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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	117.111	69.451	111.431	128.782	-	128.782	95.520	58.644	59.169	61.341	Continuing	Continuing
1558: <i>Advanced Reconnaissance Vehicle</i>	26.314	37.274	70.583	63.585	-	63.585	42.136	42.946	43.280	45.133	Continuing	Continuing
2614: <i>SMAW Follow-On</i>	23.592	0.509	0.506	0.517	-	0.517	0.542	0.553	0.563	0.575	Continuing	Continuing
3835: <i>Family of Expeditionary Fuel Systems (FEFS)</i>	0.000	0.000	0.000	14.124	-	14.124	6.185	0.000	0.000	0.000	0.000	20.309
6639: <i>Multiple-Launch Rocket System Family of Munitions</i>	0.000	0.000	22.466	19.752	-	19.752	12.089	0.497	0.447	0.456	Continuing	Continuing
7400: <i>Combat Capability Development Transition</i>	67.205	31.668	17.876	30.804	-	30.804	34.568	14.648	14.879	15.177	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 and Validation because it develops and integrates hardware for experimental tests related to specific ground weapon systems.

B. Program Change Summary (\$ in Millions)

	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	66.565	111.431	133.797	-	133.797
Current President's Budget	69.451	111.431	128.782	-	128.782
Total Adjustments	2.886	0.000	-5.015	-	-5.015
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	4.720	0.000			
• SBIR/STTR Transfer	-1.834	0.000			
• Program Adjustments	0.000	0.000	-13.041	-	-13.041
• Rate/Misc Adjustments	0.000	0.000	8.026	-	8.026

Change Summary Explanation

The increase of \$7.901M from FY 2023 to FY 2024 is primarily due to the following programs adjustments within the PE:

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Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)*

R-1 Program Element (Number/Name)
PE 0603635M / *Marine Corps Grnd Cmbt/Supt Sys*

- 1) Family of Expeditionary Fuel Systems (FEFS) increase of \$14.124M is due to realignment of funds from PE 0206623M (BA07/6.7) to PE 0603635M (BA04/6.4) Research Development Testing and Evaluation (RDT&E). \$5.278M of the budget increase supports the advance prototyping development conducted by the Office of Naval Research (ONR) for the Low Profile Distribution System (LPDS).
 - 2) Armored Reconnaissance Vehicle (ARV) decrease of \$6.998M in FY 2024 due to completion of Competitive Prototyping.
 - 3) Multiple-Launch Rocket System Family of Munitions (MFOM) decrease of \$6.614M from FY 2023 to FY 2024 reflects continued development of the MFoM Launcher (sled and Fire Control System (FCS) and Weapon Control System (WCS) for integration with the ROGUE-Fires carrier as it moves from development into testing.
 - 4) Long Range Unmanned Service Vessel (LRUSV) increase of \$7.378M in FY 2024 to begin development and testing of post EOA enhancements to the vessel communication architecture, sensors, autonomy behaviors, and sUSV.
 - 5) Explosive Hazard Defeat Systems (EHDS) increase of \$2.550M in FY2024 is due to realignment of funds from PE 0206624M to PE 0603635M. The increase supports development and testing of Ground Penetrating Radar (GPR) sensing integration with air/ground platforms.
- The FY 2024 funding request was adjusted by \$1.424M to account for the availability of prior year execution balances.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys				Project (Number/Name) 1558 / Advanced Reconnaissance Vehicle			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1558: <i>Advanced Reconnaissance Vehicle</i>	26.314	37.274	70.583	63.585	-	63.585	42.136	42.946	43.280	45.133	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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 the platform that enables the Mobile Reconnaissance Battalion. 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.

In FY 2024, the program office will execute contract options and modifications. In an effort to drive down technical and programmatic risk, the government and both vendors will continue a test-fix-test effort focused on sub-system integration, interoperability and performance. The USMC will initiate a Government Systems Integration Lab (GSIL) to integrate the C4 (Command, Control, Computers and Communication) equipment, assess cyber security implementation and validate subsystem technology readiness. In preparation for Engineering and Manufacturing Development (EMD), the program office will procure long lead Government Furnished Property (Network on the Move, C4 critical items, etc) that have been impacted by the current supply chain challenges to support EMD prototype build. Documentation will be completed to support a Request for Proposal (RFP) release in FY 2024 and an ACAT I Milestone B decision in FY 2025.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Advanced Reconnaissance Vehicle	37.274	70.583	63.585	0.000	63.585
Articles:	-	-	-	-	-
FY 2023 Plans:					
-Complete Competitive Prototype vehicle builds (2)					
-Complete a modified ACV effort (1)					
-Complete Competitive Prototype vehicle testing (Live Fire, Operational, Performance)					
-Initiate Mission Role Variant (MRV) Concept Design					
-Continue Government Systems Integration Lab / Systems of System (GSIL/SoS) analysis & testing (Interoperability, Network/Comms, and Cyber Security Analysis)					
-Complete purchase of GFP to support Competitive Prototyping					
-Initiate Analysis of Alternatives (AoA) Update					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<ul style="list-style-type: none"> -Continue MS B documentation development -Initiate and complete Business Case Analysis (BCA) -Initiate Front End Analysis / Training Systems Requirement Analysis -Initiate and complete Refurb of Prototypes <p>FY 2024 Base Plans:</p> <ul style="list-style-type: none"> -Complete purchase of Government Furnished Property (GFP) to support EMD -Complete Analysis of Alternatives (AoA) Update -Complete EMD RFP Documentation (Systems Engineering Plan (SEP), Test & Evaluation Master Plan (TEMP), Acquisition Strategy, Acquisition Plan, Life Cycle Sustainment Plan (LCSP), etc) -Release EMD RFP -Conduct Source Selection and Evaluation -Complete MRV Concept Design -Initiate subsystem risk reduction and Prototype Vehicles test-fix-test effort with industry partners -Continue GSIL/SoS analysis & testing (Interoperability, Network/Comms, and Cyber Security Analysis) -Continue Front End Analysis / Training Systems Requirement Analysis -Update and Complete MS B Documentation (SEP, TEMP, Acquisition Strategy, Acquisition Plan, LCSP, etc) <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease of \$6.998M from FY 2023 to FY 2024 due to completion of Competitive Prototyping.</p>					
Accomplishments/Planned Programs Subtotals	37.274	70.583	63.585	0.000	63.585

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

N/A

Remarks

D. Acquisition Strategy

Leveraging Middle Tier Acquisition (MTA) Authority for Rapid Prototyping, ARV completed a prototyping phase in FY 2021-FY 2023. The total cost of the MTA prototyping effort was \$124.946M.

