Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army											Date: February 2018	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0607134A *I Long Range Precision Fires (LRPF)*							
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	-	36.322	102.014	186.475	-	186.475	89.182	122.852	105.019	93.939	Continuing	Continuing
ES1: *Long Range Precision Fires (LRPF)*	-	36.322	102.014	186.475	-	186.475	89.182	122.852	105.019	93.939	Continuing	Continuing
Program MDAP/MAIS Code: 494												

A. Mission Description and Budget Item Justification

Long Range Precision Fires (LRPF) is being developed as a cluster and insensitive munition compliant system that replaces and improves upon Army Tactical Missile System (ATACMS) capabilities. LRPF is a major improvement over the current ATACMS with increased range, lethality, loadout, and an open systems architecture. The mission of the LRPF System is to attack/neutralize/suppress/destroy targets using missile delivered indirect precision fires. LRPF will provide Joint Force Commanders with a 24/7, all-weather capability to attack critical and time sensitive area and point targets including threat air defense, missile launchers, command and control centers, assembly/staging areas and high payoff targets at all depths of the multi-domain battlefield. The LRPF will counter the enemy's ability to conduct combat maneuver and air defense operations. LRPF requirements include: max range of greater than 400km, specified lethality against the designated target set, a Launch Pod Missile Container (LPMC) that holds a minimum of two missiles, and compatibility with the existing launcher platforms (M270A1 Multiple Launch Rocket System (MLRS) and M142 High Mobility Artillery Rocket System (HIMARS)). LRPF is being designed with an open system architecture that provides the capability for future growth to counter new and emerging threats. Milestone A; Technology Maturation and Risk Reduction (TMRR) was approved on 31 March 2017.

FY 2019 base dollars in the amount of $186.475 million support the continuation of LRPF development through the execution of two TMRR competitive prototyping and flight demonstration agreements. FY 2019 funding increase supports integration of test assets for risk reduction activities and allows both contractors to complete their tactical designs through the Critical Design Review (CDR), allows both contractors to conduct component and system level Engineering Development Test (EDT) qualification activities, conduct critical missile survivability assessments and ensures risk mitigation activities support transition to Engineering and Manufacturing Development (EMD). Carrying 2 contractors through CDR prior to down select, will reduce risk and ensure a more mature design. FY 2019 efforts include conducting a Preliminary Design Review (PDR) and completion of the final prototype tactical design with an assessment of future growth capabilities. Each contractor will complete final integration of four (4) prototype missiles. The first two prototype flight demonstrations are planned for FY19. Results will provide performance data to inform the contractor's proposed design.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army					Date: February 2018
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 7: *Operational Systems Development*		R-1 Program Element (Number/Name) PE 0607134A *I Long Range Precision Fires (LRPF)*			
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	67.006	102.014	111.505	-	111.505
Current President's Budget	36.322	102.014	186.475	-	186.475
Total Adjustments	-30.684	0.000	74.970	-	74.970
• Congressional General Reductions	-0.018	-			
• Congressional Directed Reductions	-1.500	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.435	-			
• Adjustments to Budget Years	-	-	74.970	-	74.970
• Amended FY2017	-27.731	-	-	-	-

Change Summary Explanation

FY 2017 funding reflects an adjustment of $30.684M which includes $27.731M that was requested in the Request for Additional FY17 Appropriations, but Congress did not appropriate the funds, a $1.5M funding decrement and $1.453M allocated against Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR).

FY 2019 funding reflects an increase of $74.970M to support the integration of test assets and continuation of design maturation activities for both vendors through the Critical Design Review (CDR). The increase in funding will allow both contractors to conduct component and system level Engineering Development Test (EDT) qualification activities, conduct critical missile survivability assessments and ensures risk mitigation activities support transition to Engineering and Manufacturing Development (EMD).

