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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple Launch Rocket System (GMLRS)							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	21.196	102.807	154.102	-	154.102	132.594	54.328	64.789	1.993	0.000	531.809
EG2: GMLRS Alternative Warheads*	-	0.000	0.000	0.000	-	0.000	11.566	14.529	24.409	0.000	0.000	50.504
EG3: Guided MLRS	-	21.196	102.807	154.102	-	154.102	121.028	39.799	40.380	1.993	0.000	481.305
Program MDAP/MAIS Code: 260												
*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2019												
A. Mission Description and Budget Item Justification												
Projects EG2/EG3. GMLRS rockets are surface-to-surface artillery rockets fired from the Multiple Launch Rocket System (MLRS) and High Mobility Artillery Rocket System (HIMARS) launchers. GMLRS rockets provide 24/7, all-weather precision fires to engage both area and point targets at short, medium, and long ranges with a cluster compliant warhead.												
The GMLRS Program consists of three variants: GMLRS Dual Purpose Improved Conventional Munition (DPICM) cluster munition to engage area or imprecisely located targets; GMLRS Unitary utilizes a 200 pound high explosive warhead to engage point targets with limited collateral damage; and GMLRS Alternative Warhead (AW) which has been developed as a non-cluster munition to replace GMLRS DPICM. GMLRS DPICM Production was terminated in response to the June 2008 Department of Defense (DoD) Cluster Munitions Policy. GMLRS Unitary is currently in full rate production. GMLRS AW entered full rate production in FY 2015. The GMLRS AW rocket is 90% common with the Unitary variant.												
The GMLRS program will continue to leverage ongoing Science & Technology (S&T) efforts to extend range, increase survivability, and develop warhead technologies to meet DOD Cluster Munition Policy requirements. The Extended Range GMLRS variant will be a modification of the current production GMLRS and will be remain approximately 85% common with the current GMLRS. It will carry both the Unitary and AW warheads. It will extend the current GMLRS capability to 150 km and allow for potential future growth capability in the payload section.												
The FY2019 dollars in the amount of \$154.102 million will continue qualification of key rocket obsolescence upgrades (including the M-Code compliant NAVSTRIKEM upgrade); qualify a new rocket pod in support of future GMLRS production; and continue the design, qualification, and testing of an extended range variant of the GMLRS.												
The United States (U.S.) Army has identified funding in FY2021-FY2023 for the technology transition, development and integration of an anti-radiation homing (ARH) future payload into the GMLRS.												

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B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	38.044	102.807	164.015	-	164.015
Current President's Budget	21.196	102.807	154.102	-	154.102
Total Adjustments	-16.848	0.000	-9.913	-	-9.913
• Congressional General Reductions	-0.011	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.837	-			
• Adjustments to Budget Years	-	-	-9.913	-	-9.913
• Amended FY2017 not appropriated	-16.000	-	-	-	-
Change Summary Explanation					
FY 2017 funding reflects an adjustment of \$16.848 million. \$16.000 million was requested in the Request for Additional FY17 Appropriations, but was not appropriated. The remaining \$0.837 and \$0.011 million was for Small Business Innovation Research / Small Business Technology Transfer (SBIR/STTR) and FFRDC adjustments.					
FY 2019 funding reflects a decrease of \$9.913 million.					

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Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple Launch Rocket System (GMLRS)				Project (Number/Name) EG3 / Guided MLRS			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
EG3: Guided MLRS	-	21.196	102.807	154.102	-	154.102	121.028	39.799	40.380	1.993	0.000	481.305
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The United States (U.S.) Army continues to explore ways to enhance Guided Multiple Launch Rocket System (GMLRS) rockets and common components and to mitigate obsolescence issues under the Guided MLRS project code. The Army is requesting funding for the following GMLRS Research, Development, Test and Evaluation (RDT&E) activities: (1) evaluation of enhanced operational capabilities to provide more flexibility across the target set to include increased range, flight performance, and end-game optimization; (2) investigation of potential life cycle cost savings through obsolescence initiatives; (3) development of enhancements to the Multiple Launch Rocket System (MLRS) common test equipment; (4) evaluation and development of technologies to enhance overall product performance and survivability; and (5) Insensitive Munitions (IM) compliance.