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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 leading to Milestone C 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 2024 Navy											Date: March 2023				
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys					Project (Number/Name) 1558 / Advanced Reconnaissance Vehicle				

Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	6.421	3.419	Jan 2022	16.803	Nov 2022	0.000		-		0.000	0.000	26.643	-
Prototype Manufacturing	C/FFP	BAE; General Dynamics Land Systems; Textron : Sterling Heights MI Sterling Heights MI Slidell LA	6.250	18.750	Mar 2022	2.800	Dec 2022	0.000	Dec 2023	-		0.000	Continuing	Continuing	Continuing
Government Furnished Property	C/FFP	DLA : Philadelphia, PA	4.146	2.335	Jan 2022	1.913	Nov 2022	0.000		-		0.000	0.000	8.394	-
Subsystem Risk Reduction Effort	C/FFP	General Dynamics Land Systems; Textron : Sterling Heights MI; Slidell LA	0.000	0.000		0.000		12.368	Dec 2023	-		12.368	0.000	12.368	-
Government Furnished Property EMD	C/FFP	DLA : Philadelphia, PA	0.000	0.000		0.000		9.032	Dec 2023	-		9.032	0.000	9.032	-
Subtotal			16.817	24.504		21.516		21.400		-		21.400	Continuing	Continuing	N/A

Remarks
 Subsystem Risk Reduction Effort increase supports contract actions to utilize prototype vehicles. Includes Systems Engineering, Field Service Representatives, System Support Package, lease/transportation and maintenance of vehicles, and refurbishment of vehicles to return in delivered condition.
 Government Furnished Property EMD increase supports long lead Government Furnished Property (Network on the Move, C4 critical items, etc.) that are currently impacted by supply chain challenges. These components are required to support EMD prototype design and builds in the late FY25 or early FY26 timeframe.

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	7.518	8.455	Dec 2021	13.456	Dec 2022	15.834	Dec 2023	-		15.834	Continuing	Continuing	Continuing
Studies & MS Document Prep.	MIPR	GVSC : Warren, MI	0.242	0.546	Jan 2022	2.756	Jan 2023	3.500	Jan 2024	-		3.500	0.000	7.044	-

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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
National Advanced Mobility Consortium Fees	MIPR	GVSC : Warren, MI	0.285	0.712	Mar 2022	0.133	Dec 2022	0.000		-		0.000	0.000	1.130	-
Source Selection and Evaluation Board	MIPR	Various : Warren, MI	0.000	0.000		0.000	Jun 2023	3.747	Jun 2024	-		3.747	0.000	3.747	-
Subtotal			8.045	9.713		16.345		23.081		-		23.081	Continuing	Continuing	N/A

Remarks
 Program Support total increase provides additional funding for support of EMD Contract Development & RFP Release, EMD Source Selection and Evaluation Board, 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 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.
 Source Selection Evaluation Board (SSEB) increase supports ACAT I level SSEB efforts after Q2FY24 RFP Release and through Q2FY25 EMD contract award to include salaries, office space lease, and supplies.

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Developmental Test & Evaluation (DT&E)	MIPR	Various : Various	0.014	3.057	Jul 2022	30.222	Nov 2022	19.104	Nov 2023	-		19.104	0.000	52.397	-
Subtotal			0.014	3.057		30.222		19.104		-		19.104	0.000	52.397	N/A

Remarks
 Decrease in Test and Evaluation is due to the completion of competitive prototype testing. Ongoing test and evaluation in FY 2024 supports continued test-fix-test cycles on prototypes during the Subsystem Risk Reduction Effort to reduce risk and inform contractor development. This is critical to posture the government and industry for EMD. The test risk reduction addresses required cyber enhancements and opportunities to learn and improve the system resilience prior to EMD.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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 :	1.438	0.000		2.500	Nov 2022	0.000		-		0.000	0.000	3.938	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	Project (Number/Name) 1558 / Advanced Reconnaissance Vehicle
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Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
		Huntsville, AL; Arlington, VA													
Subtotal			1.438	0.000		2.500		0.000		-		0.000	0.000	3.938	N/A

Remarks
AoA Support Contract decrease is due to completion of AoA update.

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.314	37.274	70.583	63.585	-	63.585	Continuing	Continuing	N/A

Remarks
Advanced Reconnaissance Vehicle (ARV) decreases from FY 2023 to FY 2024 primarily due to completion of Competitive Prototyping but with continued ramp up of requirements to support the next phase of the program: GSIL/SoS Analysis, Prototype Vehicles Test-Fix-Text, 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 EMD RFP release and Source Selection.

