

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / <i>Family of Heavy Tactical Vehicles</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	12.085	22.254	31.602	-	31.602	-	-	-	-	-	-
659: <i>Family Of Hvy Tac Veh</i>	-	5.407	3.795	6.714	-	6.714	-	-	-	-	-	-
E50: <i>TRAILER DEVELOPMENT</i>	-	-	6.669	2.970	-	2.970	-	-	-	-	-	-
EZ8: <i>Leader/Follower</i>	-	4.294	10.249	21.918	-	21.918	-	-	-	-	-	-
VR5: <i>TWV Protection Kits</i>	-	2.384	1.541	-	-	-	-	-	-	-	-	-

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

This Program Element (PE) aligns system development and demonstration of Heavy Tactical Vehicles (HTV) with Multi-Domain Operations (MDO) requirements to support combat and combat support missions to include line haul, local haul, and unit resupply. HTV trucks transport water, ammunition, and general cargo over all terrains and throughout the battle-space. Systems include the Heavy Expanded Mobility Tactical Truck (HEMTT), Palletized Load System (PLS), Heavy Equipment Transporter System (HETS), Enhanced Heavy Equipment Transporter System (EHETS), Line Haul, Heavy Dump Truck (HDT), medium tactical trailers including the Medium Equipment Trailer (MET), the family of flatbed semitrailers to include but not limited to the 40-Ton M870, 34-Ton M872 and the 25-Ton M172 that support multiple Army missions and the development and demonstration of enablers. Recovery systems such as the Modular Catastrophic Recovery System (MCRS) that rescue large wheeled vehicle platforms in severe off-road conditions are also included. The Common Tactical Truck (CTT) is the next generation of tactical trucks to meet the Army's Tactical Wheeled Vehicle (TWV) Modernization Strategy to take full advantage of economies of scale and commonality with the objective to procure a commercial based Family of Vehicles to replace HEMTT, PLS and Line Haul tractors and leverage best commercial practices at lower procurement costs that are autonomy ready. Periodic evolutionary upgrade of survivability and crew protection as described in the Long Term Protection Strategy (LTPS) is supported by this PE for both the HTV family of vehicles and the Family of Medium Tactical Vehicles (FMTV).

The Tactical Wheeled Vehicle - Leader Follower (TWV-LF) program provides transportation units with the capability for Tactical Wheeled Vehicles (TWVs) to operate in an unmanned mode, initially for the Palletized Loading System (PLS) vehicles, while operating in a convoy. This is accomplished by integrating technology to the PLS vehicles which enables them to follow a manned leader or unmanned follower vehicle. This is done in a March Unit of up to (10 - squad length) TWVs, with (1) manned Lead vehicle and up to (9) unmanned Follower vehicles. This capability provides increased Soldier Force Protection and increased convoy logistics throughput by giving Commanders more options on Soldier utilization, removing Soldiers from threat zones and/or utilizing vehicle operators for convoy security, and allowing supply convoys to run more often. The PLSA1 is the initial tactical vehicle used to support By-Wire Active Safety which provides the foundation for autonomous capabilities such as Leader/Follower taking Soldiers out of harm's way.

Funding also supports modernization of the current Tactical Wheeled Vehicle fleets by investigating technology insertions including, but not limited to: predictive based maintenance, vetronics, Victory Architecture, vehicle electrification, autonomous operations and other emerging technologies. Funding also supports developing initial prototypes to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational movement operating concepts.

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2022 Army	<b>Date:</b> May 2021
---	-----------------------

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / <i>Family of Heavy Tactical Vehicles</i>
--	--

In accordance with Section 1815 of the FY 2008 National Defense Authorization Act (P.L. 110-181), this item is necessary for use by the active and reserve components of the Armed Forces for homeland defense missions, domestic emergency responses, and providing military support to civil authorities.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
Previous President's Budget	13.125	24.792	12.494	-	12.494
Current President's Budget	12.085	22.254	31.602	-	31.602
Total Adjustments	-1.040	-2.538	19.108	-	19.108
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.635			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.500	-			
• SBIR/STTR Transfer	-0.540	-0.903			
• Adjustments to Budget Years	-	-	19.108	-	19.108

**Change Summary Explanation**

FY 2022 increase of \$19.108 million covers EHETS Developmental and Operational Test requirements and test of MET prototypes between two vendors. It also starts acquisition planning and analysis for the Common Tactical Truck modernization effort. Additionally, the TWF-LF program effort is continued through extension of Operational Technology Demonstration (OTD) to further mature software and design. These efforts align program requirements with Army modernization priorities in support of the National Defense Strategy.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army										<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles				<b>Project (Number/Name)</b> 659 / Family Of Hvy Tac Veh			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
659: Family Of Hvy Tac Veh	-	5.407	3.795	6.714	-	6.714	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

The Enhanced Heavy Equipment Transporter System (EHETS) will replace the Heavy Equipment Transporter System (HETS) and consists of an M1300 tractor (M1070A1 modified to reduce and relocate weight to achieve European road permits) and an eight-axle commercially based trailer capable of worldwide transport. The EHETS primary mission is to transport an M1 series Main Battle Tank (MBT) and other tracked vehicles weighing up a minimum of 82 tons and up to 85 tons. It is able to self-load/unload disabled vehicular cargo for evacuation purposes. The system will provide line haul, local haul, and maintenance evacuation of heavy tracked vehicles during tactical operations on primary and secondary roads worldwide.

