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

<b>Appropriation/Budget Activity</b> 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS)
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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	-	113.471	117.294	75.575	-	75.575	64.728	19.722	20.005	19.951	0.000	430.746
EG2: GMLRS Alternative Warheads	-	0.000	11.566	14.515	-	14.515	24.386	0.000	0.000	0.000	0.000	50.467
EG3: Guided MLRS	-	113.471	105.728	61.060	-	61.060	40.342	19.722	20.005	19.951	0.000	380.279

**Program MDAP/MAIS Code:** 260

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

Guided Multiple-Launch Rocket System (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. The GMLRS Program currently consists of multiple variants: GMLRS Unitary utilizes a 200 pound high explosive warhead to engage point targets with limited collateral damage; GMLRS Dual Purpose Improved Conventional Munition (DPICM) cluster munition to engage area or imprecisely located targets and GMLRS Alternative Warhead (AW) which has been developed as a non-cluster munition to engage the same target set as GMLRS DPICM. GMLRS DPICM Production was terminated in response to the June 2008 Department of Defense (DoD) Cluster Munitions Policy. GMLRS Unitary and AW are currently in full rate production.

The 26 October 2016 Deputy Secretary's Management Action Group (DMAG) directed the Army to define and execute an effort for GMLRS modifications that would extend the maximum range (Extended Range (ER) GMLRS) and integrate sensors and seekers into the rocket to engage complex targets with greater precision at greater ranges. These modifications to GMLRS were designated by the Army Acquisition Executive as an engineering change proposal (ECP) and not as a new start effort.

The GMLRS program will continue to leverage ongoing Government and Industry research and development efforts to extend range, increase survivability, and enhance lethality. The EG2 funding line will enable the seeker modification. The EG3 funding line enables GMLRS enhancements, including ER GMLRS modification, statutorily required upgrades, and obsolescence mitigation and upgrades.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2021 Army	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	118.955	138.594	54.328	-	54.328
Current President's Budget	113.471	117.294	75.575	-	75.575
Total Adjustments	-5.484	-21.300	21.247	-	21.247
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-21.300			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-5.484	-			
• Adjustments to Budget Years	-	-	21.247	-	21.247

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>				<b>Project (Number/Name)</b> EG2 / <i>GMLRS Alternative Warheads</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
EG2: <i>GMLRS Alternative Warheads</i>	-	0.000	11.566	14.515	-	14.515	24.386	0.000	0.000	0.000	0.000	50.467
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

The United States (U.S.) Army initially funded the development of the Guided Multiple Launch Rocket System (GMLRS) Alternative Warhead (AW) increment under the EG2 - GMLRS Alternative Warheads project code. GMLRS AW entered full rate production in 2015. The 26 October 2016 Deputy Secretary's Management Action Group (DMAG) directed the Army to define and execute an effort for a GMLRS modification that would integrate a seeker into the rocket.

Funding identified in Fiscal Year (FY) 2020 - FY 2022 will support the technology transition, development, and demonstration of a seeker into the GMLRS and will help define a common seeker solution for the entire MLRS Family of Munitions (MFOM). The modification to integrate a seeker will leverage the Extended Range (ER) GMLRS and culminate in a proof of concept demonstration of the seeker capability.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> GMLRS seeker development	-	11.041	14.515	-	14.515
<b>Description:</b> Integrate a seeker into the GMLRS and conduct a proof of concept demonstration					
<b>FY 2020 Plans:</b> Performed initial trade studies to define System Weight and Performance challenges. Conducted preliminary rocket integration studies. Investigated Tactics, Techniques and Procedures (TTPs) and concept of operations (CONOPS) for an advanced seeker. Performed initial investigation into modifications needed in launcher/rocket software and Command and Control for integration of an advanced seeker.					
<b>FY 2021 Base Plans:</b> Perform Risk Reduction activities, including identification of suitable seeker and radome solutions and preliminary characterization of seeker and radome for integration. Modify existing GMLRS flight profiles, command and control software, seeker aiming algorithms, and seeker components for the ER GMLRS flight environments. Begin integration of a seeker and radome into an ER GMLRS.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	<b>Project (Number/Name)</b> EG2 / <i>GMLRS Alternative Warheads</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Funding increase is due to the transition from the initial phase involving analysis of system requirements to a more detailed phase involving identification and characterization of seeker, radome, and rocket solutions.					
<b>Title:</b> FY 2020 SBIR/STTR Transfer	-	0.525	-	-	-
<b>Description:</b> Funding transferred in accordance with Title 15 USC 638					
<b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC 638					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC 638					
<b>Accomplishments/Planned Programs Subtotals</b>	-	11.566	14.515	-	14.515