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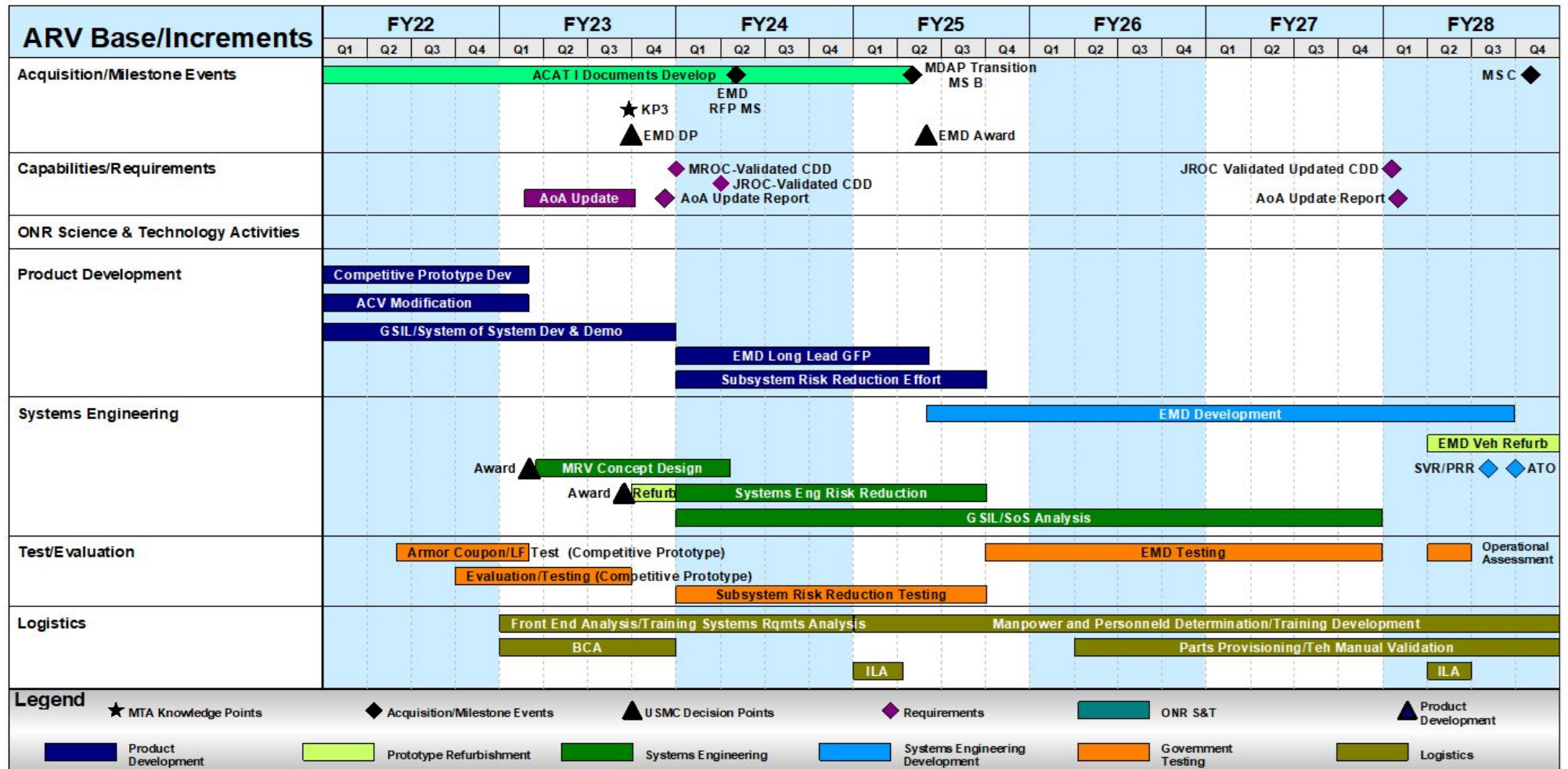
Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy

Date: March 2023

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Project C1558 ARV				
Competitive Prototype Dev	1	2022	1	2023
GSIL/SoS Dev & Demo	1	2022	4	2023
Armor Coupon/Live Fire Testing	2	2022	1	2023
Competitive Prototype Eval/Test	4	2022	3	2023
MRV Concept Design	1	2023	2	2024
RFP Release for EMD	2	2024	2	2024
EMD Long Lead GFP	1	2024	2	2025
GSIL/SoS Analysis	1	2024	4	2027
Systems Engineering Risk Reduction	1	2024	3	2025
Subsystem Risk Reduction Effort	1	2024	3	2025
Subsystem Risk Reduction Testing	1	2024	3	2025
MS B and EMD Contract Award	2	2025	2	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	Project (Number/Name) 2614 / SMAW Follow-On
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2614: SMAW Follow-On	23.592	0.509	0.506	0.517	-	0.517	0.542	0.553	0.563	0.575	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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Title: MAAWS High Explosive (HE) Programmable Round</p> <p align="right">Articles:</p> <p>FY 2023 Plans: -Complete Marine Corps-specific qualification testing of High Explosive (HE) programmable round effort developed by the Army.</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease of \$0.060M from FY 2023 to FY 2024 due to completion of qualification testing of High Explosive (HE) programmable round.</p>	0.222	0.060	0.000	0.000	0.000
<p>Title: MAAWS Fire Control System (FCS)</p> <p align="right">Articles:</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans:</p>	0.287	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
FY 2024 OCO Plans: N/A					
Title: Ammunition (Rockets) MAAWS Weapon System	0.000	0.446	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: -Initiate and complete 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.					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: -Decrease of \$0.446M from FY 2023 to FY 2024 due to completion of the testing and evaluation of new ammunition (rockets) for the Multi-purpose Anti-Armor Weapon System (MAAWS).					
Title: MAAWS Sustainment Engineering	0.000	0.000	0.230	0.000	0.230
Articles:	-	-	-	-	-
Description: -Conduct ongoing activities required to mitigate obsolescence and extend service life of fielded MAAWS systems, to include barrel safe service life certification, implementation of system diagnostic software, and evaluation and mitigation of quality and safety issues.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: -Initiate activities required to mitigate obsolescence and extend service life of fielded MAAWS systems.					
FY 2024 OCO Plans:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increase of \$0.230M from FY 2023 to FY 2024 is due to initiating activities required to mitigate obsolescence and extend service life of fielded MAAWS systems.					
<i>Title:</i> MAAWS System Modernization	0.000	0.000	0.287	0.000	0.287
<i>Articles:</i>	-	-	-	-	-
<i>Description:</i> -Execute modernization efforts to improve the combat capability of the MAAWS weapon system through qualification of new or improved ammunition (rocket) types, implementation of enhanced ballistic software, incorporation of new/improved solutions for rifle/ammo transport, and other enhancements to improve performance and safety.					
<i>FY 2023 Plans:</i> N/A					
<i>FY 2024 Base Plans:</i> -Initiate modernization efforts to improve the combat capability of the MAAWS weapon system.					
<i>FY 2024 OCO Plans:</i> N/A					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increase of \$0.287M from FY 2023 to FY 2024 is due to initiating modernization efforts to improve the combat capability of the MAAWS weapon system.					
Accomplishments/Planned Programs Subtotals	0.509	0.506	0.517	0.000	0.517

