Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army											Date: March 2019	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0607134A / *Long Range Precision Fires (LRPF)*							
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	-	80.690	159.278	164.182	-	164.182	122.852	145.819	183.939	231.887	Continuing	Continuing
ES1: *Long Range Precision Fires (LRPF)*	-	80.690	159.278	164.182	-	164.182	122.852	145.819	183.939	231.887	Continuing	Continuing
Program MDAP/MAIS Code: 494												

A. Mission Description and Budget Item Justification

Precision Strike Missile (PrSM), formerly known as Long Range Precision Fires (LRPF), is the Army's next generation surface to surface missile that replaces and improves upon Army Tactical Missile System (ATACMS) capabilities. PrSM requirements include: max range of greater than 400km, specified lethality against the designated target set, a Launch Pod Missile Container (LPMC) that holds two missiles, survivability in a threat environment, and compatibility with the existing launcher platforms (M270A1 Multiple Launch Rocket System (MLRS) and M142 High Mobility Artillery Rocket System (HIMARS)). PrSM will meet cluster and insensitive munition requirements. PrSM is being designed with an open system architecture that provides the capability for future growth to counter new and emerging threats. Spiral 1 will include the ability to attack moving maritime and ground targets, Spiral 2 will provide increased lethality, and Spiral 3 will provide extended range. The mission of the PrSM System is to attack/neutralize/ suppress/destroy targets using missile delivered indirect precision fires. PrSM 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 PrSM will counter the enemy's ability to conduct combat maneuver and air defense operations. Milestone A; Technology Maturation and Risk Reduction (TMRR) was approved on 31 March 2017.

FY20 base dollars in the amount of $164.182 million supports the continuation of PrSM development and qualification. In 3QFY17, the Army awarded TMRR agreements to Lockheed Martin and Raytheon. In FY20, contractors will continue TMRR efforts to include: conduct prototype test flights, finalize tactical designs, build six (6) PrSM Engineering Development Test (EDT) missiles, conduct component and system level qualification testing, finalize missile interface and continue software integration with existing launcher platforms, and begin production planning efforts. The culmination of these efforts will inform a Critical Design Review (CDR) planned for 1QFY22. Demonstrating PrSM capabilities through a rigorous test program, will ensure the Army makes an informed down-select decision based on the performance of the contractor's proposed design. The program will conduct critical missile survivability assessments to ensure the design that transitions to Engineering and Manufacturing Development (EMD) will successfully meet the Army's PrSM requirements.

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 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 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**
Previous President's Budget	102.014	186.475	89.182	-	89.182
Current President's Budget	80.690	159.278	164.182	-	164.182
Total Adjustments	-21.324	-27.197	75.000	-	75.000
• Congressional General Reductions	-0.068	-0.197			
• Congressional Directed Reductions	-18.000	-27.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.256	-			
• Adjustments to Budget Years	-	-	75.000	-	75.000

Change Summary Explanation

FY18 funding reflects an adjustment of $21.324M which includes a -$4M congressional directed reduction for cybersecurity software, -$14M congressional directed reduction for TMRR contract delay, and -$3.256M for SBIR/STTR Transfer.

FY19 funding reflects an adjustment of $33.902M which includes a -$25M congressional directed reduction for "TMRR excess growth" and -$2M congressional directed reduction for "Restoring acquisition accountability: Program management excess growth" and -$6.902M for SBIR/STTR Transfer.

FY20 funding reflects an increase of $75.000M to maintain competition with both contractors to finalize PrSM tactical designs, build additional missiles, and conduct EDT component and missile flight testing. The FY20 increase reduces program risk and ensures an informed down-select decision in support of urgent operational fielding in 1QFY23.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
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 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
ES1: *Long Range Precision Fires (LRPF)*	-	80.690	159.278	164.182	-	164.182	122.852	145.819	183.939	231.887	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program supports the Cross Functional Team (CFT), LRPF.