Note: Program Office core employee labor costs moved from RDTE to OMA as part of an OSD auditability directive.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army			Date: February 2018
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607134A / *Long Range Precision Fires (LRPF)*	Project (Number/Name) ES1 / *Long Range Precision Fires (LRPF)*	

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
ES1: *Long Range Precision Fires (LRPF)*	-	36.322	102.014	186.475	-	186.475	89.182	122.852	105.019	93.939	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Long Range Precision Fires (LRPF) is being developed as a cluster and insensitive munition compliant system that replaces and improves upon Army Tactical Missile System (ATACMS) capabilities while enabling an architecture which facilitates future growth. LRPF is a major improvement over the current ATACMS with increased range, lethality, loadout, and an open systems architecture. The mission of the LRPF System is to attack/neutralize/suppress/ destroy targets using missile delivered indirect precision fires. LRPF will provide Joint Force Commanders with a 24/7, all-weather capability to attack critical and time sensitive area and point targets including threat air defense, missile launchers, command and control centers, assembly/staging areas and high payoff targets at all depths of the multi-domain battlefield. LRPF will counter the enemy's ability to conduct combat maneuver and air defense operations. LRPF requirements include: max range of greater than 400km, specified lethality against the designated target set, a Launch Pod Missile Container (LPMC) that holds a minimum of two missiles, and compatibility with the existing launcher platforms (M270A1 Multiple Launch Rocket System (MLRS) and M142 High Mobility Artillery Rocket System (HIMARS)). LRPF is being designed with an open system architecture that provides the capability for future growth to counter new and emerging threats. Milestone A; Technology Maturation and Risk Reduction (TMRR) was approved on 31 March 2017.

FY 2019 base dollars in the amount of $186.475 million support the continuation of LRPF development through the execution of two TMRR competitive prototyping and flight demonstration agreements. FY 2019 funding increase supports integration of test assets for risk reduction activities and allows both contractors to complete their tactical designs through the Critical Design Review (CDR), allows both contractors to conduct component and system level Engineering Development Test (EDT) qualification activities, conduct critical missile survivability assessments and ensures risk mitigation activities support transition to Engineering and Manufacturing Development (EMD). Carrying 2 contractors through CDR prior to down select, will reduce risk and ensure a more mature design. FY 2019 efforts include conducting a Preliminary Design Review (PDR) and completion of the final prototype tactical design with an assessment of future growth capabilities. Each contractor will complete final integration of four (4) prototype missiles. The first two prototype flight demonstrations are planned for FY19. Results will provide performance data to inform the contractor's proposed design.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: TMRR	36.322	102.014	186.475
Description: Develop and prototype an insensitive munition compliant missile that provides increased range, improved lethality for both point and area targets, meets cluster munition policy requirements, and provides increased firepower with a multiple missile per launch pod solution. Long Range Precision Fires (LRPF) provides field artillery units with a deep-strike capability while supporting Brigade, Division, Corps, Army, Theater, Joint and Coalition forces in full, limited or expeditionary operations.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607134A / *Long Range Precision Fires (LRPF)*	**Project (Number/Name)** ES1 / *Long Range Precision Fires (LRPF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: Continued execution of two TMRR prototyping and flight demonstration agreements. Completed Launch Pod Missile Container (LPMC), static motor, warhead arena and insensitive munition component level testing and flight termination system development. Conducted Hardware in the Loop (HWIL), Software in the Loop (SWIL) and 6 degrees of freedom analysis of test data. Developed system level designs that incorporate technologies required to defeat an emerging threat. Initiated fabrication of prototype missiles required to support prototype flight demonstration. Conducted missile and launcher software development. Conducted assessment and implementation of software cyber security requirements. ***FY 2019 Plans:*** Continue execution of two TMRR prototyping and flight demonstration agreements. Complete system level designs that incorporate technologies required to defeat an emerging threat. Complete integration of a Flight Termination System (FTS) to support White Sands Missile Range testing. Complete a Preliminary Design Review (PDR) with each competing contractor. Continue risk reduction activities and allow both contractors to complete their tactical designs through the Critical Design Review (CDR). Both contractors will conduct component and system level Engineering Development Test (EDT) qualification activities, conduct critical missile survivability assessments, and ensure risk mitigation activities support transition to Engineering and Manufacturing Development (EMD). Continue to conduct Hardware in the Loop (HWIL), Software in the Loop (SWIL) and 6 Degrees of Freedom (6DoF) analysis of test data. Complete missile and launcher software development. Complete assessment and implementation of software cybersecurity requirements. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** $84.461M funding increase from FY18-19 is required to support completion of missile integration efforts, initiation of the TMRR flight test program, and procuring EDT test articles for competing contractors.			
Accomplishments/Planned Programs Subtotals	36.322	102.014	186.475