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/3016: Multi-role Anti-Armor Anti-personnel Weapon System (MAAWS)	20.481	21.419	23.627	-	23.627	9.860	1.526	1.555	1.585	0.000	245.021
Remarks											

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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 2024 Navy												Date: March 2023			
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 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Subtotal			17.685	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Developmental Test & Evaluation (DT&E)	WR	NSWC Crane : Crane, IN	0.000	0.287	Feb 2022	0.000		0.000		-		0.000	0.000	0.287	-
Developmental Test & Evaluation (DT&E)	WR	NSWC Indiana : Crane, Indiana	0.000	0.222	Nov 2021	0.060	Nov 2022	0.000		-		0.000	0.000	0.282	-
Live Fire Test & Evaluation (LFT&E)	SS/FFP	AFRL (Miltech) : Montana	0.000	0.000		0.446	Feb 2023	0.000		-		0.000	0.000	0.446	-
Developmental Test & Evaluation (DT&E)	MIPR	ATC : Aberdeen, MD	0.000	0.000		0.000		0.230	Feb 2024	-		0.230	0.000	0.230	-
Developmental Test & Evaluation (DT&E)	MIPR	NSWC IH : Indian Head, MD	0.000	0.000		0.000		0.287	Mar 2024	-		0.287	0.000	0.287	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	0.492	0.000		0.000		0.000		-		0.000	0.000	0.492	-
Subtotal			0.492	0.509		0.506		0.517		-		0.517	0.000	2.024	N/A
Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Subtotal			5.415	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy								Date: March 2023					
Appropriation/Budget Activity 1319 / 4				R-1 Program Element (Number/Name) PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>				Project (Number/Name) 2614 / <i>SMAW Follow-On</i>					
	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	23.592	0.509		0.506		0.517		-		0.517	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	Project (Number/Name) 2614 / SMAW Follow-On
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Proj 2614	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028							
	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				
MAAWS Fire Control System																																
	Evaluation and Qualification Testing				Ammunition (Rockets) MAAWS Weapon System																											
MAAWS System Modernization																																
									Evaluation and Qualification Testing																							
MAAWS Sustainment Engineering																																
									Evaluation and Qualification Testing																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	Project (Number/Name) 2614 / <i>SMAW Follow-On</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2614				
MAAWS Fire Control System: Evaluation and Qualification Testing	1	2022	4	2022
MAAWS Fire Control System: Ammunition (Rockets) MAAWS Weapon System	2	2023	4	2023
MAAWS System Modernization: Evaluation and Qualification Testing	2	2024	2	2025
MAAWS Sustainment Engineering: Evaluation and Qualification Testing	2	2024	2	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys				Project (Number/Name) 3835 / Family of Expeditionary Fuel Systems (FEFS)			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3835: Family of Expeditionary Fuel Systems (FEFS)	0.000	0.000	0.000	14.124	-	14.124	6.185	0.000	0.000	0.000	0.000	20.309
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Family of Expeditionary Fuel Systems (FEFS) is a 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.

In FY 2024, funds transition from Proj 7400 to Proj 3835.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Family of Expeditionary Fuel Systems (FEFS)	0.000	0.000	14.124	0.000	14.124
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: 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.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2023 to FY 2024 increase is due to realignment of funds from PE 0206623M; in FY23 PE 0206623 funding was \$8.846M. Additionally there is a \$5.278M increase to support the advance prototyping development conducted by the Office of Naval Research (ONR) for the Low Profile Distribution System (LPDS).					
Accomplishments/Planned Programs Subtotals	0.000	0.000	14.124	0.000	14.124

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy	Date: March 2023
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Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	Project (Number/Name) 3835 / Family of Expeditionary Fuel Systems (FEFS)
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
			Base	OCO	Total						
• PMC/6277: Family of Expeditionary Fuel Systems	2.161	7.854	12.956	-	12.956	30.458	32.923	31.522	32.506	Continuing	Continuing
• RDTE/PE0603635M/7400: Family of Expeditionary Fuel Systems; LPDS	4.700	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTE/PE0206623M/2503: Family of Expeditionary Fuel Systems	0.665	8.846	1.374	-	1.374	9.694	10.895	7.025	7.160	Continuing	Continuing

Remarks

D. Acquisition Strategy

Family of Expeditionary Fuel Systems (FEFS): The FEFS acquisition strategy is to continue to collaborate with the Office of Naval Research, MCWL, and CD&I on the fulfillment of the established Technology Deployment Agreement to transition the Low-Profile Distribution System (LPDS) prototype development effort.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	Project (Number/Name) 3835 / Family of Expeditionary Fuel Systems (FEFS)
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Family of Expeditionary Fuel Systems	MIPR	ONR : Arlington, VA	0.000	0.000		0.000		13.137	Feb 2024	-		13.137	0.000	13.137	-
Family of Expeditionary Fuel Systems	MIPR	Various : Various	0.000	0.000		0.000		0.987	Feb 2024	-		0.987	0.000	0.987	-
Subtotal			0.000	0.000		0.000		14.124		-		14.124	0.000	14.124	N/A

Remarks
The FY 2023 to FY 2024 increase is to support the advance prototyping development conducted by the Office of Naval Research (ONR) for the Low-Profile Distribution System (LPDS)

