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**Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	789.715	49.901	103.810	100.536	-	100.536	110.311	95.655	91.924	88.263	Continuing	Continuing
1555: Lt Armored Vehicle Prog	139.433	1.256	0.750	1.125	-	1.125	1.878	3.574	3.433	3.498	Continuing	Continuing
1901: MC Grnd Wpnry Prod Improvement	61.668	8.186	7.685	8.435	-	8.435	10.496	6.764	6.385	6.479	Continuing	Continuing
2086: Soldier/Marine Enhancement	41.623	0.623	1.939	1.483	-	1.483	2.354	2.293	2.171	2.209	Continuing	Continuing
2112: Lightweight 155mm Howitzer	6.703	0.000	1.973	0.015	-	0.015	0.015	0.013	0.013	0.012	Continuing	Continuing
2237: Amphibious Vehicle Test	17.593	2.773	2.907	2.733	-	2.733	3.240	3.103	3.084	3.136	Continuing	Continuing
2315: Training Devices/Simulators	181.408	11.545	48.050	36.833	-	36.833	34.233	28.782	24.257	24.606	Continuing	Continuing
2503: Initial Issue	63.390	4.715	9.180	13.294	-	13.294	19.778	22.165	19.130	14.364	Continuing	Continuing
2513: Body Armor	48.357	4.540	3.444	5.468	-	5.468	5.257	4.814	4.899	4.980	Continuing	Continuing
2928: Exp Indirect Fire Gen Supt Wpn Sys	49.010	0.487	0.497	0.512	-	0.512	0.513	0.521	0.530	0.539	Continuing	Continuing
3098: Fire Support System	164.723	8.896	3.061	2.241	-	2.241	3.884	10.723	15.140	15.433	Continuing	Continuing
3774: Marine Corps Ammo	2.704	1.297	10.123	10.724	-	10.724	8.762	2.735	2.745	2.763	Continuing	Continuing
3775: Family of Internally Transportable Vehicles (FITV)	2.646	2.620	0.230	0.000	-	0.000	0.383	0.340	0.252	0.257	Continuing	Continuing
4002: Family of Raid Reconnaissance	10.457	2.963	13.971	17.673	-	17.673	19.518	9.828	9.885	9.987	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 product improvements to the family of LAVs. The Amphibious Vehicle Test Branch (AVTB) provides facilities and personnel which perform a broad range of testing, repair and technical services to amphibious vehicles. This program is funded under Operational Systems Development Program Element (PE) because it encompasses engineering and manufacturing and manufacturing development for upgrades of existing systems.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Navy	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	54.871	108.235	0.000	-	0.000
Current President's Budget	49.901	103.810	100.536	-	100.536
Total Adjustments	-4.970	-4.425	100.536	-	100.536
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-4.425			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-3.660	0.000			
• SBIR/STTR Transfer	-1.310	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	100.536	-	100.536

**Change Summary Explanation**

The net decrease of \$3.274M from FY 2022 to FY 2023 is primarily due to the following program adjustments within the PE:

1) Training Devices/Simulators decrease of \$11.217M from FY 2022 to FY 2023 within TSS and DVTE is due to Marine Corps re-phasing of funding requirements and reprioritization of funds for higher priority Marine Corps requirements.

2) Family of Raid Reconnaissance increase from FY 2022 to FY 2023 of \$3.702M is due to contracts planned for prototyping of Medium ULS-A systems that will be utilized in Field User Capability Assessment for final CONOP/CONEMP development and DOTMLP-F assessments.

The FY 2023 funding request was adjusted by \$1.401M to account for the availability of prior year execution balances.

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FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1555 / Lt Armored Vehicle Prog
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
1555: Lt Armored Vehicle Prog	139.433	1.256	0.750	1.125	-	1.125	1.878	3.574	3.433	3.498	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

The Family of Light Armored Vehicles (FOLAV) consists of six fielded Light Armored Vehicle (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 (PIP) 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, survivability, reliability, availability, and maintainability in addition to reducing operations and support costs.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<b>Title:</b> LAV MODIFICATIONS	1.256	0.750	1.125	0.000	1.125
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b> -Completing the integration of the Tactical Communication Modernization (TCM) onto the Family of Light Armored Vehicles (FOLAV). This integration applies to the LAV-M, LAV-25, LAV-L, LAV-AT, and LAV-R variants. -Initiating and complete developmental test, logistics development, and validation & verification of the new TCM system for the FOLAV prior to fielding. These actions apply to the LAV-M, LAV-25, LAV-L, LAV-AT, and LAV-R variants. -Conduct ongoing LAV MOD product and Integrated Logistics Support (ILS) data development.					
<b>FY 2023 Base Plans:</b> -Continue ongoing LAV MOD product development and Integrated Logistics Support (ILS) data development.					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase of \$0.375M from FY 2022 to FY 2023 is due to product development needed to address obsolescence issues.					
<b>Accomplishments/Planned Programs Subtotals</b>	1.256	0.750	1.125	0.000	1.125

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1555 / Lt Armored Vehicle Prog

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PMC/2038: LAV PIP	37.403	23.476	57.099	-	57.099	41.967	0.726	0.759	0.774	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The Light Armored Vehicle (LAV) Modification and Sustainment line is critical to keeping the 1983 built family of LAVs (FOLAV) operationally ready and effective through the projected sunset date of FY 2035. LAV Modification and Sustainment actions include maintenance of authority to operate (ATO), authority to connect (ATC), platform and C4ISR obsolescence management, safety modifications, support equipment/tool sustainment, end-item product data management, and technical and engineering data management. The LAV Modification and Sustainment resources a wide range of necessary vehicle/communications/weapon modifications essential to fleet life-cycle management and sustainment.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy												Date: April 2022				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 7				PE 0206623M / MC Ground Cmbt Spt Arms Sys				1555 / Lt Armored Vehicle Prog								
<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	
Product Development (MOD)	MIPR	NIWC : Charleston, SC	0.750	0.800	Jul 2021	0.385	Dec 2021	0.708	Jan 2023	-		0.708	Continuing	Continuing	Continuing	
ILS Data Development (MOD)	MIPR	NIWC : Charleston, SC	0.157	0.200	Jan 2021	0.100	Dec 2021	0.142	Jan 2023	-		0.142	Continuing	Continuing	Continuing	
Proj 1555: Prior Years Cumulative Funding	Various	Various : Various	101.963	0.000		0.000		0.000		-		0.000	0.000	101.963	-	
<b>Subtotal</b>			102.870	1.000		0.485		0.850		-		0.850	Continuing	Continuing	N/A	
<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Mgmt (MOD)	MIPR	TACOM : Warren, MI	0.286	0.256	Jan 2021	0.265	Dec 2021	0.275	Dec 2022	-		0.275	Continuing	Continuing	Continuing	
Proj 1555: Prior Years Cumulative Funding	Various	Various : Various	25.854	0.000		0.000		0.000		-		0.000	0.000	25.854	-	
<b>Subtotal</b>			26.140	0.256		0.265		0.275		-		0.275	Continuing	Continuing	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	
Devl/Oper T&E (Reset)	MIPR	RTC : AL	3.147	0.000		0.000		0.000		-		0.000	0.000	3.147	-	
Proj 1555: Prior Years Cumulative Funding	Various	Various : Various	6.105	0.000		0.000		0.000		-		0.000	0.000	6.105	-	
<b>Subtotal</b>			9.252	0.000		0.000		0.000		-		0.000	0.000	9.252	N/A	



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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1555 / Lt Armored Vehicle Prog

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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

<b>Proj 1555</b>	
LAV MOD: TCM Integration	
LAV MOD: LAV MOD Product/ILS Data Development	

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1555 / Lt Armored Vehicle Prog

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 1555</b>				
LAV MOD: TCM Integration	1	2021	4	2022
LAV MOD: LAV MOD Product/ILS Data Development	1	2021	4	2027

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys			<b>Project (Number/Name)</b> 1901 / MC Grnd Wpnry Prod Improvement				
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
1901: MC Grnd Wpnry Prod Improvement	61.668	8.186	7.685	8.435	-	8.435	10.496	6.764	6.385	6.479	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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Company and Battalion Mortars	0.000	0.000	0.200	0.000	0.200
<b>Articles:</b>	-	-	-	-	-
<p><b>Description:</b> 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. This includes software updates and Authority to Operate (ATO) documentation and certification.</p> <p><b>FY 2022 Plans:</b> N/A</p> <p><b>FY 2023 Base Plans:</b> - Initiate research to extend the range of the 81mm Mortars. - Initiate development, prototypes, and testing of a new technology sight for the Mortars systems. - Initiate the integration of Lightweight Hand-held Mortar Ballistic Computer (LHMBC) sight into a Command and Control (C2) architecture.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1901 / MC Grnd Wpnry Prod Improvement			
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Increase of \$0.200M from FY 2022 to FY 2023 is due to the need for software advancement of the Lightweight Hand-held Mortar Ballistic Computer (LHMBC) with Mortar Fire Control Application (MFCA) technology to include C2 nodes, ATO certification and attainment.					
<b>Title:</b> Gunners Protection Kit					
<b>Articles:</b>					
	0.200	0.000	0.000	0.000	0.000
	-	-	-	-	-
<b>Description:</b> Gunners Protection Kit (GPK). Prior to FY 2020, GPK was funded within the Family of Infantry Weapons (FIWS). The TOGPK 2.0 is the planned upgrade and replacement for the Tube-Launched, Optically-Tracked, Wire-Guided Gunner Protection Kit (TGPK), currently in use with TOW High Mobility Multipurpose Wheeled Vehicle variants. TOGPK 2.0 affords the TOW gunner protection from small arms fire and Improvised Explosive Device fragmentation. TOGPK 2.0 addresses user concerns regarding limited workspace and TOW slew as well as improved visibility. The Reducible Height Gunners Protection Kit (RHGPK) enables Joint Light Tactical Vehicles (JLTV), Medium/Heavy Tactical Vehicle Replacement (MTVR) and Logistics Vehicle System Replacement (LVSR) to be transported in the lower vehicle stowage areas of Landing Platform/Dock (LPD 17) and Landing Helicopter Dock class ships.					
<b>FY 2022 Plans:</b> N/A					
<b>FY 2023 Base Plans:</b> N/A					
<b>FY 2023 OCO Plans:</b> N/A					
<b>Title:</b> Combat Optics					
<b>Articles:</b>					
	3.667	3.493	3.749	0.000	3.749
	-	-	-	-	-
<b>Description:</b> 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. The Integrated Clip-on Advanced Targeting System (ICATS) is an Other Transaction Authority (OTA) development effort to which will mature dual band imager technology and integrate a dual band weapon sight prototype capable of sensing in Near Infrared/Short Wave Infrared/					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1901 / MC Grnd Wpnry Prod Improvement

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Mid Wave Infrared (NIR/SWIR/MWIR) to enable target engagement out to 1,500 meters. The ICATS provides weapon/no weapon identification, battlefield illuminator see-spot capability, through-window targeting, and the ability to identify man-made camouflage materials to increase lethality and survivability of the Marine.					
<b>FY 2022 Plans:</b>					
- Continue Integrated Clip-on Advanced Targeting System (ICATS) development efforts to receive, demonstrate, and evaluate initial dual band weapon sight prototypes and increase the prototype maturity to withstand weapon shock.					
- Continue modernization of the Electro Optical Support Facility (EOSF) to support source selection evaluations, characterization of emerging optical technologies, and life cycle management efforts to include specialized equipment to accurately and properly characterize/assess ICATS.					
- Perform system test, surveillance troubleshooting, maintenance and maintenance management, and supply chain management at the EOSF.					
<b>FY 2023 Base Plans:</b>					
- Continue Integrated Clip-on Advanced Targeting System (ICATS) development efforts to receive, demonstrate, and evaluate initial dual band weapon sight prototypes and increase the prototype maturity to withstand weapon shock.					
- Continue modernization of the Electro Optical Support Facility (EOSF) to support source selection evaluations, characterization of emerging optical technologies, and life cycle management efforts to include specialized equipment to accurately and properly characterize/assess ICATS.					
- Continue system test, surveillance troubleshooting, maintenance and maintenance management, and supply chain management at the EOSF.					
-Initiate the research and development of test articles to further inform capabilities and requirements for future Night Vision Goggles (NVG).					
<b>FY 2023 OCO Plans:</b>					
N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>					
Increase of \$0.256M from FY 2022 to FY 2023 will support future Night Vision Goggles (NVG) capability testing.					
<b>Title:</b> Family of Infantry Weapons Systems (FIWS)	4.319	4.192	4.486	0.000	4.486
<b>Articles:</b>	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1901 / MC Grnd Wpnry Prod Improvement

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p><b>Description:</b> 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, and improve the performance, maintainability, supportability, service life, ergonomics, and safety enhancements of Infantry Weapons Systems.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue product development for the improvement of Small Arms Weapon Systems including Suppressors, Sniper and Special Purpose systems, Machine Guns, and their ancillary support equipment to meet established or emerging requirements.</li> <li>- Continue small arms engineering and testing.</li> <li>- Initiate the procurement of Next Generation Squad Weapon (NGSW) Rifle and ammunition test articles for USMC specific NGSW testing.</li> <li>- Initiate Product Improvement Program (PIP) testing and evaluation for multiple requirements as required.</li> <li>- Initiate performance evaluation of various types of ammunition currently under development.</li> </ul> <p><b>FY 2023 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue product development for improvement of small arms weapon systems, to include suppressors, sniper and special purpose systems, and their ancillary support equipment meet emerging requirements.</li> <li>- Continue small arms engineering and testing.</li> <li>- Continue Product Improvement Program (PIP) testing and evaluation for multiple requirements as required.</li> <li>- Continue the procurement of various types of ammunition for performance evaluation currently under development.</li> <li>- Initiate NGSW Testing to evaluate unique Marine Corps requirements.</li> </ul> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase of \$0.294M from FY 2022 to FY 2023 due to USMC Next Generation Squad Weapon (NGSW) specific testing efforts.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	8.186	7.685	8.435	0.000	8.435

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1901 / MC Grnd Wpnry Prod Improvement
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**C. Other Program Funding Summary (\$ in Millions)**

Line Item	FY 2021	FY 2022	FY 2023	FY 2023	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PMC/2220-01: Family of Infantry Weapons Systems	23.375	12.387	5.517	-	5.517	10.605	38.367	41.929	51.967	Continuing	Continuing
• PMC/2220-02: Company and Battalion Mortars	3.474	3.528	3.210	-	3.210	3.278	3.348	3.418	3.490	Continuing	Continuing
• PMC/2220-03: Gunners Protection Kit	10.088	18.112	0.946	-	0.946	0.000	0.000	0.000	0.000	0.000	35.812
• PMC/4620-01: Combat Optics	50.492	51.200	70.573	-	70.573	92.623	192.234	186.175	137.375	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

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

**Family of Infantry Weapons Systems (FIWS):**

FIWS encompasses over 60 programs, efforts for improved weapon capability, operation, maintainability, supportability, service life, ergonomics, and safety enhancements by continuous monitoring, assessment, and implementation of joint service and United States Marine Corps (USMC)-unique weapon system modifications. The FIWS portfolio also includes support for various program/acquisition support activities, such as the procurement of ammunition related to those production verification activities.

**Combat Optics:**

Combat Optics acquisition, management and contracting strategies support the research, development, modification and improvement of optics, night vision and laser systems such as magnified day optics, thermal imagers, image intensifying (I2) systems, lasers, and illuminators. The Integrated Clip-on Advanced Targeting System (ICATS) is an Other Transaction Authority (OTA) development effort.

**Company and Battalion Mortars:**

Acquisition, management, and contracting strategies support multiservice and USMC unique system modifications and improvements for the lightweight company and battalion mortars and mortar fire control systems to provide immediate indirect fires in support of mounted and dismounted forces to the company and battalion level.

**Gunners Protection Kit (GPK):**

Acquisition, management, and contracting strategies to support a USMC unique system requirement for the Reducible Height Gunners Protection Kit (RHGPK) in support of loading and unloading vehicles aboard amphibious carriers. The RHGPK enables Joint Light Tactical Vehicles (JLTV), Medium/Heavy Tactical Vehicle Replacement (MTVR) and Logistics Vehicle System Replacement (LVSR) to be transported in the lower vehicle stowage areas of Landing Platform/Dock (LPD 17) and Landing Helicopter Dock class ships.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1901 / MC Grnd Wpnrty Prod Improvement
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<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Company and Battalion Mortars: MFCA Development	MIPR	Picatinny Arsenal : Picatinny, NJ	2.303	0.000		0.000		0.000		-		0.000	0.000	2.303	-
Gunners Protection Kit: RHGPK	MIPR	DLA : Philadelphia, PA	0.156	0.000		0.000		0.000		-		0.000	0.000	0.156	-
Gunners Protection Kit: RHGPK	MIPR	Picatinny Arsenal : Picatinny, NJ	0.315	0.000		0.000		0.000		-		0.000	0.000	0.315	-
Combat Optics: ICATS	C/CPFF	MCSC : Quantico, VA	2.053	2.013	Feb 2021	2.625	Nov 2021	3.007	Nov 2022	-		3.007	0.000	9.698	-
FIWS - NGSW	MIPR	ARDEC : Picatinny, NJ	2.497	0.000		0.000		0.000		-		0.000	0.000	2.497	-
FIWS	WR	NSWC : Crane, IN	0.502	0.215	Jan 2021	0.896	Jan 2022	0.000		-		0.000	0.000	1.613	-
FIWS	MIPR	DLA : Richmond, VA	0.108	0.000		0.000		0.000		-		0.000	0.000	0.108	-
FIWS	Reqn	MCSC : Quantico, VA	0.000	0.000		0.014	May 2022	0.000		-		0.000	0.000	0.014	-
FIWS	Various	Travel/GCPC : Quantico, VA	0.000	0.000		0.474	Jan 2022	0.000		-		0.000	0.000	0.474	-
Proj 1901: Prior Years Cum Funding (Product Dev)	Various	Various : Various	13.851	0.000		0.000		0.000		-		0.000	0.000	13.851	-
FIWS	WR	NSWC : Corona, CA	0.000	0.036	Apr 2021	0.000		0.000		-		0.000	0.000	0.036	-
Company and Battalion Mortars: Mortar Sight	TBD	TBD : TBD	0.000	0.000		0.000		0.100	Jan 2023	-		0.100	0.000	0.100	-
<b>Subtotal</b>			21.785	2.264		4.009		3.107		-		3.107	0.000	31.165	N/A

<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Combat Optics: Technical Engineering	WR	NSWC, Dahlgren : Dahlgren, VA	0.265	0.180	Apr 2021	0.265	Jan 2022	0.250	Jan 2023	-		0.250	0.000	0.960	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1901 / MC Grnd Wpnry Prod Improvement
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<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Combat Optics: Technical Engineering	WR	NSWC, Crane : Crane, IN	1.967	0.245	Jan 2021	0.553	Jan 2022	0.250	Jan 2023	-		0.250	Continuing	Continuing	Continuing
Family of Infantry Weapons Systems	Various	Travel/GCPC/Ct : Quantico, VA	0.912	0.207	Jan 2021	0.034	Jan 2022	0.215	Jan 2023	-		0.215	Continuing	Continuing	Continuing
Proj 1901: Prior Years Cum Funding (Support)	Various	Various : Various	14.137	0.000		0.000		0.000		-		0.000	0.000	14.137	-
Family of Infantry Weapons Systems	WR	NSWC : Crane, IN	0.000	0.000		0.000		0.130	Jan 2023	-		0.130	0.000	0.130	-
Family of Infantry Weapons Systems	C/FFP	MCSC : Quantico, VA	0.000	0.109	Mar 2021	0.000		0.000		-		0.000	0.000	0.109	-
<b>Subtotal</b>			17.281	0.741		0.852		0.845		-		0.845	Continuing	Continuing	N/A

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Gunners Protection Kit: RHGPK	MIPR	Aberdeen Testing Center : Aberdeen, MD	0.785	0.200	Mar 2021	0.000		0.000		-		0.000	0.000	0.985	-
Combat Optics	Various	Various : Various	1.428	0.321	May 2021	0.000		0.000		-		0.000	0.000	1.749	-
Combat Optics: EOSF Modernization	MIPR	DLA : Philadelphia, PA	0.261	0.817	Jan 2021	0.050	Jan 2022	0.242	Apr 2023	-		0.242	0.000	1.370	-
Combat Optics	MIPR	NSWC Crane : Crane, IN	0.000	0.091	Apr 2021	0.000		0.000		-		0.000	0.000	0.091	-
FIWS	MIPR	ARDEC : Picatinny, NJ	0.000	0.715	Aug 2021	1.453	Jan 2022	2.375	Jan 2023	-		2.375	0.000	4.543	-
FIWS	WR	NSWC Crane : Crane, IN	2.501	1.613	Nov 2020	0.670	Dec 2021	0.620	Nov 2022	-		0.620	Continuing	Continuing	Continuing
FIWS	MIPR	DLA : Philadelphia, PA	0.050	0.513	Apr 2021	0.022	Mar 2022	0.100	Mar 2023	-		0.100	0.000	0.685	-
FIWS	C/FFP	MCSC : Quantico, VA	0.025	0.332	Jan 2021	0.020	Jan 2022	0.600	Jun 2023	-		0.600	0.000	0.977	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1901 / MC Grnd Wpnry Prod Improvement
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FIWS	C/FFP	DTIC : Ft. Belvoir, VA	0.049	0.271	Apr 2021	0.219	Apr 2022	0.100	Apr 2023	-		0.100	0.000	0.639	-
FIWS	WR	NSWC Indian Head : Indian Head, MD	0.000	0.308	Feb 2021	0.288	Feb 2022	0.346	Feb 2023	-		0.346	0.000	0.942	-
FIWS	MIPR	Aberdeen Testing Center : Aberdeen, MD	0.015	0.000		0.000		0.000		-		0.000	0.000	0.015	-
FIWS	WR	NSWC Corona : Corona, CA	0.016	0.000		0.000		0.000		-		0.000	0.000	0.016	-
Proj 1901: Prior Years Cum Funding (T&E Eval)	Various	Various : Various	14.281	0.000		0.000		0.000		-		0.000	0.000	14.281	-
Company and Battalion Mortars: 81mm Mortars	TBD	TBD : TBD	0.000	0.000		0.000		0.100	Jan 2023	-		0.100	0.000	0.100	-
<b>Subtotal</b>			19.411	5.181		2.722		4.483		-		4.483	Continuing	Continuing	N/A

<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Gunners Protection Kit: RHGPK	C/FFP	MCSC : Quantico, VA	0.192	0.000		0.000		0.000		-		0.000	0.000	0.192	-
FIWS	C/FFP	MCSC : Quantico, VA	1.383	0.000		0.102	Mar 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Proj 1901: Prior Years Cum Funding (Mgmt Services)	Various	Various : Various	1.616	0.000		0.000		0.000		-		0.000	0.000	1.616	-
<b>Subtotal</b>			3.191	0.000		0.102		0.000		-		0.000	Continuing	Continuing	N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	61.668	8.186	7.685	8.435	-	8.435	Continuing	Continuing	N/A



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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1901 / MC Grnd Wpny Prod Improvement
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<b>- Combat Optics - Integrated Clip-on Advanced Targeting System (ICATS)</b>  Combat Optics - ICATS Phase III - TRL 6 Prototype and Development  Combat Optics - ICATS Phase IV - TRL 7 Prototype and Development	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027							
	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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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 1901 / MC Grnd Wpny Prod Improvement