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The LRPF Acquisition Strategy supports development of a cluster and insensitive munition compliant system that replaces and improves upon ATACMS capabilities while enabling an architecture which facilitates future growth. LRPF provides responsive engagement of high value point and area targets by Army and Joint Force Commanders under all weather conditions, at operational ranges defended by enemy air-defense systems. An AoA supporting the MS A decision was completed by U.S. Army Training and Doctrine Command (TRADOC) Analysis Center-White Sands Missile Range (TRAC-WSMR), with an OSD letter of sufficiency issued in September 2015. In 4QFY16, the Army awarded 9 month risk reduction, trade study and initial design development agreements to two contractors. The effort resulted

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
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in development of initial baseline designs presented during final technical reviews that resulted in a seamless transition into the TMRR phase. Subsequent to MS A approval on 31 March 2017, the Army awarded TMRR agreements to two contractors.

TMRR is ongoing and includes risk reduction activities and further maturation of contractor design concepts. Both contractors will participate in a PDR and build four (4) missile prototypes culminating in flight tests to provide demonstration of their system capabilities. Both contractors will continue risk reduction activities allowing the contractors to mature their tactical designs through the Critical Design Review (CDR), conduct component and system level Engineering Development Test (EDT) qualification activities, conduct critical missile survivability assessments, and ensure risk mitigation activities support transition to Engineering and Manufacturing Development (EMD). Component level testing during TMRR, results of prototype flight tests, and results of EDT flight tests will inform the Source Selection. The EMD phase will complete product development, qualification, production readiness assessment, and a Limited User Test (LUT).

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army			Date: February 2018
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Program Management	MIPR	Various : RSA	-	3.869	Nov 2016	7.659	Nov 2017	7.889	Nov 2018	-		7.889	47.706	67.123	-
		Subtotal	-	3.869		7.659		7.889		-		7.889	47.706	67.123	N/A

Remarks

RSA - Redstone Arsenal, Alabama

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LRPF Risk Reduction - 2 Vendors (Raytheon and Lockheed Martin)	C/CPIF	DOTC : Picatinny, NJ	-	29.652	May 2017	86.130	Nov 2017	169.768	Nov 2018	-		169.768	434.469	720.019	-
Development Engineering Support	MIPR	AMCOM/AMRDEC : RSA	-	1.022	Nov 2016	2.665	Nov 2017	2.978	Nov 2018	-		2.978	38.972	45.637	-
		Subtotal	-	30.674		88.795		172.746		-		172.746	473.441	765.656	N/A

Remarks

AMCOM - Aviation and Missile Command; AMRDEC - U.S. Army Research, Development and Engineering Command; DOTC - DoD Ordnance Technology Consortium; OTA - Other Transaction Agreements; RSA - Redstone Arsenal, Alabama

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering, Testing, and Analysis	SS/T&M	ACC : RSA	-	1.496	Nov 2016	2.461	Nov 2017	2.508	Nov 2018	-		2.508	16.133	22.598	-
		Subtotal	-	1.496		2.461		2.508		-		2.508	16.133	22.598	N/A

Remarks

ACC - Army Contracting Command; RSA - Redstone Arsenal, AL

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army			Date: February 2018
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	MIPR	WSMR; RTC : WSMR,NM; RSA, AL	-	0.283	Nov 2016	3.099	Nov 2017	3.332	Nov 2018	-		3.332	60.106	66.820	-
		Subtotal	-	0.283		3.099		3.332		-		3.332	60.106	66.820	N/A

Remarks

WSMR,NM - White Sands Missile Range, New Mexico; RTC - Redstone Test Center; RSA - Redstone Arsenal, Alabama

	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	-	36.322		102.014		186.475		-		186.475	597.386	922.197	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607134A / *Long Range Precision Fires (LRPF)*	**Project (Number/Name)** ES1 / *Long Range Precision Fires (LRPF)*