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	0.000	14.124	-	14.124	0.000	14.124	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	Project (Number/Name) 3835 / Family of Expeditionary Fuel Systems (FEFS)
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Project 3835 FEFS	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	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
									Full Scale Autonomy Integration/Testing																			
											USMC Experimentation																	
											Full Scale USV/IMS Integrated Test																	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	Project (Number/Name) 3835 / <i>Family of Expeditionary Fuel Systems (FEFS)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Project 3835 FEFS				
Low Profile Distribution System: Full Scale Autonomy Integration/Testing	2	2024	1	2025
Low Profile Distribution System: USMC Experimentation	3	2024	1	2025
Low Profile Distribution System: Full Scale USV/IMS Integrated Test	3	2024	2	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys				Project (Number/Name) 6639 / Multiple-Launch Rocket System Family of Munitions			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
6639: Multiple-Launch Rocket System Family of Munitions	0.000	0.000	22.466	19.752	-	19.752	12.089	0.497	0.447	0.456	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 provides 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 will consist of a MfOM launch unit, Fire Control System (FCS), and a Weapon Control System (WCS). The MfOM launcher will be installed on a ground-based, tele-operated carrier (ROGUE-Fires) and when paired with a 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 launcher for integration with the ROGUE-Fires carrier. The MfOM launcher makes extensive use of existing systems, including the M142 HIMARS electronics. FY 2023 funding focused on the design and development of the MfOM launcher. FY 2024 continues development and builds two additional MfOM launchers for integration and additional developmental testing in FY 2025.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Multiple-Launch Rocket System Family of Munitions (MfOM)	0.000	22.466	19.752	0.000	19.752
Articles:	-	-	-	-	-
FY 2023 Plans:					
- Initiated design and development of the MfOM launch unit					
- Began repackaging of the HIMARS FCS					
- Initiated design and development of the WCS					
- Purchased one ROGUE-Fires carrier test asset for FY 2024 integration testing and technology demonstration (based on carrier lead times)					
FY 2024 Base Plans:					
- Continue development of the MfOM launch unit					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	Project (Number/Name) 6639 / Multiple-Launch Rocket System Family of Munitions

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue repackaging of the HIMARS FCS - Continue WCS development - Conduct a technology demonstration - Initiate mobility testing - Build two MFoM launchers prototypes for integration and developmental testing in FY25 FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: The net decrease from FY 2023 to FY 2024 reflects reduced MFoM launcher and WCS developmental efforts and increased testing efforts.					
Accomplishments/Planned Programs Subtotals	0.000	22.466	19.752	0.000	19.752

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 2212: Artillery Weapons Systems	221.347	143.808	165.268	-	165.268	302.261	361.454	296.097	163.386	69.926	2,535.786

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 launcher integrator. The ROGUE-Fires 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 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	Project (Number/Name) 6639 / Multiple-Launch Rocket System Family of Munitions
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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 Launcher (Launch Unit and FCS) Development	WR	Aviation & Missile Ctr : Redstone Arsenal, AL	0.000	0.000		11.214	Feb 2023	6.038	Nov 2023	-		6.038	0.000	17.252	-
MLU Prototype	WR	Aviation & Missile Ctr : Redstone Arsenal, AL	0.000	0.000		0.954	Feb 2023	2.003	Nov 2023	-		2.003	0.000	2.957	-
MFoM WCS and Software Development	WR	Aviation & Missile Ctr : Redstone Arsenal, AL	0.000	0.000		6.750	Mar 2023	5.764	Nov 2023	-		5.764	0.000	12.514	-
ROGUE Fires Carrier Test Asset	C/BA	Oshkosh : Oshkosh, WI	0.000	0.000		1.088	Mar 2023	0.000		-		0.000	0.000	1.088	-
Subtotal			0.000	0.000		20.006		13.805		-		13.805	0.000	33.811	N/A

Remarks

The decrease from FY 2023 to FY 2024 reflects decreased MFoM launcher and WCS developmental efforts as the program initiates testing.

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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		0.177	Feb 2023	0.178	Dec 2023	-		0.178	0.000	0.355	-
Cybersecurity/AI	WR	NSWC : Indian Head, MD	0.000	0.000		0.146	Feb 2023	0.148	Nov 2023	-		0.148	0.000	0.294	-
Human Systems Integration	WR	NSWC : Dahlgren, VA	0.000	0.000		0.257	Feb 2023	0.259	Nov 2023	-		0.259	0.000	0.516	-
Subtotal			0.000	0.000		0.580		0.585		-		0.585	0.000	1.165	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	Project (Number/Name) 6639 / Multiple-Launch Rocket System Family of Munitions
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Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Developmental Test & Evaluation (DT&E)	Various	various : various	0.000	0.000		1.795	Feb 2023	5.274	Jan 2024	-		5.274	0.000	7.069	-
Subtotal			0.000	0.000		1.795		5.274		-		5.274	0.000	7.069	N/A

Remarks
The increase from FY 2023 to FY 2024 reflects developmental testing to include a technology demonstration and initiation of mobility testing efforts.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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		0.085	Nov 2022	0.088	Nov 2023	-		0.088	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.085		0.088		-		0.088	Continuing	Continuing	N/A

