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

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>
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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	73.157	42.194	66.565	111.431	-	111.431	133.797	117.347	108.571	110.069	Continuing	Continuing
1558: <i>Armored Reconnaissance Vehicle</i>	7.465	17.089	38.063	70.583	-	70.583	105.645	90.065	91.347	92.625	Continuing	Continuing
2614: <i>SMAW Follow-On</i>	23.100	0.492	0.495	0.506	-	0.506	1.943	2.039	2.079	2.118	Continuing	Continuing
6639: <i>Multiple-Launch Rocket System Family of Munitions</i>	0.000	0.000	0.000	22.466	-	22.466	8.533	0.525	0.497	0.447	Continuing	Continuing
7400: <i>Combat Capability Development Transition</i>	42.592	24.613	28.007	17.876	-	17.876	17.676	24.718	14.648	14.879	Continuing	Continuing

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

This PE supports the demonstration and validation of Marine Corps Ground/Supporting Arms Systems for utilization in Marine Air-Ground Expeditionary Force amphibious operations. This program is funded under Demonstration & Validation because it develops and integrates hardware for experimental tests related to specific ground weapon systems.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>
Previous President's Budget	43.457	77.065	0.000	-	0.000
Current President's Budget	42.194	66.565	111.431	-	111.431
Total Adjustments	-1.263	-10.500	111.431	-	111.431
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-10.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.263	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	-	-	111.431	-	111.431

**Change Summary Explanation**

The net increase of \$44.866M from FY 2022 to FY 2023 is primarily due to the following programs adjustments within the PE:

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<p>1) Armored Reconnaissance Vehicle (ARV) increases \$32.520M from FY 2022 to FY 2023 due to the gradual ramp up of requirements to support the next phase of the program: GSIL/SoS Development &amp; Test, Competitive Prototype Test, Support to prepare for Milestone B for an ACAT 1 Program (Milestone Documentation, Contract Development, AoA update, and RFP release) and activities required to support USMC EMD Decision Point, late FY 2023, where a determination is expected to be made on the ARV path forward (New purpose built system or Modified ACV).</p> <p>2) Increase of \$22.466M from FY 2022 to FY 2023 initiates development of the MFoM Launcher (sled and Fire Control System (FCS) and Weapon Control System (WCS) for integration with the ROGUE-Fires carrier.</p> <p>3) A decrease of \$10.131M from FY 2022 to FY 2023 is due to the completion Prototype LRUSV Vessels, Prototype sUSV, and OPF launchers.</p> <p>The FY 2023 funding request was adjusted by \$1.153M to account for the availability of prior year execution balances.</p> <p>---</p> <p>FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.</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 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys				<b>Project (Number/Name)</b> 1558 / Armored Reconnaissance Vehicle			
<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>
1558: Armored Reconnaissance Vehicle	7.465	17.089	38.063	70.583	-	70.583	105.645	90.065	91.347	92.625	Continuing	Continuing
Quantity of RDT&E Articles		3	-	-	-	-	-	-	-	-		

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

The Advanced Reconnaissance Vehicle (ARV) is imperative to realizing Marine Corps requirements for Fleet Marine Force 2030. As part of the portfolio of reconnaissance, surveillance, and target acquisition systems, ARV will be a purpose-built combat vehicle system, highly mobile on land and water, that can sense, communicate, and fight as the manned hub of a robotic and autonomous systems-enhanced team. Equipped with modern command, control, communications and surveillance systems the ARV will transform the ability of Fleet Marine Forces to sense and communicate within the littoral operating environment by providing a persistent and mobile Systems of Systems to augment and sustain effective sensor webs and kill chains. The ARV is critical towards the modernization of Marine Corps reconnaissance capability.

**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> Armored Reconnaissance Vehicle	17.089	38.063	70.583	0.000	70.583
<b>Articles:</b>	3	-	-	-	-
<b>FY 2022 Plans:</b>					
-Continue industry build of Competitive Prototype vehicles (2)					
-Continue a modified ACV effort (1)					
-Purchase Government Furnished Property (GFP) to support Competitive Prototyping					
-Begin Armor Coupon and Live Fire Testing					
-Initiate Competitive Prototype test planning (Range, Facilities, Instrumentation)					
-Initiate Government Systems Integration Lab (GSIL)/Systems of System (SoS) level Evaluation (integration, analysis and test)					
-Initiate MS B documentation development					
<b>FY 2023 Base Plans:</b>					
-Complete Competitive Prototype vehicle builds (2)					
-Complete a modified ACV effort (1)					
-Complete Competitive Prototype vehicle testing (Live Fire, Operational, Performance)					
-Continue GSIL/SoS analysis & testing (Interoperability, Network/Comms)					
-Complete purchase of GFP to support Competitive Prototyping					
-Initiate Analysis of Alternatives (AoA) Update					

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	<b>Project (Number/Name)</b> 1558 / Armored Reconnaissance Vehicle