The Common Tactical Truck (CTT) is a Family of Vehicles (FoV) modernization effort to replace the HEMTT, PLS, and Line Haul vehicles by leveraging best commercial practices, lower procurement cost (commercial economies of scale) and technology to include Prognostics & Preventative Maintenance, Advanced Driver Assistance Systems (ADAS), and autonomy ready without significantly degrading the performance from current platforms.

The Medium Equipment Trailer (MET) supports critical layered, agile and responsive sustainment capability required for Large Scale Combat Operations and is capable of transporting track combat platforms weighing 60 tons or less in an Armored Brigade Combat Team (ABCT) and Infantry Brigade Combat Team (IBCT). MET directly supports Multi-Domain Operations and provides the capability to transport the tallest combat platforms (i.e. Paladin and Bradley) under 4 meter underpasses which are common in OCONUS. It will also be capable of transporting 20 foot International Organization for Standardization (ISO) containers and general cargo when the situation requires.

FY 2022 Project 659 Base funds in the amount of \$6.714 million supports developmental and operational testing of the Enhanced Heavy Equipment Transporter System (EHETS) new production trailers. Funds also support the acquisition planning and document development for the Common Tactical Truck (CTT) and analysis of commercially-based attainability of the latest technologies available in the commercial market through an Analysis of Alternatives (AoA). The AoA output will provide analytic insight of the CTT Abbreviated Capability Development Document (A-CDD) and will be used to inform the Capability Development Document (CDD) development. The EHETS supports the National Defense Strategy for modernization with an increased payload that provides the ability for transport, recovery and evacuation of heavy, oversized combat equipment such as the M1A2 Abrams main battle tank (MBT) and M88 recovery vehicle to support flexible theater postures and enhance the ability to compete and provide the transport for freedom of maneuver of the largest track combat weapon systems.). The CTT supports the National Defense Strategy for modernization by providing the warfighter the updated transportation technologies that are aligned with what is available in the marketplace.

In accordance with Section 1815 of the FY 2008 National Defense Authorization Act (P.L. 110-181), these items are necessary for use by the active and reserve components of the Armed Forces for homeland defense missions, domestic emergency responses, and providing military support to civil authorities.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army		<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> 659 / Family Of Hvy Tac Veh		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p><b>Title:</b> Medium Equipment Trailer (MET) Prototype Manufacturing</p> <p><b>Description:</b> MET is a trailer capable of transporting track combat platforms weighing 60 tons or less in an Armored Brigade Combat Team (ABCT). MET will provide flexible capability that reduces duplicative systems.</p> <p><b>FY 2021 Plans:</b> Competitive acquisition of Medium Equipment Trailer prototypes in preparation for test and down-select.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY 2022 decrease is due to the completion of MET Prototype Manufacturing</p>		-	3.795	-
<p><b>Title:</b> HETS M1070A1 Tractor Modifications &amp; System-Level Testing</p> <p><b>Description:</b> HETS M1070A1 tractor modifications and system-level testing were required to develop a near term interim solution in response to the USAREUR ONS for a transportation system capable of carrying 78.5 Tons of payload while achieving host country road permits at a reduced weight of 75 tons with an ultimate carrying capacity of 85 tons.</p>		3.449	-	-
<p><b>Title:</b> 25T STLB Test</p> <p><b>Description:</b> Feasibility testing required to evaluate prototype semitrailers from two vendors produced under the OT project agreement award.</p>		1.958	-	-
<p><b>Title:</b> Enhanced Heavy Equipment Transporter System (EHETS) Developmental/Operational Test</p> <p><b>Description:</b> Replacement system for the legacy Heavy Equipment Transporter System (HETS) to transport, deploy, and evacuate payloads up to 85 tons.</p> <p><b>FY 2022 Plans:</b> Developmental and Operational testing of the EHETS Trailers to ensure that the design process is complete and meets specs with minimal risks.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY 2022 increase is due to EHETS Developmental/Operational testing.</p>		-	-	1.632
<p><b>Title:</b> Common Tactical Truck (CTT) Acquisition Planning and Documentation Development</p> <p><b>Description:</b> Acquisition planning and documentation development includes matrix personnel program support for the development of contracting/acquisition milestone documentation and systems engineering plans for the Common Tactical Truck.</p> <p><b>FY 2022 Plans:</b></p>		-	-	2.248

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> 659 / Family Of Hvy Tac Veh