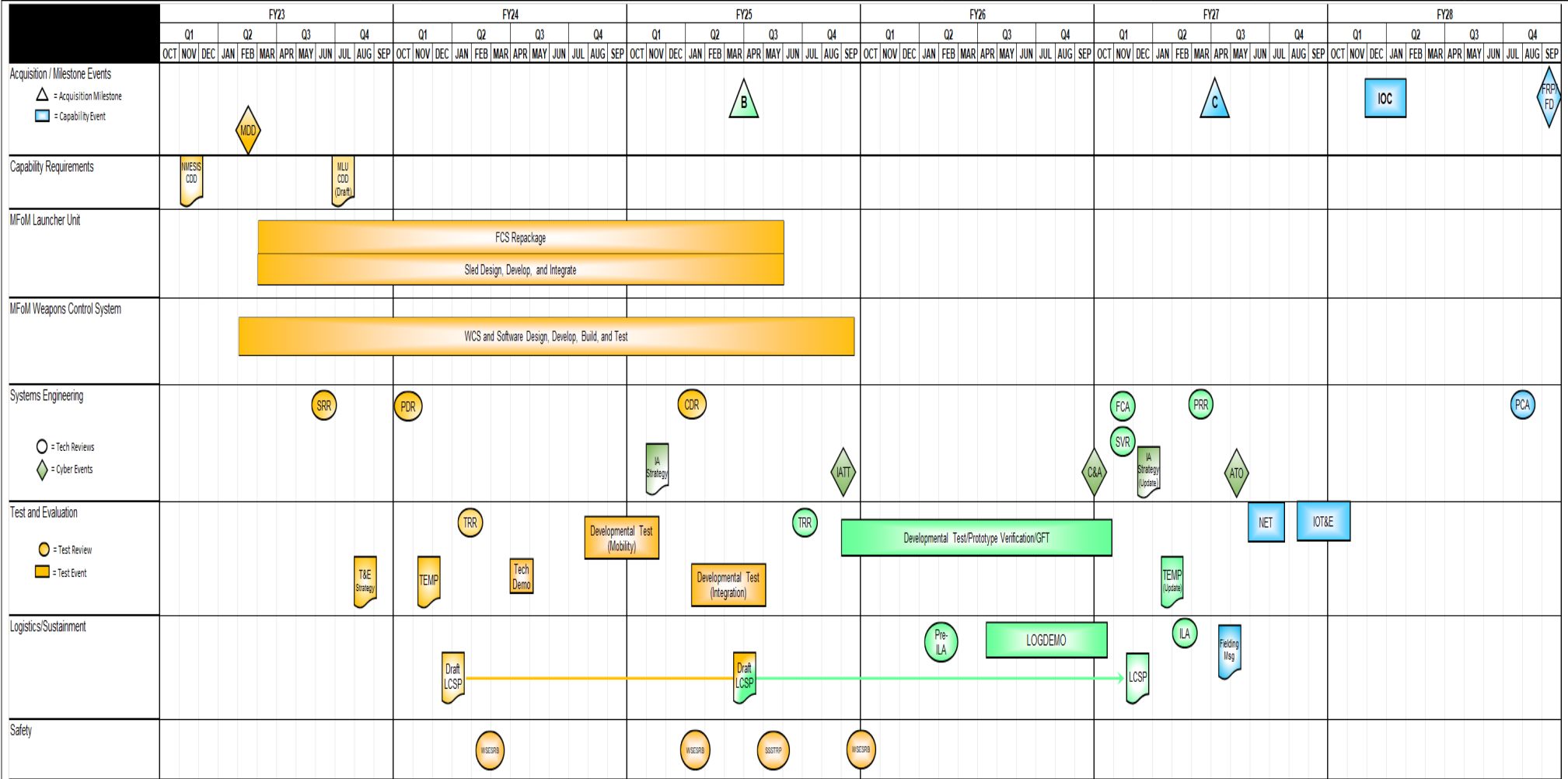
Project Cost Totals	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	0.000	22.466	19.752	-	19.752	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	Project (Number/Name) 6639 / Multiple-Launch Rocket System Family of Munitions
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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	Project (Number/Name) 6639 / <i>Multiple-Launch Rocket System Family of Munitions</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 6639				
MFoM Schedule: MFoM Development	2	2023	3	2025
MFoM Schedule: CDR	2	2025	2	2025
MFoM Schedule: Technology Demonstration	3	2024	3	2024
MFoM Schedule: Milestone B	2	2025	2	2025
MFoM Schedule: Developmental Testing Events	3	2024	2	2027
MFoM Schedule: Milestone C	3	2027	3	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>				Project (Number/Name) 7400 / <i>Combat Capability Development Transition</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
7400: <i>Combat Capability Development Transition</i>	67.205	31.668	17.876	30.804	-	30.804	34.568	14.648	14.879	15.177	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Long Range Unmanned Surface Vessel (LRUSV) is a Marine Corps 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 2023, the Marine Corps conducted an Early Operational Assessment (EOA) with trained Marine operators and LRUSV prototypes to validate employment concepts and further refine requirements. In FY 2024, LRUSV will begin vessel enhancements to the autonomy behaviors, communication architecture, and improvements to the sensor and communication hardware based on EOA findings.

Explosive Hazard Defeat Systems (EHDS) provides capabilities not found in the current Joint land force structure to defeat explosive hazards and protect Marines and equipment while conducting route and area clearance operations. The EHDS will enable Commanders to deliberately operate in explosive hazards environments by detecting and marking explosive hazards, enabling the Commanders to make timely and informed decisions to avoid the explosive hazards, or, if necessary, neutralize explosive hazards that impede their missions.

In FY2024, EHDS funds realigned from PE: 0206624M/Proj 2316 to PE: 0603635M/Proj 7400

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Long Range Unmanned Service Vessel (LRUSV)	26.968	17.876	25.254	0.000	25.254
Articles:	2	-	-	-	-
FY 2023 Plans: - Continued government SW development of FCA capabilities and enhancements					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	Project (Number/Name) 7400 / Combat Capability Development Transition

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<ul style="list-style-type: none"> - Procured twenty munitions test assets in support of EOA - Completed integration of the OPF capability for the Complete System Integration Test (CSIT) and an Early Operational Assessment (EOA) - Completed Operator Course Development and conduct New Equipment Training (NET) for EOA - Conducted CSIT and Early Operational Assessment (EOA) <p>FY 2024 Base Plans:</p> <ul style="list-style-type: none"> - Continue government SW development of FCA capabilities and enhancements - Initiate vessel enhancements to autonomy behaviors and the communication architecture to support environmental and operational requirements - Initiate development and integration of communication and sensor small Unmanned Support Vessels (sUSV) payloads - Initiate vessel operator training and certification - Initiate on water testing of advanced autonomy behaviors and communication testing between the LRUSV and sUSV <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: LRUSV net increase of \$7.378M is to begin development and testing of post EOA enhancements to the vessel communication architecture, sensors, autonomy behaviors, and sUSV.</p>					
<p>Title: Family of Expeditionary Fuel Systems (FEFS)</p> <p align="right">Articles:</p>	4.700 -	0.000 -	0.000 -	0.000 -	0.000 -
<p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p>					
<p>Title: Explosive Hazard Defeat Systems (EHDS)</p> <p align="right">Articles:</p>	0.000 -	0.000 -	2.550 -	0.000 -	2.550 -

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	Project (Number/Name) 7400 / Combat Capability Development Transition

