6532-06: Training Devices, Immersive Training Range Support/SITE	0.000	25.012	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	25.012
• PMC/6532-07: Training Devices, MTWS	0.000	0.904	0.752	-	0.752	0.765	0.779	0.795	0.811	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
(U) CACCTUS - MIPRs to Army and exercise task orders on competitive contract (C/IDIQ).											
(U) DVTE - Exercise task orders off of new sole source IDIQ for Virtual Battleship Space (VBS) Software (SW) Development.											
(U) MTWS - Exercise task orders off of IDIQ contract awarded December 2016, period of performance is January 2017 - December 2017.											
(U) RTAM - MIPR to the Army-PEO STRI planned for award on existing Consolidated Product-line Management Contract.											
(U) SAVT - New competitive (C/FFP) contract supporting the Joint Terminal Attack Controller (JTAC) Memorandum of Agreement (MOA) awarding Base contract in December 2017 and awarding task order to support this effort in Mar 2018.											
(U) IMMERSIVE TRAINING RANGE SUPPORT (formerly SITE) - MIPR to the Army-PEO STRI planned for award on existing Consolidated Product-line Management Contract; and exercise option on existing MCSC RDTE contract M67854-13-C-7802 (C/FFP).											
(U) Training Support - Extended existing contract 9 months in order to continue activities in support of federate status with the Joint Live Virtual Constructive (JLVC) federation v.8, and complete in-process enhancements for Ulchi Freedom Guardian-15 (UFG-15); Exercise task order on new competitive contract (C/IDIQ).											
(U) FoFTS - MIPR to Army-PEO STRI for award on existing Consolidated Product-line Management contract; New competitive I-TESS-III award planned for March 2019											
(U) Tactical Decision Kits - awarded prime contract to Tuva, LLC, Herndon, VA.											

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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

E. Performance Metrics

Program Management Reviews are conducted on all PM TRASYS programs on a quarterly basis to assess program status.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 TO 7	C/IDIQ	Riptide Software, Inc : Oviedo, FL	0.000	0.000		2.771	Nov 2018	0.000		-		0.000	0.000	2.771	-
CACCTUS - SW Dev TO 1	C/IDIQ	Riptide Software, Inc. : Oviedo, FL	5.048	0.000		0.165	Oct 2017	0.000		-		0.000	Continuing	Continuing	Continuing
CACCTUS - SW Dev TO 2	C/IDDQ	Riptide Software, Inc. : Orlando, FL	1.118	0.000		1.647	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
CACCTUS - SW Dev TO 3	C/IDIQ	Riptide Software, Inc. : Oviedo, FL	0.554	0.000		0.986	Jul 2018	0.000		-		0.000	Continuing	Continuing	Continuing
CACCTUS - SW Dev TO 4	C/IDIQ	Riptide Software, Inc. : Oviedo, FL	0.000	0.596	Apr 2017	0.000		1.700	May 2019	-		1.700	0.000	2.296	-
CACCTUS - SW Dev TO 5	C/IDIQ	Riptide Software, Inc. : Oviedo, FL	0.000	0.739	Nov 2017	0.000		1.221	Jan 2019	-		1.221	0.000	1.960	-
CACCTUS - SW Dev TO 6	C/IDIQ	Riptide Software, Inc. : Orlando, FL	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
DVTE - SW Dev - VBS	SS/IDIQ	Bohemia Interactive : Orlando, FL	13.813	0.000	Jun 2017	2.369	Jan 2018	2.408	Dec 2018	-		2.408	Continuing	Continuing	Continuing
Tactical Decision Kit	C/FFP	Tuva : Herndon, VA	0.000	7.200	Mar 2017	0.000		0.000		-		0.000	0.000	7.200	-
MTWS - SW Dev Task 2	C/IDIQ	Cole Engineering Services Inc. : Orlando, FL	2.294	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
MTWS - SW Dev Task 3	C/IDIQ	Cole Engineering Services Inc. : Orlando, FL	0.150	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
MTWS - SW Dev Task 4	C/IDDQ	Cole Engineering Services Inc. : Orlando, FL	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
MTWS - SW Dev Task 5	C/IDIQ	Cole Engineering Services Inc. : Orlando, FL	0.000	0.097	Dec 2016	0.000		0.000		-		0.000	0.000	0.097	-
MTWS - SW Dev Task 6	C/IDIQ	Cole Engineering Services Inc. : Orlando, FL	0.000	0.948	Mar 2017	0.000		0.000		-		0.000	0.000	0.948	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
MTWS - SW Dev Task 7	C/IDIQ	Cole Engineering Services Inc. : Orlando, FL	1.341	0.876	Mar 2017	0.000		0.000		-		0.000	0.000	2.217	-
MTWS - SW Dev Task 8	C/IDIQ	Cole Engineering Services Inc. : Orlando, FL	0.000	0.552	Nov 2017	0.000		0.000		-		0.000	0.000	0.552	-
MTWS - Reengineering	C/IDIQ	RECOMPETE : TBD NEW VENDOR	0.000	0.000		4.257	Jun 2018	2.995	Jan 2019	-		2.995	0.000	7.252	-
MTWS - SWDev Task 9	C/IDIQ	Cole Engineering, Inc. : Orlando, FL	0.000	0.000		2.399	Dec 2017	0.000		-		0.000	0.000	2.399	-
MTWS - SWDev Task 10	C/IDIQ	Cole Engineering, Inc. : Orlando, FL	0.000	0.000		0.169	Dec 2017	0.000		-		0.000	0.000	0.169	-
MTWS - SWDev Task 11	C/IDIQ	Cole Engineering, Inc. : Orlando, FL	0.000	0.000		0.932	Dec 2017	0.000		-		0.000	0.000	0.932	-
RTAM RISCon Development	MIPR	PEOSTRI/TRADE : Orlando, FL	7.606	0.753	Mar 2017	1.101	Dec 2017	1.068	Dec 2018	-		1.068	Continuing	Continuing	Continuing
SAVT - SW Dev	C/FFP	TBD : TBD	0.000	0.000		2.203	Mar 2018	0.000		-		0.000	0.000	2.203	-
ITRS (SITE) - Live Core System Upgrades	C/FFP	Cubic Defense : San Diego, CA	3.563	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
ITRS (SITE) - Consolidated Product Line Dev	MIPR	PEOSTRI/TRADE : Orlando, FL	2.120	3.454	Mar 2017	2.829	Dec 2017	2.386	Dec 2018	-		2.386	Continuing	Continuing	Continuing
Training Support - MTWS - SW Dev Task 2	C/IDIQ	Cole Engineering Services Inc. : Orlando, FL	0.294	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Training Support - LVE-TE AoA	FFRDC	NAVSEA : Washington, DC	0.000	0.675	Sep 2017	0.035	Feb 2018	0.000		-		0.000	0.000	0.710	-
FoFTS SW Development	MIPR	PEOSTRI/TRADE : Orlando, FL	0.000	0.000		1.914	Dec 2017	2.500	Oct 2018	-		2.500	0.000	4.414	-
FoFTS SW Development CV-TESS	MIPR	PEOSTRI/TRADE : Orlando, FL	0.000	0.000		0.000		3.950	Oct 2018	-		3.950	0.000	3.950	-
Prior Year Cumulative Funding	Various	Not Specified : Not Specified	71.995	0.000		0.000		0.000		-		0.000	0.000	71.995	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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			109.896	15.890		23.777		18.228		-		18.228	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 - Engineering Support	MIPR	RDECOM : Orlando, FL	2.982	0.000		0.150	Oct 2017	0.100	Dec 2018	-		0.100	Continuing	Continuing	Continuing
RTAM - SW Dev Support	WR	NAWCTSD : Orlando, FL	1.166	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
ITRS (SITE) - Travel	Various	DTS : Various	0.043	0.052	Mar 2017	0.000		0.000		-		0.000	0.000	0.095	-
Prior Year Cumulative Funding	Various	Not Specified : Not Specified	15.797	0.000		0.000		0.000		-		0.000	0.000	15.797	-
Subtotal			19.988	0.052		0.150		0.100		-		0.100	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	0.000		0.000		0.000		-		0.000	0.000	0.002	-
Subtotal			0.002	0.000		0.000		0.000		-		0.000	0.000	0.002	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			129.886	15.942		23.927		18.328		-		18.328	Continuing	Continuing	N/A
Remarks															
Decrease from FY18 to FY19 reflects programs moving through their acquisition lifecycle.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy																								Date: February 2018				
Appropriation/Budget Activity												R-1 Program Element (Number/Name)								Project (Number/Name)								
1319 / 7												PE 0206623M / MC Ground Cmbt Spt Arms Sys								2315 / Training Devices/Simulators								
Combined Arms Command & Control Training Upgrade System (CACCTUS)	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Program Contractor Support																												
Govt Engineering Support																												
Software Development Reviews																												
Development Contract Awards	◆			◆	◆			◆																				
Version 4.0.X SW																												
Annual SW Release	◆					◆					◆		◆	◆	◆			◆		◆	◆	◆		◆	◆	◆		◆
Test and Validation, All Sites																												
Mid Year Release				◆				◆				◆				◆				◆				◆				◆
Full Operating Capability (FOC) Combined										■																		
2019DON - 0206623M - 2315																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy													Date: February 2018																
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								
Deployable Virtual Training Environment (DVTE)	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
Software Development - Contract Award																													
Software Development Version Release - VBS																													
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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy

Date: February 2018

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 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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	◆		◆																									
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SW Release	◆																											
Version 4.0.X SW																												
User Acceptance Testing								◆																				
SW Release									◆																			
Version 4.0.X SW																												
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2019DON - 0206623M - 2315

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy												Date: February 2018																
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								
Ranges and Training Area Management	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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																												
2019DON - 0206623M - 2315																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy																								Date: February 2018								
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												
Supporting Arms Virtual Trainer (SAVT)	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
SW Development and Integration	<div></div>				<div></div>				<div></div>				<div></div>				<div></div>				<div></div>				<div></div>				<div></div>			
2019DON - 0206623M - 2315																																

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PE 0206623M: MC Ground Cmbt Spt Arms Sys
Navy

R-1 Line #238

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								
Immersive Training Range Support	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Virtual System Upgrade Deliverables					◆																							
Consolidated Product Line Development Awards	◆				◆				◆				◆				◆				◆				◆			
2019DON - 0206623M - 2315																												

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

R-1 Line #238

Project (Number/Name) 2315 / <i>Training Devices/Simulators</i>	
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Appropriation/Budget Activity
1319 / 7

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

Project (Number/Name)	2315 / Training Devices/Simulators
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Force on Force Training Systems (FoFTS)	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
Contract Award					◆				◆				◆				◆				◆				◆			
Integration Testing							◆		◆		◆		◆		◆		◆		◆		◆		◆		◆		◆	
TACTICAL DECISION KITS (TDK)		▲																										
		◆					▲																					

2019DON - 0206623M - 2315

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy

Date: February 2018

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

TACTICAL DECISION KITS (TDK) PROGRAM SCHEDULE

Fiscal Year	FY 17				FY 18				FY 19				FY 20				FY 21				FY 22				FY 22			
Quarter	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Aquisition / Milestone Events																												
Test & Evaluation																												
Capabilities / Requirements																												
Systems Engineering																												
Logistics																												
Major Contract Events																												
		Contract Award																										



General Officer Board of Directors (GOBoD) Decision



Capabilities Assessment Report (CAR)
Authority to Operate (ATO)



Key Events
Initial Tasking



Requirement
Assessment
(RA)