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Preparation of documentation to release Request Project Proposal (RPP) to obtain prototypes.			
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY 2022 increase is due to the start of the CTT Modernization Program.			
<b>Title:</b> Common Tactical Truck (CTT) Analysis of Alternatives (AoA) <b>Description:</b> The Common Tactical Truck (CTT) is projected to be an ACAT I program, and as such, an AoA will be required. The AoA will provide an analytic insight of the CTT Abbreviated Capability Development Document (A-CDD) by exploring trade space in operational effectiveness, performance, schedule, cost, and risk across a full range of options for replacement of the aging fleet of the M915/M1088 Tractor, HEMTT, and PLS. The output of the AoA can be used to inform the CTT Capability Development Document (CDD) development as well as the Milestone Decision that will ultimately bring the CTT into production. <b>FY 2022 Plans:</b> Start of the AoA for an analytical comparison of the operational effectiveness, suitability and life-cycle cost of potential materiel solutions for the CTT. Output of the AoA will inform the Capability Development Document development and Milestone Decision to ultimately bring the CTT into production. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY 2022 increase is due to the start of the AoA for CTT.	-	-	2.834
<b>Accomplishments/Planned Programs Subtotals</b>	5.407	3.795	6.714

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• DA0924: Modification Of In Svc Equip	73.627	56.112	29.349	-	29.349	-	-	-	-	-	-
• DA0500: Family Of Heavy Tactical Vehicles (FHTV)	38.718	6.500	64.282	-	64.282	-	-	-	-	-	-
• D16506: PLS ESP	25.543	33.146	16.943	-	16.943	-	-	-	-	-	-
• DV0021: Hvy Expanded Mobile Tactical Truck Ext Serv	95.683	92.619	-	-	-	-	-	-	-	-	-
• D01650: SEMITRAILER LOW BED 25 TON, M172	0.768	5.348	1.864	-	1.864	-	-	-	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> 659 / Family Of Hvy Tac Veh

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
------------------	----------------	----------------	-------------------------------	------------------------------	--------------------------------	----------------	----------------	----------------	----------------	-----------------------------------	-------------------

**Remarks**

DA0924 - Modification Of In Svc Equip is a shared funding line with other product offices.

**D. Acquisition Strategy**

The Acquisition Strategy for the Medium Equipment Trailer (MET) is to execute as a competitive Other Transaction Agreement (OTA) awarded to two Original Equipment Manufacturers (OEMs) to procure three prototypes per vendor in preparation to test and down-select to one vendor for follow-on production.

The Common Tactical Truck Family of Vehicles (CTT FoVs) is a modernization effort to replace the HEMTT, PLS, and Line Haul vehicles. The CTT is planning a Middle Tier Acquisition once approved to proceed with an Abbreviated Capability Development Document (A-CDD) to award three Other Transaction Agreements (OTAs) that will produce 5 prototypes each for rapid prototyping and to leverage innovative technologies from industry.

The Enhanced Heavy Equipment Transporter System (EHETS) is the replacement system for the Heavy Equipment Transporter System (HETS). The strategy is to determine the best value through a Source Selection for Low Rate Initial Production award in preparation for Developmental/Operational test.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0604622A / Family of Heavy Tactical Vehicles				659 / Family Of Hvy Tac Veh								
<b>Product Development (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
Medium Equipment Trailer Prototypes	C/IDDQ	TBD : TBD	-	-		3.795	Sep 2021	-		-		-	0.000	3.795	-	
CTT AoA	MIPR	The Research and Analysis Center : Ft. Leavenworth, KS	-	-		-		2.834	Mar 2022	-		2.834	0.000	2.834	-	
<b>Subtotal</b>			-	-		3.795		2.834		-		2.834	0.000	6.629	N/A	
<b>Support (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
CTT Acquisition Planning and Document Development	MIPR	TACOM LCMC : Warren, MI	-	-		-		2.248	Dec 2021	-		2.248	0.000	2.248	-	
<b>Subtotal</b>			-	-		-		2.248		-		2.248	0.000	2.248	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
USAREUR HETS ONS System Level Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen, MD	-	3.449	Jun 2020	-		-		-		-	0.000	3.449	-	
25T STLB Prototype Test and Evaluation	MIPR	Aberdeen Test Center (ATC) : Aberdeen, MD	-	1.958	May 2020	-		-		-		-	0.000	1.958	-	
EHETS Operational/ Developmental Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen, MD	-	-		-		1.632	Sep 2022	-		1.632	0.000	1.632	-	
<b>Subtotal</b>			-	5.407		-		1.632		-		1.632	0.000	7.039	N/A	




**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2022 Army</b>		<b>Date: May 2021</b>
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> 659 / Family Of Hvy Tac Veh

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>USAREUR HETS ONS</b>																												
USAREUR HETS ONS Testing	[Redacted]																											
Testing																												
<b>Enhanced Heavy Equipment Transporter System (EHETS)</b>																												
EHETS Milestone C									▲ 6 MS C																			
EHETS Developmental/Operational Testing													[Redacted]															
DT/OT Test																												
<b>Common Tactical Truck (CTT)</b>																												
CTT Acquisition Planning and Documentation Development					[Redacted]																							
Planning and Documentation																												
CTT AoA									[Redacted]																			
AoA																												
CTT Abbreviated Capability Development Document (A-CDD) Approval					▲ 3 A-CDD																							
CTT Request Prototype Proposal (RPP)									▲ 5 RPP																			
CTT Other Transaction Agreement (OTA) Award													▲ 8 Prototype Contract Award															
CTT Prototypes Production													[Redacted]															
Prototype Production																												
CTT Competitive Runoff Test																	[Redacted]											
Runoff Test																												

