Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army											Date: March 2024	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
Total Program Element	-	284.859	243.851	242.949	-	242.949	204.560	178.208	158.545	125.754	0.000	1,438.726
613: *MORTAR SYSTEMS*	-	0.998	-	-	-	-	-	-	-	-	0.000	0.998
BQ3: *155mm Artillery Propulsion XM654*	-	22.628	16.497	27.424	-	27.424	27.268	24.614	32.413	16.031	0.000	166.875
BY1: *Next Generation Combat Vehicle Ammunition*	-	27.545	34.028	6.272	-	6.272	-	-	-	-	0.000	67.845
CE3: *Precision Munition (Sniper)*	-	4.993	-	6.513	-	6.513	4.539	3.046	-	-	0.000	19.091
DC9: *30mm MMPA M-SHORAD INC 3*	-	-	18.936	11.303	-	11.303	7.846	5.128	4.484	4.529	0.000	52.226
EC4: *Non-Standard Simulator Munitions*	-	2.102	2.188	0.411	-	0.411	0.413	0.417	0.421	0.425	0.000	6.377
EL9: *Ammunitions Logistics Prototyping*	-	0.985	1.052	1.074	-	1.074	1.076	1.087	1.099	1.110	0.000	7.483
EP2: *Shoulder-Launched Munitions*	-	0.600	2.551	-	-	-	-	-	-	-	0.000	3.151
EP3: *Reduced Range Ammunition - Small Caliber*	-	5.024	-	-	-	-	-	-	-	-	0.000	5.024
EP4: *One-Way Luminescence for Small Caliber Ammo*	-	7.289	3.093	-	-	-	-	-	-	-	0.000	10.382
EP7: *Aviation Airborne Expendable Countermeasures*	-	6.131	3.194	5.840	-	5.840	6.021	0.902	-	-	0.000	22.088
EU4: *40mm HV Improved High Explosive Dual Purpose*	-	1.997	-	1.503	-	1.503	-	-	-	-	0.000	3.500
EU6: *155mm HE Rocket Assist Project Extended Range*	-	13.857	28.772	15.631	-	15.631	2.655	-	-	-	0.000	60.915
EW1: *40mm Low Velocity Ammunition*	-	1.970	0.082	0.107	-	0.107	-	-	-	-	0.000	2.159
FA6: *30mm Lethality*	-	13.337	3.014	-	-	-	-	-	-	-	0.000	16.351

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FJ4: *Cannon-Delivered Area Effects Munitions (C-DAEM)*	-	89.029	85.071	93.267	-	93.267	89.588	83.855	85.579	87.840	0.000	614.229
FL4: *Small Caliber Ammo for Next Gen Squad Weapons*	-	32.625	11.809	11.955	-	11.955	11.968	12.097	12.232	12.354	0.000	105.040
MS1: *Battalion Mortar System Modernization*	-	-	-	6.012	-	6.012	-	-	-	-	0.000	6.012
S36: *Precision Guidance Kit*	-	53.749	33.564	55.637	-	55.637	53.186	47.062	22.317	3.465	0.000	268.980

Note

Project MS1: Battalion Mortar System Modernization is a New Start in FY2025.
Project EU4: 40mm HV Improved High Explosive Dual Purpose and EW1: 40mm Low Velocity Ammunition are on track for completion in FY2025 and are transitioning to production.

A. Mission Description and Budget Item Justification

Multiple Projects within Program Element Weapons and Munitions - Eng Dev, are key enablers of the Army's Cannon Modernization Priorities: 155mm Artillery Propulsion (Project BQ3), 155mm High Explosive Rocket Assisted Projectile Extended Range (Project EU6) and Precision Guidance Kit (Project S36).

Project 613, Mortar Systems funds engineering development and demonstration of new technologies that will support modernized mortar weapon and mortar fire control systems. This includes capabilities that provide commonality between current and future weapon and fire control systems to help mitigate technology shortfalls and critical capability gaps. Future mortar systems that address these gaps include remote mortar turrets for mounted mortar systems, future cannon design study and improvements, round counter design effort, high-pressure capable cannons/components, tactical vehicle integration and composite/lightweight components for mounted/dismounted systems as well any future mortar modernization efforts to improve system capability and performance to meet future capability gaps. Mortar Fire Control Systems capabilities include lightweight inertial measurement and navigation (IMU/INU) units for weapon pointing, simplified Ethernet/wireless-based digital communications interfaces, development of updated fire control software to enable commonality and modularity (plug and play capability), integration with existing/future platform interfaces to meet Modular Open Architecture Standard (MOSA), and support for commercial off-the-shelf (COTS)/modified commercial off-the-shelf (MCOTS) fire control components. There is no FY 2025 funding request.

Project BQ3, 155MM Artillery Propulsion Supercharge funding will support the Army's Cannon Modernization Strategy, which includes Paladin Integrated Management (PIM) Armament Upgrade and Next Generation Cannon, and all utilized cannons that are 52-calibers or longer; such as the future 58-caliber Extended Range Cannon Artillery (ERCA). Supercharge is a stand-alone top-zone 155 millimeter (mm) propelling charge required to achieve maximum range requirements beyond 50 kilometers (km) from Self-Propelled Howitzer (SPH) equipped with cannon length greater than 52-calibers. Supercharge will achieve lethality overmatch out to 70km from future US-developed and produced Long Range Precision Fires Weapon Systems using both existing and developmental extended range projectiles and will potentially increase range with compatible legacy projectiles up to thirty percent. Supercharge is composed of an earlier bag variant and later combustible cartridge case, integral metal stub case, electrically initiated primer, and advanced artillery propellant. This Project supports the Urgent Materiel Release (UMR) Supercharge (bag configuration) qualification required for fielding an initial capability of two battalions, and also supports the development of the Full Materiel Release (FMR) Supercharge that will

address high technology and integration risks unique to achieving extended range to include improved design opportunities for pressure temperature curve, cannon tube wear and ensure fielding robustness. FY 2025 funding will continue to support Supercharge component development, improve propellant for longer cannon life, conduct testing and development of artillery propulsion charges and primers in support of the Army's Cannon Modernization Strategy.

Project BY1, Next Generation Combat Vehicle Ammunition: 50x228 millimeter (mm) family of ammunition is a critical technology development in response to the Next Generation Combat Vehicle (NGCV) Abbreviated Capability Development Document for weapon qualification, platform integration, and fielding of the XM30 Mechanized Infantry Combat Vehicle (MICV) primary weapon system (XM913). This effort includes the development of three capabilities: The XM1202 Target Practice with Trace (TP-T); the XM1203 Armor Piercing Fin Stabilized Discarding Sabot with Trace (APFSDS-T); and the XM1204 High Explosive Airburst with Trace (HEAB-T). The training cartridge will allow the Warfighter to train in a cost-effective manner and the tactical cartridges will provide enhanced lethality at increased ranges when engaging personnel threats in the open, defilade, and under the cover of urban structures, Anti-Tank Guided Missiles (ATGM) teams, and current and projected future peer armored materiel threats. This effort is operating under Middle Tier Acquisition authority for rapid prototyping to qualify the three munitions in order to support the NGCV Cross Functional Team (CFT) timeline for First Unit Equipped (FUE). Fiscal Year (FY) 2025 funding supports building test assets and conducting Developmental Test & Evaluation (DT&E) on the XM1204 HEAB-T variant.

Project CE3, Precision Munition (Sniper): The Precision Munition (Sniper) project is a critical technology development in response to the Precision Munition Capabilities Development Documents (CDD) for the ammunition required to support the Precision Sniper Rifle (PSR) / sniper weapons systems. The objective is to transfer the latest lethality technology into the suite of ammunition used by snipers. The Precision Munition improvement is split into three capability areas: Anti-Materiel (AM), Improved Performance Round (IPR), and Subsonic. The AM and IPR capabilities will enhance lethal effects at greater distances. The Subsonic capability will increase soldier survivability at close range by providing a low-sound signature munition that is undetectable to the enemy. Fiscal Year (FY) 2025 funding will initiate Engineering and Manufacturing Development (EMD) activities, develop prototypes, and support a Solider Touch Point (STP) / User Evaluation for the .338 AM Cartridges.

Project DC9, 30mm MMPA M-SHORAD INC 3: The 30mm MMPA M-SHORAD INC 3 / Project DC9 funds the development of the 30mm XM1223 MMPA munition and respective weapon contact setter under the Middle Tier of Acquisition (MTA) authority for rapid prototyping. The objective is to enhance the operational effectiveness of the M-SHORAD Inc 3 platform, Mobile-Low, Slow, Small Unmanned Aircraft Integrated Defeat System (M-LIDS) and any other Joint Force platforms that are equipped with a 30mm weapon system and have a Counter Unmanned Aerial Systems (C-UAS) mission. The programmable fuze modes in the munition include proximity airburst to defeat personnel in the open and small Unmanned Aerial System (UAS) targets, proximity airburst delay to defeat personnel in defilade, gated proximity airburst to minimize collateral damage in cluttered environments, mechanical point detonate to defeat light materiel targets, and self-destruct to minimize collateral damage. The XM1223 will allow the platforms to conduct counter-UAS missions while retaining the ability to quickly transition to ground targets without having to swap ammunition. FY 2025 funding supports continuing the XM1223 development, building prototypes for Design Engineering Testing (DET), and conducting DET. The total cost of the 30 millimeter (mm) MMPA Middle Tier of Acquisition effort is $59.969 million RDT&E from FY2024 to FY2027.

Project EC4, Non-Standard Simulator Munitions will standardize various pyrotechnics that simulate battlefield effects. The Army's Combat Training Centers (CTCs) are currently using non-standard munitions to replicate both conventional and asymmetric warfare battlefield effects. These modified commercial-off-the-shelf products are not safe or sustainable for use by Soldiers. This effort will develop and demonstrate various pyrotechnics/simulators to replicate both conventional and asymmetric warfare battlefield affects such as: Black smoke signature (burning vehicles, buildings, and equipment); Yellow smoke signature (chemical, biological or nuclear effects);

Mini Blast to simulate hostile fire and small Improvised Explosive Devices (IEDs) during mounted operations in urban terrain; Micro pyrotechnics to simulate indoor hostile fire and IED effects that are capable of being integrated into existing facilities; Rocket Propelled Grenade (RPG) simulators to replicate the flight of a Rocket Propelled Grenade; Macro Pyro to simulate hostile fire, booby trap and IED Simulations indoor and outdoors; High Order Blast Effect (HiOBE) used to replicate a Vehicle Borne Improvised Explosive Device (VBIED), building explosions, and other significant explosive events; Artillery airburst simulator to replicate indirect fire; Antitank Guided Missile and Rocket (AGMR) simulator to replicate surface to air missile or shoulder launched rocket; Tracer Fire-back simulator to replicate enemy small arms fire and anti-aircraft fire; and Longer burning remotely and electrically initiated smoke pots and smoke grenades of various colors. Standardization will reduce training costs, eliminate redundancies between systems and mitigate environmental concerns and safety risks associated with realistic scenario-based training.

Project EL9, Ammunition Logistics Prototyping: This Project supports the future force by improving the distribution, management, reliability and survivability of ammunition through the advanced development, integration, and demonstration of logistics system enablers. These enablers will improve the efficiency and effectiveness of ammunition operations, to include retrograde, while reducing the logistics footprint on the battlefield. Technology areas addressed include handling, distribution, and management (strategic and tactical), prognostics, diagnostics, and asset visibility, explosives safety, and adaptive and environmentally friendly packaging and palletization. The efficient deployment and sustainment of reliable ammunition are vital to success on the battlefield. This project enhances the operational effectiveness of the ammunition logistics system to ensure the distribution of reliable ammunition to the warfighter. FY 2025 funding will be focused on integrating Commercial Off-the-shelf (COTS) and/or relatively mature technologies into ammunition resupply enablers, developing interfaces with Programs/Systems of Records as required by the Contested Logistics, Long Range Precision Fires (LRPF), Next-Generation Combat Vehicles (NGCV), Future Vertical Lift (FVL), Network, and Soldier Lethality (SL) Cross Functional Teams (CFT). They will be focused on ensuring that a low-risk resupply process solution exists to support the success of the Maneuver Force.

Project EP2, Shoulder-Launched Munitions: The XM919 Individual Assault Munitions (IAM) effort will combine the capabilities of the existing M141 Bunker Defeat Munition (BDM) and the M136 Anti-Tank 4 Confined Space - Reduced Sensitivity (AT4CS RS), eliminating the mission risk associated with having to choose between two different capability Shoulder-Launched Munitions (SLMs), reducing the logistics and training burdens associated with multiple systems. IAM consists of the tactical XM919 IAM munition and training devices including the XM922 sub-caliber trainer (SCT), sub-caliber tracer ammunition (SCT Ammo), Field Handling Trainer (FHT), Synthetic Training Environment Live Training System (STE LTS) and Soldier Virtual Trainers (SVT). JPEO A&A is collaborating with PEO STRI to plan for STE LTS and SVT integration within PEO STRI platforms under the SS PEG. The tactical XM919 IAM supports the close fight in urban and complex terrain, allowing Soldiers a fire-from-enclosure (FFE) capability to defeat field expedient structures such as earth and timber bunkers, reinforced concrete, adobe and triple brick walls with behind the wall lethality effects as well as defeating light armored vehicles. The IAM training devices provide training capability to increase the Soldier's proficiency and integration of the XM919 tactical system into combat operations. The XM919 IAM enables the Army's Soldier Lethality Modernization Line of Effort (LOE) by providing multi-target capability and reducing training & logistics burden associated with two systems, while providing tactical innovation capable of extending overmatch against peer/near-peer adversaries in a joint, multi-domain, high-intensity conflict.

Project EP3, Reduced Range Ammunition - Small Caliber: The small caliber Reduced Range Ammunition (RRA) Project is a critical technology development in response to the 7.62 millimeter (mm) and .50 caliber Capabilities Development Documents (CDD). The overall objective of RRA is to provide training ammunition suitable for use on military installations with Surface Danger Zone (SDZ) restrictions. The relatively long maximum range of the 7.62mm and .50 caliber service ammunition poses challenges on training ranges in range restricted areas. RRA will mitigate a training gap on installations by providing a materiel solution that meets training needs while

shortening and condensing the SDZ. This will allow soldiers to train with 7.62mm and .50 Caliber weapons on restricted ranges. The RRA cartridge design will be compatible with all Army 7.62mm and .50 caliber weapons, but specifically optimized to work in the M240 and M2 Machine Guns.

Project EP4, One-Way Luminescence for Small Caliber Ammo: The One-Way Luminescence (OWL) project is a critical technology development in response to the 7.62 millimeter (mm) and 5.56mm Families of Ammunition Capabilities Development Documents (CDD) and .50 Caliber Munitions CDD. Current small caliber ammunition tracer rounds are a pyrotechnic tracer mix which allows enemy forces to see the trace round and track its trajectory back to the shooter. The OWL projects objective is to develop and field a full tracer round, replace the current pyrotechnic cartridges with trace cartridges that are only visible to the shooter and soldiers in close proximity, increasing soldier survivability, and increasing lethality by incorporating Enhanced Performance Round (EPR) technology into the new tracer ammunition. This is no FY 2025 request as program transitions from development to production.

Project EP7, Aviation Airborne Expendable Countermeasures (AAECM) will support Integrated System Design (ISD), System Capability (SC) and Manufacturing Process Demonstrations (MPD) on expendable countermeasure flares and decoys to include the XM215 Infrared (IR) countermeasure Flare and XM20 Radio Frequency (RF) expendables. These expendable countermeasures systems are an essential part of survivability equipment for Army aircraft. Army Research Development Technology & Evaluation (RDT&E) efforts are coordinated with Program Executive Office (PEO) Aviation to address the AAECM capability, a critical enabler for enduring aircraft and the Future Vertical Lift (FVL) - Aircraft Survivability Equipment (ASE) Cross Functional Team (CFT) within Army's Top modernization priorities. These advanced decoys will address deficiencies in Army aircraft protection and the safety of its aircrews against advanced Man-Portable Air Defense Systems (MANPADS) and Surface-to-Air Missiles (SAM) systems. The project will also support ISD, SC and MPD on new expendable countermeasure munitions that will protect Army aircraft from advanced and proliferated current guided missile threats. Activities include modeling and simulation, flight testing, qualification testing, environmental considerations, safety enhancements, manufacturing enhancements, qualification of other service and foreign munitions that could meet current requirements, product improvements, insertion of new technologies to increase performance, and enhancement of current flare solutions for new and existing aircraft. Systems include impulse cartridges and aircraft expendables (to include RF expendables).

Project EU4, 40 millimeter (mm) High Velocity (HV) High Explosive Dual Purpose - Air burst (HEDP-AB): The 40 millimeter High Velocity HEDP-AB is a new capability identified as a Warfighter counter-defilade requirement in the 40mm High Velocity Improved High Explosive Dual Purpose Cartridge Capability Development Document (CDD) and will provide the Mk19 Mod 3 Grenade Machine Gun (GMG) an airburst capable cartridge with the ability of achieving required lethal effects against enemy targets in the open and in defilade while maintaining the capability to defeat unarmored and lightly armored vehicles. XM1176 HEDP-AB cartridges are manufactured by de-fuzing legacy M430A1 cartridges and installing a new airburst capable fuze onto the M430A1 warhead. In FY 2025 funding will support Live Fire Test and Evaluation (LFT&E) efforts.

Project EU6, The 155 millimeter (mm) High Explosive (HE) Rocket Assisted Projectile (RAP) supports the Army's Cannon Modernization Strategy which includes Paladin Integrated Management (PIM) Armament Upgrade, Next Generation Cannon, Extended Range Cannon Artillery (ERCA), and all utilized cannons that are 52-calibers or longer. The Project is executing an evolutionary approach leveraging current rocket assisted munitions hardware to meet the extended range and precision objectives. The High Explosive (HE) Rocket Assisted Projectile (RAP) will first deliver a near term solution to increase range from 30km to 40km in current 39 caliber systems. The Next Generation Rocket Assisted Projectile (NGRAP) will continue development of the High Explosive (HE) Rocket Assisted Projectile (RAP) with focus on improved accuracy, lethality, and ranges up to 70km and greater utilizing 52 and 58 caliber weapons. FY 2025 funding supports the Engineering and Manufacturing Development

(EMD) activities to build, test, and evaluate a solution that meets the requirements specified in the Next Generation Rocket Assisted Projectile (NGRAP) Capabilities Development Document (CDD).

Project EW1, 40 millimeter (mm) Low Velocity High Explosive Air Burst (LV-HEAB): The 40 millimeter LV-HEAB is a new capability identified as a Warfighter counter-defilade requirement in the Capability Development Document (CDD), 40mm Low Velocity (LV) Family of Ammunition Annex. The HEAB tactical cartridge allows the Warfighter to engage targets at increased effective ranges using the 40mm M320 Grenade Launcher. The HEAB cartridge provides the grenadier with a higher probability of achieving a first shot kill against enemy personnel, coupled with the ability to defeat personnel targets in defilade positions. When deployed against point and area targets, the cartridge inflicts incapacitating effects against personnel beyond those offered by the current M433 High Explosive Dual Purpose (HEDP) cartridge. The cartridge provides lethal effects against targets with improved accuracy and greater standoff ranges resulting in increased soldier survivability. Fiscal Year (FY) 2025 funding will be used to support a Soldier Touch Point (STP) for the XM1166 HEAB.

Project FA6, 30mm Lethality: The 30 millimeter (mm) Lethality project funds the development of a suite of 30x173mm caliber cartridges, which includes a XM1182 High Explosive Airburst with Trace (HEAB-T) cartridge for increased anti-personnel effects, XM1170 Armor Piercing Fin Stabilized Discarding Sabot with Trace (APFSDS-T) cartridge for anti-materiel, and ballistically matched training cartridges; XM1173 Target Practice with Trace (TP-T) cartridge and XM1172 Target Practice Discarding Sabot with Trace (TPDS-T) cartridge. The objective is to enhance the operational effectiveness and lethality of the Stryker Infantry Carrier Vehicle (ICV), Next Generation Combat Vehicle (NGCV), and any Army Fighting Vehicles that are equipped with a 30x173mm weapon system. The tactical APFSDS-T cartridge will provide an organic direct fire capability to support infantry at a greater range and will improve lethality when engaging light-to-medium armored vehicles. The HEAB-T cartridge will provide the Warfighter with increased lethality against troops in the open, counter defilade, Anti-Tank Guided Missile (ATGM) teams, and troops behind urban structures. The training cartridges will be ballistically matched to the tactical cartridges, allowing the Warfighter to train in a cost-effective manner. This project is a follow-on of the earlier efforts in support of the United States Army Europe (USAREUR) Operational Needs Statement (ONS) #15-20590 Stryker Increased Lethality for the 2nd Cavalry Regiment (2CR). There is no FY 2025 request as the program transitions to production.

Project FJ4, Cannon-Delivered Area Effects Munitions (C-DAEM): The Cannon-Delivered Area Effects Munitions (C-DAEM) Project will provide United States (U.S.) ground forces with the capability to engage area personnel through armored targets, while denying threat forces full operational freedom within the targeted area. An Analysis of Alternatives (AoA) was completed in January 2018 to inform Army acquisition and investment decisions regarding replacement of the current stockpile of 155 millimeter (mm) Dual Purpose Improved Conventional Munitions (DPICM) with Department of Defense (DoD) policy compliant munitions and address anti-armor and extended range capability requirements. The Army validated two materiel solutions for C-DAEM to be pursued in parallel to support the Army's modernization priorities; C-DAEM Armor and C-DAEM DPICM Replacement. C-DAEM Armor will destroy moved and moving self-propelled howitzers, infantry fighting vehicles and tanks. C-DAEM DPICM Replacement will destroy personnel through soft-skinned targets. Fiscal Year (FY) 2025 funding will continue to support C-DAEM Armor development and testing activities as well as engineering efforts required to integrate the Military-Code (M-Code) Global Positioning System (GPS) Receiver into the selected C-DAEM Armor objective materiel solution(s).

Project FL4, Small Caliber Ammo for Next Gen Squad Weapons: The Small Caliber Ammo for Next Gen Squad Weapons project is a critical technology development in response to the Soldier Lethality Cross Functional Team (SL CFT) Initial Capability Document (ICD) for the ammunition required to support the rapid prototyping, development, and fielding of the Next Generation Squad Weapons (NGSW) under the Middle Tier of Acquisition (MTA) authority for rapid prototyping/rapid fielding.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604802A *I Weapons and Munitions - Eng Dev*

The objective is to develop and Full Materiel Release (FMR) the new ammunition in parallel with the NGSW rifle and automatic rifle. The NGSW ammunition is split into multiple ammunition variants, the General Purpose (GP), the Special Purpose (SP), the Reduced Range Ammunition (RRA), Tracer Ammunition, Blank Ammunition, the Close Combat Mission Capability Kit (CCMCK) training ammunition, Drill Dummy Inert (DDI) cartridge, and High-Pressure Test (HPT) cartridge. Fiscal Year (FY) 2025 funding supports design optimization efforts for the SP, RRA, Blank, DDI, and HPT variants. FY 2025 funds also support Live-Fire Testing and Evaluation (LFT&E) activities on the GP, SP, and Tracer variants. FY 2025 funds support developmental testing on the CCMCK, Blank, DDI, and HPT variants. FY 2025 funds support Materiel Release efforts on the GP, SP, and variants. And, FY 2025 supports continuing the refinement, development, and maturation of the CCMCK, Blank, DDI, and HPT cartridges.

Project MS1, Battalion Mortar System Modernization: The Battalion Mortar System Modernization Project supports the development and demonstration of modernized Mortar Weapon Systems to support Infantry Brigade Combat Teams (IBCTs) and Armored Brigade Combat Teams (ABCTs). Efforts include development and qualification of said modernized systems and their required components that will increase lethality, survivability, mobility and readiness. FY 2025 funding will enable design and development effort for the weapon and mobility system for next generation 81mm and 120mm mortar weapon systems. The weapon and mobility systems will be qualified and integrated directly onto light tactical vehicles such as the High Mobility Multipurpose Wheeled Vehicle (HMMWV), the Infantry Squad Vehicle (ISV) and/or Joint Lightweight Tactical Vehicle (JLTV). The mobility system will address obsolescence by eliminating the need for a trailer mounted Mortar Stowage Kit (MSK). The modernized system will increase survivability, maneuverability, and provide a tactical advantage to the Warfighter when matched with pacing threat for direct and indirect fire and will provide overmatching capabilities.

Project S36, The Precision Guidance Kit (PGK): The Precision Guidance Kit (PGK) Project supports development efforts that will qualify state of the art technologies for a course correcting fuze that provides precision accuracy at extended ranges for current and future 155-millimeter (mm) High Explosive (HE) projectiles by eliminating a portion of the inherent errors associated with ballistic firing solutions, which effectively reduces the number of projectiles required to execute fire missions. The precision course correcting fuze will support projectile operation in Global Positioning System (GPS) degraded environments in support of the Army's Cannon Modernization Strategy. All 39-caliber weapon systems and modernized Self-Propelled Howitzer (SPH) weapon systems with cannon lengths greater than or equal to 52-caliber and new long-range projectiles require the precision course correcting fuze to meet lethality requirements. FY 2025 funding will continue to support the fabrication of precision course correcting fuze hardware, safety and development testing, and further refines the Artillery fuze design.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604802A *I Weapons and Munitions - Eng Dev*

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	286.378	243.851	144.098	-	144.098
Current President's Budget	284.859	243.851	242.949	-	242.949
Total Adjustments	-1.519	0.000	98.851	-	98.851
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	8.001	-			
• SBIR/STTR Transfer	-9.520	-			
• Adjustments to Budget Years	-	-	98.851	-	98.851

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2023	FY 2024
Project: FL4: *Small Caliber Ammo for Next Gen Squad Weapons*		
Congressional Add: *Small Caliber Ammunition Component Manufacturing*	8.000	-
Congressional Add Subtotals for Project: FL4	8.000	-
Project: S36: *Precision Guidance Kit*		
Congressional Add: *Anti-Jam Precision Guidance Kit*	25.000	-
Congressional Add Subtotals for Project: S36	25.000	-
Congressional Add Totals for all Projects	33.000	-

Change Summary Explanation

BQ3: $27.424M increase required for propulsion development work to support the Army's expanded Cannon Modernization Strategy.
BY1: $0.147M decrease for XM1202 and XM1203 reaching Milestone C and transitioning to Low-Rate Initial Production.
CE3 $6.513M and EC4 $2.048M increases support required Engineering and Manufacturing Development (EMD) activities.
EL9: $0.002 increase for integrating Commercial Off-the-shelf (COTS) and/or relatively mature technologies into ammunition resupply enablers.
EP7: $2.700M increase due to qualification testing on UH60 platform and pattern development on AH64 and CH47 platforms and $0.068M decrease due to qualification testing on UH60 platform and pattern development on AH64 and CH47 platforms.
EU4: $1.503M increase for live fire testing requirement.
EU6: $0.031 increase for engineering and manufacturing development.
EW1: $0.003M decrease accounts for 40MM Low Velocity Ammunition execution of Soldier Touch Point (STP).