Contract Award Tuva LLC, Herndon, VA

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018
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
<i>Combined Arms Command & Control Training Upgrade System (CACCTUS)</i>				
Program Contractor Support: Program Contractor Support	1	2017	1	2023
Govt Engineering Support: Govt Engineering Support	1	2017	4	2023
Software Development Reviews: Software Development Reviews	1	2017	1	2023
Development Contract Awards: FY17 Award 1	1	2017	1	2017
Development Contract Awards: FY17 Award 2 & 3	4	2017	4	2017
Development Contract Awards: FY18 Award 1, 2 & 3	1	2018	1	2018
Development Contract Awards: FY18 Award 4	4	2018	4	2018
Version 4.0.X SW: FY19 Award 1	2	2019	2	2019
Version 4.0.X SW: FY19 Award 2	4	2019	4	2019
Version 4.0.X SW: FY20 Award 1	1	2020	1	2020
Version 4.0.X SW: FY20 Award 2	2	2020	2	2020
Version 4.0.X SW: FY21 Award 1	2	2021	2	2021
Version 4.0.X SW: FY21 Award 2	4	2021	4	2021
Version 4.0.X SW: FY22 Award 1	1	2022	1	2022
Version 4.0.X SW: FY22 Award 2	2	2022	2	2022
Version 4.0.X SW: FY22 Award 3	4	2022	4	2022
Version 4.0.X SW: FY23 Award 1	1	2023	1	2023
Version 4.0.X SW: FY23 Award 2	2	2023	2	2023
Version 4.0.X SW: FY23 Award 3	4	2023	4	2023
Version 4.0.X SW: Annual SW Release: Annual SW Release 2017	2	2017	2	2017
Version 4.0.X SW: Annual SW Release: Annual SW Release 2018	2	2018	2	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018	
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
Version 4.0.X SW: Annual SW Release: Annual SW Release 2019	2	2019	2	2019
Version 4.0.X SW: Annual SW Release: Annual SW Release 2020	2	2020	2	2020
Version 4.0.X SW: Annual SW Release: Annual SW Release 2021	2	2021	2	2021
Version 4.0.X SW: Annual SW Release: Annual SW Release 2022	2	2022	2	2022
Version 4.0.X SW: Annual SW Release: Annual SW Release 2023	2	2023	2	2023
Version 4.0.X SW: Test and Validation, All Sites: Test and Validation 1, All Sites 2017	1	2017	4	2023
Version 4.0.X SW: Mid Year Release: Mid Year Release 2017	4	2017	4	2017
Version 4.0.X SW: Mid Year Release: Mid Year Release 2018	4	2018	4	2018
Version 4.0.X SW: Mid Year Release: Mid Year Release 2019	4	2019	4	2019
Version 4.0.X SW: Mid Year Release: Mid Year Release 2020	4	2020	4	2020
Version 4.0.X SW: Mid Year Release: Mid Year Release 2021	4	2021	4	2021
Version 4.0.X SW: Mid Year Release: Mid Year Release 2022	4	2022	4	2022
Version 4.0.X SW: Mid Year Release: Mid Year Release 2023	4	2023	4	2023
Version 4.0.X SW: Full Operating Capability (FOC) Combined: Full Operating Capability (FOC)/Full Development (FD)	2	2019	2	2019
Deployable Virtual Training Environment (DVTE)				
Software Development - Contract Award: Software Development - Contract Award 2017	3	2017	3	2017
Software Development - Contract Award: Software Development - Contract Award 2018	2	2018	2	2018
Software Development - Contract Award: Software Development - Contract Award 2019	1	2019	1	2019
Software Development - Contract Award: Software Development - Contract Award 2020	1	2020	1	2020
Software Development - Contract Award: Software Development - Contract Award 2021	1	2021	1	2021

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018	
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
Software Development - Contract Award: Software Development - Contract Award 2022	1	2022	1	2022
Software Development - Contract Award: Software Development - Contract Award 2023	1	2023	1	2023
Software Development Version Release - VBS: Software Development Version Release - VBS (2017)	4	2017	4	2017
Software Development Version Release - VBS: Software Development Version Release - VBS (2018)	4	2018	4	2018
Software Development Version Release - VBS: Software Development Version Release - VBS (2019)	4	2019	4	2019
Software Development Version Release - VBS: Software Development Version Release - VBS (2020)	4	2020	4	2020
Software Development Version Release - VBS: Software Development Version Release - VBS (2021)	4	2021	4	2021
Software Development Version Release - VBS: Software Development Version Release - VBS (2022)	4	2022	4	2022
Software Development Version Release - VBS: Software Development Version Release - VBS (2023)	4	2023	4	2023
Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS)				
MTWS IPT/CCB: MTWS IPT/CCB 2017	3	2017	3	2017
MTWS IPT/CCB: MTWS IPT/CCB 2018	3	2018	3	2018
MTWS IPT/CCB: MTWS IPT/CCB 2019	3	2019	3	2019
MTWS IPT/CCB: MTWS IPT/CCB 2020	3	2020	3	2020
MTWS IPT/CCB: MTWS IPT/CCB 2021	3	2021	3	2021
MTWS IPT/CCB: MTWS IPT/CCB 2022	3	2022	3	2022
MTWS IPT/CCB: MTWS IPT/CCB 2023	3	2023	3	2023
Contract Award: Contract Award New Development	1	2017	1	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018	
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	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
Contract Award: TO 7 Award	3	2017	3	2017
Contract Award: TO 8 Award	3	2017	3	2017
Contract Award: Contract Award Reengineering	1	2018	1	2018
Contract Award: TO 1 Award	1	2018	1	2018
Contract Award: Contract Opt 1 Reengineering	1	2019	1	2019
Contract Award: TO 2 Award	3	2019	3	2019
Contract Award: Contract Opt 2 Reengineering	1	2020	1	2020
Contract Award: TO 3 Award	4	2020	4	2020
Contract Award: Contract Opt 3 Reengineering	1	2021	1	2021
Contract Award: TO 4 Award	4	2021	4	2021
Contract Award: Contract Opt 4 Reengineering	1	2022	1	2022
Contract Award: TO 5 Award	1	2022	1	2022
Contract Award: Contract Opt 5 Reengineering	1	2023	1	2023
Contract Award: TO 6 Award	1	2023	1	2023
SW Release: SW Release 2017	1	2017	1	2017
Version 4.0.X SW: User Acceptance Testing: User Acceptance Testing 2018	4	2018	4	2018
Version 4.0.X SW: SW Release: SW Release 2019	1	2019	1	2019
Version 4.0.X SW: User Acceptance Testing: User Acceptance Testing 2019	4	2019	4	2019
Version 4.0.X SW: SW Release: SW Release 2020	1	2020	1	2020
Version 4.0.X SW: User Acceptance Testing: User Acceptance Testing 2020	4	2020	4	2020
Version 4.0.X SW: SW Release: SW Release 2021	1	2021	1	2021
Version 4.0.X SW: User Acceptance Testing: User Acceptance Testing 2021	4	2021	4	2021
Version 4.0.X SW: SW Release: SW Release 2022	1	2022	1	2022
Version 4.0.X SW: User Acceptance Testing: User Acceptance Testing 2022	4	2022	4	2022
Version 4.0.X SW: SW Release: SW Release 2023	1	2023	1	2023

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	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
Version 4.0.X SW: User Acceptance Testing: User Acceptance Testing 2023	4	2023	4	2023
Ranges and Training Area Management				
RISCon Development: RISCon SW Integration Testing 1st Qtr FY17	1	2017	1	2017
RISCon Development: RISCon SW Integration Testing 3rd Qtr FY17	3	2017	3	2017
RISCon Development: RISCon SW Integration Testing 1st Qtr FY18	1	2018	1	2018
RISCon Development: RISCon SW Integration Testing 3rd Qtr FY18	3	2018	3	2018
RISCon Development: RISCon SW Integration Testing 1st Qtr FY19	1	2019	1	2019
RISCon Development: RISCon SW Integration Testing 3rd Qtr FY19	3	2019	3	2019
RISCon Development: RISCon SW Integration Testing 1st Qtr FY20	1	2020	1	2020
RISCon Development: RISCon SW Integration Testing 3rd Qtr FY20	3	2020	3	2020
RISCon Development: RISCon SW Integration Testing 1st Qtr FY21	1	2021	1	2021
RISCon Development: RISCon SW Integration Testing 3rd Qtr FY21	3	2021	3	2021
RISCon Development: RISCon SW Integration Testing 1st Qtr FY22	1	2022	1	2022
RISCon Development: RISCon SW Integration Testing 3rd Qtr FY22	3	2022	3	2022
RISCon Development: RISCon SW Integration Testing 1st Qtr FY23	1	2023	1	2023
RISCon Development: RISCon SW Integration Testing 3rd Qtr FY23	3	2023	3	2023
Contract Award: Contract Award (2017)	2	2017	2	2017
Contract Award: Contract Award (2018)	1	2018	1	2018
Contract Award: Contract Award (2019)	1	2019	1	2019
Contract Award: Contract Award (2020)	1	2020	1	2020
Contract Award: Contract Award (2021)	1	2021	1	2021
Contract Award: Contract Award (2022)	1	2022	1	2022
Contract Award: Contract Award (2023)	1	2023	1	2023
Systems Integration: Systems Integration	1	2023	4	2023
Supporting Arms Virtual Trainer (SAVT)				

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy

Date: February 2018

Appropriation/Budget Activity

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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
SW Development and Integration: FY18 Task Order Award	2	2018	2	2018
SW Development and Integration: Govt Engineering Support	1	2017	1	2017
Immersive Training Range Support				
Virtual System Upgrade Deliverables: Virtual System Upgrade Deliverables	1	2018	1	2018
Consolidated Product Line Development Awards: Consolidated Product Line Development (2017)	2	2017	2	2017
Consolidated Product Line Development Awards: Consolidated Product Line Development (2018)	1	2018	1	2018
Consolidated Product Line Development Awards: Consolidated Product Line Development (2019)	1	2019	1	2019
Consolidated Product Line Development Awards: Consolidated Product Line Development (2020)	1	2020	1	2020
Consolidated Product Line Development Awards: Consolidated Product Line Development (2021)	1	2021	1	2021
Consolidated Product Line Development Awards: Consolidated Product Line Development (2022)	1	2022	1	2022
Consolidated Product Line Development Awards: Consolidated Product Line Development (2023)	1	2023	1	2023
Training Support				
Annual Software Release: MTWS SW Dev TO 7	1	2017	1	2017
Annual Software Release: MTWS SW Dev TO 1	1	2018	1	2018
Contract Awards: FY17 Award	2	2017	2	2017
Contract Awards: FY18 Award	2	2018	2	2018
Contract Awards: FY19 Award	2	2019	2	2019
Contract Awards: FY20 Award	2	2020	2	2020
Contract Awards: FY21 Award	2	2021	2	2021
Contract Awards: FY22 Award	2	2022	2	2022

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Date: February 2018

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
Force on Force Training Systems (FoFTS)				
Contract Award: FY18 Award	1	2018	1	2018
Contract Award: FY19 Award	1	2019	1	2019
Contract Award: FY20 Award	1	2020	1	2020
Contract Award: FY21 Award	1	2021	1	2021
Contract Award: FY22 Award	1	2022	1	2022
Contract Award: FY23 Award	1	2023	1	2023
Contract Award: I-TESS III Award	3	2019	3	2019
Integration Testing: Integration Testing 3rd Qtr FY18	3	2018	3	2018
Integration Testing: Integration Testing 1st Qtr FY19	1	2019	1	2019
Integration Testing: Integration Testing 3rd Qtr FY19	3	2019	3	2019
Integration Testing: Integration Testing 1st Qtr FY20	1	2020	1	2020
Integration Testing: Integration Testing 3rd Qtr FY20	3	2020	3	2020
Integration Testing: Integration Testing 1st Qtr FY21	1	2021	1	2021
Integration Testing: Integration Testing 3rd Qtr FY21	3	2021	3	2021
Integration Testing: Integration Testing 1st Qtr FY22	1	2022	1	2022
Integration Testing: Integration Testing 3rd Qtr FY22	3	2022	3	2022
Integration Testing: Integration Testing 1st Qtr FY23	1	2023	1	2023
Integration Testing: Integration Testing 3rd Qtr FY23	3	2023	3	2023
TACTICAL DECISION KITS (TDK): Intial Tasking	2	2017	2	2017
TACTICAL DECISION KITS (TDK): Contract Award, Tuva LLC, Herndon, VA	2	2017	2	2017
TACTICAL DECISION KITS (TDK): Authority to Operate (ATO) ends	3	2018	3	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2503: Initial Issue	46.258	3.275	4.656	5.412	-	5.412	5.480	5.764	5.852	5.948	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Load Bearing and Pack Systems now includes the Waterproof bag efforts previously included under Individual Warfighting Equipment.

A. Mission Description and Budget Item Justification

This funding provides research, development, test and evaluation on low cost items with an emphasis on Non-Developmental Items/Commercial-Off-the-Shelf (NDI/ COTS) available items. Much of the RDT&E is conducted in coordination/concert with other services and joint organizations, and in consideration of RDT&E efforts being pursued by the other Services. Items approved for procurement will transition into Operation and Maintenance Marine Corps accounts for Infantry Combat Equipment, Family of Shelters, and Combat Field Feeding Systems; Family of Field Medical Equipment. Beginning in FY19 for the Family of Field Medical Equipment, items approved for procurement will also transition to the Procurement, Marine Corps account. 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, calibration and maintenance, etc. The employment of state of the art equipment will ensure Marines are equipped and supported with the best items that technology can offer.

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

The Family of Field Medical Equipment (FFME) focus is to provide state of the art medical equipment and emerging medical technology that will improve the clinical outcomes for casualties. The focus is also to replace obsolete items with those that fulfill the requirements and needs while increasing performance characteristics in the areas of energy efficiency, durability, reliability, weight, size and survivability in austere environments of a variety of climates.

The Family of Shelters and Shelters Equipment (FSSE) and The Family of Combat Field Feeding Systems (CFFS) portfolio focus is to provide high-quality and scalable expeditionary capabilities to the warfighter. The Family of Shelters provides the materiel solutions required to protect the Operating Forces from observation, adverse climatic environments, and combat hazards. The Family of Combat Field Feeding provides food preparation and service equipment to sustain Marines on-the-move and in a static position. The next generation of equipment seeks to use alternate energy sources and new materials.