A. Mission Description and Budget Item Justification

Precision Strike Missile (PrSM), formerly known as Long Range Precision Fires (LRPF), is the Army's next generation surface to surface missile that replaces and improves upon Army Tactical Missile System (ATACMS) capabilities. PrSM requirements include: max range of greater than 400km, specified lethality against the designated target set, a Launch Pod Missile Container (LPMC) that holds two missiles, survivability in a threat environment, and compatibility with the existing launcher platforms (M270A1 Multiple Launch Rocket System (MLRS) and M142 High Mobility Artillery Rocket System (HIMARS)). PrSM will meet cluster and insensitive munition requirements. PrSM is being designed with an open system architecture that provides the capability for future growth to counter new and emerging threats. Spiral 1 will include the ability to attack moving maritime and ground targets, Spiral 2 will provide increased lethality, and Spiral 3 will provide extended range. The mission of the PrSM System is to attack/neutralize/ suppress/destroy targets using missile delivered indirect precision fires. PrSM 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 PrSM will counter the enemy's ability to conduct combat maneuver and air defense operations. Milestone A; Technology Maturation and Risk Reduction (TMRR) was approved on 31 March 2017.

FY20 base dollars in the amount of $164.182 million supports the continuation of PrSM development and qualification. In 3QFY17, the Army awarded TMRR agreements to Lockheed Martin and Raytheon. In FY20, contractors will continue TMRR efforts to include: conduct prototype test flights, finalize tactical designs, build six (6) PrSM Engineering Development Test (EDT) missiles, conduct component and system level qualification testing, finalize missile interface and continue software integration with existing launcher platforms, and begin production planning efforts. The culmination of these efforts will inform a Critical Design Review (CDR) planned for 1QFY22. Demonstrating PrSM capabilities through a rigorous test program, will ensure the Army makes an informed down-select decision based on the performance of the contractor's proposed design. The program will conduct critical missile survivability assessments to ensure the design that transitions to Engineering and Manufacturing Development (EMD) will successfully meet the Army's PrSM requirements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: TMRR	80.690	152.573	164.182
Description: Develop the Army's next generation missile capability that doubles firepower, meets range requirements by exceeding 400km, provides required lethality for both point and area targets, ensures survivability, meets cluster munition policy			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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 2018	FY 2019	FY 2020
requirements, and provides an open system architecture. PrSM 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. ***FY 2019 Plans:*** Continue execution of two TMRR prototyping and flight demonstration agreements. Continue risk reduction activities and allow both contractors to mature their tactical designs which incorporate technologies required to defeat an emerging threat. Complete a Preliminary Design Review (PDR) with each competing contractor. Complete integration and qualification of a Flight Termination System (FTS) required to support White Sands Missile Range (WSMR) testing. Both contractors will begin build of four missiles required for flight testing. One contractor will complete build and flight test their first missile. Contractors will conduct component and system level Engineering Development Test (EDT) qualification activities, conduct critical missile survivability assessments, and ensure risk mitigation activities support schedule requirements. Continue to conduct Hardware in the Loop (HWIL), Software in the Loop (SWIL) and 6 Degrees of Freedom (6DoF) analysis of test data. Continue missile and launcher software development activities. Continue assessment and implementation of software cybersecurity requirements. As the launcher software owner, the Government will begin activities to support contractor unique missile software integration with the HIMARS fire control system to include required interface with Advanced Artillery Tactical Data System (AFATDS). The Government will conduct testing to characterize anti-jamming features required to operate in a GPS degraded environment. The Government will continue to assess contractor's missile performance through modeling, simulation, and performance testing. ***FY 2020 Plans:*** Contractors will finalize their tactical designs, complete missile software development and launcher integration, complete prototype missile builds, and finalize integration at WSMR required to conduct system level flight testing. One contractor will conduct remaining two flight tests. Second contractor will conduct all three flight tests. Contractors will build an additional six missiles to support flight testing in FY21. Contractors will continue to conduct Hardware in the Loop (HWIL), Software in the Loop (SWIL), and 6 Degrees of Freedom (6DoF) analysis. Contractors will complete assessment and implementation of software cybersecurity requirements, component level EDT qualification, and conduct critical missile survivability assessments. Government will continue activities to support contractor unique missile software integration with the HIMARS fire control system to include required interface with AFATDS. Government will continue to assess contractor's missile performance through modeling, simulation, and performance testing. The Army will ensure all efforts support transition to Engineering and Manufacturing Development (EMD) and informs a down-select decision to a single contractor in FY21. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** $11.609M funding increase from FY19-20 is attributed to FY20 requirement to complete missile fabrication, including flight termination hardware in support of component and system level flight testing to meet TMRR requirements. Additionally, funding supports continued competition to reduce program risk and make an informed down-select decision in FY21.			
Title: FY 2019 SBIR / STTR Transfer	-	6.705	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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 2018	FY 2019	FY 2020
FY 2019 Plans: N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease in FY 2020 due to SBIR / STTR transfer in FY2019.			
Accomplishments/Planned Programs Subtotals	80.690	159.278	164.182