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604802A *I Weapons and Munitions - Eng Dev*

FJ4: $24.281M increase in testing costs for C-DAEM Armor.
FL4: $0.024M increase for live fire testing and evaluation efforts.
S36: $30.555M increase in contract costs associated with precision course correcting fuze development efforts.
613: $1.000 increase reflects contract costs requirements associated with the completion of this effort.
MS1: $6.012M increase for initiation of Mortar Stowage Kit Modernization activities.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) 613 / *MORTAR SYSTEMS*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
613: *MORTAR SYSTEMS*	-	0.998	-	-	-	-	-	-	-	-	0.000	0.998
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Mortar System and Fire Control Modernization Project funds engineering development and demonstration of new technologies that will support modernized mortar weapon and mortar fire control systems. This includes capabilities that provide commonality between current and future weapon and fire control systems to help mitigate technology shortfalls and critical capability gaps. Future mortar systems that address these gaps include remote mortar turrets for mounted mortar systems, future cannon design study and improvements, round counter design effort, high-pressure capable cannons/components, tactical vehicle integration and composite/lightweight components for mounted/dismounted systems as well any future mortar modernization efforts to improve system capability and performance to meet future capability gaps. Mortar Fire Control Systems capabilities include lightweight inertial measurement and navigation (IMU/INU) units for weapon pointing, simplified Ethernet/wireless-based digital communications interfaces, development of updated fire control software to enable commonality and modularity (plug and play capability), integration with existing/future platform interfaces to meet Modular Open Architecture Standard (MOSA), and support for commercial off-the-shelf (COTS)/modified commercial off-the-shelf (MCOTS) fire control components.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Mortar System & Fire Control Modernization	0.998	-	-
Description: Mortar Systems and Fire Control Modernization initiatives include development and demonstration of new technologies to validate production potential for future mortar systems; including remote turrets and new weapon system components, modernized lightweight pointing device, updated Line Replaceable Units (LRUs), streamlined digital communications, and updated mortar fire control software.			
Accomplishments/Planned Programs Subtotals	0.998	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• AD9300: *Mortar Fire Control Systems Modifications*	4.370	7.399	6.098	-	6.098	12.147	10.777	4.870	4.919	0.000	50.580
• K99200: *Computer Ballistics: LHMBC XM32*	4.833	2.965	2.966	-	2.966	6.487	6.490	6.496	6.560	0.000	36.797
• K99300: *Mortar Fire Control System*	4.879	8.024	4.660	-	4.660	3.715	3.736	3.738	3.774	0.000	32.526
• G02200: *Mortar Systems*	21.946	8.013	8.353	-	8.353	14.229	13.892	13.903	14.044	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** 613 / *MORTAR SYSTEMS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost

Remarks

Other Procurement, Army (OPA) Funding / Procurement of Weapons & Tracked Combat Vehicle (W&TCV)

D. Acquisition Strategy

The Mortar System and Fire Control Modernization strategy will utilize Government Owned Government Operated (GOGO) Watervliet Arsenal (WVA) facility for cannon barrel prototyping, Combat Capabilities Development Command Armament Center (DEVCOM AC) for studies and competitively awarded Department of Defense Ordnance Technology Consortium (DOTC) and/or Cornerstone Other Transaction Agreement (OTA) initiatives for hardware and software development during Engineering Manufacturing Design Phase. A Federal Acquisition Regulation (FAR) contract will be awarded to complete full rate production.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** 613 / *MORTAR SYSTEMS*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mortar System & Fire Control Modernization - Project Manager Office Support	Various	Office of the Project Manager (PM) Combat Ammunition Systems (CAS) : Picatinny Arsenal, NJ	0.212	-		-		-		-		-	0.000	0.212	-
		Subtotal	0.212	-		-		-		-		-	0.000	0.212	N/A

Remarks

Program management includes travel and documentation support.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mortar System & Fire Control Modernization Engineering Support	MIPR	DEVCOM Armament Center : Picatinny Arsenal, NJ and Watervliet Arsenal, NY	0.497	0.998	Feb 2023	-		-		-		-	0.000	1.495	-
		Subtotal	0.497	0.998		-		-		-		-	0.000	1.495	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.709	0.998		-		-		-		-	0.000	1.707	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** 613 / *MORTAR SYSTEMS*

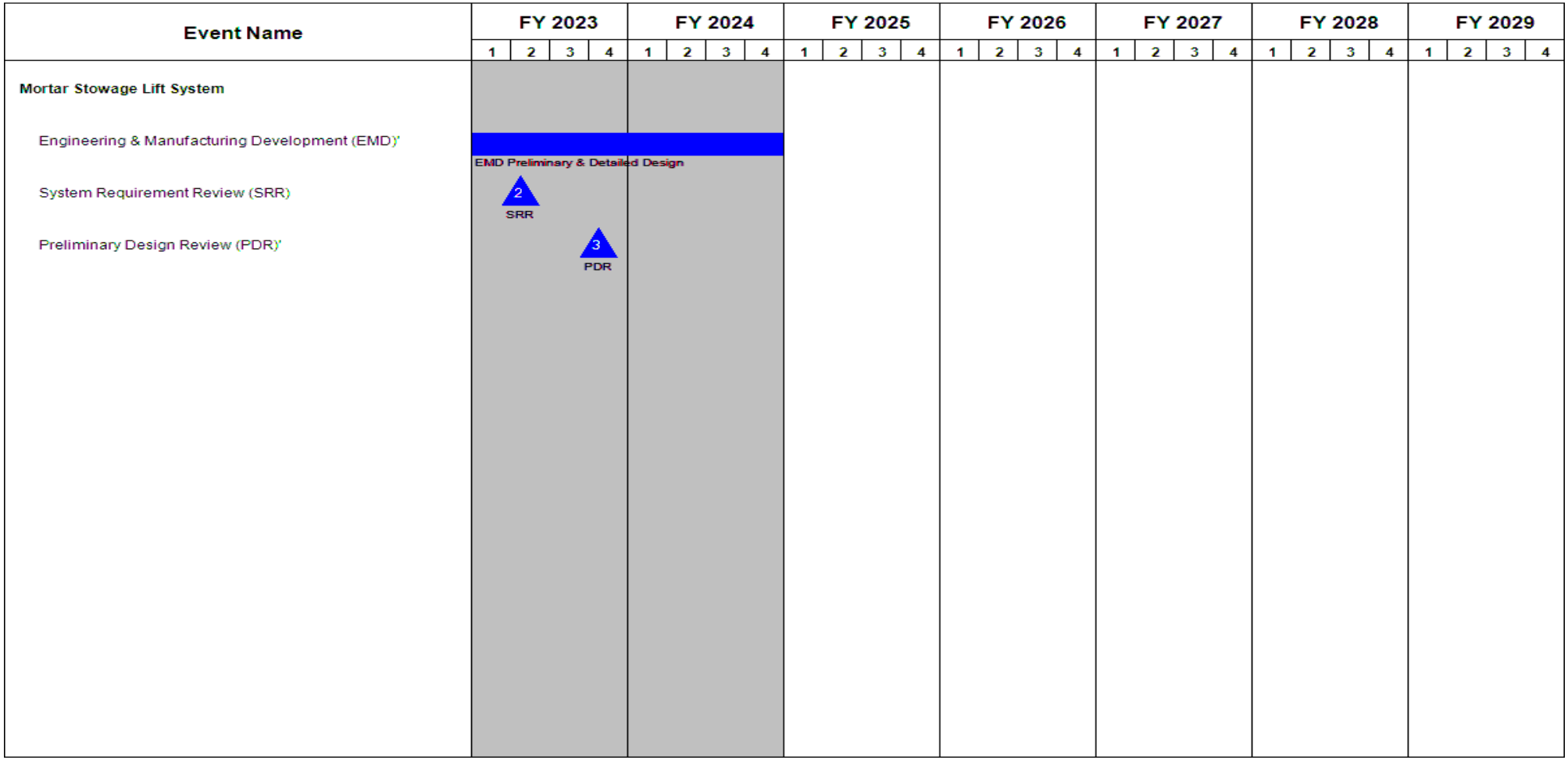


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** 613 / *MORTAR SYSTEMS*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Mortar System Round Counter	1	2021	1	2021
Engineering & Manufacturing Development (EMD)	1	2020	4	2021
LRU Software Development	1	2020	4	2021
Mortar System Round Counter- System Architecture Development (Sys Eng Phase 1)	1	2020	1	2021
EMD Detailed Design Testing (Sys Eng Phase 2)	2	2021	4	2021
Critical Design Review (CDR)	4	2021	4	2021
Mortar Stowage Lift System	1	2023	1	2023
Engineering & Manufacturing Development (EMD)'	1	2023	4	2024
System Requirement Review (SRR)	2	2023	2	2023
Preliminary Design Review (PDR)'	4	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) BQ3 / *155mm Artillery Propulsion XM654*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
BQ3: *155mm Artillery Propulsion XM654*	-	22.628	16.497	27.424	-	27.424	27.268	24.614	32.413	16.031	0.000	166.875
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

155MM Artillery Propulsion Supercharge funding will support the Army's Cannon Modernization Strategy, which includes Paladin Integrated Management (PIM) Armament Upgrade and Next Generation Cannon, and all utilized cannons that are 52-calibers or longer; such as the future 58-caliber Extended Range Cannon Artillery (ERCA). Supercharge is a stand-alone top-zone 155 millimeter (mm) propelling charge required to achieve maximum range requirements beyond 50 kilometers (km) from Self-Propelled Howitzer (SPH) equipped with cannon length greater than 52-calibers. Supercharge will achieve lethality overmatch out to 70km from future US-developed and produced Long Range Precision Fires Weapon Systems using both existing and developmental extended range projectiles and will potentially increase range with compatible legacy projectiles up to thirty percent. Supercharge is composed of an earlier bag variant and later combustible cartridge case, integral metal stub case, electrically initiated primer, and advanced artillery propellant. This Project supports the Urgent Materiel Release (UMR) Supercharge (bag configuration) qualification required for fielding an initial capability of two battalions, and also supports the development of the Full Materiel Release (FMR) Supercharge that will address high technology and integration risks unique to achieving extended range to include improved design opportunities for pressure temperature curve, cannon tube wear and ensure fielding robustness. FY 2025 funding will continue to support Supercharge component development, improve propellant for longer cannon life, conduct testing and development of artillery propulsion charges and primers in support of the Army's Cannon Modernization Strategy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: 155mm Artillery Propulsion Supercharge	22.628	16.497	27.424
Description: 155MM Artillery Propulsion Supercharge is a stand-alone top-zone 155 millimeter (mm) propelling charge required to achieve maximum range requirements beyond 50 kilometers (km) from Self-Propelled Howitzer (SPH) equipped with cannon length greater than 52-calibers.			
FY 2024 Plans: FY 2024 funding will continue to support efforts to FMR Supercharge component development, improve propellant for longer cannon life, conduct testing as well as support the initiation of Extended Range Cannon Artillery System of Systems (ERCA SoS) integration activities. ERCA SoS includes Supercharge and Stub Charge Propulsion System, 155mm XM1210 HE Projectile, Course Correcting Precision Fuze (LR-PGK/PGK-ER) and EPIAFS Fuze Setter.			
FY 2025 Plans: FY 2025 funding will support 155MM Artillery Propulsion Supercharge component development, propellant development (formulation trade studies and iterative prototype testing), improve propellant manufacturing (key parameters and in-process			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** BQ3 / *155mm Artillery Propulsion XM654*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
tools), and configuration testing of artillery propulsion charges and primers in support of the Army's Cannon Modernization Strategy. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 funding increase will continue to support 155MM Artillery Propulsion Supercharge component development, improve propellant for longer cannon life, conduct testing and development of artillery propulsion charges and primers in support of the Army's Cannon Modernization Strategy.			
Accomplishments/Planned Programs Subtotals	22.628	16.497	27.424

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E99350: *155MM ARTILLERY SUPERCHARGE*	11.002	16.469	0.000	-	0.000	-	62.303	62.302	62.924	0.000	215.000

Remarks

A Procurement of Ammunition, Army (PAA) budget line item, Standard Study Number (SSN) E99350, will resource procurement of the Supercharge to deliver extended range capability beyond 50km to support the Army's Cannon Modernization Strategy that includes PIM Armament Upgrade, Next Generation Cannon, and ERCA for fielding an initial capability of two battalions as well as future Urgent Materiel Release (UMR) and Full Materiel Release (FMR) quantities.

D. Acquisition Strategy

The 155MM Artillery Propulsion Supercharge Project consists of critical technology prototyping, testing, and demonstration of two variants: (1) the UMR Supercharge (2-piece Bag configuration) to deliver extended range capability beyond 50km to support the Cannon Modernization Strategy that includes PIM Armament Upgrade, Next Generation Cannon, and ERCA (2) the FMR Supercharge, which will address high technology and integration risks unique to achieving increased range.

The UMR Supercharge will utilize several competitively awarded Defense Ordnance Technology Consortium (DOTC) Other Transaction Agreement (OTA) Initiatives for the maturation and integration of components. These contracts will execute UMR Supercharge through qualification testing as well as transition to procurement of quantities required for fielding an initial capability of two battalions. Federal Acquisition Regulation (FAR) based production contract(s) will be awarded for UMR quantities.

The FMR Supercharge will also utilize several competitively awarded DOTC OTA Initiatives for design risk reduction of the various new and existing Supercharge components, system integration, developmental testing and qualification. Propulsion risk reduction activities will be applied to address UMR Supercharge temperature sensitivity, energy, tube wear, rough handling robustness and muzzle pressure/blast overpressure. FAR based production contract(s) will be awarded.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) BQ3 / *155mm Artillery Propulsion XM654*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Various	Office of the Project Manager (PM) Combat Ammunition Systems (CAS) : Picatinny Arsenal, NJ	0.300	0.300	Oct 2022	0.300	Oct 2023	0.350	Oct 2024	-		0.350	0.000	1.250	-
		Subtotal	0.300	0.300		0.300		0.350		-		0.350	0.000	1.250	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Combustible Case Components	MIPR	DoD Ordnance Technology Consortium (DOTC): Armtec : Coachella, CA	4.259	3.000	Nov 2022	1.200	Nov 2023	1.200	Oct 2024	-		1.200	0.000	9.659	-
Main Charge Propellants	MIPR	DoD Ordnance Technology Consortium (DOTC): General Dynamics Ordnance and Tactical Systems - Valleyfield : Salaberry-de-Valleyfield, Quebec, Canada	3.434	3.727	Nov 2022	4.493	Nov 2023	15.040	Oct 2024	-		15.040	0.000	26.694	-
Electric Primers	MIPR	Day & Zimmermann Lone Star LLC : Texarkana, TX	0.425	0.225	Mar 2023	0.200	Mar 2024	0.300	Mar 2025	-		0.300	0.000	1.150	-
Packaging	MIPR	DoD Ordnance Technology Consortium (DOTC): Savit Corporation : Rockaway, NJ	0.522	0.550	Mar 2023	0.250	Mar 2024	0.754	Mar 2025	-		0.754	0.000	2.076	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** BQ3 / *155mm Artillery Propulsion XM654*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Main Load Assemble & Pack	MIPR	DoD Ordnance Technology Consortium (DOTC): General Dynamics Ordnance and Tactical Systems - Marion, IL : Marion, IL	1.650	2.500	Nov 2022	0.417	Nov 2023	-		-		-	0.000	4.567	-
Supercharge FMR Risk Reduction	Various	Various : Various	4.700	2.253	Mar 2023	0.424	Mar 2024	4.100	Mar 2025	-		4.100	0.000	11.477	-
Projectile and Fuze Hardware	Various	Various : Various	5.818	2.917	Mar 2023	1.069	Mar 2024	-		-		-	0.000	9.804	-
Software Engineering	Reqn	Leidos, Inc. : Reston, Virginia	1.350	1.200	Aug 2023	0.500	Aug 2024	-		-		-	0.000	3.050	-
		Subtotal	22.158	16.372		8.553		21.394		-		21.394	0.000	68.477	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ	4.210	2.893	Nov 2022	2.654	Nov 2023	4.430	Oct 2024	-		4.430	0.000	14.187	-
		Subtotal	4.210	2.893		2.654		4.430		-		4.430	0.000	14.187	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Supercharge UMR Qualification	MIPR	Army Test & Evaluation Command (ATEC):	1.647	1.684	Nov 2022	-		-		-		-	0.000	3.331	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) BQ3 / *155mm Artillery Propulsion XM654*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Yuma Proving Ground : Yuma, AZ													
Supercharge FMR Testing	MIPR	Army Test & Evaluation Command (ATEC): Yuma Proving Ground : Yuma, AZ	0.400	1.379	Nov 2022	1.990	Nov 2023	1.250	Oct 2024	-		1.250	0.000	5.019	-
Supercharge Qualification	MIPR	Various : Various	-	-		3.000	Nov 2023	-		-		-	0.000	3.000	-
		Subtotal	2.047	3.063		4.990		1.250		-		1.250	0.000	11.350	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	28.715	22.628		16.497		27.424		-		27.424	0.000	95.264	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** BQ3 / *155mm Artillery Propulsion XM654*

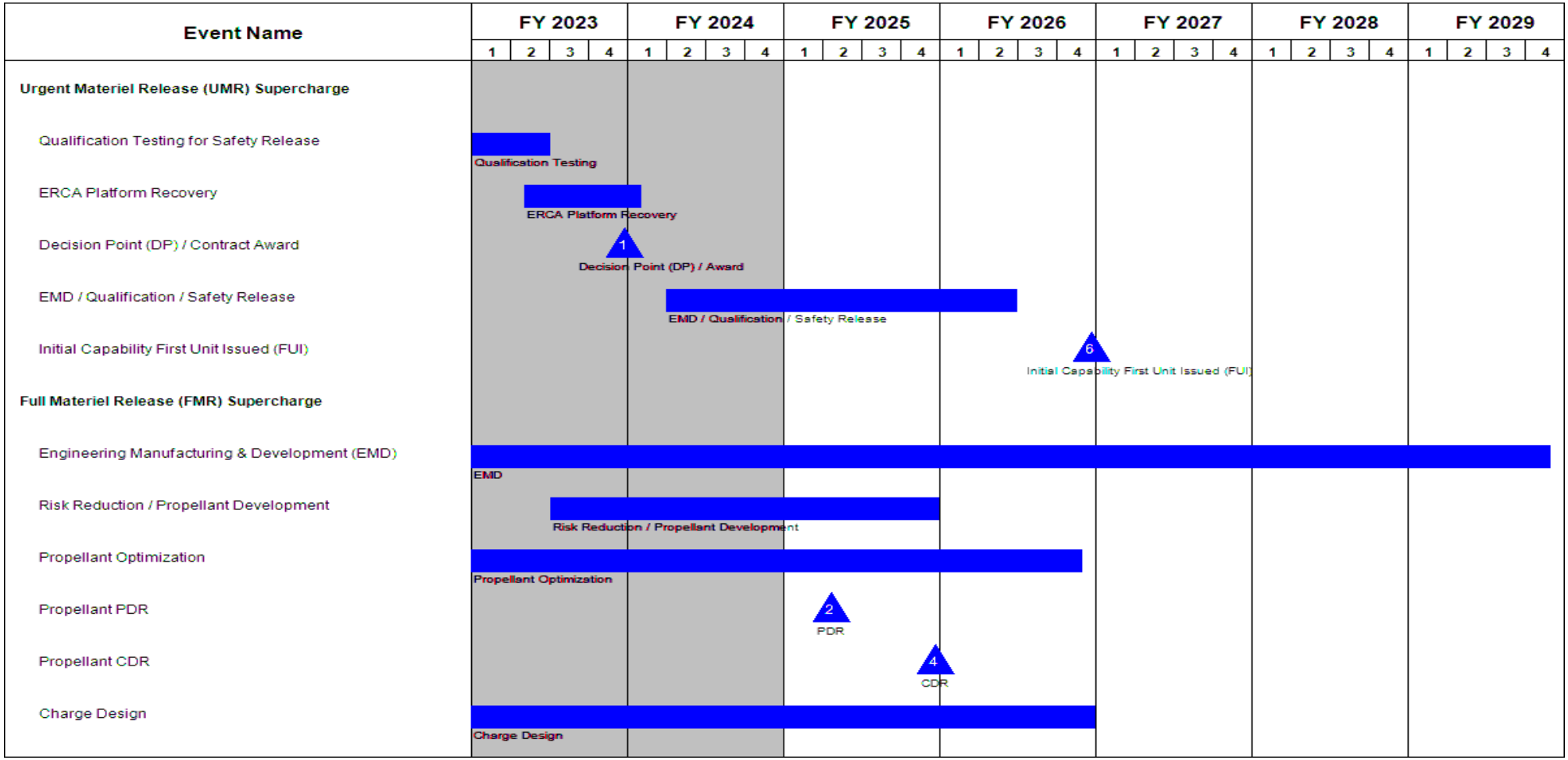


Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** BQ3 / *155mm Artillery Propulsion XM654*

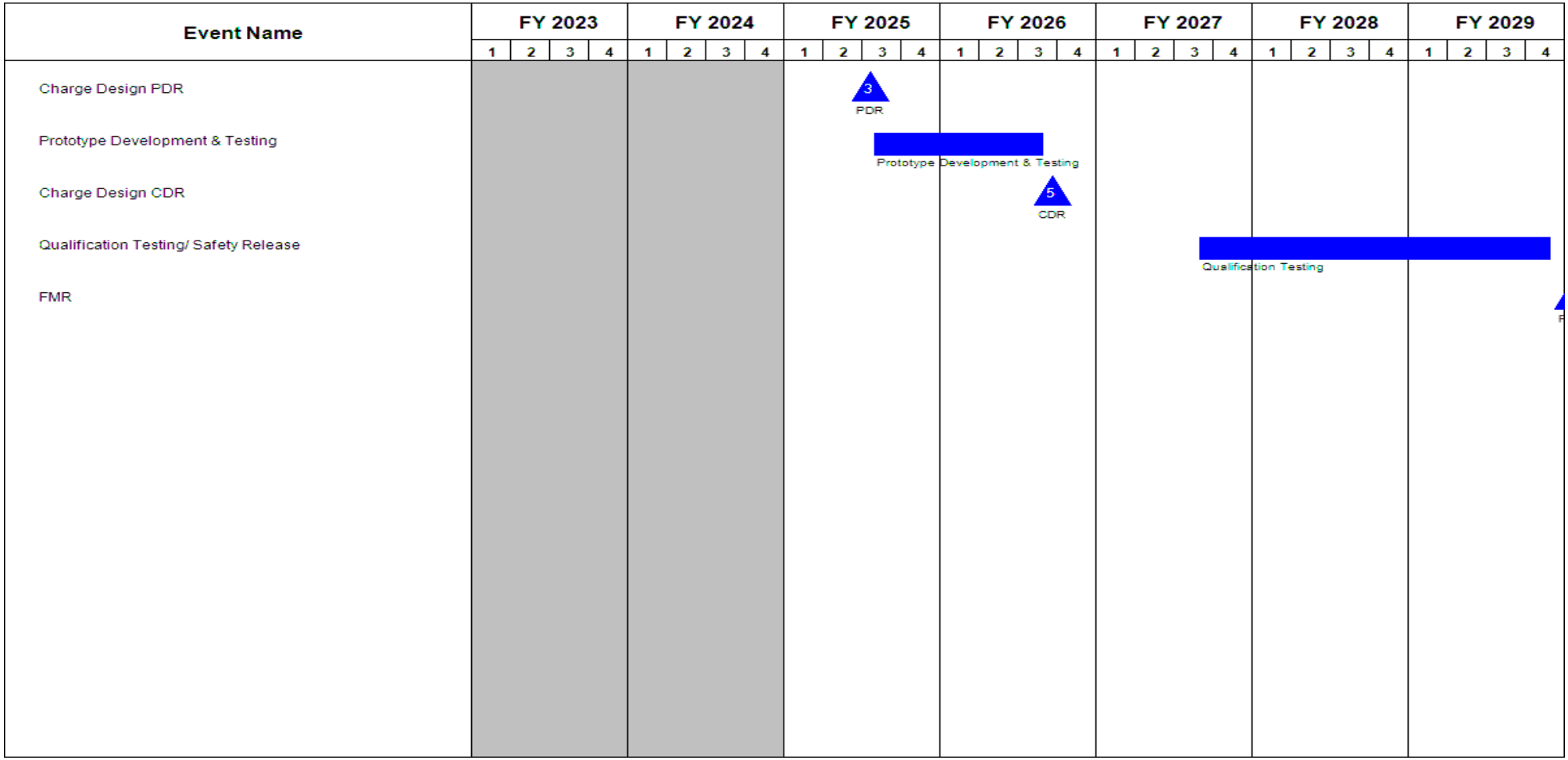


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** BQ3 / *155mm Artillery Propulsion XM654*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Urgent Materiel Release (UMR) Supercharge	1	2022	4	2023
Preliminary Design Review (PDR)	1	2021	1	2021
UMR Prototype Development & Testing	1	2021	2	2022
Qualification Testing for Safety Release	1	2022	2	2023
Critical Design Review (CDR)	3	2022	3	2022
ERCA Platform Recovery	2	2023	1	2024
Decision Point (DP) / Contract Award	4	2023	4	2023
EMD / Qualification / Safety Release	2	2024	2	2026
Initial Capability First Unit Issued (FUI)	4	2026	4	2026
Full Materiel Release (FMR) Supercharge	1	2022	1	2030
Engineering Manufacturing & Development (EMD)	2	2022	4	2029
Risk Reduction / Propellant Development	3	2023	4	2025
Propellant Optimization	2	2022	4	2026
Propellant PDR	2	2025	2	2025
Propellant CDR	4	2025	4	2025
Charge Design	2	2022	4	2026
Charge Design PDR	3	2025	3	2025
Prototype Development & Testing	3	2025	3	2026
Charge Design CDR	3	2026	3	2026
Qualification Testing/ Safety Release	3	2027	4	2029
FMR	1	2030	1	2030

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) BY1 / *Next Generation Combat Vehicle Ammunition*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
BY1: *Next Generation Combat Vehicle Ammunition*	-	27.545	34.028	6.272	-	6.272	-	-	-	-	0.000	67.845
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The total cost of the Next Generation Combat Vehicle Ammunition (NGCV) Middle Tier of Acquisition effort is $122.610 million RDT&E from FY2021 to FY2025. The program is fully funded across the Future Years Defense Program (FYDP).

