Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy	Date: April 2022
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605813M *I Joint Light Tactical Veh (JLTV) Sys Dev & Dem*

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	4.333	2.490	2.005	2.856	-	2.856	2.574	2.485	2.289	2.322	Continuing	Continuing
3209: *Joint Light Tactical Vehicle*	4.333	2.490	2.005	2.856	-	2.856	2.574	2.485	2.289	2.322	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 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 (ROMO). JLTV features include increased performance, protection, and payload over the current legacy HMMWV fleet, reducing ownership costs by maximizing commonality, fuel efficiency and reliability. The commonality of components, maintenance procedures, training, etc, 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 current JLTV by investigating technology insertions including, but not limited to: condition based maintenance, vetronics, autonomous operations and other emerging technologies; engineering change orders (ECOs) and retrofits to maintain the configuration of the trucks being used to integrate various weapons platforms.

Current C4ISR integration activities include integration of systems such as: Marine Air Defense Integrated System (MADIS); Network on the Move (NOTM) Ground Combat Vehicles; Communications Emitter Sensing and Attack Systems (CESAS); Military GPS User Equipment (MGUE); and Remote Weapons System (RWS) Cannon. This line funds costs allocable to the JLTV program.

FY 2023 budget activities include systems engineering/integration activities, Condition Based Maintenance (CBM) development, engineering design analysis and test efforts and the procurement of 1 test vehicle and associated kits in preparation for live fire testing as a result of the follow on contract. Efforts will focus on 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 into the current platform; JLTV Utility Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Protected Ambulance, and Protected Command and Control; enhancing performance of Command, Control, Communications, Computers and Intelligence Surveillance and Reconnaissance (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 of associated solutions of the JLTV system and integrated GFE and software. Additional activities include NAVSEA Penn State support for the development of a methodology CBM data architecture for the JLTV. This includes improving at-platform data collection, data transmission and storage, and development of predictive analytics.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy	Date: April 2022
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605813M *I Joint Light Tactical Veh (JLTV) Sys Dev & Dem*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	2.541	2.005	0.000	-	0.000
Current President's Budget	2.490	2.005	2.856	-	2.856
Total Adjustments	-0.051	0.000	2.856	-	2.856
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.035	0.000			
• SBIR/STTR Transfer	-0.016	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	-	-	2.856	-	2.856

Change Summary Explanation

The net funding increase from FY 2022 to FY 2023 of $0.851M is due to the adaptation of the A2 Engine into the current platform and procurement of 1 test vehicle and associated kits in preparation for live fire testing as a result of the follow on contract.

The FY 2023 funding request was adjusted by $0.597M to account for the availability of prior year execution balances.

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

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy											Date: April 2022	
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*			
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**
3209: *Joint Light Tactical Vehicle*	4.333	2.490	2.005	2.856	-	2.856	2.574	2.485	2.289	2.322	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 279

A. Mission Description and Budget Item Justification

This is a Marine Corps Force Design program. Funding supports the JLTV Family of Vehicles (FoV) to include the development and testing of 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 (ROMO). JLTV features include increased performance, protection, and payload over the current legacy HMMWV fleet, reducing ownership costs by maximizing commonality, fuel efficiency and reliability. The commonality of components, maintenance procedures, training, and more, 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 current JLTV by investigating technology insertions including, but not limited to: condition based maintenance, vetronics, autonomous operations and other emerging technologies; engineering change orders (ECOs) and retrofits to maintain the configuration of the trucks being used to integrate various weapons platforms.

Current C4ISR integration activities include integration of systems such as: Marine Air Defense Integrated System (MADIS); Network on the Move (NOTM) Ground Combat Vehicles; Communications Emitter Sensing and Attack Systems (CESAS); Military GPS User Equipment (MGUE); and Remote Weapons System (RWS) Cannon. This line funds costs allocable to the JLTV program.

FY 2023 budget activities include systems engineering/integration activities, Condition Based Maintenance (CBM) development, engineering design analysis and test efforts and the procurement of 1 test vehicle and associated kits in preparation for live fire testing as a result of the follow on contract. Efforts will focus on 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 into the current platform; JLTV Utility Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Protected Ambulance; and Protected Command and Control; enhancing performance of Command, Control, Communications, Computers, and Intelligence Surveillance and Reconnaissance (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 of associated solutions of the JLTV system and integrated GFE and software. Additional activities include NAVSEA Penn State support for the development of a methodology CBM data architecture for the JLTV. This includes improving at-platform data collection, data transmission and storage, and development of predictive analytics.

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

The net funding increase from FY 2022 to FY 2023 of $.851M is due to the adaptation of the A2 Engine into the current platform and procurement of 1 test vehicle and associated kits in preparation for live fire testing as a result of the follow on contract.