The Calibration and Maintenance Program (CAMP) provides a calibration and maintenance capability supporting the calibrated tools and test equipment used by over 40,000 Marine maintainers and technicians. Calibration of tools as simple as torque wrenches to as complex as satellite test equipment is required to ensure their safe operation.

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Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys		Project (Number/Name) 2503 / Initial Issue		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Marine Corps Uniforms (MCU)		0.533	0.590	0.964	0.000	0.964
Articles:		-	-	-	-	-
FY 2018 Plans:						
- Continue research, development, testing and evaluation (RDT&E) to increase effectiveness of Flame Resistant Organizational Gear (FROG). Efforts include RDT&E on a Flame Resistant utility uniform which will be lifesaving and used for training.						
- Continue testing and evaluation of emerging Marine Corps Uniform Board (MCUB) and Commandant of the Marine Corps (CMC) uniform initiatives.						
- Continue research and development of tropical uniforms, including footwear, and develop affordable alternatives.						
- Continue clothing and fabric improvement efforts leveraging advanced technologies in uniform durability, design, and footwear development.						
- Continue to support Marine clothing efforts, to include field and dress uniforms and certification of their associated accoutrements which includes badges, ribbons and devices.						
- Continue research, development and testing to enhance appearance and service life of Seabag issue, which consists of initial basic training clothing, footwear, and associated individual uniform items.						
- Continue research on reducing the load the Marines are required to transport by minimizing equipment.						
FY 2019 Base Plans:						
- Continue research, development, testing and evaluation (RDT&E) to increase effectiveness of Flame Resistant Organizational Gear (FROG). Efforts include RDT&E on lower cost, more durable, and comfortable Flame Resistant utility uniforms which will be lifesaving and used for training. Testing will require larger scale lab and field testing.						
- Continue research and development of tropical uniforms, including footwear, and develop affordable alternatives. Testing will require larger scale lab and field testing.						
- Continue testing and evaluation of emerging Marine Corps Uniform Board (MCUB) and Commandant of the Marine Corps (CMC) uniform initiatives.						
- Continue clothing and fabric improvement efforts leveraging advanced technologies in uniform durability, design, and footwear development.						
- Continue to support Marine clothing efforts, to include field and dress uniforms and certification of their associated accoutrements which includes badges, ribbons and devices.						
- Continue research, development and testing to enhance appearance and service life of Seabag issue, which consists of initial basic training clothing, footwear, and associated individual uniform items.						

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Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys		Project (Number/Name) 2503 / Initial Issue		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue research on reducing the load the Marines are required to transport by minimizing equipment. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: Increase in funding of (\$0.374M)for Research, Development, Testing and Evaluation (RDT&E) to increase effectiveness of Flame Resistant Organizational Gear (FROG).						
Title: Cold Weather and Mountaineering (CWM) Articles: FY 2018 Plans: - Continue to conduct research and development of industry technology to further enhance existing equipment effectiveness while lightening the load of the individual Marine. - Continue validation of ski systems and all components to include boots and clothing. - Continue the comparative analysis of sister services clothing items to minimize sustainment cost. - Continue modernization of existing suite of equipment to incorporate technology advances which will drive the development of the Marine Assault Climbers Kit (MACK) to effectively and safely negotiate horizontal and vertical obstacles. - Continue Marine Corps Cold Weather Infantry Kit (MCCWIK) evaluation to assess change proposals. - Continue evaluation of Extreme Cold Weather boots and Intense Cold Weather boots. FY 2019 Base Plans: - Continue to conduct research and development of industry technology to further enhance existing equipment effectiveness while lightening the load of the individual Marine. - Continue validation of ski systems and all components to include boots and clothing in order to procure NATO ski system to full AAO. - Continue the comparative analysis of sister services clothing items to minimize sustainment cost. - Continue modernization of existing suite of equipment to incorporate technology advances which will drive the development of the Marine Assault Climbers Kit (MACK) to effectively and safely negotiate horizontal and vertical obstacles. - Continue Marine Corps Cold Weather Infantry Kit (MCCWIK) evaluation to assess change proposals. - Continue evaluation of Extreme Cold Weather boots and Intense Cold Weather boot. FY 2019 OCO Plans:		0.793 -	1.782 -	1.575 -	0.000 -	1.575 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A						
FY 2018 to FY 2019 Increase/Decrease Statement: Decrease in funding of (\$0.207M) from FY2018 to FY2019 aligns with completion of Test & Evaluation Plan for NATO Ski's.						
Title: Load Bearing and Pack Systems (LBPS) Articles: FY 2018 Plans: - Continue to explore potential avenues for product improvements and upgrades for LBPS by leveraging technological advancements of industry; lighten load and increase mobility of effectiveness. - Continue evaluations to implement minor product improvements to existing USMC systems. FY 2019 Base Plans: - Continue to explore potential avenues for product improvements and upgrades for LBPS by leveraging technological advancements of industry; lighten load and increase mobility of effectiveness. - Continue evaluations to implement minor product improvements to existing USMC systems. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: Budget decrease from FY18 to FY19 of (\$0.012M) is in line with requirements and resource realignment of all commodity areas and budget adjustments made by the Marine Corps.		0.232 -	0.310 -	0.298 -	0.000 -	0.298 -
Title: Individual Warfighting Equipment (IWE) Articles: FY 2018 Plans: - Continue cataloging for future sustainment of Mechanical Breachers Kit (MBK) through Defense Logistics Agency (DLA). - Continue modernization of existing projects by leveraging the technological advances of industry. FY 2019 Base Plans: - Continue cataloging for future sustainment of Mechanical Breachers Kit (MBK) through Defense Logistics Agency (DLA).		0.208 -	0.195 -	0.112 -	0.000 -	0.112 -

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Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys		Project (Number/Name) 2503 / Initial Issue		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue modernization of existing projects by leveraging the technological advances of industry.						
FY 2019 OCO Plans: N/A						
FY 2018 to FY 2019 Increase/Decrease Statement: Decrease in funding of (\$0.083M) from FY2018 to FY2019 aligns with reduced level of effort to modernize over 100 individual pieces of equipment within the Individual Warfighting Equipment portfolio.						
Title: *Family of Field Medical Equipment (FFME)		0.886	1.245	1.001	0.000	1.000
Articles:		-	-	-	-	-
FY 2018 Plans: - Continue to test COTS/NDI medical equipment items for the ERCS, FRSS and STP to determine future viability in an operation environment. - Continue testing of medical equipment items to evaluate their energy efficiency, functionality and ability to improve the quality of healthcare provided to the warfighter and reduce the logistics footprint of USMC medical equipment. - Continue testing and product development for possible application technology for insertion. - Initiate additional collaborative testing with Army for patient movement research. - Continue collaborative testing efforts with Army for ACCS. - Continue collaborative testing efforts with Army for TBI non-invasive diagnosis and treatment to determine viability in a operational environment in support of reduction of TBI effects.						
FY 2019 Base Plans: - Continue to test COTS/NDI medical equipment items for the ERCS, FRSS and STP to determine future viability in an operation environment. - Continue testing of medical equipment items to evaluate their energy efficiency, functionality and ability to improve the quality of healthcare provided to the warfighter and reduce the logistics footprint of USMC medical equipment. - Continue testing and product development for possible application technology for insertion. - Continue collaborative testing with Army for patient movement research. - Continue collaborative testing efforts with Army for ACCS.						

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue collaborative testing efforts with Army for Traumatic Brain Injury (TBI) non-invasive diagnosis and treatment to determine viability in a operational environment in support of reduction of TBI effects. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: Decrease in funding of \$0.244M from FY18 to FY19 aligns with the test and evaluation plan for COTS/NDI medical equipment for AMAL Modernization Insertion.						
Title: *Family of Shelters and Shelter Equipment (FSSE) Articles: FY 2018 Plans: - Continue development of energy efficient ECPs for FSSE. - Continue development of the SSH (formerly identified as the Next Generation Heater) for soft wall shelters. FY 2019 Base Plans: - Initiate testing of Phase II Small Business Innovative Research (SBIR) for an improved insulation barrier system (Tent Liner). - Continue development of energy efficient ECPs for FSSE. - Complete the development of the Test SSH (formally Next Generation Heater) Phase II prototype for soft wall shelters. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: Decrease in funding of \$0.113M from FY18 to FY19 aligns with the Single Source Heater development shift from Phase I to Phase II.		0.523 -	0.475 -	0.362 -	0.000 -	0.362 -
Title: Calibration and Maintenance Program (CAMP) Articles: FY 2018 Plans: N/A FY 2019 Base Plans:		0.000 -	0.000 -	0.250 -	0.000 -	0.250 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Initiate exploration of emerging technologies to enhance the technical capabilities and to reduce size and weight of the expeditionary calibration facilities used by deployed Marine Corps units. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: The \$250K increase from FY18 to FY19 supports CAMP exploration of emerging technologies to enhance technical capabilities of expeditionary calibration facilities.						
Title: *Family of Combat Field Feeding (CFFS) Articles:		0.100 -	0.059 -	0.050 -	0.000 -	0.050 -
FY 2018 Plans: - Continue testing of technological improvements for use in CFFS that will reduce the overall logistics burden. - Continue testing of Phase II SBIR for alternate energy sources for Combat Field Feeding heating rations. FY 2019 Base Plans: - Continue testing of technological improvements for use in CFFS that will reduce the overall logistics burden. - Continue testing for Phase II SBIR Prototype for Alternate Energy Sources for Heating Rations. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: Decrease in funding of \$0.009M from FY18 to FY19 aligns with testing schedule for alternate energy sources and technological improvements.						
Title: Family of Expeditionary Water Systems (FEWS) Articles:		0.000 -	0.000 -	0.400 -	0.000 -	0.400 -
FY 2018 Plans: N/A FY 2019 Base Plans: -Initiate market research for Grey Water Recycling research to support improvements to the Combat Batch Laundry (CBL) and Shower systems. FY 2019 OCO Plans:						

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Funding increases (\$0.400M) from FY18 to FY19 incorporates first year RDTE funding requirement for Family of Expeditionary Water Systems and Family of Expeditionary Fuel Systems. Supports market research for squad water purification system in support of Expeditionary Force 21.					
Title: Family of Expeditionary Fuel Systems (FEFS)					
Articles:					
	0.000	0.000	0.400	0.000	0.400
	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: -Initiate market research to determine fuel utilized by a MAGTF during operations to right size fuel system modular packages for proper distribution, storage and test capabilities.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Funding increases (\$0.400M) from FY18 to FY19 incorporates first year RDTE funding requirement for Family of Expeditionary Fuel Systems. Supports market research for and modernization of equipment allowing for the next phase of fuels dispensing, testing and metering equipment, respectively.					
Accomplishments/Planned Programs Subtotals					
	3.275	4.656	5.412	0.000	5.412

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PMC/652200: Family of Field Medical Equipment	0.000	0.000	33.513	-	33.513	3.109	4.405	10.382	10.723	Continuing	Continuing
• PMC/418100: Calibration & Maintenance Program (CAMP).	0.000	0.576	11.916	-	11.916	11.821	2.831	2.930	0.147	Continuing	Continuing
• PMC/6670: Family of Expeditionary Water Systems (FEWS)	1.220	2.011	4.263	-	4.263	5.050	5.201	3.490	3.490	Continuing	Continuing

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Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 2503 / Initial Issue			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PMC/627700: Family of Expeditionary Fuel Systems (FEFS)	0.000	1.788	0.054	-	0.054	0.052	0.051	0.051	0.050	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
<p>Cold Weather and Mountaineering, Load Bearing and Pack Systems, Individual Warfighting Equipment, Marine Corps Uniforms: Items utilize various acquisition strategies. These programs leverage heavily on current developments and technology in commercial industry. As a result, the government's R&D phase is relatively short. Contracting is performed by either Marine Corps Systems Command Contracting Directorate, the Naval Research Laboratory or the U.S. Army Natick Soldier Research, Development and Engineering Center via Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts. ID/IQ contracts are used to decrease the government risk, allow maximum contract flexibility and capitalize on the savings realized by utilizing Economic Order (EO) Quantities.</p> <p>Family of Shelters: The Shelter acquisition strategy is to modify NDI to further meet the requirements of the Marine Corps, to support development of multi-service items through inter-service agreements and to adopt COTS items.</p> <p>Family of Field Medical Equipment: These programs leverage heavily on current development and technology in the commercial medical industry. The field medical acquisition strategy is to modify NDI and adopt COTS items.</p> <p>Combat Field Feeding Systems: This program utilized various acquisition strategies and leverages heavily on current developments and technology in commercial industry and other Service field feeding systems. As a result, the government's RDTE phase is relatively short. Contracting is performed by either Marine Corps Systems Command Contracting Directorate or the U.S. Army Natick Soldier Research, Development and Engineering Center (DoD Executive Agent for Field Feeding) via ID/IQ contracts. ID/IQ contracts are used to decrease the government risk, allow maximum contract flexibility and capitalize on the savings realized by utilizing EO Quantities.</p> <p>Calibration and Maintenance Program (CAMP): The CAMP acquisition strategy is to evaluate NDI items and ask industry for enhancements and modifications to meet technical and expeditionary requirements. This will be in concert with Navy's calibration RDT&E efforts.</p> <p>Family of Expeditionary Water Systems (FEWS) is a family of systems line that contains water bath, shower, and laundry systems and well as water purification, storage, distribution, and test systems. This capability is necessary to provide safe and potable water to Marines in expeditionary environments. The family contains individual Table of Allowance Material Control Numbers which supports MAGTF operations by providing all aspects of land-based water support to include analysis, receipt, storage, transfer and dispensing. Research and development supports upgrades to centrally management items, preplanned product improvements, and obsolescence mitigation via newer components and subsystems supported by industry. Research and development also supports ongoing market research and water studies to</p>											