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>- Combat Optics - Integrated Clip-on Advanced Targeting System (ICATS)</b>				
Combat Optics - ICATS Phase III - TRL 6 Prototype and Development: Schedule Detail	3	2022	4	2023
Combat Optics - ICATS Phase IV - TRL 7 Prototype and Development: Schedule Detail	1	2024	2	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys				<b>Project (Number/Name)</b> 2086 / Soldier/Marine Enhancement			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2086: <i>Soldier/Marine Enhancement</i>	41.623	0.623	1.939	1.483	-	1.483	2.354	2.293	2.171	2.209	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. The Marine Corps' Force Design reorganizes personnel and equipment across all infantry battalions injecting new capabilities in order to combat a near peer competitor and includes experimentation with Fleet Marine Force units from 2021 to 2023. Experimentation will require an increased level of effort to influence integration and synergy of capabilities. 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 in order to meet mission requirements to support integration and assessments of equipment. MERS is engaging industry and academia in search of innovative technologies that can meet Force Design infantry capabilities via a Partnership Intermediary Agreement. Weight, volume, and power management are fundamental considerations in the insertion or modernization of any squad equipment. MERS works with Joint and North Atlantic Treaty Organization (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 was delayed in FY 2020 due to COVID and anticipate completion in FY 2022. 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.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Marine Expeditionary Rifle Squad (MERS)	0.623	1.939	1.483	0.000	1.483
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b>					
-Coordinate with Marine Corps Warfighting Lab and other stakeholders on execution of Force Design Infantry Battalion experimentation and support capability injection requirements as feasible.					
-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.					
-Conduct operational integration using designated Marines from 2nd Battalion 2nd Marines, 3rd Battalion 6th Marines, and the Jungle Warfare Training Center (JWTC) in order to assess near term and Force Design equipment integration in operational environments.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2086 / Soldier/Marine Enhancement

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>-Continue to utilize the Gruntworks Squad Integration Facility as an asset to execute innovation and technology searches, R&amp;D integration projects, prototyping, human performance trials, rapid assessment of technologies, and usability trials.</p> <p>-Continue investment into Gruntworks Squad Integration Facility enablers and capabilities in order to provide state of the art data collection.</p> <p>-Continue to conduct human performance trials utilizing Marine Corps Load Effects Assessment Program (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, load bearing systems, and Integrated Helmet System with human factors and operational expertise.</p> <p>-Continue to develop integrated seating and equipment storage solutions for combat equipped Marines for ACV, JLTV and other mobility programs and synchronize seat belt and retention systems among the platforms.</p> <p>-Conduct R&amp;D on squad systems in conjunction with Army, Special Operations Command (SOCOM), and Close Combat Lethality Task Force in order to leverage new technologies and capabilities to the rifle squad to include Integrated Visual Augmentation System and Enhanced Night Vision Goggle Binocular.</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&amp;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. Identify and analyze power solutions to support increased power demands of new capabilities within the rifle squad.</p> <p>-Continue to implement capability requirements from MERS Initial Capabilities Document (ICD) and results from Force Design.</p> <p>-Continue to prioritize projects with the Infantry Working Group and utilize the Partnership Intermediary Agreement as a mechanism to pursue innovation and technology.</p>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2086 / Soldier/Marine Enhancement

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>-Continue the anthropometry survey of the Marine Corps. The data from this study is critical to provide other program offices with the size and fit requirements for all Marines.</p> <p><b>FY 2023 Base Plans:</b></p> <p>-Continue the anthropometry survey of the Marine Corps. Finalize the data and analysis from the anthropometry survey for use by program offices.</p> <p>-Coordinate with Marine Corps Warfighting Lab and other stakeholders on execution of Force Design Infantry Battalion as experimentation continues to evolve</p> <p>-Continue to support all the Marine Corps Systems Command program offices that provide equipment to the Marine rifle squad or provide mobility platforms that support the squad.</p> <p>-Conduct operational integration using designated Marines in order to assess near term and Force Design equipment integration in operational environments.</p> <p>-Continue to utilize the Gruntworks Squad Integration Facility as an asset to execute innovation and technology searches, R&amp;D integration projects, prototyping, human performance trials, rapid assessment of technologies, and usability trials.</p> <p>-Continue to conduct human performance trials utilizing Marine Corps Load Effects Assessment Program (MC-LEAP) and other data collection methodologies in order to develop mobility metrics to support Force Design.</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, load bearing systems, and Integrated Helmet System with human factors and operational expertise.</p> <p>-Conduct R&amp;D on squad systems in conjunction with Army, Special Operations Command (SOCOM), and Close Combat Lethality Task Force in order to leverage new technologies and capabilities to the rifle squad to include Integrated Visual Augmentation System and Enhanced Night Vision Goggle Binocular.</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>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2086 / Soldier/Marine Enhancement

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
-Continue to seek weight and volume reduction replacements for current infantry equipment that support integration of components. Identify and analyze power solutions to support increased power demands of new capabilities within the rifle squad. -Continue to implement capability requirements from Force Design experimentation.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease of \$0.456M from FY 2022 to FY 2023 is in line with the reduction of support requirements for test and evaluation efforts.					
<b>Accomplishments/Planned Programs Subtotals</b>	0.623	1.939	1.483	0.000	1.483

**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-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2086 / Soldier/Marine Enhancement
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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Years Cumulative Funding	Various	Marine Corps Systems Command : Quantico, VA	12.792	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			12.792	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A

<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MERS Support	Various	Marine Corps Systems Command : Quanico, VA	1.408	0.110	May 2021	0.145	Nov 2021	0.000		-		0.000	0.000	1.663	-
MERS Technical Support	C/IDIQ	Various : Various	0.932	0.000		0.380	Nov 2021	0.000		-		0.000	Continuing	Continuing	Continuing
MERS Technical Support - PIA	C/CPFF	MCSC : Quantico, VA	5.235	0.252	Jul 2021	1.324	Jun 2022	0.275	Dec 2022	-		0.275	0.000	7.086	Continuing
MERS Technical Support	C/CPFF	MCSC : Quantico, VA	1.126	0.000		0.000		0.000		-		0.000	0.000	1.126	Continuing
Prior Years Cumulative Funding	Various	Various : Various	7.142	0.000		0.000		0.000		-		0.000	0.000	7.142	-
<b>Subtotal</b>			15.843	0.362		1.849		0.275		-		0.275	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.

<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MERS Developmental Test & Eval (Articles)	Various	MCSC : Quantico, VA	0.405	0.261	Jan 2021	0.090	Nov 2021	0.145	Jan 2023	-		0.145	0.000	0.901	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2086 / Soldier/Marine Enhancement
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MERS Developmental Test & Eval (Anthro))	C/FFP	MCSC : Quantico, VA	0.000	0.000		0.000		1.063	Nov 2022	-		1.063	0.000	1.063	-
Prior Years Cumulative Funding	Various	Various : Various	12.583	0.000		0.000		0.000		-		0.000	0.000	12.583	-
<b>Subtotal</b>			12.988	0.261		0.090		1.208		-		1.208	0.000	14.547	N/A

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

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	41.623	0.623	1.939	1.483	-	1.483	Continuing	Continuing	N/A

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2086 / Soldier/Marine Enhancement
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<b>Proj 2086</b>	<b>FY 2021</b>				<b>FY 2022</b>				<b>FY 2023</b>				<b>FY 2024</b>				<b>FY 2025</b>				<b>FY 2026</b>				<b>FY 2027</b>			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
	MERS Research/Int of Infantry Squad																											
Marine Enhancement Prog Equipment																												
Empty grid for data entry																												

2023DON - 0206623M - 2086

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2086 / Soldier/Marine Enhancement

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2086</b>				
MERS research/integration of Infantry Squad - No major milestones	1	2021	4	2027
Marine Enhancement Program Equipment - No major milestones	1	2021	4	2027

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys				<b>Project (Number/Name)</b> 2112 / Lightweight 155mm Howitzer			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2112: <i>Lightweight 155mm Howitzer</i>	6.703	0.000	1.973	0.015	-	0.015	0.015	0.013	0.013	0.012	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

LW155 (also known as the M777A2 howitzer) provides all weather, day/night 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 M777A2 howitzer was first fielded by the Marine Corps in April 2005 and completed fielding in April 2013. The M777A2 howitzer is used significantly in support of Operation Inherent Resolve. This budget item supports system updates to maintain and increase performance and lethality. The M777A2 howitzer is the prominent weapon of the Marine indirect fires triad and currently the only cannon in the Service.

In FY 2023, the program will continue to focus on improving the Digital Fire Control System (DFCS) of the M777A2 while allowing for operation in a Global Positioning System (GPS) denied/ challenged environment. Continued operation in a GPS denied/ challenged environment is critical to the M777A2 ability to fire Precision Guided Munitions (PGM). The M777A2 will leverage the US Army's Assured Positioning, Navigation, and Timing (APNT) initiatives, such as Mounted APNT System (MAPS), as well as DFCS efforts by other US Army weapon system platforms, to help evaluate future modernization efforts for the M777A2.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Lightweight 155mm Howitzer Product Improvements	0.000	1.973	0.015	0.000	0.015
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b> -Complete the redesign of the Current Communication Location Enclosure (CLE) of the Digital Fire Control Systems (DFCS) to integrate latest M-Code technologies for continued operation in GPS contested environments.					
<b>FY 2023 Base Plans:</b> -Program will continue to perform engineering studies to integrate the latest technologies for continued operation against peer threats.					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2112 / Lightweight 155mm Howitzer

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Decrease of \$1.958M from FY 2022 to FY 2023 is the result of completing the redesign of the CLE of the DFCS to allow for integration of the latest Assured, Positioning, Navigation and Timing (APNT) initiatives.					
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	1.973	0.015	0.000	0.015

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• PMC/2185: 155MM Ltwt Towed Howitzer	0.059	0.032	1.782	-	1.782	1.789	1.823	1.857	1.893	0.000	1,421.983

**Remarks**

**D. Acquisition Strategy**  
RDTE efforts in FY 2023 will leverage existing technologies to integrate and evaluate to inform future modernization efforts in terms of hardware and software upgrades for M777A2 howitzer. Future upgrades will be evaluated based on cost and impact to operation.

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Navy</b>											<b>Date: April 2022</b>				
<b>Appropriation/Budget Activity</b> 1319 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys					<b>Project (Number/Name)</b> 2112 / Lightweight 155mm Howitzer				

<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
LW155 Product Improvements	MIPR	CCDC-AC : Picatinny Arsenal, NJ	6.700	0.000		1.973	Oct 2021	0.015	Oct 2022	-		0.015	Continuing	Continuing	Continuing
<b>Subtotal</b>			6.700	0.000		1.973		0.015		-		0.015	Continuing	Continuing	N/A

**Remarks**  
Decrease of \$1.958M from FY 2022 to FY 2023 is the result of completing the redesign of the Communication Location Enclosure (CLE) of the Digital Fire Control System (DFCS) to allow for integration of the latest Assured, Positioning, Navigation and Timing (APNT) initiatives.

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Mobility and Firing Test	MIPR	Yuma Proving Ground : Yuma, AZ	0.003	0.000		0.000		0.000		-		0.000	0.000	0.003	-
<b>Subtotal</b>			0.003	0.000		0.000		0.000		-		0.000	0.000	0.003	N/A

<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>			
<b>Project Cost Totals</b>			6.703	0.000	1.973	0.015	-	0.015	Continuing	Continuing	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Navy</b>		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2112 / Lightweight 155mm Howitzer

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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

<b>Proj 2112</b>	
LW155 Modernization Research	
CLE Redesign Completion	

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2112 / Lightweight 155mm Howitzer

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2112</b>				
LW155 Modernization Research	1	2022	4	2027
CLE Redesign Completion	4	2022	4	2022

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys				<b>Project (Number/Name)</b> 2237 / Amphibious Vehicle Test			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2237: Amphibious Vehicle Test	17.593	2.773	2.907	2.733	-	2.733	3.240	3.103	3.084	3.136	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 an amphibious vehicle test facility, which is the Department of Defense's only certified amphibious vehicle test capability. The AVTB develops test plans; executes test and evaluation; and provides analysis and reporting of developmental and integrated test and evaluation events. They predominately support the development and performance validation of amphibious and expeditionary ground combat vehicle systems and equipment. The AVTB conducts and supports testing for the MCSC; Navy and other service PEOs and Program Management Offices; the Office of Naval Research; and HQMC PP&O and CD&I. The mission of the AVTB is to conduct test and evaluation of expeditionary combat vehicle systems and equipment in order to enable informed acquisition decisions.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Contracts and Test and Evaluation Support Assets	2.773	2.907	2.733	0.000	2.733
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b>					
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV):					
- Continuation of ACV-P follow on testing - system modifications and reliability.					
- Continuation of ACV-C follow-on requirements testing (FRT) System upgrades and platform modification and Logistics Demonstration					
- MCOTEAC ACV-C operational assessment safety and site support					
- ACV-30 Prototype water mobility testing performed by AVTB, sponsored PMAAA, for BAE to gather pertinent data for "Critical Design Review" to be held in March of 2022.					
Assault Amphibious Vehicle Family of Vehicles:					
- Continuation of AAVP7/C7/R & ECP follow on testing as required - system upgrades and platform modification.					
- Test and evaluate the Amphibious Vehicle Vision Aided Navigation (AVVAN) system					
- ONR Test and evaluate the Assured Positioning, Navigation, and Timing System (A-PNT) testing and user evaluation					
Office of Naval Research (ONR) Projects:					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2237 / Amphibious Vehicle Test

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>- Amphibious Reconnaissance Vehicle - supporting ONR in follow on Water Mobility and Land Mobility testing as required.</p> <p>- Unmanned Swarming Amphibious Assault Craft (USAAC) Martin Defense GGROUP (MDG) - Water Mobility, Land Mobility.</p> <p>Other Projects:</p> <p>- Rolling Fuel Transporter - supporting MCWL in testing Water mobility and Land Mobility.</p> <p>- Vehicle mobility test and user assessments supporting Marine Corps Intelligence Activity (MCIA)</p> <p>- Navy/Marine Expeditionary Ship Interdiction System (NMESIS) test support to 11th Marine Regiment in data collection and engineer support for</p> <p>- Light Armored Vehicle, Family of Vehicles (FoV) water mobility evaluation.</p> <p>- Provide support for the Amphibious Combat Vehicle during the Expeditionary units, Marine Corps Operational Test and Evaluation Activity Operational Assessment MCOTEA).</p> <p><b>FY 2023 Base Plans:</b></p> <p>Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV):</p> <p>- Continuation of ACV-P follow on testing as required - System upgrades and platform modifications.</p> <p>- Continuation of ACV-C follow on testing as required - System upgrades and platform modifications.</p> <p>- ACV-30 testing for the Engineering and Manufacturing Development (EMD) phase. Plan and conduct Reliability Growth Testing (RGT).</p> <p>Assault Amphibious Vehicle (AAV) Family of Vehicles (FoV):</p> <p>- Continuation of AAVP7/C7/R &amp; ECP follow on testing as required - System upgrades and platform modification.</p> <p>Advanced Reconnaissance Vehicle (ARV):</p> <p>- ARV testing for the Engineering and Manufacturing Development (EMD) phase - developmental and reliability testing of competitive vendors.</p> <p><b>FY 2023 OCO Plans:</b></p> <p>N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2237 / Amphibious Vehicle Test
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Decrease of \$0.174M will result in decreased procurement of consumable test assets and test service support as previously mission funded events. Additional costs will be passed onto customers for T&E events in support of ACV, ARV and AAV test efforts.					
<b>Accomplishments/Planned Programs Subtotals</b>	2.773	2.907	2.733	0.000	2.733

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

N/A

**Remarks**

**D. Acquisition Strategy**

The Amphibious Vehicle Test Branch supports the Department of Defense's amphibious and expeditionary combat vehicle systems and equipment developmental testing and evaluation through all stages of the acquisition life cycle. It is agile enough to conduct testing ranging from science and technology / research and development demonstrations (in order to determine program requirements and technological maturity) through verification and validation of post fielding engineering change proposals. AVTB sustainment and test support is conducted through a mix of military subject matter experts, federal civil service, support contracts, and local and supported service military personnel and equipment support requests.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy												Date: April 2022			
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							
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	-
<b>Subtotal</b>			2.430	0.000		0.000		0.000		-		0.000	0.000	2.430	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Facility/Test Infrastructure	C/FFP	NAVFAC, SW : Camp Pendleton, CA	0.953	0.206	Oct 2020	0.216	Oct 2021	0.150	Feb 2023	-		0.150	Continuing	Continuing	Continuing
Test Assets//Operator Spprt	C/FFP	MCTSSA Camp Pend : Camp Pendleton, CA	3.151	1.455	Apr 2021	1.410	Apr 2022	1.232	Jan 2023	-		1.232	0.000	7.248	-
Vehicle Support	WR	RCO Camp Pendleton : Camp Pendleton, CA	0.446	0.065	Oct 2020	0.060	Oct 2021	0.060	Oct 2022	-		0.060	Continuing	Continuing	Continuing
Hazmat POL PPE	Various	MCTSSA Camp Pendleton : Camp Pendleton, CA	0.492	0.014	Oct 2020	0.025	Oct 2021	0.020	Oct 2022	-		0.020	0.000	0.551	-
Crane Test Support	C/IDIQ	MCTSSA Camp Pendleton : Camp Pendleton, CA	0.265	0.005	Oct 2020	0.000	Oct 2021	0.000		-		0.000	0.000	0.270	-
Test article fuel (J8)	Various	AVTB : Camp Pendleton, CA	0.967	0.067	Oct 2020	0.062	Oct 2021	0.065	Oct 2022	-		0.065	0.000	1.161	-
Test support Fuel (Diesel)	Various	AVTB : Camp Pendleton, CA	0.825	0.076	Oct 2020	0.080	Oct 2021	0.020	Oct 2022	-		0.020	0.000	1.001	-
Prior Years Cumulative Funding	Various	Various : Various	0.452	0.000		0.000		0.000		-		0.000	0.000	0.452	-
<b>Subtotal</b>			7.551	1.888		1.853		1.547		-		1.547	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy												Date: April 2022				
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								
<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Pendleton, CA	1.814	0.115	Oct 2020	0.120	Oct 2021	0.194	Feb 2023	-		0.194	Continuing	Continuing	Continuing	
Test Equipment	WR	AVTB : MCTSSA Camp Pendleton	0.646	0.065	Oct 2020	0.150	Oct 2021	0.200	Feb 2023	-		0.200	0.000	1.061	-	
<b>Subtotal</b>			2.460	0.180		0.270		0.394		-		0.394	Continuing	Continuing	N/A	
<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Mgmt & T&E Service Supt	C/FFP	MCTSSA Camp Pendleton : Camp Pendleton	2.818	0.230	Nov 2020	0.310	Nov 2021	0.339	Nov 2022	-		0.339	Continuing	Continuing	Continuing	
Lab and Tech Writer Supt.	C/FFP	MCTSSA Camp Pendleton : Camp Pendleton	2.334	0.475	Nov 2020	0.474	Nov 2021	0.453	Nov 2022	-		0.453	0.000	3.736	-	
<b>Subtotal</b>			5.152	0.705		0.784		0.792		-		0.792	Continuing	Continuing	N/A	
<b>Project Cost Totals</b>			17.593	2.773		2.907		2.733		-		2.733	Continuing	Continuing	N/A	
<b>Remarks</b>																

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2237 / Amphibious Vehicle Test

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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

<b>Proj 2237</b>	
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-C Engineering Change Proposal Test	[REDACTED]
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV- C DT&E	[REDACTED]
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-C Testing - Water Mobility, Communication System, Reliability Qualification Testing	[REDACTED]
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-P Reliability and follow on testing as required - System upgrades and platform modification.	[REDACTED]
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-P follow on testing as required - System upgrades and platform modification	[REDACTED]
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-30 Prototype Water Mobility Assessment	[REDACTED]
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-30 Testing - Water Mobility, Land Mobility, Reliability, follow on testing as required	[REDACTED]
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-30 Reliability Growth Testing	[REDACTED]

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2237 / Amphibious Vehicle Test
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027							
	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				
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV- R Engineering Proposal Test																																
Assault Amphibious Family of Vehicles (AAVP7/C7/R7): AAVP7/C7/R & ECP testing as required - System upgrades and platform modification.																																
Assault Amphibious Family of Vehicles (AAVP7/C7/R7): Amphibious Surf Capability Vehicle - Water Mobility and Reliability Qualification Testing																																
Assault Amphibious Family of Vehicles (AAVP7/C7/R7): Foreign Composite Track upgrade for AAVP7 - Water Mobility, Land Mobility																																
Assault Amphibious Family of Vehicles (AAVP7/C7/R7): AAVP7/C7/R & ECP follow on testing as required - System upgrades and platform modification.																																
Amphibious Reconnaissance Vehicle (ARV): Other Transaction Authority or Competitive Prototyping Phase																																
Amphibious Reconnaissance Vehicle (ARV): ARV Prototype testing and evaluation																																
Amphibious Reconnaissance Vehicle (ARV): ARV testing for the Engineering and Manufacturing Development (EMD) reliability testing																																

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2237 / Amphibious Vehicle Test
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
Office of Naval Research (ONR) Projects: Autonomous AAVP7 System Development - Land Navigation, Water Navigation	[REDACTED]																											
Office of Naval Research (ONR) Projects: Unmanned Swarming Amphibious Assault Craft - Water Mobility.	[REDACTED]																											
Other USMC: Joint Light Tactical Vehicle - System upgrades and platform modification.	[REDACTED]																											
Other USMC: Rolling Fuel Transporter	[REDACTED]																											
OPFOR Support: OPFOR Support	[REDACTED]																											
OPFOR Support: OPFOR Support Testing	[REDACTED]																											

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<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Navy</b>		<b>Date: April 2022</b>
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2237 / Amphibious Vehicle Test

**Schedule Details**

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
<b>Proj 2237</b>				
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-C Engineering Change Proposal Test	1	2021	3	2022
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV- C DT&E	2	2021	2	2022
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-C Testing - Water Mobility, Communication System, Reliability Qualification Testing	2	2021	2	2022
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-P Reliability and follow on testing as required - System upgrades and platform modification.	1	2021	4	2026
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-P follow on testing as required - System upgrades and platform modification	4	2021	4	2022
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-30 Prototype Water Mobility Assessment	3	2023	1	2026
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-30 Testing - Water Mobility, Land Mobility, Reliability, follow on testing as required	4	2023	1	2025
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-30 Reliability Growth Testing	4	2023	1	2025
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV- R Engineering Proposal Test	3	2024	2	2026
Assault Amphibious Family of Vehicles (AAVP7/C7/R7): AAVP7/C7/R & ECP testing as required - System upgrades and platform modification.	1	2021	4	2023
Assault Amphibious Family of Vehicles (AAVP7/C7/R7): Amphibious Surf Capability Vehicle - Water Mobility and Reliability Qualification Testing	1	2021	4	2023
Assault Amphibious Family of Vehicles (AAVP7/C7/R7): Foreign Composite Track upgrade for AAVP7 - Water Mobility, Land Mobility	3	2021	3	2022

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2237 / Amphibious Vehicle Test
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<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Assault Amphibious Family of Vehicles (AAVP7/C7/R7): AAVP7/C7/R & ECP follow on testing as required - System upgrades and platform modification.	1	2021	4	2023
Amphibious Reconnaissance Vehicle (ARV): Other Transaction Authority or Competitive Prototyping Phase	2	2021	2	2022
Amphibious Reconnaissance Vehicle (ARV): ARV Prototype testing and evaluation	1	2023	3	2023
Amphibious Reconnaissance Vehicle (ARV): ARV testing for the Engineering and Manufacturing Development (EMD) reliability testing	4	2023	4	2024
Office of Naval Research (ONR) Projects: Autonomous AAVP7 System Development - Land Navigation, Water Navigation	1	2021	4	2023
Office of Naval Research (ONR) Projects: Unmanned Swarming Amphibious Assault Craft - Water Mobility.	1	2021	4	2021
Other USMC: Joint Light Tactical Vehicle - System upgrades and platform modification.	1	2021	4	2023
Other USMC: Rolling Fuel Transporter	1	2021	3	2023
OPFOR Support: OPFOR Support	1	2021	1	2021
OPFOR Support: OPFOR Support Testing	1	2021	4	2026

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys				<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2315: Training Devices/Simulators	181.408	11.545	48.050	36.833	-	36.833	34.233	28.782	24.257	24.606	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

The 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), Training Support and Training Simulation Support (TSS), and Marine Corps Training Information Management System (MC-TIMS). 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 Training Environment simulation (LVC-TE), the Marine Corps will have means to train jointly, educate, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations, and define operational requirements. These training systems support Marine Corps Force Design 2030 efforts.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Combined Arms Command and Control Trainer Upgrade System (CACCTUS)	3.033	4.571	6.107	0.000	6.107
<b>Articles:</b>	-	-	-	-	-
<b>Description:</b> CACCTUS is a Combined Arms C2 Training System that enables 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. CACCTUS is a constituent system of Live Virtual Constructive-Training Environment (LVC-TE). CACCTUS will begin the initial steps of merging functional baselines and training capabilities with MTWS to achieve the goals of the Battle Staff Training System (BSTS) through MAGTF Warfare Simulation, modification, and re-engineering of key infrastructure (MTWS-MRKI) participation. This training supports Marine Corps Force Design 2030 efforts and is a constituent within the LVC-TE.					