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2022 Army</b>		<b>Date: May 2021</b>
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> 659 / Family Of Hvy Tac Veh

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026																											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																								
CTT OTA Down Select																					 OTA Down Select																															
CTT Materiel Development Decision (MDD)																																																				
CTT Milestone C																																																				
<b>Medium Equipment Trailer (MET)</b>																																																				
MET Materiel Development Decision (MDD)																																																				
MET Request Prototype Proposal (RPP)																																																				
MET Other Transaction Agreement (OTA) Award																																																				
MET Prototype Build																																																				
MET Competitive Runoff Test																																																				
MET OTA Down Select																																																				
MET Milestone C																																																				
<b>25-Ton Semitrailer Lowbed (25T STLB)</b>																																																				
25T STLB Prototype Testing																																																				

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> 659 / Family Of Hvy Tac Veh

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
USAREUR HETS ONS	1	2018	4	2022
USAREUR HETS ONS Testing	1	2019	4	2021
Enhanced Heavy Equipment Transporter System (EHETS)	1	2017	1	2024
EHETS Milestone C	4	2022	4	2022
EHETS Developmental/Operational Testing	1	2023	1	2024
Common Tactical Truck (CTT)	1	2021	4	2027
CTT Acquisition Planning and Documentation Development	1	2021	3	2022
CTT AoA	3	2022	4	2024
CTT Abbreviated Capability Development Document (A-CDD) Approval	4	2021	4	2021
CTT Request Prototype Proposal (RPP)	3	2022	3	2022
CTT Other Transaction Agreement (OTA) Award	2	2023	2	2023
CTT Prototypes Production	2	2023	2	2024
CTT Competitive Runoff Test	2	2024	4	2024
CTT OTA Down Select	1	2025	1	2025
CTT Materiel Development Decision (MDD)	2	2025	2	2025
CTT Milestone C	2	2025	2	2025
Medium Equipment Trailer (MET)	1	2022	2	2023
MET Materiel Development Decision (MDD)	1	2021	1	2021
MET Request Prototype Proposal (RPP)	2	2021	2	2021
MET Other Transaction Agreement (OTA) Award	4	2021	4	2021
MET Prototype Build	1	2022	2	2022
MET Competitive Runoff Test	2	2022	1	2023

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> 659 / Family Of Hvy Tac Veh
--	---	---

Events	Start		End	
	Quarter	Year	Quarter	Year
MET OTA Down Select	2	2023	2	2023
MET Milestone C	2	2023	2	2023
25-Ton Semitrailer Lowbed (25T STLB)	2	2020	1	2021
25T STLB Prototype Testing	3	2020	1	2021

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Army **Date:** May 2021

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> E50 / TRAILER DEVELOPMENT
--	---	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
E50: TRAILER DEVELOPMENT	-	-	6.669	2.970	-	2.970	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

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

The Medium Equipment Trailer (MET) supports critical layered, agile and responsive sustainment capability required for Large Scale Combat Operations and is capable of transporting track combat platforms weighing 60 tons or less in an Armored Brigade Combat Team (ABCT) and Infantry Brigade Combat Team (IBCT). MET directly supports Multi-Domain Operations and provides the capability to transport the tallest combat platforms (i.e. Paladin and Bradley) under 4 meter underpasses which are common in OCONUS.

FY 2022 Project E50 Base funds in the amount of \$2.970 million supports MET Prototype Testing and Soldier Assessment to determine the best value to the Government and down-select to one vendor for a follow-on production award. The MET supports the National Defense Strategy for modernization with a 60 ton payload that provides the capability for transport of two thirds of the tracked combat platforms to include over height combat platforms to support flexible theater postures and enhance the ability to compete and provide freedom of maneuver.

In accordance with Section 1815 of the FY 2008 National Defense Authorization Act (P.L. 110-181), this item is necessary for use by the active and reserve components of the Armed Forces for homeland defense missions, domestic emergency responses, and providing military support to civil authorities.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2020	FY 2021	FY 2022
<p><b>Title:</b> Medium Equipment Trailer (MET) Prototype Manufacturing</p> <p><b>Description:</b> MET is a trailer capable of transporting track combat platforms weighing 60 tons or less in an Armored Brigade Combat Team (ABCT). MET will provide flexible capability that reduces duplicative systems.</p> <p><b>FY 2021 Plans:</b> Competitive acquisition of Medium Equipment Trailer prototypes through an Other Transaction Agreement in preparation for test and down-select to one vendor for production award.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY 2022 decrease is due to the completion of the MET prototype manufacturing and the start of prototype testing.</p>	-	6.669	-
<p><b>Title:</b> Medium Equipment Trailer (MET) Prototype Testing and Soldier Assessment</p> <p><b>Description:</b> MET prototypes will be tested to determine which trailer provides the best value to the Government while meeting the MET requirement. To assist in determining the best value to the Government, a soldier touch point will also be a part of the evaluation. The best value determination will be used to support a follow on production contract.</p>	-	-	2.970