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The PrSM Acquisition Strategy supports development of the Army's next generation surface to surface missile that replaces and improves upon Army Tactical Missile System (ATACMS) capabilities with major improvements in range, effectiveness, lethality, and rate of fire, while meeting insensitive and cluster munition policy requirements. PrSM provides an open system architecture that facilitates future growth. PrSM 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 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 participated in a PDR in 1QFY19 and have begun to receive hardware for assembling four (4) system level missile prototypes culminating in flight tests to provide demonstration of their system capabilities.

In FY18, the Army directed acceleration of PrSM capability in response to immediate near-peer threats and the requirement to engage targets with a precision guided missile out to 499km. As a result, the program was restructured to conduct the following key activities previously not planned for in TMRR: finalize tactical designs, build additional missiles for system level Engineering Development Testing (EDT) flight tests, and establish a production capability. This approach allows the Army to reduce program risk, make a more informed down-select decision at EMD, and accelerate an early capability. Component and system level testing will inform contractor down-select at EMD.

The EMD phase will complete product development, qualification, production readiness assessment, and Initial Operational Test and Evaluation (IOT&E).

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army			Date: March 2019
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)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Program Management	MIPR	Various : RSA	3.869	2.651	Nov 2017	1.819	Nov 2018	1.949	Nov 2019	-		1.949	Continuing	Continuing	Continuing
		Subtotal	3.869	2.651		1.819		1.949		-		1.949	Continuing	Continuing	N/A

Remarks

RSA - Redstone Arsenal, Alabama

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PrSM TMRR - 2 Vendors (Raytheon and Lockheed Martin)	C/CPIF	DOTC : Picatinny, NJ	29.652	73.501	Nov 2017	130.306	Nov 2018	144.792	Nov 2019	-		144.792	Continuing	Continuing	Continuing
Development Engineering Support	MIPR	AMCOM/AMRDEC/ S3I : RSA	1.022	3.721	Nov 2017	9.988	Nov 2018	10.698	Nov 2019	-		10.698	Continuing	Continuing	Continuing
FY 2019 SBIR / STTR Transfer	TBD	TBD : TBD	-	-		6.705		-		-		-	0.000	6.705	-
		Subtotal	30.674	77.222		146.999		155.490		-		155.490	Continuing	Continuing	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; S3I - Systems Simulation, Software and Integration; RSA - Redstone Arsenal, Alabama

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Quality, Safety, Systems Engineering, and Analysis	SS/T&M	Various : RSA	1.496	0.333	Nov 2017	2.491	Nov 2018	2.693	Nov 2019	-		2.693	Continuing	Continuing	Continuing
		Subtotal	1.496	0.333		2.491		2.693		-		2.693	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army			Date: March 2019
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)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

RSA - Redstone Arsenal, AL

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	MIPR	WSMR; RTC : WSMR,NM; RSA, AL	0.283	0.484	Nov 2017	7.969	Nov 2018	4.050	Nov 2019	-		4.050	Continuing	Continuing	Continuing
		Subtotal	0.283	0.484		7.969		4.050		-		4.050	Continuing	Continuing	N/A

Remarks

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

	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	36.322	80.690		159.278		164.182		-		164.182	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army		Date: March 2019
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)*

