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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0605625A I Manned Ground Vehicle							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	378.400	-	378.400	320.100	218.700	65.700	52.300	0.000	1,035.200
CF6: Next Generation Combat Vehicle (NGCV)	-	0.000	0.000	378.400	-	378.400	320.100	218.700	65.700	52.300	0.000	1,035.200

Note

This is a parallel effort continued from PE 0603645A / Armored System Modernization - Adv Dev, project EV7: Combat Vehicle Prototyping. This is a new start in FY 2020.

A. Mission Description and Budget Item Justification

The Next Generation Combat Vehicle-Optionally Manned Fighting Vehicle (NGCV-OMFV) is a purpose built manned platform that maneuvers Soldiers to a point of positional advantage to engage in close combat. It is designed to operate with or without a crew and Soldiers under armor based on the commander's decision. It delivers decisive lethality during the execution of combined arms maneuver while also controlling maneuver robotics and semi-autonomous systems. The platform will be optimized for operations in dense urban terrain and with significantly reduced logistical burdens. The vehicle will include an architecture to allow for increased capability and growth margin.

In close combat, the Optionally Manned Fighting Vehicle (OMFV) will deliver decisive lethality during the execution of combined arms maneuver. The changing character of warfare drives changes in how the Army delivers, operates, and sustains future combat capabilities. The Army's first priority is to replace the Bradley with the OMFV. The OMFV will be developed using an incremental approach to the integration of advanced lethality and sensing technologies, with focus of increment one to gain growth margins in power, weight and vehicle computing architecture as the NGCV Cross Functional Team's (CFT) first priority, followed by an Increment II to integrate weapon system, targeting and sensing technologies that are matured and qualified within Science and Technology programs. OMFV will be joined later by a purpose built Robotic Combat Vehicle (RCV) and future capability upgrades for the OMFV.

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Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)		R-1 Program Element (Number/Name) PE 0605625A / Manned Ground Vehicle			
B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	378.400	-	378.400
Total Adjustments	0.000	0.000	378.400	-	378.400
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	378.400	-	378.400
Change Summary Explanation					
This is a parallel effort continued from PE 0603645A / Armored System Modernization - Adv Dev, project EV7: Combat Vehicle Prototyping.					

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Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605625A / Manned Ground Vehicle				Project (Number/Name) CF6 / Next Generation Combat Vehicle (NGCV)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
CF6: Next Generation Combat Vehicle (NGCV)	-	0.000	0.000	378.400	-	378.400	320.100	218.700	65.700	52.300	0.000	1,035.200
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note This is a parallel effort continued from PE 0603645A / Armored System Modernization - Adv Dev, project EV7: Combat Vehicle Prototyping. This is a new start in FY 2020. This program supports the Cross Functional Team (CFT).												
A. Mission Description and Budget Item Justification The Next Generation Combat Vehicle-Optionally Manned Fighting Vehicle (NGCV-OMFV) is a purpose built manned platform that maneuvers Soldiers to a point of positional advantage to engage in close combat. It is designed to operate with or without a crew and Soldiers under armor based on the commander's decision. It delivers decisive lethality during the execution of combined arms maneuver while also controlling maneuver robotics and semi-autonomous systems. The platform will be optimized for operations in dense urban terrain and with significantly reduced logistical burdens. The vehicle will include an architecture to allow for increased capability and growth margin. In close combat, the Optionally Manned Fighting Vehicle (OMFV) will deliver decisive lethality during the execution of combined arms maneuver. The changing character of warfare drives changes in how the Army delivers, operates, and sustains future combat capabilities. The Army's first priority is to replace the Bradley with the OMFV. The OMFV will be developed using an incremental approach to integration of advanced lethality and sensing technologies, with focus of increment one to gain growth margins in power, weight and vehicle computing architecture as the NGCV Cross Functional Team's (CFT) first priority, followed by an Increment II to integrate weapon system, targeting and sensing technologies that are matured and qualified within Science and Technology programs. OMFV will be joined later by a purpose built Robotic Combat Vehicle (RCV) and future capability upgrades for the OMFV.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020	
Title: Government Engineering & Program Management									-	-	25.964	
Description: Provides Government System Engineering and Program Management support. Funding will cover the costs of government and direct support contractor labor, travel, training, supplies, equipment and facilities to effectively manage the NGCV-OMFV program.												
FY 2020 Plans: Provides Government System Engineering and Program Management support. Covers the costs of government and direct support contractor labor, travel, training, supplies, equipment and facilities to effectively manage the NGCV-OMFV program.												
FY 2019 to FY 2020 Increase/Decrease Statement:												

