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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 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605813M / <i>Joint Light Tactical Veh (JLTV) Sys Dev & Dem</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	3.425	1.921	2.856	2.609	-	2.609	2.485	2.289	2.322	2.368	Continuing	Continuing
3209: <i>Joint Light Tactical Vehicle</i>	3.425	1.921	2.856	2.609	-	2.609	2.485	2.289	2.322	2.368	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 279

A. Mission Description and Budget Item Justification

This is a Commandant of the Marine Corps Force Design program. Funding supports the JLTV Family of Vehicles (FoV) to include the development and testing of mechanical and Command, Control, Communications, Computers, & Intelligence (C4I) for integration with the JLTV. JLTV is a joint program between the U.S. Army and the U.S. Marine Corps, of which the U.S. Army is the lead service. The JLTV FoV is capable of performing multiple mission roles designed to provide protected, sustained, and networked mobility for personnel and payloads across the full Range of Military Operations. JLTV features include increased performance, protection, and payload over the current HMMWV fleet, reducing ownership costs by maximizing commonality, fuel efficiency, and reliability. The commonality of components, maintenance procedures, and training among vehicles are inherent in FoV solutions across mission variants to minimize total ownership costs. Unique service requirements have been minimized.

RDT&E funding supports modernization of the JLTV Family of Vehicles by investigating technology insertions including, but not limited to: condition based maintenance plus (CBM+), vehicle electronics systems, and other emerging technologies and safety initiatives; engineering change orders (ECOs), and retrofits to maintain the configuration of the trucks being used to integrate various weapons platforms.

Current mechanical and Command, Control, Communications, Computers and Intelligence Surveillance and Reconnaissance (C4ISR) integration activities include integration of systems such as: Marine Air Defense Integrated System (MADIS) and Remote Weapons System (RWS) Cannon, Network on the Move (NOTM), Ground Combat Vehicles (GCV), Operational Precision Fires - Mobile (OPF-M), Communications Emitter Sensing and Attack Systems (CESAS II), Joint Battle Command-Platform (JBC-P), Tactical Imagery Production System Next Generation (TIPS NG), Mobile Command Vehicle (MCV), and Navy Marine Expeditionary Ship Interdiction System (NMESIS) Key Leader Vehicle.

FY 2024 budget activities include live fire and survivability testing, systems engineering/integration activities, Condition Based Maintenance plus (CBM+), engineering design analysis, and test efforts. Efforts will focus on energy efficiency initiatives such as anti-idle and initial analysis of a next generation powertrain that will consider a hybrid option; Cyber Scans to evaluate emerging threats and technologies; integration of the new engine into the JLTV A2; JLTV Utility Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Force Protection and Survivability improvements; enhancing performance of C4ISR system capabilities as they relate to the JLTV; developmental efforts required for the integration of future C4ISR requirements on the JLTV; cyber security vulnerability assessments; and development/integration of associated fielded and Force Design solutions for the JLTV system and integrated capabilities and software.

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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	2.005	2.856	2.574	-	2.574
Current President's Budget	1.921	2.856	2.609	-	2.609
Total Adjustments	-0.084	0.000	0.035	-	0.035
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.076	0.000			
• SBIR/STTR Transfer	-0.008	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.035	-	0.035

Change Summary Explanation

The net decrease from FY 2023 to FY 2024 is the net result of FY 2023 procurement of test assets to be used in FY 2024 and the overall increase of test efforts in FY 2024 to include Live Fire and Survivability testing of production test asset.

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Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605813M / <i>Joint Light Tactical Veh (JLTV) Sys Dev & Dem</i>				Project (Number/Name) 3209 / <i>Joint Light Tactical Vehicle</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
3209: <i>Joint Light Tactical Vehicle</i>	3.425	1.921	2.856	2.609	-	2.609	2.485	2.289	2.322	2.368	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 279												

A. Mission Description and Budget Item Justification

This is a Commandant of the Marine Corps Force Design program. Funding supports the JLTV Family of Vehicles (FoV) to include the development and testing of mechanical and Command, Control, Communications, Computers, & Intelligence (C4I) for integration with the JLTV. JLTV is a joint program between the U.S. Army and the U.S. Marine Corps, of which the U.S. Army is the lead service. The JLTV FoV is capable of performing multiple mission roles designed to provide protected, sustained, and networked mobility for personnel and payloads across the full Range of Military Operations. JLTV features include increased performance, protection, and payload over the current HMMWV fleet, reducing ownership costs by maximizing commonality, fuel efficiency, and reliability. The commonality of components, maintenance procedures, and training among vehicles are inherent in FoV solutions across mission variants to minimize total ownership costs. Unique service requirements have been minimized.