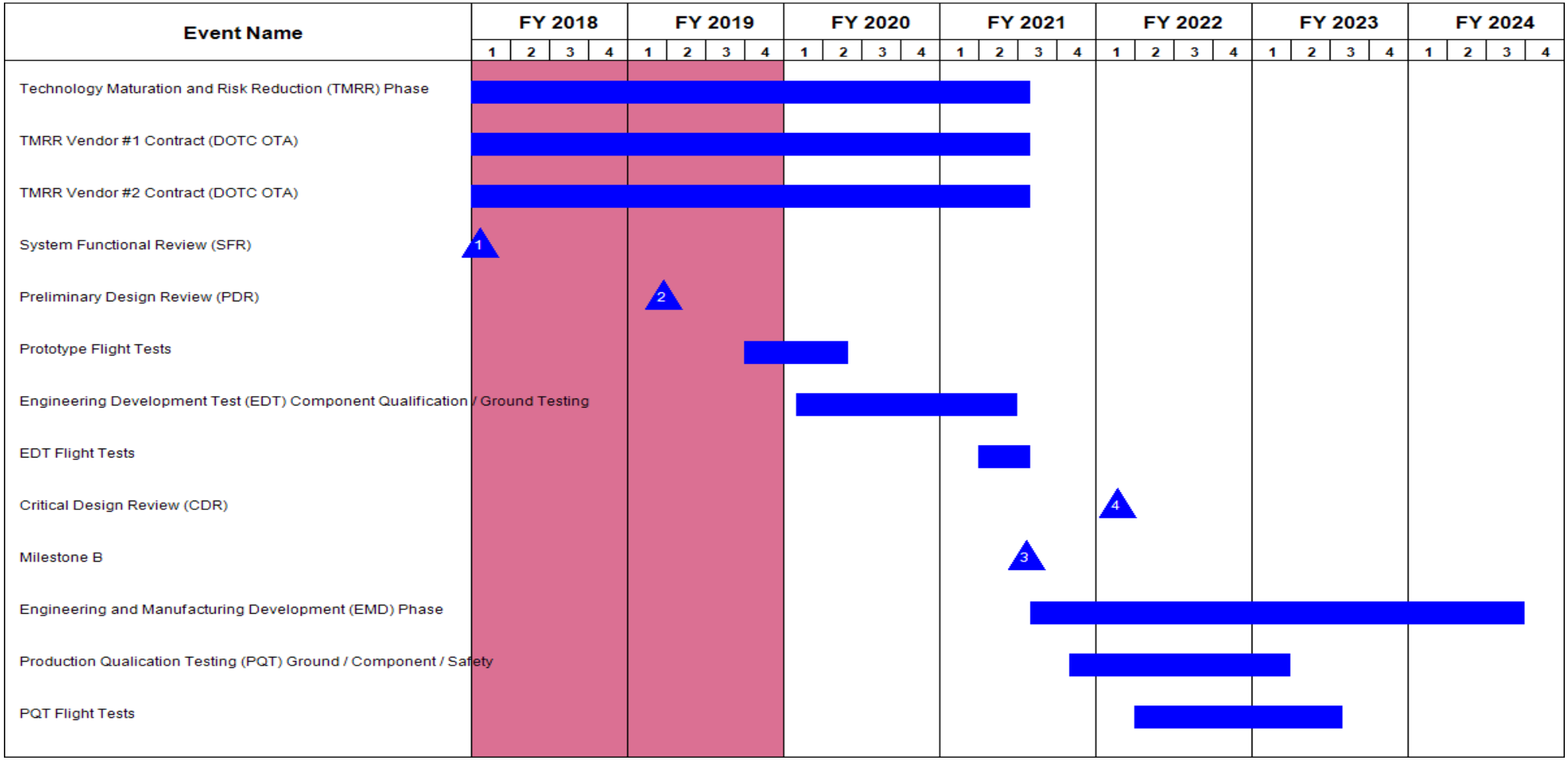

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607134A / *Long Range Precision Fires (LRPF)*	**Project (Number/Name)** ES1 / *Long Range Precision Fires (LRPF)*