A. Mission Description and Budget Item Justification

50x228 millimeter (mm) family of ammunition is a critical technology development in response to the Next Generation Combat Vehicle (NGCV) Abbreviated Capability Development Document for weapon qualification, platform integration, and fielding of the XM30 Mechanized Infantry Combat Vehicle (MICV) primary weapon system (XM913). This effort includes the development of three capabilities: The XM1202 Target Practice with Trace (TP-T); the XM1203 Armor Piercing Fin Stabilized Discarding Sabot with Trace (APFSDS-T); and the XM1204 High Explosive Airburst with Trace (HEAB-T). The training cartridge will allow the Warfighter to train in a cost-effective manner and the tactical cartridges will provide enhanced lethality at increased ranges when engaging personnel threats in the open, defilade, and under the cover of urban structures, Anti-Tank Guided Missiles (ATGM) teams, and current and projected future peer armored materiel threats. This effort is operating under Middle Tier Acquisition authority for rapid prototyping to qualify the three munitions in order to support the NGCV Cross Functional Team (CFT) timeline for First Unit Equipped (FUE). Fiscal Year (FY) 2025 funding supports building test assets and conducting Developmental Test & Evaluation (DT&E) on the XM1204 HEAB-T variant.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: 50x228mm Ammunition Development	27.545	34.028	6.272
Description: Qualify 50mm Target Practice with Trace (TP-T), Armor Piercing Fin-Stabilized Discarding Sabot with Trace (APFSDS-T), and High Explosive Airburst with Trace (HEAB-T) ammunition through the rapid prototyping phase.			
FY 2024 Plans: FY 2024 funds support preparation activities for prototype fielding / materiel release on the XM1202 TP-T variant. In addition, FY 2024 funds supports conducting Developmental Test & Evaluation (DT&E), building tests assets for Live Fire Test & Evaluation (LFT&E) and preparing for prototype fielding on the XM1203 APFSDS-T variant. FY 2024 funds also supports building test assets and initiating DT&E on the XM1204 HEAB-T variant.			
FY 2025 Plans: FY 2025 funds support conducting Developmental Test & Evaluation (DT&E) and limited Live Fire Test & Evaluation (LFT&E)			
FY 2024 to FY 2025 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** BY1 / *Next Generation Combat Vehicle Ammunition*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 funds decrease from FY 2024 due to XM1202 and XM1203 reaching Milestone C and transitioning into Low Rate Initial Production (LRIP).			
Accomplishments/Planned Programs Subtotals	27.545	34.028	6.272

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E80011: *Next Generation Combat Vehicle Ammunition*	-	28.000	20.006	-	20.006	42.261	46.111	46.111	46.572	0.000	229.061

Remarks

D. Acquisition Strategy

Department of Defense Ordnance and Technology Consortium (DOTC) Other Transaction Agreements (OTAs) will be used for rapid prototyping on the three 50 x 228mm ammunition variants: TP-T, APFSDS-T, and HEAB-T. This will consist of Design Engineering Testing (DET), technical reviews, and Developmental Test and Evaluation (DT&E). For APFSDS-T, one contractor was awarded and will complete the rapid prototyping process. For TP-T two contractors were awarded and will complete rapid prototyping process. For HEAB-T, two contractors were awarded rapid prototyping agreements and a down selection decision will be made in FY 2024; then one HEAB-T contractor will complete the rapid prototyping process. The DOTC agreements will conclude upon achieving Milestone C for each cartridge: TP-T and APFSDS-T in FY 2024; and HEAB-T in FY 2025.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) BY1 / *Next Generation Combat Vehicle Ammunition*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
50x228mm APFSDS-T Ammunition Development & Test Evaluation Hardware Contract	C/CPFF	General Dynamics Ordnance and Tactical Systems (GDOTS) : Marion, Illinois	3.929	4.872	Mar 2023	1.800	Jan 2024	-		-		-	Continuing	Continuing	Continuing
50x228mm TP-T Ammunition Development & Test Evaluation Hardware Contract	C/CPFF	General Dynamics Ordnance and Tactical Systems : Marion, Illinois	2.480	-		-		-		-		-	Continuing	Continuing	Continuing
50x228mm TP-T Ammunition Development & Test Evaluation Hardware Contract	C/CPFF	Northrop Grumman Innovation Systems (NGIS) : Plymouth, MN	2.333	3.073	Mar 2023	-		-		-		-	Continuing	Continuing	Continuing
50x228mm HEAB-T Ammunition Design Engineering Test Hardware Contract	C/CPFF	General Dynamics Ordnance and Tactical Systems : Marion, Illinois	11.978	6.681	Mar 2023	9.750	Jan 2024	-		-		-	Continuing	Continuing	Continuing
50x228mm HEAB-T Ammunition Design Engineering Test Hardware Contract	C/CPFF	Northrop Grumman Innovation Systems (NGIS) : Plymouth, MN	11.965	4.234	Mar 2023	9.750	Jan 2024	-		-		-	Continuing	Continuing	Continuing
50x228mm HEAB-T Ammunition Design Engineering Test Hardware Contract Down-select	TBD	TBD : TBD	-	-		-		1.244	Jan 2025	-		1.244	Continuing	Continuing	Continuing
50X228 HEAB-T Warhead Fabrication Optimization	Option/ CPFF	Combat Capabilities Development Command - Chemical Biological Center (CCDC-CBC) : Rock Island, Il	1.751	2.005		4.250	Jan 2024	-		-		-	Continuing	Continuing	Continuing
		Subtotal	34.436	20.865		25.550		1.244		-		1.244	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) BY1 / *Next Generation Combat Vehicle Ammunition*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
50x228mm Ammo Engineering Support	MIPR	Development Command - Armaments Center (DEVCOM - AC) : Picatinny Arsenal, NJ	5.867	4.680	Dec 2022	3.190	Nov 2023	2.963	Jan 2025	-		2.963	Continuing	Continuing	Continuing
		Subtotal	5.867	4.680		3.190		2.963		-		2.963	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
50x228mm Design Engineering Testing	MIPR	Aberdeen Proving Ground (APG) : Aberdeen, MD	8.958	2.000	Dec 2022	-		-		-		-	Continuing	Continuing	Continuing
50x228mm Design Engineering Testing	MIPR	Yuma Proving Ground (YPG) : Yuma, AZ	2.337	-		-		-		-		-	Continuing	Continuing	Continuing
50x228mm Developmental Test and Evaluation (DT&E)	MIPR	Aberdeen Proving Ground (APG) : Aberdeen, MD	3.209	-		5.288	Nov 2023	2.065	Jan 2025	-		2.065	Continuing	Continuing	Continuing
		Subtotal	14.504	2.000		5.288		2.065		-		2.065	Continuing	Continuing	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	54.807	27.545		34.028		6.272		-		6.272	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** BY1 / *Next Generation Combat Vehicle Ammunition*

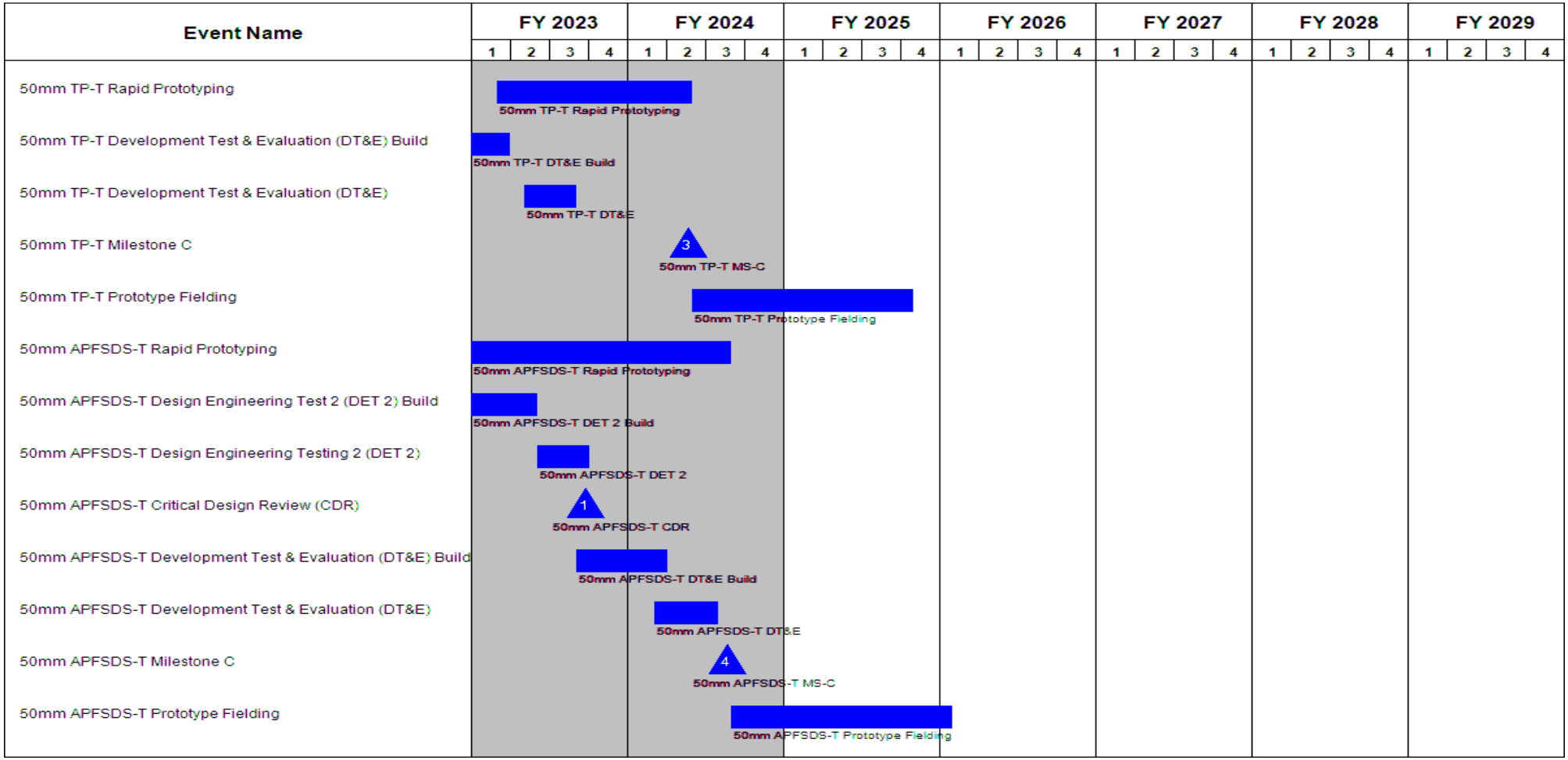


Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** BY1 / *Next Generation Combat Vehicle Ammunition*

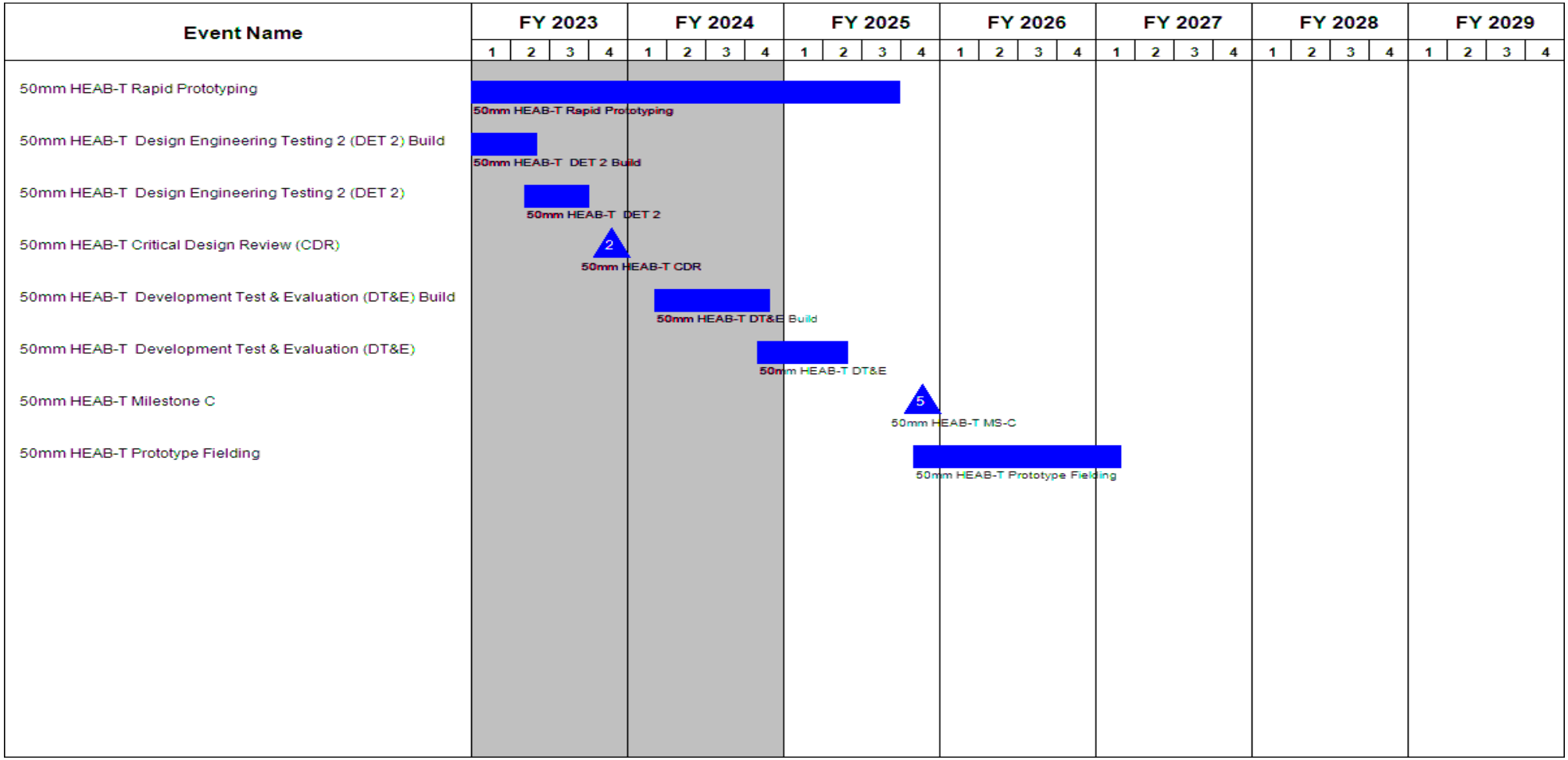


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** BY1 / *Next Generation Combat Vehicle Ammunition*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
50mm TP-T Rapid Prototyping Award	1	2021	1	2021
50mm TP-T Rapid Prototyping	1	2021	2	2024
50mm TP-T Design Engineering Test (DET) Build	3	2021	1	2022
50mm TP-T Design Engineering Test (DET)	1	2022	2	2022
50mm TP-T Critical Design Review (CDR)	2	2022	2	2022
50mm TP-T Development Test & Evaluation (DT&E) Build	2	2022	1	2023
50mm TP-T Development Test & Evaluation (DT&E)	2	2023	3	2023
50mm TP-T Milestone C	2	2024	2	2024
50mm TP-T Prototype Fielding	2	2024	4	2025
50mm APFSDS-T Rapid Prototyping Award	2	2021	2	2021
50mm APFSDS-T Rapid Prototyping	2	2021	3	2024
50mm APFSDS-T Design Engineering Test 1 (DET 1) Build	3	2021	2	2022
50mm APFSDS-T Design Engineering Testing 1 (DET 1)	3	2022	4	2022
50mm APFSDS-T Design Engineering Test 2 (DET 2) Build	4	2022	2	2023
50mm APFSDS-T Design Engineering Testing 2 (DET 2)	2	2023	3	2023
50mm APFSDS-T Critical Design Review (CDR)	3	2023	3	2023
50mm APFSDS-T Development Test & Evaluation (DT&E) Build	3	2023	1	2024
50mm APFSDS-T Development Test & Evaluation (DT&E)	1	2024	3	2024
50mm APFSDS-T Milestone C	3	2024	3	2024
50mm APFSDS-T Prototype Fielding	3	2024	1	2026
50mm HEAB-T Rapid Prototyping Award	4	2020	4	2020
50mm HEAB-T Rapid Prototyping	4	2020	3	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** BY1 / *Next Generation Combat Vehicle Ammunition*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
50mm HEAB-T Design Engineering Testing 1 (DET 1) Build	4	2021	2	2022
50mm HEAB-T Design Engineering Testing 1 (DET 1)	3	2022	3	2022
50mm HEAB-T Design Engineering Testing 2 (DET 2) Build	3	2022	2	2023
50mm HEAB-T Design Engineering Testing 2 (DET 2)	2	2023	3	2023
50mm HEAB-T Critical Design Review (CDR)	4	2023	4	2023
50mm HEAB-T Development Test & Evaluation (DT&E) Build	1	2024	4	2024
50mm HEAB-T Development Test & Evaluation (DT&E)	4	2024	2	2025
50mm HEAB-T Milestone C	4	2025	4	2025
50mm HEAB-T Prototype Fielding	4	2025	1	2027

Note

Notes:
Target Practice with Trace (TP-T)
Armor-Piercing Fin-Stabilized Discarding Sabot with Trace (APFSDS-T)
High Explosive Airburst with trace (HEAB-T)

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) CE3 / *Precision Munition (Sniper)*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
CE3: *Precision Munition (Sniper)*	-	4.993	-	6.513	-	6.513	4.539	3.046	-	-	0.000	19.091
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project CE3: Precision Munition (Sniper) FY 2024 is a Skip-Year.

A. Mission Description and Budget Item Justification

The Precision Munition (Sniper) project is a critical technology development in response to the Precision Munition Capabilities Development Documents (CDD) for the ammunition required to support the Precision Sniper Rifle (PSR) / sniper weapons systems. The objective is to transfer the latest lethality technology into the suite of ammunition used by snipers. The Precision Munition improvement is split into three capability areas: Anti-Materiel (AM), Improved Performance Round (IPR), and Subsonic. The AM and IPR capabilities will enhance lethal effects at greater distances. The Subsonic capability will increase soldier survivability at close range by providing a low-sound signature munition that is undetectable to the enemy. Fiscal Year (FY) 2025 funding will initiate Engineering and Manufacturing Development (EMD) activities, develop prototypes, and support a Solider Touch Point (STP) / User Evaluation for the .338 AM Cartridges.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Develop and Improve Ammunition for Sniper Weapons Systems.	4.993	-	6.513
Description: Develop, demonstrate, and qualify new sniper ammunition to defeat hard targets for the Precision Sniper Rifle (PSR) and other sniper weapons systems. Integrate latest lethality technology into the current suite of sniper ammunition for the Precision Sniper Rifle (PSR) and other sniper weapons systems. Integrate latest lethality technology into the current subsonic ammunition for the Precision Sniper Rifle (PSR) and other sniper weapons systems. ***FY 2025 Plans:*** FY 2025 funding will initiate Engineering and Manufacturing Development (EMD) efforts. Award contract to develop prototype ammunition, conduct a Soldier Touch Point (STP), and perform lethality testing. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 funding increase reflects EMD activity requirements.			
Accomplishments/Planned Programs Subtotals	4.993	-	6.513

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** CE3 / *Precision Munition (Sniper)*

D. Acquisition Strategy

The Precision Munition (Sniper) utilizes Other Transaction Authority (OTA) to acquire and/or mature US Government design. Contracts to acquire parts and raw materials are competitive. The Government is prototyping and testing projectiles.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) CE3 / *Precision Munition (Sniper)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Anti-Materiel Development Contracts	C/FFP	Vista : Anoka, Minnesota	3.146	2.193	Feb 2023	-		3.050	Mar 2025	-		3.050	Continuing	Continuing	Continuing
		Subtotal	3.146	2.193		-		3.050		-		3.050	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Anti-Materiel Support	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	1.600	2.100	Oct 2022	-		1.963	Mar 2025	-		1.963	Continuing	Continuing	Continuing
Improved Performance Round Support	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	0.500	0.100	Oct 2022	-		-		-		-	Continuing	Continuing	Continuing
Subsonic Support	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	0.500	0.100	Oct 2022	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	2.600	2.300		-		1.963		-		1.963	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) CE3 / *Precision Munition (Sniper)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Lethality Testing and Analysis	MIPR	US Army Research Lab (ARL) : Aberdeen, Maryland	1.900	0.500	Oct 2022	-		1.150	Mar 2025	-		1.150	Continuing	Continuing	Continuing
User Evaluation Solider Touch Point	MIPR	Maneuver Battle Labs : Fort Benning, Georgia	-	-		-		0.350	Mar 2025	-		0.350	0.000	0.350	-
		Subtotal	1.900	0.500		-		1.500		-		1.500	Continuing	Continuing	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.646	4.993		-		6.513		-		6.513	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** CE3 / *Precision Munition (Sniper)*

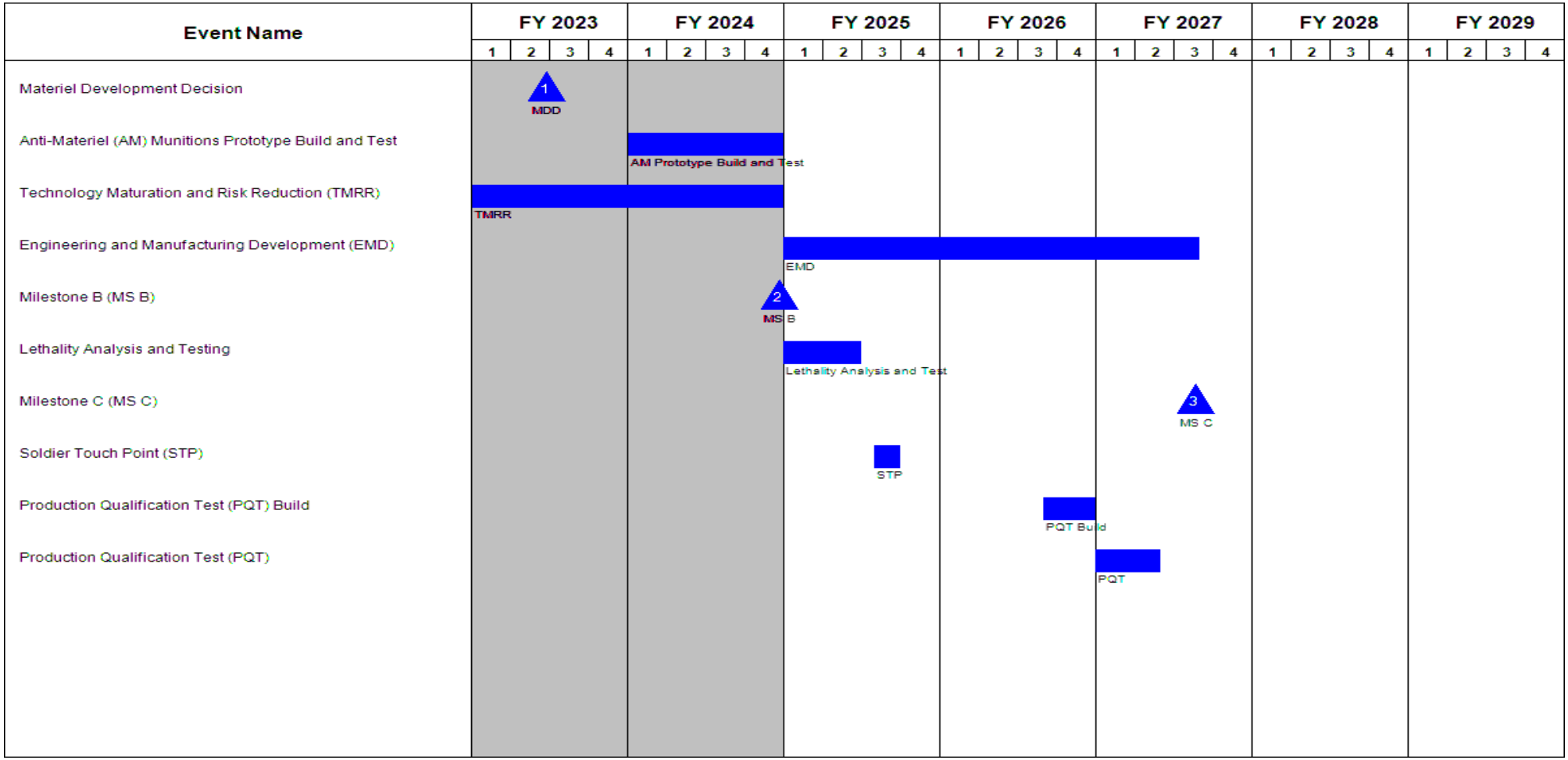


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** CE3 / *Precision Munition (Sniper)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Materiel Development Decision	2	2023	2	2023
Anti-Materiel (AM) Munitions Prototype Build and Test	1	2024	4	2024
Technology Maturation and Risk Reduction (TMRR)	1	2023	4	2024
Engineering and Manufacturing Development (EMD)	1	2025	3	2027
Milestone B (MS B)	4	2024	4	2024
Lethality Analysis and Testing	1	2025	2	2025
Milestone C (MS C)	3	2027	3	2027
Soldier Touch Point (STP)	3	2025	3	2025
Production Qualification Test (PQT) Build	3	2026	4	2026
Production Qualification Test (PQT)	1	2027	2	2027

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) DC9 / *30mm MMPA M-SHORAD INC 3*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
DC9: *30mm MMPA M-SHORAD INC 3*	-	-	18.936	11.303	-	11.303	7.846	5.128	4.484	4.529	0.000	52.226
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

30mm Multi-Mode Proximity Airburst (MMPA) Maneuver Short Range Air Defense Increment 3 (M-SHORAD INC 3): The 30mm MMPA M-SHORAD INC 3 / Project DC9 funds the development of the 30mm XM1223 MMPA munition and respective weapon contact setter under the Middle Tier of Acquisition (MTA) authority for rapid prototyping. The objective is to enhance the operational effectiveness of the M-SHORAD Inc 3 platform, Mobile-Low, Slow, Small Unmanned Aircraft Integrated Defeat System (M-LIDS) and any other Joint Force platforms that are equipped with a 30mm weapon system and have a Counter Unmanned Aerial Systems (C-UAS) mission. The programmable fuze modes in the munition include proximity airburst to defeat personnel in the open and small Unmanned Aerial System (UAS) targets, proximity airburst delay to defeat personnel in defilade, gated proximity airburst to minimize collateral damage in cluttered environments, mechanical point detonate to defeat light materiel targets, and self-destruct to minimize collateral damage. The XM1223 will allow the platforms to conduct counter-UAS missions while retaining the ability to quickly transition to ground targets without having to swap ammunition. FY 2025 funding supports continuing the XM1223 development, building prototypes for Design Engineering Testing (DET), and conducting DET.

The total cost of the 30 millimeter (mm) MMPA Middle Tier of Acquisition effort is $59.969 million RDT&E from FY2024 to FY2027.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: EMD 30x113mm MMPA Munition ***Description:*** Develop, demonstrate, and qualify a new munition for the M-SHORAD Inc 3, M-LIDS and other Joint Force platforms equipped with a 30mm weapon system. ***FY 2024 Plans:*** Achieve Milestone B (MS-B), contract award up to two contractors, conduct Preliminary Design Review (PDR), and develop prototypes for Design Engineering Tests. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 decrease reflects shifting of efforts from Engineering Manufacturing Development (EMD) to Rapid Prototyping based on new approved acquisition strategy.	-	18.936	-
Title: Rapid Prototyping 30mm MMPA ***Description:*** Develop, demonstrate, and qualify a new munition for the M-SHORAD Inc 3, M-LIDS and other Joint Force platforms equipped with a 30mm weapon system.	-	-	11.303

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** DC9 / *30mm MMPA M-SHORAD INC 3*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 Plans: Build Design Engineering Test (DET) prototypes and conduct DET at government test sites for a potential down selection prior to Critical Design Review. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 increase reflects shifting of efforts from engineering design and initial hardware procurement, to support of prototype builds and testing.			
Accomplishments/Planned Programs Subtotals	-	18.936	11.303

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• F98811: *30 MM MMPA*	-	-	0.000	-	0.000	-	-	22.474	26.437	0.000	48.911

Remarks

D. Acquisition Strategy

The 30mm XM1223 MMPA munition program will utilize the Middle Tier of Acquisition (MTA) authority for rapid prototyping to develop ammunition concepts/designs. Proposals will be requested from Industry to develop a 30mm Multi-Mode Proximity Airburst (MMPA) tactical cartridge that will meet Army Performance Specifications and Maneuver Short Range Air Defense Increment 3 (M-SHORAD Inc 3) Abbreviated Capability Development Document (A-CDD) Requirements. The Government will award up to two contracts using an Other Transaction Agreement (OTA) to support development for Design Engineering Tests (DET) and Developmental Test & Evaluation (DT&E) prior to Milestone C in FY 2027. The government will have the option to award contracts for production.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) DC9 / *30mm MMPA M-SHORAD INC 3*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MMPA EMD Contract 1	C/CPFF	TBD : TBD	-	-		8.114	Jan 2024	1.125	Jan 2025	-		1.125	Continuing	Continuing	Continuing
MMPA EMD Contract 2	C/CPFF	TBD : TBD	-	-		8.114	Jan 2024	1.125	Jan 2025	-		1.125	Continuing	Continuing	Continuing
MMPA Fuze Setter Development	C/CPFF	TBD : TBD	-	-		1.000	Feb 2024	0.800	Jan 2025	-		0.800	Continuing	Continuing	Continuing
MMPA EMD Down-Select	C/CPFF	TBD : TBD	-	-		-		5.560	Aug 2025	-		5.560	Continuing	Continuing	Continuing
		Subtotal	-	-		17.228		8.610		-		8.610	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support DEVCOM AC	MIPR	Development Command - Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ	-	-		1.446	Jan 2024	1.793	Nov 2024	-		1.793	Continuing	Continuing	Continuing
		Subtotal	-	-		1.446		1.793		-		1.793	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Testing (Fuze Setter and DET)	MIPR	Aberdeen Test Center (Aberdeen Proving Grounds) : Aberdeen, MD	-	-		0.262	Jan 2024	0.900	Feb 2025	-		0.900	Continuing	Continuing	Continuing
		Subtotal	-	-		0.262		0.900		-		0.900	Continuing	Continuing	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		18.936		11.303		-		11.303	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) DC9 / *30mm MMPA M-SHORAD INC 3*	

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** DC9 / *30mm MMPA M-SHORAD INC 3*

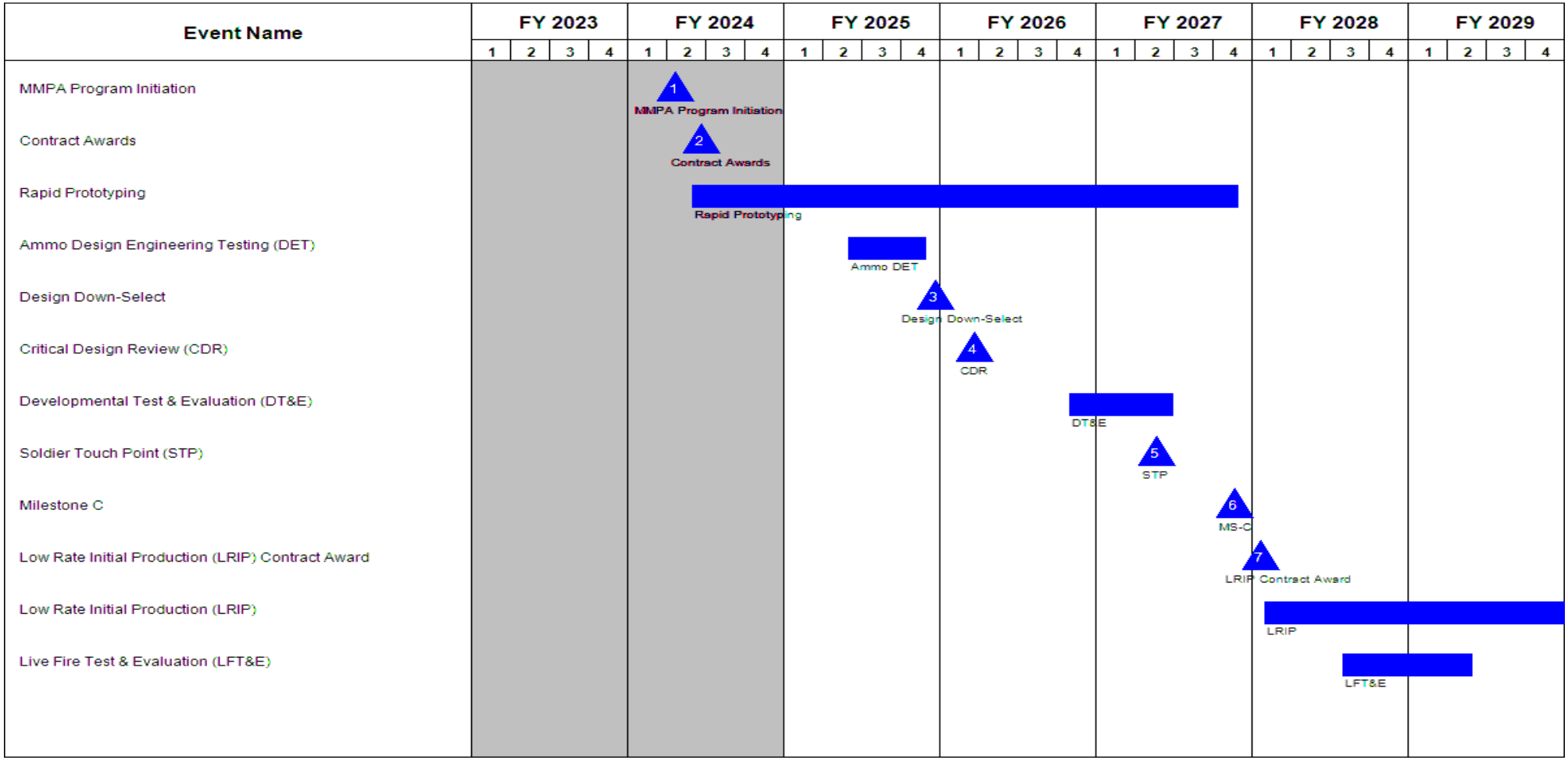


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** DC9 / *30mm MMPA M-SHORAD INC 3*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MMPA Program Initiation	2	2024	2	2024
Contract Awards	2	2024	2	2024
Rapid Prototyping	2	2024	4	2027
Ammo Design Engineering Testing (DET)	2	2025	4	2025
Design Down-Select	4	2025	4	2025
Critical Design Review (CDR)	1	2026	1	2026
Developmental Test & Evaluation (DT&E)	4	2026	2	2027
Soldier Touch Point (STP)	2	2027	2	2027
Milestone C	4	2027	4	2027
Low Rate Initial Production (LRIP) Contract Award	1	2028	1	2028
Low Rate Initial Production (LRIP)	1	2028	1	2030
Live Fire Test & Evaluation (LFT&E)	3	2028	2	2029

Note

MMPA - Multi-Mode Proximity Airburst

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army											Date: March 2024	
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*				Project (Number/Name) EC4 / *Non-Standard Simulator Munitions*			
COST ($ in Millions)	**Prior Years**	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
EC4: *Non-Standard Simulator Munitions*	-	2.102	2.188	0.411	-	0.411	0.413	0.417	0.421	0.425	0.000	6.377
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project EC4 Non-Standard Simulator Munitions will standardize various pyrotechnics that simulate battlefield effects. The Army's Combat Training Centers (CTCs) are currently using non-standard munitions to replicate both conventional and asymmetric warfare battlefield effects. These modified commercial-off-the-shelf products have not been type classified or material released and are not safe or sustainable for use by Soldiers. This effort will develop and demonstrate various pyrotechnics/ simulators to replicate both conventional and asymmetric warfare battlefield affects such as:
- Black smoke signature (burning vehicles, buildings, and equipment);
- Yellow smoke signature (chemical, biological or nuclear effects);
- Mini Blast to simulate hostile fire and small Improvised Explosive Devices (IEDs) during mounted operations in urban terrain;
- Micro pyrotechnics to simulate indoor hostile fire and IED effects that are capable of being integrated into existing facilities;
- Rocket Propelled Grenade (RPG) simulators to replicate the flight of a Rocket Propelled Grenade;
- Macro Pyro to simulate hostile fire, booby trap and IED Simulations indoor and outdoors;
- High Order Blast Effect (HiOBE) used to replicate a Vehicle Borne Improvised Explosive Device (VBIED), building explosions, and other significant explosive events;
- Artillery airburst simulator to replicate indirect fire;
- Antitank Guided Missile and Rocket (AGMR) simulator to replicate surface to air missile or shoulder launched rocket;
- Tracer Fire-back simulator to replicate enemy small arms fire and anti-aircraft fire;
- Longer burning remotely and electrically initiated smoke pots and smoke grenades of various colors.