<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 MS B documentation development -Initiate and complete BCA -Initiate Front End Analysis / Training Systems Requirement Analysis  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Armored Reconnaissance Vehicle (ARV) increases \$32.520M from FY 2022 to FY 2023 due to the gradual ramp up of requirements to support the next phase of the program: GSIL/SoS Development & Test, Competitive Prototype Test, Support to prepare for Milestone B for an ACAT 1 Program (Milestone Documentation, Contract Development, AoA update, and RFP release) and activities required to support USMC EMD Decision Point where a determination is expected to be made on the ARV path forward (New purpose built system or Modified ACV).					
<b>Accomplishments/Planned Programs Subtotals</b>	17.089	38.063	70.583	0.000	70.583

<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>
• RDTEN/0603640M/2223: Marine Corps Advanced Tech. Demo.	1.500	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	Continuing Continuing

**Remarks**  
FY21 funding is Office of Naval Research (ONR) portion of the cost sharing effort to build and test Technology Demonstrator vehicles.

**D. Acquisition Strategy**  
Leveraging Middle Tier Acquisition (MTA) Authority for Rapid Prototyping, ARV will execute a prototyping phase in FY 2021-FY 2023. During this phase the USMC will award three contract actions, two of which will leverage the Ground Vehicle Systems (GVS) Other Transaction Authority (OTA) which is administrated by the National Advanced Mobility Consortium (NAMC). These two contracts will focus on a new purpose built solution to address the USMC Requirements outlined in the approved ICD and draft CDD. A third contract action will be awarded to BAE Systems to support the modification of the USMC ACV which will be used to determine trade-space and the feasibility of using a Government Off the Shelf (GOTS) solution to address the USMC reconnaissance requirements. Each contractor (3) will have 15 months to develop, build and deliver their Prototype to support a government evaluation. The prototyping phase will inform requirements and the acquisition strategy to better refine the total life cycle cost estimate and ensure the requirement is affordable, achievable and verifiable prior to the Engineering and Manufacturing Development (EMD) phase. The USMC will conduct a decision point in late FY 2023 to determine a path forward (New purpose built system or Modified ACV).

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<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>Project (Number/Name)</b> 1558 / <i>Armored Reconnaissance Vehicle</i>

The full funding requirement for the MTA prototype effort as outlined in the Report to Congress is below:  
FY 2021: \$17.089M  
FY 2022: \$38.063M  
FY 2023: \$70.583M

The total cost of the MTA prototyping effort is \$125.735M, and is fully funded in RDT&E.

Upon successful completion of the prototyping phase and USMC decision to move forward with a purpose built system, ARV intends to proceed to a Milestone B decision point in FY 2025. The USMC is positioned to execute EMD through full and open FAR based competition. As an option, the USMC may award production under OTA to 1 of the 2 CP vendors with a Milestone C decision in FY 2028. The program is expected to complete IOC in FY 2030 and FOC of the initial variant in FY 2033.

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

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	<b>Project (Number/Name)</b> 1558 / Armored Reconnaissance Vehicle
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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			
System Development & Demo.	C/FFP	ONR; NIWC-A : Arlington, VA; Charleston, SC	4.500	1.739	Nov 2020	2.910	Jan 2022	16.805	Nov 2022	-		16.805	0.000	25.954	-
Prototype Manufacturing	C/FFP	BAE; General Dynamics Land Systems; Textron : Sterling Heights MI Sterling Heights MI Slidell LA	0.000	6.250	Sep 2021	18.750	Mar 2022	2.800	Dec 2022	-		2.800	Continuing	Continuing	Continuing
Government Furnished Property	C/FFP	DLA : Philadelphia, PA	0.000	4.163	Apr 2021	2.467	Jan 2022	1.913	Nov 2022	-		1.913	0.000	8.543	-
<b>Subtotal</b>			4.500	12.152		24.127		21.518		-		21.518	Continuing	Continuing	N/A

**Remarks**  
 System Development & Demo increase of \$13.895M funds the interoperability/demonstration of the mission equipment package (modems, network equipment, antenna and assured positioning navigation and timing) and associated labor to support three (3) Government Systems Integration Lab (GSIL) environments.  
  
 Prototype Manufacturing decrease of \$15.950M is due to final increment of competitive prototype vehicle contracts.

<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			
Program Mgmt - LAV	MIPR	TACOM : Warren, MI	2.965	4.495	Dec 2020	6.275	Dec 2021	13.456	Dec 2022	-		13.456	Continuing	Continuing	Continuing
Studies & MS Document Prep.	MIPR	GVSC : Warren, MI	0.000	0.157	May 2021	1.577	Jan 2022	2.756	Jan 2023	-		2.756	0.000	4.490	-
National Advanced Mobility Consortium Fees	MIPR	GVSC : Warren, MI	0.000	0.285	Sep 2021	0.713	Mar 2022	0.133	Dec 2022	-		0.133	0.000	1.131	-
<b>Subtotal</b>			2.965	4.937		8.565		16.345		-		16.345	Continuing	Continuing	N/A

**Remarks**  
 Program Management increase of \$7.181M provides additional funding for support of EMD Contract Development & RFP Release, update to the AoA, and MS B documentation/ramp up to an ACAT 1 Program of Record. The ARV Program will require resources to support preparation of the EMD Contract Scope of Work, Evaluation

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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			

Criteria/Instructions to Offerors (Sections L&M) and RFP Release. Increased program support is required to support the development of all the documents necessary for a successful MS B Decision and ramp up to an ACAT 1 Program of Record.

