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

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604642A / <i>Light Tactical Wheeled Vehicles</i>
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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	-	2.843	4.193	2.055	-	2.055	-	-	-	-	-	-
E40: <i>LTV Prototype</i>	-	2.843	4.193	2.055	-	2.055	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Army Ground Mobility Vehicle (GMV) provides Infantry Battalions with motorized expeditionary mobility platforms to provide needed operational mobility for the infantry squad with their associated equipment to move quickly around the battlefield. This capability is required across the range of military operations facing Infantry Brigade Combat Team (IBCT) units conducting crises response, initial entry, and selected decisive action missions. GMV deploys worldwide by sea, air, and land modes to support strategic deployment and operational maneuver in accordance with Army and Joint doctrine. This capability provides flexibility for entry operations (permissive and non-permissive) to counter threat anti-access strategies by using multiple austere entry points to bring in combined arms configured units.

The electric Light Reconnaissance Vehicle (eLRV) platform through electrification will provide commanders a substantial competitive advantage in the Multi-Domain Operational (MDO) Environment against threat capabilities through reduction in acoustic and thermal signature, silent mobility, increased dash speed, extended range, increased reliability and reduction in CL III requirements. These attributes will enhance lethality and survivability of the mounted reconnaissance squad, platoon and troop.

Funding supports modernization of the current Tactical Wheeled Vehicle fleets by investigating technology insertions including, but not limited to: condition based maintenance, vetronics, Victory Architecture, 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.

FY 2022 GMV budget activities in the amount of \$2.055 million includes the continuation of ISV performance, operational, and qualification testing. PL GMV will investigate and analyze current industry capabilities for electrification of tactical vehicles and recharging of electric vehicles via market research and industry engagements to inform the eLRV. Product Lead Ground Mobility Vehicle (PL GMV) will procure eLRV Prototypes, conduct developmental testing, and conduct Soldier touch points.

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B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	2.965	1.976	1.974	-	1.974
Current President's Budget	2.843	4.193	2.055	-	2.055
Total Adjustments	-0.122	2.217	0.081	-	0.081
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	2.289			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.122	-0.072			
• Adjustments to Budget Years	-	-	0.081	-	0.081

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: E40: LTV Prototype

Congressional Add: *Infantry Squad Vehicle - Army requested transfer from OPA line 5*

Congressional Add Subtotals for Project: E40

Congressional Add Totals for all Projects

	FY 2020	FY 2021
	-	2.289
Congressional Add Subtotals for Project: E40	-	2.289
Congressional Add Totals for all Projects	-	2.289

Change Summary Explanation

FY21 Increase of \$2.289M for ISV IOT&E testing.

FY22 Increase of \$.257M for eLRV.

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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
E40: <i>LTV Prototype</i>	-	2.843	4.193	2.055	-	2.055	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

This project includes GMV (AGMV1.1), Infantry Squad Vehicle (ISV), SOCOM GMV1.1), & electric Light Reconnaissance Vehicle (eLRV) . Accomplishment eLRV is a new start in FY22.

A. Mission Description and Budget Item Justification

The Army Ground Mobility Vehicle (GMV) provides Infantry Battalions with motorized expeditionary mobility platforms to provide needed operational mobility for the infantry squad with their associated equipment to move quickly around the battlefield. This capability is required across the range of military operations facing Infantry Brigade Combat Team (IBCT) units conducting crises response, initial entry, and selected decisive action missions. GMV deploys worldwide by sea, air, and land modes to support strategic deployment and operational maneuver in accordance with Army and Joint doctrine. This capability provides flexibility for entry operations (permissive and non-permissive) to counter threat anti-access strategies by using multiple austere entry points to bring in combined arms configured units.

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FY 2022 GMV budget activities in the amount of \$2.055 million includes the continuation of ISV performance, operational, and qualification testing. PL GMV will investigate and analyze current industry capabilities for electrification of tactical vehicles and recharging of electric vehicles via market research and industry engagements to inform the eLRV. Product Lead Ground Mobility Vehicle (PL GMV) will procure eLRV Prototypes, conduct developmental testing, and conduct Soldier touch points.