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: - Initiates development and testing of Future Naval Capability of Ground Penetrating Radar (GPR) integration in air/ground platforms.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase of \$2.550M from FY23 to FY24 is due to realignment of funds from PE 0206624M (BA07/6.7) to PE 0603635M (BA04/6.4) The increase supports development and testing of Ground Penetrating Radar (GPR) sensing integration with air/ground platforms.</p>					
<p>Title: Expeditionary Energy Office (E2O)</p> <p align="right">Articles:</p>	0.000	0.000	3.000	0.000	3.000
<p>Description: Expeditionary Energy Office (E2O): The Commandant established the USMC Expeditionary Energy Office (E2O), with the mission to analyze, develop, and direct the Marine Corps' energy strategy in order to optimize expeditionary capabilities across all warfighting functions. E2O's role is to advise the Marine Requirements Oversight Council (MROC) on all energy and resource related requirements, acquisitions, and programmatic decisions. This office, both personnel and funding, directly supports execution of the USMC Expeditionary Energy Strategy and Implementation Plan, and priorities identified in Force Design 2030. The Marine Corps program aligns with the Commandant's Planning Guidance, the National Defense Authorization Act, DoD directives and SECNAV goals. This funding will support the achievement of the Strategy, and the activities of the USMC Expeditionary Energy Concepts process, managed by the E2O.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: - Initiate the building and fabrication of a prototype Next Generation Medium Tactical Truck. The smaller and lighter system will use a hybrid electric architecture to reduce fuel consumption, extend operational range, and provide an exportable power capability, use a modular and open systems architecture, incorporate scalable</p>	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/S upt Sys	Project (Number/Name) 7400 / Combat Capability Development Transition

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
armor, facilitate advanced condition-based maintenance; all while improving maneuverability and affordability when compared to the current MTRV. FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: The increase of \$3M is due to due to realignment of funds from PE 0206313M (BA07/6.7) to PE 0603635M (BA04/6.4). The increase supports the tactical vehicle electrification and hybridization research and development efforts.					
Accomplishments/Planned Programs Subtotals	31.668	17.876	30.804	0.000	30.804

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 6277: Family of Expeditionary Fuel Systems	2.161	7.854	12.956	-	12.956	30.458	32.923	31.522	32.642	Continuing	Continuing
• 6520: Explosive Hazard Defeat Systems	0.000	25.311	21.628	-	21.628	11.908	4.037	0.084	0.012	Continuing	Continuing

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy	Date: March 2023
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Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 4	PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	7400 / <i>Combat Capability Development Transition</i>

The results from the FY 2023 EOA will inform a Marine Corps decision determining long term LRUSV developmental efforts and eventual transition into the Major Capability Acquisition pathway at Milestone B. LRUSV will continue to work with the current vendor on design and integration to mature the LRUSV capability in accordance with the Marine Corps decision.

Explosive Hazard Defeat Systems (EHDS): The acquisition strategy is to collaborate with the Office of Naval Research (ONR) on the development and testing of the Future Naval Capability of Ground Penetrating Radar (GPR) integration in air/ground platforms.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy											Date: March 2023				
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys					Project (Number/Name) 7400 / Combat Capability Development Transition				

Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
NMESIS Prior Years	C/CPFF	Various : Various	36.245	0.000		0.000		0.000		-		0.000	0.000	36.245	-
LRUSV SW - Gov	Various	Various : Various	3.222	2.561	Oct 2021	2.908	Oct 2022	3.317	Oct 2023	-		3.317	Continuing	Continuing	Continuing
LRUSV HW/SW - Vendor	C/CPFF	Metal Shark : Jeanerette, LA	0.000	1.525	Dec 2021	2.200	Dec 2022	8.300	Dec 2023	-		8.300	Continuing	Continuing	Continuing
LRUSV Prototype - Vessel/Autonomy	C/FFP	Metal Shark : Jeanerette, LA	15.033	9.919	Apr 2022	0.000		0.000		-		0.000	0.000	24.952	-
LRUSV Prototype - Contact Vessel	C/CPFF	Metal Shark : Jeanerette, LA	1.708	0.000		0.000		0.000		-		0.000	0.000	1.708	-
LRUSV Prototype - sUSV	C/CPFF	Metal Shark : Jeanerette, LA	0.000	1.230	Dec 2021	0.000		0.000		-		0.000	0.000	1.230	-
LRUSV Prototype - OPF Launcher	C/CPFF	Vendor : TBD	0.000	1.500	Jan 2022	0.000		0.000		-		0.000	0.000	1.500	-
FEFS Low Profile Distribution System	MIPR	ONR : Arlington, VA	0.000	4.700	Aug 2022	0.000		0.000		-		0.000	0.000	4.700	-
EHDS GPR	MIPR	ONR : Arlington, VA	0.000	0.000		0.000		2.550	Jan 2024	-		2.550	0.000	2.550	-
Next Generation Medium Tactical Truck	MIPR	ONR : Arlington, VA	0.000	0.000		0.000		3.000	Jan 2024	-		3.000	0.000	3.000	-
Subtotal			56.208	21.435		5.108		17.167		-		17.167	Continuing	Continuing	N/A

Remarks
LRUSV net increase from FY 2023 to FY 2024 is due to post EOA LRUSV enhancements, to include upgrades to sensors and long range communication hardware, development of enhanced USV and sUSV autonomy behaviors, development of communications architecture, and the integration of communications and sensing sUSV payloads.

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
NMESIS Prior Years	Various	Various : Various	2.247	0.000		0.000		0.000		-		0.000	0.000	2.247	-
LRUSV Engineering Support	Various	Various : Various	2.572	2.697	Oct 2021	2.824	Oct 2022	5.478	Oct 2023	-		5.478	Continuing	Continuing	Continuing
LRUSV Training Support	Various	Various : Various	0.000	1.821	Jan 2022	1.352	Jan 2023	0.850	Jan 2024	-		0.850	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	Project (Number/Name) 7400 / Combat Capability Development Transition
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Subtotal			4.819	4.518		4.176		6.328		-		6.328	Continuing	Continuing	N/A

Remarks
LRUSV net increase from FY 2023 to FY 2024 is a result of hardware and software support on prototype vessels and Field Service Representatives for follow on integration efforts and testing.