RDT&E funding supports modernization of the JLTV Family of Vehicles by investigating technology insertions including, but not limited to: condition based maintenance plus (CBM+), vehicle electronics systems, and other emerging technologies and safety initiatives; engineering change orders (ECOs), and retrofits to maintain the configuration of the trucks being used to integrate various weapons platforms.

Current mechanical and Command, Control, Communications, Computers and Intelligence Surveillance and Reconnaissance (C4ISR) integration activities include integration of systems such as: Marine Air Defense Integrated System (MADIS) and Remote Weapons System (RWS) Cannon, Network on the Move (NOTM), Ground Combat Vehicles (GCV), Operational Precision Fires - Mobile (OPF-M), Communications Emitter Sensing and Attack Systems (CESAS II), Joint Battle Command-Platform (JBC-P), Tactical Imagery Production System Next Generation (TIPS NG), Mobile Command Vehicle (MCV), and Navy Marine Expeditionary Ship Interdiction System (NMESIS) Key Leader Vehicle.

FY 2024 budget activities include live fire and survivability testing, systems engineering/integration activities, Condition Based Maintenance plus (CBM+), engineering design analysis, and test efforts. Efforts will focus on energy efficiency initiatives such as anti-idle and initial analysis of a next generation powertrain that will consider a hybrid option; Cyber Scans to evaluate emerging threats and technologies; integration of the new engine into the JLTV A2; JLTV Utility Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Force Protection and Survivability improvements; enhancing performance of C4ISR system capabilities as they relate to the JLTV; developmental efforts required for the integration of future C4ISR requirements on the JLTV; cyber security vulnerability assessments; and development/integration of associated fielded and Force Design solutions for the JLTV system and integrated capabilities and software.

The net decrease from FY 2023 to FY 2024 of \$0.247M is a result of procurement of test assets (\$0.487) in FY 2023 to be used in FY 2024, and the overall increase of test efforts in FY 2024 to include Live Fire and Survivability testing of production test asset.

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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605813M / <i>Joint Light Tactical Veh (JLTV) Sys Dev & Dem</i>	Project (Number/Name) 3209 / <i>Joint Light Tactical Vehicle</i>

The Marine Corps affirms with a high degree of confidence that the program in this line item is executable.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Joint Light Tactical Vehicle (JLTV)	1.921	2.856	2.609	0.000	2.609
Articles:	-	-	-	-	-
<p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Procurement of test assets (vehicle and kits) in preparation for live fire testing of vehicle configurations, procured on the JLTV follow-on production contract awarded Feb 2023. - Continue developmental and engineering efforts including: Initiation of design, integration and testing for the Next Generation Powertrain which will consider parallel hybrid, and series hybrid options; Cyber Scans to evaluate emerging threats and technologies; Integrated Tactical Network (ITN) rapid prototyping to support emerging characterization events; development and integration of Anti-Idle technology; and JLTV Utility Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Protected Ambulance, and Protected Command and Control. - Conduct evaluation and analysis of the JLTV Transportability Enhancement Kit (JTEK) in order to document the performance capabilities to support the development of a safety release. - Continue work on the development of a methodology for Condition Based Maintenance Plus (CBM+) data architecture for the JLTV. This includes improving at-platform data collection, data transmission and storage, and development of predictive analytics. <p>FY 2024 Base Plans:</p> <ul style="list-style-type: none"> - Perform live fire and survivability testing on production test assets. - Initiate and continue developmental and engineering efforts including: energy efficiency upgrades such as anti-idle and initial analysis of a next generation powertrain that will consider a hybrid option; Cyber Scans to evaluate emerging threats and technologies; integration of the A2 engine; JLTV Utility Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Force Protection and Survivability improvements; enhancing performance of C4ISR system capabilities as they relate to the JLTV; developmental efforts required for the integration of future C4ISR requirements on the JLTV; and cyber security vulnerability assessments, and development/integration of associated legacy and Force Design solutions for the JLTV system and integrated capabilities and software. 					