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019
Program Management has increased in FY 2020 due to the acceleration of the OMFV procurement strategy (Bradley replacement).			FY 2020
<p>Title: Product Development</p> <p>Description: Procures NGCV-OMFV prototypes for developmental testing. Develops government/contractor logistics plans and user documentation.</p> <p>FY 2020 Plans: NGCV-OMFV Knowledge Point 2 (MTA Section 804 approval replaces Milestone B (MS B)) approval is scheduled for 2QFY 2020 followed by Engineering and Manufacturing Development (EMD) contract awards with up to 2 vendors providing 12 prototypes each (24 total) and test assets. Conduct start of work meeting, Design Maturity Review (DMR) and contractor/government program management reviews. Planning activities associated with delivery of prototypes and test assets in FY 2021. Concurrently, planning for logistics assessments, technical manual development, and provisioning conferences to support Contractor Logistics Support (CLS), transitioning to organic support by First Unit Equipped (FUE) in 2026.</p> <p>This funding will be used for Developmental Engineering, Producibility Engineering and Planning, Developmental Tooling, Prototypes, Contractor SEPM, Contractor Support to EMD Test, Training, Data, and Support Equipment Development. Leverage the Non Development Initiative (NDI) Active Protection System (APS) installation and characterization initiative to evaluate NGCV-OMFV performance with an APS solution installed. This cost includes engineering, logistics, test, and program management to continue development. Project Manager (PM) NGCV-OMFV will characterize a Non Developmental Items (NDI) and leverage Product Manager Vehicle Protection Systems (PM VPS) to develop force protection and survivability improvements to counter evolving threats.</p> <p>NGCV-OMFV will have increased lethality through improved target acquisition capability along with other technology upgrades and insertions (i.e. laser pointing, color camera, laser range finder, etc). PM NGCV-OMFV will leverage the XM-913 development to increase lethality, and will characterize and develop other lethality improvements to counter evolving threats. This cost includes engineering, logistics, test, and program management to continue development and maturation. The 3GEN FLIR system will be developed by Product Manager, Ground Sensors (PM GS) and will be provided to PM NGCV-OMFV as a Horizontal Technology Insertion effort. This cost includes engineering, logistics, test, and program management to continue development and technology integration.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>		-	-
			352.436

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Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0605625A / Manned Ground Vehicle				Project (Number/Name) CF6 / Next Generation Combat Vehicle (NGCV)				
B. Accomplishments/Planned Programs (\$ in Millions)										FY 2018	FY 2019	FY 2020
Product development increases in FY 2020 to ensure that the NGCV-OMFV development program is not delayed and the Army's desired capabilities gap will be met as quickly as possible. The funding increase completes Source Selection and will be used for EMD contract award.												
Accomplishments/Planned Programs Subtotals										-	-	378.400
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• G86000: Next Generation Combat Vehicle (NGCV)	-	-	0.000	-	0.000	-	-	1,564.000	2,242.000	Continuing	Continuing	
• 0603645A: Armored System Modernization - Adv Dev	41.431	84.297	157.656	-	157.656	151.624	172.864	50.703	44.700	0.000	703.275	
Remarks												
D. Acquisition Strategy												
The NGCV-OMFV is designed to maneuver Soldiers in the Forward Operating Environment to a position of advantage to engage in close combat and deliver decisive lethality during the execution of combined arms maneuver. NGCV must exceed current capabilities while overmatching similar threat class systems. It must be optimized for dense urban areas while also defeating pacing threats on rural (open, semi-restricted and restricted) terrain and be characterized by the ability to spiral in advanced technologies as they mature. The capabilities desired focus to improve lethality, protection, mobility, range, and sustainment.												
E. Performance Metrics												
N/A												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army													Date: March 2019		
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0605625A / <i>Manned Ground Vehicle</i>				Project (Number/Name) CF6 / <i>Next Generation Combat Vehicle (NGCV)</i>							
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Contractor Section 804 (x2 Vendors)	C/FFP	TBD : TBD	-	-		-		314.451	Dec 2019	-		314.451	0.000	314.451	-
Other Support Costs	Option/FFPLOE	TBD : TBD	-	-		-		14.518		-		14.518	0.000	14.518	-
Subtotal			-	-		-		328.969		-		328.969	0.000	328.969	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
PMO/PEO Support	MIPR	Warren, MI : TBD	-	-		-		25.964	Dec 2019	-		25.964	0.000	25.964	-
Subtotal			-	-		-		25.964		-		25.964	0.000	25.964	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Test and Evaluation	TBD	TBD : TBD	-	-		-		23.467		-		23.467	0.000	23.467	-
Subtotal			-	-		-		23.467		-		23.467	0.000	23.467	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		0.000		378.400		-		378.400	0.000	378.400	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army			Date: March 2019		
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Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Knowledge Point 1																												
Knowledge Point 2																												
EMD Prototypes																												
Test & Evalutation																												
Source Selection																												
Milestone C																												
LRIP Contract award																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605625A / <i>Manned Ground Vehicle</i>	Project (Number/Name) CF6 / <i>Next Generation Combat Vehicle (NGCV)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Knowledge Point 1	2	2019	2	2019
Knowledge Point 2	2	2020	2	2020
EMD Prototypes	3	2020	4	2021
Test & Evaluation	1	2020	4	2022
Source Selection	4	2022	3	2023
Milestone C	3	2023	3	2023
LRIP Contract award	3	2023	3	2023