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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
<p>ensure systems support current and future CONOPS and USMC O-Plans at the enterprise level. Current thrust areas are Grey Water Recycling and small unit water purification as well as upgrading/replacing legacy systems.</p> <p>Family of Expeditionary Fuel Systems (FEFS) is a family of systems line that contains highly versatile fuel systems designed to receive, test, store, transfer and dispense fuel in support of Marine Air Ground Tactical Force (MAGTF) operations. The family contains individual Table of Allowance Material Control Numbers which supports MAGTF operations by providing all aspects of land-based fuel support to include analysis, receipt, storage, transfer and dispensing including all the components required to configure those systems. Research and development supports upgrades to centrally management items, preplanned product improvements, and obsolescence mitigation via newer components and subsystems supported by industry. Research and development also supports ongoing market research and fuel studies to ensure systems support current and future Fuel CONOPS and USMC O-Plans at the enterprise level. Current thrust areas are fuel system modularity and ship-to beachhead and beachhead to inland fuel distribution as well as upgrading/replacing legacy systems.</p> <p><u>E. Performance Metrics</u> N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Calibration and Maintenance Program	MIPR	NSWC : Corona, CA	0.000	0.000		0.000		0.250	Jan 2019	-		0.250	Continuing	Continuing	Continuing
Family of Field Medical	C/FFP	MCSC : Quantico, VA	0.000	0.000		0.200	May 2018	0.000		-		0.000	0.000	0.200	-
Family of Field Medical	MIPR	NSRDEC : Natick, MA	0.000	0.000		0.150	Apr 2018	0.000		-		0.000	0.000	0.150	-
Family of Shelters and Shelter Equipment	MIPR	NSRDEC : Natick, MA	0.000	0.000		0.026	Mar 2018	0.000		-		0.000	0.000	0.026	-
Family of Shelters and Shelter Equipment	MIPR	Natick : Natick, MA	0.000	0.000		0.026	Jan 2018	0.000		-		0.000	0.000	0.026	-
Cold Weather & Mountaineering	MIPR	USA NSRDEC : Natick, MA	0.000	0.299	Jan 2017	0.949	Apr 2018	0.814	Feb 2019	-		0.814	Continuing	Continuing	Continuing
Family of Shelters and Shelter Equipment	MIPR	USA NSRDEC : Natick, MA	0.783	0.301	Jan 2017	0.154	Apr 2018	0.202	Jan 2019	-		0.202	0.000	1.440	-
Load Bearing and Pack Systems	MIPR	AFRL : Wright Patterson AFB	0.403	0.232	Jan 2017	0.310	Feb 2018	0.298	Feb 2019	-		0.298	Continuing	Continuing	Continuing
Family of Field Medical	MIPR	Natick : Natick, MA	0.398	0.834	Jan 2017	0.137	Nov 2017	0.000		-		0.000	0.000	1.369	-
Individual Warfighting Equipment	MIPR	USA NSRDEC : Natick, MA	0.449	0.121	May 2017	0.117	May 2018	0.112	Feb 2019	-		0.112	Continuing	Continuing	Continuing
Marine Corps Uniforms	MIPR	USA NSRDEC : Natick, MA	5.231	0.400	Jun 2017	0.354	Jan 2018	0.482	Feb 2019	-		0.482	Continuing	Continuing	Continuing
Prior Year Cumulative Funding	Various	Various : Various	21.760	0.000		0.000		0.000		-		0.000	0.000	21.760	-
Subtotal			29.024	2.187		2.423		2.158		-		2.158	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	0.000		0.000		0.000		-		0.000	0.000	1.096	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	0.000		0.000		0.000		-		0.000	0.000	1.096	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of Shelters and Shelter Equipment	MIPR	TACOM : Natick, MA	0.000	0.176	Jul 2017	0.000		0.000		-		0.000	0.000	0.176	-
Family of Expeditionary Water Systems	MIPR	NAVFAC : Port Hueneme, CA	0.000	0.000		0.000		0.400	Mar 2019	-		0.400	0.000	0.400	-
Family of Expeditionary Fuel Systems	C/CPFF	Contracts : MCSC	0.000	0.000		0.000		0.400	Mar 2019	-		0.400	0.000	0.400	-
Marine Corps Uniform	MIPR	NCTRF : Natick, MA	0.223	0.067	Jan 2017	0.118	Jan 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Family of Field Medical	MIPR	U.S. Army Aeromedical Research Lab : Ft. Rucker, AL	0.000	0.000		0.215	May 2018	0.501	Jun 2019	-		0.501	0.000	0.716	-
Family of Shelters and Shelter Equipment	MIPR	NSRDEC : Natick, MA	0.000	0.000		0.130	Apr 2018	0.000		-		0.000	0.000	0.130	-
Family of Combat Field Feeding	MIPR	USA NSRDEC : Natick, MA	0.634	0.100	Jan 2017	0.059	Jan 2018	0.050	Jan 2019	-		0.050	Continuing	Continuing	Continuing
Marine Corps Uniforms	MIPR	USA NSRDEC : Natick, MA	0.701	0.066	Jan 2017	0.118	Jan 2018	0.482	Feb 2019	-		0.482	Continuing	Continuing	Continuing
Family of Field Medical	MIPR	USAARL : Ft. Rucker, AL	1.456	0.052	May 2017	0.430	Apr 2018	0.350	Jan 2019	-		0.350	Continuing	Continuing	Continuing
Family of Shelters & Shelter Equipment	MIPR	USA NSRDEC : Natick, MA	0.581	0.046	Aug 2017	0.120	Nov 2017	0.160	Jan 2019	-		0.160	0.000	0.907	-
Cold Weather and Mountaineering	MIPR	USA NSRDEC : Natick, MA	1.503	0.494	Jan 2017	0.833	Dec 2017	0.761	Feb 2019	-		0.761	Continuing	Continuing	Continuing
Family of Field Medical	MIPR	AFMESA : Ft. Detrick, MD	0.000	0.000		0.000		0.150	Jul 2019	-		0.150	0.000	0.150	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	10.286	0.000		0.000		0.000		-		0.000	0.000	10.286	-
Subtotal			15.384	1.001		2.023		3.254		-		3.254	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	0.361	0.000		0.000		0.000		-		0.000	0.000	0.361	-
Family of Field Medical	Various	MARCORSYSCOM : Quantico, VA	0.000	0.000		0.020	Aug 2018	0.000		-		0.000	0.000	0.020	-
Family of Shelters and Shelter Equipment	Various	MCSC : Quantico, VA	0.000	0.000		0.019	Oct 2017	0.000		-		0.000	0.000	0.019	-
Family of Field Medical	Various	MCSC : Quantico, VA	0.020	0.000		0.093	Mar 2018	0.000		-		0.000	0.000	0.113	-
Individual Warfighting Equipment	C/FP	MCSC : Quantico, VA	0.373	0.087	May 2017	0.078	May 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			0.754	0.087		0.210		0.000		-		0.000	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			46.258	3.275		4.656		5.412		-		5.412	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy

Date: February 2018

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

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
Infantry Combat Equipment (ICE)																												
Marine Corps Uniforms (MCU): Navy Natick Testing Effort Support:																												
Marine Corps Uniforms (MCU): Lab Testing:																												
Marine Corps Uniforms (MCU): Shade Lab Testing:																												
Marine Corps Uniforms (MCU): Uniform Testing:																												
Marine Corps Uniforms (MCU): Footwear Testing:																												
Marine Corps Uniforms (MCU): Flame Resistant Testing:																												
Individual Warfighting Equipment (IWE): Natick Lab Testing:																												
Cold Weather and Mountaineering (CWM): Natick Testing Effort Support:																												
Cold Weather and Mountaineering (CWM): Lab Testing:																												
Cold Weather and Mountaineering (CWM): Extreme & Intense Cold Weather Boot:																												
Cold Weather and Mountaineering (CWM): Marine Assault Climbers Kit (MACK):																												
Cold Weather and Mountaineering (CWM): Ski and Sled System:																												
Load Bearing and Pack Systems (LBPS): Load Bearing and Pack Systems (LBPS)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy																								Date: February 2018													
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																	
										FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Calibration And Maintenance Program (CAMP)																																					
Test emerging electronic systems.																																					

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018
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>				
Marine Corps Uniforms (MCU): Navy Natick Testing Effort Support:	1	2017	4	2022
Marine Corps Uniforms (MCU): Lab Testing:	1	2017	4	2022
Marine Corps Uniforms (MCU): Shade Lab Testing:	1	2017	4	2022
Marine Corps Uniforms (MCU): Uniform Testing:	1	2017	4	2022
Marine Corps Uniforms (MCU): Footwear Testing:	1	2017	4	2022
Marine Corps Uniforms (MCU): Flame Resistant Testing:	1	2017	4	2022
Individual Warfighting Equipment (IWE): Natick Lab Testing:	1	2017	4	2022
Cold Weather and Mountaineering (CWM): Natick Testing Effort Support:	1	2017	4	2022
Cold Weather and Mountaineering (CWM): Lab Testing:	1	2017	4	2022
Cold Weather and Mountaineering (CWM): Extreme & Intense Cold Weather Boot:	1	2017	3	2022
Cold Weather and Mountaineering (CWM): Marine Assault Climbers Kit (MACK):	1	2017	4	2021
Cold Weather and Mountaineering (CWM): Ski and Sled System:	1	2017	4	2019
Load Bearing and Pack Systems (LBPS): Load Bearing and Pack Systems (LBPS)	1	2017	1	2023
<i>Calibration And Maintenance Program (CAMP)</i>				
Test emerging electronic systems.	2	2019	1	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2513: Body Armor	48.364	2.712	4.380	4.970	-	4.970	4.773	4.697	4.794	4.892	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Ballistic Protection Systems (BPS) provides the most technologically advanced protection at the lightest weight possible. It provides the critical ballistic protective systems that save lives, reduce the severity of combat injuries, and increase combat effectiveness by keeping more Marines in the fight. Major BPS programs include: Plate Carrier (PC); Enhanced Small Arms Protective Inserts (ESAPI); Light Weight Helmet (LWH); Enhanced Combat Helmet (ECH); Improved Ballistic Eyewear (IBE); and hearing protection. Key Components of all of the BPS programs are adapting ballistic protective systems to the constantly changing threat environment and leveraging emerging technologies to lighten the load and increase the mobility of each Marine.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Ballistic Protection Systems								2.712	4.380	4.970	0.000	4.970
								Articles:				
FY 2018 Plans: - Continue research with industry partners towards understanding and developing the future technology associated with next generation PPE (i.e. helmets, body armor, eyewear, and hearing protection). - 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. - Continue testing for the next generation of eyewear, specifically the capability to adjust rapidly in varying light conditions in order to gap the need for rapid situational awareness in different light environments. - Complete testing on the efficacy of plates as they age over time in order to obtain a clear understanding of the need to consistently sustain and maintain current plates, as well as, their future ballistic capability.												
FY 2019 Base Plans: - Continue research with industry partners towards understanding and developing the future technology associated with next generation PPE (i.e. helmets, body armor, eyewear, and hearing protection). - 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. - Continue testing for the next generation of eyewear, specifically the capability to adjust rapidly in varying light conditions in order to gap the need for rapid situational awareness in different light environments.												