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p><b>Description:</b> DVTE is a laptop Personal Computer (PC) based simulation system capable of emulating organic and supporting infantry battalion weapons systems, and other scenarios that facilitate readiness based training. It is a portable configuration that allows Marines to train in areas where there are few options for training in garrison, for example: aboard ship, at remote reserve locations, or 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 that focuses on achieving an improved level of combat readiness. This training supports Marine Corps Force Design 2030 and is a constituent within the LVC-TE.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continued integration of technology products transitioned from the Office of Naval Research</li> <li>- Continued program office support through government labor and travel for developmental activities</li> <li>- Initiated and Completed DVTE network infrastructure for integration with the Live Virtual Constructive Training Environment Increment I capability</li> <li>- Initiated and Completed development support for integration activities with DVTE to support Battle Staff Training System (BSTS) Annex and the Ground Training Systems Capabilities Development Document</li> </ul> <p><b>FY 2023 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue integration of technology products transitioned from the Office of Naval Research</li> <li>- Continue program office support of government and contractor labor /travel for related research, development and test support for ground training systems</li> <li>- Initiate interoperability activities with ground and air training systems</li> <li>- Initiate development, test, integration &amp; interoperability efforts to retain a federate within LVC-TE</li> </ul> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The decrease from FY 2022 to FY 2023 of \$3.298 is due to the reprioritization for higher priority Marine Corps requirements.</p>					
<p><b>Title:</b> Force on Force Training Systems (FoFTS)</p> <p align="right"><b>Articles:</b></p>	0.721	0.735	3.351	0.000	3.351
	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Description:</b> Force on Force Training Systems (FoFTS) provides realistic, non-live fire capabilities to perform force on force training using personnel, combat vehicles, and weapons surrogate devices as part of a suite of tactical engagement capabilities that enhance training around the world and across the range of military operations. The program includes tactical training systems such as the Special Effects Small Arms Marking System (SESAMS) and advanced, instrumented, laser-based tactical engagement systems such as the FoFTS-Next that provide realistic weapons effects, position locating, and enhanced After Action Review (AAR) capability to support Live-Virtual-Constructive (LVC) events in the MAGTF Training Program curriculum. This program is critical to enabling Marines to train in a realistic, force on force environment in lieu of live-fire training, and allows for training against a peer and near peer threat in a more authentic, multisensory environment. This capability improves training realism through Force on Force training capabilities, and is a line of effort in the Marine Corps Range Training Area Management Campaign Plan, which was developed to address the specific challenges articulated in the Commandants Planning Guidance. To that end, the program's production and fielding of the FoFTS-Next Marine Corps Tactical Instrumentation System - Personnel (MCTIS-P), comprises a complete replacement and increased capability of the in-service I-TESS II system. Additionally, through integration of combat vehicle (MCTIS-V) and weapons surrogates (MCTIS-WS) capabilities, the FoFTS-Next program will field an entirely new realistic and immersive Force on Force training capability. Funding supports procurement of FoFTS-Next MCTIS-P, MCTIS-V, MCTIS-WS, and enhanced networking capability to provide a more robust and comprehensive AAR. The program is on schedule to achieve initial operational capability (IOC) by FY 2024 and FOC by FY 2026.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue MCTIS-V development for the integration of the LAV and ACV combat vehicles into the FoFTS-Next system and training environment.</li> <li>- Continue development of the Mountain Top Base stations.</li> <li>- Initiate Laser Engagement Interface Compliance Testing.</li> </ul> <p><b>FY 2023 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue MCTIS-V development for the integration of the LAV and ACV combat vehicles into the FoFTS-Next system and training environment.</li> <li>- Continue development of the Mountain Top Base stations to support FoFTS-Next networking and connectivity enhancements.</li> </ul>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys		<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>						
- Initiate development of the Weapons Surrogates (MCTIS-WS) for integration into the FoFTS-Next system and training environment.						
<b>FY 2023 OCO Plans:</b> N/A						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The FY 2023 RDT&E increase of \$2.616M is due to the need for FoFTS MCTIS-V development and prototyping in FY 2023.						
<b>Title:</b> Marine Air-Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) Enhancements						
<b>Articles:</b>						
		3.342	5.205	3.995	0.000	3.995
		-	-	-	-	-
<b>Description:</b> 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 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. MTWS is an objective requirement constituent system of LVC-TE and is undergoing a re-engineering effort via the MTWS Modification to Re-engineer Key Improvements (MRKI) program. This training supports Marine Corps Force Design 2030 efforts and is a constituent within the LVC-TE.						
<b>FY 2022 Plans:</b>						
<ul style="list-style-type: none"> <li>- Continued JLVC Federation annual minor release.</li> <li>- Continued to develop new software capabilities to meet changing operational environment.</li> <li>- Continued to develop Joint Live, Virtual and Constructive (JLVC) Federation capabilities.</li> <li>- Continued effort to re-engineer the MTWS software baseline.</li> </ul>						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators			
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
<ul style="list-style-type: none"> <li>- Continued development efforts for MTWS-MRKI</li> <li>- Continued training system interoperability to include additional C4I devices</li> <li>- Continued development efforts for LVC-TE capabilities</li> </ul> <p><b>FY 2023 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue JLVC Federation annual release.</li> <li>- Continue to develop new software capabilities to meet changing operational environment.</li> <li>- Continue to develop Joint Live, Virtual and Constructive (JLVC) Federation capabilities.</li> <li>- Continue effort to re-engineer the MTWS software baseline.</li> <li>- Continue training system interoperability to include additional C4I devices</li> <li>- Initiate program office support of government and contractor labor /travel for related research, development and test support for ground training systems</li> <li>- Initiate cyber related testing and system development to retain authority to operate/connected to current and new networks</li> <li>- Continue development, testing and integration efforts for system re- engineering effort (MRKI)</li> <li>- Initiate interoperability activities with training systems that support the full range of military operations.</li> <li>- Continue development, test, integration &amp; interoperability efforts to retain a federate within LVC-TE and JLVC</li> <li>- Initiate LVC-TE constituents development, test and integration support</li> </ul> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease of \$1.210M from FY 2022 to FY 2023 is due to the reprioritization for higher priority Marine Corps requirements.</p>					
<b>Title:</b> Marine Corps Training Information Management System (MCTIMS)					
<b>Articles:</b>					
	0.000	6.030	3.648	0.000	3.648
	-	-	-	-	-
<b>Description:</b> Marine Corps Training Information Management System (MCTIMS) is the enterprise training system for the Marine Corps. The unit training modules allows the Total Force to meet their requirement to record, track, and report training. MCTIMS maintains training and readiness manuals, curricula, MOS manuals/ road maps, course schedules, and seat allocations. In addition, MCTIMS is used to input and track student registrations, test scores, class standings and course completions. The training resource module gives small unit leaders access to curriculum materials to support training.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p><b>FY 2022 Plans:</b> Conduct analysis of current systems and processes, and initiate research and development of the next generation MCTIMS system. FY22 RDT&amp;E funds will be used to modernize, develop &amp; validate the cloud infrastructure prototype, system architecture, user experience, and develop a modern business intelligence solution.</p> <p><b>FY 2023 Base Plans:</b> FY23 RDT&amp;E funds will be used to continue development of the MCTIMS modernization effort which is scheduled to start in FY22. This effort involves the design, development and implementation of an optimal system, developed and hosted in the Cloud, and will focus on high priority and functional system requirements.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease in the amount of \$2.382M from FY 2022 to FY 2023 is in alignment with the MCTIMS modernization development schedule. The initial plan for modernization has the majority of development occurring in FY 2022 and early FY 2023, with completion of development planned for FY 2024.</p>					
<p><b>Title:</b> Ranges and Training Area Management (RTAM)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> 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><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Initiate development of Live-fire, shoot back interactive target capabilities (RISCon-T).</li> <li>- Initiate Electronic Warfare Instrumented Ranges development with devices that can be activated to deny, degrade and disrupt electronmagnetic spectrum operations as the unit undergoing training operates within the area.</li> <li>- Continue development of Live Fire Evaluation Tool (LFET) that increase shooter recognition, decision making, and battlefield skill proficiency.</li> </ul>	2.361	4.994	4.828	0.000	4.828
	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<ul style="list-style-type: none"> <li>- Continue Ballistic Concrete testing and development for waste characterization, patch mix and field testing.</li> <li>- Complete enhancements of Targetry Range Automated Control and Recording (TRACR) software for Friend-and-Foe target control and scenario development, to include integration with Range Instrumentation System Controller (RISCon-T).</li> <li>- Travel to support evaluation and testing.</li> </ul> <p><b>FY 2023 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Initiate evaluation and develop Known Distance Automated Scoring (KDAS).</li> <li>- Initiate development of Targetry Range Automated Control and Recording II (TRACR II) software for Friend-and-Foe target control and scenario development, to include integration with Range Instrumentation System Controller (RISCon-T).</li> <li>- Continue Electronic Warfare Instrumented Ranges development with devices that can be activated to deny, degrade and disrupt electromagnetic spectrum operations as the unit undergoing training operates within the area.</li> <li>- Continue development of Live-fire, shoot back interactive target capabilities (RISCon-T).</li> <li>- Continue development of Live Fire Evaluation Tool (LFET) that increase shooter recognition, decision making, and battlefield skill proficiency.</li> <li>- Continue enhancements of Targetry Range Automated Control and Recording (TRACR) software for Friend-and-Foe target control and scenario development, to include integration with Range Instrumentation System Controller (RISCon-T).</li> <li>- Complete Ballistic Concrete testing and development for waste characterization, patch mix and field testing.</li> <li>- Travel to support evaluation and testing.</li> </ul> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease of \$0.166M is due to completion of Ballistic Concrete testing and development for waste characterization, patch mix and field testing.</p>					
<p><b>Title:</b> Supporting Arms Virtual Trainer (SAVT)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Supporting Arms Virtual Trainer (SAVT) advances the training capability, operational readiness, and tactical proficiency of USMC Joint Terminal Attack Controllers (JTACS), Joint Fires Observers (JFOs), Forward Observers (FOs), and Forward Air Controllers (FACs). Personnel will use training scenarios</p>	0.000	2.216	1.580	0.000	1.580
	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators

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

that require the placement of simulated 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. This training supports Marine Corps Force Design 2030 efforts and is a constituent within the LVC-TE.

**FY 2022 Plans:**

- Continued development of Worldwide Terrain Data Base
- Continued development of Marine Corps Training Information Management System (MCTIMS) engineering change proposals to enable interoperability and interface requirements with the upcoming MCTIMS Learning Management Module Capability.
- Continued Digital Virtual Training Environment/Aviation (DVTE/ADVTE) Capability Upgrades
- Continued Tactical Handheld Systems Version 2 (THSv2) to develop the hardware/software interface along with integration and testing of the interface design.
- Continued development of Speech Recognition Software

**FY 2023 Base Plans:**

- Initiate Server Virtualization for the FO, FAC, Instructor, IOS, JSAF, and IG Computer Hardware to reduce required Hardware footprint and optimize system performance while using Thin Clients.
- Initiate cyber related testing and system development to retain authority to operate/connected to current and new networks
- Initiate test and integration efforts with operational gear (C4i)
- Initiate interoperability activities with ground and air training systems
- Continue development, test, integration & interoperability efforts to support a federate within LVC-TE
- Initiate Analysis of Alternatives (AOA) and begin development and integration of Supporting Arms Virtual Trainer (SAVT) increment 2 solution(s) to Supporting Arms Training System (SATS)
- Continue to provide Engineering and Project Management support

**FY 2023 OCO Plans:**

N/A

**FY 2022 to FY 2023 Increase/Decrease Statement:**

FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Decrease of \$0.636M from FY 2022 to FY 2023 is due to reduced Office of Naval Research (ONR) requirements.					
<p><b>Title:</b> Training Simulation Support</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Training Simulation Support (TSS) provides greater combat readiness and enhanced operational execution to support a training continuum that features planning, preparation, exercise, and assessment capabilities for the Marine Air Ground Task Force (MAGTF) commander in both Joint and Service venues. TSS replicates a Contemporary Operational Environment (COE) and allows units to interact as though they are physically located in the same Operational Environment (OE). It also enables interoperability between diverse training programs to meet warfighting requirements and supports standards-based training from small unit events to large unit exercises. TSS supports continued constituent integration efforts into the Live, Virtual, and Constructive Training Environment (LVC-TE). LVC-TE is the tool that provides a persistent/consistent common operational training environment by which units can work together as though they are physically located in the same operational space with legacy and emerging training systems. TSS supports the LVC-TE timeline to deliver minimum viable product between the 1st and 2nd Quarter of FY 2023. Additional minimum viable capability releases are scheduled for every 6 months thereafter. This software intensive product is using the new Software Acquisition Pathway (DODI 5000.87), a transformational process that champions agile methods and fleet involvement to deliver what is most important to the fleet first. This training supports Marine Corps Force Design 2030 efforts.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Initiated development of Live, Virtual, Constructive functionality among constituents to include front end analysis for constituent and enterprise services.</li> <li>- Initiated development of enterprise services to include Cross Domain Solution (CDS), Exercise Design Tool (EDT), and After Action Review (AAR) solution.</li> <li>- Initiated transition of Office of Naval Research (ONR) products into the enterprise services</li> <li>- Initiated development of additional integration gateways and testing</li> </ul> <p><b>FY 2023 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue development of Live, Virtual, Constructive functionality among constituents to include front end analysis for constituent and enterprise services.</li> <li>- Continue development of enterprise services to include Cross Domain Solution (CDS), Exercise Design Tool (EDT), and After Action Review (AAR) solution.</li> </ul>	0.000	18.568	8.939	0.000	8.939
	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<ul style="list-style-type: none"> <li>- Continue transition of Office of Naval Research (ONR) products into the enterprise services</li> <li>- Continue development of additional integration gateways and testing</li> <li>- Initiate program office support of government and contractor labor /travel for related research, development and test support for ground training systems</li> <li>- Initiate cyber related testing and system development to retain authority to operate/connected to current and new networks</li> <li>- Initiate test and integration efforts with operational gear (C4i)</li> <li>- Initiate interoperability activities including gateway development with ground and air training systems</li> <li>- Initiate planning/development of Leader Focus Decision Game (LFDG)</li> </ul> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease of \$9.629M from FY 2022 to FY 2023 is due to the reprioritization for higher priority Marine Corps requirements.</p>					
<p><b>Title:</b> Immersive Training Range Support (ITRS)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Provide and sustains innovative technologies and programs that enhance the effectiveness of training and education at home stations. Innovative technologies incorporate high-fidelity training environments with enhanced battlefield realism including exposure to operational complexities and mental and physical stressors that challenge tactical, moral and ethical decision making. Develops small unit leader decision making and hone small unit collective skills in realistic, replicative, and rapidly repeatable venues. Ensures Marines first encounter their tactical and ethical dilemmas in a simulated battlefield rather than actual combat.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue Mobile Immersive Training Environment (MITE) development to bring immersive training capabilities to units in support of peer-near-peer training.</li> <li>- Continue Computer-generated Forces (CGF) Other Transaction Authority (OTA) prototype for available enhanced instrumentation for immersive training capabilities that directly support the Infantry T&amp;R.</li> <li>- Completed validation and testing of the AK-47 Blank Fire Only (BFO) system solution that will meet the requirements as described within the D-UNS and subsequent Letter of Clarification (LOC).</li> </ul> <p><b>FY 2023 Base Plans:</b></p>	1.703	2.068	2.114	0.000	2.114
	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators			
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
<ul style="list-style-type: none"> <li>- Continue Computer-generated Forces (CGF) Other Transaction Authority (OTA) prototype for available enhanced instrumentation for immersive training capabilities that directly support the Infantry T&amp;R.</li> <li>- Continue Mobile Immersive Training Environment (MITE) development to bring immersive training capabilities to units in support of peer-near-peer training.</li> </ul>					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase of \$0.046M is due to inflation.					
<b>Title:</b> Indoor Simulated Marksmanship Trainer (ISMT)					
<b>Articles:</b>					
<p><b>Description:</b> The Indoor Simulated Marksmanship Trainer (ISMT) is a three dimensional (3D), simulation based, trainer for indoor use. It capable of instructing in basic and advanced marksmanship, shoot/no-shoot judgment, combat marksmanship, and weapons employment tactics. The ISMT is used for remedial, virtual instruction to augment live fire upon simulated targets with an indication of the rounds fired. ISMT systems are used both within the continental United States (CONUS) and Outside CONUS (OCONUS). The system has five firing positions and is capable of operating simulated weapons such as AT4, M2 .50 Cal, M9, M16A4, M16A2 fully sensed, M240B, M203, MK19, M249 SAW, M870 12 gauge shotgun, SMAW, M224 60mm Mortar, M252 81mm Mortar, M4A1, Joint Services Combat Shotgun (JSCS), M27 Infantry Automatic Rifle (IAR), M32 Multi-shot Grenade Launcher, and the M72 Light Anti-Armor Weapon (LAW).</p>					
<b>FY 2022 Plans:</b> N/A					
<b>FY 2023 Base Plans:</b> - Initiate development of Indoor Simulated Marksmanship Trainer Ballistic Testing - Initiate development of Indoor Simulated Marksmanship Trainer Data Capture					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The increase of \$0.977M from FY 2022 to FY 2023 is for ballistic testing of simulated weaponry.					
<b>Title:</b> Family of Egress Trainers (FET)					
	0.000	0.000	0.977	0.000	0.977
	-	-	-	-	-
	0.000	0.000	0.929	0.000	0.929

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<b>Articles:</b>	-	-	-	-	-
<p><b>Description:</b> The Family of Egress Trainers (FET) is comprised of the Underwater Egress Training (UET) and the Dry Rollover Egress Training (DRET). The UET consists of the Modular Amphibious Egress Trainer (MAET) a modular training device designed to train Marines to egress a downed aircraft; the Submerged Vehicle Egress Trainer (SVET) designed to train egress from ground tactical vehicles; and the Shallow Water Egress Trainer (SWET) which is a procedural trainer used prior to SVET and MAET. The trainers and associated training programs are conducted by contractors. The program is directed toward non-air crew passengers aboard these vehicles. The DRET is comprised of the HMMWV Egress Trainer (HEAT), the MRAP Egress Trainer (MET), and the JLTV Egress Trainer (JET). All of these devices have the ability to train egress principles that can be applied to increase survivability during a catastrophic event. This type of training can only be conducted by the use of simulation.</p> <p><b>FY 2022 Plans:</b> N/A</p> <p><b>FY 2023 Base Plans:</b> - Initiate design of the Submerged Vehicle Egress Trainer (SVET) trainer Amphibious Combat Vehicle (ACV).</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The increase of \$0.929M from FY 2022 to FY 2023 is for the design the Submerged Vehicle Egress Trainer (SVET) for the Amphibious Combat Vehicle (ACV).</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	11.545	48.050	36.833	0.000	36.833

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

Line Item	FY 2021	FY 2022	FY 2023	FY 2023	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PMC/6532-01: Training Devices, CACCTUS	0.000	1.754	0.000	-	0.000	0.000	6.553	0.924	0.943	Continuing	Continuing
• PMC/6532-02: Training Devices, DVTE	4.479	0.700	1.791	-	1.791	1.630	1.966	0.721	0.735	Continuing	Continuing

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PMC/6532-03: <i>Training Devices, FoFTS</i>	15.299	0.000	57.114	-	57.114	44.974	33.282	10.726	10.032	Continuing	Continuing
• PMC/6532&4630-04: <i>Training Devices, MTWS</i>	0.000	0.117	0.120	-	0.120	2.245	0.597	0.127	0.129	Continuing	Continuing
• PMC/6532-06: <i>Training Devices, RTAM</i>	22.518	4.340	30.650	-	30.650	29.145	36.533	36.818	38.306	Continuing	Continuing
• PMC/6532-09: <i>Training Devices, TSS</i>	0.000	6.067	13.248	-	13.248	0.000	0.000	0.000	0.000	Continuing	Continuing

**Remarks**  
CACCTUS FY 2025 PMC includes \$2.606M for the Guam Initiative.  
FoFTS FY 2025 PMC includes \$14.475M for the Guam Initiative.  
RTAM FY 2021 PMC includes \$7.723M, FY 2024 - FY 2027 includes \$0.001M for Guam Initiative.

**D. Acquisition Strategy**

CACCTUS - Developing tasking orders on electronics and communication services for system development, test, and integration efforts. IDIQ will be used for contractor and reimbursable work requests for Navy Program Support labor.

DVTE - Developing tasking orders on electronics and communication services for system development, test, and integration efforts. IDIQ will be used for contractor and reimbursable work requests for Navy Program Support labor.

FET - The acquisition strategy is designated for the design and test of the next generation of Submerged Vehicle Egress Trainer (SVET).

FoFTS - The FoFTS-Next program successfully awarded the anticipated Unfinalized Contract Action (UCA) on 17 June 2021 for production of the FoFTS-Next MCTIS-P and MCTIS-V base kits. Definitization of the contract, which will obligate the remaining FY 2020 PMC as well as FY 2021 PMC, is currently under negotiation and projected for end of Q2 FY 2022. Full MCTIS-V and MCTIS-WS RDTE projects will be pursued via Prototype OTAs. Upon successful completion of those prototype efforts, the successful prototyped items will be procured separately on either a production OTA or another FAR based type of contract vehicle.

ITRS - MIPR to the ACC-Orlando planned for award on existing Consolidated Product-line Management Contract. MIPR to ACC-Orlando planned for OTA award to CGF. AK47 and RPK Blank Fire Only (BFO) weapon development by NSWC Crane. AK47 and RPK BFO weapon validation and testing by Corona.