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

	FY 2020	FY 2021	FY 2022
Title: GMV Contract Test Support	0.447	0.273	0.280
Description: Funding is provided for Ground Mobility Vehicle (GMV) contractor test support.			
FY 2021 Plans:			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
Continuation of ISV GMV contractor test support. FY 2022 Plans: Completion of ISV GMV contractor test support. FY 2021 to FY 2022 Increase/Decrease Statement: Increase in funding due to inflation.				
Title: GMV Test and Evaluation Description: Funding is provided for Ground Mobility Vehicle (GMV) testing events in the support of Full Rate Production (FRP) decision. FY 2021 Plans: Continuation of ISV GMV testing which include Production Qualification Testing (PQT), Low Velocity Air Drop (LVAD), and operational testing. FY 2022 Plans: Completion of ISV GMV testing which include Low Velocity Air Drop (LVAD), maintenance evaluation, and operational testing. FY 2021 to FY 2022 Increase/Decrease Statement: Decrease in funding due to ramp down of ISV testing.		2.030	1.631	1.002
Title: GMV (ISV) Test Assets Description: Funding is provided for GMV Test Assets.		0.366	-	-
Title: eLRV Prototypes Description: Funding is provided for the support of electric Light Reconnaissance Vehicle (eLRV) Prototypes. FY 2022 Plans: Funding is provided for the support of electric Light Reconnaissance Vehicle (eLRV) Prototypes. FY 2021 to FY 2022 Increase/Decrease Statement: Increase in funding is due to initial procurement of eLRV Prototypes.		-	-	0.545
Title: eLRV Test and Evaluation Description: Funding is provided for electric Light Reconnaissance Vehicle (eLRV) testing events. FY 2022 Plans:		-	-	0.228

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Funding is provided for electric Light Reconnaissance Vehicle (eLRV) safety testing, developmental testing, and Soldier touch point events.			
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Increase in funding is due to initiation of eLRV testing.			
Accomplishments/Planned Programs Subtotals	2.843	1.904	2.055

	FY 2020	FY 2021
<i>Congressional Add:</i> Infantry Squad Vehicle - Army requested transfer from OP.A line 5	-	2.289
<i>FY 2021 Plans:</i> Funding was a recolor of FY21 GMV OPA D15501 for ISV GMV Operational Testing.		
Congressional Adds Subtotals	-	2.289

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 Complete</u>	<u>Total Cost</u>
• D15505: <i>Ground Mobility Vehicles (Light) GMV (L)</i>	37.038	29.247	29.807	-	29.807	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Ground Mobility Vehicle (GMV) Phase I: Per AROC on 10 August 2018 following the Army's funding reprioritization, the Army's direction was to procure 127 vehicles for USASOC, and 170 for Army GMV 1.1 for 3 Airborne IBCTs.

GMV Phase II: A firm fixed priced production contract was awarded to General Motors (GMV) Defense on 26 June 2020 following successful prototype determination and findings from the ISV OTA. Per AROC on 08 February 2019, the Vice Chief Secretary of Army (VCSA) approved the procurement objective of 11 IBCT sets at 59 vehicles per IBCT (649 vehicles) to be completed by FY 2024. During a follow on AROC on 22 February 2019, the VCSA approved the ISV annex to the approved SOCOM GMV1.1 Capabilities Production Document which approved the total requirement for the ISV program.

electric Light Reconnaissance Vehicle (eLRV) :

PL GMV will conduct market research and Industry coordination to assess industry capabilities and verify maturity of integration in support of an Army Requirements Oversight Council in April 2021. PL GMV will utilize a two-phased acquisition strategy for eLRV.

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<p>Phase I: Award Other Transaction Agreements to multiple vendors to procure prototype hardware for limited safety/performance testing and Soldier Touch Point that will inform down select to final prototype phase and eventual production contract competition. Down selected OTA vendors provide test vehicles for additional safety/performance testing and Soldier Touch Point to physically demonstrate maturity of current industry vehicle capabilities and gain Soldier feedback.</p> <p>Phase II: Utilize Soldier Feedback and test data obtained in Phase I to achieve Milestone C and award production contract to down-selected vendor. Utilize Low Rate Initial Production vehicles to conduct Production Qualification Testing and Initial Operational Test prior to gaining Full Rate Production approval. Field initially under Conditional Materiel Release until logistics development completion where the program will transition to Full Materiel Release with organic support.</p>		