Standardization will reduce training costs, eliminate redundancies between systems and mitigate environmental concerns and safety risks associated with realistic scenario-based training. FY 2025 funding will support the development of Tracer, HiOBE, Micro Pyro, Colored Smoke Pots and Grenades.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2023**	**FY 2024**	**FY 2025**
Title: Standardize Special Use Ammunition	2.102	2.188	0.411
Description: Standardize non-standard pyrotechnic battlefield effects currently used by CTCs.			
FY 2024 Plans: FY 2024 will support the completion of RPG, Mini Blast EMD and prepare Milestone C documentation. Funding will also support continuation of Tracer fire back and HiOBE EMD efforts.			
FY 2025 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EC4 / *Non-Standard Simulator Munitions*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 will support the completion of Tracer Fire-back and HiOBE EMD, preparation of Milestone C documentation, and initiation of alternative smoke pot and smoke grenade effects. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 funding decrease reflects slow smoke pot and smoke grenade development and qualification.			
Accomplishments/Planned Programs Subtotals	2.102	2.188	0.411

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E88404: *SIMULATORS, Non-Standard, Special Effects, f/CTCs*	0.296	0.296	0.000	-	0.000	-	-	-	0.003	0.000	0.595
• E48417: *SIMULATOR, TARGET KILL, XM175*	-	0.652	0.768	-	0.768	0.774	0.780	0.786	0.794	0.000	4.554
• E91114: *SIMULATOR, LAUNCHING, ANTITANK GUIDED MISSILE AND*	-	0.476	0.410	-	0.410	0.406	0.413	0.416	0.422	0.000	2.543
• E91116: *SIMULATOR, PROJECTILE AIR BURST, EXPLOSIVE: XM181*	-	0.473	0.370	-	0.370	0.372	0.392	0.373	0.379	0.000	2.359
• E50311: *SIMULATOR, CHEM ATTACK, YELLOW SMOKE*	-	0.056	0.065	-	0.065	0.046	0.067	0.067	0.066	0.000	0.367
• E48413: *SIMULATOR, INDOOR WEAPONS FIRE*	-	-	0.000	-	0.000	0.129	0.156	0.158	0.160	Continuing	Continuing
• E48416: *SIMULATOR, HIGH ORDER BLAST EFFECT (HIOBE)*	-	-	0.000	-	0.000	0.556	0.561	0.566	0.576	Continuing	Continuing
• E48415: *SIMULATOR, INCOMING ROCKET PROPELLED GRENADE (RPG)*	-	-	0.000	-	0.000	0.301	0.305	0.309	0.314	Continuing	Continuing
• E91112: *SIMULATOR, PROJECTILE GROUND BURST: MINI BLAST: XM*	-	-	0.000	-	0.000	0.225	0.227	0.229	0.229	0.000	0.910
• E48418: *SIMULATOR, SMALL ARMS TRACER FIRE-BACK*	-	-	0.000	-	0.000	-	0.403	0.408	0.415	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EC4 / *Non-Standard Simulator Munitions*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E48414: *SIMULATOR, OUTDOOR WEAPONS FIRE*	-	-	0.000	-	0.000	-	0.181	0.183	0.185	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Acquisition strategy is to incrementally develop and field a family of special use ammunition. Initial Battlefield Effects Simulators (BES) to be fielded will be the Artillery Airburst/Antitank Guided Missile and Rocket (AGMR), Black and Yellow Smoke simulators followed by additional training simulators as required in the Future Army System of Integrated Targets (FASIT) Capability Production Document (CPD). The second iteration of special use ammunition includes RPG on a wire, Tracer Fire-back, Mini Blast, and HiOBE. The third iteration of special use ammunition includes smoke pot and smoke grenade upgrades to simulate longer lasting and accurate battlefield effects.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EC4 / *Non-Standard Simulator Munitions*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Smoke Pot & Smoke Grenade Developmental Hardware	C/CPFF	TBD : TBD	-	-		-		0.201	May 2025	-		0.201	Continuing	Continuing	-
HiOBE Developmental Hardware	C/CPFF	TBD : TBD	-	-		0.602	May 2024	-		-		-	0.000	0.602	-
Tracer Qualification Hardware	C/CPFF	SAIC : Reston, VA	-	0.591	Nov 2022	-		-		-		-	0.000	0.591	-
		Subtotal	-	0.591		0.602		0.201		-		0.201	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	5.288	1.181	Dec 2022	1.229	Oct 2023	0.109	Oct 2024	-		0.109	Continuing	Continuing	-
		Subtotal	5.288	1.181		1.229		0.109		-		0.109	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
HIOBE Qualification Testing	MIPR	NSWC Dahlgren : Dahlgren, VA	-	-		-		0.101	May 2025	-		0.101	Continuing	Continuing	-
RPG on a Wire & Tracer Fireback Qualification Testing	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	-	-		0.300	May 2024	-		-		-	0.000	0.300	-
HIOBE EMQ Qualification	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	-	-		0.057	Jul 2024	-		-		-	0.000	0.057	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EC4 / *Non-Standard Simulator Munitions*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Tracer EMQ Qualification and Mini Blast & Yellow Smoke Qualification Testing	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	-	0.272	Apr 2023	-		-		-		-	0.000	0.272	-
Mini Blast Fast Cook Off Testing	MIPR	NSWC Dahlgren : Dahlgren, VA	-	0.058	Aug 2023	-		-		-		-	0.000	0.058	-
		Subtotal	-	0.330		0.357		0.101		-		0.101	Continuing	Continuing	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.288	2.102		2.188		0.411		-		0.411	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EC4 / *Non-Standard Simulator Munitions*

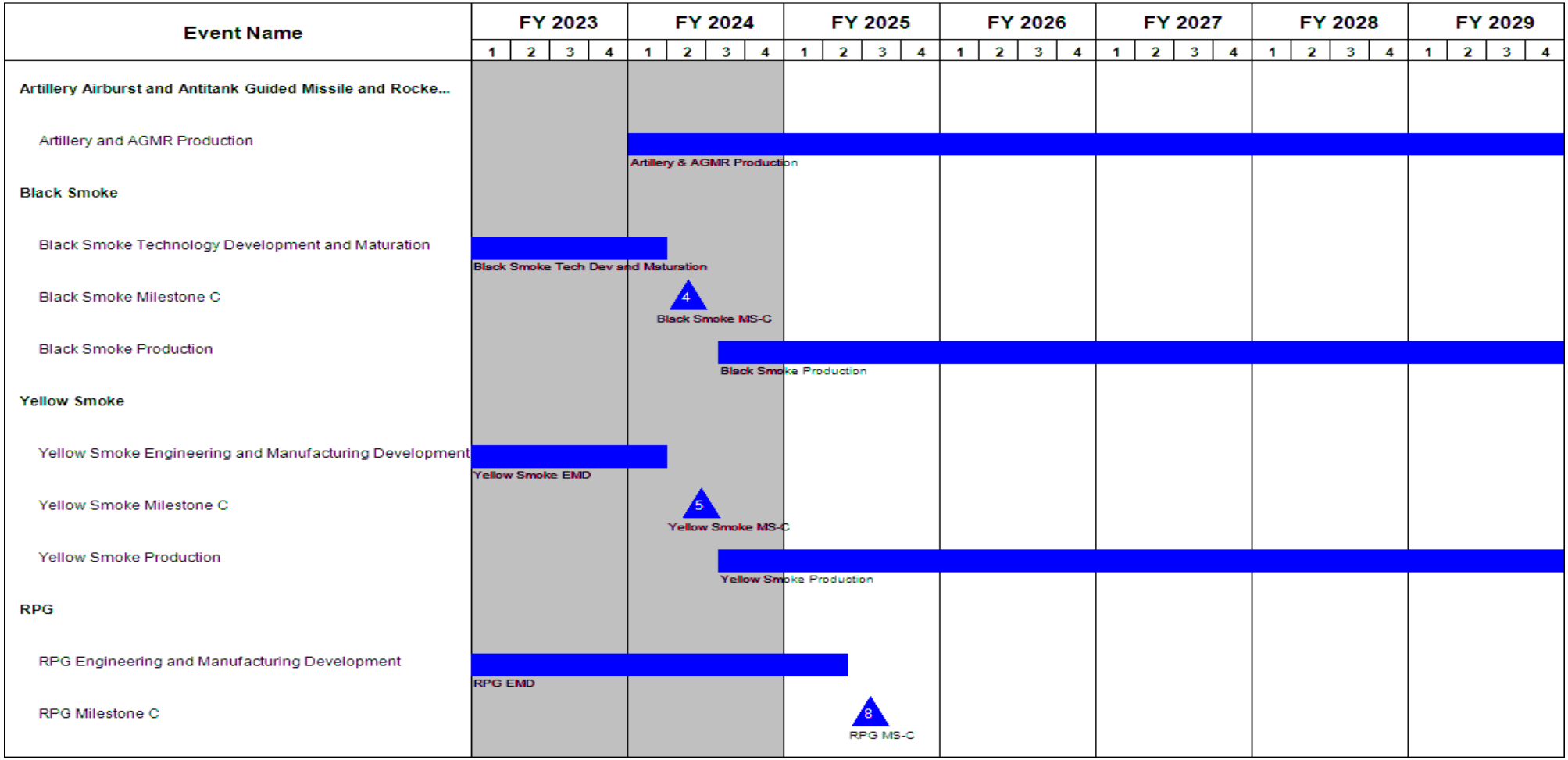


Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EC4 / *Non-Standard Simulator Munitions*

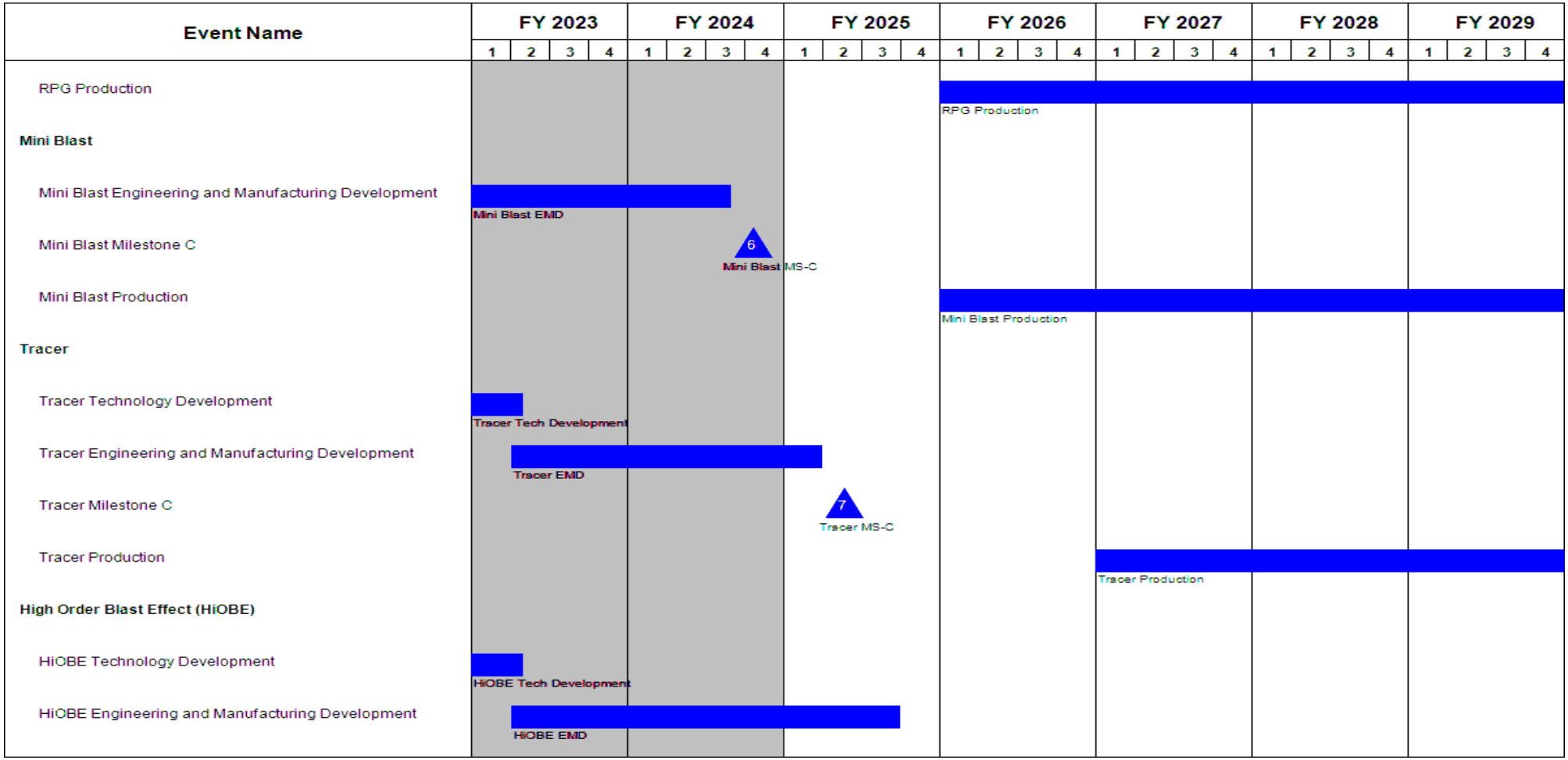


Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EC4 / *Non-Standard Simulator Munitions*

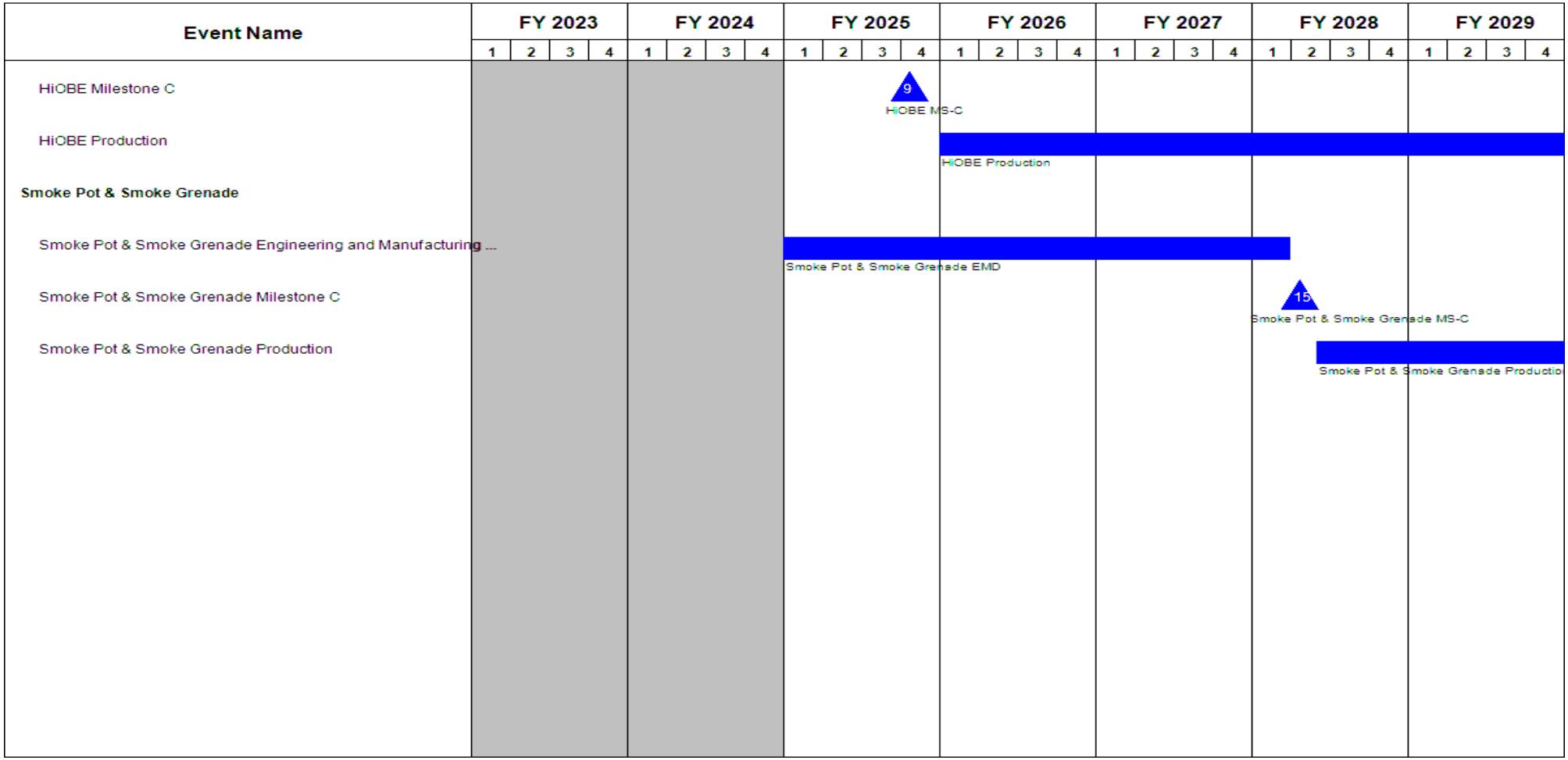


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EC4 / *Non-Standard Simulator Munitions*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Artillery Airburst and Antitank Guided Missile and Rocket (AGMR)	1	2024	1	2024
Artillery and AGMR Type Classification	4	2021	4	2022
Artillery and AGMR Production	1	2024	4	2029
Black Smoke	1	2024	1	2024
Black Smoke Technology Development and Maturation	4	2019	1	2024
Black Smoke Milestone C	2	2024	2	2024
Black Smoke Production	3	2024	4	2029
Yellow Smoke	1	2024	1	2024
Yellow Smoke Technology Development	2	2020	2	2022
Yellow Smoke Engineering and Manufacturing Development	2	2022	1	2024
Yellow Smoke Milestone C	2	2024	2	2024
Yellow Smoke Production	3	2024	4	2029
RPG	1	2026	1	2026
RPG Technology Development	2	2020	2	2022
RPG Engineering and Manufacturing Development	2	2022	2	2025
RPG Milestone C	3	2025	3	2025
RPG Production	1	2026	4	2029
Mini Blast	1	2026	1	2026
Mini Blast Technology Development	2	2020	2	2022
Mini Blast Engineering and Manufacturing Development	2	2022	3	2024
Mini Blast Milestone C	4	2024	4	2024
Mini Blast Production	1	2026	4	2029

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EC4 / *Non-Standard Simulator Munitions*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Tracer	1	2027	1	2027
Tracer Technology Development	2	2022	1	2023
Tracer Engineering and Manufacturing Development	2	2023	1	2025
Tracer Milestone C	2	2025	2	2025
Tracer Production	1	2027	1	2032
High Order Blast Effect (HiOBE)	1	2026	1	2026
HiOBE Technology Development	2	2022	1	2023
HiOBE Engineering and Manufacturing Development	2	2023	3	2025
HiOBE Milestone C	4	2025	4	2025
HiOBE Production	1	2026	4	2030
Smoke Pot & Smoke Grenade	1	2028	1	2028
Smoke Pot & Smoke Grenade Engineering and Manufacturing Development	1	2025	1	2028
Smoke Pot & Smoke Grenade Milestone C	2	2028	2	2028
Smoke Pot & Smoke Grenade Production	2	2028	4	2034

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EL9 / *Ammunitions Logistics Prototyping*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EL9: *Ammunitions Logistics Prototyping*	-	0.985	1.052	1.074	-	1.074	1.076	1.087	1.099	1.110	0.000	7.483
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the future force by improving the distribution, management, reliability, and survivability of ammunition through the advanced development, integration, and demonstration of logistics system enablers. These enablers will improve the efficiency and effectiveness of ammunition operations, to include retrograde, while reducing the logistics footprint on the battlefield. Technology areas addressed include ammunition handling, distribution, and management (strategic and tactical), prognostics, diagnostics, asset visibility, explosives safety, and autonomous adaptable packaging and palletization. The efficient deployment and sustainment of reliable ammunition is vital to success on the battlefield. This Project enhances the operational effectiveness of the ammunition logistics system to ensure the distribution of reliable ammunition to the Warfighter. Fiscal Year (FY) 2025 funding will be focused on integrating Commercial Off-the-shelf (COTS) and/or relatively mature technologies into ammunition resupply enablers, developing interfaces with Programs/Systems of Records as required by the Contested Logistics, Long Range Precision Fires (LRPF), Next-Generation Combat Vehicles (NGCV), Future Vertical Lift (FVL), Network, and Soldier Lethality (SL) Cross Functional Teams (CFT). They will be focused on ensuring that a low-risk resupply process solution exists to support the success of the Maneuver Force.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Munitions Survivability and Logistics Enablers	0.985	1.052	1.074
Description: This program will develop ammunition logistics systems that improve munitions survivability and logistics.			
FY 2024 Plans: Integrate mature commercial off the shelf environmental sensors to provide a capability for munitions health monitoring during tactical transportation and distribution in formations forward of the Ammunition Support Areas (ASA). Leverage recently completed JPEO A&A RDT&E system engineering studies/analysis to inform operational temperature exposure thresholds as critical selection criteria of commercial technologies. Integration efforts will primarily focus on tactical Cannon Artillery operations to improve operational availability of ammunition and associated components at the tactical edge. The surveillance system to be transitioned to PM SPHS will ensure artillery ammunition is prepared, protected, and monitored prior to use to improve the security and survivability of the ammunition supply chain within the formation.			
FY 2025 Plans: Integrate mature COTS or Army developed technology enablers to provide a capability for enhanced ammunition supply chain during tactical transportation and distribution in formations forward of the Ammunition Support Areas (ASA). Leverage recently completed JPEO A&A Research Development Test & Evaluation (RDT&E) funds system engineering studies/analysis to inform operational performance thresholds as critical selection criteria of commercial technologies. Integration efforts will primarily focus			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EL9 / *Ammunitions Logistics Prototyping*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
on tactical Cannon Artillery operations to improve operational availability of ammunition and associated components at the tactical edge and will be applicable to all other indirect fire weapons with fire missions dictated by Advanced Field Artillery Tactical Data System (AFATDS). The operational system to be transitioned to PM Self-Propelled Howitzer Systems (SPHS) and other relevant PMs within PEO Ground Combat Systems (GCS). Technologies matured and demonstrated through Soldier touch points will ensure artillery ammunition is prepared, protected, serviceable and monitored prior to use to improve the storage, management and distribution within the formation. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2024 to FY 2025 funding increase represents minor increase due to economic assumptions.			
Accomplishments/Planned Programs Subtotals	0.985	1.052	1.074

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The acquisition strategy is to work directly with the relevant PMs (Combat Ammunition Systems (CAS) & Self Propelled Howitzer (SPH)) to support the development of a resupply system/process to meet the needs of the Extended Range Canon Artillery, Next Generation Howitzer, and other emerging indirect fire weapon systems. The resultant capabilities will then be transitioned to the appropriate PM for further maturation and/or fielding.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EL9 / *Ammunitions Logistics Prototyping*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor	C/TBD	TBD : TBD	0.475	0.748	Jan 2023	-		-		-		-	0.000	1.223	-
Contractor	TBD	CR Tactical : Pittsburgh, PA	-	-		0.447	Jan 2024	0.445	Jan 2025	-		0.445	0.000	0.892	-
Contractor	TBD	Cybernet : Ann Arbor, MI	-	-		0.400	Nov 2023	0.404	Nov 2024	-		0.404	0.000	0.804	-
		Subtotal	0.475	0.748		0.847		0.849		-		0.849	0.000	2.919	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DEVCOM, Armaments Center	MIPR	Picatinny Arsenal : NJ	1.717	0.237	Mar 2023	0.205	Mar 2023	0.225	Mar 2023	-		0.225	0.000	2.384	-
		Subtotal	1.717	0.237		0.205		0.225		-		0.225	0.000	2.384	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.192	0.985		1.052		1.074		-		1.074	0.000	5.303	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EL9 / *Ammunitions Logistics Prototyping*