MTWS - Developing Tasking orders on ECS for System Development/test and integration efforts. Using MIPR to Hill AFB for labor supporting modernization efforts. Using IDIQ for Contractor and Reimbursable work request for Navy Program Support labor.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators

MCTIMS - Modernization efforts to utilize reimbursable work request(s) to NIWC Lant planned for both Navy and contractor support.

RTAM - MIPR to the Army-PEO STRI planned for award on existing Consolidated Product-line Management Contract.

SAVT - Developing Tasking orders on ECS for System Development/test and integration efforts.

TSS - MIPR to the Army-PEO STRI planned for award on existing Consolidated Product-line Management Contract to start the development effort for LVC-TE functionality including constituent integration efforts. Using IDIQ for Contractor Labor and Reimbursable work request for Navy Program Support labor. Hardware will be procured competitively.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CACCTUS - ONR Transition Projects	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
CACCTUS - Development/Integration/Interoperability	TBD	TBD : TBD	0.000	0.000		3.641	Mar 2022	4.720	Jun 2023	-		4.720	0.000	8.361	-
CACCTUS - SW Dev	MIPR	CERDEC : Ft. Belvoir	0.200	0.000		0.130	Dec 2021	0.000		-		0.000	0.000	0.330	-
DVTE - Development/Integration/Interoperability	TBD	TBD : TBD	0.000	0.000		3.000	Mar 2022	0.215	Apr 2023	-		0.215	0.000	3.215	-
DVTE - SW Dev - VBS	SS/IDIQ	Bohemia Interactive : Orlando, FL	17.619	0.000		0.000		0.000		-		0.000	0.000	17.619	-
FoFTS Mountain Top Base Station Dev	WR	NSWC Corona : NSWC Corona	0.000	0.044	Jul 2021	0.000		0.000		-		0.000	0.000	0.044	-
FoFTS Software Development	MIPR	ACC-Orlando : Orlando, FL	2.926	0.000		0.000		0.000		-		0.000	0.000	2.926	-
FoFTS Laser Compliance Testing	TBD	ACC Orlandod : Orlando, FL	0.000	0.000		0.000		0.200	Jun 2023	-		0.200	0.000	0.200	-
FoFTS MCTIS-WS Development	Various	MCSC : TBD	0.000	0.000		0.000		2.141	Jun 2023	-		2.141	0.000	2.141	-
FoFTS OTA Capability Demonstration	Various	MCSC : TBD	0.260	0.000		0.000		0.000		-		0.000	0.000	0.260	-
FoFTS TREX Surrogate Weapons	PO	MCSC : Quantico, VA	1.971	0.000		0.000		0.000		-		0.000	0.000	1.971	-
FoFTS - ITRS AK47 BFO	C/BA	NSWC Crane : Crane, IN	0.000	0.391	Apr 2021	0.000		0.000		-		0.000	0.000	0.391	-
FoFTS OTA Phase III	Various	MCSC : Quantico, VA	1.160	0.000		0.000		0.000		-		0.000	0.000	1.160	-
FoFTS MCTIS-V Development	Various	MCSC : TBD	0.000	0.284	Jun 2021	0.465	Jun 2022	1.000	Jan 2023	-		1.000	0.000	1.749	-
FoFTS Human Factors Prototype	TBD	MCSC : Quantico, VA	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	-
MTWS - Reengineering	MIPR	Hill AFB : Utah	5.221	3.141	Feb 2021	5.000	Jan 2022	3.145	Jan 2023	-		3.145	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy												Date: April 2022			
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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 - Development/Integration/Interoperability	TBD	TBD : TBD	0.000	0.000		0.000		0.700	Apr 2023	-		0.700	0.000	0.700	-
MTWS - SW Dev 1	C/IDIQ	Cole Engineering, Inc. : Orlando, FL	10.867	0.000		0.000		0.000		-		0.000	0.000	10.867	-
MTWS - SW Dev 2	C/IDIQ	Cole Engineering, Inc. : Orlando, FL	1.002	0.000		0.000		0.000		-		0.000	0.000	1.002	-
MCTIMS	WR	NIWC-LANT : Charleston, SC	0.000	0.000		6.030	Apr 2022	3.648	Apr 2023	-		3.648	0.000	9.678	-
RTAM RISCon-T Development	MIPR	ACC-Orlando : Orlando, FL	10.690	0.527	Mar 2021	2.237	Jul 2022	1.162	Apr 2023	-		1.162	Continuing	Continuing	Continuing
RTAM TRACR II	C/CPFF	ACC-Orlando : Orlando, FL	0.000	0.000		0.000		0.500	Feb 2023	-		0.500	0.000	0.500	-
RTAM LFET	C/FFP	NSWC Dahlgren : Dahlgren, VA	0.000	0.207	May 2021	0.250	May 2022	1.109	Oct 2022	-		1.109	0.000	1.566	-
RTAM Electronic Warfare	TBD	NSWC Dahlgren : Dahlgren, VA	0.000	0.000		1.937	Nov 2021	1.275	Jan 2023	-		1.275	0.000	3.212	-
RTAM KDAS efforts	SS/FFP	NSWC Crane : Crane, IN	0.651	0.000		0.000		0.000		-		0.000	0.000	0.651	-
RTAM KDAS Target System	SS/FFP	DLA : Philadelphia, PA	0.605	0.000		0.000		0.000		-		0.000	0.000	0.605	-
RTAM KDAS GCPC	Various	Various : Various	0.009	0.000		0.000		0.000		-		0.000	0.000	0.009	-
SAVT - Development/Integration/Interoperability	TBD	TBD : TBD	0.000	0.000		2.216	Feb 2022	1.580	Feb 2023	-		1.580	0.000	3.796	-
SAVT - Tech Insertion	C/FFP	Riptide Software, Inc. : Orlando, FL	5.846	0.000		0.000		0.000		-		0.000	0.000	5.846	-
ITRS Computer Generated Forces	TBD	ACC-Orlando : Orlando, FL	0.000	0.766	Mar 2022	1.079	Aug 2022	1.186	May 2023	-		1.186	0.000	3.031	-
ITRS - CPM	MIPR	ACC-Orlando : Orlando, FL	9.160	0.242	Jul 2021	0.880	Jan 2022	0.508	Mar 2023	-		0.508	Continuing	Continuing	Continuing
Training Simulation Support	C/CPFF	TBD : TBD	0.000	0.000		13.818	Jun 2022	0.000		-		0.000	0.000	13.818	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Training Simulation Support	MIPR	PEO STRI : Orlando, FL	0.157	0.000		2.000	Mar 2022	5.000	Dec 2022	-		5.000	0.000	7.157	-
Indoor Simulated Marksmanship Trainer (ISMT)	TBD	TBD : TBD	0.000	0.000		0.000		0.977	Mar 2023	-		0.977	0.000	0.977	-
Prior Year Cumulative Funding	Various	Various : Various	91.239	0.000		0.000		0.000		-		0.000	0.000	91.239	-
FET SVET Trainer ACV	TBD	TBD : TBD	0.000	0.000		0.000		0.929	Nov 2022	-		0.929	0.000	0.929	-
<b>Subtotal</b>			159.593	5.602		42.683		29.995		-		29.995	Continuing	Continuing	N/A

**Remarks**  
Net decrease of \$12.688M is due to higher priority Marine Corps requirements, re-phasing programs in accordance with requirements, and development schedules.

<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CACCTUS/LVCTE Prototype Integration	MIPR	PEO STRI : Orlando, FL	0.499	0.000		0.000		0.000		-		0.000	0.000	0.499	-
CACCTUS/LVCTE Pre Development	MIPR	PEO STRI : Orlando, FL	0.000	1.662	Apr 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
ITRS Corona Spt	WR	NSWC Corona : Corona, CA	0.271	0.400	Oct 2020	0.000		0.400	Oct 2022	-		0.400	0.000	1.071	-
ITRS ISS Front End Analysis	WR	NSLC : Mechanicsburg, PA	0.000	0.034	Feb 2021	0.100	Oct 2021	0.000		-		0.000	0.000	0.134	-
TSS Corona Spt (ATO)	WR	NSWC Corona : NSWC Corona	0.000	0.000		0.150	Apr 2022	0.000		-		0.000	0.000	0.150	-
TSS LVC-TE Front End Analysis	TBD	TBD : TBD	0.000	0.000		1.000	Apr 2022	0.800	Apr 2023	-		0.800	0.000	1.800	-
RTAM Corona Spt	WR	NSWC Corona : Corona, CA	0.351	0.283	Oct 2020	0.540	Oct 2021	0.732	Oct 2022	-		0.732	0.000	1.906	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
RTAM NSLC Spt	WR	NAVSEALOGCEN : Mechanicsburg, PA	0.000	0.034	Jan 2021	0.000		0.000		-		0.000	0.000	0.034	-
RTAM LFET	WR	NSWC Dahlgren : Dahlgren, VA	0.000	0.231	Apr 2021	0.000		0.000		-		0.000	0.000	0.231	-
RTAM KDAS Navy support	WR	NSWC Crane : Crane, IN	0.224	0.000		0.000		0.000		-		0.000	0.000	0.224	-
RTAM NAWC-TSD Support	WR	NAWC-TSD : Orlando, FL	0.101	0.000		0.000		0.000		-		0.000	0.000	0.101	-
RTAM Electronic Warfare	WR	NSWC Dahlgren : Dahlgren, VA	0.200	0.368	Apr 2021	0.000		0.000		-		0.000	0.000	0.568	-
SAVT Risk Managemnt Framework (RMF)	TBD	NSWC Corona : Corona, CA	0.098	0.000		0.000		0.000		-		0.000	0.000	0.098	-
SAVT Corona Spt	WR	NSWC Corona : Corona, CA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
SAVT Contractor Spt	C/BA	Not Specified : Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
FoFTS MCTIS-V Corona Support	WR	NSWC Corona : Corona, CA	0.000	0.000		0.270	Oct 2021	0.000		-		0.000	0.000	0.270	-
Prior Year Cumulative Funding	Various	Various : Various	16.866	0.000		0.000		0.000		-		0.000	0.000	16.866	-
<b>Subtotal</b>			18.610	3.012		2.060		1.932		-		1.932	Continuing	Continuing	N/A

**Remarks**  
Net decrease of \$0.128M is due to completion of testing and development for various projects.

<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ITRS - RPK BFO Validation & Testing	PO	NSWC Corona : Corona, CA	0.925	0.000		0.000		0.000		-		0.000	0.000	0.925	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
ITRS Constuct Fee	MIPR	ACC Orlando : Orlando, FL	0.000	0.149	Jul 2021	0.000		0.000		-		0.000	0.000	0.149	-
SAVT S/W Refresh	C/FFP	RipTide : Orlando, FL	0.041	0.000		0.000		0.000		-		0.000	0.000	0.041	-
RTAM SACON Gov Patch mix	MIPR	ATC : Aberdeen, MD	0.000	0.510	Feb 2021	0.000		0.000		-		0.000	0.000	0.510	-
FoFTS Lazer Hazard Evaluation	WR	NSWC Dahlgreen : Dahlgren, VA	0.038	0.000		0.000		0.000		-		0.000	0.000	0.038	-
FoFTS AMITS	WR	NSWC Dahlgreen : Dahlgren, VA	0.025	0.000		0.000		0.000		-		0.000	0.000	0.025	-
FoFTS AMITS Study	PO	NSWC Corona : Corona, CA	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-
FoFTS ARMY HITS	SS/FFP	ACC Orlando : Orlando, FL	0.103	0.000		0.000		0.000		-		0.000	0.000	0.103	-
FoFTS AMITS CTIA	SS/FFP	ACC Orlando : Orlando, FL	0.024	0.000		0.000		0.000		-		0.000	0.000	0.024	-
TSS - System Testing Efforts/Interoperability Testing	MIPR	ACC Orlando : Orlando, FL	0.000	0.000		0.000		2.170	Dec 2022	-		2.170	0.000	2.170	-
Prior Year Cumulative Funding	Various	Various : Various	0.002	0.000		0.000		0.000		-		0.000	0.000	0.002	-
<b>Subtotal</b>			1.258	0.659		0.000		2.170		-		2.170	0.000	4.087	N/A

**Remarks**  
Net increase of \$2.170M is due to cyber related testing and operational gear testing.

<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
CACCTUS - Program Support	Various	Various : Various	0.630	1.371	Oct 2020	0.800	Oct 2021	1.387	Oct 2022	-		1.387	0.000	4.188	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CACCTUS - Travel	Various	DTS : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
DVTE - Program Support	Various	Various : Various	0.371	0.385	Oct 2020	0.663	Oct 2021	0.150	Oct 2022	-		0.150	0.000	1.569	-
DVTE - Travel	Various	DTS : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
FoFTS - Travel	Various	DTS : Various	0.000	0.002	Sep 2021	0.000	Sep 2022	0.010	Mar 2023	-		0.010	0.000	0.012	-
MTWS - Program Support	Various	Various : Various	0.381	0.201	Feb 2021	0.205	Oct 2021	0.150	Oct 2022	-		0.150	0.000	0.937	-
MTWS - Travel	Various	DTS : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
RTAM - Travel	Various	DTS : Various	0.015	0.012	Sep 2021	0.030	Sep 2022	0.050	Sep 2023	-		0.050	0.000	0.107	-
RTAM Program Support	TBD	TBD : TBD	0.000	0.189	Sep 2021	0.000		0.000		-		0.000	0.000	0.189	-
RTAM KDAS Travel	Various	DTS : Various	0.014	0.000		0.000		0.000		-		0.000	0.000	0.014	-
ITRS - Travel	Various	DTS : Various	0.160	0.010	Sep 2021	0.009	Sep 2022	0.020	Sep 2023	-		0.020	0.000	0.199	-
ITRS - Program Support	C/BA	Not Specified : Not Specified	0.000	0.102	Sep 2021	0.000		0.000		-		0.000	0.000	0.102	-
TSS/LVCTE - Program Support	Various	Various : Various	0.150	0.000		1.600	Oct 2021	0.969	Oct 2022	-		0.969	0.000	2.719	-
Prior Year Cumulative Funding	Various	Various : Various	0.139	0.000		0.000		0.000		-		0.000	0.000	0.139	-
SAVT - Program Support	TBD	TBD : TBD	0.087	0.000		0.000		0.000		-		0.000	0.000	0.087	-
<b>Subtotal</b>			1.947	2.272		3.307		2.736		-		2.736	0.000	10.262	N/A

**Remarks**  
Net decrease of \$0.571M is due to fewer developmental support requirements.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	181.408	11.545	48.050	36.833	-	36.833	Continuing	Continuing	N/A

**Remarks**  
Product development decrease of \$12.688M is due to the prioritization of other Marine Corps requirements.  
Support decrease of \$0.128M is due to completion of testing and development for various projects.  
Test and Evaluation increase of \$2.170M is due to cyber related testing and operational gear testing.  
Management Services decrease of \$0.571M is due to fewer developmental support requirements.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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Combined Arms Command & Control Training Upgrade System (CACCTUS)	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
CACCTUS Software Development Integration			◆				◆				◆				◆				◆				◆					
LVC-TE Pre Development		◆			◆																							

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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Deployable Virtual Training Environment (DVTE)	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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 Integration			◆				◆				◆				◆				◆				◆					

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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<b>Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS)</b>	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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 Integration							◆				◆				◆				◆				◆					
SW Re-Engineering MIPR	◆					◆					◆				◆				◆				◆					

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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<b>Ranges and Training Area Management</b>	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
CPM RISCon-T Development			◆				◆				◆				◆				◆				◆					

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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Supporting Arms Virtual Trainer (SAVT)	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027							
	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					◆				◆				◆				◆				◆											

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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Immersive Training Range Support	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
ITRS Mobile Immersive Training Enviormnet (MITE)											◆																	
Blank Fire Only (BFO) AK47 Weapon Testing																												
CPM		◆					◆				◆				◆								◆					

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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Force on Force Training Systems (FoFTS)	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
FoFTS MCTIS-V Development							●																					
FoFTS MCTIS-WS Development											●																	

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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Training Simulation Support	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
LVC-TE System Development Increment 1					◆						◆				◆				◆									
LVC-TE System Development Front End Analysis					◆					◆																		
Minimum Viable Capability Release (MVCR):									◆		◆		◆		◆		◆		◆		◆		◆					

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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<b>Marine Corps Training Information Management Systems (MCTIMS)</b>	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
Testing Event								◆				◆				◆												
Engineering Event								◆		◆		◆		◆		◆												
Contracting Event							▲					▲																

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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Family of Egress Trainers (FET)	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027							
	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 FY23									▲																							

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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Indoor Simulated Marksmanship Trainer	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
Ballistic Testing									■																			
Data Capture									■																			

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Combined Arms Command &amp; Control Training Upgrade System (CACCTUS)</b>				
CACCTUS Software Development Integration: FY21 CACCTUS Software Development Integration	3	2021	3	2021
CACCTUS Software Development Integration: FY22 CACCTUS Software Development Integration	3	2022	3	2022
CACCTUS Software Development Integration: FY23 CACCTUS Software Development Integration	3	2023	3	2023
CACCTUS Software Development Integration: FY24 CACCTUS Software Development Integration	3	2024	3	2024
CACCTUS Software Development Integration: FY25 CACCTUS Software Development Integration	3	2025	3	2025
CACCTUS Software Development Integration: FY26 CACCTUS Software Development Integration	3	2026	3	2026
LVC-TE Pre Development: System Integration (FY21)	3	2021	3	2021
LVC-TE Pre Development: System Integration (FY22)	2	2022	2	2022
<b>Deployable Virtual Training Environment (DVTE)</b>				
Software Development Integration: FY21 Software Development Integration	3	2021	3	2021
Software Development Integration: FY22 Software Development Integration	2	2022	2	2022
Software Development Integration: FY23 Software Development Integration	3	2023	3	2023
Software Development Integration: FY24 Software Development Integration	3	2024	3	2024
Software Development Integration: FY25 Software Development Integration	3	2025	3	2025
Software Development Integration: FY26 Software Development Integration	3	2026	3	2026
<b>Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS)</b>				
Software Development Integration: FY22 Software Development Integration	3	2022	3	2022

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy			Date: April 2022	
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	
Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Software Development Integration: FY23 Software Development Integration	3	2023	3	2023
Software Development Integration: FY24 Software Development Integration	3	2024	3	2024
Software Development Integration: FY25 Software Development Integration	3	2025	3	2025
Software Development Integration: FY26 Software Development Integration	3	2026	3	2026
SW Re-Engineering MIPR: FY21 SW Re-Engineering MIPR	1	2021	1	2021
SW Re-Engineering MIPR: FY22 SW Re-Engineering MIPR	1	2022	1	2022
SW Re-Engineering MIPR: FY23 SW Re-Engineering MIPR	1	2023	1	2023
SW Re-Engineering MIPR: FY24 SW Re-Engineering MIPR	1	2024	1	2024
SW Re-Engineering MIPR: FY25 SW Re-Engineering MIPR	1	2025	1	2025
SW Re-Engineering MIPR: FY26 SW Re-Engineering MIPR	1	2026	1	2026
<b>Ranges and Training Area Management</b>				
CPM RISCon-T Development: CPM RISCon-T SW Integration FY21	3	2021	3	2021
CPM RISCon-T Development: CPM RISCon-T SW Integration FY22	3	2022	3	2022
CPM RISCon-T Development: CPM RISCon-T SW Integration FY23	3	2023	3	2023
CPM RISCon-T Development: CPM RISCon-T SW Integration FY24	3	2024	3	2024
CPM RISCon-T Development: CPM RISCon-T SW Integration FY25	3	2025	3	2025
CPM RISCon-T Development: CPM RISCon-T SW Integration FY26	3	2026	3	2026
<b>Supporting Arms Virtual Trainer (SAVT)</b>				
SW Development and Integration: FY22 Task Order Award	2	2022	2	2022
SW Development and Integration: FY23 Task Order Award	2	2023	2	2023
SW Development and Integration: FY24 Task Order Award	2	2024	2	2024
SW Development and Integration: FY25 Task Order Award	2	2025	2	2025
SW Development and Integration: FY26 Task Order Award	2	2026	2	2026
<b>Immersive Training Range Support</b>				
ITRS Mobile Immersive Training Enviormnet (MITE): ITRS Mobile Immersive Training Enviormnet (MITE)	3	2023	3	2023

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**Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2315 / Training Devices/Simulators
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Blank Fire Only (BFO) AK47 Weapon Testing: NSWC Corona AK47 Testing	2	2021	4	2021
CPM: CPM (2021)	3	2021	3	2021
CPM: CPM (2022)	3	2022	3	2022
CPM: CPM (2023)	3	2023	3	2023
CPM: CPM (2024)	3	2024	3	2024
CPM: CPM (2025)	3	2025	3	2025
CPM: CPM (2026)	3	2026	3	2026
<b>Force on Force Training Systems (FoFTS)</b>				
FoFTS MCTIS-V Development: FoFTS MCTIS-V Development	3	2022	3	2022
FoFTS MCTIS-WS Development: FoFTS MCTIS-WS Development	3	2023	3	2023
<b>Training Simulation Support</b>				
LVC-TE System Development Increment 1: FY22 LVC-TE System Development Increment 1	1	2022	1	2022
LVC-TE System Development Increment 1: FY23 LVC-TE System Development Increment 1	3	2023	3	2023
LVC-TE System Development Increment 1: FY24 LVC-TE System Development Increment 1	3	2024	3	2024
LVC-TE System Development Increment 1: FY25 LVC-TE System Development Increment 1	3	2025	3	2025
LVC-TE System Development Front End Analysis: Front End Analysis FY22	1	2022	1	2022
LVC-TE System Development Front End Analysis: Front End Analysis FY23	2	2023	2	2023
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):1st FY23	1	2023	1	2023
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):3Qtr FY23	3	2023	3	2023
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):1st FY24	1	2024	1	2024

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy			Date: April 2022	
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	
Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):3Qtr FY24	3	2024	3	2024
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):1st FY25	1	2025	1	2025
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):3Qtr FY25	3	2025	3	2025
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):1st FY26	1	2026	1	2026
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR): 3Qtr FY26	3	2026	3	2026
<b>Marine Corps Training Information Management Systems (MCTIMS)</b>				
Testing Event: GAT FY22 Testing Event	4	2022	4	2022
Testing Event: GAT FY23 Testing Event	4	2023	4	2023
Testing Event: GAT FY24 Testing Event	4	2024	4	2024
Engineering Event: Software Release FY22 4Q	4	2022	4	2022
Engineering Event: Software Release FY23 2Q	2	2023	2	2023
Engineering Event: Software Release FY23 4Q	4	2023	4	2023
Engineering Event: Software Release FY24 2Q	2	2024	2	2024
Engineering Event: Software Release FY24 4Q	4	2024	4	2024
Contracting Event: Contract Award FY22	3	2022	3	2022
Contracting Event: Contract Award FY23	3	2023	3	2023
<b>Family of Egress Trainers (FET)</b>				
Contract Award FY23: Contract Award FY23	1	2023	1	2023
<b>Indoor Simulated Marksmanship Trainer</b>				
Ballistic Testing: Ballistic Testing	2	2023	2	2023
Data Capture: Data Capture	2	2023	2	2023

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys				<b>Project (Number/Name)</b> 2503 / Initial Issue			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2503: <i>Initial Issue</i>	63.390	4.715	9.180	13.294	-	13.294	19.778	22.165	19.130	14.364	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

This funding provides research, development, test and evaluation (RDT&E) 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, Combat Field Feeding Systems, and Family of Field Medical Equipment. 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. Load Bearing and Pack Systems now includes the waterproof bag efforts previously included under Individual Warfighting Equipment. The continual research development and testing of technological advancements leads to performance 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 objective is to replace obsolete items with those that fulfill the requirements and needs while increasing performance characteristics in the areas of energy efficiency, durability, reliability, and survivability while reducing weight and size in austere environments of a variety of climes. The focus is also to update and promote new supporting technologies and joint interoperability of operational medical equipment in support of Force Design 2030, Littoral Operation in a Contested Environment and Expeditionary Advanced Base Operations.