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

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Government Systems Integration Laboratory (GSIL) Analysis and Support Engineering	0.159	0.250	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2022 Plans: Continue systems analysis and integration activities at the Government Systems Integration Lab (GSIL), Naval Information Warfare Center Atlantic (NIWC) to assess the JLTV Marine Corps requirements associated with software upgrades and cyber vulnerabilities assessment to the JLTV Driver Smart Display Unit (DSDU); and conduct evaluation and integration solution for C4I and weapons systems capabilities such as Marine Air Defense Integrated System (MADIS), Communications Emitter Sensing and Attack Systems (CESAS), Military GPS User Equipment, Marine Corps Handheld Device, Intercom and other Electronic Warfare and communication capabilities. ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** The net funding decrease from FY 2022 to FY 2023 of $0.250M is due to the transition of this effort to PMC funding.					
Title: Design Study and Analysis	1.681	0.955	2.055	0.000	2.055
Articles:	-	-	-	-	-
FY 2022 Plans: Development and continuation of engineering efforts including: Initiation of design, integration and testing for the Next Generation Powertrain which will consider parallel hybrid, series hybrid, and a full electric option; 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					

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

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Protected Ambulance, and Protected Command and Control. ***FY 2023 Base Plans:*** Procurement of 1 test vehicle and associated kits in preparation for live fire testing as a result of the follow on contract. In addition, continued developmental and engineering efforts including: Initiation of design, integration and testing for the Next Generation Powertrain which will consider parallel hybrid, series hybrid, and a full electric option; 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. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** The net funding increase from FY 2022 to FY 2023 of $1.100M is due to the adaptation of the A2 Engine into the current platform and procurement of 1 test vehicle and associated kits in preparation for live fire testing as a result of the follow on contract.					
Title: Condition Based Maintenance	0.650	0.800	0.801	0.000	0.801
Articles:	-	-	-	-	-
FY 2022 Plans: Continue work on the development of a methodology for Condition Based Maintenance (CBM) data architecture for the JLTV. This includes a new methodology for data collection and data transport, development of analytics to derive a JLTV CBM+ performance baseline, and evaluate data sets from the sample data. ***FY 2023 Base Plans:*** Continue work on the development of a methodology for Condition Based Maintenance (CBM) data architecture for the JLTV. This includes improving at-platform data collection, data transmission and storage, and development of predictive analytics. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:***					

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

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
No significant change					
Accomplishments/Planned Programs Subtotals	2.490	2.005	2.856	0.000	2.856

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• OPA/D15603: *JLTV (Army)*	836.623	496.122	630.994	-	630.994	744.325	753.923	748.188	748.451	14,249.099	23,176.752
• RDT&E/VU9: *0605812A - JLTV (Army)*	1.500	2.564	9.376	-	9.376	9.562	2.060	2.367	2.391	75.000	597.283
• PMC/5095: *Enter JLTV (MC)*	368.675	322.013	222.257	-	222.257	182.222	281.026	329.440	531.039	2,812.877	6,598.509

Remarks

D. Acquisition Strategy

Joint Light Tactical Vehicle (JLTV) is a Joint Service Program 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. The follow-on JLTV contract is scheduled to be awarded in Q4 FY 2022. JLTV intends to competitively award the follow-on contract as a single award five year requirements contract with five one year options.

A split procurement will occur between the existing Oshkosh contract and the new competitively awarded contract based on the approved acquisition strategy.

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.

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

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Condition Based Maintenance	C/CPFF	Pennsylvania State University : State College, PA	0.000	0.650	May 2021	0.800	Dec 2021	0.801	Dec 2022	-		0.801	0.000	2.251	-
		Subtotal	0.000	0.650		0.800		0.801		-		0.801	0.000	2.251	N/A

Remarks

Development of a methodology for Condition Based Maintenance (CBM) data architecture for the JLTV. This includes improving at-platform data collection, data transmission and storage, and development of predictive analytics.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Integration Laboratory (GSIL)	MIPR	NIWC Atlantic : Charleston, SC	3.239	0.159	Mar 2021	0.250	Dec 2021	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	3.239	0.159		0.250		0.000		-		0.000	Continuing	Continuing	N/A

Remarks

Systems analysis and integration activities at the Government Systems Integration Lab (GSIL), Naval Information Warfare Center Atlantic (NIWC) to assess the JLTV Marine Corps requirements associated with software upgrades and cyber vulnerabilities assessment to the JLTV Driver Smart Display Unit (DSDU); conduct evaluation and integration solution for C4I and weapons systems capabilities such as Marine Air Defense Integrated System (MADIS), Communications Emitter Sensing and Attack Systems (CESAS), Military GPS User Equipment, Marine Corps Handheld Device, Intercom and other Electronic Warfare and communication capabilities.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Design Study and Analysis	C/CPFF	Oshkosh Defense : Oshkosh, WI	1.094	1.681	May 2021	0.955	Feb 2022	2.055	Feb 2023	-		2.055	0.000	5.785	-
		Subtotal	1.094	1.681		0.955		2.055		-		2.055	0.000	5.785	N/A

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

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Procurement of 1 test vehicle and associated kits in preparation for live fire testing as a result of the follow on contract and continued development and engineering efforts including: Initiation of design, integration and testing for the Next Generation Powertrain which will consider parallel hybrid, series hybrid, and a full electric option; 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.