<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			
Competitive Prototype Test	MIPR	Various : Various	0.000	0.000		5.371	Jul 2022	30.220	Nov 2022	-		30.220	0.000	35.591	-
<b>Subtotal</b>			0.000	0.000		5.371		30.220		-		30.220	0.000	35.591	N/A

**Remarks**  
Increase competitive prototype test of \$24.849M is due to the competitive prototype testing required to support USMC EMD Decision Point, late FY23, where a determination is expected to be made on the ARV path forward. Included in these tests are GSIL/SoS tests and vehicle level testing for the two CP vendors. Vehicle level testing includes: C4, Cyber, Land Water Mobility, Sensor Detect Recognize and Identify (DRI), Electro-optic/Infrared Sensors and physical characteristics. ACV testing includes SIL/SoS testing.

<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			
AoA Support Contract	C/FFP	HII-MDIS; Technomics : Huntsville, AL; Arlington, VA	0.000	0.000		0.000		2.500	Nov 2022	-		2.500	0.000	2.500	-
<b>Subtotal</b>			0.000	0.000		0.000		2.500		-		2.500	0.000	2.500	N/A

**Remarks**  
AoA Support Contract increase of \$2.5M is to support the update to the Analysis of Alternatives (AoA) required for MS B.

	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>		7.465	17.089	38.063	70.583	-	Continuing	Continuing	N/A

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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 / 4			<b>R-1 Program Element (Number/Name)</b> PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>			<b>Project (Number/Name)</b> 1558 / <i>Armored Reconnaissance Vehicle</i>				
	<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>	

**Remarks**  
 Armored Reconnaissance Vehicle (ARV) increases \$32.520M from FY 2022 to FY 2023 due to the gradual ramp of requirements to support the next phase of the program: GSIL/SoS Development & Test, Competitive Prototype Test, Support to prepare for Milestone B for an ACAT 1 Program (Milestone Documentation, Contract Development, AoA update, and RFP release) and activities required to support USMC EMD Decision Point, late FY23, where a determination is expected to be made on the ARV path forward (New purpose built system or Modified ACV).

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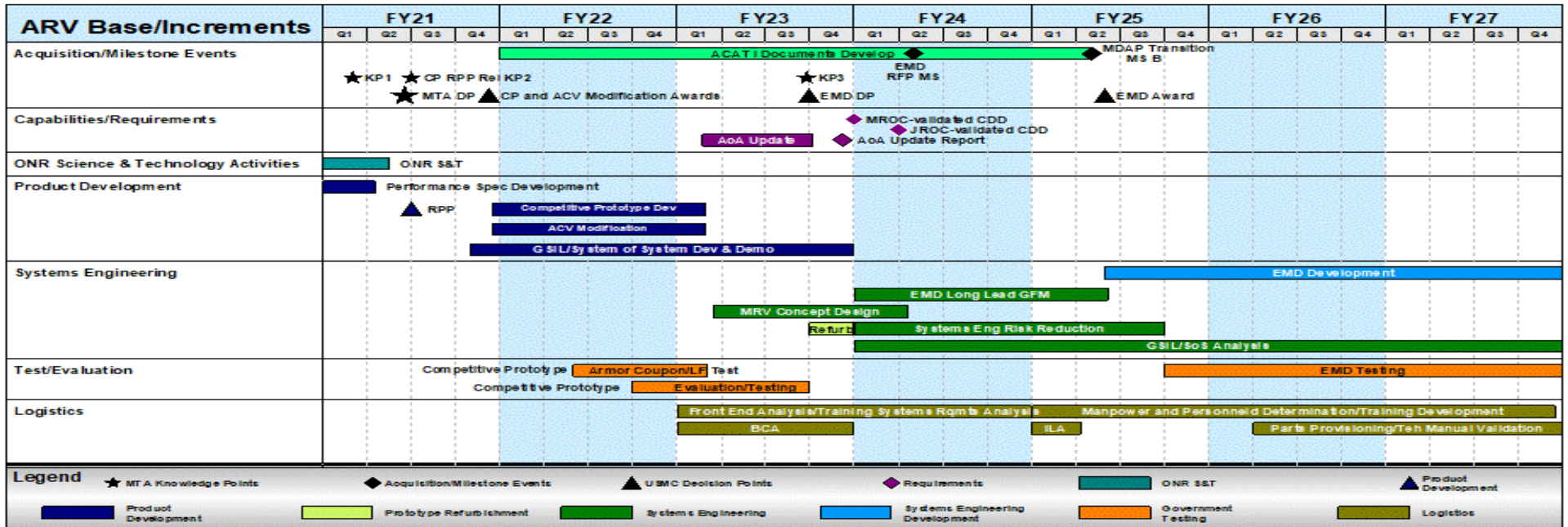
Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy

Date: April 2022

Appropriation/Budget Activity  
1319 / 4

R-1 Program Element (Number/Name)  
PE 0603635M / Marine Corps Grnd Cmbt/S  
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Project (Number/Name)  
1558 / Armored Reconnaissance Vehicle



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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>Project (Number/Name)</b> 1558 / <i>Armored Reconnaissance Vehicle</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Project C1558 ARV</i></b>				
Competitive Prototype Agreement Awards	4	2021	4	2021
Competitive Prototype Dev	4	2021	1	2023
GSIL/SoS Dev & Demo	4	2021	4	2023
Armor Coupon/Live Fire Testing	2	2022	1	2023
Competitive Prototype Eval/Test	4	2022	3	2023
RFP Release for EMD	2	2024	2	2024
MS B and EMD Contract Award	2	2025	2	2025

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<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	<b>Project (Number/Name)</b> 2614 / SMAW Follow-On
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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
2614: SMAW Follow-On	23.100	0.492	0.495	0.506	-	0.506	1.943	2.039	2.079	2.118	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

The solution to the Shoulder-launched Multipurpose Assault Weapon (SMAW) Follow on capability requirement is a Family of Marine-portable Rocket Systems. The Family of Systems include the SMAW MK-153 Mod 0, SMAW MK-153 Mod 2, and the Multi-purpose Anti-Armor Weapon System (MAAWS) M3A1. The MAAWS M3A1 is a multipurpose, man-portable, line-of-sight, reloadable, recoilless, anti-armor and anti-personnel weapon system. This system will enable the Marine Infantry and Combat Engineer Squads to engage in offensive and defensive operations with anti-armor, anti-personnel, anti-material, and assault capabilities. The MAAWS consists of the M3A1 Carl Gustaf Recoilless Rifle, Fire Control System and red dot back up sight. Munitions include two Sub-caliber Adapter Training Devices and a suite of 84mm ammunition with greater capabilities than the SMAW Mod 2 system.

**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>Title:</b> MAAWS High Explosive (HE) Programmable Round</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2022 Plans:</b> - Initiate Marine Corps-specific qualification testing of High Explosive (HE) programmable round being developed by the Army.</p> <p><b>FY 2023 Base Plans:</b> -Complete Marine Corps-specific qualification testing of High Explosive (HE) programmable round effort developed by the Army.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease of \$0.142M from FY 2022 to FY 2023 due to the completion of High Explosive (HE) programmable round efforts.</p>	0.000	0.202	0.060	0.000	0.060
<p><b>Title:</b> MAAWS Fire Control System (FCS)</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2022 Plans:</b> - Complete the evaluation of the test articles and down select for qualification testing.</p>	0.492	0.293	0.000	0.000	0.000

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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
- Complete qualification testing in support of a procurement decision  <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> Decrease of \$0.293M from FY 2022 to FY 2023 due to the completion of evaluation of test articles and qualification testing.					
<b>Title:</b> Ammunition (Rockets) MAAWS Weapon System  <div style="text-align: right;"><b>Articles:</b></div>  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Base Plans:</b> - Initiate the testing and evaluation of new ammunition (rockets) for the Multi-purpose Anti-Armor Weapon System (MAAWS) to include the procurement of test articles and evaluation of ammunition at designated test facilities.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> - Increase of \$0.446M from FY 2022 to FY 2023 will support the testing and evaluation of new ammunition (rockets) for the Multi-purpose Anti-Armor Weapon System (MAAWS) to include the procurement of test articles and evaluation of ammunition at designated test facilities.	0.000	0.000	0.446	0.000	0.446
	-	-	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	0.492	0.495	0.506	0.000	0.506

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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/3016: <i>Multi-role Anti-Armor Anti-personnel Weapon System (MAAWS)</i>	21.891	20.481	21.419	-	21.419	22.201	8.363	0.000	0.000	0.000	237.432

**Remarks**

**D. Acquisition Strategy**

Multi-purpose Anti-Armor Weapon System (MAAWS) is Multi-Role Anti-Armor Anti-Personnel Weapon System. The Marine Corps is leveraging two US Army sole source, Firm Fixed Price, Indefinite Delivery and Indefinite Quantity (SS/IDIQ) contracts to procure the M3A1 Rifle from Saab Dynamics and the Fire Control System (FCS) from Aimpoint. The Army's Basic Ordering Agreement for the Sub Caliber Adapter, the FCS, is through a US Special Operations Command sole source, Firm Fixed Price Contract, and the ammunition through US Army contracts with Department of Defense Ordnance Technology Consortium (DOTC). USMC is a participant in this Army-led program.