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• C64400: <i>Guided MLRS Rocket (GMLRS)</i>	975.507	1,176.406	850.157	127.015	977.172	808.559	984.484	990.005	960.079	Continuing	Continuing
• EG3: <i>Guided MLRS</i>	113.471	105.728	61.060	-	61.060	40.342	19.722	20.005	19.951	Continuing	Continuing
• C57701: <i>GMLRS MOD</i>	0.266	5.094	0.000	-	0.000	-	-	-	-	Continuing	Continuing

**Remarks**  
GMLRS missile Army procurement funding (MiPA) includes C65404 and C65406.

**D. Acquisition Strategy**  
GMLRS AW is currently in Full Rate Production. The seeker effort will conclude with a proof of concept demonstration. Design and integration processes will be executed upon receipt of additional funding to allow for maturation of seeker technology and integration into the ER GMLRS rocket. All GMLRS variants are procured under C64400; procurement of a seeker capable GMLRS variant will be integrated into annual GMLRS production contracts.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	<b>Project (Number/Name)</b> EG2 / <i>GMLRS Alternative Warheads</i>
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Government Program Management	MIPR	PFRMS Project Office, : RSA	4.948	-		-		-		-		-	0.000	4.948	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.525		-		-		-	0.000	0.525	-
<b>Subtotal</b>			4.948	-		0.525		-		-		-	0.000	5.473	N/A

**Remarks**  
PFRMS-Precision Fires Rocket and Missile Systems; RSA-Redstone Arsenal

<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
AWP Contracts (Multiple)	Various	NGIS (Plymouth, MN) LMMFC (Dallas, TX) : Systems Integrator	9.955	-		-		-		-		-	0.000	9.955	-
Seeker & Radome Contracts	SS/CPIF	LMMFC : Dallas, TX	-	-		8.687	Mar 2020	11.757	Jan 2021	-		11.757	0.000	20.444	-
Other Government Agencies	MIPR	AMCOM/ : CCDC, RSA	3.557	-		2.121	Feb 2020	2.342	Jan 2021	-		2.342	0.000	8.020	-
<b>Subtotal</b>			13.512	-		10.808		14.099		-		14.099	0.000	38.419	N/A

**Remarks**  
AWP-Alternative Warhead Program; Various-Competitive/Firm Fixed Price/Sole Source/Cost Plus Fixed Fee; AMCOM-Army Materiel Command; AMRDEC-U.S. Army Research, Development and Engineering Command; RSA-Redstone Arsenal; NGIS -Northrop Grumman Innovation Systems; MN-Minnesota; LMMFC-Lockheed Martin Missile and Fire Control; TX-Texas

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	<b>Project (Number/Name)</b> EG2 / <i>GMLRS Alternative Warheads</i>
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Support Contracts	C/CPFF	Various : Various	0.237	-		0.233	Feb 2020	0.416	Jan 2021	-		0.416	0.000	0.886	-
<b>Subtotal</b>			0.237	-		0.233		0.416		-		0.416	0.000	0.886	N/A

**Remarks**  
C/CPFF-Competitive/Cost Plus Fixed Fee

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Test Support	MIPR	WSMR, : NM	14.363	-		-		-		-		-	0.000	14.363	-
<b>Subtotal</b>			14.363	-		-		-		-		-	0.000	14.363	N/A

			Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			33.060	-		11.566		14.515		-		14.515	0.000	59.141	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	<b>Project (Number/Name)</b> EG2 / <i>GMLRS Alternative Warheads</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
Integrate and Demonstrate a Seeker																												
Trade Studies																												
Radome Development																												
Seeker Characterization																												
Rocket Integration																												
Concept Demonstration																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	<b>Project (Number/Name)</b> EG2 / <i>GMLRS Alternative Warheads</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Integrate and Demonstrate a Seeker	1	2020	4	2022
Trade Studies	1	2020	1	2021
Radome Development	1	2021	2	2022
Seeker Characterization	1	2021	4	2022
Rocket Integration	2	2021	4	2022
Concept Demonstration	3	2022	4	2022

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>					<b>Project (Number/Name)</b> EG3 / <i>Guided MLRS</i>		
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
EG3: <i>Guided MLRS</i>	-	113.471	105.728	61.060	-	61.060	40.342	19.722	20.005	19.951	0.000	380.279
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 Project EG3 Guided MLRS. 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 and second source qualification; (3) development of enhancements to the MLRS common test equipment; (4) evaluation and development of technologies to enhance overall product performance and survivability to include Positioning, Navigation and Timing (PNT); and (5) system test and evaluation.