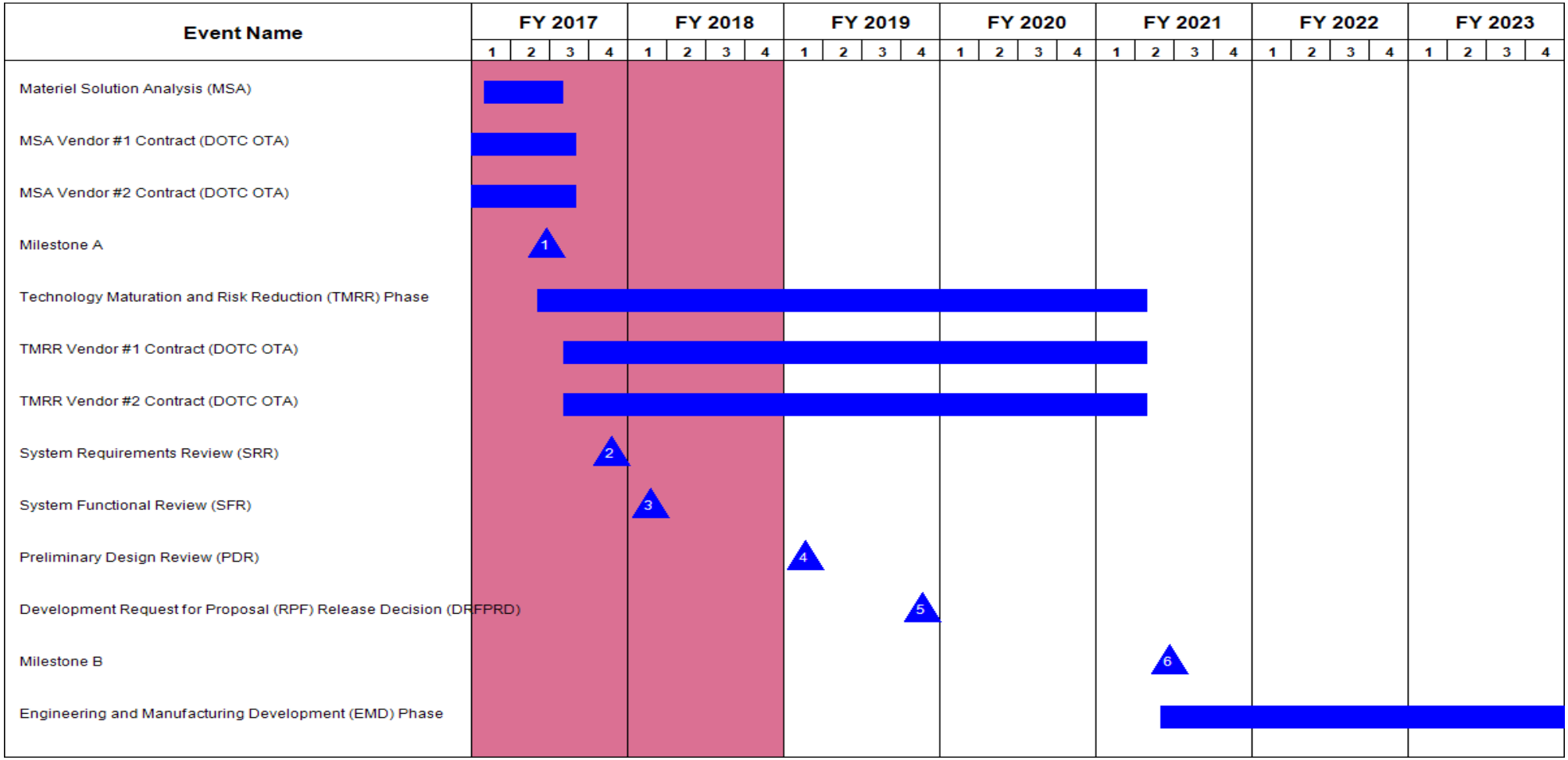

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607134A / *Long Range Precision Fires (LRPF)*	**Project (Number/Name)** ES1 / *Long Range Precision Fires (LRPF)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AoA	2	2015	3	2015
Materiel Solution Analysis (MSA)	1	2014	3	2017
MSA Vendor #1 Contract (DOTC OTA)	3	2016	3	2017
MSA Vendor #2 Contract (DOTC OTA)	3	2016	3	2017
Milestone A	2	2017	2	2017
Technology Maturation and Risk Reduction (TMRR) Phase	2	2017	2	2021
TMRR Vendor #1 Contract (DOTC OTA)	3	2017	2	2021
TMRR Vendor #2 Contract (DOTC OTA)	3	2017	2	2021
System Requirements Review (SRR)	4	2017	4	2017
System Functional Review (SFR)	1	2018	1	2018
Preliminary Design Review (PDR)	1	2019	1	2019
Development Request for Proposal (RPF) Release Decision (DRFPRD)	4	2019	4	2019
Milestone B	2	2021	2	2021
Engineering and Manufacturing Development (EMD) Phase	2	2021	2	2025