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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 / 4				PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys					2614 / SMAW Follow-On						
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 Funding	Various	Various : Various	17.685	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			17.685	0.000		0.000		0.000		-		0.000	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
MAAWS FCS evaluation	MIPR	Montana State University : Montana	0.000	0.470	Apr 2021	0.000		0.000		-		0.000	0.000	0.470	-
MAAWS FCS qualification	WR	NSWC : Crane, IN	0.000	0.000		0.293	Feb 2022	0.000		-		0.000	0.000	0.293	-
MAAWS HE Programmable	WR	NSWC : Crane, Indiana	0.000	0.000		0.202	Nov 2021	0.060	Nov 2022	-		0.060	0.000	0.262	-
Ammunition (Rockets) MAAWS Weapon System	SS/FFP	AFRL (Miltech) : Montana	0.000	0.000		0.000		0.446	Feb 2023	-		0.446	0.000	0.446	-
MAAWS Vibration Testing	MIPR	U.S. Army Aberdeen Test Center : Aberdeen Proving Ground, MD	0.000	0.022	Jul 2021	0.000		0.000		-		0.000	0.000	0.022	-
<b>Subtotal</b>			0.000	0.492		0.495		0.506		-		0.506	0.000	1.493	N/A
Management Services (\$ 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 Funding	Various	Various : Various	5.415	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			5.415	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A



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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>Project (Number/Name)</b> 2614 / <i>SMAW Follow-On</i>	

	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 2614</b>																																
MAAWS Fire Control System: Procurement of test articles																																
MAAWS Fire Control System: Evaluation and Qualification Testing																																
MAAWS Fire Control System: Ammunition (Rockets) MAAWS Weapon System																																
MAAWS Fire Control System: Vibration Testing MAAWS																																

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>Project (Number/Name)</b> 2614 / <i>SMAW Follow-On</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2614</b>				
MAAWS Fire Control System: Procurement of test articles	3	2021	4	2021
MAAWS Fire Control System: Evaluation and Qualification Testing	4	2021	4	2022
MAAWS Fire Control System: Ammunition (Rockets) MAAWS Weapon System	2	2023	2	2024
MAAWS Fire Control System: Vibration Testing MAAWS	4	2021	2	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 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys				<b>Project (Number/Name)</b> 6639 / Multiple-Launch Rocket System Family of Munitions			
<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>
6639: Multiple-Launch Rocket System Family of Munitions	0.000	0.000	0.000	22.466	-	22.466	8.533	0.525	0.497	0.447	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

This line develops a Multiple Launch Rocket System (MLRS) Family of Munitions (MFOm) launcher to be integrated on the Remotely Operated Ground Unit for Expeditionary Fires (ROGUE-Fires) carrier. This development enables Medium-range Missile (MMSL) batteries the capability to utilize the ROGUE-Fires carrier for either Navy Marine Expeditionary Ship Interdiction System (NMESIS) Launchers with Naval Strike Missiles (NSM) or MFOm launchers capable of firing the entire MFOm currently employed by HIMARS units. This is a key capability in the CMC's force design artillery modernization plan that will increase the vehicle commonality, and the employment flexibility, throughout the artillery regiments and Marine Littoral Regiments.

The MFOm Launcher system will consist of a MFOm launch unit installed on a ground-based, tele-operated carrier (called ROGUE-Fires). A Weapon Control System (WCS) and ROGUE Fires Leader Kit will control up to three launchers per section. The launcher will be capable of firing the Guided Multiple Launch Rocket System (GMLRS) missile and the new Precision Strike Missile (PrSM) when fielded.

This effort includes design, development, integration, and test of the MFOm Launch Unit and WCS for integration with the ROGUE-Fires carrier. The MFOm launcher system makes extensive use of existing systems, including the M142 HIMARS electronics and the ROGUE-Fires carrier. FY 2023 funding focuses on the design and development of the MFOm Launcher Unit (Sled and FCS) and the WCS.

**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> Multiple-Launch Rocket System Family of Munitions (MFOm)	0.000	0.000	22.466	0.000	22.466
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b> N/A					
<b>FY 2023 Base Plans:</b> - Initiate design and development of the MFOm Launch Unit Sled - Repackage the HIMARS FCS for the MFOm Launch Unit - Initiate design and development of the MFOm WCS					

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	<b>Project (Number/Name)</b> 6639 / Multiple-Launch Rocket System Family of Munitions
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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
- Purchase one ROGUE-Fires carrier test asset for FY 2024 integration testing and technology demonstration (based on carrier lead times)					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase of \$22.466M from FY 2022 to FY 2023 initiates development of the MFoM Launcher Unit (Sled and FCS) and WCS for integration with the ROGUE-Fires carrier.					
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	0.000	22.466	0.000	22.466

<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>
• 2212: Artillery Weapons Systems	49.687	221.347	143.808	-	143.808	285.025	279.566	322.426	227.069	61.792	2,353.272

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

**D. Acquisition Strategy**  
The Army and Marine Corps use the current M142 HIMARS launcher to fire GMLRS rockets. The Army is the PICA for the M142 with engineering expertise centered at Huntsville, Alabama Redstone Arsenal. The Marine Corps will develop the new MFoM launcher with the Army AvMC office at Redstone acting as the MFoM launch unit and WCS system integrator. The carrier and leader kits needed for system testing will be procured using an existing Marine Corps production contract.