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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
<p>- Continue to improve military equipment operational availability and readiness of MAGTF resources with JLTV as the prime mover. Work consists of improving at-platform data diagnostics and collection, data transmission and storage, and development of predictive analytics. These continued efforts will further support emerging requirements for the Marine Corps Condition Based Maintenance+ (CBM+) enterprise data architecture, increase the JLTV CBM+ data efficiency and support development of engineering change proposals (ECP) to install CBM enabling technologies on the JLTV.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The net decrease from FY 2023 to FY 2024 is the net result of FY23 procurement of test assets to be used in FY24 and the overall increase of test efforts in FY24 to include Live Fire and Survivability testing of production test asset.</p>					
Accomplishments/Planned Programs Subtotals	1.921	2.856	2.609	0.000	2.609

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>
• OPA/D15603: <i>JLTV (Army)</i>	496.122	592.225	786.946	-	786.946	769.416	743.156	742.672	746.980	14,699.052	24,382.219
• RDT&E/VU9: 0605812A - <i>JLTV (Army)</i>	2.470	9.376	27.243	-	27.243	26.959	43.187	43.452	42.506	104.410	793.567
• PMC/5095: <i>JLTV (MC)</i>	332.282	214.751	232.501	-	232.501	281.222	301.844	635.989	587.135	1,472.816	5,976.175

Remarks

D. Acquisition Strategy
 Joint Light Tactical Vehicle (JLTV) is a Joint Program Office (JPO) with the U.S. Army and U.S. Marine Corps as the two main components. The U.S. Army is the JLTV service lead. The JLTV Program entered the Production and Deployment Phase with the Acquisition Decision Memorandum authorization on 25 August 2015. With Milestone C approval, the LRIP fixed price contract was awarded to Oshkosh Defense LLC on 25 August 2015.

This contract consists of a three year LRIP period with options for five additional years of FRP deliveries. JPO JLTV procured the Technical Data Package (TDP) with appropriate data rights to allow for future competition for production vehicles and spares. Current contract options may be exercised through 30 November 2023.

UNCLASSIFIED

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A competitive follow-on production contract was awarded to AM General LLC on 09 Feb 2023 as a single award five year requirements contract with five one year options. Split procurements will occur in FY23 and FY24 between the Oshkosh Defense LLC contract and the AM General LLC contract based on the approved acquisition strategy. In accordance with the JPO acquisition strategy, realized cost savings will be reapplied within the program to procure additional vehicles.

The approved Full Rate Production (FRP) joint cost position validated the requirement for continuing RDT&E for system enhancements.

The JLTV program will continually monitor emerging technologies and capabilities through its partnerships with U.S. Army and Marine Corps science and technology organizations as well as through industry market research and partnerships. The JLTV program will look for opportunities to implement increased capabilities throughout the systems' life cycle.

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

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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			
Condition Based Maintenance	C/CPFF	Pennsylvania State University : State College, PA	0.650	0.725	Dec 2021	0.083	Dec 2023	0.090	Dec 2023	-		0.090	0.000	1.548	-
Subtotal			0.650	0.725		0.083		0.090		-		0.090	0.000	1.548	N/A

Remarks
Continue to improve military equipment operational availability and readiness of MAGTF resources with JLTV as the prime mover. Work consists of improving at-platform data diagnostics and collection, data transmission and storage, and development of predictive analytics.

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			
System Technical Support	C/CPFF	Oshkosh Defense : Oshkosh, WI	2.775	0.353	Aug 2022	0.293	Mar 2023	0.000		-		0.000	Continuing	Continuing	Continuing
System Technical Support	C/FFP	AM General LLC : South Bend, IN	0.000	0.000		0.100	Apr 2023	0.924	Aug 2024	-		0.924	Continuing	Continuing	Continuing
Subtotal			2.775	0.353		0.393		0.924		-		0.924	Continuing	Continuing	N/A

Remarks
Continue engineering efforts including integration of the A2 engine; JLTV Utility Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Force Protection and Survivability improvements. Design Study and Analysis has been renamed to System Technical Support and moved from 'Test and Evaluation' to 'Support' to better align with the work being performed.

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			
Live Fire Test & Evaluation (LFT&E)	C/FFP	AM General LLC : South Bend, IN	0.000	0.000		0.487	Feb 2023	0.000		-		0.000	0.000	0.487	-
Live Fire Test & Evaluation (LFT&E)	MIPR	Aberdeen Test Center : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.719	Jun 2024	-		0.719	0.000	0.719	-

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

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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			
Operational Test & Evaluation (OT&E)	MIPR	Ground Vehicle Systems Center : Warren, MI	0.000	0.843	Mar 2022	1.000	Apr 2023	0.876	Jun 2024	-		0.876	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	MIPR	Keweenaw Research Center : Calumet, MI	0.000	0.000		0.893	Jun 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	0.843		2.380		1.595		-		1.595	Continuing	Continuing	N/A

Remarks
Perform vehicle live fire and survivability testing on production test asset procured in FY 2023 and continue developmental efforts including various energy efficiency initiatives.