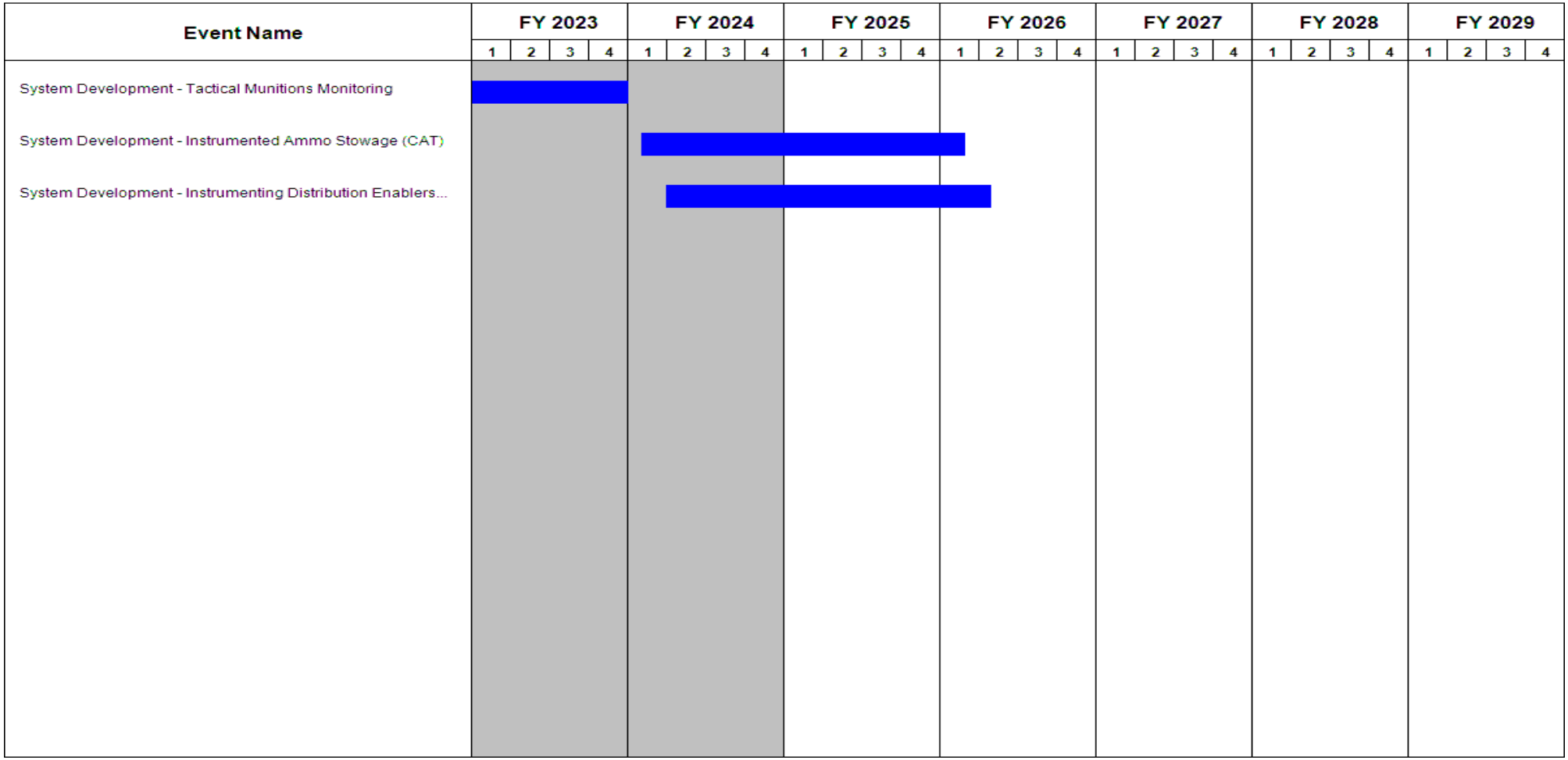


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EL9 / *Ammunitions Logistics Prototyping*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
System Development - Tactical Munitions Monitoring	1	2022	4	2023
System Development - Instrumented Ammo Stowage (CAT)	1	2024	1	2026
System Development - Instrumenting Distribution Enablers (PLS)	2	2024	2	2026

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EP2 / *Shoulder-Launched Munitions*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EP2: *Shoulder-Launched Munitions*	-	0.600	2.551	-	-	-	-	-	-	-	0.000	3.151
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The XM919 Individual Assault Munitions (IAM) effort will combine the capabilities of the existing M141 Bunker Defeat Munition (BDM) and the M136 Anti-Tank 4 Confined Space - Reduced Sensitivity (AT4CS RS), eliminating the mission risk associated with having to choose between two different capability Shoulder-Launched Munitions (SLMs), reducing the logistics and training burdens associated with multiple systems. IAM consists of the tactical XM919 IAM munition and training devices including the XM922 sub-caliber trainer (SCT), sub-caliber tracer ammunition (SCT Ammo), Field Handling Trainer (FHT), Synthetic Training Environment Live Training System (STE LTS) and Soldier Virtual Trainers (SVT). JPEO A&A is collaborating with PEO STRI to plan for STE LTS and SVT integration within PEO STRI platforms under the SS PEG. The tactical XM919 IAM supports the close fight in urban and complex terrain, allowing Soldiers a fire-from-enclosure (FFE) capability to defeat field expedient structures such as earth and timber bunkers, reinforced concrete, adobe and triple brick walls with behind the wall lethality effects as well as defeating light armored vehicles. The IAM training devices provide training capability to increase the Soldier's proficiency and integration of the XM919 tactical system into combat operations. The XM919 IAM enables the Army's Soldier Lethality Modernization Line of Effort (LOE) by providing multi-target capability and reducing training & logistics burden associated with two systems, while providing tactical innovation capable of extending overmatch against peer/near-peer adversaries in a joint, multi-domain, high-intensity conflict.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: XM919 Individual Assault Munition (IAM)	0.600	2.551	-
Description: The XM919 IAM program entered the Engineering and Manufacturing Development (EMD) Phase (MDD approved in 3QFY2020) and obtained Shoulder Launched Munition test hardware (production-ready systems) in support of market research (to include live test firings) informing the approved CDD-Update. The market research data also supported the MS C decision. A competitive 5-year Indefinite Delivery/Indefinite Quantity (ID/IQ) production contract will be awarded following the MS C decision. The XM919 IAM program will conduct a User Excursion (Soldier Touch Point in lieu of Operational Test) prior to Type Classification and Full Materiel Release. ***FY 2024 Plans:*** FY 2024 funding is required to procure test hardware and conduct the User Excursion test event (Soldier Touch Point in lieu of an Operational Test (OT)). ***FY 2024 to FY 2025 Increase/Decrease Statement:*** RDTE efforts for the XM919 IAM program will be completed with FY 2024 funding.			
Accomplishments/Planned Programs Subtotals	0.600	2.551	-

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP2 / *Shoulder-Launched Munitions*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E36412: *SHOULDER LAUNCHED INDIVIDUAL ASSAULT MUNITION(IAM)*	27.657	12.051	0.762	-	0.762	32.002	37.448	42.909	47.919	0.000	200.748
• E36914: *TRAINING DEVICE SLM IAM SUBCALIBER LAUNCHER*	-	-	0.000	-	0.000	-	-	8.150	8.232	0.000	16.382

Remarks

D. Acquisition Strategy

The XM919 IAM acquisition strategy is a two phased approach that consists of an accelerated system assessment (SA) phase and a production and deployment phase (P&D). The SA phase surveyed industry and assessed available mature tactical and training hardware solutions through live test firings and soldier touch points. The data collected from the SA phase informed the IAM CDD-Update (approved 13 October 2023) and a Milestone C production decision. Upon a successful production decision, the P&D phase commences through a competitive 5-year ID/IQ production contract award requiring the XM919 IAM producers to Load, Assemble and Pack (LAP) in the U.S. at the start of year three through year five of the contract. The XM919 IAM will replace the AT4CS-RS and BDM shoulder launched munition systems. The XM919 IAM training devices including the XM922 SCT, XM922 SCT Ammo, FHT, Synthetic Training Environment Live Training System (STE LTS) and Soldier Virtual Trainers (SVT) and will replace AT4CS-RS and BDM training devices.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EP2 / *Shoulder-Launched Munitions*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Individual Assault Munition (IAM) Test Hardware	C/FFP	TBD : TBD	-	-		0.822	Apr 2024	-		-		-	0.000	0.822	-
		Subtotal	-	-		0.822		-		-		-	0.000	0.822	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Tactical Engineering Support - Gov	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	6.090	0.600	Dec 2022	0.866	Oct 2023	-		-		-	0.000	7.556	-
		Subtotal	6.090	0.600		0.866		-		-		-	0.000	7.556	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
User Excursion (in lieu of OT)	MIPR	Various : Various	-	-		0.863	Jul 2024	-		-		-	0.000	0.863	-
		Subtotal	-	-		0.863		-		-		-	0.000	0.863	N/A

	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.090	0.600		2.551		-		-		-	0.000	9.241	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP2 / *Shoulder-Launched Munitions*

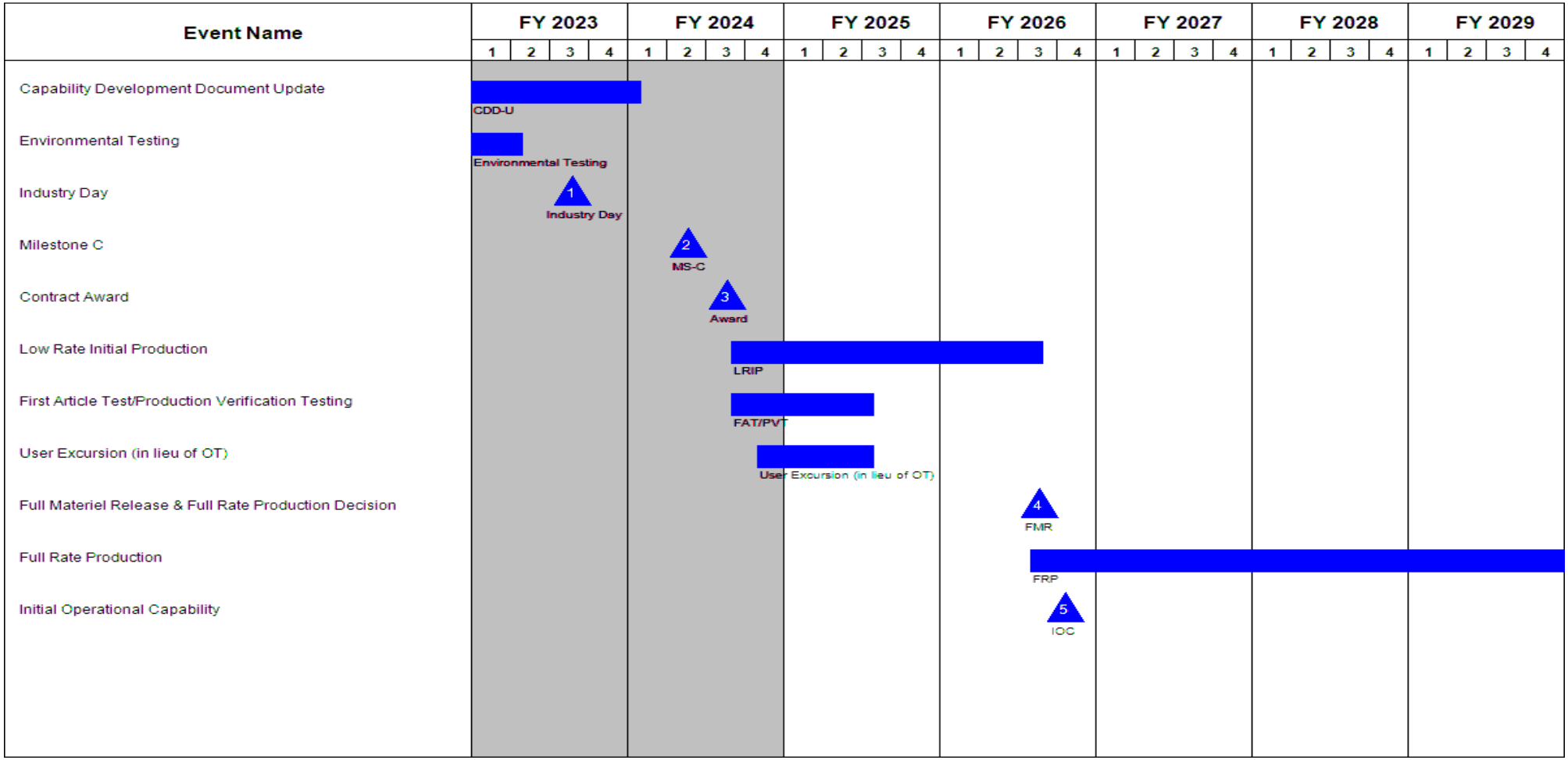


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP2 / *Shoulder-Launched Munitions*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Individual Assault Munition (IAM) Milestone B	3	2020	3	2020
Engineering and Manufacturing Development Contract	4	2020	3	2022
Live Test Firing	4	2021	3	2022
User Jury (Soldier Touch Point)	4	2021	1	2022
Capability Development Document Update	4	2022	1	2024
Environmental Testing	4	2022	1	2023
Industry Day	3	2023	3	2023
Milestone C	2	2024	2	2024
Contract Award	3	2024	3	2024
Low Rate Initial Production	3	2024	3	2026
First Article Test/Production Verification Testing	3	2024	3	2025
User Excursion (in lieu of OT)	4	2024	3	2025
Full Materiel Release & Full Rate Production Decision	3	2026	3	2026
Full Rate Production	3	2026	1	2033
Initial Operational Capability	4	2026	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EP3 / *Reduced Range Ammunition - Small Caliber*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EP3: *Reduced Range Ammunition - Small Caliber*	-	5.024	-	-	-	-	-	-	-	-	0.000	5.024
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The small caliber Reduced Range Ammunition (RRA) Project is a critical technology development in response to the 7.62 millimeter (mm) and .50 caliber Capabilities Development Documents (CDD). The overall objective of RRA is to provide training ammunition suitable for use on military installations with Surface Danger Zone (SDZ) restrictions. The relatively long maximum range of the 7.62mm and .50 caliber service ammunition poses challenges on training ranges in range restricted areas. RRA will mitigate a training gap on installations by providing a materiel solution that meets training needs while shortening and condensing the SDZ. This will allow soldiers to train with 7.62mm and .50 caliber weapons on restricted ranges. The RRA cartridge design will be compatible with all Army 7.62mm and .50 caliber weapons, but specifically optimized to work in the M240 and M2 Machine Guns.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Engineering and Manufacturing Development 7.62mm ***Description:*** EMD Activities for 7.62mm Reduced Range Ammunition.	1.793	-	-
Title: Engineering and Manufacturing Development .50 Caliber ***Description:*** EMD Activities for .50 Cal Reduced Range Ammunition.	3.231	-	-
Accomplishments/Planned Programs Subtotals	5.024	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• F57515: *CTG, 7.62 REDUCED RANGE AMMUNITION*	-	1.000	9.590	-	9.590	9.373	11.119	15.414	13.970	0.000	60.466
• E07307: *CTG, .50CAL REDUCE RANGE AMMUNITION (RRA)*	-	1.000	5.412	-	5.412	34.946	27.841	40.425	40.829	0.000	150.453

Remarks

Procurement of Ammunition, Army F57515 and E07307: These funding lines supports the procurement of Reduced Range Ammunition.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP3 / *Reduced Range Ammunition - Small Caliber*

D. Acquisition Strategy

After 7.62mm Milestone (MS) B in FY 2019, the Government awarded competitive Engineering and Manufacturing Development (EMD) contracts. Upon completing Production Qualification Testing (PQT), the government down-selected to a single contractor to complete EMD. The .50 Caliber program followed a similar strategy. The Government awarded multiple competitive contracts for the .50 Caliber EMD.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EP3 / *Reduced Range Ammunition - Small Caliber*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Contract .50 Cal	Option/ CPFF	General Dynamics : St. Petersburg, Florida	2.462	0.615	Jan 2023	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	2.462	0.615		-		-		-		-	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DEVCOM-AC Engineering Support 7.62mm	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	5.263	1.093	Oct 2022	-		-		-		-	Continuing	Continuing	Continuing
DEVCOM-AC Engineering Support .50 Cal	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	3.765	1.100	Oct 2022	-		-		-		-	Continuing	Continuing	Continuing
US Army Research Lab (ARL) 7.62mm	MIPR	US Army Research Lab (ARL) : Aberdeen, Maryland	1.084	0.400	Oct 2022	-		-		-		-	Continuing	Continuing	Continuing
US Army Research Lab (ARL) .50 Cal	MIPR	US Army Research Lab (ARL) : Aberdeen, Maryland	0.900	0.301	Oct 2022	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	11.012	2.894		-		-		-		-	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EP3 / *Reduced Range Ammunition - Small Caliber*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Production Qualification Testing (PQT 7.62mm)	MIPR	Aberdeen Test Center : Aberdeen, Maryland	1.450	0.300	Nov 2022	-		-		-		-	Continuing	Continuing	Continuing
User Evaluation .50 Cal	MIPR	Maneuver Battle Labs : Fort Benning, Georgia	1.240	0.415	Dec 2022	-		-		-		-	Continuing	Continuing	Continuing
Production Qualification Testing (PQT) .50 Cal	MIPR	Aberdeen Test Center : Aberdeen, Maryland	1.450	0.800	Nov 2022	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	4.140	1.515		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	17.614	5.024		-		-		-		-	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP3 / *Reduced Range Ammunition - Small Caliber*

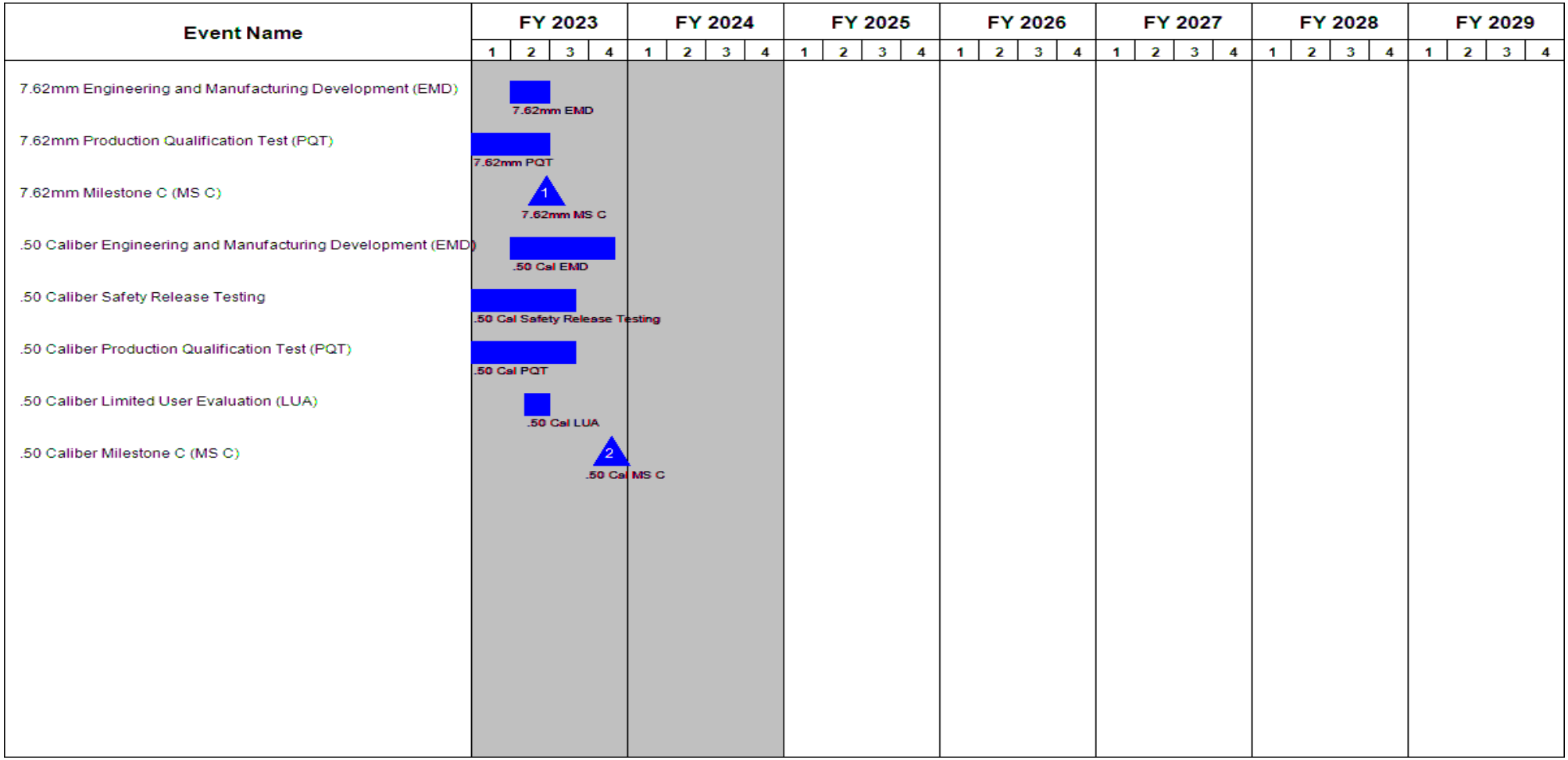


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP3 / *Reduced Range Ammunition - Small Caliber*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
7.62mm Multiple Concept Design Evaluations	1	2017	4	2018
7.62mm Materiel Development Decision (MDD)	4	2017	4	2017
7.62mm Design Verification Test (DVT)	2	2018	3	2018
7.62mm Milestone B (MS B)	1	2019	1	2019
7.62mm Transitions from BA04 EL7 to BA05 EP3	1	2019	1	2019
7.62mm Engineering and Manufacturing Development (EMD)	1	2019	2	2023
7.62mm Preliminary Design Review (PDR)	2	2020	2	2020
7.62mm Pre-Production Qualification Test (PPQT)	3	2021	1	2022
7.62mm Developmental Test and Evaluation (DT&E)	3	2021	1	2022
7.62mm Soldier Touch Point (STP)	4	2021	1	2022
7.62mm Critical Design Review (CDR)	2	2022	2	2022
7.62mm Production Qualification Test (PQT)	4	2022	2	2023
7.62mm Milestone C (MS C)	2	2023	2	2023
.50 Caliber Project Starts on BA04 EL7	1	2018	1	2018
.50 Caliber Multiple Concept Design Evaluations	1	2018	1	2020
.50 Caliber Materiel Development Decision (MDD)	2	2018	2	2018
.50 Caliber Design Verification Test (DVT)	2	2019	3	2019
.50 Caliber Milestone B (MS B)	1	2020	1	2020
.50 Caliber Transitions from BA04 EL7 to BA05 EP3	1	2020	1	2020
.50 Caliber Engineering and Manufacturing Development (EMD)	1	2020	4	2023
.50 Caliber Preliminary Design Review (PDR)	2	2021	2	2021
.50 Caliber Pre-Production Qualification Test (PPQT)	1	2021	3	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP3 / *Reduced Range Ammunition - Small Caliber*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
.50 Caliber Critical Design Review (CDR)	1	2022	1	2022
.50 Caliber Safety Release Testing	4	2022	3	2023
.50 Caliber Production Qualification Test (PQT)	4	2022	3	2023
.50 Caliber Limited User Evaluation (LUA)	2	2023	2	2023
.50 Caliber Milestone C (MS C)	4	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EP4 / *One-Way Luminescence for Small Caliber Ammo*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EP4: *One-Way Luminescence for Small Caliber Ammo*	-	7.289	3.093	-	-	-	-	-	-	-	0.000	10.382
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The One Way Luminescence (OWL) project is a critical technology development in response to the 7.62 millimeter (mm) and 5.56mm Families of Ammunition Capabilities Development Documents (CDD) and .50 Caliber Munitions CDD. Current small caliber ammunition tracer rounds are a pyrotechnic tracer mix which allows enemy forces to see the trace round and track its trajectory back to the shooter. The OWL projects objective is to develop and field a full tracer round, replace the current pyrotechnic cartridges with trace cartridges that are only visible to the shooter and soldiers in close proximity, increasing soldier survivability, and increasing lethality by incorporating Enhanced Performance Round (EPR) technology into the new tracer ammunition. 7.62mm and 5.56mm are the immediate focus; later followed by .50 Caliber cartridges and Next Generation Squad Weapons (NGSW) ammunition. This is no FY 2025 request as program transitions from development to production.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: EMD 7.62mm ***Description:*** EMD efforts for the 7.62mm variant. ***FY 2024 Plans:*** Continue EMD and perform preparation activities for Materiel Release (MR). ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Program transitions from Development to Production.	1.326	0.614	-
Title: EMD 5.56mm ***Description:*** EMD efforts for the 5.56mm variants. ***FY 2024 Plans:*** Complete EMD efforts, perform PQT, and execute a STP / User Evaluation. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Program transitions from Development to Production.	5.963	2.479	-
Accomplishments/Planned Programs Subtotals	7.289	3.093	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP4 / *One-Way Luminescence for Small Caliber Ammo*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

The OWL concept will be developed through Government and Industry prototyping efforts. Technology Readiness Assessments (TRAs) were conducted in FY 2017 and FY 2018 to evaluate the industry and Government concepts in order to proceed with the 7.62mm EMD. The 5.56mm, NGSW, and .50 Caliber cartridges follows the 7.62mm schedule with EMD starting in FY 2021 for the 5.56mm variant after conducting a TRA and achieving Technology Readiness Level 6 (TRL6) in FY 2020. The new tracer cartridges will replace legacy tracers in each of the various small caliber configurations.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EP4 / *One-Way Luminescence for Small Caliber Ammo*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
OWL Manufacturing Tooling Development (5.56mm)	Option/ CPFF	JAK Tool Engineering Solutions : Cranbury, NJ	1.571	0.195	Jan 2023	-		-		-		-	0.000	1.766	-
EMD PH I Contract (5.56mm)	Option/ CPFF	OLIN Winchester Corporation : Independence, MO	4.885	2.820	Feb 2023	-		-		-		-	0.000	7.705	-
		Subtotal	6.456	3.015		-		-		-		-	0.000	9.471	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DEVCOM-AC Engineering Support 7.62mm	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	4.834	0.500	Oct 2022	0.400	Oct 2023	-		-		-	0.000	5.734	-
DEVCOM-AC Engineering Support 5.56mm	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	2.377	1.800	Oct 2022	1.730	Oct 2023	-		-		-	0.000	5.907	-
		Subtotal	7.211	2.300		2.130		-		-		-	0.000	11.641	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EP4 / *One-Way Luminescence for Small Caliber Ammo*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Production Qualification Testing (PQT) 7.62mm	MIPR	Aberdeen Test Center : Aberdeen, MD	-	0.826	Mar 2023	0.214	Oct 2023	-		-		-	0.000	1.040	-
Radar Testing (5.56mm)	MIPR	US Army Research Lab : Aberdeen, MD	0.075	0.195	Oct 2022	-		-		-		-	0.000	0.270	-
Soldier Touch Point 2 (5.56mm)	MIPR	US Army Maneuver Battle Labs : Fort Benning, GA	-	0.150	Dec 2022	-		-		-		-	0.000	0.150	-
Soldier Touch Point 3 (5.56mm)	MIPR	US Army Maneuver Battle Labs : Fort Benning, GA	-	-		0.200	Oct 2023	-		-		-	0.000	0.200	-
Production Qualification Testing (PQT) 5.56mm	MIPR	Aberdeen Test Center : Aberdeen, MD	-	0.778	Apr 2023	0.549	Oct 2023	-		-		-	0.000	1.327	-
Verification Testing 5.56mm	MIPR	Night Vision Labs : Fort Belvoir, VA	-	0.025	Nov 2022	-		-		-		-	0.000	0.025	-
		Subtotal	0.075	1.974		0.963		-		-		-	0.000	3.012	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.742	7.289		3.093		-		-		-	0.000	24.124	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP4 / *One-Way Luminescence for Small Caliber Ammo*