The Family of Shelters and Shelters Equipment (FSSE) and The Family of Combat Field Feeding Systems (CFFS) portfolio focus is to provide scalable expeditionary capabilities to the warfighter, with specific emphasis on supporting Expeditionary Advanced Base Operations (EABO) and austere base establishment in the littorals. The FSSE funding will be used to improve legacy material solutions and develop new solutions that protect the Fleet Marine Force from observation, detection, adverse climatic conditions, and combat hazards. Furthermore, continuation of camouflage research which is vital to provide both cover and concealment in visual, signature reduction, and infrared and radar spectrums against near peer adversaries in support of the Commandant's Planning Guidance. Continuation of shelter research and development is required to design more reliable systems, lighten current shelters and shelter systems and minimize power requirements for environmental systems in support of EABO.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue
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The Family of CFFS funding seeks to maximize fuel efficiency, reduce size and weight, and improve transportability of equipment used to provide nutrition on the go to Marines conducting training and contingency operations in future EABO and forward operating environments.

The Calibration and Maintenance Program (CAMP) calibrates the majority of tools and test equipment that ensure the safe and accurate operation of the ground weapon systems required to conduct Expeditionary Advanced Base Operations. The entire ground maintenance effort relies on CAMP activities to maintain combat effectiveness. This funding will be used to identify and assess the latest technology in calibration equipment, which is necessary to replace obsolete equipment, increase performance and reduce the footprint of deployable calibration sets. Funding will also develop new automated test procedures and protocols aimed at making the Marine Corps' deployable ground calibration sets more efficient.

Family of Expeditionary Water Systems (FEWS) is a family of systems line that contains purification, storage, distribution, hygiene, and test systems for water. 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 Fleet Marine Force (FMF) Marine Air-Ground Task Force (MAGTF) operations and future operating concepts by providing all aspects of land-based water support to include test analysis, purification, reuse, storage, transfer, dispensing, and field hygiene support.

Family of Expeditionary Fuel Systems (FEFS) is a family of systems line that contains highly versatile fuel systems in support of Fleet Marine Force (FMF) operations. The family contains individual Table of Allowance Material Control Numbers which support FMF and Marine Air-Ground Task Force (MAGTF) operations and future operating concepts by providing all aspects of land and littoral-based fuel support to include receiving, test, additization, storage, sensors and metering, transfer and dispensing of fuel.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<b>Title:</b> Marine Corps Uniforms (MCU)	0.208	0.844	1.125	0.000	1.125
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b>					
- Continue testing to impart SWIR signature mitigation and FR properties into the non-FR Marine Corps Combat Utility Uniform (MCCUU) by adding chemistry in the manufacturing process. Conduct user evaluations of NexGen MCCUUs with SWIR mitigation and FR improvements. Continue efforts to increase effectiveness of FR properties in all existing uniforms while lowering cost, increasing durability and comfort. These efforts will produce economical FR/SWIR capabilities in combat uniforms, specifically the NexGen MCCUU for all Marines.					
- Continue research and development for lighter uniforms, including footwear, and develop affordable alternatives, leveraging emerging technologies in uniform durability, design, and footwear development.					
- Continue research and development for Marine clothing efforts, to include field and dress uniform certification along with associated accoutrements which includes badges, ribbons and devices.					

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue
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**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>- Continue research, development and testing to enhance appearance and service life of seabag issue items, which consists of initial basic training allowance of clothing, footwear, and associated individual uniform items.</p> <p>- Continue research and development of enhanced camouflage protection and mitigation of SWIR, and thermal signature in other uniform products.</p> <p><b>FY 2023 Base Plans:</b></p> <p>- Continue test and evaluation of SWIR signature mitigation and FR properties into the MCCUU resulting in a NexGen MCCUU. Test and evaluation includes follow-on user evaluations of NexGen MCCUUs and material property tests with SWIR mitigation and FR improvements that lead to an updated MCCUU specification for economical FR/SWIR capabilities in the NexGen MCCUU for all Marines.</p> <p>- Continue research and development for lighter uniforms, and footwear, and develop upgraded specifications for sustainment by DLA that leverage emerging technologies in durability, design, and development.</p> <p>- Continue research and development for Marine clothing efforts, to include field and dress uniform certification, improvements to maternity service and dress uniforms, and associated accoutrements which includes badges, ribbons and devices.</p> <p>- Continue research, development and testing to enhance appearance and service life of seabag issue items, which consists of initial basic training allowance of clothing, footwear, and associated individual uniform items resulting in upgraded specifications for sustainment by DLA.</p> <p>- Conduct research, development, and testing of emergent CMC initiatives as requested</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase of \$0.281M from FY 2022 to FY 2023 supports continued material property testing and follow on user evaluations of NexGen MCCUUs with SWIR mitigation and FR improvements.</p>					
<p><b>Title:</b> Cold Weather and Mountaineering (CWM)</p> <p align="right"><b>Articles:</b></p>	0.176 -	0.000 -	0.194 -	0.000 -	0.194 -
<p><b>FY 2022 Plans:</b> N/A</p> <p><b>FY 2023 Base Plans:</b></p> <p>- Initiate material tests as part of research and development of emerging materials and technology to enhance existing cold weather clothing &amp; equipment effectiveness while lightening the load of the individual Marine.</p>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>- Initiate research and evaluation of the Cold Weather clothing and equipment items with lighter materials that provide increased insulation and protection from the elements.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase of \$0.194M from FY 2022 to FY 2023 begins the testing of emerging materials and technology for Cold Weather Clothing and Equipment to improve effectiveness while lightening the weight of items.</p>					
<p><b>Title:</b> Load Bearing and Pack Systems (LBPS)</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue product improvements and upgrades for LBPS by leveraging technological advancements of industry; lighten load and increase mobility of effectiveness.</li> <li>- Continue evaluations on loadbearing equipment such as Marine Corps packs and pouch sets.</li> <li>- Initiate design, development, and evaluation of the waist pouch</li> <li>- Continue to evaluate pack frame system capable of carrying heavy weapon systems such as mortars and anti-armor munitions.</li> <li>- Initiate implementation of power and data management into loadbearing equipment (Main Pack and Assault Pack).</li> </ul> <p><b>FY 2023 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Complete the design, development, and evaluation of the waist pouch</li> <li>- Continue product improvements and upgrades for LBPS by leveraging technological advancements of industry; lighten load and increase mobility of effectiveness.</li> <li>- Continue to evaluate pack frame system capable of carrying heavy crew-serve weapon systems.</li> <li>- Continue implementation of power and data management into loadbearing equipment (Main Pack and Assault Pack).</li> <li>- Initiate the evaluation of materials capable of providing SWIR capabilities in the USMC Pack and Pouch System.</li> </ul> <p><b>FY 2023 OCO Plans:</b></p>	0.352 -	0.215 -	0.427 -	0.000 -	0.427 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase of \$0.212M from FY 2022 to FY 2023 is in line with the exploration and evaluation of the USMC Pack System SWIR Material development.					
<b>Title:</b> Individual Warfighting Equipment (IWE)	0.139	0.000	0.000	0.000	0.000
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b> OCO: - N/A					
<b>FY 2023 Base Plans:</b> N/A					
<b>FY 2023 OCO Plans:</b> N/A					
<b>Title:</b> *Family of Field Medical Equipment (FFME)	0.998	1.292	2.186	0.000	2.186
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b> - Initiate and complete product verification test and evaluation for equipment such as expeditionary medical refrigeration, oxygen production, sterilization, whole blood utilization and patient warming. - Initiate research and development for Project Phoenix medical support framework in support of the Marine Littoral Regiment (MLR). Research validates engineering changes to Authorized Medical Allowance Lists (AMAL) product baselines. - Initiate research to develop advanced wound healing bandages for prolonged field care in the MLR under Distributed Maritime Operations (DMO)/Littoral Operations in a Contested Environment (LOCE), validating engineering changes to AMAL product baselines. - Continue research, development, testing and evaluation of new packing configurations of currently fielded forward surgical and trauma resuscitation capabilities to reduce the cubic foot space requirements in order to utilize limited lift capabilities. Conduct further analysis to validate the existing patient condition code requirements, and patient streams against future casualty stream estimates in the corresponding future operational environment(s) to identify material that can be removed from capabilities without impacting effectiveness.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>- Continue to test COTS/NDI medical equipment items for the En Route Care System (ERCS), Forward Resuscitative Surgery System (FRSS) and Shock Trauma Platoon (STP) to determine future viability in an operational environment.</p> <p>- 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.</p> <p>- Continue testing and product development for possible application technology for insertion, such as: portable patient life support systems, expeditionary medical refrigeration, oxygen production, sterilization, whole blood utilization, patient warming, and standardization of currently independent equipment sets to be employed for forward resuscitative, surgical care and casualty evacuation.</p> <p><b>FY 2023 Base Plans:</b></p> <p>- Initiate product verification test and evaluation for equipment such as expeditionary medical oxygen, whole blood utilization, and traumatic brain injury treatment.</p> <p>- Continue research and development for Project Phoenix medical support framework in support of the MLR. Research validates engineering changes to AMAL product baselines.</p> <p>- Continue research to develop advanced wound healing bandages for prolonged field care in the MLR under DMO/LOCE, validating engineering changes to AMAL product baselines.</p> <p>- Continue research, development, testing and evaluation of new packing configurations of currently fielded forward surgical and trauma resuscitation capabilities and patient transport capabilities to reduce the cubic foot space requirements in order to utilize limited lift capabilities. Conduct further analysis to validate the existing patient condition code requirements, and patient streams against future casualty stream estimates in the corresponding future operational environment(s) to identify material that can be removed from capabilities without impacting effectiveness.</p> <p>- Continue to test COTS/NDI medical equipment items for the ERCS, FRSS and STP to determine future viability in an operational environment.</p> <p>- 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.</p> <p>- Continue testing and product development for possible application technology for insertion, such as: portable patient life support systems, expeditionary medical refrigeration, oxygen production, sterilization, whole blood</p>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy				<b>Date:</b> April 2022																			
<b>Appropriation/Budget Activity</b> 1319 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys		<b>Project (Number/Name)</b> 2503 / Initial Issue																			
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>																							
utilization, patient warming, and standardization of currently independent equipment sets to be employed for forward resuscitative, surgical care and casualty evacuation.																							
<b>FY 2023 OCO Plans:</b> N/A																							
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase of \$0.894M from FY 2022 to FY 2023 aligns with multiple technology efforts in transition and increasing MLR and AMAL Studies in accordance with 2030 Concept of Operations (CONOPS) realignment.																							
<b>Title:</b> *Family of Shelters and Shelter Equipment (FSSE)																							
<b>Articles:</b>																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%;">FY 2021</th> <th style="width: 10%;">FY 2022</th> <th style="width: 10%;">FY 2023 Base</th> <th style="width: 10%;">FY 2023 OCO</th> <th style="width: 10%;">FY 2023 Total</th> </tr> </thead> <tbody> <tr> <td></td> <td align="right">0.070</td> <td align="right">0.199</td> <td align="right">0.199</td> <td align="right">0.000</td> <td align="right">0.199</td> </tr> <tr> <td></td> <td align="right">-</td> <td align="right">-</td> <td align="right">-</td> <td align="right">-</td> <td align="right">-</td> </tr> </tbody> </table>							FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total		0.070	0.199	0.199	0.000	0.199		-	-	-	-	-
	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total																		
	0.070	0.199	0.199	0.000	0.199																		
	-	-	-	-	-																		
<b>FY 2022 Plans:</b> - Continue the evaluation and development of FSSE energy efficient ECPs such as alternative production techniques and designs. - Initiate test and evaluation of multi-spectral defense netting and other material solutions used to provide deception or limit detection and observation of personal and equipment.																							
<b>FY 2023 Base Plans:</b> - Continue the evaluation and development of FSSE energy efficient ECPs such as alternative production techniques and designs.																							
<b>FY 2023 OCO Plans:</b> N/A																							
<b>Title:</b> *Family of Combat Field Feeding (CFFS)																							
<b>Articles:</b>																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%;">FY 2021</th> <th style="width: 10%;">FY 2022</th> <th style="width: 10%;">FY 2023 Base</th> <th style="width: 10%;">FY 2023 OCO</th> <th style="width: 10%;">FY 2023 Total</th> </tr> </thead> <tbody> <tr> <td></td> <td align="right">0.064</td> <td align="right">0.070</td> <td align="right">0.068</td> <td align="right">0.000</td> <td align="right">0.068</td> </tr> <tr> <td></td> <td align="right">-</td> <td align="right">-</td> <td align="right">-</td> <td align="right">-</td> <td align="right">-</td> </tr> </tbody> </table>							FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total		0.064	0.070	0.068	0.000	0.068		-	-	-	-	-
	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total																		
	0.064	0.070	0.068	0.000	0.068																		
	-	-	-	-	-																		
<b>FY 2022 Plans:</b> - Continue to reduce the overall logistics burden by researching and testing technological improvements for CFFS components such as commercial food service and alternative field sanitation solutions. - Continue research and development of lighter weight and scalable field feeding and field sanitation equipment that use alternate energy sources or provide reduced fuel consumption.																							
<b>FY 2023 Base Plans:</b> - Continue to reduce the overall logistics burden by researching and testing technological improvements for CFFS components such as commercial food service and alternative field sanitation solutions.																							

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 1319 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys		<b>Project (Number/Name)</b> 2503 / Initial Issue	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
- Continue research and development of lighter weight and scalable field feeding and field sanitation equipment that use alternate energy sources or provide reduced fuel consumption.					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease of \$0.002M from FY 2022 and FY 2023 has minimal impact to program.					
<b>Title:</b> Calibration and Maintenance Program (CAMP)					
<b>Articles:</b>					
	0.246	0.248	0.249	0.000	0.249
	-	-	-	-	-
<b>FY 2022 Plans:</b> - Continue exploration of emerging technologies to enhance technical capabilities of individual calibration equipment (standards) used within expeditionary calibration facilities by deployed Marine Corps units. New calibration standards are required to replace obsolete items.					
<b>FY 2023 Base Plans:</b> - Continue exploration of emerging technologies to enhance technical capabilities of individual calibration equipment (standards) used within expeditionary calibration facilities by deployed Marine Corps units. New calibration standards are required to replace obsolete items.					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> - The \$0.001M increase from FY 2022 to FY 2023 is to continue exploration of emerging technologies to enhance technical capabilities of individual calibration equipment (standards) used within expeditionary calibration facilities by deployed Marine Corps units. New calibration standards are required to replace obsolete items.					
<b>Title:</b> Family of Expeditionary Water Systems (FEWS)					
<b>Articles:</b>					
	0.700	0.696	0.000	0.000	0.000
	-	-	-	-	-
<b>FY 2022 Plans:</b> - Development to support improvements to various expeditionary hygiene equipment water systems, to include an upgrade or replacement shower system as the PICA (Air Force) is divesting of the currently fielded B0055 Shower Unit system in the Marine Corps inventory.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>- Research and validate the Atmospheric Water Generator capability by exploring the systems possibility to reduce the need for a water source in providing drinkable water for human consumption. Currently industry has made great strides in reducing the size of an AWG making it more flexible for an EABO environment.</p> <p><b>FY 2023 Base Plans:</b> N/A</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease of \$0.696M from FY 2022 to FY 2023 is due to the prioritization of other Marine Corps priorities.</p>					
<p><b>Title:</b> Family of Expeditionary Fuel Systems (FEFS)</p> <p align="right"><b>Articles:</b></p>	1.762	5.616	8.846	0.000	8.846
<p><b>FY 2022 Plans:</b> -Initiate research and development of the LPDS capability under development by the Office of Naval Research, integrating autonomy and supporting testing to improve the systems technology readiness level.</p> <p>-Continue and complete test and evaluation of Phase I PEAK prototypes and develop Phase II request for proposals for delivery of low rate initial production quantities in FY 2023.</p> <p><b>FY 2023 Base Plans:</b> -Continue research and development of the LPDS capability under development by the Office of Naval Research, developing sub-components, integrating autonomy, and supporting testing and certifications to improve the system's technology readiness level. -Initiate and continue research of alternative fuel distribution and storage technologies in support of Expeditionary Advanced Base Operations (EABO) and the Commandant's Force Design 2030 implementation plan.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The FY 2022 to FY 2023 increase of \$3.230M is to fund the continued research and development of the LPDS prototype capability, developing sub-components, integrating autonomy, and supporting testing and certifications</p>	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
to improve the system's technology readiness level, and to fund research of alternative fuel distribution and storage technologies in support of EABO.					
<b>Accomplishments/Planned Programs Subtotals</b>	4.715	9.180	13.294	0.000	13.294

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• PMC/6522: Family of Field Medical Equipment	4.187	8.105	21.780	-	21.780	5.451	10.968	50.562	51.562	Continuing	Continuing
• PMC/4181: Calibration & Maintenance Program (CAMP).	2.861	2.883	0.129	-	0.129	0.130	0.137	2.806	2.862	0.000	35.541
• PMC/6670: Family of Expeditionary Water Systems (FEWS)	1.018	0.000	3.670	-	3.670	5.013	3.569	13.082	13.331	Continuing	Continuing
• PMC/6277: Family of Expeditionary Fuel Systems (FEFS)	0.501	2.161	7.854	-	7.854	16.102	28.631	29.430	30.010	0.000	451.376

**Remarks**

**D. Acquisition Strategy**

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, the Naval Research Laboratory or the U.S. Army Natick Soldier Research, Development and Engineering Center via Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts. ID/IQ contracts are used to decrease the government risk, allow maximum contract flexibility and capitalize on the savings realized by utilizing Economic Order (EO) quantities.

Family of Shelters: The Shelter acquisition strategy is to modify non-developmental items (NDI) to further meet the requirements of the Marine Corps, to support development of multi-service items through inter-service agreements and to adopt commercial-off-the-shelf (COTS) items where applicable.

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. Due to the nature of medical device development and the USMC reliance on commercial RDT&E practices, it is frequently difficult to accurately predict successful transition due in part to strict Food and Drug Administration oversight and approval processes.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue
<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 RDT&amp;E phase is relatively short. Contracting is performed by either Marine Corps Systems Command Contracting Directorate or the US Army Combat Capabilities Development Command (DoD Executive Agent for Field Feeding) via ID/IQ contracts.</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 the Navy's calibration RDT&amp;E efforts.</p> <p>Family of Expeditionary Water Systems (FEWS): The efforts for the B0055 Shower Unit system and the Atmospheric Water Generator were dissolved by the requirements sponsor due to changes in the implementation of the Commandant's Force Design 2030 guidance, and the FY 2022 funding was applied to the development testing of the Low/No Power Water Purification System (LNPWPS) deliverables from a Phase II Small Business Innovative Research effort that the requirements sponsor prioritized ahead of the previously named initiatives. Data collection from the LNPWPS testing will inform future requirements. The FY 2022 funding also funds the product verification testing of modification kits for the Lightweight Water Purification System (LWPS).</p> <p>Family of Expeditionary Fuel Systems (FEFS): The FEFS acquisition strategy is to continue to collaborate with the Office of Naval Research, MCWL, and CD&amp;I on the fulfillment of the established Technology Deployment Agreement to transition the LPDS from S&amp;T. We are, further researching alternative fuel distribution and storage technologies. FY 2022 will also complete test and evaluation of Phase I Petroleum Expeditionary Analysis Kit (PEAK) prototypes and the release of request for proposals for Phase II low rate initial production quantities and logistics support.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy												Date: April 2022			
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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Marine Corps Uniforms	MIPR	USA NSRDEC : Natick, MA	6.698	0.104	Mar 2021	0.422	Mar 2022	0.565	Mar 2023	-		0.565	Continuing	Continuing	Continuing
Cold Weather & Mountaineering	MIPR	USA NSRDEC : Natick, MA	2.893	0.088	Jan 2021	0.000		0.000		-		0.000	0.000	2.981	Continuing
Load Bearing and Pack Systems	C/FFP	MCSC : Quantico, VA	1.575	0.352	Feb 2021	0.215	Feb 2022	0.427	Feb 2023	-		0.427	Continuing	Continuing	Continuing
Individual Warfighting Equipment	MIPR	USA NSRDEC : Natick, MA	0.998	0.139	Jun 2021	0.000		0.000		-		0.000	0.000	1.137	Continuing
Family of Field Medical	MIPR	USDA-ARS : Beltsville, MD	0.000	0.000		0.255	Dec 2021	0.000		-		0.000	0.000	0.255	-
Family of Shelters and Shelter Equipment	MIPR	DEVCOM : Natick, MA	1.264	0.000		0.000		0.199	Mar 2023	-		0.199	0.000	1.463	-
Calibration and Maintenance Program	WR	NSWC : Corona, CA	0.490	0.246	Jan 2021	0.248	Jan 2022	0.249	Jan 2023	-		0.249	Continuing	Continuing	Continuing
Family of Expeditionary Fuel Systems	Various	Various : Various	0.000	0.415	Mar 2022	5.283	Dec 2021	0.000		-		0.000	0.000	5.698	-
(1) Family of Expeditionary Fuel Systems	MIPR	GVSC/CCDC : Warren MI	0.000	0.105	Apr 2021	0.000		0.000		-		0.000	0.000	0.105	-
Family of Expeditionary Fuel Systems	MIPR	ONR : Arlington, VA	0.000	0.510	Mar 2022	0.000		8.846	Dec 2022	-		8.846	0.000	9.356	-
Prior Year Cumulative Funding	Various	Various : Various	23.939	0.000		0.000		0.000		-		0.000	0.000	23.939	-
(1) Family of Expeditionary Fuel System	MIPR	GVSC/CCDC : Warren, MI	0.000	0.117	Sep 2021	0.000		0.000		-		0.000	0.000	0.117	-
Family of Expeditionary Fuel System	MIPR	GVSC/CCDC : Warren MI	0.000	0.615	Sep 2021	0.000		0.000		-		0.000	0.000	0.615	-
Family of Expeditionary Water System	MIPR	ONR : Arlington, VA	0.000	0.541	Mar 2022	0.000		0.000		-		0.000	0.000	0.541	-
<b>Subtotal</b>			37.857	3.232		6.423		10.286		-		10.286	Continuing	Continuing	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue
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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

**Remarks**  
The FY 2022 to FY 2023 increase of \$3.863M is largely due to funding the continued research and development of the LPDS prototype capability, developing sub-components, integrating autonomy, and supporting testing and certifications to improve the system's technology readiness level, and to fund research of alternative fuel distribution and storage technologies in support of EABO.