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<p>- Complete testing on the efficacy of plates as they age over time in order to obtain a clear understanding of the need to consistently sustain and maintain current plates, as well as, their future ballistic capability.</p> <p><i>FY 2019 OCO Plans:</i> N/A</p> <p><i>FY 2018 to FY 2019 Increase/Decrease Statement:</i> RDT&E funding increases \$.590 from FY18 to FY19 to develop, research, and test emerging technology and advancements in products and materials related to protective equipment.</p>						
Accomplishments/Planned Programs Subtotals		2.712	4.380	4.970	0.000	4.970
C. Other Program Funding Summary (\$ in Millions) N/A						
Remarks						
D. Acquisition Strategy Marine Corps Ballistic Protection Systems (BPS) research, development, testing & evaluation activities include seeking new developments in ballistic technology that feature reductions in weight, improvements in ballistic performance, enhanced operational effectiveness through improved product designs and the application of new material technologies to reduce total ownership costs by improving the expected service life of fielded systems. In order to accomplish these goals, Program Manager-Infantry Combat Equipment uses a broad array of government and contractor performers to achieve the desired end state. This includes partnerships with government entities and research and development contracts and partnership intermediaries where applicable. The Marine Corps also leverages advancements in industry capabilities to rapidly field non-developmental and commercially available off the shelf armor solutions. Performance is confirmed by characterizing ballistic performance and data collected during user evaluations.						
E. Performance Metrics N/A						

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Ballistic Protection Systems	MIPR	AFRL/MILTECH : Wright Patterson,OH	3.788	0.771	May 2017	0.530	May 2018	0.450	May 2019	-		0.450	Continuing	Continuing	Continuing
Ballistic Protection Systems	Various	MCSC : Quantico, VA	0.214	0.144	Sep 2017	0.526	May 2018	0.350	May 2019	-		0.350	0.000	1.234	-
Ballistic Protection Systems	WR	NSWC : Dahlgren, VA	0.000	0.204	May 2017	0.273	Nov 2017	0.280	Nov 2018	-		0.280	0.000	0.757	-
Ballistic Protection Systems	MIPR	USA NSRDEC : Natick MA	9.365	0.112	Mar 2017	0.144	Dec 2017	0.160	Dec 2018	-		0.160	0.000	9.781	-
Ballistic Protection Systems	C/FFP	NRL : Washington DC	16.439	0.000		0.535	Mar 2018	0.500	Mar 2019	-		0.500	0.000	17.474	-
Ballistic Protection Systems	MIPR	Tobyhanna : Tobyhanna, PA	0.000	0.000		0.045	Dec 2017	0.060	Dec 2018	-		0.060	0.000	0.105	-
PY Cumulative Funding	Various	Various : Various	1.886	0.000		0.000		0.000		-		0.000	0.000	1.886	-
Subtotal			31.692	1.231		2.053		1.800		-		1.800	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Ballistic Protection Systems	Various	MCSC : Quantico, VA	0.000	0.000		0.219	Aug 2018	0.000		-		0.000	0.000	0.219	-
Ballistic Protection Systems	MIPR	CECOM : MITRE	0.000	0.054	Mar 2017	0.000	Mar 2018	0.076	Mar 2019	-		0.076	0.000	0.130	-
Ballistic Protection Systems	MIPR	USA NSRDEC : Natick, MA	0.000	0.351	Feb 2017	0.687	Feb 2018	0.650	Feb 2019	-		0.650	0.000	1.688	-
Ballistic Protection Systems	MIPR	NCTRF : Natick, MA	0.000	0.371	Feb 2017	0.170	Feb 2018	0.270	Feb 2019	-		0.270	0.000	0.811	-
Subtotal			0.000	0.776		1.076		0.996		-		0.996	0.000	2.848	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Ballistic Protection Systems	MIPR	USA NSRDEC : Natick, MA	7.687	0.000		0.214	Apr 2018	0.300	Apr 2019	-		0.300	0.000	8.201	-
Ballistic Protection Systems	MIPR	USA ATC : Aberdeen Prv Grnd, MD	0.947	0.351	Jul 2017	0.727	May 2018	0.800	May 2019	-		0.800	Continuing	Continuing	Continuing
Ballistic Protection Systems	WR	NRL : Washington, DC	3.126	0.289	Feb 2017	0.000	Dec 2017	0.300	Dec 2018	-		0.300	Continuing	Continuing	Continuing
Ballistic Protection Systems	MIPR	ARL : Various	0.488	0.000		0.183	Dec 2017	0.200	Dec 2018	-		0.200	0.000	0.871	-
Ballistic Protection Systems	WR	NAVAL Health research Center : Arlington, VA	0.000	0.000		0.000	Dec 2017	0.094	Dec 2018	-		0.094	0.000	0.094	-
Ballistic Protection Systems	WR	MCOTEA : Quantico, VA	0.000	0.000		0.000	Oct 2017	0.300	Oct 2018	-		0.300	0.000	0.300	-
Ballistic Protection Systems	WR	NSWC : Indian Head, MD	0.148	0.040	May 2017	0.000		0.000		-		0.000	0.000	0.188	-
Ballistic Protection Systems	MIPR	NAVSEA : Washington, DC	0.078	0.025	Jun 2017	0.000		0.000		-		0.000	0.000	0.103	-
Ballistic Protection Systems	Various	MCSC : Quantico, VA	0.000	0.000		0.127	May 2018	0.180	Jun 2019	-		0.180	0.000	0.307	-
Prior Year Cumulative Funding	Various	Various : Various	4.198	0.000		0.000		0.000		-		0.000	0.000	4.198	-
Subtotal			16.672	0.705		1.251		2.174		-		2.174	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			48.364	2.712		4.380		4.970		-		4.970	Continuing	Continuing	N/A
Remarks															

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PE 0206623M: MC Ground Cmbt Spt Arms Sys
Navy

R-1 Line #238

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											
Proj 2513	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023												
	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									
	Plate Carrier (PC) Improvements, LDS, Fit Study																																				
	Marine Corps Body Armor Surveillance Program (MC BASP)																																				
	Enhanced Combat Helmet (ECH)																																				
	Next Generation Helmet																																				
	Hearing Protection																																				
	Eye Protection																																				
2019DON - 0206623M - 2513																																					

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 2513 / Body Armor	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2513				
Plate Carrier (PC) Improvements, LDS, Fit Study: Plate Carrier (PC) Improvements, Fit Study	1	2017	4	2023
Marine Corps Body Armor Surveillance Program (MC BASP): Marine Corps Body Armor Surveillance Program (MC BASP)	1	2017	4	2023
Enhanced Combat Helmet (ECH): Enhanced Combat Helmet (ECH)	1	2017	4	2023
Next Generation Helmet: Next Generation Helmet	1	2017	4	2023
Hearing Protection: Hearing Protection	1	2017	4	2023
Eye Protection: Eye Protection	1	2017	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2928: Exp Indirect Fire Gen Supt Wpn Sys	12.780	1.011	2.990	22.748	-	22.748	22.095	2.143	2.187	2.231	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 provides the Marine Air-Ground Task Force (MAGTF) 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. Anti-ship capability is being added to HIMARS Battalions to support USN/USMC Littoral operations. The USMC plans to adopt U.S. Army and U.S. Navy Anti-ship missiles and integrate them onto a remotely operated launcher, which will fit within the existing HIMARS Battalion force structure.

The GMLRS integrates a multi-mode fuse and high explosive warhead making it an all-weather, precision strike rocket. GMLRS U have been fired in support of Overseas Contingency Operations (OCO), and has demonstrated high effectiveness and low collateral damage while supporting Marines in combat. GMLRS AW was developed to replace GMLRS-DPICM and meet the requirements outlined in a 25 June 2008 cluster munitions policy. 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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: HIMARS Expeditionary & Naval Integration Capabilities	1.011	2.990	22.748	0.000	22.748
Articles:	-	-	-	-	-
FY 2018 Plans: -Complete expeditionary radio integration. -Initiate research and development of HIMARS Anti-Ship capability (Moving Target).					
FY 2019 Base Plans: -Continue research, development and integration of HIMARS Anti-Ship capability (Moving Target). -Initiate, build and conduct initial performance testing of an anti-ship missile on a USMC launcher -Initiate integration and testing of anti-ship missile capability onto the USMC HIMARS battalions.					
FY 2019 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018	
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A					
<i>FY 2018 to FY 2019 Increase/Decrease Statement:</i> The increase of 19.758M from FY18 to FY19 is due to initiation of the integration and test of an anti-ship missile capability into the USMC HIMARS battalions.					
Accomplishments/Planned Programs Subtotals	1.011	2.990	22.748	0.000	22.748

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PMC/BLI 221200: <i>High Mobility Artillery Rocket System (HIMARS)</i>	49.704	65.303	134.246	-	134.246	146.038	150.306	68.255	119.365	Continuing	Continuing
Remarks											
D. Acquisition Strategy R&D efforts for USMC HIMARS follow Expeditionary Force 21 guidance for the capability to employ HIMARS from distributed locations, naval platforms or surface connectors to support distributed maneuver. Support the continued development of long-range precision fire capabilities for HIMARS from austere and expeditionary bases and to improve the range and capacity to provide fires supporting multiple entry points from the sea. Integration will consist of design support from a combination of Army/Navy labs as well as multiple contractors for development and integration. The Marine Corps strategy incorporates acquisition and capability upgrades to both the launcher systems and rocket munitions. To the greatest extent possible, these improvements parallel the U.S. Army's and U.S. Navy's acquisitions.											
E. Performance Metrics											
Milestone Reviews											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
HIMARS Anti-ship Capabilities	Various	Various : Various	0.000	0.000		0.677	Jan 2018	19.295	Jan 2019	-		19.295	0.000	19.972	-
Expeditionary radio capabilities	MIPR	RDEC : Redstone Arsenal, AL	0.443	1.011	Dec 2016	1.636	Jan 2018	0.000		-		0.000	0.000	3.090	-
Expeditionary Communication Capabilities	Various	Various : Various	0.873	0.000		0.677	Jan 2018	0.000		-		0.000	0.000	1.550	-
Subtotal			1.316	1.011		2.990		19.295		-		19.295	0.000	24.612	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
HIMARS Anti-ship Capabilities	Various	various : various	0.000	0.000		0.000		3.453	Nov 2018	-		3.453	0.000	3.453	-
Prior year cumulative funding	Various	various : various	5.820	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			5.820	0.000		0.000		3.453		-		3.453	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	5.644	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			5.644	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			12.780	1.011		2.990		22.748		-		22.748	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy							Date: February 2018			
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy																Date: February 2018			
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 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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																												
HIMARS: Development Efforts: Anti-Ship Capability																												
HIMARS: Development Efforts: Schedule HIMARS V8.0 Software Update																												
HIMARS: Development Efforts: Expeditionary Radio Capabilities																												
HIMARS: Development Efforts: Expeditionary Capabilities																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018
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				
HIMARS: Development Efforts: Anti-Ship Capability	2	2018	4	2022
HIMARS: Development Efforts: Schedule HIMARS V8.0 Software Update	1	2017	4	2017
HIMARS: Development Efforts: Expeditionary Radio Capabilities	1	2017	4	2018
HIMARS: Development Efforts: Expeditionary Capabilities	1	2017	4	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3098: Fire Support System	151.783	8.318	6.145	5.999	-	5.999	7.792	6.868	3.112	3.196	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Fire Support System (FSS) provides the Marine Corps critical operational and logistics capabilities in artillery weapons, fire direction and targeting systems. This includes the following projects:

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.

Expeditionary Fire Support System (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. FY18 to FY19 reduction is due to removal of EFSS from USMC inventory and termination of PERM development.

The Fire Support Mod Line (FSML) is a set of Marine Corps efforts to address critical operational and logistics deficiencies in existing, fielded fire support/weapons systems and equipment. FSML provides technical refresh and development of target acquisition, artillery survey, meteorological systems, weapon systems, and fire direction control. Funding is used to ensure Clinger Cohen Act (CCA) and Information Assurance (IA) requirements are met. Provides execution of product improvements/modifications, and upgrades to system hardware and software for the Ground Counter Fire Sensor (GCFS), Marine Artillery Survey Set (MASS), Modeled Meteorological Information Manager (MMIM), 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 Common Laser Range Finder (CLRf). Funding is also used for upgrades, engineering change proposals (ECPs), and modifications for guided munitions and fire control systems which fall within Fire Support Systems for the Marine Corps.

Family of Artillery Munitions (FAM) funding is used to develop and mature artillery munitions for the Marine Corps triad of fire and includes conducting safety analysis and ship compatibility studies.