The Fiscal Year (FY) 2021 dollars in the amount of \$61.060 million will continue the design, qualification, and testing of an extended range variant of the GMLRS; and continue qualification of key rocket obsolescence upgrades.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> GMLRS enhancements	14.850	9.680	9.249	-	9.249
<b>Description:</b> Assess and improve GMLRS rockets					
<b>FY 2020 Plans:</b> Developed and assessed methods to improve rocket effectiveness. Continued to assess payload options to meet Objective Additional Performance Attributes (APAs).					
<b>FY 2021 Base Plans:</b> Will develop and assess methods to improve rocket effectiveness. Continue to assess payload options to meet Objective Additional Performance Attributes (APAs).					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding decrease from FY 2020 to FY 2021 is due to the prioritization of funding available to support EG3 development efforts.					
<b>Title:</b> GMLRS cost savings initiatives and obsolescence mitigation	20.715	8.072	6.090	-	6.090
<b>Description:</b> Address obsolescence cost, study cost reduction initiatives and opportunities for second source supplier efficiencies, and increase system survivability. Development of a second ER GMLRS rocket motor					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army			<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	<b>Project (Number/Name)</b> EG3 / <i>Guided MLRS</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					
	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<p>vendor to introduce competition and reduce costs for this component by allowing the prime to compete during production.</p> <p><b>FY 2020 Plans:</b> Continued to design and qualify an optimized MFOM-qualified Guidance Set. Continued to develop a second source vendor for the Extended Range GMLRS rocket motor.</p> <p><b>FY 2021 Base Plans:</b> Effort that began in FY 2020 to design and qualify an optimized MFOM-qualified Guidance Set will continue into FY 2021.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding decrease from FY 2020 to FY 2021 is due to the prioritization of funding available to support EG3 development efforts.</p>					
<p><b>Title:</b> Extended Range (ER) GMLRS and complementary rocket pod development</p> <p><b>Description:</b> Conduct system test and evaluation activities for ER GMLRS and Insensitive Munitions (IM).</p> <p><b>FY 2020 Plans:</b> Completed ER GMLRS system-level ground testing, including Insensitive Munitions (IM) testing. Continued ER GMLRS System Qualification Flight Testing and conduct a User Demonstration and an In-Theater Flight Demonstration. Conducted Operational Flight Software Functional Qualification Testing (FQT) and Launcher Integration Testing (LIT).</p> <p><b>FY 2021 Base Plans:</b> Will complete ER GMLRS System Qualification flight testing and perform a system demonstration.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding decreases are due to the completion of ground testing.</p>	19.709	15.440	7.590	-	7.590
<p><b>Title:</b> Extended Range (ER) GMLRS development</p> <p><b>Description:</b> Qualification and integration of ER GMLRS.</p> <p><b>FY 2020 Plans:</b></p>	58.197	67.735	38.131	-	38.131

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<p>Conducted ER GMLRS component and system-level critical design and the system-level software design. Completed ER GMLRS Cooperative Vulnerability and Penetration Assessment. Continued ER GMLRS facilitation planning, and conducted Production Line Validations (PLVs) at the component and system level.</p> <p><b>FY 2021 Base Plans:</b> Conduct the Logistics Demo and the Prognostic/Diagnostic Demo as well as delivering the Practical and Classroom Explosive Ordnance (EOD) trainers. Complete the ER GMLRS Functional Configuration Audit (FCA). Resolve issues identified during ER GMLRS Cooperative Vulnerability and Penetration Assessment/ Adversarial Assessment.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding decrease from FY 2020 to FY 2021 is due to the completion of the design and development effort and a shift in focus to qualification and Test and Evaluation.</p>					
<p><b>Title:</b> FY 2020 SBIR/STTR Transfer</p> <p><b>Description:</b> Funding transferred in accordance with Title 15 USC 638</p> <p><b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC 638</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC 638</p>	-	4.801	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	113.471	105.728	61.060	-	61.060

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• C64400: <i>Guided MLRS Rocket (GMLRS)</i>	975.507	1,176.406	850.157	127.015	977.172	808.559	984.484	990.005	960.079	Continuing	Continuing
• EG2: <i>GMLRS Alternative Warheads</i>	-	11.566	14.515	-	14.515	24.386	-	-	-	0.000	50.467
• C57701: <i>GMLRS MOD</i>	0.266	5.094	0.000	-	0.000	-	-	-	-	Continuing	Continuing
<b>Remarks</b>	GMLRS Procurement funding includes C65404 and C65406.										