<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Cumulative Funding	Various	Various : Various	1.096	0.000		0.000		0.000		-		0.000	0.000	1.096	-
Need Item Text	C/BA	Not Specified : Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
<b>Subtotal</b>			1.096	0.000		0.000		0.000		-		0.000	0.000	1.096	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Marine Corps Uniforms	MIPR	USA NSRDEC : Natick, MA	1.924	0.104	Mar 2021	0.422	Mar 2022	0.560	Dec 2022	-		0.560	Continuing	Continuing	Continuing
Cold Weather and Mountaineering	MIPR	USA NSRDEC : Natick, MA	4.060	0.088	Mar 2021	0.000		0.194	Dec 2022	-		0.194	0.000	4.342	-
Family of Field Medical	MIPR	U.S. Army Aeromedical Research Lab : Ft. Rucker, AL	0.306	0.137	Mar 2021	0.220	Jan 2022	0.750	Mar 2023	-		0.750	0.000	1.413	-
Family of Field Medical	MIPR	NSWC : Crane, ID	0.330	0.000		0.180	Nov 2021	0.240	Dec 2022	-		0.240	0.000	0.750	-
Family of Field Medical	WR	NHRC : Silver Spring MD	0.000	0.249	Mar 2021	0.180	Nov 2021	0.200	Nov 2022	-		0.200	0.000	0.629	-
Family of Field Medical	MIPR	AFMESA : Frederick, MD	0.000	0.145	Mar 2021	0.000		0.000		-		0.000	0.000	0.145	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue
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<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Family of Field Medical	MIPR	NSWC : Dahlgren, VA	10.735	0.346	Apr 2021	0.000		0.250	Mar 2023	-		0.250	0.000	11.331	-
Family of Field Medical	MIPR	NSWC - Carderock : Bethesda, MD	0.000	0.000		0.320	Dec 2021	0.000		-		0.000	0.000	0.320	-
Family of Field Medical	MIPR	NSWC Indian Head : Indian Head, MD	0.376	0.000		0.000		0.350	May 2023	-		0.350	0.000	0.726	-
Family of Field Medical	MIPR	NSWC Dahlgren : Dahlgren, VA	0.000	0.050	Jan 2021	0.000		0.250	Dec 2022	-		0.250	0.000	0.300	-
Family of Shelters and Shelter Equipment	TBD	TBD : TBD	0.000	0.000		0.190	May 2022	0.000		-		0.000	0.000	0.190	-
Family of Combat Field Feeding	MIPR	DEVCOM : Natick, MA	0.965	0.064	Dec 2020	0.070	Dec 2021	0.068	Dec 2022	-		0.068	Continuing	Continuing	Continuing
Family of Expeditionary Water Systems	MIPR	DEVCOM : Natick, MA	0.000	0.046	Aug 2021	0.000		0.000		-		0.000	0.000	0.046	-
Family of Expeditionary Water Systems	C/FFP	MCSC : Quantico, VA	0.273	0.000		0.000		0.000		-		0.000	0.000	0.273	-
Family of Expeditionary Water Systems	MIPR	MCSC : Quantico VA	0.000	0.000	Sep 2021	0.350	Mar 2022	0.000		-		0.000	0.000	0.350	-
Family of Expeditionary Water Systems	MIPR	NAVFAC : Port Huene	0.000	0.097	Aug 2021	0.346	Apr 2022	0.000		-		0.000	0.000	0.443	-
Family of Expeditionary Fuel Systems	Various	Various : Various	0.785	0.000		0.333	Dec 2021	0.000		-		0.000	0.000	1.118	-
Family of Shelters and Shelter Equipment	MIPR	DEVCOM PM FSS : Natick, MA	0.000	0.062	Mar 2021	0.000		0.000		-		0.000	0.000	0.062	-
Prior Year Cumulative Funding	Various	Various : Various	4.094	0.000		0.000		0.000		-		0.000	0.000	4.094	-
Family of Expeditionary Water Systems	MIPR	GVSC/CCDC : Warren, MI	0.000	0.016	Sep 2021	0.000		0.000		-		0.000	0.000	0.016	-
<b>Subtotal</b>			23.848	1.404		2.611		2.862		-		2.862	Continuing	Continuing	N/A



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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date: April 2022**

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
<b>Infantry Combat Equipment (ICE)</b>																												
<b>Marine Corps Uniforms (MCU)</b>																												
Navy Natick Testing Effort Support																												
Lab Testing																												
Shade Lab Testing																												
Uniform Testing																												
Footwear Testing																												
Flame Resistant Testing																												
<b>Individual Warfighting Equipment (IWE)</b>																												
Natick Lab Testing																												
<b>Cold Weather and Mountaineering (CWM)</b>																												
Natick Testing Effort Support																												
Material Properties Lab Testing																												
Extreme Cold Weather Boot																												
Cold Weather User Evaluation																												
Insulation Layer 3 and 4 upgrade																												
<b>Load Bearing and Pack Systems (LBPS)</b>																												
Load Carrier FUE																												
Pack Generation II: USER EVAL 1 & 2																												
Pack Generation II: USER EVAL 3 & 4																												
Waist Pouch FUE																												
Pack Frame FUE																												
SWIR Material EVAL																												
<b>Calibration And Maintenance Program (CAMP)</b>																												
<b>Family of Field Medical Equipment</b>																												
<b>Family of Expeditionary Water Systems</b>																												
Lightweight Water Purification Systems (LWPS)																												



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Infantry Combat Equipment (ICE)</b>				
Marine Corps Uniforms (MCU): Navy Natick Testing Effort Support:	2	2021	4	2026
Marine Corps Uniforms (MCU): Lab Testing:	1	2021	4	2026
Marine Corps Uniforms (MCU): Shade Lab Testing:	1	2021	4	2026
Marine Corps Uniforms (MCU): Uniform Testing:	2	2021	4	2026
Marine Corps Uniforms (MCU): Footwear Testing:	2	2021	4	2022
Marine Corps Uniforms (MCU): Flame Resistant Testing:	1	2021	4	2024
Individual Warfighting Equipment (IWE): Natick Lab Testing:	2	2021	3	2021
Cold Weather and Mountaineering (CWM): Natick Testing Effort Support:	2	2023	2	2024
Cold Weather and Mountaineering (CWM): Material Properties Lab Testing:	2	2023	2	2024
Cold Weather and Mountaineering (CWM): Extreme Cold Weather Boot:	2	2021	3	2021
Cold Weather and Mountaineering (CWM): Cold Weather User Evaluation:	2	2021	3	2021
Cold Weather and Mountaineering (CWM): Insulation Layer 3 and 4 upgrade:	2	2021	3	2021
Load Bearing and Pack Systems (LBPS): Load Carrier FUE	2	2021	2	2021
Load Bearing and Pack Systems (LBPS): Pack Generation II: USER EVAL 1 & 2	3	2021	4	2021
Load Bearing and Pack Systems (LBPS): Pack Generation II: USER EVAL 3 & 4	1	2022	3	2022
Load Bearing and Pack Systems (LBPS): Waist Pouch FUE	3	2022	4	2022
Load Bearing and Pack Systems (LBPS): Pack Frame FUE	3	2022	4	2022
Load Bearing and Pack Systems (LBPS): SWIR Material EVAL	2	2023	3	2024
Calibration And Maintenance Program (CAMP): Develop & test emerging calibration equipment	2	2022	1	2026
Family of Field Medical Equipment: AMAL Technology/Equipment Research and Product Development	1	2022	4	2022

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2503 / Initial Issue
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Family of Field Medical Equipment: AMAL Technology/Equipment Testing and Evaluation	1	2021	4	2027
Family of Field Medical Equipment: Field Medical Management Services	1	2021	4	2027
Family of Expeditionary Water Systems: LWPS Product Verification Test:	4	2021	3	2022
Family of Expeditionary Water Systems: LWPS Production:	2	2023	4	2027
Family of Expeditionary Fuel Systems: PEAK Prototype Fly off Test:	4	2021	4	2022
Family of Expeditionary Fuel Systems: PEAK Production:	1	2023	2	2027

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys				<b>Project (Number/Name)</b> 2513 / Body Armor			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2513: <i>Body Armor</i>	48.357	4.540	3.444	5.468	-	5.468	5.257	4.814	4.899	4.980	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 available in the world today. 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 Generation III (PC Gen III); Lightweight Plates (LWP); Enhanced Combat Helmet (ECH); Improved Ballistic Eyewear (IBE); Integrated Helmet System (IHS) and Hearing Enhancement. The major focus areas of all 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Ballistic Protection Systems	4.540	3.444	5.468	0.000	5.468
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b>					
<ul style="list-style-type: none"> <li>- Complete development and transition to testing and user evaluation of Integrated Helmet System (IHS).</li> <li>- Complete next generation of eyewear, specifically the capability to protect against laser threats and to adjust rapidly in varying light conditions and provide laser protection.</li> <li>- Continue research with industry partners towards understanding and developing the future technology associated with next generation PPE (i.e. helmets, body armor, and hearing protection) to reduce bulk, weight, stiffness, and improve ballistic protection while increasing the mobility of the individual Marine.</li> <li>- Continue to research and develop solutions that improves fit, modularity, and integration of body armor systems.</li> <li>- Initiate the development of data and power management components within helmets through prototype development and testing.</li> </ul>					
<b>FY 2023 Base Plans:</b>					
<ul style="list-style-type: none"> <li>- Continue testing and conduct user evaluations of the IHS.</li> <li>- Continue research with industry partners towards understanding and developing the future technology associated with next generation PPE (i.e. helmets, body armor, and hearing protection) to reduce bulk, weight, stiffness, and improve ballistic protection while increasing the mobility of the individual Marine.</li> <li>- Continue to research and develop solutions that improves fit, modularity, and integration of body armor systems.</li> </ul>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2513 / Body Armor

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<ul style="list-style-type: none"> <li>- Continue the development of data and power management components within helmets through prototype development and testing.</li> <li>- Initiate research and development of enhanced camouflage protection and mitigation of Short Wave Infrared (SWIR) and thermal signature. Analyze Flame Resistant (FR) and non-FR materials with enhanced signature mitigation as it pertains to the evolution of body armor and plate carriers.</li> <li>- Initiate research and development of the Next Generation Plate Carrier (PC GEN IV).</li> </ul> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase of \$2.024M from FY 2022 to FY 2023 supports testing and user evaluations of the Integrated Helmet System, SWIR and FR material property testing.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	4.540	3.444	5.468	0.000	5.468

**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, the Marine Corps 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.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2513 / Body Armor
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<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Development of Integrated Helmet (IHS)	C/FFP	MCSC : Quantico, VA	1.750	1.016	Dec 2020	1.000	Dec 2021	0.000		-		0.000	0.000	3.766	-
Mosaic/Multi-layer Hard Armor Development	C/FFP	NRL : Washington DC	17.572	0.100	Mar 2021	0.000		0.000		-		0.000	0.000	17.672	-
PC Gen III/Hard Armor Printed Plates	C/FFP	MCSC : Quantico, VA	4.361	0.277	Jan 2021	0.000		0.000		-		0.000	0.000	4.638	-
Next Gen Plate Carriers	C/FFP	NCTRF : Natick, MA	0.000	0.000		0.000		1.000	Apr 2023	-		1.000	0.000	1.000	-
<b>Subtotal</b>			23.683	1.393		1.000		1.000		-		1.000	0.000	27.076	N/A

<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Engineering Support (Army)	MIPR	CCDC SC : Natick, MA	2.266	0.959	Dec 2020	0.945	Dec 2021	0.945	Dec 2022	-		0.945	Continuing	Continuing	Continuing
Engineering Support (Navy)	WR	NCTRF : Natick, MA	0.000	0.170	Mar 2021	0.170	Mar 2022	0.175	Mar 2023	-		0.175	Continuing	Continuing	Continuing
Ballistic Protection Systems	MIPR	NCTRF : Natick, MA	0.918	0.000		0.000		0.300	Jan 2023	-		0.300	0.000	1.218	-
Ballistic Protection Systems Support Services-Eng,Log,PM	C/FFP	MCSC : Quantico, VA	0.870	0.798	Mar 2021	0.798	Mar 2022	0.883	Mar 2023	-		0.883	Continuing	Continuing	Continuing
Prior Year Cumulative Funding	Various	Various : Various	0.054	0.000		0.000		0.000		-		0.000	0.000	0.054	-
<b>Subtotal</b>			4.108	1.927		1.913		2.303		-		2.303	Continuing	Continuing	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2513 / Body Armor
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<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Body Armor Surveillance Program	MIPR	ARL : Various	1.066	0.238	Dec 2020	0.200	Dec 2021	0.000		-		0.000	0.000	1.504	-
Body Armor Fit and Function/Sensor Technology	WR	Naval Health Research Center : Arlington, VA	0.373	0.500	Dec 2020	0.000		0.000		-		0.000	0.000	0.873	-
Body Armor: Test Articles	Various	MCSC : Quantico, VA	0.624	0.150	Mar 2021	0.050	Mar 2022	0.000		-		0.000	0.000	0.824	-
Modeling and Simulation/IHS Testing/FAT	MIPR	USA ATC : Aberdeen Prv Grnd, MD	2.401	0.182	Jan 2021	0.281	Jan 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Helmet System (IHS)	MIPR	AFRL : Wright Patterson, OH	0.000	0.150	Jun 2021	0.000		1.373	Dec 2022	-		1.373	0.000	1.523	-
SWIR and Thermal Mitigation	Various	NCTRF : Natick, MA	0.000	0.000		0.000		0.792	Dec 2022	-		0.792	0.000	0.792	-
Prior Year Cumulative Funding	Various	Various : Various	16.102	0.000		0.000		0.000		-		0.000	0.000	16.102	-
<b>Subtotal</b>			20.566	1.220		0.531		2.165		-		2.165	Continuing	Continuing	N/A
<b>Project Cost Totals</b>			48.357	4.540		3.444		5.468		-		5.468	Continuing	Continuing	N/A

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2513 / Body Armor
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Proj 2513	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027							
	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				
<b>Body Armor Improvements</b>																																
<b>Enhanced Combat Helmet</b>																																
<b>Integrated Helmet System (IHS)</b>																																

2023DON - 0206623M - 2513

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2513 / Body Armor

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2513</b>				
Body Armor Improvements: IOC: Lightweight Plate	1	2022	1	2022
Body Armor Improvements: Next Gen PC GEN IV Development and Testing	1	2023	1	2024
Body Armor Improvements: LUE: Next Gen PC GEN IV	3	2024	3	2025
Body Armor Improvements: Lot Acceptance Testing (LAT): PC GEN III & Lightweight Plate	1	2021	2	2023
Enhanced Combat Helmet: LAT	1	2021	3	2022
Integrated Helmet System (IHS): Limited User Evaluation (LUE) 1	1	2021	2	2021
Integrated Helmet System (IHS): IHS: Hearing Protection Testing	1	2021	2	2021
Integrated Helmet System (IHS): IHS Active System Development and Testing	1	2023	1	2024
Integrated Helmet System (IHS): LUE 2	4	2021	1	2022
Integrated Helmet System (IHS): LUE 3	3	2022	4	2022

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys				<b>Project (Number/Name)</b> 2928 / Exp Indirect Fire Gen Supt Wpn Sys			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2928: Exp Indirect Fire Gen Supt Wpn Sys	49.010	0.487	0.497	0.512	-	0.512	0.513	0.521	0.530	0.539	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

Expeditionary Indirect Fires provides the Ground Combat Element (GCE) systems needed to engage multiple enemy threats from land and sea. High Mobility Artillery Rocket Systems (HIMARS) which is a C-130 transportable, wheeled, indirect fire, rocket/missile system capable of firing all rockets and missiles in the 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, distributed operations and sea control. Development provides for the modernization and obsolescence mitigation of the HIMARS in order to provide improved operational capabilities. Development also provides for the qualification/certification of newly developed MFOM for shipboard transportability.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> HIMARS Expeditionary & Naval Integration Capabilities	0.487	0.497	0.512	0.000	0.512
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b>					
HIMARS:					
- Engineering and integration testing of the system, radio and intercom modernization.					
- Engineering and safety support for Guided Multiple Launch Rocket System (GMLRS) Extended Range (ER) rocket motor qualification and certifications.					
<b>FY 2023 Base Plans:</b>					
HIMARS:					
- Engineering and Integration testing of the system, radio and intercom modernization.					
- Communication modernization integration testing of fully tested software into the launcher.					
- Communication modernization integration testing of hardware components (radios, intercoms, A-kits and B-kits).					
<b>FY 2023 OCO Plans:</b>					
N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2928 / Exp Indirect Fire Gen Supt Wpn Sys

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Increase of \$0.015M reflects inflation.					
<b>Accomplishments/Planned Programs Subtotals</b>	0.487	0.497	0.512	0.000	0.512

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PMC/ BLI 2212: <i>High Mobility Artillery Rocket System (HIMARS)</i>	49.687	221.347	143.808	-	143.808	285.025	279.566	322.426	227.069	61.792	2,353.272
• PMC/ BLI 3025: <i>Guided Multiple Launch Rocket System (GMLRS)</i>	151.145	98.299	7.605	-	7.605	1.779	1.575	1.800	1.836	Continuing	Continuing

**Remarks**

BLI 2212 Artillery Weapons System includes funding for HIMARS, GBASM, and LRF.

**D. Acquisition Strategy**

Engineering support will come from multiple Army and Navy labs.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2928 / Exp Indirect Fire Gen Supt Wpn Sys
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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
HIMARS RSS Intercom/ Radio Integration	WR	SPAWAR : Charleston	0.576	0.000		0.000		0.000		-		0.000	0.000	0.576	-
HIMARS Launcher Radio Integration	WR	PIF : Huntsville, AL	0.326	0.332	Mar 2021	0.343	Dec 2021	0.225	Dec 2022	-		0.225	0.000	1.226	-
HIMARS Engineering	WR	NSWC : Various	0.301	0.155	Dec 2020	0.154	Dec 2021	0.099	Dec 2022	-		0.099	Continuing	Continuing	Continuing
Prior Years Cumulative Funding	Various	Various : Various	32.890	0.000		0.000		0.000		-		0.000	0.000	32.890	-
<b>Subtotal</b>			34.093	0.487		0.497		0.324		-		0.324	Continuing	Continuing	N/A

**Remarks**  
FY 2022 to FY 2023 decrease of \$0.173M due to transition of HIMARS specific systems engineer support to communications modernization qualification testing.

<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Need Item Text	C/BA	Not Specified : Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
<b>Subtotal</b>			0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Years Cumulative Funding	Various	Various : Various	9.273	0.000		0.000		0.000		-		0.000	0.000	9.273	-
Qualification Testing	WR	NSWC-DD : Dahlgren, VA	0.000	0.000		0.000		0.188	Jan 2023	-		0.188	0.000	0.188	-
<b>Subtotal</b>			9.273	0.000		0.000		0.188		-		0.188	0.000	9.461	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2928 / Exp Indirect Fire Gen Supt Wpn Sys
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

**Remarks**  
FY 2022 to FY 2023 increase of \$0.188M for HIMARS launcher communications qualification testing and to test shipboard suitability of the Seamode switch which allows for maintenance aboard ship.

<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Years Cumulative Funding	Various	Various : Various	5.644	0.000		0.000		0.000		-		0.000	0.000	5.644	-
<b>Subtotal</b>			5.644	0.000		0.000		0.000		-		0.000	0.000	5.644	N/A

			Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			49.010	0.487	0.497	0.512	-	0.512	Continuing	Continuing	N/A

**Remarks**



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 2928 / Exp Indirect Fire Gen Supt Wpn Sys

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Exp Indirect Fire Gen Supt Wpn Sys</b>				
HIMARS Developmental Efforts and Radio Integration: HIMARS Developmental Efforts and Radio Integration	1	2021	4	2024
HIMARS Engineering and Safety Support: HIMARS Engineering and Safety Support	1	2021	4	2025
HIMARS Qualification Testing: HIMARS Qualification Testing	2	2023	3	2023

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys				<b>Project (Number/Name)</b> 3098 / Fire Support System			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3098: <i>Fire Support System</i>	164.723	8.896	3.061	2.241	-	2.241	3.884	10.723	15.140	15.433	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

Project 3098 Fire Support System funds the development of critical United States Marine Corps (USMC) key efforts: fire support coordination, targeting, and digital interoperability systems required for the employment of air and ground fires. Fire Support Systems develop and integrate a digital networked sensor to shooter kill chain supporting the Marine Air-Ground Task Force (MAGTF). Key efforts included are:

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, and fire direction control. Provides execution of product improvements/modifications, and upgrades to system hardware and software for the Marine Artillery Survey Set (MASS), Modeled Meteorological Information Manager (MMIM), Global Positioning System Survey (GPS-S), Manual Meteorological Station, Improved Position Azimuth Determining System (IPADS) and the replacement system, known as the Location Azimuth Determining System (LADS). Funding is also used for upgrades, engineering change proposals (ECPs), and modifications for fire control systems which fall within Fire Support Systems for the Marine Corps.

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

The Common Laser Range Finder Integrated Capability (CLRIF 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. CLRIF 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 CLRIF IC includes two major components; the CLRIF IC Laser Range Finder (LRF) supports the requirement to locate and transmit targeting information, while the Next Generation Hand Held Targeting System (NGHTS) combines the capabilities of the LRF with the ability to designate for specific requirements associated with laser guided munitions.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Fire Support Mods (FSM)	1.722	2.163	1.319	0.000	1.319
<b>Articles:</b>	-	-	-	-	-
<b>Description:</b> Funding is used for upgrades, engineering change proposals (ECPs), and modifications to system hardware					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3098 / Fire Support System

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
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and software for the Marine Artillery Survey Set (MASS), Meteorological Information Manager (MMIM), Global Positioning System Survey (GPS-S), the Improved Position Azimuth Determining System (IPADS) and the replacement system known as the Location Azimuth Determining System (LADS), Marine Artillery Survey Set (MASS), as well as technical refresh for target acquisition, and artillery survey and meteorological systems.

**FY 2022 Plans:**

- Completed testing of advanced components for the IPADS replacement system, known as the Location Azimuth Determining System (LADS).
- Completed IPADS replacement vehicle motion sensor integration for future use with Joint Light Tactical Vehicle (JLTV)
- Completed development of MASS Android Sensor Software.

**FY 2023 Base Plans:**

- Initiate development and integration of LADS to the JLTV.

**FY 2023 OCO Plans:**

N/A

**FY 2022 to FY 2023 Increase/Decrease Statement:**

Net decrease of \$0.844M from FY 2022 to FY 2023 is due to the completion of LADS development and testing efforts in support of procurement, completion of the MASS Android Sensor Software; and initiation of development and integration of LADS to the JLTV.

