

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army **Date:** February 2020

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
---	---

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	0.000	205.620	327.732	-	327.732	426.892	65.638	52.251	52.778	0.000	1,130.911
CF6: Next Generation Combat Vehicle (OMFV)	-	0.000	205.620	327.732	-	327.732	426.892	65.638	52.251	52.778	0.000	1,130.911

A. Mission Description and Budget Item Justification

The Optionally Manned Fighting Vehicle (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 and may operate 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 Fighting Vehicle with the OMFV.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	0.000	378.400	320.100	-	320.100
Current President's Budget	0.000	205.620	327.732	-	327.732
Total Adjustments	0.000	-172.780	7.632	-	7.632
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-176.280			
• Congressional Rescissions	-	-			
• Congressional Adds	-	3.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	7.632	-	7.632

Change Summary Explanation

The increase in Fiscal Year (FY) 2021 funding is due to a change in strategy.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army										Date: February 2020		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605625A / Manned Ground Vehicle				Project (Number/Name) CF6 / Next Generation Combat Vehicle (OMFV)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
CF6: Next Generation Combat Vehicle (OMFV)	-	0.000	205.620	327.732	-	327.732	426.892	65.638	52.251	52.778	0.000	1,130.911
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Optionally Manned Fighting Vehicle (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 and may operate 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 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 Fighting Vehicle with the OMFV.

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

	FY 2019	FY 2020	FY 2021
<p>Title: Government Engineering & Program Management</p> <p>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 Product Management Office, Maneuver Combat Systems (PM MCS).</p> <p>FY 2020 Plans: Provided Government System Engineering and Program Management support. This funding included the cost of government and direct support contractor labor, travel, training, supplies, equipment and facilities to effectively manage the PM MCS program.</p> <p>FY 2021 Plans: Provides Government System Engineering and Program Management support. This funding will include the cost of government and direct support contractor labor, travel, training, supplies, equipment and facilities to effectively manage the PM MCS program.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The decrease in cost from Fiscal Year (FY) 2020 to FY 2021 is due to the change in strategy of the program.</p>	-	18.765	20.987
<p>Title: Product Development</p> <p>Description: Decision point one is to award up to 5 vendors. There will be an insertion point for quick/win technology sprints.</p> <p>FY 2020 Plans:</p>	-	114.752	286.444

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
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 (OMFV)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>This funding was used to both mature planned technologies as well as insert new technologies to achieve overmatch and decisive lethality. These technologies are related to growth, mobility, efficiency, lethality, and survivability. This funding also established a process for technology maturity assessment of the S&T efforts that will be supporting the OMFV program and the program management office investments.</p> <p>FY 2021 Plans: This funding includes the award of up to 5 vendors at decision point one after the SSEB has been conducted. The cost includes initial OMFV development costs for up to 5 vendors to mature design through production design review (PDR). The efforts include, but not limited to; hardware and software development, producibility engineering and planning, development tooling, system engineering and program management, initial logistics data and product development, and data and support equipment. The vendors can then begin their digital design. The insertion point will be for mature/quick win technology sprints if the technologies are meeting the OMFV objectives.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase in funding from FY 2020 to FY 2021 is due to the down select in the number of OEMs at decision point one.</p>			
<p>Title: Test & Evaluation</p> <p>Description: Government Modeling & Simulation</p> <p>FY 2021 Plans: The modeling and simulation analysis of the digital designs for up to 5 vendors as they begin their digital design, modeling simulation begins for sub-system tests, using emulators, software coding and they will continue throughout development.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase from FY 2020 to FY 2021 is due to the beginning of modeling and simulation.</p>	-	-	7.108
<p>Title: Other Support Cost</p> <p>Description: This cost includes OMFV studies and research and SBIR/STTR/FFRDC.</p> <p>FY 2020 Plans: These costs were used to conduct market research, develop a request for proposal (RFP), an analysis of alternatives (AoA), and the milestone documentation development. The AoA is to document the evaluation of the performance, operational effectiveness, operational suitability, and estimated costs of alternative systems to meet a capability need. Cost analysis was competed to include a cost analysis requirements description (CARD), and an acquisition program baseline (APB).</p> <p>FY 2021 Plans:</p>	-	24.420	13.193