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.333	2.490		2.005		2.856		-		2.856	Continuing	Continuing	N/A

Remarks

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

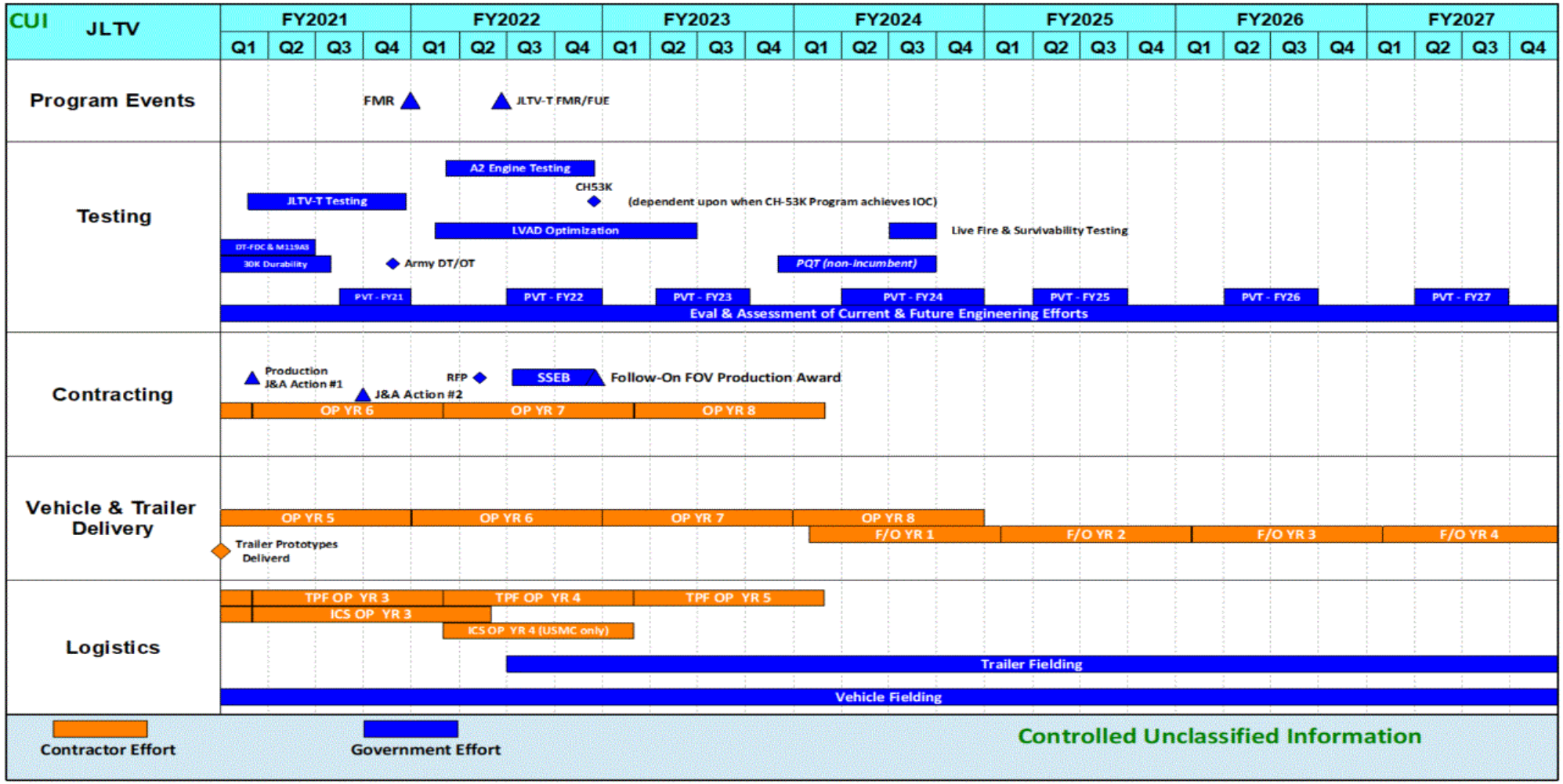

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605813M / *Joint Light Tactical Veh (JLTV) Sys Dev & Dem*	**Project (Number/Name)** 3209 / *Joint Light Tactical Vehicle*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3209				
RFP	2	2022	2	2022
Follow-on Production Contract Award	4	2022	4	2022
Live Fire & Survivability Testing	3	2024	3	2024