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	<b>Project (Number/Name)</b> EG3 / <i>Guided MLRS</i>

**D. Acquisition Strategy**

Project EG3 Guided MLRS 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 Insensitive Munitions (IM) activities to improve the overall posture of the system down to component level. The ER GMLRS effort is pursuing a strategy of modifying the current GMLRS system through the Engineering Change Proposal (ECP) process in order to increase its range. ER GMLRS is a development and qualification effort performed as a modification to the current GMLRS, leveraging existing contract vehicles where practicable.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS)	<b>Project (Number/Name)</b> EG3 / Guided MLRS
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Government Program Management	MIPR	Various : RSA	10.300	5.959	Oct 2018	1.433	Feb 2020	1.343	Jan 2021	-		1.343	Continuing	Continuing	Continuing
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		4.801		-		-		-	0.000	4.801	-
<b>Subtotal</b>			10.300	5.959		6.234		1.343		-		1.343	Continuing	Continuing	N/A

**Remarks**  
RSA-Redstone Arsenal, Alabama

<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Unitary Contracts/Multiple	SS/FPIF	LMMFC : Dallas, TX	30.764	29.606	Jan 2019	16.319	Mar 2020	13.996	Jan 2021	-		13.996	Continuing	Continuing	Continuing
IM Development & Qualification Contracts/ Multiple	C/FPIF	Orbital ATK, Aerojet Rocketdyne : Rocket Center, WV; Bristow, VA	36.380	-		-		-		-		-	0.000	36.380	-
GMLRS Extended Range	SS/CPFF	LMMFC : Dallas, TX	68.499	58.197	Jan 2019	67.735	Jul 2020	38.131	May 2021	-		38.131	Continuing	Continuing	Continuing
<b>Subtotal</b>			135.643	87.803		84.054		52.127		-		52.127	Continuing	Continuing	N/A

**Remarks**  
SS/FPIF-Sole Source/Fixed-Price Incentive Firm; LMMFC - Lockheed Martin Missile and Fire Control; TX - Texas; C/FPIF - Competitive/Fixed-Price Incentive Firm; WV - West Virginia; VA - Virginia; TBD - To Be Determined

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Test Support	MIPR	Various : Various	15.916	19.709	Oct 2018	15.440	Feb 2020	7.590	Jan 2021	-		7.590	Continuing	Continuing	Continuing
<b>Subtotal</b>			15.916	19.709		15.440		7.590		-		7.590	Continuing	Continuing	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	<b>Project (Number/Name)</b> EG3 / <i>Guided MLRS</i>
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Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			

**Remarks**  
 Performing Activities include Army Research, Development and Engineering Command (AMRDEC), Army Research Laboratory (ARL), and Redstone Test Center (RTC). FY 2020 Test Support cost was previously overstated and included costs that should have been reflected in GMLRS Extended Range Product Development, this issue has been corrected on this form.

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	161.859	113.471	105.728	61.060	-	61.060	Continuing	Continuing	N/A

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	<b>Project (Number/Name)</b> EG3 / <i>Guided MLRS</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
Assess and improve GMLRS rockets	[Blue bar]																											
Obsolescence/Cost Reduction Opportunities and 2nd Source	[Blue bar]																											
Second Source ER GMLRS Motor	[Grey bar]																											
IM/Enhanced Technology Improvements	[Blue bar]																											
Conduct System Test and Evaluation activities	[Blue bar]																											
ER GMLRS Design Verification Testing	[Grey bar]																											
ER GMLRS Ground Testing	[Grey bar]																											
ER GMLRS System Qualification Flight Testing	[Grey bar]																											
ER GMLRS Operational Testing	[Grey bar]																											
Flight Termination System Development	[Blue bar]																											
Qualification and Integration of GMLRS extended range effort	[Blue bar]																											
Preliminary Design Reviews	[Blue bar]																											
Critical Design Reviews	[Blue bar]																											



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	<b>Project (Number/Name)</b> EG3 / <i>Guided MLRS</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Assess and improve GMLRS rockets	1	2015	4	2025
Obsolescence/Cost Reduction Opportunities and 2nd Source	1	2015	4	2025
Second Source ER GMLRS Motor	4	2020	4	2020
IM/Enhanced Technology Improvements	1	2015	4	2025
Configuration System Qualification Ground/Flight Testing	4	2015	4	2018
M-Code/NAVSTRIKE-M (GPS receiver) Qualification	3	2018	4	2018
System Qual and testing of Side Mounted Proximity Sensor	1	2018	2	2018
Conduct qualification and testing for program	1	2015	4	2018
Conduct System Test and Evaluation activities for IMPS program	4	2015	4	2018
Conduct System Test and Evaluation activities	4	2015	1	2022
ER GMLRS Design Verification Testing	2	2020	4	2020
ER GMLRS Ground Testing	2	2020	2	2021
ER GMLRS System Qualification Flight Testing	4	2020	3	2021
ER GMLRS Operational Testing	4	2021	4	2021
Flight Termination System Development	3	2018	1	2021
Qualification and Integration of GMLRS extended range effort	3	2018	1	2020
Preliminary Design Reviews	4	2018	2	2019
Critical Design Reviews	3	2019	4	2020
Operational Flight Software Development	3	2018	1	2021
ER GMLRS Cooperative Vulnerability Identification	2	2019	2	2019
ER GMLRS Cooperative Vuln and Penetration Assessment	4	2021	4	2021
Engineering Change Proposal (ECP) Cut-in Decision	1	2022	1	2022