The Common Laser Range Finder Integrated Capability (CLRf IC) is an association of targeting systems that provide handheld, lightweight, man portable devices supporting the employment of air and surface fires. They provide foot mobile users the ability to locate, identify, mark and designate targets in both day and night conditions for engagement by fire support and weapons platforms. CLRf IC systems support the collection and dissemination of targeting information to maneuver, fire support, and intelligence personnel via external digital devices such as the Advanced Field Artillery Tactical Data System (AFATDS) and the Target Handoff System (THS) using associated Combat Net Radios. The CLRf IC includes two major components; The CLRf IC Laser Range Finder(LRF) supports the requirement to

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018			
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				
locate and transmit targeting information while the Future Targeting System combines the capabilities of the LRF with the ability to designate for specific requirements associated with laser guided munitions.						
The Family of Internally Transportable Vehicles (FITV), including Utility Task Vehicles (UTVs), are light weight and internally transportable in the V-22, CH-53D & CH53E helos. The FITV provide deployed Marine Air-Ground Task Force (MAGTF) and Marine Expeditionary Unit (Special Operations Capable) (MEU (SOC)) with vehicles that are internally transportable in selected rotary and fixed wing aircraft. The FITV are expeditionary vehicles supporting over-the-horizon amphibious operations, irregular warfare and enhanced company operations. It is then fielded to Reconnaissance, Marine Corps Forces Special Operations Command (MARSOC), and artillery batteries as part of the Expeditionary Fire Support System (EFSS). The FITV also provide Special Operations Forces (SOF) with platforms to support their primary and secondary missions. Speed, maneuverability, and the use of cover and concealment are the crew's primary means of survival. In FY20 the Marine Corps will establish the Internally Transportable Vehicle Replacement (ITV-R) initiative. The ITV-R will replace the current Family of Internally Transportable Vehicles (FITV) and Utility Task Vehicle (UTV).						
Conventional Ground Ammunition is a project that identifies and develops Insensitive Munitions (IM) Technologies to address IM shortfalls in new Marine Corps development or improvements to legacy Conventional Ground Ammunition to meet OSD mandated IM compliance requirements. These IM Technology investments directly support the development of the bi-annual Marine Corps Insensitive Munitions Strategic Plan (IMSP) to address the identified IM technology needs of the Marine Corps.						
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Modeled Meteorological Information Manager (MMIM)		0.568	0.000	0.000	0.000	0.000
Articles:		-	-	-	-	-
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.						
FY 2018 Plans:						
- Starting in FY18 MMIM is no longer being tracked as a separate element and is included in Fire Support Mods element listed below.						
FY 2019 Base Plans:						
N/A						
FY 2019 OCO Plans:						
N/A						
FY 2018 to FY 2019 Increase/Decrease Statement:						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018	
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
No change from FY 2018 to FY 2019.					
Title: Expeditionary Fire Support Systems (EFSS)		4.723	2.293	0.000	0.000
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 2018 Plans: FY18 to FY19 reduction is due to removal of EFSS from USMC inventory and termination of PERM development. - Closeout of Raytheon Contract for PERM program. - Closeout process with EFSS government facilities (NSWC DD, LOGCOM) for shipping mortars,logistics support, and engineering for PERM/EFSS.					
FY 2019 Base Plans: The FY 2019 funding request was reduced by \$1.267 million to account for the availability of prior year execution balances.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: The decrease of \$2.293M from FY18 to FY19 is due to removal of EFSS from USMC inventory and termination of PERM development.					
Title: Fire Support Mods (FSM)		1.091	2.750	2.511	0.000
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 Information Manager (MMIM), 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					

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
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 2018 Plans: - Continue development of acoustic detection system to replace GCFS system. - Continue product improvements to increase performance capability of legacy targeting and other fire support systems. - Continue development of advanced components for the IPADS replacement system. - Initiate Modeled Meteorological Manager (MMIM)communication testing with a Global Broadcast Service (GBS) Portal Receiver Suite (PRS). FY 2019 Base Plans: - Continue development of GCFS replacement components for operational usage and obsolescence management. - Continue product improvements to increase performance capability of legacy targeting and other fire support systems. - Continue development of advanced components for the IPADS replacement system. - Complete Modeled Meteorological Manager (MMIM)communication testing with a Global Broadcast Service (GBS) Portal Receiver Suite (PRS). FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: Decrease of \$0.239M from FY18 to FY19 is due to reduced Modeled Meteorological Manager (MMIM) Software Development efforts.						
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.		0.297 -	0.316 -	0.321 -	0.000 -	0.321 -

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 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 Dual Purpose Improved Conventional Munitions (DPICM) replacement munition and Precision Guidance Kit (PGK) anti-jam development.						
FY 2019 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 Dual Purpose Improved Conventional Munitions (DPICM) replacement munition and Precision Guidance Kit (PGK) 150mm no function software upgrade, and anti-jam development.						
FY 2019 OCO Plans: N/A						
FY 2018 to FY 2019 Increase/Decrease Statement: The increase of \$.005M from FY18 to FY19 is a result of inflationary indices.						
Title: Common Laser Range Finder (CLRF)		0.000	0.000	3.167	0.000	3.167
Articles:		-	-	-	-	-
Description: The Common Laser Range Finder Integrated Capability (CLRF IC) is an association of targeting systems that provide handheld, lightweight, man portable devices to support the employment of air and surface fires. They provide foot mobile users the ability to locate, identify, mark and designate targets in both day and night conditions for engagement by fire support and weapons platforms. CLRF IC systems support the collection and dissemination of targeting information to maneuver, fire support, and intelligence personnel via external digital devices such as the Advanced Field Artillery Tactical Data System (AFATDS) and the Target Handoff System (THS) using associated Combat Net Radios.						
FY 2018 Plans: N/A						
FY 2019 Base Plans: Initiate development of the Future Targeting System (FTS) to replace current fielded laser designators and spot imager into a single foot mobile capability.						
FY 2019 OCO Plans:						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A						
FY 2018 to FY 2019 Increase/Decrease Statement: Increase of \$3.167M in FY19 from FY18 is due to initiation of development of the Future Targeting System (FTS).						
Title: Family of Internally Transportable Vehicle (FITV)		1.160	0.253	0.000	0.000	0.000
Articles:		-	-	-	-	-
Description: Family of Internally Transportable Vehicle (FITV) program fields expeditionary vehicles to ground units to support various operations. Provides the Marine Air-Ground Task Force (MAGTF) ground combat units with vehicles transportable in the MV-22 and CV-22 tilt-rotor aircraft as well as the CH53.						
FY 2018 Plans: -Continue streamlined acquisitions of Commercial-Off-the-Shelf/Non-Developmental Items (COTS/NDI) that can be identified, integrated and tested in a short amount of time. FITV funding will continue modifications required to increase the FITV system readiness, safety and reliability. Successful modifications and tests are intended for follow-on procurement and incorporation into existing system component upgrades, Service Life Extension Programs (SLEPs), or rapid COTS/NDI fielding for the Fleet Marine Forces (FMF).						
FY 2019 Base Plans: FY19 and out decrease is due to realignment from project 3098, Fire Support Systems, to project 3775 Family of Internally Transportable Vehicles.						
FY 2019 OCO Plans: N/A						
FY 2018 to FY 2019 Increase/Decrease Statement: The decrease of -\$0.253 from FY18 to FY19 is due to realignment from project 3098, Fire Support Systems, to project 3775 Family of Internally Transportable Vehicles.						
Title: Conventional Ground Ammunition		0.479	0.533	0.000	0.000	0.000
Articles:		-	-	-	-	-
Description: All DoD services are required to field munitions that are insensitive munitions (IM) compliant. IM compliancy is measured by the performance of munitions to six tests; Fast Cook-Off, Slow Cook-Off, Bullet Impact,						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018			
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
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 2018 Plans: Continue - (1) Develop Insensitive Munitions (IM) Compliant 120mm Tail Charge (U.S. Army Armament Research Development and Engineering Center, Picatinny NJ) -Complete ballistic testing of new TCA design and integrate IM technology into weapon. (2) Develop Mk22 Mod 4 (J143) Rocket Motor Slow Cook-off Mitigation (Naval Surface Warfare Center Indian Head Explosive Ordnance Disposal Technology Division, Indian Head, MD) -FY18 effort includes rocket motor vulnerability effects study and engineering hardware design and validation.						
FY 2019 Base Plans: N/A						
FY 2019 OCO Plans: N/A						
FY 2018 to FY 2019 Increase/Decrease Statement: FY 2019 and out decrease is due to the realignment of funding from project 3098, Conventional Ground Ammunition to project 3774 Marine Corps Ammo.						
Accomplishments/Planned Programs Subtotals		8.318	6.145	5.999	0.000	5.999

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy									Date: February 2018		
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			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PMC/2064: Expeditionary Fire Support Systems	2.688	0.626	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	93.376
• PMC/473301: Modeled Meterological Information Manager (MMIM)	0.396	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.310
• PMC/473302: Fire Support Mods	5.647	4.114	4.158	5.583	9.741	4.303	4.416	4.552	4.643	Continuing	Continuing
• PMC/6545: Family of ITV	9.282	1.583	0.606	-	0.606	0.648	4.022	5.957	8.831	0.000	131.967
• PMC/473300: Common Laser Range Finder (CLRF)	7.017	18.196	15.904	-	15.904	12.960	0.987	43.376	43.563	0.000	142.003
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):											
EFSS: Closeout procedures due to MROC decision.											
PERM: Closeout procedures due to MROC decision.											
Fire Support Mods:											
Develop an improved Acoustic Sensor capability by exploiting recent technology improvements in computation and networking to improve data fusion. An early prototype is anticipated in FY19. The improved acoustic sensor will be capable of transmitting digital information via JVMF to AFATDS in support of artillery and counter fire operations. Initiate coordination between the Army's Armament, Research and Development Engineering Center (ARDEC), and MCSC's and NSWC DD science and technology efforts to commence development of the Future Survey System. Continue liaison with the Army's PM TAS in order to leverage future efforts and increase the probability of a joint procurement. Initiate development of a MMIM communications reach back capability to allow for ingestion of meteorological data into artillery firing data for units deployed to austere locations with limited or no bandwidth communications. Procure hardware and software refreshes for the GPSS, MASS and MMIM to ensure compliance with cybersecurity policies, address obsolescence and interoperability with other C2 systems.											
Family of Artillery Munitions (FAM):											
Program includes four (4) artillery munitions which are being developed by the Army. The Army is the lead service for these programs but continues to interact with the FAM IPT to ensure USMC requirements and capability needs are met. This allows the USMC to become users of the munition and certify the round for naval transportation. The munitions include but are not limited to; Dual Purpose Improved Conventional Munitions (DPICM), XM1156 Precision Guidance Kit (PGK), M1122											

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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
<p>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.</p> <p>Common Laser Range Finder (CLRF): The Common Laser Range Finder Integrated Capability (CLRF IC) will develop the Future Targeting System (FTS) to replace current fielded laser designators and spot imager into a single foot mobile capability and implement targeted Engineering Change Proposals into the currently fielded target location device to provide Joint Fires Observers and Joint Terminal Attack Controllers a single lightweight mission defined device that meets future operational requirements and extends the equipment service life to 2035. FTS will be procured via a full and open competition.</p> <p>Family of Internally Transportable Vehicles (FITV): The FITV program strategy is to explore, research and recommend efforts to address and identify solutions to reliability and safety design issues through government off-the-shelf (GOTS), commercial off-the-shelf (COTS) or modified off-the-shelf (MOTS) components. This includes the efforts to begin to replace the current Family of Internally Transportable Vehicles (FITV) and Utility Task Vehicle (UTV).</p> <p>Conventional Ground Ammunition: The Conventional Ground Ammunition strategy is to invest in Insensitive Munitions (IM) technologies to address IM shortfalls of priority programs identified in the bi-annual Marine Corps Insensitive Munitions Strategic Plan (IMSP). Once the IM technologies have been successfully demonstrated and matured, the intent is to insert the new technologies into new conventional ground ammunition development as well as provide opportunities to improve legacy munitions IM characteristics. The IM R&D effort directly addresses the mandated OSD requirement to obtain incremental IM improvement in pursuit of becoming fully IM compliant to the maximum extent practicable.</p> <p><u>E. Performance Metrics</u> N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	116.985	0.000		0.000		0.000		-		0.000	0.000	116.985	-
CLRF	C/CPIF	TBD : TBD	0.000	0.000		0.000		3.167	Feb 2019	-		3.167	Continuing	Continuing	Continuing
Fire Support Mods	WR	NAVSEA : Washington, DC	0.509	0.000		0.200	Feb 2018	0.000		-		0.000	0.000	0.709	-
PERM TFT Development	MIPR	U.S. Army Armament : Picatinny, NJ	0.000	0.337	Jan 2017	0.000		0.000		-		0.000	0.000	0.337	-
Conventional Ground Ammunition	MIPR	ARDEC : Picatinny, NJ	1.272	0.220	Apr 2017	0.238	Jan 2018	0.000		-		0.000	0.000	1.730	-
PERM Closeout	C/FPIF	Raytheon : Tucson, AZ	0.000	0.000		1.898	Apr 2018	0.000		-		0.000	0.000	1.898	-
Conventional Ground Ammunition	MIPR	U.S. Army Armament : Picatinny, NJ	0.488	0.200	May 2017	0.245	Jan 2018	0.000		-		0.000	0.000	0.933	-
Fire Support Mods	MIPR	ARDEC : Picatinny, NJ	0.400	0.451	Feb 2017	1.450	Apr 2018	1.328	Jan 2019	-		1.328	0.000	3.629	-
Fire Support Mods	WR	NSWC : Dahlgren, VA	0.426	0.303	Jan 2017	0.680	Jan 2018	0.390	Jan 2019	-		0.390	0.000	1.799	-
MMIM	WR	MCTSSA : San Diego, CA	0.000	0.110	Dec 2016	0.000		0.000		-		0.000	0.000	0.110	-
Fire Support Mods	WR	MCTSSA : San Diego, CA	0.000	0.000		0.100	Feb 2018	0.473	Mar 2019	-		0.473	0.000	0.573	-
Fire Support Mods	MIPR	Army Research Lab : Adelphi, MD	11.009	0.337	Jan 2017	0.200	Jan 2018	0.200	Jan 2019	-		0.200	0.000	11.746	-
MMIM	MIPR	Army Research Lab : Adelphi, MD	0.894	0.458	Jan 2017	0.000		0.000		-		0.000	0.000	1.352	-
Subtotal			131.983	2.416		5.011		5.558		-		5.558	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 Logistic Closeout	WR	NSWC : Dahlgren, VA	0.000	0.000		0.395	May 2018	0.000		-		0.000	0.000	0.395	-
EFSS & PERM Safety Support	WR	NSWC : Dahlgren, VA	0.270	0.000		0.000		0.000		-		0.000	0.000	0.270	-
FITV Engineering Support	C/CPFF	NATC : Silver Springs, Nevada	0.000	0.000		0.253	Dec 2017	0.000		-		0.000	0.000	0.253	-
Prior Years Cumulative Funding	Various	Various : Various	2.615	0.000		0.000		0.000		-		0.000	0.000	2.615	-
FAM Engineering Support	WR	NSWC : Dahlgren, VA	2.455	0.297	Mar 2017	0.316	Jan 2018	0.321	Jan 2019	-		0.321	0.000	3.389	-
Subtotal			5.340	0.297		0.964		0.321		-		0.321	0.000	6.922	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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) 2nd incr.	WR	NSWCDD : Dahlgren, Va	0.000	1.607	Nov 2017	0.000		0.000		-		0.000	0.000	1.607	-
Fire Support Mods	WR	MCTSSA : San Diego, CA	0.000	0.000		0.120	Feb 2018	0.120	Dec 2018	-		0.120	0.000	0.240	-
FITV Snow Mobility Test	C/BOA	NATC : Carson City, NV	0.000	1.160	Aug 2017	0.000		0.000		-		0.000	0.000	1.160	-
Conventional Ground Ammunition	WR	NRL : Blossom Point, MD	0.000	0.000		0.050	Jul 2018	0.000		-		0.000	0.000	0.050	-
Conventional Ground Ammunition	WR	NSWC : Dahlgren, VA	0.000	0.059	Sep 2017	0.000		0.000		-		0.000	0.000	0.059	-
Prior Year Cumulative Funding: Fire Support Mods	Various	Various : Various	8.549	0.000		0.000		0.000		-		0.000	0.000	8.549	-
EFSS (PERM)	WR	NSWCDD : Dahlgren, VA	5.385	2.779	Dec 2016	0.000		0.000		-		0.000	0.000	8.164	-
Subtotal			13.934	5.605		0.170		0.120		-		0.120	0.000	19.829	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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			

Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	0.526	0.000		0.000		0.000		-		0.000	0.000	0.526	-
Subtotal			0.526	0.000		0.000		0.000		-		0.000	0.000	0.526	N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	151.783	8.318	6.145	5.999	-	5.999	Continuing	Continuing	N/A

Remarks

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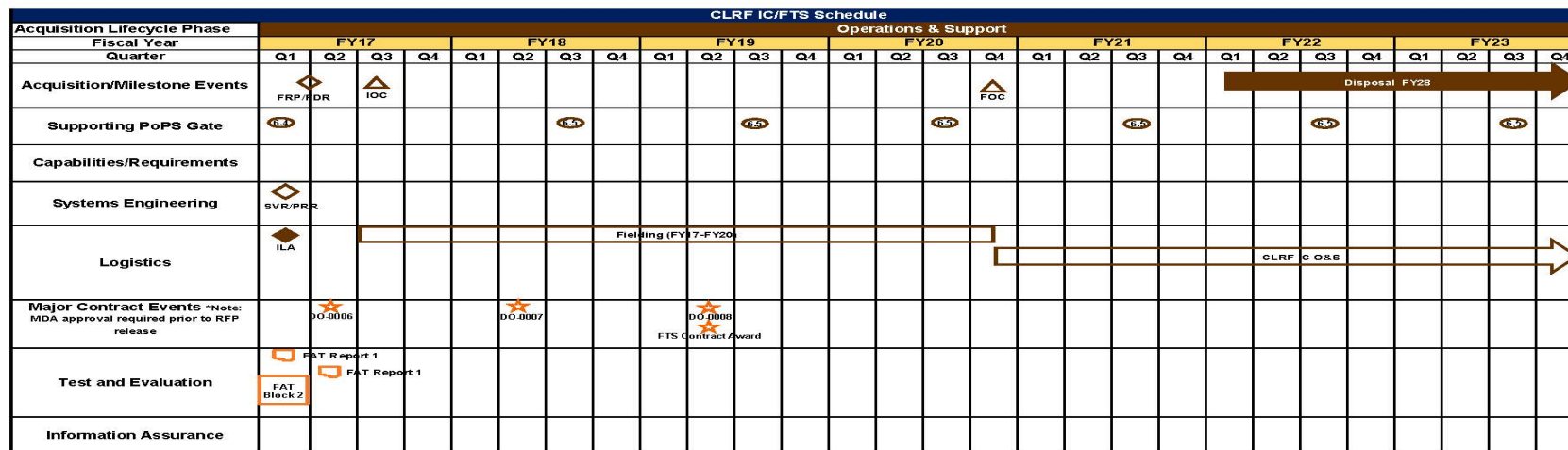
Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy

Date: February 2018

Appropriation/Budget Activity
1319 / 7

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

Project (Number/Name)
3098 / Fire Support System



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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy

Date: February 2018

Appropriation/Budget Activity

1319 / 7

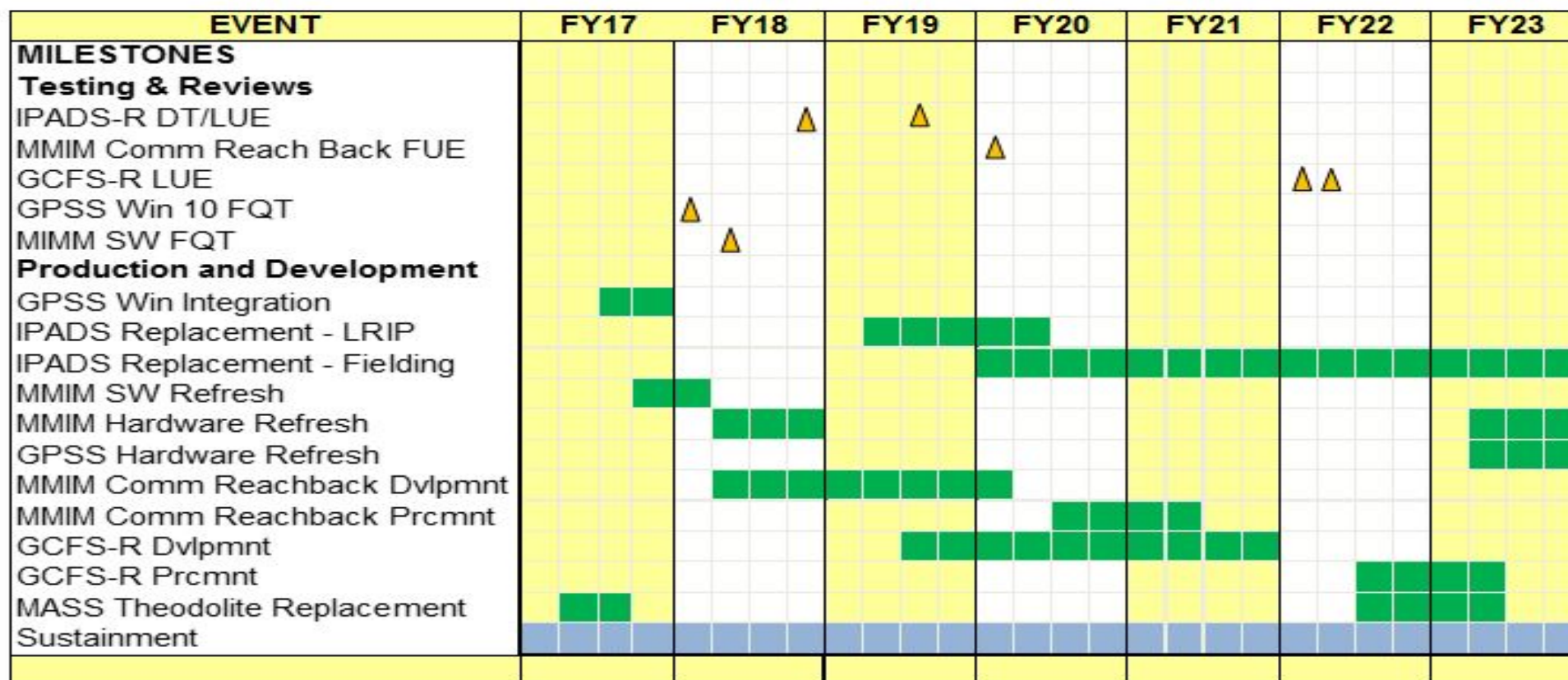
R-1 Program Element (Number/Name)

PE 0206623M / MC Ground Cmbt Spt Arms
Sys

Project (Number/Name)

3098 / Fire Support System

Fire Support Mods Program Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 3098 / Fire Support System	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3098				
EFSS - PERM: MROC Devestiture Decsion	4	2017	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 3774 / Marine Corps Ammo			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3774: Marine Corps Ammo	0.000	0.000	0.000	1.321	-	1.321	1.306	1.312	1.319	1.334	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Note Beginning in FY19, Fire Support Systems funding has been realigned from project 3098, Fire Support Systems to project 3774, Marine Corps Ammo. Realignment of efforts to new projects in FY 19 and beyond reflects USMC Program Management Office (PMO) reorganization to improve support of USMC OPFOR.												
A. Mission Description and Budget Item Justification 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 procurement is outpaced by annual expenditures, ammunition logistics R&D projects designed to extend the shelf life of our current inventory, provide enhanced packaging to "lighten the load" of our munitions, and other such projects will go a long way to ensure the Marine Corps can maintain combat readiness with a reliable conventional ammunition inventory into the future. Conventional Ground Ammunition is a project that identifies and develops Insensitive Munitions (IM) Technologies to address IM shortfalls in new Marine Corps development or improvements to legacy Conventional Ground Ammunition to meet OSD mandated IM compliance requirements. These IM Technology investments directly support the development of the bi-annual Marine Corps Insensitive Munitions Strategic Plan (IMSP) to address the identified IM technology needs of the Marine Corps.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Ammunition Life Cycle Management Articles: FY 2018 Plans: Previously funded in Project C2086. FY 2019 Base Plans: - Continue to support the Propellant Temperature project, Emergency Resupply project, automated site planning project, the Logistics Study for Additive Manufacturing, and a new project aimed at reducing the weight of ammunition packaging. FY 2019 OCO Plans:								0.000	0.000	0.803	0.000	0.803
								-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018	
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys		Project (Number/Name) 3774 / Marine Corps Ammo	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Increase of the \$.803 is due to funds being realigned from C2086 to C3774 in FY19 and out.					
Title: Conventional Ground Ammunition	0.000	0.000	0.518	0.000	0.518
Articles:	-	-	-	-	-
FY 2018 Plans: Previously funded in Project 3098.					
FY 2019 Base Plans: The FY19 increase is due to the realignment of funding from project 3098, Fire Support Systems to project 3774, Marine Corps Ammo.					
Continue (1) Mk22 Mod 4 (J143) Rocket Motor Slow Cook-off Mitigation (Naval Surface Warfare Center Indian Head Explosive Ordnance Disposal Technology Division, Indian Head, MD) The FY19 effort will include integration of concept design, hardware fabrication and testing.					
FY 2019 OCO Plans: N/A.					
FY 2018 to FY 2019 Increase/Decrease Statement: The increase of \$.529 is due to the realignment of Conventional Ground Ammunition funding from project C3098 in FY19 and out.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.321	0.000	1.321
C. Other Program Funding Summary (\$ in Millions) N/A					
Remarks					
D. Acquisition Strategy Non Developmental Item/Commercial off the Shelf (NDI/COTS).					

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 3774 / Marine Corps Ammo
E. Performance Metrics N/A		

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

Project (Number/Name)
3774 / Marine Corps Ammo

Proj 3774	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 3774 / Marine Corps Ammo

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3774				
Ammunition Life Cycle Management - no major milestones	1	2019	4	2023
Conventional Ground Ammunition - no major milestones	1	2019	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
Appropriation/Budget Activity 1319 I 7					R-1 Program Element (Number/Name) PE 0206623M I MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 3775 I Family of Internally Transportable Vehicles (FITV)			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3775: Family of Internally Transportable Vehicles (FITV)	0.000	0.000	0.000	0.245	-	0.245	2.180	2.183	0.235	0.240	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 19, Family of Internally Transportable Vehicles funding has been realigned from project 3098, Fire Support Systems to project 3775 Family of Internally Transportable Vehicles. Realignment of efforts to new projects in FY 19 and beyond reflects USMC Program Management Office (PMO) reorganization to improve support of USMC OPFOR.