<b>Title:</b> Family of Artillery Munitions (FAM)	3.463	0.321	0.313	0.000	0.313
<b>Articles:</b>	-	-	-	-	-
<b>Description:</b> Family of Artillery Munitions (FAM) funding is used to develop and mature future artillery munitions for the Marine Corps which includes conducting safety and engineering analysis as well as ship compatibility studies.					
In conjunction with the Army, the Marine Corps is evaluating new munitions that are effective against individual area targets dispersed over a defined area, targets whose precise locations are not known, time-sensitive or moving targets, and massed formations of enemy forces.					
<b>FY 2022 Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3098 / Fire Support System

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>- Performed classification and safety certification of the 155mm artillery projectiles for the Precision Guidance Kit Anti-Jam (PGK-AJ)</p> <p>OCO: - N/A</p> <p><b>FY 2023 Base Plans:</b> - Perform HERO Tech Agent Certification and Electro Static Discharge Review for the XM1208 - Perform Safety Support and Oversight for the 12 Meter Drop Test and Electrical Stress Test for the XM1208</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Net decrease of \$0.008M from FY 2022 to FY 2023 is a result of the reduced requirement for overall Program Management Support.</p>					
<p><b>Title:</b> Common Laser Range Finder (CLRF)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The Common Laser Range Finder (CLRF) is a Family of systems consisting of the Common Laser Range Finder Integrated Capability (CLRF IC) and the Next Generation Handheld Targeting System (NGHTS). The CLRF IC completed fielding in FY 2021. The NGHTS will consolidate the capabilities of multiple systems into a single targeting capability that will support Joint Forward Observers and Joint Terminal Air Controllers for the next decade. The NGHTS provides day and night enhanced target locating capabilities as well as the ability to employ laser guided munitions with significant size and weight reduction as compared to current fielded systems.</p> <p><b>FY 2022 Plans:</b> - Completed minor engineering changes and final integration and testing of NGHTS prototypes</p> <p><b>FY 2023 Base Plans:</b> - Conduct NGHTS Operational Testing and an OT Report.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>	3.711	0.577	0.609	0.000	0.609
	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3098 / Fire Support System

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
The Increase for FY 2022 to FY 2023 of \$0.032M is due to a planned Operational Testing.					
<b>Accomplishments/Planned Programs Subtotals</b>	8.896	3.061	2.241	0.000	2.241

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PMC/473302: Fire Support Mods	4.424	4.534	4.646	-	4.646	4.743	4.830	4.924	5.020	0.000	111.465
• PMC/473300: Common Laser Range Finder (CLRF)	0.954	15.486	22.865	-	22.865	32.116	32.571	33.286	33.951	0.000	242.239

**Remarks**

**D. Acquisition Strategy**

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

Fire Support Mods:

Leverage acquisition efforts in conjunction with the Army, Warfare Centers and Labs for existing fielded systems. Continue efforts between the Army's Combat Capabilities Development Command - Armaments Center (CCDC-AC), and NSWC DD for the Future Survey System replacement. 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 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) replacement, Precision Guidance Kit (PGK), and 155mm rounds. USMC engineering efforts are conducted primarily at Navy Warfare Centers.

Common Laser Range Finder (CLRF):

The Next Generation Handheld Targeting System (NGHTS) was developed by using competitively awarded Other Transaction Agreements (OTA) for a phased approach that resulted in a competitive down select to a single vendor. Procurement contract was awarded to support Low Rate Initial Production, Production Verification Testing and Full Rate Production of the NGHTS Approved Acquisition Objective quantity of systems and provide initial training and maintenance support.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3098 / Fire Support System
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<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
FAM Development	WR	NSWC : Dahlgren, VA	0.155	0.155	Apr 2022	0.000		0.000		-		0.000	0.000	0.310	-
FAM Moving Target	MIPR	NSWC : Dahlgren, VA	0.000	1.526	Apr 2022	0.000		0.000		-		0.000	0.000	1.526	-
NGHTS	C/FFP	Various : Various	9.995	2.970	Nov 2020	0.400	Nov 2021	0.050	Nov 2022	-		0.050	0.000	13.415	-
FSM IPADS-R Development	MIPR	CCDC : Picatinny, NJ	4.582	1.442	Mar 2021	1.776	Mar 2022	0.000		-		0.000	0.000	7.800	-
FSM MASS Android Sensor Software Development	MIPR	CCDC : Picatinny, NJ	0.162	0.080	Jul 2021	0.150	Mar 2022	0.000		-		0.000	Continuing	Continuing	Continuing
FSM LADS/JLTV Integration	MIPR	CCDC : Picatinny, NJ	0.000	0.000		0.000		1.165	Nov 2022	-		1.165	0.000	1.165	-
Prior Years Cumulative Funding	Various	Various : Various	134.610	0.000		0.000		0.000		-		0.000	0.000	134.610	-
<b>Subtotal</b>			149.504	6.173		2.326		1.215		-		1.215	Continuing	Continuing	N/A

**Remarks**  
 CLRF: Net decrease of \$0.350M from FY 2022 is due to the completion of the prototype development  
 FSM - Net decrease of \$0.761M from FY 2022 to FY 2023 is a result of the completion of LADS development and motion sensor integration; and MASS Android Sensor Software

<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
FAM Engineering Support	WR	NSWC : Dahlgren, VA	3.559	0.503	Apr 2022	0.000		0.000		-		0.000	0.000	4.062	-
FAM Program Mgt Support	SS/FFP	MCSC : Various	0.000	0.200	May 2021	0.156	Apr 2022	0.108	Mar 2023	-		0.108	0.000	0.464	-
FAM Safety Engineer Support	SS/FFP	NSWC : Indian Head, MD	0.000	0.180	Apr 2022	0.165	Mar 2022	0.168	Dec 2022	-		0.168	0.000	0.513	-
NGHTS	Various	Various : Various	0.000	0.450	Nov 2020	0.048	Nov 2021	0.059	Nov 2022	-		0.059	0.000	0.557	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3098 / Fire Support System
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<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FSM Engineering Support	WR	NSWC : Dahlgren, VA	0.178	0.200	Mar 2021	0.237	Mar 2022	0.154	Nov 2022	-		0.154	0.000	0.769	-
Prior Years Cumulative Funding	Various	Various : Various	2.615	0.000		0.000		0.000		-		0.000	0.000	2.615	-
<b>Subtotal</b>			6.352	1.533		0.606		0.489		-		0.489	0.000	8.980	N/A

**Remarks**  
 CLRF - Net decrease of \$0.011M from FY 2022 to FY 2023 is support of the Operational testing event.  
 FSM - Net decrease of \$0.083M from FY 2022 to FY 2023 is due to the completion of the LADS development  
 FAM - Net decrease of \$0.045M from FY 2022 to FY 2023 is due to the reduced requirement for overall Program Management Support

<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FAM DPICM Replacement Evaluations	C/BA	NSWC : Dahlgren, VA	0.318	0.899	May 2022	0.000		0.000		-		0.000	0.000	1.217	-
FAM XM1208 HERO Tech Agent Certification	WR	NSWC : Dahlgren, VA	0.000	0.000		0.000		0.025	Nov 2022	-		0.025	0.000	0.025	-
FAM XM1208 - Electro Static Discharge Review	WR	NSWC : Indian Head, MD	0.000	0.000		0.000		0.012	Nov 2022	-		0.012	0.000	0.012	-
NGHTS	Various	Various : Various	0.000	0.291	Nov 2020	0.129	Nov 2021	0.500	Nov 2022	-		0.500	0.000	0.920	-
Prior Years Cumulative Funding: Fire Support Mods	Various	Various : Various	8.549	0.000		0.000		0.000		-		0.000	0.000	8.549	-
<b>Subtotal</b>			8.867	1.190		0.129		0.537		-		0.537	0.000	10.723	N/A

**Remarks**  
 CLRF - Net increase of \$0.0371M from FY 2022 to FY 2023 is for supporting Operational Test Events  
 FAM - Net increase of \$0.037M from FY 2022 to FY 2023 is a result of the new requirement for XM1208 Testing Evaluations





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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy

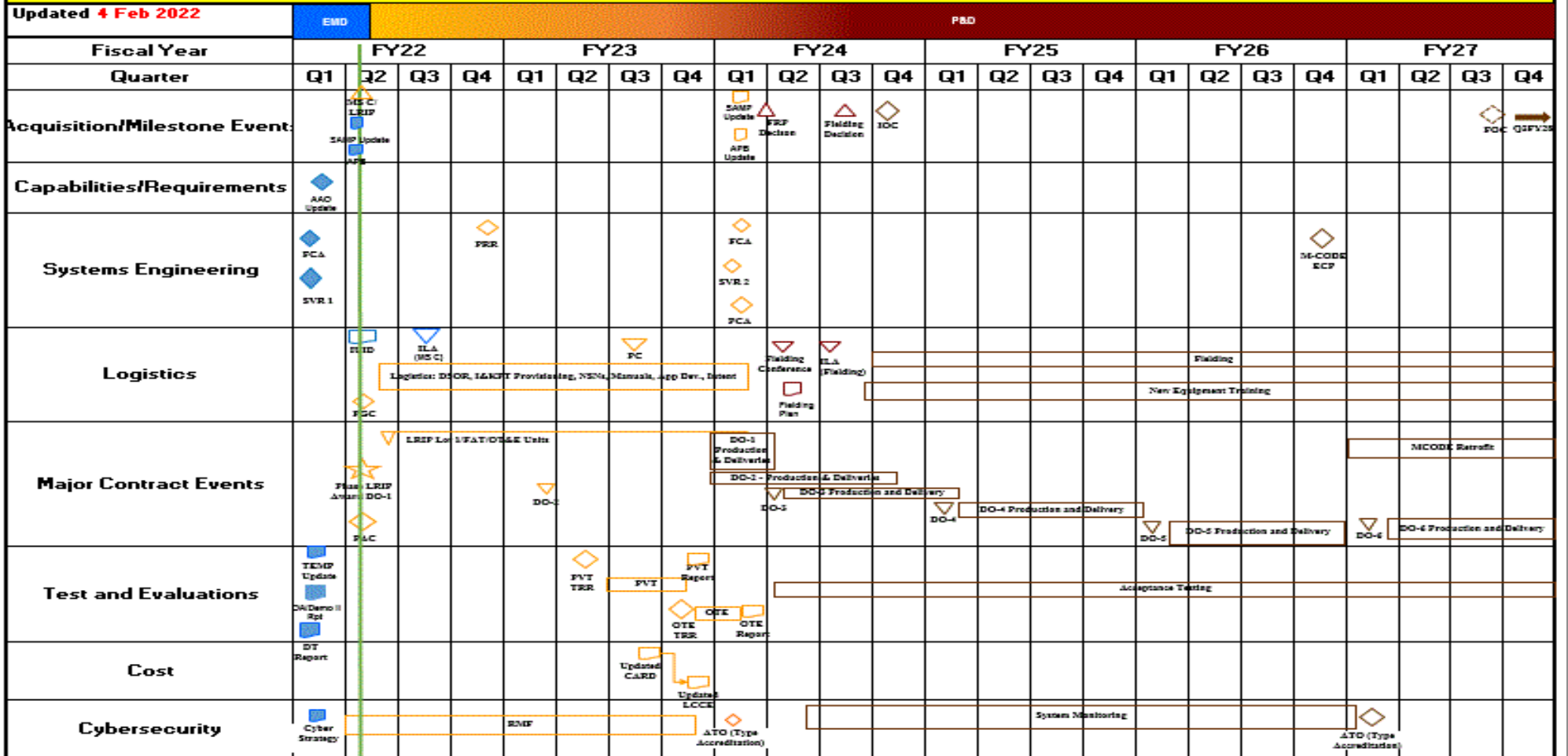
Date: April 2022

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

Next Generation Handheld Targeting System (NGHTS) Program Schedule



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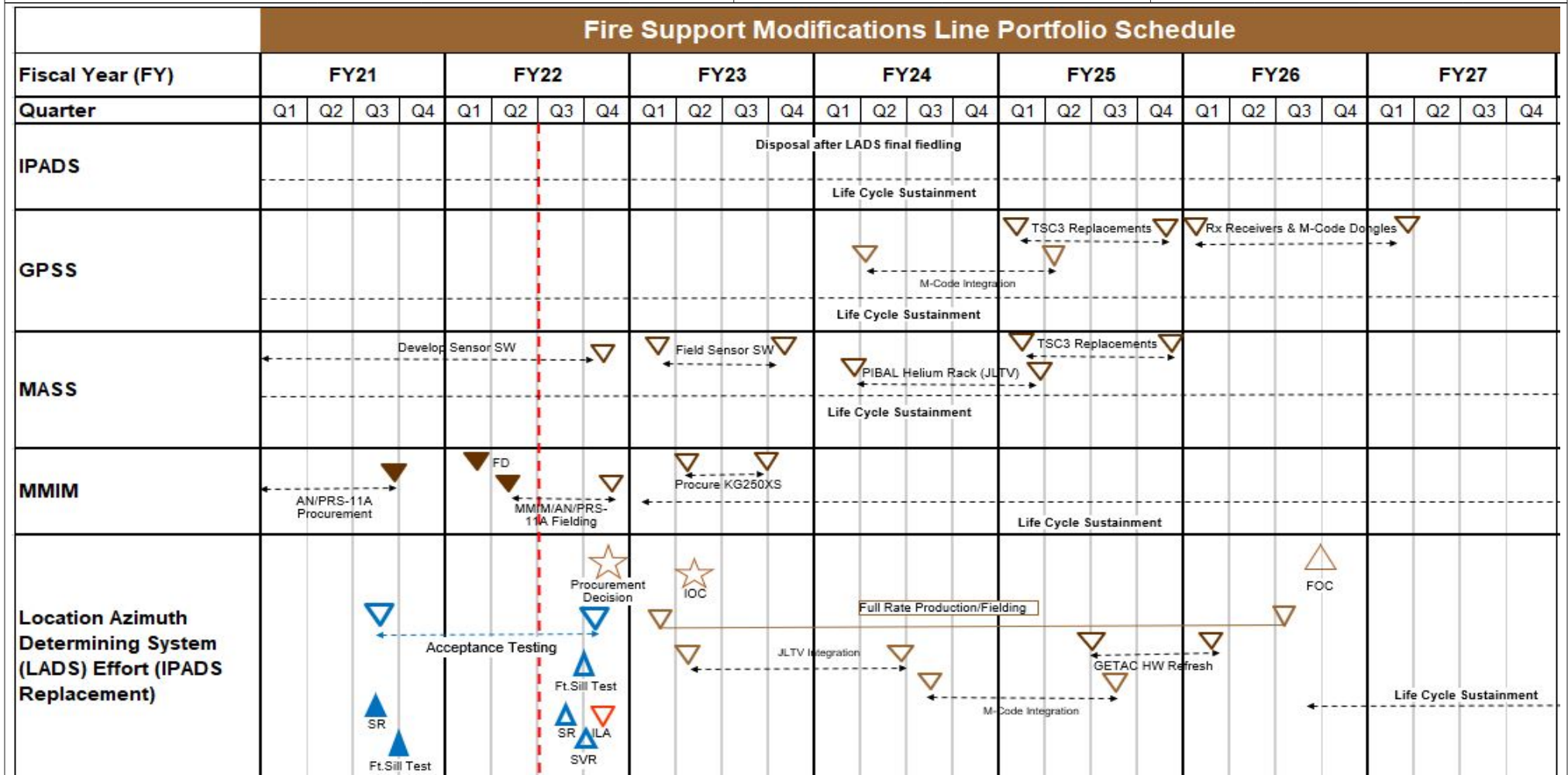
Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy

Date: April 2022

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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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3098 / Fire Support System

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3098</b>				
CLRF: NGHTS LRIP PVT	3	2023	4	2023
FSML: JLTV/LADs Development & Integration	2	2023	2	2024
CLRF: NGHTS OT&E	4	2023	1	2024
FAM: EOD Projectile 12m Drop Detail	1	2023	1	2023
FAM: MS C	4	2023	4	2023

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3774 / Marine Corps Ammo
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
3774: Marine Corps Ammo	2.704	1.297	10.123	10.724	-	10.724	8.762	2.735	2.745	2.763	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

Ammunition Life Cycle Management Program supports PM Ammo's 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 are 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. RDT&E funds will also be used to seek a prototype for the Ammunition Inventory Management System consisting of commercially available software solution(s) with minimal customization to fully track, account, audit and manage the supply and distribution of Class V munitions worldwide. Additionally, RDT&E funds will be used modernize some of the applications on the Marine Ammunition Knowledge Enterprise (MAKE).

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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<b>Title:</b> Ammunition Life Cycle Management	0.771	9.589	10.177	0.000	10.177
<b>Articles:</b>	-	-	-	-	-
<b>Description:</b> RDT&E funds are required to seek a prototype for the Ammunition Inventory Management System consisting of commercially available software solution(s) with minimal customization to fully track, account, audit and manage the supply and distribution of Class V munitions worldwide. Additionally, RDT&E funds are required to support ammunition packaging efforts to "lighten the load" for ammunition packaging. Lastly, this funding line supports modernization efforts for multiple applications within the Marine Ammunition Knowledge Enterprise (MAKE) to enhance functionality/capability and comply with Financial Improvement and Audit Readiness (FIAR) standards.					
<b>FY 2022 Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3774 / Marine Corps Ammo

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>-Projects voted on by the Ammunition Logistics Research and Development IPT (ALR&amp;D IPT) Senior review board in FY 2021. The projects will be ones that are prioritized and deemed essential to the ammo logistics needs of the Marine Corps.</p> <p>-Continued to support the multi-year effort to develop a Mobile Ammunition Processing Facility (MAPF) for ammunition inspections and repackaging in a deployed environment. This project will eliminate the amounts of unserviceable ammunition generated in a deployed environment and save all services from costly additional procurements.</p> <p>-Supported Joint Service information technology prototyping efforts to enhance accountability of all ground conventional ammunition and auditability within the Marine Corps automated ammunition information system.</p> <p>-Supported R&amp;D of the Mk22 Mod 4 (J143) Rocket Motor to address safety concerns identified during a recent mishap and improved insensitive munitions performance.</p> <p><b>FY 2023 Base Plans:</b></p> <p>-Projects voted on by the Ammunition Logistics Research and Development IPT (ALR&amp;D IPT) Senior review board in FY 2022. The projects will be ones that are prioritized and deemed essential to the ammo logistics needs of the Marine Corps.</p> <p>-Support multiple ammunition packaging efforts to lighten the packaging for small arms munitions and pyrotechnics/grenades. This will save the services hundreds of thousands of dollars in transportation costs and enhance operational capabilities by enabling more ammo to be distributed via unmanned air systems.</p> <p>-Support Joint Service information technology prototyping efforts to enhance accountability of all ground conventional ammunition and auditability the Marine Corps automated ammunition information system.</p> <p>-Support modernization efforts for multiple applications within the Marine Ammunition Knowledge Enterprise (MAKE) to enhance functionality/capability and comply with Financial Improvement and Audit Readiness (FIAR) standards.</p>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3774 / Marine Corps Ammo

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>-Support R&amp;D of the Mk22 Mod 4 (J143) Rocket Motor to address safety concerns identified during a recent mishap and improved insensitive munitions performance.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The funding increase of \$0.588M between FY 2022 and FY 2023 is a result of increased efforts required to support improvements of the Mk22 Mod 4 (J143) Rocket Motor, as well as additional efforts associated with the development and modernization of ammunition.</p>					
<p><b>Title:</b> Conventional Ground Ammunition</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continued the J143 Rocket Motor Slow Cook-off Mitigation development design package to a final Technical Data Package to include non-flammable container.</li> <li>- Continued Lightweight Assault Weapon Fire From Enclosure (LAW FFE) Particle Impact Mitigation Sleeve development design package to a final Technical Data Package to include an Engineering Change Proposal (ECP).</li> <li>- Tested for a new tool and technique for Explosive Ordnance Disposal (EOD) of Insensitive Munitions (IM) - Unexploded Ordnance (UXO) applications for artillery and mortars.</li> </ul> <p><b>FY 2023 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Continuing the J143 Rocket Motor Slow Cook-off Mitigation development design package to a final Technical Data Package to include non-flammable container and systems level testing.</li> <li>- Continuing Lightweight Assault Weapon Fire From Enclosure (LAW FFE) Particle Impact Mitigation Sleeve development design package to a final Technical Data Package to include an Engineering Change Proposal (ECP).</li> </ul>	0.526 -	0.534 -	0.547 -	0.000 -	0.547 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3774 / Marine Corps Ammo

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
- Testing for new tools and techniques for Explosive Ordnance Disposal (EOD) of Insensitive Munitions (IM) - Unexploded Ordnance (UXO) applications.					
<b><i>FY 2023 OCO Plans:</i></b> N/A					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> The funding increase of \$0.013M between FY 2022 and FY 2023 accounts for annual cost inflation.					
<b>Accomplishments/Planned Programs Subtotals</b>	1.297	10.123	10.724	0.000	10.724

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PANMC/1085: Mortars	45.761	50.707	71.214	-	71.214	64.716	115.231	101.333	111.031	Continuing	Continuing
• PANMC/1125: Direct Support Munitions	79.662	120.037	65.169	-	65.169	69.078	107.022	58.159	60.030	Continuing	Continuing
• PANMC/1350: Infantry Weapons Ammunition	57.742	94.001	225.271	-	225.271	163.667	233.867	259.188	287.607	Continuing	Continuing
• PANMC/1550: Combat Support Munitions	25.003	35.247	19.691	-	19.691	21.994	21.337	21.072	21.601	Continuing	Continuing
• PANMC/1630: Ammo Modernization	15.144	16.267	17.327	-	17.327	17.724	18.164	18.489	18.916	Continuing	Continuing
• PANMC/1650: Artillery Munitions	64.214	105.669	15.514	-	15.514	91.746	132.884	128.110	166.444	Continuing	Continuing
• PANMC/1660: Items less than \$5 million	4.142	5.135	5.476	-	5.476	5.340	5.438	5.537	5.665	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**  
Non Developmental Item/Commercial off the Shelf (NDI/COTS).