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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 Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	Various : Various	2.950	0.000		0.000		0.000		-		0.000	0.000	2.950	-
Developmental Test & Evaluation (DT&E)	Various	Various : Various	1.395	4.751	Dec 2021	6.777	Dec 2022	5.594	Dec 2023	-		5.594	Continuing	Continuing	Continuing
Subtotal			4.345	4.751		6.777		5.594		-		5.594	Continuing	Continuing	N/A

Remarks
LRUSV net decrease from FY 2023 to FY 2024 reflects the completion of the FY 2023 EOA and the initiation of on-water testing of vessel enhancements in FY 2024.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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 Prior Years	Various	Various : Various	0.150	0.000		0.000		0.000		-		0.000	0.000	0.150	-
LRUSV Travel	Various	Various : Various	0.273	0.198	Oct 2021	0.222	Jan 2023	0.185	Jan 2024	-		0.185	Continuing	Continuing	Continuing
LRUSV Program/Cost Management	Various	Various : Various	1.410	0.766	Oct 2021	1.593	Oct 2022	1.530	Oct 2023	-		1.530	Continuing	Continuing	Continuing
Subtotal			1.833	0.964		1.815		1.715		-		1.715	Continuing	Continuing	N/A

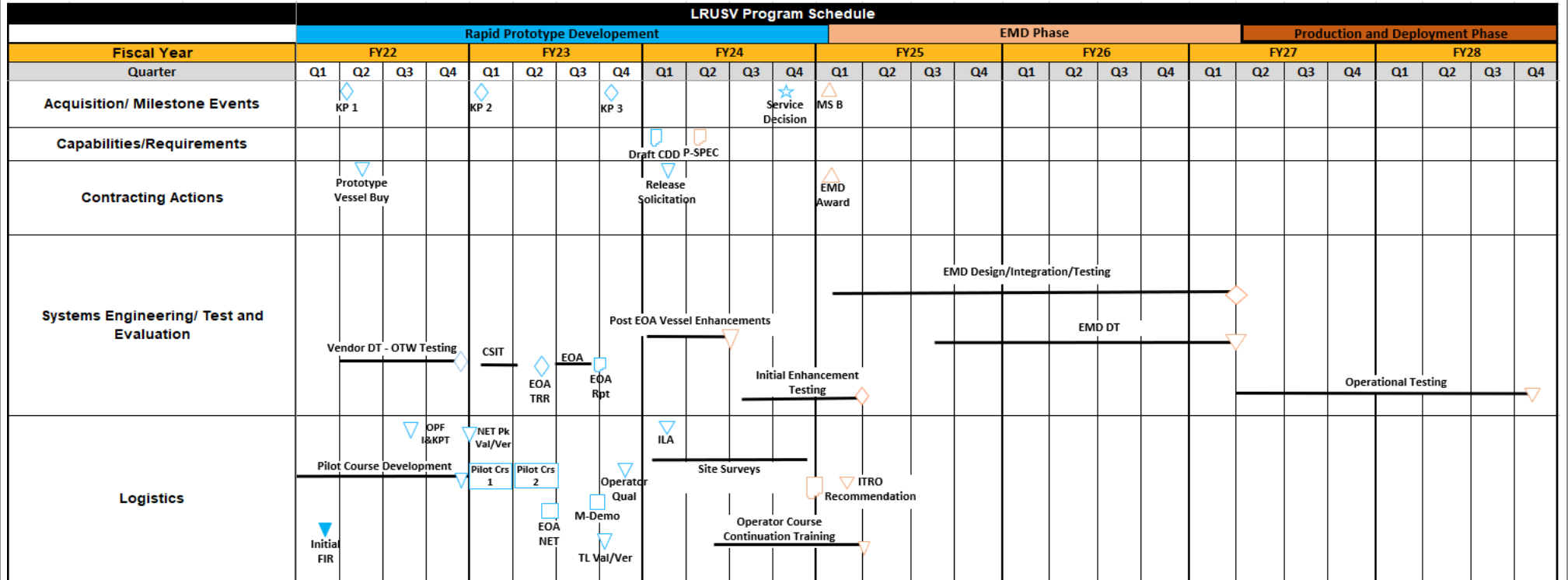
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy								Date: March 2023					
Appropriation/Budget Activity 1319 / 4				R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys				Project (Number/Name) 7400 / Combat Capability Development Transition					
	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	67.205	31.668		17.876		30.804		-		30.804	Continuing	Continuing	N/A

Remarks
LRUSV net increase is to begin development and testing of post EOA enhancements to the vessel communication architecture, sensors, autonomy behaviors, and sUSV.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/Supt Sys	Project (Number/Name) 7400 / Combat Capability Development Transition



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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>	Project (Number/Name) 7400 / <i>Combat Capability Development Transition</i>

Proj 7400 Family of Expeditionary Fuel Systems	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / <i>Marine Corps Grnd Cmbt/S upt Sys</i>	Project (Number/Name) 7400 / <i>Combat Capability Development Transition</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 7400				
Long Range Unmanned Surface Vessel (LRUSV): Long Range Unmanned Surface Vessel: Complete System Integration Test	1	2023	1	2023
Long Range Unmanned Surface Vessel (LRUSV): Long Range Unmanned Surface Vessel: Early Operational Assessment	3	2023	3	2023
Long Range Unmanned Surface Vessel (LRUSV): Long Range Unmanned Surface Vessel: Post EOA Vessel Enhancements	1	2024	2	2024
Long Range Unmanned Surface Vessel (LRUSV): Long Range Unmanned Surface Vessel: Milestone B	1	2025	1	2025
Long Range Unmanned Surface Vessel (LRUSV): Long Range Unmanned Surface Vessel: Initial Enhancement Testing	3	2024	2	2025
Long Range Unmanned Surface Vessel (LRUSV): Long Range Unmanned Surface Vessel: EMD Design/Integration/Testing	1	2025	2	2027
Long Range Unmanned Surface Vessel (LRUSV): Long Range Unmanned Surface Vessel: Operator Course Continuation Training	3	2024	2	2025
Family of Expeditionary Fuel Systems: Low Profile Distribution Systems: Integrated Med Scale Iv/USV Initial Test	2	2022	1	2024
Family of Expeditionary Fuel Systems: Low Profile Distribution Systems: Environmental Compliance Testing	4	2022	4	2023
Family of Expeditionary Fuel Systems: Low Profile Distribution Systems: Full Scale IV/ USV Development and Testing	2	2022	1	2024