A. Mission Description and Budget Item Justification

The Family of Internally Transportable Vehicles (FITV), including Utility Task Vehicles (UTVs) are light weight and internally transportable in the V-22, CH-53D & CH53E helos. The FITV provide deployed Marine Air-Ground Task Force (MAGTF) and Marine Expeditionary Unit (Special Operations Capable) (MEU (SOC)) with vehicles that are internally transportable in selected rotary and fixed wing aircraft. The FITV are expeditionary vehicles supporting over-the-horizon amphibious operations, irregular warfare and enhanced company operations. It is fielded to Infantry and Reconnaissance units. Speed, maneuverability, and the use of cover and concealment are the crew's primary means of survival. In FY20 the Marine Corps will establish the Internally Transportable Vehicle replacement initiative. This initiative will replace the current Family of Internally Transportable Vehicles (FITV) and Utility Task Vehicle (UTV).

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

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Family of Internally Transportable Vehicles	0.000	0.000	0.245	0.000	0.245
Articles:	-	-	-	-	-
FY 2018 Plans: Program reported under Project 3098					
FY 2019 Base Plans: Continue streamlined acquisitions of Commercial-Off-the-Shelf/Non-Developmental Items (COTS/NDI) that can be identified, integrated and tested in a short amount of time. FITV funding will continue modifications required to increase the FITV system readiness, safety and reliability. Successful modifications and tests are intended for follow-on procurement and incorporation into existing system component upgrades, Service Life Extension Programs (SLEPs), or rapid COTS/NDI fielding for the Fleet Marine Forces (FMF).					
FY 2019 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018	
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys		Project (Number/Name) 3775 / Family of Internally Transportable Vehicles (FITV)	

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A					
<i>FY 2018 to FY 2019 Increase/Decrease Statement:</i> Increase from FY18 to FY19 is due to realignment from project 3098, Fire Support Systems. See project 3098 for FITV FY18 accomplishment detail.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.245	0.000	0.245

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PMC/6545: Family of ITV	9.282	1.583	0.606	-	0.606	0.648	4.022	5.957	8.831	0.000	131.967

Remarks

D. Acquisition Strategy
 The FITV program strategy is to explore, research and recommend efforts to address and identify solutions to reliability and safety design issues through government off-the-shelf (GOTS), commercial off-the-shelf (COTS) or modified off-the-shelf (MOTS) components. This includes the initiative to replace the current Family of Internally Transportable Vehicles (FITV) and Utility Task Vehicle (UTV).

E. Performance Metrics
 N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018		
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys				Project (Number/Name) 3775 / Family of Internally Transportable Vehicles (FITV)				

Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 Support	C/CPFF	NATC : Carson City, NV	0.000	0.000		0.000		0.245	Dec 2018	-		0.245		Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		0.245		-		0.245		Continuing	Continuing	N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	0.000	0.245	-	0.245	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy			Date: February 2018		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys		Project (Number/Name) 3775 / Family of Internally Transportable Vehicles (FITV)	

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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 3775																												
Proj 3775: Engineering Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / MC Ground Cmbt Spt Arms Sys	Project (Number/Name) 3775 / Family of Internally Transportable Vehicles (FITV)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3775				
Proj 3775: Engineering Support	1	2019	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
4002: Family of Raid Reconnaissance	0.646	0.431	0.548	9.590	-	9.590	1.721	1.856	18.360	22.687	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 for numerous insertion and personnel equipment shortfalls currently within Marine Reconnaissance and Marine Raider units. These enhancements will improve airborne and amphibious capability, equipment and items for direct action missions, and specialized raid equipment.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Airborne Reconnaissance Equipment (ARE) Articles: FY 2018 Plans: - Continue system / technology upgrades and evaluation of emergent and reliable solutions for challenges in support of MAGTF Joint Force and USSOCOM commanders. R&D upgrades include the Enhanced Multi Mission Parachute System (EMMPS) and system safety verification. - Continue research, development and testing on personnel parachute performance and aerial delivery fielded programs, such as parachute performance testing. FY 2019 Base Plans: - Continue system / technology upgrades and evaluation of emergent and reliable solutions for challenges in support of MAGTF Joint Force and USSOCOM commanders. R&D upgrades include the High-Altitude-Opening Navigation System (HAHONAV) and the Parachutist High Altitude Oxygen System. - Continue research, development testing of parachuting capabilities for accessing advantageous coordinates, including Ram-Air square parachute systems, round parachutes, automatic aviation and aerial devices, helicopter insertion/extraction equipment and joint aerial navigational systems. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement:								0.318	0.433	0.431	0.000	0.431
								-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The FY 2019 funding request was reduced by \$0.001M to account for the availability of prior year execution balances.						
Title: Amphibious Reconnaissance Capability		0.113	0.115	0.116	0.000	0.116
Articles:		-	-	-	-	-
FY 2018 Plans:						
- Continue research and development of amphibious support equipment in support of MAGTF Joint Force and USSOCOM commanders to maneuver, surface or subsurface operations Specifically, the testing and evaluation of new Combatant Rubber Raiding Craft (CRRC) technology for amphibious reconnaissance capability along with the testing and evaluation efforts for life cycle replacement w/DeBatts Rubber Rigid Inflatable boat.						
- Initiate research and development efforts for navigation capabilities of the Diver Reconnaissance Vehicle (DRV); the replacement for the Diver Propulsion Device (DPD).						
FY 2019 Base Plans:						
- Continue research and development of amphibious support equipment in support of MAGTF Joint Force and USSOCOM commanders to maneuver, surface or subsurface operations. Specifically, continue research and development efforts for navigation capabilities of the Diver Reconnaissance Vehicle (DRV).						
FY 2019 OCO Plans:						
N/A						
FY 2018 to FY 2019 Increase/Decrease Statement:						
Budget increase from FY2018 to FY2019 of \$0.001M is in line with requirements and resource realignment of all commodity areas and budget adjustments made by the Marine Corps.						
Title: Aerial Delivery and Autonomous Distribution Entry		0.000	0.000	9.043	0.000	9.043
Articles:		-	-	-	-	-
FY 2018 Plans:						
N/A						
FY 2019 Base Plans:						
- Initiate research and development of block upgrades for the Air Delivery Family of Systems for steerable, extended glide systems that can deliver critical supplies when employing standoff or high altitude release for tactical advantage. Research and development will enhance the accuracy of operation in a GPS-denied						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018							
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total					
<p>environment, the interoperability with personnel, the One-Time Use Modular Autonomous Guidance Unit (MAGU), the modularity within aerial delivery systems and various other critical capabilities such as tracking, programming and battery diagnostics.</p> <p>- Initiate research and development of Unmanned Logistics System (ULS) - Air, specifically the integration and development of autonomy aspects for a distribution system of support for resupply and air drops. Developed capabilities will also add retrograde and unit to unit transit re-distribution not inherent with air drop alone. Release EMD contract and LRIP contract aligned to milestone B and C. Certifications include information assurance and net ready.</p> <p>FY 2019 OCO Plans: N/A</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement: Increase in FY2019 of \$9.043M supports the development of Unmanned Logistics Systems-Air program and testing and evaluation for required hardware and software upgrades on current AAO of Joint Precision Aerial Distribution System (JPADS)</p>											
Accomplishments/Planned Programs Subtotals		0.431	0.548	9.590	0.000	9.590					
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PMC/6518: Amphibious Support Equipment	7.471	5.830	5.290	-	5.290	7.136	7.217	10.094	13.969	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
<p>(U) Airborne Reconnaissance Equipment (ARE) acquisition strategy is to fund engineering changes and product upgrade testing and development for various reconnaissance special purpose equipment for aerial delivery and parachuting, such as the Parachutist's High Altitude Oxygen System (PHAOS); Automatic Activation Device (AAD); and the Tandem Offset Resupply Delivery System (TORDS)/Military Tandem Tethered Bundle (MTTB) System.</p> <p>(U) Amphibious Reconnaissance Capability acquisition strategy is to fund engineering changes and product upgrade testing and development for various reconnaissance special purpose and lifesaving equipment for Marine Corps diving and small craft, such as the Marine Assault Breacher's Kit (MABK), Marine Individual Assault Kit (MIAK), Diver Propulsion Device (DPD), Combat Rubber Raiding Craft (CRRC) and the Diver Reconnaissance Vehicle (DRV).</p>											

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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
<p>(U) Aerial Delivery and Autonomous Distribution acquisition strategy is to provide a scalable and flexible transportation (delivery, transfer and retrograde) of all classes of supply (I-IX) across the range of military operations (ROMO) for standoff/ clandestine operational requirements, such as Joint Precision Air Delivery System (JPADS), conventional and precision Heavy Equipment Air Delivery System (HEADS), conventional and precision Container Delivery System (CDS), Low-Cost Container Delivery System (LCCDS), Low-Cost Cargo Parachutes (LCCP), Family of Cargo Parachutes (FoCP) and Unmanned Aircraft Systems (UAS).</p> <p>E. Performance Metrics Milestone reviews.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
ARE, Various	Various	MCSC : Quantico, VA	0.014	0.000		0.000		0.015	Jun 2019	-		0.015	Continuing	Continuing	Continuing
ARE, Jumper Testing Capability	MIPR	Yuma Proving Ground : Yuma, AZ	0.182	0.000		0.000		0.150	Apr 2019	-		0.150	Continuing	Continuing	Continuing
ARC, MABK	MIPR	DLA Troop Support : Philadelphia, PA	0.090	0.037	Mar 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
ARC, RDOPTS	MIPR	DLA Troop Support : Philadelphia, PA	0.000	0.006	Mar 2017	0.000		0.000		-		0.000	0.000	0.006	-
ARC, A/M Tech Package	WR	NSWC : Carderock	0.000	0.000		0.015	Jan 2018	0.000		-		0.000	0.000	0.015	-
ARC, Battery Chargin Sys	C/FFP	MCSC : Quantico	0.000	0.000		0.030	Feb 2018	0.000		-		0.000	0.000	0.030	-
ADAA ULS-AIR	Various	NAVAIR : PAX RIVER, MD	0.000	0.000		0.000		3.608	May 2019	-		3.608	0.000	3.608	-
ADAA ULS-AIR	MIPR	US Army RDECom : Natick, MA	0.000	0.000		0.000		2.783	May 2019	-		2.783	0.000	2.783	-
Subtotal			0.286	0.043		0.045		6.556		-		6.556	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
ARE, Sys Eng Support	C/FFP	MCSC : Quantico, VA	0.250	0.250	Mar 2017	0.000		0.116	Mar 2019	-		0.116	Continuing	Continuing	Continuing
ADAA, Sys Eng Support	C/FFP	MCSC : Quantico, VA	0.000	0.000		0.000		0.200	Mar 2019	-		0.200	0.000	0.200	-
ADAA Sys Eng Support	Various	NAVAIR : PAX RIVER, MD	0.000	0.036	Mar 2017	0.000		0.400	Mar 2019	-		0.400	0.000	0.436	-
ADAA SYS Eng Support	MIPR	US Army RDECOM : Natick, MA	0.000	0.000		0.000		0.469	Apr 2019	-		0.469	0.000	0.469	-
Subtotal			0.250	0.286		0.000		1.185		-		1.185	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
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					
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
ARE, Various (travel)	Various	Various : Various	0.082	0.022	Sep 2017	0.061	Jun 2018	0.020	Sep 2019	-		0.020	Continuing	Continuing	Continuing
ARC, DeBatts Testing	WR	NSWC : Carderock	0.000	0.009	Mar 2017	0.000		0.000		-		0.000	0.000	0.009	-
ARE, PS2 FAT Dummy Drops	MIPR	YPG : Yuma	0.000	0.000		0.280	Jun 2018	0.000		-		0.000	0.000	0.280	-
ARE, EMMPS Jumper Testing	C/FFP	MCSC : Quantico	0.000	0.046	Jan 2017	0.092	Jun 2018	0.046	Jun 2019	-		0.046	0.000	0.184	-
ADAA Software Testing	MIPR	NRSDEC : Natick	0.000	0.000		0.000		0.783	Feb 2019	-		0.783	0.000	0.783	-
ARC, Various (travel)	Various	Various : Various	0.028	0.025	Aug 2017	0.035	Sep 2018	0.000		-		0.000	0.000	0.088	-
ARE, Dive Tablet	MIPR	DLA Troop Support : Philadelphia, PA	0.000	0.000		0.035	Jun 2018	0.000		-		0.000	0.000	0.035	-
ADAA, ULS-AIR	TBD	NAVAIR : PAX RIVER, MD	0.000	0.000		0.000		0.500	Aug 2019	-		0.500	0.000	0.500	-
ADAA, ULS-AIR	MIPR	US ARMY, RDECOM : Natick, MA	0.000	0.000		0.000		0.500	Aug 2019	-		0.500	0.000	0.500	-
Subtotal			0.110	0.102		0.503		1.849		-		1.849	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.646	0.431		0.548		9.590		-		9.590	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy										Date: February 2018																			
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 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy			Date: February 2018
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	2019	4	2022
R&D parachutes	1	2019	4	2022