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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3774 / Marine Corps Ammo

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Project 3774</b>				
J143 Rocket Motor: Initial Proof of Concept (End with a PDR): Schedule Detail	1	2022	4	2022
Ammunition Life Cycle Management - no major milestones: Schedule Detail	1	2021	4	2026

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 I 7					<b>R-1 Program Element (Number/Name)</b> PE 0206623M I MC Ground Cmbt Spt Arms Sys				<b>Project (Number/Name)</b> 3775 I Family of Internally Transportable Vehicles (FITV)			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3775: Family of Internally Transportable Vehicles (FITV)	2.646	2.620	0.230	0.000	-	0.000	0.383	0.340	0.252	0.257	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

The Family of Ultra-light Tactical Vehicles (FULTV), which consists of the Utility Task Vehicles (UTV) and its eventual replacement the Ultra-light Tactical Vehicle (ULTV), provides operational capabilities for both infantry logistics, long-range surveillance, and reconnaissance missions in support of distributed heliborne operations providing units with increased logistics support while reducing the combat load burden on the individual Marine as well providing casualty evacuation for wounded Marines. In addition, the FULTV fills a much needed capability gap in forward arming and refueling point (FARP) operations by enabling the tactical aviation ground refueling system (TAGRS) to rapidly establish refueling sites in austere locations. The vehicles are transportable in the MV-22 tilt rotary wing aircraft, CH53E rotary wing aircraft and CH53F tilt selected rotary and fixed wing aircraft. The FULTV vehicles mitigate the infantry units, reconnaissance battalions and wing support squadrons capability gaps, with the ability to operate in remote, rural regions where currently fielded ground mobility platforms may be unsuitable due to size, weight, and transportability concerns.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Family of Ultra-light Tactical Vehicles (ULTV) Test and Evaluation	2.620	0.230	0.000	0.000	0.000
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b> Finalizing test reports from the outcome of testing events that concluded in 4Q FY 2021 and any additional test requirements.					
<b>FY 2023 Base Plans:</b> N/A					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The decrease from FY 2022 to FY 2023 is due to the Marine Corps re-phase of program funding by \$0.230M to account for FY 2021 underexecution					
<b>Accomplishments/Planned Programs Subtotals</b>	2.620	0.230	0.000	0.000	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3775 / Family of Internally Transportable Vehicles (FITV)

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

Line Item	FY 2021	FY 2022	FY 2023	FY 2023	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Cost To	Total Cost
			Base	OCO	Total					Complete	
• PMC/6545: <i>Ultra-light Tactical Vehicles (ULTV)</i>	0.678	15.439	15.033	-	15.033	18.499	19.285	20.530	27.033	0.000	229.336

**Remarks**

**D. Acquisition Strategy**

The strategy for the ULTV program is a partnership with Program Manager Family of Special Operations Vehicles (PM FOSOV) for testing and procurement. The partnership will capitalize on similar performance and testing specifications and generate efficiencies by conducting a cross-services acquisition. PM FOSOV released a full and open competitive solicitation and awarded an IDIQ contract 29 May 2020. The Marine Corps and PM FOSOV is conducting joint testing including safety, performance, transportability, and durability. The Marine Corps completed an Operational Assessment in August 2021. The results of the testing will inform a Full Rate Production decision in 3Q FY 2022.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3775 / Family of Internally Transportable Vehicles (FITV)
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Preparation, Events & Reports	C/CPFF	NATC : Carson City, NV	0.000	2.370	Dec 2020	0.230	May 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Operational Assessment	TBD	MCOTEA : Corona, CA	0.000	0.250	May 2021	0.000		0.000		-		0.000	0.000	0.250	-
Prior Year Cumulative	Various	Various : Varios	2.646	0.000		0.000		0.000		-		0.000	0.000	2.646	-
<b>Subtotal</b>			2.646	2.620		0.230		0.000		-		0.000	Continuing	Continuing	N/A

**Remarks**  
The decrease from FY 2022 to FY 2023 of \$0.230M is due to Marine Corps re-phase of funding to account for FY 2021 underexecution.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	2.646	2.620	0.230	0.000	-	0.000	Continuing	Continuing	N/A

**Remarks**

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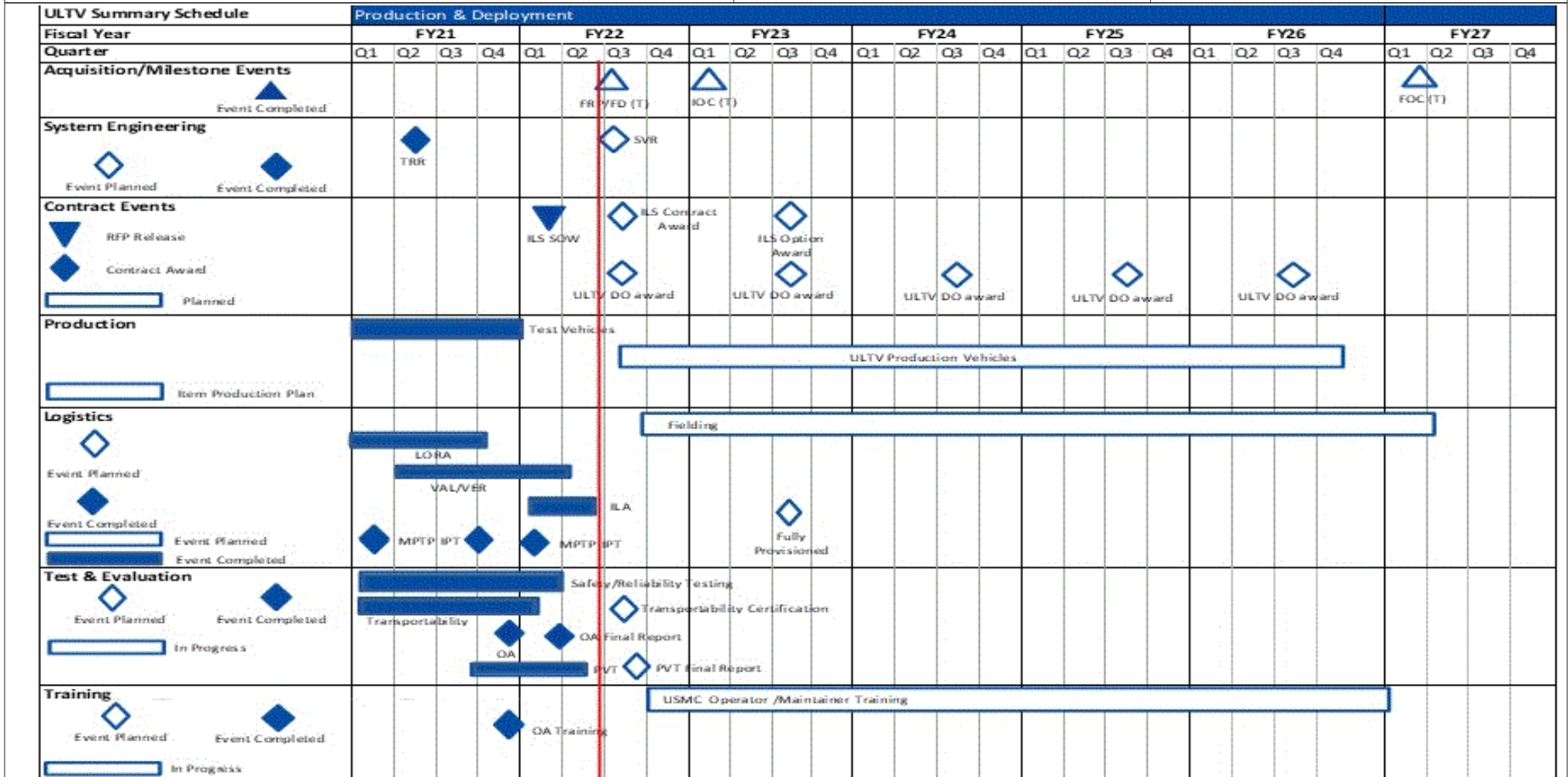
**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy**

**Date: April 2022**

**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)



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 3775 / Family of Internally Transportable Vehicles (FITV)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3775</b>				
Proj 3775: ULTV Safety & Transportability	1	2021	1	2022
Proj 3775: Validation/Verification	2	2021	2	2022
Proj 3775: ULTV Operational Assesment	4	2021	4	2021
Proj 3775: ULTV Independent Logistics Assessment (ILA)	1	2022	2	2022
Proj 3775: ULTV Full Rate Production (FRP)	2	2022	3	2022
Proj 3775: ULTV Vehicle Production award	3	2022	3	2022
Proj 3775: ULTV IOC	1	2023	1	2023
Proj 3775: ULTV Fully Provisioned	3	2023	3	2023

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys				<b>Project (Number/Name)</b> 4002 / Family of Raid Reconnaissance			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
4002: <i>Family of Raid Reconnaissance</i>	10.457	2.963	13.971	17.673	-	17.673	19.518	9.828	9.885	9.987	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. The project supports rapid fielding efforts for Integration and Logistics advocated autonomous small Unmanned Logistics System-Air (ULS-A), known as Tactical Resupply Unmanned Aircraft System (TRUAS), in support of Ground Combat Element (GCE) and Logistics Combat Element (LCE) aerial resupply requirements. Additionally, project supports development of autonomy and other enabling technologies for use across the ULS-A systems and development of a medium ULS-A aircraft.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Airborne Reconnaissance Equipment (ARE)	0.430	0.437	0.347	0.000	0.347
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b>					
- Continue testing and evaluation of the High Altitude High Opening Navigation System (HAHONAV) and parachutist drop bag in an operational environment with current parachute systems.					
- Continue research and development testing of parachuting capabilities for accessing the battlespace, including High Altitude Low Opening, Low Altitude Personnel Parachutes, and related ancillary items.					
- Continue development of a replacement for the Maneuverable Canopy 6 (MC-6) low level parachute system in concert with Navy Advanced Low-Level Parachute System.					
- Initiate transition testing and development for Augmented Parachute System-1 with the Navy's increased capability Powered Paraglider.					
- Initiate evaluation of the Advanced Parachute System 1 (APS-1) to support Force Design 2030 initiative.					
<b>FY 2023 Base Plans:</b>					
- Continue testing and evaluation of the HAHONAV and parachutist drop bag in an operational environment with current parachute systems, utilizing East Coast Blade Hours (ECBH) facilities.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 4002 / Family of Raid Reconnaissance

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<ul style="list-style-type: none"> <li>- Continue research and development testing of parachuting capabilities for accessing the battlespace, including High Altitude Low Opening, Low Altitude Personnel Parachutes, and related ancillary items, utilizing ECBH facilities.</li> <li>- Continue development of a replacement for the MC-6 low level parachute system in concert with Navy Advanced Low-Level Parachute System.</li> <li>- Continue testing and development for Augmented Parachute System-1 with the Navy's increased capability Powered Paraglider.</li> <li>- Continue evaluation of the Advanced Parachute System 1 (APS-1) to support Force Design 2030 initiative.</li> </ul> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The decrease from FY 2022 to FY 2023 of \$0.090M is due to the reduction of the HAHONAV test and evaluation efforts.</p>					
<p><b>Title:</b> Amphibious Reconnaissance Capability</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2022 Plans:</b> - Conduct equipment training 3 Recon Battalion of E-DPD in Okinowa, Japan.</p> <p><b>FY 2023 Base Plans:</b> - Initiate market research and developmental efforts for the E-CRRC Non Gasoline Burning Outboard Engine (NBOE) in support of fielding in FY 2025.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The increase from FY 2022 to FY 2023 OF \$0.002M reflects inflation.</p>	0.120	0.122	0.124	0.000	0.124
	-	-	-	-	-
<p><b>Title:</b> Aerial Delivery and Autonomous Distribution Entry</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2022 Plans:</b> - Conduct Joint Precision Air Delivery System(JPADS) and HALO GPS denied research and development to enhance accuracy of navigation in Global Positioning System (GPS) denied environments to facilitate</p>	0.299	1.222	0.400	0.000	0.400
	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 4002 / Family of Raid Reconnaissance

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>interoperability with personnel parachuting. Ensure modularity and integration within aerial delivery systems and critical capabilities such as tracking and programming.</p> <p>- Conduct research and development of Autonomous Aerial Insertion into Rural, Dense, Urban, Complex Terrain (AAIRDUCT) in conjunction with Army CCDC Soldier Center.</p> <p><b>FY 2023 Base Plans:</b></p> <p>- Continue JPADS and HALO GPS denied research and development to enhance accuracy of navigation in GPS denied environments to facilitate interoperability with personnel parachuting. Ensure modularity and integration within aerial delivery systems and critical capabilities such as tracking and programming.</p> <p>- Continue research and development of AAIRDUCT in conjunction with Army CCDC Soldier Center.</p> <p><b>FY 2023 OCO Plans:</b></p> <p>N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>The decrease from FY 2022 to FY 2023 of \$0.822M is due to planned level of effort changes in development.</p>					
<p><b>Title:</b> Unmanned Logistics Systems - Air</p> <p align="right"><b>Articles:</b></p>	2.114	12.190	16.802	0.000	16.802
<p><b>FY 2022 Plans:</b></p> <p>- Conduct research and development of ULS-A to include integration and development of autonomy aspects, initial development of Medium variant prototypes of ULS-A, and final developments prior to initial phase of rapid fielding efforts for Tactical Resupply Unmanned Aircraft System (TRUAS), the Small variant of ULS-A.</p> <p><b>FY 2023 Base Plans:</b></p> <p>- Continue research and development of ULS-A to include integration and development of autonomy aspects, initial development of Medium variant prototypes of ULS-A, and final developments prior to initial phase of rapid fielding efforts for TRUAS, the Small variant of ULS-A.</p> <p><b>FY 2023 OCO Plans:</b></p> <p>N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 4002 / Family of Raid Reconnaissance

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
The increase from FY 2022 to FY 2023 of \$4.612M is due to contracts planned for prototyping of Medium ULS-A systems that will be utilized in Field User Capability Assessment for final CONOP/CONEMP development and DOTMLP-F assessments.					
<b>Accomplishments/Planned Programs Subtotals</b>	2.963	13.971	17.673	0.000	17.673

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• PMC/6518: Amphibious Support Equipment	5.752	17.119	38.120	-	38.120	22.469	16.117	15.561	15.848	0.000	330.368

**Remarks**

**D. Acquisition Strategy**

The Family of Raid Reconnaissance partners with government R&D entities throughout the DoD to facilitate collaborative developmental efforts, mitigate redundancy and ensure component cost savings. Collaborative DoD research and development supports enterprise fielding, minimizes future engineering changes and upgrades for Service wide reconnaissance equipment. Further, collective DoD efforts ensure scalable and flexible transportation (delivery, transfer and retrograde) of all classes of supply (I-IX) across the range of military operations (ROMO). A competitive, accelerated acquisition strategy utilizing DoD Middle Tier of Acquisition (DoDI5000.80) Rapid Prototyping and Rapid Fielding has been selected for Unmanned Logistics Systems-Air platforms.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 4002 / Family of Raid Reconnaissance
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<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
ARC, E-DPD	Various	MCSC : Quantico	0.290	0.040	Jul 2021	0.000		0.000		-		0.000	0.000	0.330	-
ARC, NBOE	MIPR	CCD : Norfolk, VA	0.000	0.000		0.000		0.124	Jan 2023	-		0.124	0.000	0.124	-
ADAD, JPADS Block Upgrades	MIPR	CCDC : Natick, MA	0.000	0.299	Mar 2021	0.000		0.200	Jan 2023	-		0.200	0.000	0.499	-
ADAD, Auto Aerial Insert Duct	MIPR	Army : CCDC	0.000	0.000		0.500	Feb 2022	0.000		-		0.000	0.000	0.500	-
ADAD, HALO	Various	MCSC : Quantico, VA	0.000	0.000		0.450	Feb 2022	0.000		-		0.000	0.000	0.450	-
ADAD, JPADS Ground Release	C/BA	CCDC : Natick, MA	0.000	0.000		0.000		0.100	Jan 2023	-		0.100	0.000	0.100	-
TRUAS, Small ULS-AIR	Various	NAVAIR : Pax River, MD	2.187	1.335	May 2021	7.932	May 2022	2.419	Jan 2023	-		2.419	0.000	13.873	-
TRUAS, Medium ULS-AIR	Various	Various : Various	2.375	0.000		1.400	Apr 2022	11.150	Jun 2023	-		11.150	0.000	14.925	-
Prior Year Cumulative	Various	Various : Various	0.852	0.000		0.000		0.000		-		0.000	0.000	0.852	-
<b>Subtotal</b>			5.704	1.674		10.282		13.993		-		13.993	0.000	31.653	N/A

**Remarks**  
 TRUAS, Small ULS-AIR - Continued RDT&E of \$2.419M planned to correct any follow on deficiencies identified in corrections made from Field User Capability Assessment.  
  
 TRUAS, Medium ULS-AIR - FY22 to FY23 increase for initial prototyping efforts associated with TRUAS, Medium ULS-A which will be a larger, more complex system than TRUAS, Small ULS-A.

<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
ARE, Sys Eng Support	C/FFP	MCSC : Quantico, VA	0.616	0.181	Jan 2021	0.145	Jan 2022	0.031	Jan 2023	-		0.031	Continuing	Continuing	Continuing
ARC, E-DPD	Various	MCSC : Quantico, VA	0.026	0.040	Dec 2020	0.102	Jun 2022	0.000		-		0.000	0.000	0.168	-
TRUAS, ULS-A Support	Various	NAVAIR : Pax River, MD	0.150	0.300	Mar 2021	2.573	Apr 2022	2.683	Apr 2023	-		2.683	0.000	5.706	-

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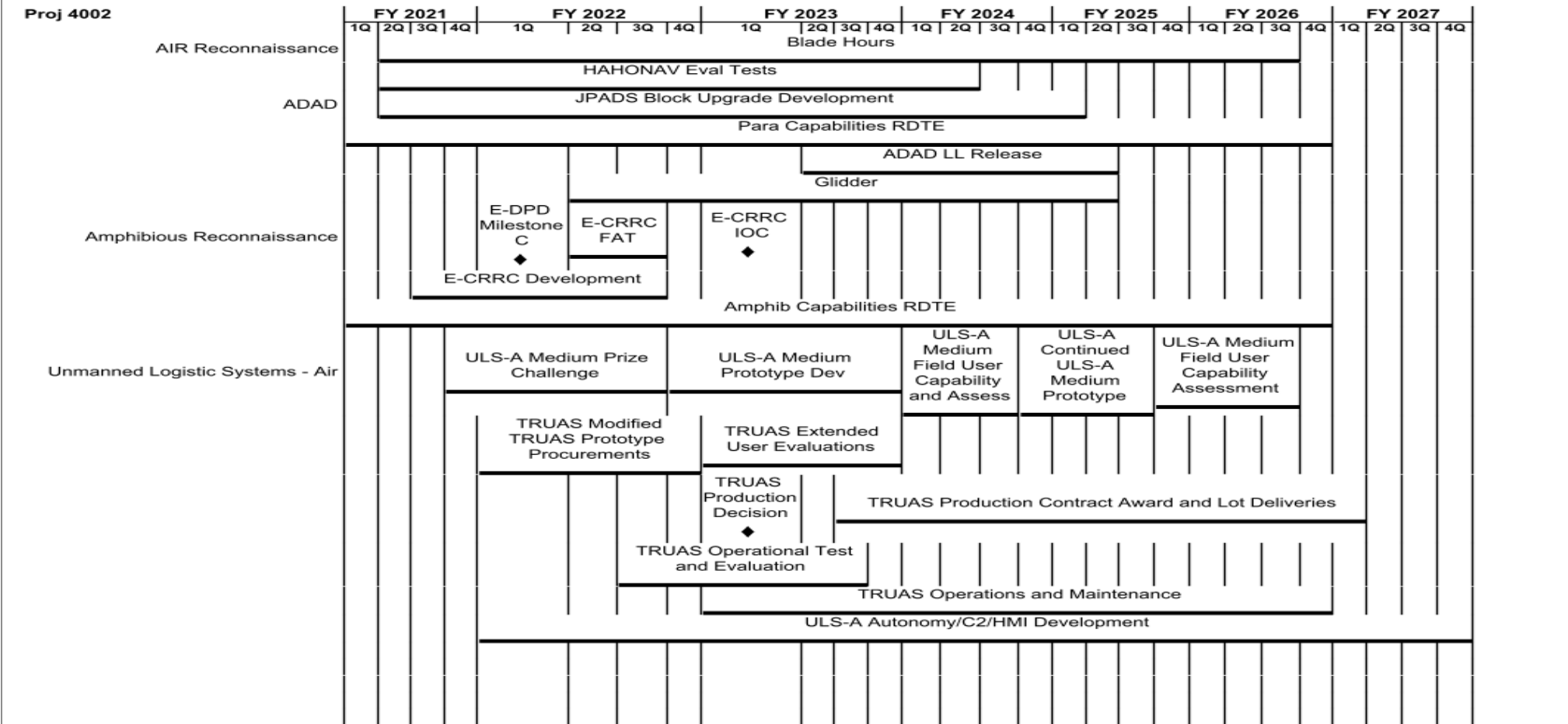
Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy												Date: April 2022			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 7				PE 0206623M / MC Ground Cmbt Spt Arms Sys				4002 / Family of Raid Reconnaissance							
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	Various	Various : Various	1.232	0.000		0.000		0.000		-		0.000	0.000	1.232	-
<b>Subtotal</b>			2.024	0.521		2.820		2.714		-		2.714	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	MCSC : Quantico, VA	0.165	0.009	Feb 2021	0.018	Dec 2021	0.000		-		0.000	Continuing	Continuing	Continuing
ARE, Oxygen Sys Test	MIPR	NAS : Pax River	0.000	0.085	Dec 2020	0.085	Dec 2021	0.000		-		0.000	0.000	0.170	-
ARE, Blade Hours	C/FFP	MCSC : Quantico, VA	0.237	0.150	Mar 2021	0.169	Jan 2022	0.150	Jan 2023	-		0.150	0.000	0.706	-
ARE, Augmented Parachute	SS/FFP	MCSC : Quantico, VA	0.023	0.000		0.020	Feb 2022	0.161	Mar 2023	-		0.161	0.000	0.204	-
ARE, Repair Parts/Consumables	C/CS	MCSC : Quantico, VA	0.000	0.005	Jan 2021	0.000		0.005	Dec 2022	-		0.005	0.000	0.010	-
ARC, E-CRRC FAT	MIPR	NSWC : Norfolk, VA	0.000	0.020	Dec 2021	0.000		0.000		-		0.000	0.000	0.020	-
ARC, Various (travel)	Various	Various : Quantico, VA	0.118	0.020	Feb 2021	0.020	Feb 2022	0.000		-		0.000	0.000	0.158	-
ADAD, GPS Guided Parachute	MIPR	NRSDEC : Natick	0.366	0.000		0.272	Feb 2022	0.000		-		0.000	0.000	0.638	-
ADAD, JPADS Testing	MIPR	Yuma Prov G : Yuma, AZ	0.000	0.000		0.000		0.100	Jan 2023	-		0.100	0.000	0.100	-
TRUAS, Small ULS-A	MIPR	NAVAIR : Pax River, MD	0.167	0.479	Aug 2021	0.285	Aug 2022	0.300	Jan 2023	-		0.300	0.000	1.231	-
TRUAS, Medium ULS-A	Various	NAVAIR : Pax River, MD	0.000	0.000		0.000		0.250	Mar 2023	-		0.250	0.000	0.250	-
Prior Year Cumulative	Various	Various : Various	1.653	0.000		0.000		0.000		-		0.000	0.000	1.653	-
<b>Subtotal</b>			2.729	0.768		0.869		0.966		-		0.966	Continuing	Continuing	N/A



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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 4002 / Family of Raid Reconnaissance Sys
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2023PB - 0206623M - 4002

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<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Navy</b>		<b>Date: April 2022</b>
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 4002 / Family of Raid Reconnaissance

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 4002</b>				
AIR Reconnaissance: Air Recon: HAHONAV	2	2021	2	2024
AIR Reconnaissance: Augmented Parachute System-1	2	2022	4	2023
ADAD: ADAD: JPADS Block Upgrades	2	2021	1	2025
ADAD: Parachute Capabilities R&D	1	2021	4	2026
ADAD: ADAD Low Level Release	2	2023	2	2025
Amphibious Reconnaissance: E-DPD Milestone C	1	2022	1	2022
Amphibious Reconnaissance: E-CRRC FAT	2	2022	3	2022
Amphibious Reconnaissance: E-CRRC IOC	1	2023	1	2023
Amphibious Reconnaissance: Enhanced Combat Rubber Reconnaissance Craft Development	3	2021	3	2022
Amphibious Reconnaissance: Amphibious Capabilities R&D	1	2021	4	2026
Unmanned Logistic Systems - Air: ULS-A Medium Prize Challenge	4	2021	3	2022
Unmanned Logistic Systems - Air: ULS-A Initial ULS-A Medium Prototype Development	4	2022	4	2023
Unmanned Logistic Systems - Air: ULS-A Medium Field User Capability Assessment A	1	2024	3	2024
Unmanned Logistic Systems - Air: ULS-A Continued ULS-A Medium Prototype	4	2024	3	2025
Unmanned Logistic Systems - Air: ULS-A Medium Field User Capability Assessment B	4	2025	3	2026
Unmanned Logistic Systems - Air: TRUAS Modified TRUAS Prototype Procurements	1	2022	4	2022
Unmanned Logistic Systems - Air: TRUAS Extended User Evaluations	1	2023	4	2023
Unmanned Logistic Systems - Air: TRUAS Production Decision	1	2023	1	2023
Unmanned Logistic Systems - Air: TRUAS Production Contract Award and Lot Deliveries	3	2023	1	2027

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206623M / MC Ground Cmbt Spt Arms Sys	<b>Project (Number/Name)</b> 4002 / Family of Raid Reconnaissance
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<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Unmanned Logistic Systems - Air: TRUAS Operational Test and Evaluation	3	2022	3	2023
Unmanned Logistic Systems - Air: TRUAS Operations and Maintenance	1	2023	4	2026
Unmanned Logistic Systems - Air: ULS-A Autonomy/C2/HMI Development	1	2022	4	2027