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
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 (OMFV)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
This cost includes OMFV studies and research which includes the completion of the AoA, SBIR/STTR/FFRDC, and completion of milestone documentation development. FY 2020 to FY 2021 Increase/Decrease Statement: The decrease from FY 2020 to FY 2021 is due to the change in breakout between product development and other support costs.			
Title: XM-913 Description: This cost includes the XM913, ammunition and the PM MAS EMD requirements. FY 2020 Plans: PM MCS 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 MCS 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. These costs will be used to procure the remaining XM913s, labor and the ammunition needed for PM MASs EMD. The ammunition is required for Target Practice - Tracer (TP-T), Armor Piercing Fin Stabilized Discarding Sabot - Tracer (APFSDS-T) , and High Explosive Airburst - Tracer (HEAB-T). FY 2020 to FY 2021 Increase/Decrease Statement: The decrease from FY 2020 to FY 2021 is due to the funding for the XM-913 in not needed in FY 2021.	-	38.504	-
Title: FY 2020 SBIR/STTR Transfer Description: Funding transferred in accordance with Title 15 USC 638 FY 2020 Plans: Funding transferred in accordance with Title 15 USC 638 FY 2020 to FY 2021 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638	-	9.179	-
Accomplishments/Planned Programs Subtotals	-	205.620	327.732

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• G86000: <i>Optionally Manned Fighting Vehicle (OMFV)</i>	-	-	0.000	-	0.000	-	1,689.091	1,935.873	1,820.536	Continuing	Continuing

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
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 (OMFV)</i>

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
------------------	----------------	----------------	-------------------------------	------------------------------	--------------------------------	----------------	----------------	----------------	----------------	-----------------------------------	-------------------

Remarks

D. Acquisition Strategy

The 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. The OMFV 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, survivability.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0605625A / Manned Ground Vehicle				CF6 / Next Generation Combat Vehicle (OMFV)								
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		9.179		-		-		-	0.000	9.179	-	
Subtotal			-	-		9.179		-		-		-	0.000	9.179	N/A	
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Other Support Costs	TBD	TBD : TBD	-	-		24.420	Jun 2020	13.193	Mar 2021	-		13.193	0.000	37.613	-	
XM-913	MIPR	PM MAS : Picatinny, NJ	-	-		38.504	Mar 2020	-		-		-	0.000	38.504	-	
Contractor costs	TBD	TBD : TBD	-	-		-		286.444	Jun 2021	-		286.444	0.000	286.444	-	
Technology maturation & insertion	TBD	TBD : TBD	-	-		114.752	Jul 2020	-		-		-	0.000	114.752	-	
Subtotal			-	-		177.676		299.637		-		299.637	0.000	477.313	N/A	
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	-	-		18.765	Mar 2020	20.987	Mar 2021	-		20.987	0.000	39.752	-	
Subtotal			-	-		18.765		20.987		-		20.987	0.000	39.752	N/A	
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	-	-		-		7.108	Jun 2021	-		7.108	0.000	7.108	-	
Subtotal			-	-		-		7.108		-		7.108	0.000	7.108	N/A	

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army								Date: February 2020				
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 (OMFV)</i>				
	Prior Years	FY 2019	FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-	205.620		327.732		-		327.732	0.000	533.352	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605625A / Manned Ground Vehicle	Project (Number/Name) CF6 / Next Generation Combat Vehicle (OMFV)

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Market Research					[Redacted] Market Research																							
Analysis of Alternatives (AoA)					[Redacted] Analysis of Alternatives (AoA)																							
Request for Proposal development					[Redacted] RFP Development																							
Request for Proposal Release													1 ▲ RFP release															
Source Selection Evaluation Board													[Redacted] SSEB															
Decision Point #1													2 ▲ Downselect 5 OEMs															
Technology Insertions #1													3 ▲ Technology Insertions #1															
Digital Design & Detailed Design									[Redacted] Digital Design																			
Modeling & Simulation									[Redacted] Modeling & Simulation																			
Production Design Review (PDR)													4 ▲ Production Design Review (PDR)															
Decision Point #2													5 ▲ Downselect 3 OEMs															
Contractor Design Review (CDR)																	6 ▲ Contractor Design Review (CDR)											
Technology Insertions #2																					7 ▲ Technology Insertions #2							

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
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 (OMFV)</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
New Equipment Training/Limited User Test																									<div style="background-color: #0000ff; width: 20px; height: 10px; display: inline-block;"></div> NET/LU			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
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 (OMFV)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Market Research	2	2020	3	2020
Analysis of Alternatives (AoA)	2	2020	1	2021
Request for Proposal development	2	2020	4	2020
Request for Proposal Release	1	2021	1	2021
Source Selection Evaluation Board	1	2021	2	2021
Decision Point #1	2	2021	2	2021
Technology Insertions #1	4	2021	4	2021
Digital Design & Detailed Design	2	2021	3	2023
Modeling & Simulation	2	2021	4	2025
Production Design Review (PDR)	2	2022	2	2022
Decision Point #2	3	2022	3	2022
Contractor Design Review (CDR)	4	2023	4	2023
Technology Insertions #2	1	2025	1	2025
New Equipment Training/Limited User Test	3	2025	4	2025