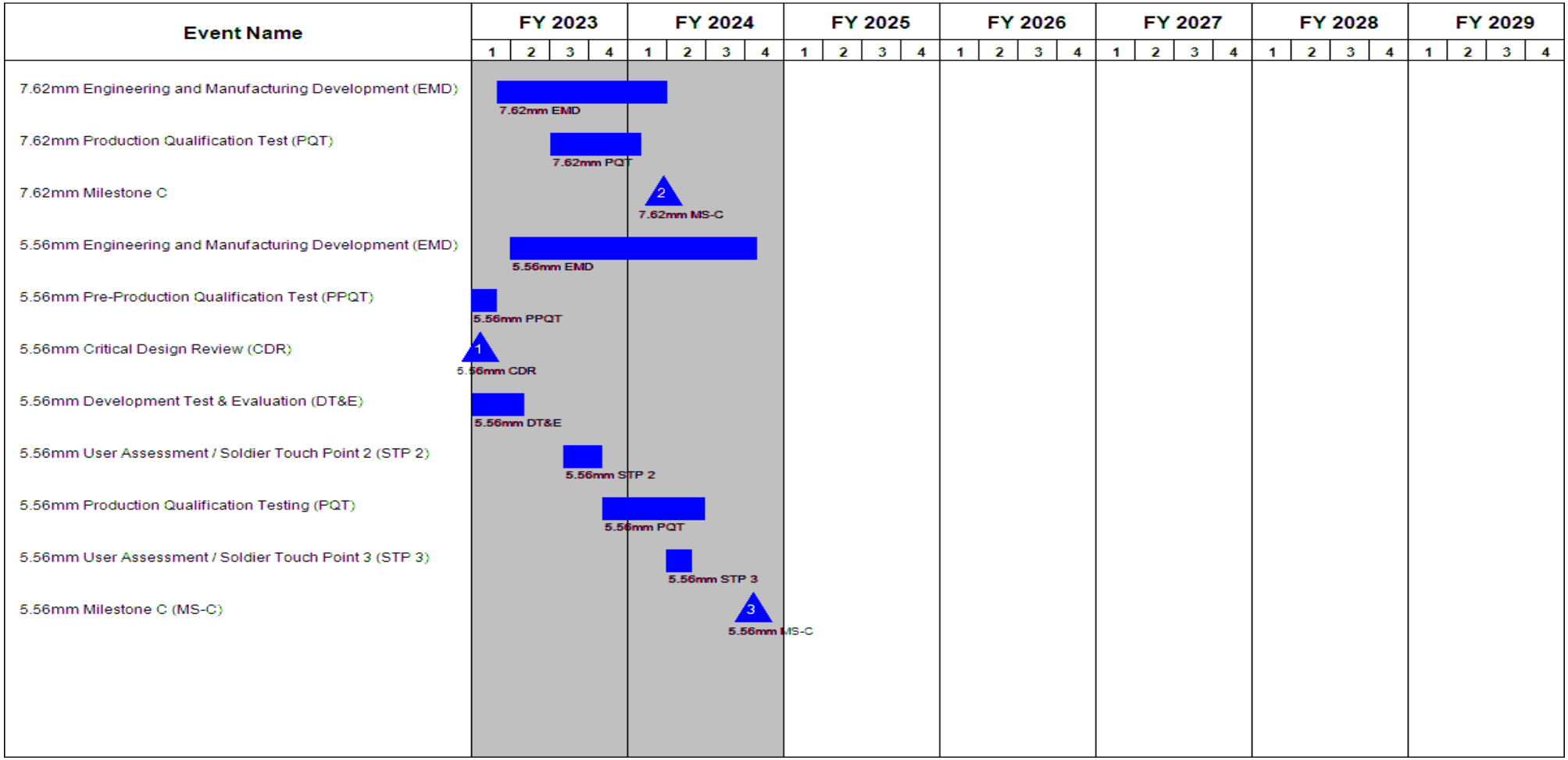


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP4 / *One-Way Luminescence for Small Caliber Ammo*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
7.62mm Materiel Development Decision (MDD)	4	2016	4	2016
7.62mm Multiple Concept Design Evaluation	1	2015	1	2019
7.62mm Milestone B (MS-B)	1	2019	1	2019
7.62mm Transitions from BA04 EB8 to BA05 EP4	1	2019	1	2019
7.62mm Engineering and Manufacturing Development (EMD)	1	2019	1	2024
7.62mm Design Verification Test	2	2019	3	2019
7.62mm Preliminary Design Review (PDR)	3	2019	3	2019
7.62mm Development Test & Evaluation (DT&E)	3	2020	3	2021
7.62mm User Assessment	4	2020	1	2021
7.62mm Pre-Production Qualification Test (PPQT)	4	2020	2	2021
7.62mm Critical Design Review (CDR)	4	2022	4	2022
7.62mm Limited User Evaluation (LUE)	2	2022	3	2022
7.62mm Production Qualification Test (PQT)	3	2023	1	2024
7.62mm Milestone C	1	2024	1	2024
5.56mm Materiel Development Decision (MDD)	3	2018	3	2018
5.56mm Project Starts on BA04 EB8	3	2018	3	2018
5.56mm Multiple Concept Design Evaluation	4	2018	4	2020
5.56mm Cavity Design Test	1	2020	3	2020
5.55 Technology Readiness Level 6 (TRL 6)	4	2020	4	2020
5.56mm Milestone B (MS-B)	1	2021	1	2021
5.56mm Transitions from BA04 EB8 to BA05 EP4	1	2021	1	2021
5.56mm Engineering and Manufacturing Development (EMD)	1	2021	4	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP4 / *One-Way Luminescence for Small Caliber Ammo*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
5.56mm Design Verification Test	3	2021	4	2021
5.56mm Preliminary Design Review (PDR)	1	2022	1	2022
5.56mm User Assessment / Soldier Touch Point 1 (STP 1)	4	2022	4	2022
5.56mm Pre-Production Qualification Test (PPQT)	4	2022	1	2023
5.56mm Critical Design Review (CDR)	1	2023	1	2023
5.56mm Development Test & Evaluation (DT&E)	1	2023	2	2023
5.56mm User Assessment / Soldier Touch Point 2 (STP 2)	3	2023	4	2023
5.56mm Production Qualification Testing (PQT)	4	2023	2	2024
5.56mm User Assessment / Soldier Touch Point 3 (STP 3)	2	2024	2	2024
5.56mm Milestone C (MS-C)	4	2024	4	2024
Prototype & Concept Evaluation for Other Small Caliber Ammo	1	2020	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EP7 / *Aviation Airborne Expendable Countermeasures*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EP7: *Aviation Airborne Expendable Countermeasures*	-	6.131	3.194	5.840	-	5.840	6.021	0.902	-	-	0.000	22.088
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Aviation Airborne Expendable Countermeasures (AAECM) will support Integrated System Design (ISD), System Capability (SC) and Manufacturing Process Demonstrations (MPD) on expendable countermeasure flares and decoys to include the XM215 Infrared (IR) countermeasure Flare and XM20 Radio Frequency (RF) expendables. These expendable countermeasures systems are an essential part of survivability equipment for Army aircraft. Army Research Development Technology & Evaluation (RDT&E) efforts are coordinated with Program Executive Office (PEO) Aviation to address the AAECM capability, a critical enabler for enduring aircraft and the Future Vertical Lift (FVL) - Aircraft Survivability Equipment (ASE) Cross Functional Team (CFT) within Army's Top modernization priorities.

These advanced decoys will address deficiencies in Army aircraft protection and the safety of its aircrews against advanced Man-Portable Air Defense Systems (MANPADS) and Surface-to-Air Missiles (SAM) systems. The project will also support ISD, SC and MPD on new expendable countermeasure munitions that will protect Army aircraft from advanced and proliferated current guided missile threats. Activities include modeling and simulation, flight testing, qualification testing, environmental considerations, safety enhancements, manufacturing enhancements, qualification of other service and foreign munitions that could meet current requirements, product improvements, insertion of new technologies to increase performance, and enhancement of current flare solutions for new and existing aircraft. Systems include impulse cartridges and aircraft expendables (to include RF expendables). FY 2025 will support modeling and simulation for the XM215. For XM20, FY2025 will support developmental testing and Milestone C for the AH64 and CH47 platforms and conduct operational testing on the UH60 platform.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Improvements to Countermeasure Flares	6.131	3.194	5.840
Description: This program will develop XM215 Infrared and XM20 Radio Frequency expendable countermeasures to defeat specific threats of interest and qualify them for Army use. This program will also develop countermeasure patterns/cocktails solutions to integrate these new expendables with legacy countermeasures into Army's rotary wing and fixed wing aircraft.			
FY 2024 Plans: FY 2024 funding will support modeling and simulation, additional procurement of test assets and flight testing for the XM20. Funding will also support XM215 test assets, Production Qualification Testing (PQT), Final Hazards Classification (FHC) and Insensitive Munitions (IM) testing			
FY 2025 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP7 / *Aviation Airborne Expendable Countermeasures*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY2025 funding will support XM20 MS C, model and simulation, Developmental Flight Test on AH64/CH47 aircrafts and Initial Operational Test and Evaluation (IOT&E) on UH60 aircraft to support First Unit Equipped. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 funding increase due to XM20 testing requirements.			
Accomplishments/Planned Programs Subtotals	6.131	3.194	5.840

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E49101: *Flare, Aircraft Countermeasure, RF (Passive)*	-	8.083	14.149	-	14.149	-	-	-	-	0.000	22.232
• E49102: *Flare, Aircraft Countermeasure, XM215*	-	-	0.862	-	0.862	0.539	8.594	11.582	17.369	0.000	38.946

Remarks

D. Acquisition Strategy

During the Materiel Solution Analysis (MSA), Milestone A phase, prototypes developed by the US Government (USG) and contractors were tested and evaluated against initial CDD requirements. The contractor developed XM20 design and the USG developed XM215 design were selected to enter into Engineering and Manufacturing Development (EMD), Milestone B phase, to finalize the design based on lessons learned from the MSA flight test and CDD requirements. Test assets are being procure from industry via Other Transaction Authority (OTA) contract mechanism since FY 2021 to support EMD. Final XM20 and XM215 and configurations to support production after MS C will be procured via Full and Open FAR based contracts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EP7 / *Aviation Airborne Expendable Countermeasures*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
XM20 Prototypes	SS/FP	Armtec Defense Technologies : Coachella, CA	-	0.240	Sep 2023	-		-		-		-	0.000	0.240	-
		Subtotal	-	0.240		-		-		-		-	0.000	0.240	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
XM215 Engineering Support	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	5.126	0.727	Mar 2023	-		-		-		-	0.000	5.853	-
XM20 Engineering Support	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	-	0.102	Mar 2023	1.168	Oct 2023	1.100	Oct 2024	-		1.100	Continuing	Continuing	-
		Subtotal	5.126	0.829		1.168		1.100		-		1.100	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
XM20 Operational Flight Testing	MIPR	Various : Various	-	3.428	Aug 2023	1.126	Jun 2024	3.990	May 2025	-		3.990	Continuing	Continuing	-
XM20 Modeling and Simulation	MIPR	Various : Various	0.195	0.930	Dec 2023	0.900	Jan 2024	0.500	Jan 2025	-		0.500	Continuing	Continuing	-
XM215 Modeling and Simulation	MIPR	Naval Air Warfare : China Lake, CA	0.881	-		-		0.250	Jan 2025	-		0.250	0.000	1.131	-
XM215 Flight Test	MIPR	Various : Various	-	0.704	Apr 2023	-		-		-		-	0.000	0.704	-
		Subtotal	1.076	5.062		2.026		4.740		-		4.740	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EP7 / *Aviation Airborne Expendable Countermeasures*	

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.202	6.131		3.194		5.840		-		5.840	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP7 / *Aviation Airborne Expendable Countermeasures*

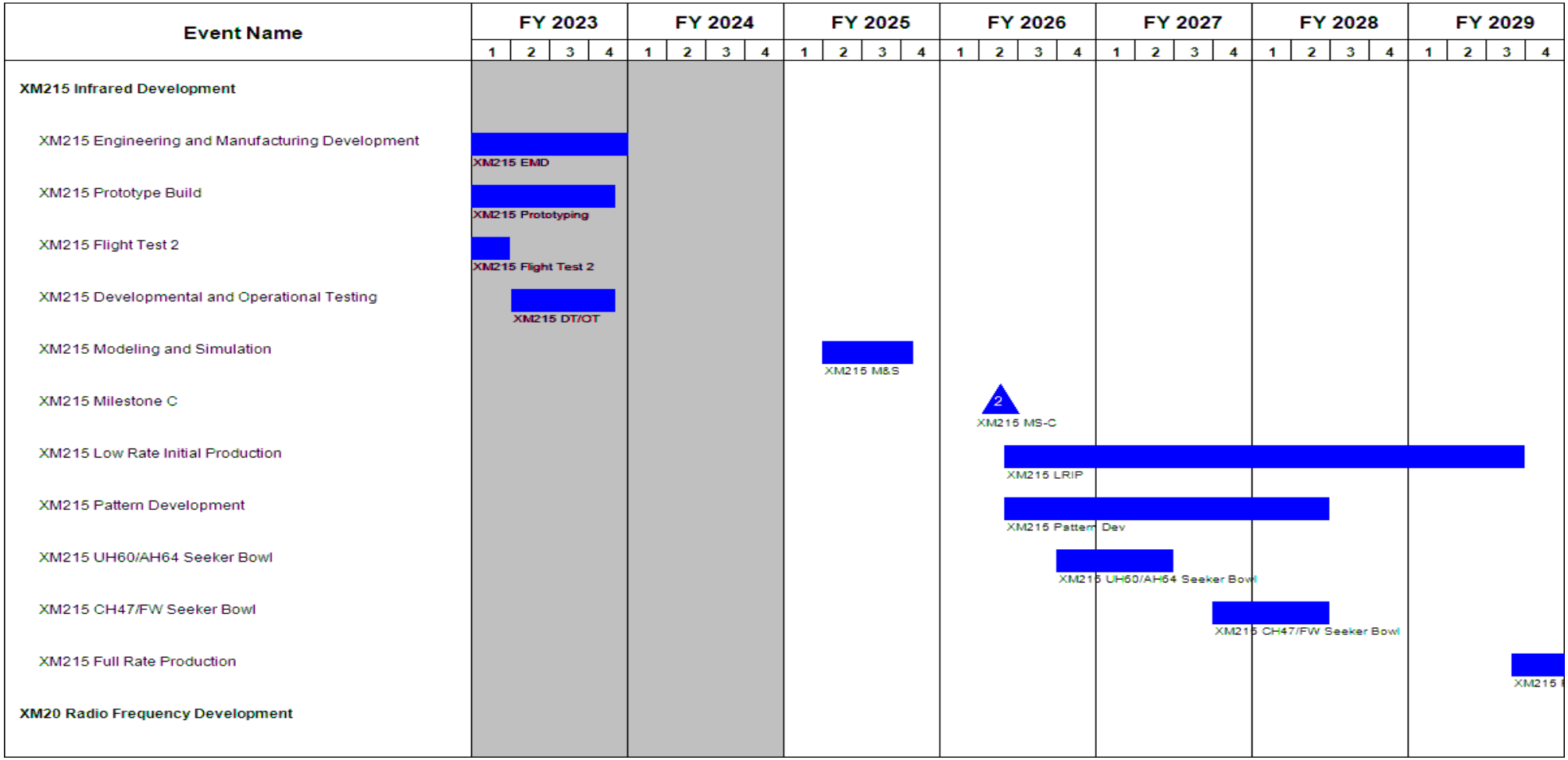
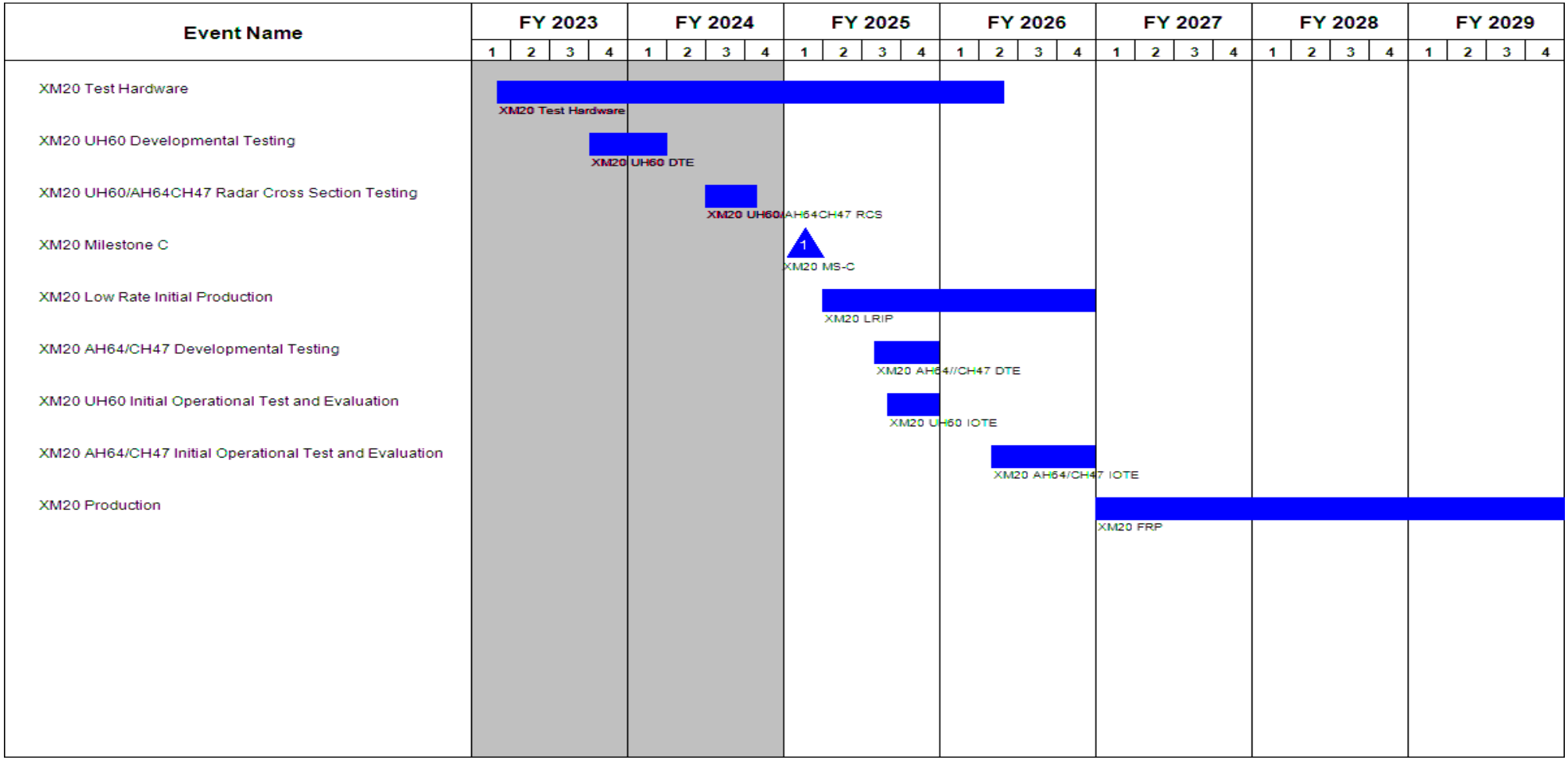


Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP7 / *Aviation Airborne Expendable Countermeasures*



Note

Project EB9 / Aviation Airborne Expendable Countermeasures within PE 0603639A / Tank and Medium Caliber Ammunitions transitions to Engineering and Manufacturing Development (EMD) under Project EP7 / Aviation Airborne Expendable Countermeasures within PE 0604802A / Weapons and Munitions - Eng Dev.

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP7 / *Aviation Airborne Expendable Countermeasures*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
XM215 Infrared Development	1	2019	4	2031
XM215 Milestone A	1	2019	1	2019
XM215 Prototyping	1	2019	2	2020
XM215 Down Select	3	2019	3	2019
XM215 Testing Efforts (Stability/Heat/Cold)	3	2019	2	2020
XM215 Flight Testing	1	2020	2	2020
XM215 Milestone B	2	2020	2	2020
XM215 Engineering and Manufacturing Development	2	2020	4	2023
XM215 Design Verification Test	2	2021	3	2021
XM215 Flight Test	2	2021	2	2021
XM215 Prototype Build	3	2021	4	2023
XM215 Flight Test 2	1	2023	1	2023
XM215 Developmental and Operational Testing	2	2023	4	2023
XM215 Modeling and Simulation	2	2025	4	2025
XM215 Milestone C	2	2026	2	2026
XM215 Low Rate Initial Production	2	2026	3	2029
XM215 Pattern Development	2	2026	2	2028
XM215 UH60/AH64 Seeker Bowl	4	2026	2	2027
XM215 CH47/FW Seeker Bowl	4	2027	2	2028
XM215 Full Rate Production	3	2029	3	2033
XM20 Radio Frequency Development	1	2019	4	2031
XM20 Milestone A	1	2019	1	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EP7 / *Aviation Airborne Expendable Countermeasures*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
XM20 Prototype Development	1	2019	4	2019
XM20 Demonstrations	2	2019	3	2019
XM20 Technology Maturation and Risk Reduction	1	2020	2	2021
XM20 Flight Testing	2	2020	2	2020
XM20 Modeling and Simulation	3	2020	4	2020
XM20 Data Analysis	1	2021	2	2021
XM20 Milestone B	2	2021	2	2021
XM20 Development Contract	2	2021	4	2022
XM20 Critical Design Review	2	2022	2	2022
XM20 Developmental Testing	2	2022	4	2022
XM20 Test Hardware	1	2023	2	2026
XM20 UH60 Developmental Testing	4	2023	1	2024
XM20 UH60/AH64CH47 Radar Cross Section Testing	3	2024	4	2024
XM20 Milestone C	1	2025	1	2025
XM20 Low Rate Initial Production	2	2025	4	2026
XM20 AH64/CH47 Developmental Testing	3	2025	4	2025
XM20 UH60 Initial Operational Test and Evaluation	3	2025	4	2025
XM20 AH64/CH47 Initial Operational Test and Evaluation	2	2026	4	2026
XM20 Production	1	2027	4	2031

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EU4 / *40mm HV Improved High Explosive Dual Purpose*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EU4: *40mm HV Improved High Explosive Dual Purpose*	-	1.997	-	1.503	-	1.503	-	-	-	-	0.000	3.500
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project EU4: 40mm HV Improved High Explosive Dual Purpose FY 2024 is a Skip-Year, FY 2025 funding required to conduct Live Fire Testing.

A. Mission Description and Budget Item Justification

40 millimeter (mm) High Velocity (HV) High Explosive Dual Purpose - Air burst (HEDP-AB) is a new capability identified as a Warfighter counter-defilade requirement in the 40mm High Velocity Improved High Explosive Dual Purpose Cartridge Capability Development Document (CDD) and will provide the Mk19 Mod 3 Grenade Machine Gun (GMG) an airburst capable cartridge with the ability of achieving required lethal effects against enemy targets in the open and in defilade while maintaining the capability to defeat unarmored and lightly armored vehicles. XM1176 HEDP-AB cartridges are manufactured by de-fuzing legacy M430A1 cartridges and installing a new airburst capable fuze onto the M430A1 warhead. In FY 2025 funding will support Live Fire Test and Evaluation (LFT&E) efforts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Engineering and Manufacturing Development (EMD)	1.997	-	1.503
Description: Award EMD contracts to support Design Engineering Testing (DET) and Developmental Test & Evaluation (DT&E) of the 40mm dual purpose airburst capability. ***FY 2025 Plans:*** FY 2025 funding supports Live fire Test and Evaluation (LFT&E). ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY2025 funding increase to conduct Live Fire Testing.			
Accomplishments/Planned Programs Subtotals	1.997	-	1.503

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E70505: *CTG, 40MM, HV HEDP-AB, XM1176*	15.853	-	13.926	-	13.926	3.154	13.132	13.240	13.372	0.000	72.677

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EU4 / *40mm HV Improved High Explosive Dual Purpose*

D. Acquisition Strategy

The 40mm HV HEDP-AB cartridge was developed through a competitive EMD program. Milestone B approval was followed by a competitive award for the EMD phase which included DET 1 and DET 2 and an option for DT&E. One contractor was awarded to develop an air burst capable fuze to be retrofitted onto the currently fielded, High Explosive Dual Purpose cartridges and develop a Programming Unit. Test results will support the documentation for Milestone C. After Milestone C is achieved, a contract option will be awarded for Low Rate Initial Production 1 (LRIP-1) followed by options for Low Rate Initial Production 2 (LRIP-2) and Production Year 1 (PY1).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EU4 / *40mm HV Improved High Explosive Dual Purpose*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Manager Maneuver Ammunition Systems (PM MAS)	MIPR	Picatinny Arsenal : NJ	0.542	0.200	Nov 2022	-		-		-		-	0.000	0.742	-
		Subtotal	0.542	0.200		-		-		-		-	0.000	0.742	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DEVCOM-AC Engineering Support	MIPR	Development Command - Armaments Center (DEVCOM-AC) : Picatinny Arsenal, NJ	9.498	1.224	Nov 2022	-		-		-		-	0.000	10.722	-
		Subtotal	9.498	1.224		-		-		-		-	0.000	10.722	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Live Fire Test & Evaluation	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, Md	-	0.573	Jul 2023	-		1.503	Mar 2025	-		1.503	0.000	2.076	-
		Subtotal	-	0.573		-		1.503		-		1.503	0.000	2.076	N/A

	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.040	1.997		-		1.503		-		1.503	0.000	13.540	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EU4 / *40mm HV Improved High Explosive Dual Purpose*

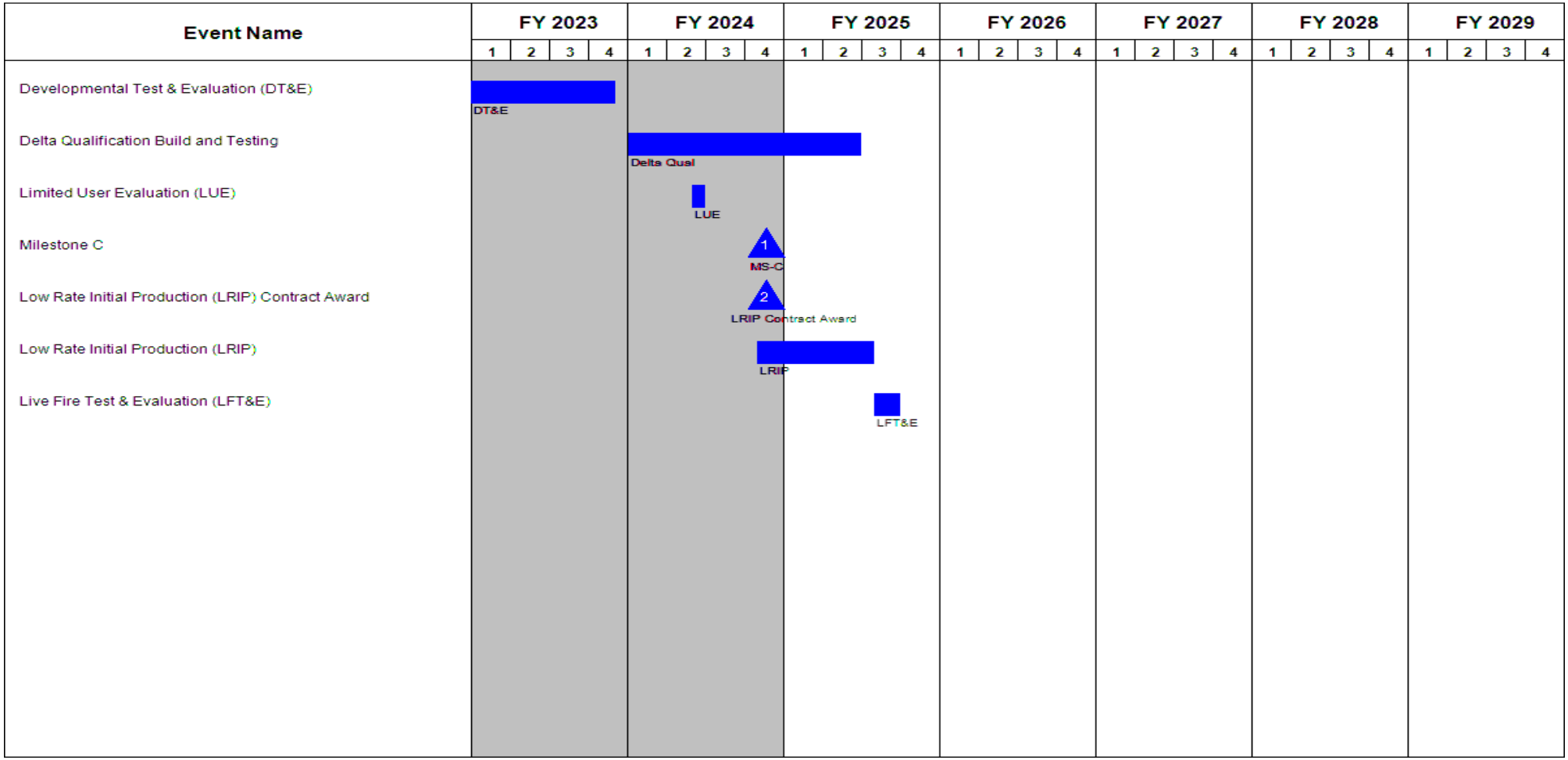


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EU4 / *40mm HV Improved High Explosive Dual Purpose*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Milestone B Support Documents	2	2017	4	2018
Milestone B	4	2018	4	2018
Engineering and Manufacturing Development (EMD)	4	2018	4	2022
Test Readiness Review for Design Engineering Test 1	4	2019	4	2019
Design Engineering Test (DET) 1	1	2020	2	2020
Test Readiness Review for Design Engineering Test 2	2	2020	2	2020
Design Engineering Test (DET) 2	3	2020	4	2020
Developmental Test & Evaluation (DT&E) Contract Award	4	2020	4	2020
Critical Design Review (CDR)	1	2021	1	2021
Developmental Test & Evaluation (DT&E) Build	3	2021	2	2022
Developmental Test & Evaluation (DT&E)	2	2022	4	2023
Delta Qualification Build and Testing	1	2024	2	2025
Limited User Evaluation (LUE)	2	2024	2	2024
Milestone C	4	2024	4	2024
Low Rate Initial Production (LRIP) Contract Award	4	2024	4	2024
Low Rate Initial Production (LRIP)	4	2024	3	2025
Live Fire Test & Evaluation (LFT&E)	3	2025	3	2025

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EU6 / *155mm HE Rocket Assist Project Extended Range*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EU6: *155mm HE Rocket Assist Project Extended Range*	-	13.857	28.772	15.631	-	15.631	2.655	-	-	-	0.000	60.915
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The 155 millimeter (mm) High Explosive (HE) Rocket Assisted Projectile (RAP) supports the Army's Cannon Modernization Strategy which includes Paladin Integrated Management (PIM) Armament Upgrade, Next Generation Cannon, Extended Range Cannon Artillery (ERCA), and all utilized cannons that are 52-calibers or longer. The Project is executing an evolutionary approach leveraging current rocket assisted munitions hardware to meet the extended range and precision objectives. The High Explosive (HE) Rocket Assisted Projectile (RAP) will first deliver a near term solution to increase range from 30km to 40km in current 39 caliber systems. The Next Generation Rocket Assisted Projectile (NGRAP) will continue development of the High Explosive (HE) Rocket Assisted Projectile (RAP) with focus on improved accuracy, lethality, and ranges up to 70km and greater utilizing 52 and 58 caliber weapons. FY 2025 funding supports the Engineering and Manufacturing Development (EMD) activities to build, test, and evaluate a solution that meets the requirements specified in the Next Generation Rocket Assisted Projectile (NGRAP) Capabilities Development Document (CDD).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: 155mm High Explosive Rocket Assisted Projectile (RAP) Extended Range	13.857	28.772	15.631
Description: The High Explosive (HE) Rocket Assisted Projectile (RAP) XM1113 will replace the obsolete M549A1 in 39 caliber weapon systems and increase range from 30km to 40km. The Next Generation Rocket Assisted Projectile (NGRAP), which leverages efforts completed under XM1210, will continue development of High Explosive (HE) Rocket Assisted Projectile (RAP) with focus on improved ranges utilizing 52 and 58 caliber weapons. ***FY 2024 Plans:*** FY 2024 Funding will support XM1210 development and qualification activities for the Full Materiel Release (FMR) configuration. ***FY 2025 Plans:*** FY 2025 Funding will continue to support Next Generation Rocket Assisted Projectile (NGRAP) development and testing activities to verify all weapon, propellant and fuze interoperability requirements. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Decrease in FY 2025 funding reflects shift to single common projectile to support the Army's Cannon Modernization Strategy.			
Accomplishments/Planned Programs Subtotals	13.857	28.772	15.631

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EU6 / *155mm HE Rocket Assist Project Extended Range*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E66501: *PROJ, 155mm ARTY HE RAP, XM1113*	135.174	26.688	23.363	-	23.363	43.712	49.474	48.729	49.217	0.000	376.357
• E27121: *PROJ, 155MM ARTY HE RAP, M1210*	-	2.932	3.554	-	3.554	2.199	30.461	31.083	31.736	0.000	101.965

Remarks

Procurement of Ammunition, Army (PAA) budget line items, Standard Study Numbers E66501 and E27121, have been established to resource the procurement of XM1113 and XM1210 quantities.