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> E50 / TRAILER DEVELOPMENT

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>FY 2022 Plans:</b> MET Prototype Competitive Run-off Testing and Soldier Assessment			
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY 2022 increase is due to the start of the MET Prototype Competitive Run-off Testing and Soldier Assessment			
<b>Accomplishments/Planned Programs Subtotals</b>	-	6.669	2.970

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• DA0926: MODIFICATION APPLICATION	11.582	21.227	11.710	-	11.710	-	-	-	-	-	-
• D08921: MEDIUM EQUIPMENT TRAILER (MET)	-	-	-	-	-	-	-	-	-	-	-
• D01650: SEMITRAILER LOW BED 25 TON, M172	0.768	5.348	1.864	-	1.864	-	-	-	-	-	-

**Remarks**

**D. Acquisition Strategy**  
The Acquisition Strategy is to execute the MET as a competitive Other Transaction Agreement (OTA) awarded to two Original Equipment Manufacturers (OEMs). The plan is to procure three prototypes per vendor in preparation to test and down-select to one vendor for follow-on production. The award of the OTA has been delayed from June to September 2021 due to a required Capabilities Development Document (CDD) update and approval. The update supports a cost avoidance of design and material for the platform. The updated CDD was approved April 2021 followed by the release of the Request for Prototype Proposal (RPP).

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> E50 / TRAILER DEVELOPMENT
--	---	---

<b>Product Development (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
MET Prototype Manufacturing	C/TBD	TBD : TBD	-	-		6.669	Sep 2021	-		-		-	0.000	6.669	-
<b>Subtotal</b>			-	-		6.669		-		-		-	0.000	6.669	N/A

**Remarks**  
 The award of the MET OTA for prototypes has been delayed from June to September 2021 due to a required Capabilities Development Document (CDD) update and approval. The update supports a cost avoidance of design and material for the platform. The updated CDD was approved April 2021 and the release of the Request for Prototype Proposal (RPP) immediately followed.

<b>Test and Evaluation (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
MET Prototype Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen, MD	-	-		-		2.970	Mar 2022	-		2.970	0.000	2.970	-
<b>Subtotal</b>			-	-		-		2.970		-		2.970	0.000	2.970	N/A

			Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			-	-	6.669	2.970	-	2.970	0.000	9.639	N/A

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2022 Army</b>		<b>Date: May 2021</b>
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> E50 / TRAILER DEVELOPMENT

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Medium Equipment Trailer (MET)</b>																												
MET Materiel Development Decision					1 MDD																							
MET Request Prototype Proposal (RPP)									2 RPP																			
MET Other Transaction Agreement (OTA) Award									3 Prototype Contract Award																			
MET Prorotype Manufacturing													Prototype Build															
MET Competitive Run-off Test																	Runoff Test											
MET OTA Down Select																	OTA Down Select											
MET Milestone C																	4 MS C											

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2022 Army</b>		<b>Date: May 2021</b>
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / <i>Family of Heavy Tactical Vehicles</i>	<b>Project (Number/Name)</b> E50 / <i>TRAILER DEVELOPMENT</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Medium Equipment Trailer (MET)	1	2022	2	2023
MET Materiel Development Decision	1	2021	1	2021
MET Request Prototype Proposal (RPP)	3	2021	3	2021
MET Other Transaction Agreement (OTA) Award	4	2021	4	2021
MET Prorotype Manufacturing	1	2022	2	2022
MET Competitive Run-off Test	2	2022	1	2023
MET OTA Down Select	2	2023	2	2023
MET Milestone C	2	2023	2	2023

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Army **Date:** May 2021

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> EZ8 / Leader/Follower
--	---	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
<i>EZ8: Leader/Follower</i>	-	4.294	10.249	21.918	-	21.918	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

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

The Tactical Wheeled Vehicle (TWV) - Leader Follower (LF) automated capability through Manned Unmanned Teaming gives the convoy commander the option to run either manned or unmanned vehicles. Unmanned operation allows TWV convoys to be led by a manned lead vehicle and followed autonomously by four LF equipped TWVs. This capability reduces Soldier exposure to hostile effects by four drivers when the commander chooses the unmanned option. Additionally, L-F enables delivery to be more Soldier efficient allowing at least as many ton-miles or more to be delivered per transportation unit as current capabilities, with less Soldier exposure to hostile effects.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2020	FY 2021	FY 2022
<b>Title:</b> Tactical Wheeled Vehicle Leader Follower	4.294	10.249	21.918
<b>Description:</b> Leader Follower program enables a single operator to control 5 vehicles in a convoy reducing the number of Soldier at risk while increasing convoy throughput.			
<b>FY 2021 Plans:</b> FY 2021 funding for Leader Follower will support follow-on testing of the Leader Follower configuration fielded assets. It will fund a competitive run-off of multiple vendors during FY 2021 for a down-select of (1) Leader Follower autonomy solution. Funding includes delivery of vendor prototypes, field service representatives, early logistics and product support analysis, independent testing, data analysis, source selection activities, contracting support, and program documentation to support the follow-on production decision. In addition, Project EZ8 Base funds exploration and development of the Expedient Leader Follower (ExLF) Applique on additional systems (Heavy Expanded Mobility Tactical Truck (HEMTT), Family of Medium Tactical Vehicles (FMTV), and 915 truck fleets) beyond the Palletized Load System (PLS).			
<b>FY 2022 Plans:</b> FY22 funds support extension of FY21 existing Operational Technology Demonstration (OTD) [Note: Previously described in PB21 as follow-on testing of the Leader Follower configuration fielded assets] to mature the Leader Follower design solution under Middle Tier of Acquisition (MTA) [Note: revised from PB22 planned ?down-select? strategy]. Funding supports maturation of OTD design, By-Wire Active Safety development and test, development of MTA ADM documentation, contract development and award of production representative test assets.			
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> EZ8 / Leader/Follower