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

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	<b>Project (Number/Name)</b> 6639 / Multiple-Launch Rocket System Family of Munitions
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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			
MFoM Launch Unit Development (Sled and FCS)	WR	Aviation & Missile Ctr : Redstone Arsenal, AL	0.000	0.000		0.000		12.168	Nov 2022	-		12.168	0.000	12.168	-
MFoM WCS Development	WR	Aviation & Missile Ctr : Redstone Arsenal, AL	0.000	0.000		0.000		6.750	Nov 2022	-		6.750	0.000	6.750	-
<b>Subtotal</b>			0.000	0.000		0.000		18.918		-		18.918	0.000	18.918	N/A

**Remarks**  
FY 2023 funds (\$18.918M) initiate developmental efforts of the MFoM Launch Unit and WCS.

<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			
Safety	MIPR	MCSC : Stafford, VA	0.000	0.000		0.000		0.177	Dec 2022	-		0.177	0.000	0.177	-
Cybersecurity/AI	WR	NSWC : Indian Head, MD	0.000	0.000		0.000		0.146	Nov 2022	-		0.146	0.000	0.146	-
Human Systems Integration	WR	NSWC : Dahlgren, VA	0.000	0.000		0.000		0.257	Nov 2022	-		0.257	0.000	0.257	-
<b>Subtotal</b>			0.000	0.000		0.000		0.580		-		0.580	0.000	0.580	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			
Carrier Ctr Test and Engineering Support	WR	Oshkosh : Oshkosh, WI	0.000	0.000		0.000		0.465	Jan 2023	-		0.465	0.000	0.465	-
Government Engineer Support	WR	NSWC : Dahlgren, VA	0.000	0.000		0.000		0.880	Jan 2023	-		0.880	0.000	0.880	-
Government Engineer Support	WR	NAWC-WD : China Lake, CA	0.000	0.000		0.000		0.450	Jan 2023	-		0.450	0.000	0.450	-

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

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	<b>Project (Number/Name)</b> 6639 / Multiple-Launch Rocket System Family of Munitions
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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			
ROGUE Fires Carrier Test Asset	C/BA	Oshkosh : Oshkosh, WI	0.000	0.000		0.000		1.088	Jan 2023	-		1.088	0.000	1.088	-
<b>Subtotal</b>			0.000	0.000		0.000		2.883		-		2.883	0.000	2.883	N/A

**Remarks**  
FY 2023 funds (2.883M) initiate developmental testing efforts for the MFoM Launch Unit and purchase one ROGUE-Fires carrier test asset for FY 2024 integration testing and technology demonstration based on carrier lead times.

<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			
MFoM travel	Various	MCSC : Not Specified	0.000	0.000		0.000		0.085	Nov 2022	-		0.085	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.000		0.000		0.085		-		0.085	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>		0.000	0.000	0.000	22.466	-	22.466	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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	<b>Project (Number/Name)</b> 6639 / Multiple-Launch Rocket System Family of Munitions
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	FY22				FY23				FY24				FY25				FY26				FY27						
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Acquisition / Milestone Events																											
MFoM Launcher Unit						FCS Repackage					MFoM launch unit and WCS Integration & Test							[Bar]									
MFoM Weapons Control System						Sled Design, Develop, and Integrate					MWCS Design, Develop, Build, and Test (One-to-many and remote launching capability)							[Bar]									
Systems Engineering																											
Test and Evaluation																											
Logistics/Sustainment																											
Safety																											

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>Project (Number/Name)</b> 6639 / <i>Multiple-Launch Rocket System Family of Munitions</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 6639</b>				
MFoM Schedule: MFoM Development	1	2023	2	2024
MFoM Schedule: CDR	1	2024	1	2024
MFoM Schedule: Technology Demonstration	2	2024	3	2024
MFoM Schedule: Milestone C	2	2026	2	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 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys				<b>Project (Number/Name)</b> 7400 / Combat Capability Development Transition			
<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>
7400: <i>Combat Capability Development Transition</i>	42.592	24.613	28.007	17.876	-	17.876	17.676	24.718	14.648	14.879	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