The FY2019 dollars in the amount of \$154.102 million will continue qualification of key rocket obsolescence upgrades (including the M-Code compliant NAVSTRIKE-M upgrade); qualify a new rocket pod in support of future GMLRS production; and continue the design, qualification, and testing of an extended range variant of the GMLRS.

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

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Assess and improve GMLRS rockets.	3.192	4.104	14.850	-	14.850
Description: Funding is provided for the following effort					
FY 2018 Plans: Investigate and assess methods to increase range performance and rocket effectiveness. Evaluate rocket pod improvements, assess rocket reliability, and reduce collateral damage.					
FY 2019 Base Plans: Continue to assess methods to increase range performance and rocket effectiveness. Qualify the design of a new rocket pod to support future GMLRS production, assess rocket reliability, and reduce collateral damage.					
FY 2018 to FY 2019 Increase/Decrease Statement: Funding increase from FY18-19 is required to support increased testing effort to assess and improve GMLRS rockets.					
Title: Conduct qualification and testing for Insensitive Munitions (IM) Propulsion System (IMPS).	11.105	8.757	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: Funding is provided for the following effort						
FY 2018 Plans: Complete system ground/flight testing and Insensitive Munition Propulsion System (IMPS) qualification.						
FY 2018 to FY 2019 Increase/Decrease Statement: Funding decrease from FY18-19 is due to completion of IMPS qualification and testing effort.						
Title: Investigate obsolescence cost/cost reduction opportunities/second source suppliers/survivability.		4.379	9.950	20.715	-	20.715
Description: Funding is provided for the following effort (The NAVSTRIKE GPS Receiver provides tightly coupled GPS/INS integration. Rockwell Collins has stopped producing the NAVSTRIKE 3.3).						
FY 2018 Plans: Design and qualification of M-Code compliant NAVSTRIKE-M upgrade. System level integration and qualification of side-mounted proximity sensor.						
FY 2019 Base Plans: Design and qualification of M-Code compliant NAVSTRIKE-M upgrade.						
FY 2018 to FY 2019 Increase/Decrease Statement: Funding increase from FY18-19 is required to support increased effort to investigate obsolescence and cost/cost reduction opportunities/second source suppliers/survivability.						
Title: Conduct System Test and Evaluation activities.		2.520	2.590	19.709	-	19.709
Description: Funding is provided for the following effort						
FY 2018 Plans: Ground/Flight testing of side-mounted proximity sensor.						
FY 2019 Base Plans: Ground and qualification tests of a new GMLRS rocket pod in support of current configuration and extended range variant GMLRS production. Begin component and system-level ground testing and complete initial system qualification flight tests for the extended range GMLRS variant.						
FY 2018 to FY 2019 Increase/Decrease Statement:						

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B. Accomplishments/Planned Programs (\$ in Millions)							FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Funding increase from FY18-19 is required to support increased effort to conduct System Test and Evaluation activities.											
Title: Qualification and integration of the GMLRS extended range effort.							-	77.406	98.828	-	98.828
Description: Funding is provided for the following effort											
FY 2018 Plans: Define system performance requirements, select component suppliers, conduct facilitization planning, conduct preliminary design review, and conduct a flight demonstration.											
FY 2019 Base Plans: Will conduct component and system-level design reviews and the system-level software design review. Will complete Cooperative Vulnerability Identification. Will conduct facilitation planning, and conduct a proof of concept flight demonstration.											
FY 2018 to FY 2019 Increase/Decrease Statement: Funding increase from FY18-19 is required to support increased effort to qualify and integrate the GMLRS extended range effort.											
Accomplishments/Planned Programs Subtotals							21.196	102.807	154.102	-	154.102
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• C64400: Guided MLRS Rocket (GMLRS)	408.842	786.704	359.613	624.500	984.113	598.977	655.304	718.791	875.675	Continuing	Continuing
• EG2: GMLRS Alternative Warheads	-	-	0.000	-	0.000	11.566	14.529	24.409	-	0.000	50.504
• C57701: GMLRS MOD	0.395	0.531	0.266	-	0.266	15.394	52.714	100.958	69.154	Continuing	Continuing
Remarks GMLRS Procurement funding includes C65404 and C65406.											
D. Acquisition Strategy Project EG3 is intended to support, investigate, and develop alternative material changes to improve the GMLRS family of munitions as they are identified by the material developer or combat developer. This project also supports IM activities to improve the overall posture of the system down to component level. Two Insensitive											