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
FY2022 funding supports maturation of OTD design, development of MTA ADM documentation, contract development and award of production representative test assets for FY23 testing.			
<b>Accomplishments/Planned Programs Subtotals</b>	4.294	10.249	21.918

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• FD9: Robotics Systems	2.926	2.948	2.748	-	2.748	-	-	-	-	-	-
• R06806: Leader/Follower Applique (L/F)	-	7.624	-	-	-	-	-	-	-	-	-

**Remarks**  
Prior to FY 2020, PM LF efforts were funded under the Robotics Development 6.4 line along with United States Army Combat Capabilities Development Command Ground Vehicle Systems Center, formerly TARDEC, who had most of the funding.

**D. Acquisition Strategy**  
The TWV LF Acquisition Strategy, where appropriate, leverages prior developed and demonstrated technology, developed under a HQDA G-8 Directed Requirement effort by Ground Vehicle Systems Center (GVSC), and transitions to the Program Manager Force Projection, PdM Robotic and Autonomous Systems (RAS) in FY 2021. PdM RAS will use the Operational Technology Demonstration (OTD) to develop a finalized production representative asset; ensure safe and suitable operation, develop the appropriate logistics products, and supportability strategy, and field an enduring unmanned, robotic, autonomous PLS convoy capability to Soldiers.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0604622A / Family of Heavy Tactical Vehicles				EZ8 / Leader/Follower								
<b>Management Services (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
LF Program Management	Allot	PM FP : Warren, MI; Harrison Twp, MI	-	0.874	Oct 2019	1.205	Oct 2020	1.450	Oct 2021	-		1.450	0.000	3.529	-	
<b>Subtotal</b>			-	0.874		1.205		1.450		-		1.450	0.000	3.529	N/A	
<b>Product Development (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
LF Operational Technology Demonstration	C/CPFF	TBD : TBD	-	-		5.681	Dec 2020	-		-		-	0.000	5.681	-	
LF Software Development	C/CPFF	To be Determined : Various	-	-		1.496	Dec 2020	-		-		-	0.000	1.496	-	
LF Operational Technology Demonstration Maturation	C/CPFF	To be Determined : To be Determined	-	-		-		18.152	Feb 2022	-		18.152	0.000	18.152	-	
<b>Subtotal</b>			-	-		7.177		18.152		-		18.152	0.000	25.329	N/A	
<b>Support (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
LF Tech Support	MIPR	TARDEC, TACOM : Warren, MI	-	1.334	Oct 2019	0.300	Oct 2020	0.791	Oct 2021	-		0.791	0.000	2.425	-	
<b>Subtotal</b>			-	1.334		0.300		0.791		-		0.791	0.000	2.425	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
LF Test Support	MIPR	ATEC : Aberdeen, MD	-	2.086	Oct 2019	1.567	Oct 2020	1.525	Apr 2022	-		1.525	0.000	5.178	-	
<b>Subtotal</b>			-	2.086		1.567		1.525		-		1.525	0.000	5.178	N/A	



**UNCLASSIFIED**

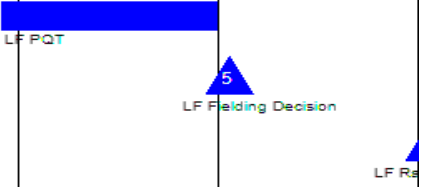
<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2022 Army</b>		<b>Date: May 2021</b>
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> EZ8 / Leader/Follower

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LEADER FOLLOWER (LF)	[Blue bar]																											
LF Safety Release Testing	[Blue bar]				[Grey bar]																							
LF Operational Technology Demonstration	[Blue bar]				[Grey bar]																							
LF Sustain Operational Technology Demonstration	[Grey bar]				[Blue bar]																							
LF Mature OTD / MTA Configuration	[Grey bar]				[Grey bar]				[Blue bar]																			
LF ADM - MTA Rapid Prototype / Extend OTD OTAs	[Grey bar]				[Grey bar]				[Blue bar]																			
LF ADM - MTA Rapid Prototype / Extend OTD OTAs	[Grey bar]				[Grey bar]				1 ▲ LF ADM MTA Rapid Proto																			
LF Award Integration Contract	[Grey bar]				[Grey bar]				2 ▲ LF Integration Contract																			
LF Build Production Representative Test Assets	[Grey bar]				[Grey bar]				[Blue bar]																			
LF Test and Demo	[Grey bar]				[Grey bar]								[Blue bar]															
LF ADM - MTA Rapid Field / Production	[Grey bar]				[Grey bar]								[Blue bar]				[Blue bar]											
LF Fielding Decision (Materiel Release)	[Grey bar]				[Grey bar]												3 ▲ LF FMR											
LF Fielding	[Grey bar]				[Grey bar]												[Blue bar]											
LF Milestone C	[Grey bar]				[Grey bar]																4 ▲ LF MSC							