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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 0604642A / Light Tactical Wheeled Vehicles				E40 / LTV Prototype								
Product Development (\$ in Millions)				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	Cost To Complete			
GMV Contractor Test Support	Various	General Motor Defense (GM-D) : Various	0.009	0.447	Nov 2020	0.273	Feb 2021	0.280	Oct 2021	-		0.280	0.000	1.009	-	
GMV Test Assets	Various	General Motor Defense (GM-D) : Various	-	0.366	Jun 2020	-		-		-		-	0.000	0.366	-	
GMV Prototypes	Various	Various : Various	3.143	-		-		-		-		-	0.000	3.143	-	
eLRV Prototypes	TBD	TBD : TBD	-	-		-		0.545	Apr 2022	-		0.545	0.000	0.545	-	
Subtotal			3.152	0.813		0.273		0.825		-		0.825	0.000	5.063	N/A	
Support (\$ in Millions)				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	Cost To Complete			
GMV Program Management Support	Various	PM Office : Selfridge ANG	0.337	-		-		-		-		-	0.000	0.337	-	
Subtotal			0.337	-		-		-		-		-	0.000	0.337	N/A	
Test and Evaluation (\$ in Millions)				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	Cost To Complete			
GMV performance and qualification testing	MIPR	Various : Various	1.606	2.030	Aug 2020	3.920	Nov 2020	1.002	Oct 2021	-		1.002	0.000	8.558	-	
eLRV developmental testing	MIPR	Various : Various	-	-		-		0.228	Jul 2022	-		0.228	0.000	0.228	-	
Subtotal			1.606	2.030		3.920		1.230		-		1.230	0.000	8.786	N/A	
Project Cost Totals			5.095	2.843		4.193		2.055		-		2.055	0.000	14.186	N/A	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army							Date: May 2021			
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	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604642A / <i>Light Tactical Wheeled Vehicles</i>	Project (Number/Name) E40 / <i>LTV Prototype</i>

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
GMV ISV OTA Run-off Testing	■																											
GMV ISV MS C			▲1																									
GMV ISV Production Contract			▲2																									
GMV ISV Production Qualification Testing (PQT)								■																				
GMV ISV Operational Testing																												
GMV ISV First Unit Equipped (FUE)								▲3																				
GMV ISV follow-on Operational Testing												■																
GMV ISV Maintenance Evaluation												■																
GMV ISV Full Rate Production (FRP)																▲4												
eLRV Army Requirements Oversight Council (AROC)								■																				
eLRV OTA Soldier Touchpoint #1																												
eLRV OTA Prototype Contract Award																▲5												
eLRV Design, Build, and Testing																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604642A / <i>Light Tactical Wheeled Vehicles</i>	Project (Number/Name) E40 / <i>LTV Prototype</i>

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																																																																																																																				
eLRV OTA Prototype Contract Award #2													6 ▲																																																																																																																																			
eLRV OTA Militarized Design, Build , and Testing																																																																																																																																																
eLRV Solider Touchpoint #2																																																																																																																																																
eLRV Capability Development Document Army Requirements Oversight Council (AROC)																																																																																																																																																
eLRV MS C																																																																																																																																																
eLRV Production Contract Award																																																																																																																																																
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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
GMV ISV OTA Run-off Testing	1	2020	2	2020
GMV ISV MS C	3	2020	3	2020
GMV ISV Production Contract	3	2020	3	2020
GMV ISV Production Qualification Testing (PQT)	1	2021	4	2021
GMV ISV Operational Testing	4	2021	4	2021
GMV ISV First Unit Equipped (FUE)	3	2021	3	2021
GMV ISV follow-on Operational Testing	2	2022	2	2022
GMV ISV Maintenance Evaluation	1	2022	1	2022
GMV ISV Full Rate Production (FRP)	2	2022	2	2022
eLRV Army Requirements Oversight Council (AROC)	3	2021	3	2021
eLRV OTA Soldier Touchpoint #1	1	2023	1	2023
eLRV OTA Prototype Contract Award	3	2022	3	2022
eLRV Design, Build, and Testing	3	2022	2	2023
eLRV OTA Prototype Contract Award #2	2	2023	2	2023
eLRV OTA Militarized Design, Build , and Testing	3	2022	1	2024
eLRV Solider Touchpoint #2	1	2024	1	2024
eLRV Capability Development Document Army Requirements Oversight Council (AROC)	3	2024	3	2024
eLRV MS C	4	2024	4	2024
eLRV Production Contract Award	1	2025	1	2025
eLRV Production Qualification Testing (PQT)	1	2026	3	2026
eLRV Operational Testing	3	2026	4	2026