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<p>Munition Propulsion Systems (Rocket Motor and Ignition Safety Device) suppliers will complete design and qualification, and the IMPS will be integrated into the GMLRS rocket. Design, development, and qualification of a side-mounted proximity sensor will provide a cost reduction initiative and improved area munition lethality. The GMLRS extended range effort is pursuing a strategy of modifying the current system in order to increase its range. It will be a 36 month development and qualification effort leveraging existing contract vehicles where practicable.</p> <p>E. Performance Metrics N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army													Date: February 2018		
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple Launch Rocket System (GMLRS)				Project (Number/Name) EG3 / Guided MLRS					
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Government Program Management	MIPR	Various : RSA	2.154	2.721	Oct 2016	5.425	Oct 2017	5.959	Oct 2018	-		5.959	Continuing	Continuing	Continuing
Subtotal			2.154	2.721		5.425		5.959		-		5.959	Continuing	Continuing	N/A
Remarks RSA-Redstone Arsenal, Alabama															
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Unitary Contracts/Multiple	SS/FPIF	LMMFCS : Dallas, TX	17.285	4.850	Jan 2017	8.629	Jan 2018	29.606	Jan 2019	-		29.606	Continuing	Continuing	Continuing
IM Qualification Contracts/ Multiple	C/FPIF	Orbital ATK, Aerojet Rocketdyne : Rocket Center, WV; Bristow, VA	16.518	11.105	Jan 2017	8.757	Jan 2018	-		-		-	0.000	36.380	-
GMLRS Extended Range	SS/TBD	TBD : TBD	-	-		77.406	Jan 2018	98.828	Jan 2019	-		98.828	Continuing	Continuing	Continuing
Subtotal			33.803	15.955		94.792		128.434		-		128.434	Continuing	Continuing	N/A
Remarks SS/FPIF-Sole Source/Fixed-Price Incentive Firm; LMMFCS - Lockheed Martin Missile and Fire Control System; TX - Texas; C/FPIF - Competitive/Fixed-Price Incentive Firm; WV - West Virginia; VA - Virginia; TBD - To Be Determined															
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 Support	MIPR	WSMR, : NM	10.806	2.520	Oct 2016	2.590	Oct 2017	19.709	Oct 2018	-		19.709	Continuing	Continuing	Continuing
Subtotal			10.806	2.520		2.590		19.709		-		19.709	Continuing	Continuing	N/A

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Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Remarks WSMR, NM-White Sands Missile Range, New Mexico															
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			46.763	21.196		102.807		154.102		-		154.102	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army			Date: February 2018		
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Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
Assess and improve GMLRS rockets																												
Obsolescence/Cost Reduction Opportunities and Second Source S																												
NAVSTRIKE 3.7 Qualification																												
M-Code/NAVSTRIKE-M Qualification																												
System Qual and testing of Side Mounted Proximity Sensor																												
Conduct qualification and testing for IMPS program																												
Conduct System Test and Evaluation activities																												
Qualification and Integration of GMLRS extended range effort																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army			Date: February 2018
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Assess and improve GMLRS rockets	1	2015	4	2023
Obsolescence/Cost Reduction Opportunities and Second Source Suppliers	1	2015	4	2023
NAVSTRIKE 3.7 Qualification	1	2016	2	2017
M-Code/NAVSTRIKE-M Qualification	3	2018	4	2020
System Qual and testing of Side Mounted Proximity Sensor	1	2018	3	2018
Conduct qualification and testing for IMPS program	1	2015	3	2018
Conduct System Test and Evaluation activities	4	2015	3	2018
Qualification and Integration of GMLRS extended range effort	2	2018	1	2021