D. Acquisition Strategy

The Next Generation Rocket Assisted Projectile (NGRAP) utilizes the competitively awarded Department of Defense (DoD) Ordnance Technology Consortium (DOTC) Other Transaction Agreement (OTA) initiative with General Dynamics Ordnance and Tactical Systems (GD-OTS) to continue the High Explosive (HE) Rocket Assisted Projectile (RAP) development efforts. United States Government (USG) will continue to partner with industry to develop a USG owned Technical Data Package (TDP). In addition, OTAs and Government Agreements will continue to expand the supply chain for future competition, eliminate single point failure risks, analyze alternative manufacturing methods, and meet large forecasted production rates. A Federal Acquisition Regulation (FAR) based production contract will be implemented to support NGRAP requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EU6 / *155mm HE Rocket Assist Project Extended Range*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Various	Office of the Project Manager (PM) Combat Ammunition Systems (CAS) : Picatinny Arsenal, NJ	1.720	0.100	Oct 2022	0.100	Oct 2023	0.100	Oct 2024	-		0.100	0.000	2.020	-
		Subtotal	1.720	0.100		0.100		0.100		-		0.100	0.000	2.020	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DOTC - HE RAP/ NGRAP Engineering and Manufacturing Development (EMD)	MIPR	DoD Ordnance Technology Consortium Other Transaction Agreement (DOTC OTA) : Various	92.760	8.305	Nov 2022	24.422	Nov 2023	10.881	Dec 2024	-		10.881	0.000	136.368	-
		Subtotal	92.760	8.305		24.422		10.881		-		10.881	0.000	136.368	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	Combat Capabilities Development Command Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ	11.343	2.561	Nov 2022	2.500	Nov 2023	2.650	Oct 2024	-		2.650	0.000	19.054	-
Fire Control Software Integration	MIPR	U.S. Army Communications-Electronics Command	0.200	-		0.250	Nov 2023	-		-		-	0.000	0.450	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EU6 / *155mm HE Rocket Assist Project Extended Range*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		(CECOM) : Aberdeen, MD													
		Subtotal	11.543	2.561		2.750		2.650		-		2.650	0.000	19.504	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Qualification Testing	MIPR	Army Test and Evaluation Command (ATEC) Yuma Proving Ground (YPG) : Yuma, AZ	11.490	2.891	Jan 2023	1.500	Jan 2024	2.000	Jan 2025	-		2.000	0.000	17.881	-
		Subtotal	11.490	2.891		1.500		2.000		-		2.000	0.000	17.881	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	117.513	13.857		28.772		15.631		-		15.631	0.000	175.773	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EU6 / *155mm HE Rocket Assist Project Extended Range*

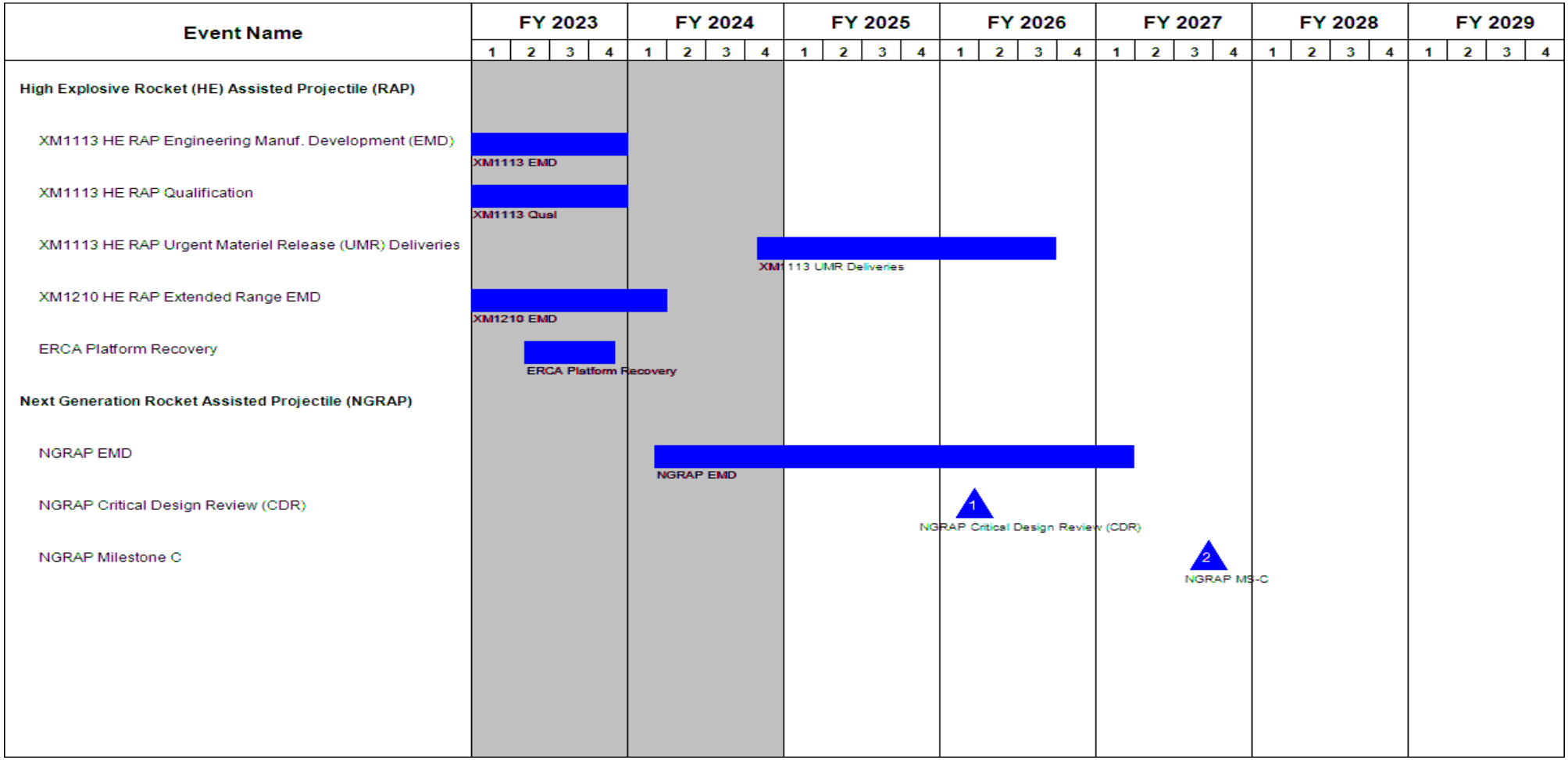


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EU6 / *155mm HE Rocket Assist Project Extended Range*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
High Explosive Rocket (HE) Assisted Projectile (RAP)	1	2019	4	2023
XM1113 HE RAP Engineering Manuf. Development (EMD)	4	2019	4	2023
XM1113 HE RAP Qualification	4	2019	4	2023
XM1113 HE RAP Safety and Robustness Improvement Activities	1	2021	3	2022
XM1113 HE RAP Critical Design Review (CDR)	2	2022	2	2022
XM1113 HE RAP Urgent Materiel Release (UMR) Deliveries	4	2024	3	2026
XM1210 HE RAP Extended Range EMD	2	2020	1	2024
XM1210 HE RAP Development Testing	1	2021	2	2022
XM1210 HE RAP Preliminary Design Review (PDR)	2	2021	2	2021
ERCA Platform Recovery	2	2023	4	2023
Next Generation Rocket Assisted Projectile (NGRAP)	1	2025	4	2027
NGRAP EMD	1	2024	1	2027
NGRAP Critical Design Review (CDR)	1	2026	1	2026
Precision Guidance Aft (PG-Aft) - Congressional Add	1	2020	1	2022
PG-Aft Development & Testing	1	2020	4	2022
NGRAP Milestone C	3	2027	3	2027

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EW1 / *40mm Low Velocity Ammunition*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EW1: *40mm Low Velocity Ammunition*	-	1.970	0.082	0.107	-	0.107	-	-	-	-	0.000	2.159
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The 40 millimeter (mm) Low Velocity High Explosive Air Burst (HEAB) is a new capability identified as a Warfighter counter-defilade requirement in the Capability Development Document (CDD), 40mm Low Velocity (LV) Family of Ammunition Annex. The HEAB tactical cartridge allows the Warfighter to engage targets at increased effective ranges using the 40mm M320 Grenade Launcher. The HEAB cartridge provides the grenadier with a higher probability of achieving a first shot kill against enemy personnel, coupled with the ability to defeat personnel targets in defilade positions. When deployed against point and area targets, the cartridge inflicts incapacitating effects against personnel beyond those offered by the current M433 High Explosive Dual Purpose (HEDP) cartridge. The cartridge provides lethal effects against targets with improved accuracy and greater standoff ranges resulting in increased soldier survivability. Fiscal Year (FY) 2025 funding will be used to support a Soldier Touch Point (STP) for the XM 1166 HEAB.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: 40mm LV HEAB, XM1166	1.970	0.082	0.107
Description: Engineering Manufacturing Development (EMD) of the 40mm LV HEAB munition. ***FY 2024 Plans:*** FY 2024 funds support test reports and close-out activities following Developmental Test and Evaluation (DT&E) and a final STP will be conducted to support FMR. ***FY 2025 Plans:*** Fiscal Year (FY) 2025 funding will be used to support a Soldier Touch Point (STP) for the XM1166 HEAB. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase in funding from FY 2024 to FY 2025 reflects shifting of priorities from test reports and close-out activities to execution of a Soldier Touch Point (STP) in Fiscal Year (FY) 2025.			
Accomplishments/Planned Programs Subtotals	1.970	0.082	0.107

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EW1 / *40mm Low Velocity Ammunition*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E71005: *CTG, 40MM, LV HEAB, XM1166*	13.888	2.021	6.934	-	6.934	-	11.083	11.070	11.181	0.000	56.177

Remarks

D. Acquisition Strategy

The HEAB cartridge will be developed through a competitive Engineering and Manufacturing Development (EMD) Program. Potential designs were evaluated as part of the pre-EMD activities using a Cooperative Research and Development Agreement (CRADA) with contractors. For EMD, the Government awarded two contracts utilizing an Other Transaction Agreement (OTA) through Department of Defense (DoD) Ordnance Technology Consortium (DOTC). The EMD phase will consist of a series of Design Engineering Tests (DET) to assess the Contractors' design progress and ability of achieving the program objectives. Any shortcomings and deficiencies will be addressed prior to Developmental Test & Evaluation (DT&E). After DT&E and a successful Milestone C, the Government will award a single contract for Low Rate Initial Production (LRIP) and four production year options utilizing a follow-on Federal Acquisition Regulation (FAR) based contract.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) EW1 / *40mm Low Velocity Ammunition*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Manager Maneuver Ammunition Systems (PM MAS)	Various	Picatinny Arsenal : Picatinny Arsenal, NJ	-	-		0.082	Oct 2023	-		-		-	0.000	0.082	-
		Subtotal	-	-		0.082		-		-		-	0.000	0.082	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LV HEAB XM1166 Developmental Test and Evaluation (DT&E)	MIPR	Aberdeen Test Center (ATC) : Aberdeen, MD	0.707	1.798	Jan 2023	-		-		-		-	0.000	2.505	-
Soldier Touch Points	MIPR	Aberdeen Test Center (ATC) : Aberdeen, MD	0.101	0.172		-		0.107	Mar 2025	-		0.107	0.000	0.380	-
		Subtotal	0.808	1.970		-		0.107		-		0.107	0.000	2.885	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.808	1.970		0.082		0.107		-		0.107	0.000	2.967	N/A

Remarks

Notes:
Low Velocity (LV)
High Explosive Air Burst (HEAB)

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EW1 / *40mm Low Velocity Ammunition*

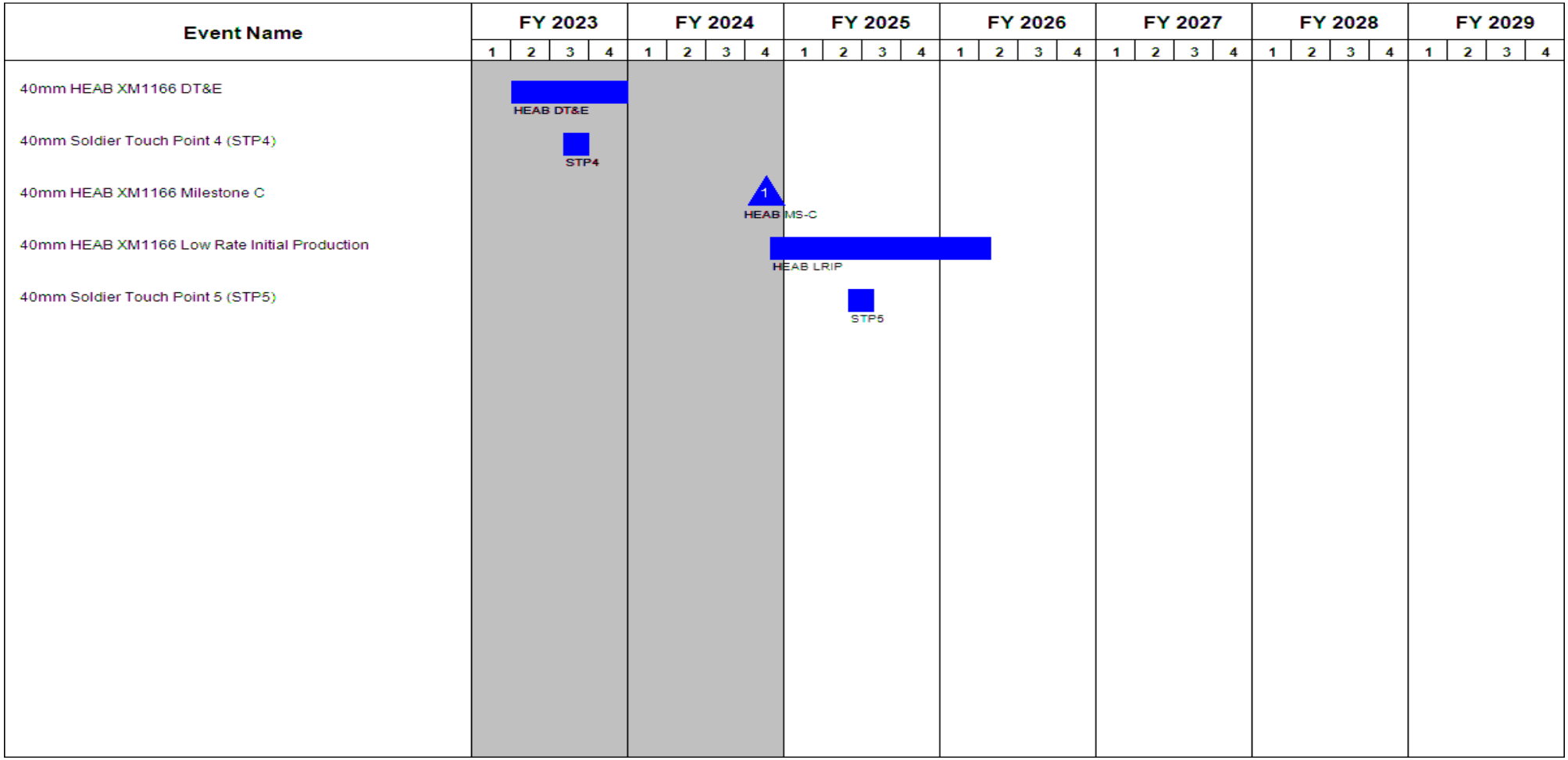


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** EW1 / *40mm Low Velocity Ammunition*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
40mm HEAB XM1166 Cooperative Research & Development Agreement (CRADA) Testing	3	2017	1	2018
40mm HEAB XM1166 Milestone B	4	2018	4	2018
40mm HEAB XM1166 Engineering Manufacturing Development	4	2018	4	2022
40mm HEAB XM1166 Preliminary Design Review	2	2019	2	2019
40mm HEAB XM1166 Design Engineering Test DET 1	1	2020	2	2020
40mm Soldier Touch Point 1 (STP1)	1	2020	2	2020
40mm HEAB XM1166 Design Engineering Test DET 2	4	2020	2	2021
40mm Soldier Touch Point 2 (STP2)	2	2021	2	2021
40mm HEAB XM1166 Critical Design Review	3	2022	3	2022
40mm HEAB XM1166 Design Engineering Test DET 3	3	2021	4	2021
40mm HEAB XM1166 Subsystem Testing	1	2022	3	2022
40mm Soldier Touch Point 3 (STP3)	4	2022	4	2022
40mm HEAB XM1166 DT&E	2	2023	4	2023
40mm Soldier Touch Point 4 (STP4)	3	2023	3	2023
40mm HEAB XM1166 Milestone C	4	2024	4	2024
40mm HEAB XM1166 Low Rate Initial Production	4	2024	2	2026
40mm Soldier Touch Point 5 (STP5)	2	2025	3	2025

Note

millimeter (mm)
Low Velocity (LV)
High Explosive Air Burst (HEAB)

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FA6 / *30mm Lethality*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
FA6: *30mm Lethality*	-	13.337	3.014	-	-	-	-	-	-	-	0.000	16.351
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The 30 millimeter (mm) Lethality project funds the development of a suite of 30x173mm caliber cartridges, which includes a XM1182 High Explosive Airburst with Trace (HEAB-T) cartridge for increased anti-personnel effects, XM1170 Armor Piercing Fin Stabilized Discarding Sabot with Trace (APFSDS-T) cartridge for anti-materiel, and ballistically matched training cartridges; XM1173 Target Practice with Trace (TP-T) cartridge and XM1172 Target Practice Discarding Sabot with Trace (TPDS-T) cartridge. The objective is to enhance the operational effectiveness and lethality of the Stryker Infantry Carrier Vehicle (ICV), Next Generation Combat Vehicle (NGCV), and any Army Fighting Vehicles that are equipped with a 30x173mm weapon system. The tactical APFSDS-T cartridge will provide an organic direct fire capability to support infantry at a greater range and will improve lethality when engaging light-to-medium armored vehicles. The HEAB-T cartridge will provide the Warfighter with increased lethality against troops in the open, counter defilade, Anti-Tank Guided Missile (ATGM) teams, and troops behind urban structures. The training cartridges will be ballistically matched to the tactical cartridges, allowing the Warfighter to train in a cost-effective manner. This project is a follow-on of the earlier efforts in support of the United States Army Europe (USAREUR) Operational Needs Statement (ONS) #15-20590 Stryker Increased Lethality for the 2nd Cavalry Regiment (2CR). There is no FY 2025 request as the program transitions to production.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: 30X173mm Armor-Piercing Fin-Stabilized Discarding with Sabot Trace (APFSDS-T) and Target Practice Discarding Sabot with Trace (TPDS-T) ***Description:*** Qualify 30x173mm armor piercing tactical and training cartridges for use on Stryker ICV, NGCV or other Army Future Fighting Vehicles. ***FY 2024 Plans:*** FY 2024 primary activities will include Live Fire Test & Evaluation (LFT&E). ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Program transitions to production in FY 2025.	8.627	1.124	-
Title: 30x173mm HEAB-T and TP-T ***Description:*** Develop and qualify a 30x173mm airburst cartridge and trainer for use on Stryker Infantry Combat Vehicles (ICV), Next Generation Combat Vehicles (NGCV), or other Army Future Fighting Vehicles. ***FY 2024 Plans:***	4.710	1.890	-

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FA6 / *30mm Lethality*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY 2024 primary activities will include Live Fire Test & Evaluation (LFT&E) and Initial Operational Test & Evaluation (IOT&E). ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Program transitions to production in FY 2025.			
Accomplishments/Planned Programs Subtotals	13.337	3.014	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E07610: *CTG, 30MM, HEAB-T*	45.059	16.891	25.536	-	25.536	29.796	29.449	29.311	29.898	0.000	205.940
• E07306: *CTG, 30MM TP-T*	39.747	24.582	7.202	-	7.202	8.766	8.365	8.394	8.178	0.000	105.234
• E07406: *CTG, 30mm Hi Expl Incendry-T(HEI-T), Mk238 Series*	2.462	0.406	0.000	-	0.000	-	-	-	0.003	0.000	2.871
• E09191: *CTG, 30MM TPDS-T*	29.836	18.575	9.641	-	9.641	9.714	9.342	9.406	9.550	0.000	96.064
• E09292: *CTG, 30MM APFSDS-T*	0.059	6.919	15.862	-	15.862	20.282	20.223	20.489	20.649	0.000	104.483

Remarks

D. Acquisition Strategy

30X173mm APFSDS-T and TPDS-T: Proposals were requested from Industry to develop a 30x173mm APFSDS-T anti-materiel tactical cartridge (XM1170) and a 30x173mm TPDS-T ballistically matched training cartridge (XM1172) that will meet Army Performance Specifications and Stryker Lethality Annex Requirements. The Government awarded two contracts utilizing an Other Transaction Agreement (OTA) through Department of Defense (DoD) Ordnance Technology Consortium (DOTC) to support development, Design Engineering Tests (DET) and down-selected to one contract for Developmental Test & Evaluation (DT&E) in support of Milestone C. The Government will award Federal Acquisition Regulation (FAR)-based contracts for production of each cartridge.

30x173mm HEAB-T and TP-T: In support of the approved 30mm Multi-Function Munition Capability Development Document (CDD), the 30x173mm HEAB-T cartridge (XM1182) and the ballistically matched TP-T cartridge (XM1173) will be developed to meet the requirements. The Government awarded two contracts utilizing an Other Transaction Agreement (OTA) through Department of Defense (DoD) Ordnance Technology Consortium (DOTC) to support development, Design Engineering Tests (DET) and down-selected to one contract for Developmental Test & Evaluation (DT&E) in support of Milestone C. The Government will award a single FAR-based contract for production of the XM1182 HEAB-T and XM1173 TP-T cartridges.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FA6 / *30mm Lethality*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
High Explosive Airburst with Trace (HEAB-T) LFTE Assets	C/FFP	Northrop Grumman Defense Systems (NGDS) : Plymouth, MN	-	2.805	Jun 2024	-		-		-		-	0.000	2.805	-
Armor Piercing Fin Stabilized Discarding Sabot with Trace (APFSDS-T) DTE Asset Rebuild	C/FFP	General Dynamics - Ordnance and Tactical Systems (GD-OTS) : Marion, IL	-	4.990	Nov 2024	-		-		-		-	0.000	4.990	-
		Subtotal	-	7.795		-		-		-		-	0.000	7.795	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	Development Command - Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ	11.719	3.534	Nov 2022	1.550	Nov 2023	-		-		-	0.000	16.803	-
		Subtotal	11.719	3.534		1.550		-		-		-	0.000	16.803	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
APFSDS-T Developmental Test & Evaluation (DTE) Test	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	-	1.299	Apr 2023	0.374	Mar 2024	-		-		-	0.000	1.673	-
HEAB-T Developmental Test & Evaluation (DTE) Test	MIPR	Aberdeen Test Center (ATC) :	-	0.709	May 2023	-		-		-		-	0.000	0.709	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FA6 / *30mm Lethality*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Aberdeen Proving Ground, MD													
HEAB-T Live Fire Test & Evaluation (LFTE) and IOT&E	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	-	-		1.090	Nov 2023	-		-		-	0.000	1.090	-
		Subtotal	-	2.008		1.464		-		-		-	0.000	3.472	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	11.719	13.337		3.014		-		-		-	0.000	28.070	N/A

Remarks

Design Engineering Tests (DET)
Engineering and Manufacturing Development (EMD)