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2022 Army</b>		<b>Date: May 2021</b>
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> EZ8 / Leader/Follower

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
LF PQT																																				
LF Fielding Decision																																				
LF MTA ADM - Rapid Prototype Completion																																				



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / <i>Family of Heavy Tactical Vehicles</i>	<b>Project (Number/Name)</b> EZ8 / <i>Leader/Follower</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
LEADER FOLLOWER (LF)	1	2020	4	2027
LF Safety Release Testing	4	2019	4	2020
LF Operational Technology Demonstration	1	2020	4	2020
LF Sustain Operational Technology Demonstration	1	2021	4	2021
LF Mature OTD / MTA Configuration	1	2022	4	2025
LF ADM - MTA Rapid Prototype / Extend OTD OTAs	1	2022	1	2022
LF Award Integration Contract	2	2022	2	2022
LF Build Production Representative Test Assets	2	2022	4	2022
LF Test and Demo	1	2023	1	2024
LF ADM - MTA Rapid Field / Production	1	2024	4	2026
LF Fielding Decision (Materiel Release)	3	2024	3	2024
LF Fielding	4	2024	4	2026
LF Milestone C	4	2024	4	2024
LF PQT	4	2024	4	2025
LF Fielding Decision	1	2026	1	2026
LF MTA ADM - Rapid Prototype Completion	1	2027	1	2027

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Army **Date:** May 2021

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> VR5 / TWV Protection Kits
--	---	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
VR5: TWV Protection Kits	-	2.384	1.541	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**Note**

Project VR5 Tactical Wheeled Vehicle (TWV) Protection Kits completes test efforts in Fiscal Year (FY) 2021.

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

The Heavy Dump Truck (HDT) supports construction projects by loading, transporting and dumping payloads of sand and gravel aggregates, crushed rock, hot asphalt mixes, earth, clay, rubble, large boulders and other materials up to gross vehicle weight rating to job sites under world-wide climatic conditions. The HDT also serves as a quarry truck for the quick transport of bulk raw earth materials to and from the crushing, screening and washing plant and the asphalt mixing plant. The HDT also serves as a transportation asset for organization equipment. The HDT is Long Term Armor Strategy (LTAS) compliant with MRAP 1.1 underbody protection. The armor solution is developed concurrently with the production of armor capable HDTs.

There are no FY 2022 Project VR5 Base or OCO funding requirements.

In accordance with Section 1815 of the FY 2008 National Defense Authorization Act (P.L. 110-181), this item is necessary for use by the active and reserve components of the Armed Forces for homeland defense missions, domestic emergency responses, and providing military support to civil authorities.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2020	FY 2021	FY 2022
<p><b>Title:</b> Heavy Dump Truck (HDT) Testing</p> <p><b>Description:</b> Reliability, Availability, and Maintainability (RAM) testing and system performance testing / evaluation of the armored HDTs. Developmental Test, Operational Test and Live Fire Test of armored vehicle.</p> <p><b>FY 2021 Plans:</b> Continuation of Live Fire Testing of HDT armored prototypes. Developmental and Operational Testing for HDT armored vehicles.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY 2022 funds decreased due to the completion of the Heavy Dump Truck Testing</p>	1.552	0.338	-
<p><b>Title:</b> HETS M1070A1 Tractor Modifications &amp; System-Level Testing</p> <p><b>Description:</b> HETS M1070A1 tractor modifications and system-level testing were required to develop a near term interim solution in response to the USAREUR ONS for a transportation system capable of carrying 78.5 Tons of payload while achieving host country road permits at a reduced weight of 75 tons with an ultimate carrying capacity of 85 tons.</p>	0.717	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> VR5 / TWV Protection Kits

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p><b>Title:</b> HEMTT Characterization Testing</p> <p><b>Description:</b> Testing of two HEMTT variants, up-armored and up-weighted to represent unarmored weapon station/CROWs was conducted to provide physical test data and identify limitations of the system with additional weight.</p>	0.115	-	-
<p><b>Title:</b> Prognostics and Predictive Maintenance (PPMx) Development</p> <p><b>Description:</b> Development of a maintenance process that includes self-diagnosis and alerts regarding operational status and maintenance needs of tactical vehicles.</p> <p><b>FY 2021 Plans:</b> Start of PPMx development for Heavy Tactical Vehicles</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY 2022 decrease is due to the completion of PPMx development efforts.</p>	-	1.000	-
<p><b>Title:</b> DS Viper Development</p> <p><b>Description:</b> DS Viper is a diagnostic framework that will maintain accurate synchronization between Technical Manuals and diagnostic equipment.</p> <p><b>FY 2021 Plans:</b> FY 2021 funds will be used for Heavy Tactical Vehicles DS Viper Development</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY 2022 funds decrease is due to the completion of the DS Viper Development</p>	-	0.203	-
<b>Accomplishments/Planned Programs Subtotals</b>	2.384	1.541	-