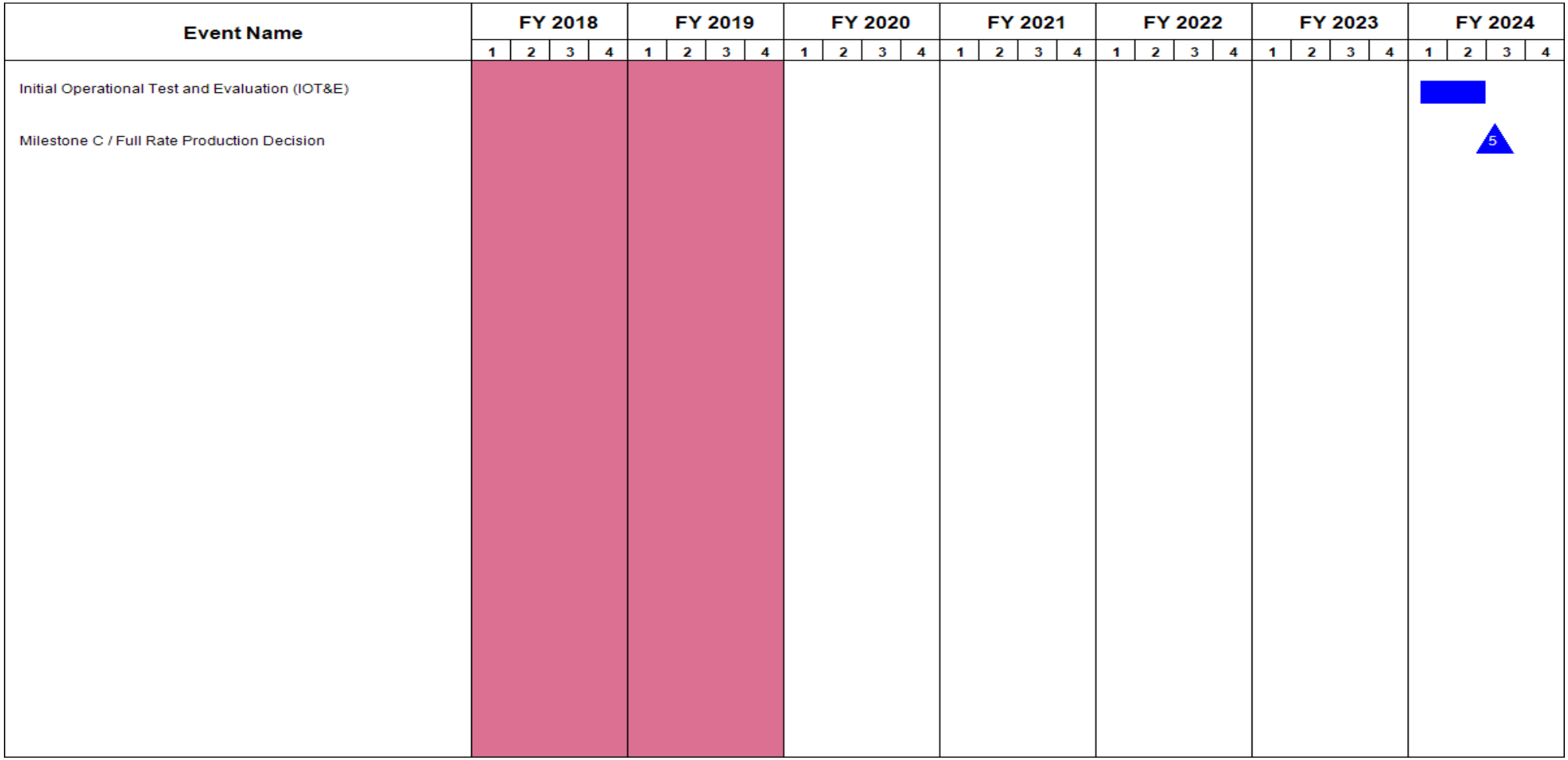

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607134A / *Long Range Precision Fires (LRPF)*	**Project (Number/Name)** ES1 / *Long Range Precision Fires (LRPF)*

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
Technology Maturation and Risk Reduction (TMRR) Phase	2	2017	3	2021
TMRR Vendor #1 Contract (DOTC OTA)	3	2017	3	2021
TMRR Vendor #2 Contract (DOTC OTA)	3	2017	3	2021
System Functional Review (SFR)	1	2018	1	2018
Preliminary Design Review (PDR)	1	2019	1	2019
Prototype Flight Tests	4	2019	2	2020
Engineering Development Test (EDT) Component Qualification / Ground Testing	1	2020	2	2021
EDT Flight Tests	2	2021	3	2021
Critical Design Review (CDR)	1	2022	1	2022
Milestone B	3	2021	3	2021
Engineering and Manufacturing Development (EMD) Phase	3	2021	3	2024
Production Qualication Testing (PQT) Ground / Component / Safety	4	2021	1	2023
PQT Flight Tests	2	2022	3	2023
Initial Operational Test and Evaluation (IOT&E)	1	2024	2	2024
Milestone C / Full Rate Production Decision	3	2024	3	2024