Long Range Unmanned Surface Vessel (LRUSV) is a Service Force Design priority that has demonstrated, through extensive wargaming and simulations, significant operational impact in the Naval Expeditionary Force's surface warfare campaign against peer competitors in the maritime battlespace, particularly when operating within planned sensor and communication networks. As such the LRUSV capability, when fully matured, is a critical element of the CMC's force modernization plan. LRUSVs, employed individually or in formations of multiple vessels under the cognizance of a LRUSV company or subordinate element will be unmanned vessels, capable of conducting semi-autonomous maneuvers in the open ocean for extended periods of time employing tele-operated Organic Precision Fires (OPF) and small Unmanned Surface Vessels (sUSV) in support of sea control and sea denial operations. This prototyping effort will use an incremental approach to deliver capabilities that leverages prototype development to integrate vessels, autonomy packages, Fire Control Application (FCA), and OPF, and will be linked to experimentation and demonstration to reduce technical and integration risk, validate designs, and better inform achievable and affordable requirements, with the ultimate goal of delivering operationally suitable and effective capabilities to the FMF in the late 2020s.

In FY 2021, the Service awarded contracts for three prototype LRUSV vessels, one contact vessel, and began development and integration of the autonomy package and Fire Control Application (FCA). In FY 2022, the Service awarded contracts for two additional prototype vessels, two small Unmanned Support Vessels, and two OPF launchers, conducted Kill Chain and Live Fire tests, and initiated the Pilot Course Development. In FY 2023, the Service will conduct an Early Operational Assessment (EOA) with trained Marine operators and LRUSV prototypes to validate employment concepts and further refine requirements. The results from the EOA will inform a Service decision to transition into the Major Capability Acquisition pathway at Milestone B.

**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> Long Range Unmanned Service Vessel (LRUSV)	24.613	28.007	17.876	0.000	17.876
<b>Articles:</b>	3	2	-	-	-
<b>FY 2022 Plans:</b>					
- Procured two LRUSV prototype vessels					
- Procured two prototype small Unmanned Support Vessels (sUSV)					
- Procured two prototype OPF Launchers and eight munitions test assets in support of FY 2023 Complete Systems Integration Test (CSIT)					
- Continued government SW development of FCA capabilities					
- Conducted testing of LRUSV including Kill Chain, On-Water, and Transportability					

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	<b>Project (Number/Name)</b> 7400 / Combat Capability Development Transition
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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
- Continued vendor integration and testing of OPF capability on LRUSV - Initiated Pilot Course Development and New Equipment Training (NET)  <b>FY 2023 Base Plans:</b> - Continue government SW development of FCA capabilities and enhancements - Procure twenty munitions test assets in support of EOA - Complete integration of the OPF capability for the CSIT and an Early Operational Assessment (EOA) - Complete Pilot Course Development and conduct New Equipment Training (NET) for EOA - Conduct CSIT and EOA  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> A decrease of \$10.131M from FY 2022 to FY 2023 is due to the completion Prototype LRUSV Vessels, Prototype sUSV, and OPF launchers.					
<b>Accomplishments/Planned Programs Subtotals</b>	24.613	28.007	17.876	0.000	17.876

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

**Remarks**

**D. Acquisition Strategy**  
 The LRUSV project is using an incremental approach to deliver capabilities that leverage prototype development to integrate vessels, autonomy packages, Fire Control Application (FCA), and Organic Precision Fires (OPF), and will be linked to experimentation and demonstration. Using a Mid-Tier Acquisition (MTA) approach, the Marine Corps will evaluate capability requirements, assess technical maturity, and refine the concept of employment. This approach to capability development will enable the Marine Corps to reduce technical and integration risk, validate designs, and better inform achievable and affordable requirements, with the ultimate goal of delivering operationally suitable and effective capabilities to the Marine Corps and Joint Force in the late-2020s. With the assistance of Naval Sea Systems Command, Program Manager Ships 406, and Naval Surface Warfare Center Carderock, the program office assessed the technical maturity of the unmanned surface vessel industry base paired against the LRUSV concept of operations. Following market research, vendors were invited to respond with a solution for a semi-autonomous vessel prototyping effort. The program office evaluated all proposals and competitively awarded an Other Transaction Agreement (OTA) to a single vendor.

Throughout FY 2021 and FY 2022, the program manager controlled the LRUSV design, cost, and integration efforts through a series of system engineering technical reviews. In FY 2023, the Service will conduct an Early Operational Assessment (EOA) with trained Marine operators and LRUSV prototypes to validate employment

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

<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>	<b>Project (Number/Name)</b>
1319 / 4	PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	7400 / <i>Combat Capability Development Transition</i>

concepts and further refine requirements. The results from the EOA will inform a Service decision to transition into the Major Capability Acquisition pathway at Milestone B.