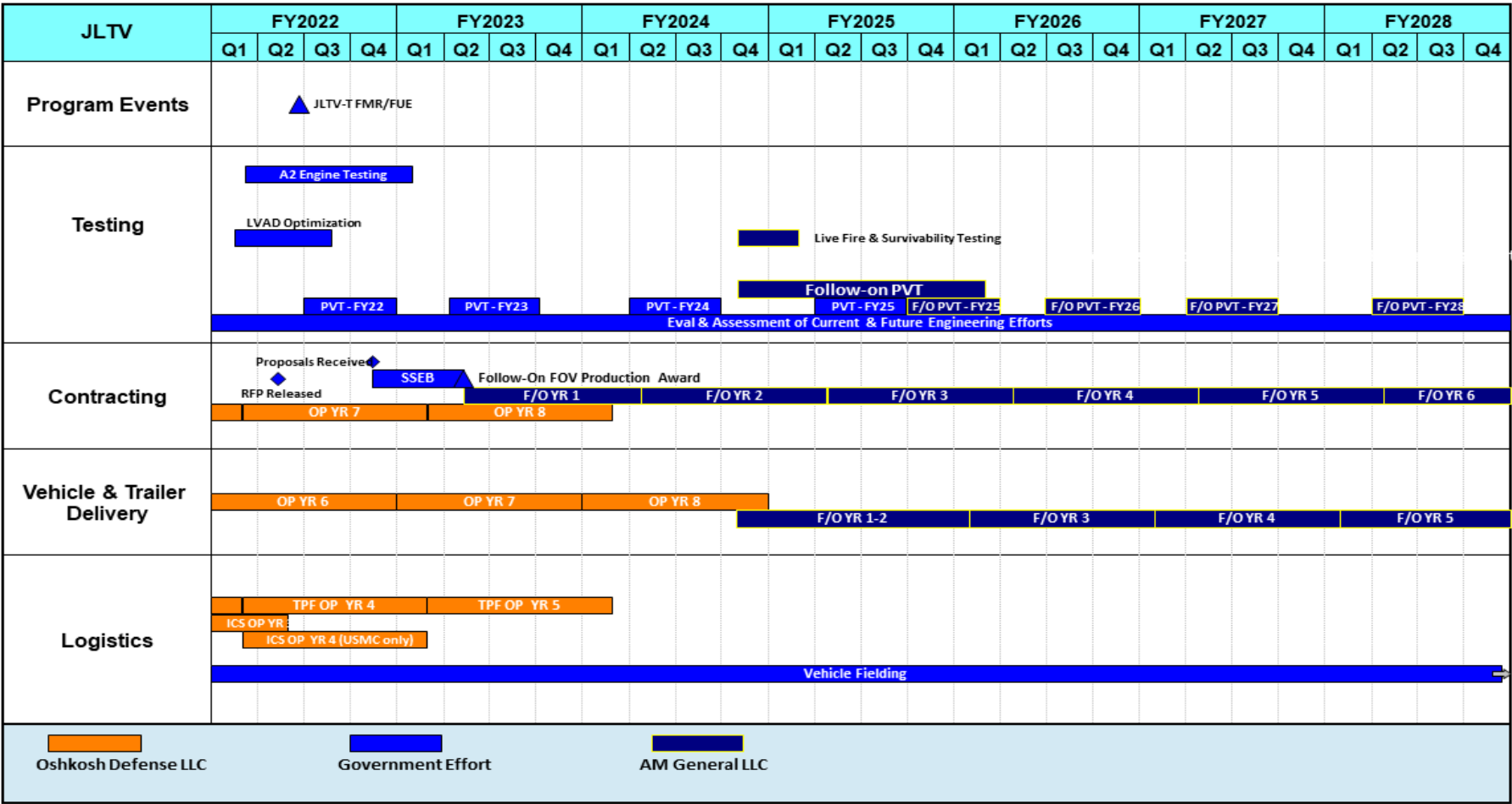
	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.425	1.921	2.856	2.609	-	2.609	Continuing	Continuing	N/A

Remarks
The net decrease from FY 2023 to FY 2024 is the net result of procurement of test assets in FY 2023 to be used in FY 2024 and the overall increase of test efforts in FY 2024 to include Live Fire and Survivability testing of production test asset.

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

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605813M / Joint Light Tactical Veh (JLTV) Sys Dev & Dem	Project (Number/Name) 3209 / Joint Light Tactical Vehicle
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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
Proj 3209				
Request for Proposal	2	2022	2	2022
Follow-on Production Contract Award	2	2023	2	2023
Live Fire & Survivability Testing	4	2024	1	2025
Product Verification Testing	4	2024	1	2026