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• D16001: TRUCK, DUMP, 20T (CCE)	13.006	29.368	9.882	-	9.882	-	-	-	-	-	-
<b>Remarks</b>											

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / <i>Family of Heavy Tactical Vehicles</i>	<b>Project (Number/Name)</b> VR5 / <i>TWV Protection Kits</i>

**D. Acquisition Strategy**

The Heavy Dump Truck (HDT) entered the acquisition cycle pre-Milestone C, based on a competitive source selection process that resulted in the award of a five year plus two option years firm-fixed price (FFP) indefinite delivery indefinite quantity (IDIQ) contract. The contract award was for one Original Equipment Manufacturer (OEM) to develop an armor solution for a commercially-based dump truck. The commercially-based dump truck will be armor-capable and will be produced concurrently with the development of the armor solution, which will ensure that the armor solution correctly interfaces with the commercially-based dump truck.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0604622A / Family of Heavy Tactical Vehicles				VR5 / TWV Protection Kits							
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
Prognostics and Preventative Maintenance Program Development	MIPR	Washington Headquarters Services : Washington, DC	-	0.200	Oct 2020	1.000	Feb 2021	-		-		-	0.000	1.200	-
DS Viper Development	MIPR	Data and Analysis Center : Redstone Arsenal, AL	-	-		0.203	Feb 2021	-		-		-	0.000	0.203	-
<b>Subtotal</b>			-	0.200		1.203		-		-		-	0.000	1.403	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
HDT - Live Fire Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen, MD	0.260	1.045	Jun 2020	0.070	Feb 2021	-		-		-	0.000	1.375	-
HDT - Familiarization Training	C/IDIQ	Mack Defense : Allentown, PA	-	0.007	Nov 2020	-		-		-		-	0.000	0.007	-
HDT - DT/OT	MIPR	Aberdeen Test Center (ATC) : Aberdeen, MD	0.203	0.300	Oct 2020	0.268	Mar 2021	-		-		-	0.000	0.771	-
HEMTT Characterization Testing	SS/FFP	Michigan Tech, Keweenaw Research Center : Calumet, MI	-	0.115	Aug 2020	-		-		-		-	0.000	0.115	-
USAREUR HETS ONS - Test Support	SS/FFP	Oshkosh Defense : Oshkosh, WI	-	0.358	Jul 2020	-		-		-		-	0.000	0.358	-
USAREUR HETS ONS - Testing	MIPR	Ground Vehicle Systems Center : Warren, MI	-	0.359	Nov 2020	-		-		-		-	0.000	0.359	-
<b>Subtotal</b>			0.463	2.184		0.338		-		-		-	0.000	2.985	N/A

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2022 Army</b>										<b>Date: May 2021</b>			
<b>Appropriation/Budget Activity</b> 2040 / 5				<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles				<b>Project (Number/Name)</b> VR5 / TWV Protection Kits					
	<b>Prior Years</b>	<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	0.463	2.384		1.541		-		-		-	0.000	4.388	N/A

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2022 Army</b>		<b>Date: May 2021</b>
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> VR5 / TWV Protection Kits

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>HEAVY DUMP TRUCK (HDT)</b>																												
HDT Armored Prototypes	[Redacted]																											
	Armored Prototype Build																											
HDT Armored Cab Live Fire Exploitation Test	▲ 1																											
HDT Armored PVT	[Redacted]																											
	Production Verification Testing																											
HDT Armored Live Fire Testing					[Redacted]																							
					Live Fire Testing																							
HDT Armored Developmental/Operational Test					[Redacted]																							
					DT/OT																							
HDT Type Classification/Materiel Release													▲ 2															
													TC/MR															
HDT Initial Operating Capability																					▲ 3							
																					IOC							
HEMTT Characterization Testing					[Redacted]																							
HETS M1070A1 Tractor Modifications & System-Level Testing					[Redacted]																							
PPMx Development									[Redacted]																			
DS Viper Development									[Redacted]																			

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604622A / Family of Heavy Tactical Vehicles	<b>Project (Number/Name)</b> VR5 / TWV Protection Kits

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
HEAVY DUMP TRUCK (HDT)	1	2017	4	2021
HDT Armor Development	3	2019	4	2019
HDT Armored Prototypes	4	2019	3	2020
HDT Armored Cab Live Fire Exploitation Test	1	2020	1	2020
HDT Armored PVT	4	2019	3	2021
HDT Armored Live Fire Testing	4	2020	2	2021
HDT Armored Developmental/Operational Test	3	2021	3	2021
HDT Type Classification/Materiel Release	1	2022	1	2022
HDT Initial Operating Capability	2	2022	2	2022
HEMTT Characterization Testing	4	2020	4	2021
HETS M1070A1 Tractor Modifications & System-Level Testing	4	2020	4	2021
PPMx Development	2	2021	2	2022
DS Viper Development	2	2021	2	2022