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

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	<b>Project (Number/Name)</b> 7400 / Combat Capability Development Transition
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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 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>
NMESIS ASM OTA	C/CPFF	Raytheon Company : Tucson, AZ	29.645	0.000		0.000		0.000		-		0.000	0.000	29.645	-
NMESIS Rogue Fires Development	C/CPFF	Osh Kosh : Osh Kosh, WI	6.600	0.000		0.000		0.000		-		0.000	0.000	6.600	-
LRUSV SW - Gov	Various	Various : Various	0.914	2.308	Oct 2020	2.561	Oct 2021	2.908	Oct 2022	-		2.908	Continuing	Continuing	Continuing
LRUSV HW/SW - Vendor	C/CPFF	Metal Shark : Jeanerette, LA	0.000	0.000		1.525	Dec 2021	2.200	Dec 2022	-		2.200	Continuing	Continuing	Continuing
LRUSV Prototype - Vessel/ Autonomy	C/FFP	Metal Shark : Jeanerette, LA	0.000	15.033	Dec 2020	9.919	Apr 2022	0.000		-		0.000	0.000	24.952	-
LRUSV Prototype - Contact Vessel	C/CPFF	Metal Shark : Jeanerette, LA	0.000	1.708	Dec 2020	0.000		0.000		-		0.000	0.000	1.708	-
LRUSV Prototype - sUSV	C/CPFF	Metal Shark : Jeanerette, LA	0.000	0.000		1.230	Dec 2021	0.000		-		0.000	0.000	1.230	-
LRUSV Prototype - OPF Launcher	C/CPFF	Vendor : TBD	0.000	0.000		1.500	Jan 2022	0.000		-		0.000	0.000	1.500	-
<b>Subtotal</b>			37.159	19.049		16.735		5.108		-		5.108	Continuing	Continuing	N/A

**Remarks**  
LRUSV: Net decrease of \$11.627M from FY 2022 to FY 2023 is due to the completion of Prototype LRUSV Vessels, Prototype sUSV, and OPF Launchers.

<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>
LRUSV Engineering Support	Various	Various : Various	0.000	2.572	Oct 2020	2.697	Oct 2021	2.824	Oct 2022	-		2.824	Continuing	Continuing	Continuing
LRUSV Training Support	Various	Various : Various	0.000	0.000		1.821	Jan 2022	1.352	Jan 2023	-		1.352	Continuing	Continuing	Continuing
NMESIS Engineering Support - ASM	WR	NSWC : China Lake, CA	0.497	0.000		0.000		0.000		-		0.000	0.000	0.497	-
NMESIS Safety	WR	NSWC : Indian Head, MD	0.247	0.000		0.000		0.000		-		0.000	0.000	0.247	-

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

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	<b>Project (Number/Name)</b> 7400 / Combat Capability Development Transition
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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			
NMESIS Engineering - ROGUE	WR	NSWC : Dahlgren, VA	1.503	0.000		0.000		0.000		-		0.000	0.000	1.503	-
<b>Subtotal</b>			2.247	2.572		4.518		4.176		-		4.176	Continuing	Continuing	N/A

**Remarks**  
LRUSV: Net decrease of \$0.342M from FY 2022 to FY 2023 is a result of completion of Pilot Course development and New Equipment Training for EOA.

<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			
NMESIS ASM Missile Testing	WR	NAS : Point Mugu, CA	1.983	0.000		0.000		0.000		-		0.000	0.000	1.983	-
NMESIS Vehicle/Booster Testing	WR	NSWC : China Lake, CA	0.967	0.000		0.000		0.000		-		0.000	0.000	0.967	-
LRUSV Testing	Various	Various : Various	0.000	1.395	Dec 2020	3.871	Dec 2021	4.577	Dec 2022	-		4.577	Continuing	Continuing	Continuing
LRUSV Munitions Test Assets	C/CPFF	TBD : TBD	0.000	0.000		0.880	Dec 2021	2.200	Jan 2023	-		2.200	Continuing	Continuing	Continuing
<b>Subtotal</b>			2.950	1.395		4.751		6.777		-		6.777	Continuing	Continuing	N/A

**Remarks**  
LRUSV: Net increase of \$2.026M from FY 2022 to FY 2023 is a result of increased test support to prepare for Complete System Integration Test (CSIT) and support Early Operational Assessment; and the procurement of test assets for use at EOA.

<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			
NMESIS Travel	Various	Various : Various	0.150	0.000		0.000		0.000		-		0.000	0.000	0.150	-
LRUSV Travel	Various	Various : Various	0.086	0.187	Oct 2020	0.198	Oct 2021	0.222	Jan 2023	-		0.222	Continuing	Continuing	Continuing
LRUSV Program/Cost Management	Various	Various : Various	0.000	1.410	Oct 2020	1.805	Oct 2021	1.593	Oct 2022	-		1.593	Continuing	Continuing	Continuing





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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>Project (Number/Name)</b> 7400 / <i>Combat Capability Development Transition</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 7400</b>				
LRUSV Prototype Award (Qty 3)	2	2021	2	2021
Kill-Chain Test	2	2022	2	2022
LRUSV Prototype (Qty 2)	3	2022	3	2022
Complete System Integration Test	1	2023	1	2023
Transportability Testing	1	2022	4	2022
On-Water Test	3	2022	3	2022
Early Operational Assessment	2	2023	2	2023
Milestone B	2	2024	2	2024