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FA6 / *30mm Lethality*

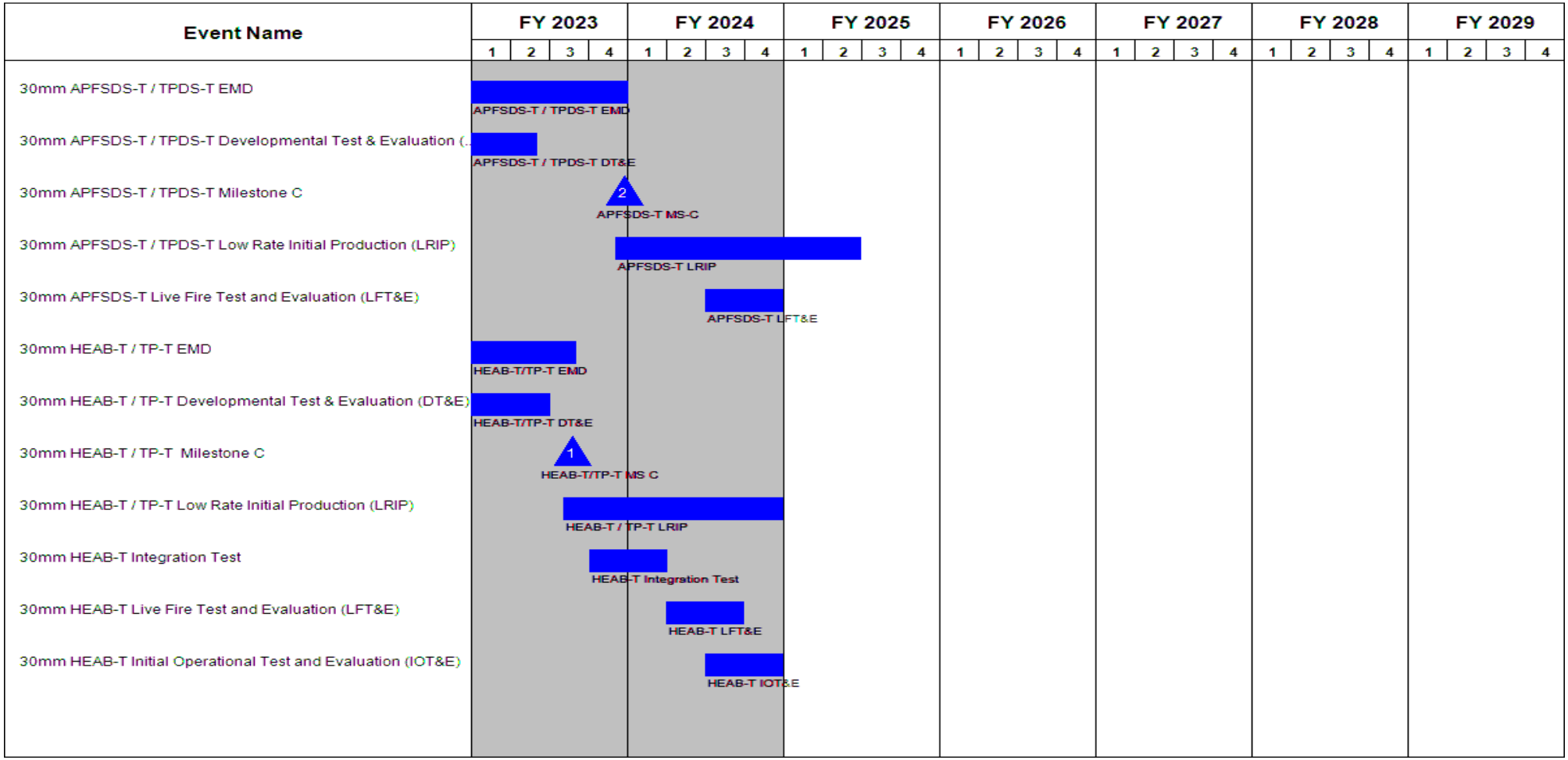


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FA6 / *30mm Lethality*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Materiel Development Decision (MDD)	3	2019	3	2019
30mm APFSDS-T / TPDS-T EMD Contract Award	4	2019	4	2019
30mm APFSDS-T / TPDS-T EMD	4	2019	4	2023
30mm APFSDS-T / TPDS-T DET Build	2	2020	3	2021
30mm APFSDS-T / TPDS-T Design Engineering Test (DET)	4	2021	1	2022
30mm APFSDS-T / TPDS-T Critical Design Review (CDR)	2	2022	2	2022
30mm APFSDS-T / TPDS-T DT&E Hardware Build	2	2022	4	2022
30mm APFSDS-T / TPDS-T Developmental Test & Evaluation (DT&E)	4	2022	2	2023
30mm APFSDS-T / TPDS-T Milestone C	4	2023	4	2023
30mm APFSDS-T / TPDS-T Low Rate Initial Production (LRIP)	4	2023	2	2025
30mm APFSDS-T Live Fire Test and Evaluation (LFT&E)	3	2024	4	2024
30mm HEAB-T TMRR Contract Awards	1	2019	1	2019
30mm HEAB-T Technology Maturation and Risk Reduction (TMRR)	1	2019	1	2020
30mm HEAB-T TMRR Engineering Test 1	3	2019	4	2019
30mm HEAB-T TMRR Engineering Test 2	4	2019	1	2020
30mm HEAB-T / TP-T Milestone B	2	2020	2	2020
30mm HEAB-T / TP-T EMD Contract Award	3	2020	3	2020
30mm HEAB-T / TP-T EMD	3	2020	3	2023
30mm HEAB-T / TP-T DET Build	2	2020	2	2021
30mm HEAB-T / TP-T EMD Design Engineering Test (DET)	2	2021	4	2021
30mm HEAB-T / TP-T Critical Design Review (CDR)	1	2022	1	2022
30mm HEAB-T / TP-T DT&E Build	4	2021	2	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FA6 / *30mm Lethality*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
30mm HEAB-T / TP-T Developmental Test & Evaluation (DT&E)	2	2022	2	2023
30mm HEAB-T / TP-T Milestone C	3	2023	3	2023
30mm HEAB-T / TP-T Low Rate Initial Production (LRIP)	3	2023	4	2024
30mm HEAB-T Integration Test	4	2023	1	2024
30mm HEAB-T Live Fire Test and Evaluation (LFT&E)	2	2024	3	2024
30mm HEAB-T Initial Operational Test and Evaluation (IOT&E)	3	2024	4	2024

Note

Engineering Manufacturing Development (EMD)
Armor Piercing Fin Stabilized Discarding Sabot with Trace (APFSDS-T)
Target Practice Discarding Sabot with Trace (TPDS-T)
High Explosive Airburst with Trace (HEAB-T)
Target-Practice with Trace (TP-T)
Technology Maturation and Risk Reduction (TMRR)

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FJ4 / *Cannon-Delivered Area Effects Munitions (C-DAEM)*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
FJ4: *Cannon-Delivered Area Effects Munitions (C-DAEM)*	-	89.029	85.071	93.267	-	93.267	89.588	83.855	85.579	87.840	0.000	614.229
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Cannon-Delivered Area Effects Munitions (C-DAEM) Project will provide United States (U.S.) ground forces with the capability to engage area personnel through armored targets, while denying threat forces full operational freedom within the targeted area. An Analysis of Alternatives (AoA) was completed in January 2018 to inform Army acquisition and investment decisions regarding replacement of the current stockpile of 155 millimeter (mm) Dual Purpose Improved Conventional Munitions (DPICM) with Department of Defense (DoD) policy compliant munitions and address anti-armor and extended range capability requirements. The Army validated two materiel solutions for C-DAEM to be pursued in parallel to support the Army's modernization priorities; C-DAEM Armor and C-DAEM DPICM Replacement. C-DAEM Armor will destroy moved and moving self-propelled howitzers, infantry fighting vehicles and tanks. C-DAEM DPICM Replacement will destroy personnel through soft-skinned targets. Fiscal Year (FY) 2025 funding will continue to support C-DAEM Armor development and testing activities as well as engineering efforts required to integrate the Military-Code (M-Code) Global Positioning System (GPS) Receiver into the selected C-DAEM Armor objective materiel solution(s).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: C-DAEM Armor ***Description:*** C-DAEM Armor will destroy moved and moving self-propelled howitzers, infantry fighting vehicles and tanks. ***FY 2024 Plans:*** FY 2024 funding will continue to support C-DAEM Armor development and testing activities as well as engineering efforts required to integrate the M-Code Global Positioning System (GPS) Receiver into the selected C-DAEM Armor objective materiel solution(s). ***FY 2025 Plans:*** FY 2025 funding will continue to support C-DAEM Armor development and testing activities as well as engineering efforts required to integrate the M-Code Global Positioning System (GPS) Receiver into the selected C-DAEM Armor objective materiel solution(s). ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase in funding in FY 2025 due to an increase in testing costs for C-DAEM Armor.	84.885	85.071	93.267
Title: C-DAEM DPICM Replacement ***Description:*** C-DAEM DPICM Replacement will destroy personnel through soft-skinned targets.	4.144	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FJ4 / *Cannon-Delivered Area Effects Munitions (C-DAEM)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Accomplishments/Planned Programs Subtotals	89.029	85.071	93.267

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• F90112: *PROJ, ARTY, 155MM C-DAEM ARMOR*	-	57.488	11.318	-	11.318	105.210	111.848	145.715	181.550	0.000	613.129
• E68604: *PROJ, ARTY, 155MM C-DAEM INCREMENT II*	-	2.500	22.228	-	22.228	40.746	64.602	49.633	50.129	0.000	229.838

Remarks

A Procurement of Ammunition, Army (PAA) funding line for C-DAEM Armor, Standard Study Number (SSN), F90112, PROJ, ARTY, 155MM C-DAEM ARMOR, has been established.
A PAA funding line for C-DAEM DPICM Replacement, SSN E68604, PROJ, ARTY, 155MM C-DAEM INCREMENT II, has been established.

D. Acquisition Strategy

The C-DAEM Program of Record is employing an evolutionary acquisition approach to efficiently address anti-armor, extended range capability requirements and deliver DoD unexploded ordnance (UXO) policy compliant munitions.

The Analysis of Alternatives (AoA) completed on 31 January 2018 qualified a significant enhancement of operational fires effectiveness, efficiency, and maneuver support when cannon artillery was equipped with a dedicated extended range anti-armor projectile. The U.S. Government reduced risk by executing prototype testing and evaluation efforts, while utilizing the AoA results to shape the selection criteria. C-DAEM Armor used the selection criteria to sponsor competitive demonstrations for C-DAEM Armor to streamline the acquisition process. The U.S. Government has selected the most promising candidate that will address medium to heavy armored targets in accordance with the validated Capabilities Development Document (CDD) with an opportunity to field an Early Operational Capability (EOC). C-DAEM Armor is utilizing competitively awarded Defense Ordnance Technology Consortium (DOTC) Other Transaction Agreements (OTA) to further support development and testing of the selected C-DAEM Armor solution in accordance with the decisions granted at the most recent Army Requirements Oversight Council (AROC) in August 2022. C-DAEM Armor is utilizing competitively awarded DOTC OTAs to complete development and qualification activities, including the M-Code Global Positioning System (GPS) Receiver integration efforts, in support of Milestone C for Low Rate Initial Production (LRIP) and Full Rate Production (FRP).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FJ4 / *Cannon-Delivered Area Effects Munitions (C-DAEM)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Various	Office of the Project Manager Combat Ammunition Systems (PM CAS) : Picatinny Arsenal, NJ	0.477	0.475	Oct 2022	0.400	Oct 2023	0.480	Oct 2024	-		0.480	0.000	1.832	-
		Subtotal	0.477	0.475		0.400		0.480		-		0.480	0.000	1.832	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DOTC - Armor Engineering and Manufacturing Development (EMD)	MIPR	DoD Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	63.835	74.193	Nov 2022	70.955	Nov 2023	74.387	Nov 2024	-		74.387	0.000	283.370	-
DOTC - Armor M-Code GPS Receiver Integration	MIPR	DoD Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	7.780	4.010	Nov 2022	3.500	Nov 2023	3.000	Nov 2024	-		3.000	0.000	18.290	-
		Subtotal	71.615	78.203		74.455		77.387		-		77.387	0.000	301.660	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	Combat Capabilities Development Command Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ	9.766	7.520	Nov 2022	6.716	Nov 2023	7.900	Oct 2024	-		7.900	0.000	31.902	-
		Subtotal	9.766	7.520		6.716		7.900		-		7.900	0.000	31.902	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FJ4 / *Cannon-Delivered Area Effects Munitions (C-DAEM)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Armor Testing	MIPR	Army Test & Evaluation Command (ATEC) : Yuma, AZ	-	-		3.500	Mar 2024	7.500	Mar 2025	-		7.500	0.000	11.000	-
DPICM Replacement Testing	MIPR	Army Test & Evaluation Command (ATEC) : Yuma, AZ	3.670	2.831	Sep 2023	-		-		-		-	0.000	6.501	-
		Subtotal	3.670	2.831		3.500		7.500		-		7.500	0.000	17.501	N/A

Remarks

Increase in FY 2025 testing costs to support performance verification testing requirements

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	85.528	89.029		85.071		93.267		-		93.267	0.000	352.895	N/A

Remarks

C-DAEM Armor will destroy moved and moving self-propelled howitzers, infantry fighting vehicles and tanks. C-DAEM Dual Purpose Improved Conventional Munition (DPICM) Replacement will destroy personnel to soft-skinned vehicles. C-DAEM Armor and DPICM Replacement are being pursued in parallel to support the Army's modernization priorities.

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FJ4 / *Cannon-Delivered Area Effects Munitions (C-DAEM)*

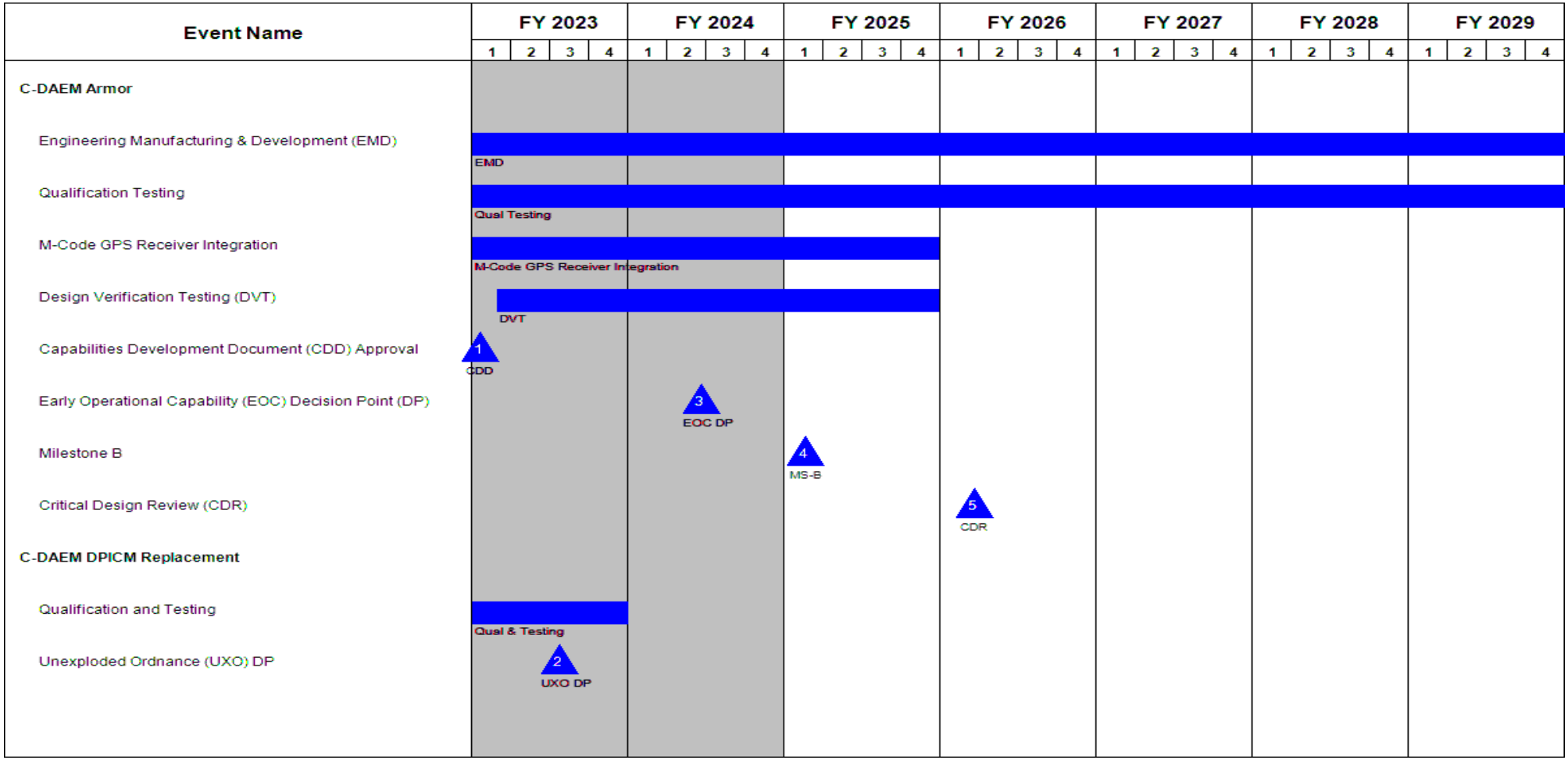


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FJ4 / *Cannon-Delivered Area Effects Munitions (C-DAEM)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
C-DAEM Armor	1	2022	4	2026
Technology Maturation and Risk Reduction (TMRR)	1	2020	4	2021
In Process Review (IPR) #1	1	2021	1	2021
IPR #2	2	2021	2	2021
Acquisition Decision Memorandum (ADM) #1	1	2022	1	2022
Engineering Manufacturing & Development (EMD)	1	2022	3	2030
Qualification Testing	1	2021	3	2030
M-Code GPS Receiver Integration	1	2022	4	2025
Design Verification Testing (DVT)	1	2022	4	2025
Integrated Baseline Review (IBR)	3	2022	3	2022
ADM #2	3	2022	3	2022
Preliminary Design Review (PDR)	4	2022	4	2022
Army Requirements Oversight Council (AROC) Decision	4	2022	4	2022
Capabilities Development Document (CDD) Approval	1	2023	1	2023
Early Operational Capability (EOC) Decision Point (DP)	2	2024	2	2024
Milestone B	1	2025	1	2025
Critical Design Review (CDR)	1	2026	1	2026
Milestone C	3	2030	3	2030
Initial Operational Test & Evaluation (IOT&E)	3	2031	3	2031
C-DAEM DPICM Replacement	1	2021	4	2023
Qualification and Testing	1	2021	4	2023
Unexploded Ordnance (UXO) DP	3	2023	3	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FJ4 / *Cannon-Delivered Area Effects Munitions (C-DAEM)*

Note

C-DAEM Armor will destroy moved and moving self-propelled howitzers, infantry fighting vehicles and tanks. CDR scheduled for 1Q FY26, IOT&E scheduled for 3Q FY31

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
FL4: *Small Caliber Ammo for Next Gen Squad Weapons*	-	32.625	11.809	11.955	-	11.955	11.968	12.097	12.232	12.354	0.000	105.040
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The total cost of the Small Caliber Ammo for Next Gen Squad Weapons Middle Tier of Acquisition effort is $156.7M million RDTE from FY2020 to FY2028 and $12.3M in FY2029.

A. Mission Description and Budget Item Justification

The Small Caliber Ammo for Next Gen Squad Weapons project is a critical technology development in response to the Soldier Lethality Cross Functional Team (SL CFT) Initial Capability Document (ICD) for the ammunition required to support the rapid prototyping, development, and fielding of the Next Generation Squad Weapons (NGSW) under the Middle Tier of Acquisition (MTA) authority for rapid prototyping/rapid fielding. The objective is to develop and Full Materiel Release (FMR) the new ammunition in parallel with the NGSW rifle and automatic rifle. The NGSW ammunition is split into multiple ammunition variants, the General Purpose (GP), the Special Purpose (SP), the Reduced Range Ammunition (RRA), Tracer Ammunition, Blank Ammunition, the Close Combat Mission Capability Kit (CCMCK) training ammunition, Drill Dummy Inert (DDI) cartridge, and High-Pressure Test (HPT) cartridge. Fiscal Year (FY) 2025 funding supports design optimization efforts for the SP, RRA, Blank, DDI, and HPT variants. FY 2025 funds also support Live-Fire Testing and Evaluation (LFT&E) activities on the GP, SP, and Tracer variants. FY 2025 funds support developmental testing on the CCMCK, Blank, DDI, and HPT variants. FY 2025 funds support Materiel Release efforts on the GP, SP, and variants. And, FY 2025 supports continuing the refinement, development, and maturation of the CCMCK, Blank, DDI, and HPT cartridges.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Rapid Prototyping GP ***Description:*** Develop, demonstrate, and qualify new ammunition for the NGSW systems. ***FY 2024 Plans:*** Perform Urgent Materiel Release (UMR) preparation activities, initiate LFT&E, and commence design optimization effort. ***FY 2025 Plans:*** Perform LFT&E close-out activities in preparation for Full Materiel Release (FMR). ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Program transitions from development into production.	5.915	1.507	0.300
Title: Rapid Prototyping SP ***Description:*** Develop, demonstrate, and qualify new ammunition to defeat hard targets for the NGSW systems.	7.300	4.052	3.500

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY 2024 Plans: Conduct qualification testing, Soldier Touch Point (STP) / User Evaluation, and perform Urgent Materiel Release (UMR) preparation activities. ***FY 2025 Plans:*** Perform Urgent Materiel Release (UMR) preparation activities, initiate LFT&E, and commence design optimization effort. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 decrease reflects program status nearing FMR.			
Title: Rapid Prototyping Reduced Range Ammunition (RRA) for NGSW ***Description:*** Develop and qualify RRA for the NGSW that will satisfy the requirement to provide training ammunition suitable for use on military installations with Surface Danger Zone (SDZ) restrictions. Two RRA variants will be developed under this effort - the NGSW RRA and the NGSW Reduced Range (RR) Tracer. ***FY 2024 Plans:*** Conduct a Soldier Touch Point (STP) / User evaluation, complete PQT, and perform Urgent Materiel Release (UMR) preparation activities. ***FY 2025 Plans:*** Commence design optimization effort and perform developmental tests. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 decrease reflects program status nearing FMR.	4.210	1.000	0.850
Title: Rapid Prototyping Tracer Ammunition for NGSW ***Description:*** Rapid prototyping effort to develop and field tracer ammunition for the NGSW systems by building and evaluating competing tracer ammunition designs/concepts then down-selecting to a final tracer design. ***FY 2024 Plans:*** Continue rapid prototyping effort, conduct a STP / user evaluation, and conduct PQT and LFT&E. ***FY 2025 Plans:*** Complete LFT&E, complete PQT, and perform activities in preparation for FMR. ***FY 2024 to FY 2025 Increase/Decrease Statement:***	6.500	3.500	2.424

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 decrease reflects program status nearing FMR.			
Title: Rapid Prototyping CCMCK Training Ammo ***Description:*** Rapid prototyping effort to develop training ammunition for the NGSW systems by building and evaluating competing CCMCK training ammunition designs/concepts then down-selecting to a final design. ***FY 2024 Plans:*** Continue rapid prototyping effort to develop CCMCK training ammunition for the NGSW, building and evaluate CCMCK training ammunition designs/concepts, mature/refine selected design/designs in preparation for developmental testing. ***FY 2025 Plans:*** Perform prototype build and conduct developmental tests. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 increase reflects shift from rapid prototyping effort to develop CCMCK training ammunition to prototype build and conduct developmental tests.	0.150	0.500	3.501
Title: Rapid Prototyping Blank, DDI and HPT Cartridges ***Description:*** Rapid prototyping effort to develop and field Blank, DDI and HPT cartridges for the NGSW weapon systems. ***FY 2024 Plans:*** Continue rapid prototyping effort to mature the Blank, DDI, and HPT cartridges/designs. Perform UMR preparation activities and commence design optimization efforts. ***FY 2025 Plans:*** Perform design optimization activities and conduct developmental tests. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase in FY2025 reflects required testing efforts.	0.550	1.250	1.380
Accomplishments/Planned Programs Subtotals	24.625	11.809	11.955

	FY 2023	FY 2024
Congressional Add: Small Caliber Ammunition Component Manufacturing ***FY 2023 Accomplishments:*** Executed efforts to develop tooling and flexible manufacturing processes to enhance the production of critical components used in small caliber ammunition.	8.000	-
Congressional Adds Subtotals	8.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E06002: *NEXT GENERATION COMBAT ROUND*	52.623	35.896	38.140	-	38.140	70.227	70.219	70.218	70.922	Continuing	Continuing
• E06014: *NEXT GENERATION REDUCED RANGE ROUND*	22.543	107.341	112.406	-	112.406	117.732	117.732	167.832	169.509	0.000	815.095
• E06015: *NEXT GENERATION SQUAD WEAPON SPECIAL PURPOSE ROUND*	13.858	14.488	21.550	-	21.550	34.065	34.064	34.065	34.406	Continuing	Continuing
• E60011: *NEXT GENERATION BLANK ROUND*	7.472	33.519	33.793	-	33.793	64.205	64.205	64.205	64.847	Continuing	Continuing

Remarks

Procurement of Ammunition, Army E06002, E06014, E06015, and E60011: These funding lines supports the procurement of ammunition for the NGSW.

D. Acquisition Strategy

The NGSW ammunition program will utilize the Middle Tier of Acquisition (MTA) authority for rapid prototyping/rapid fielding to develop ammunition concepts/designs for the GP variant and the SP variant. The project will utilize Government developed projectile designs that will be delivered to development contractors as Government Furnished Material (GFM). The Government selected three contractors for the weapon system development and down-selected to a single contractor in FY 2022, prior to production contract award; with a planned Urgent Materiel Release (UMR) in FY 2024 and FMR in FY 2025. Development effort for the Reduced Range and Tracer ammunition follows a similar strategy beginning in FY 2021. Follow-on development efforts for additional NGSW ammunition variants including blank, CCMCK ammunition, DDI cartridge, and HPT cartridge commenced in FY 2022.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
General Purpose Projectile Development	Various	Various : Various	-	1.568	Dec 2022	-		-		-		-	Continuing	Continuing	Continuing
General Purpose Optimization	TBD	To Be Determined : To Be Determined	-	-		0.500	Feb 2024	-		-		-	Continuing	Continuing	Continuing
Projectile and Ammo Development Contract Special Purpose	Option/ CPFF	OLIN Winchester Corporation (LCAAP) : Independence, Missouri	9.241	0.615	Jul 2023	-		-		-		-	Continuing	Continuing	Continuing
Prototype Manufacturing Special Purpose	Various	Various : Various	4.141	3.166	Jan 2023	-		-		-		-	0.000	7.307	-
Tracer Ammunition Prototype Manufacturing	Option/ FFP	OLIN Winchester Corporation (LCAAP) : Independence, Missouri	3.975	3.995	Mar 2023	-		-		-		-	0.000	7.970	-
Reduced Range Ammunition Prototype Contract 2	Option/ FFP	OLIN Winchester Corporation : Independence, Missouri	1.574	0.103	Jul 2023	-		-		-		-	Continuing	Continuing	Continuing
Reduced Range Ammo Development	Option/ CPFF	Concurrent Technologies Corporation (CTC) : Johnstown, Pennsylvania	0.816	0.984	Nov 2022	-		-		-		-	Continuing	Continuing	Continuing
Reduced Range Ammo Weapon Integration	Option/ FFP	Sig Sauer : Newington, New Hampshire	2.484	0.250	May 2023	-		-		-		-	Continuing	Continuing	Continuing
CCMCK Training Ammo Development Contracts	TBD	To Be Determined : To Be Determined	-	-		0.250	Feb 2024	1.750	Feb 2025	-		1.750	0.000	2.000	-
Blank, DDI and HPT Development Contracts	TBD	To Be Determined : To Be Determined	-	0.250	May 2023	-		-		-		-	Continuing	Continuing	Continuing
Blank, DDI and HPT Optimization Contracts	TBD	To Be Determined : To Be Determined	-	-		0.650	Mar 2024	0.500	Feb 2025	-		0.500	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Small Caliber Components Manufacturing	Various	Various : Various	-	8.000	Sep 2023	-		-		-		-	0.000	8.000	-
		Subtotal	22.231	18.931		1.400		2.250		-		2.250	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Projectile Development and Support General Purpose	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	7.095	2.530	Nov 2022	0.507	Oct 2023	0.300	Oct 2024	-		0.300	0.000	10.432	-
Projectile Development and Support General Purpose	MIPR	Army Research Lab (ARL) : Aberdeen, Maryland	1.903	0.750	Feb 2023	-		-		-		-	Continuing	Continuing	Continuing
Projectile Development and Support Special Purpose	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	6.322	1.836	Nov 2022	1.602	Oct 2023	1.500	Oct 2024	-		1.500	Continuing	Continuing	Continuing
Special Purpose Support ARL	MIPR	Army Research Lab (ARL) : Aberdeen, Maryland	1.500	0.750	Feb 2023	0.900	Oct 2023	-		-		-	0.000	3.150	-
Reduced Range Ammunition Prototype and Support	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	2.666	1.623	Nov 2022	0.400	Oct 2023	0.850	Oct 2024	-		0.850	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Reduced Range Ammunition Support ARL	MIPR	Army Research Lab (ARL) : Aberdeen, Maryland	-	0.750		0.250	Oct 2023	-		-		-	Continuing	Continuing	Continuing
Tracer Ammunition Development and Support	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	0.350	1.755	Nov 2022	0.600	Oct 2023	0.924	Oct 2024	-		0.924	Continuing	Continuing	Continuing
Tracer Ammunition Support ARL	MIPR	Army Research Lab (ARL) : Aberdeen, Maryland	-	0.750	Feb 2023	0.750	Jan 2024	-		-		-	Continuing	Continuing	Continuing
CCMCK Training Development and Support	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	0.150	0.150	Nov 2022	0.150	Oct 2023	0.701	Oct 2024	-		0.701	Continuing	Continuing	Continuing
CCMCK Training Ammo Development and Support	MIPR	Army Research Lab (ARL) : Aberdeen, Maryland	-	-		0.100	Dec 2023	0.300	Dec 2024	-		0.300	Continuing	Continuing	Continuing
Blank, DDI and HPT Development and Support	MIPR	Development Command Armaments Center (DEVCOM-AC) : Picatinny Arsenal, New Jersey	0.200	0.300	Nov 2022	0.200	Oct 2023	0.480	Oct 2024	-		0.480	Continuing	Continuing	Continuing
		Subtotal	20.186	11.194		5.459		5.055		-		5.055	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
U.S. Army Aberdeen Test Center (ATC) General Purpose	MIPR	Aberdeen Proving Ground : Aberdeen, Maryland	0.900	1.550	Apr 2023	-		-		-		-	Continuing	Continuing	Continuing
General Purpose User Assessment	MIPR	Maneuver Battle Labs : Fort Benning, Georgia	-	0.450	Apr 2023	-		-		-		-	0.000	0.450	-
General Purpose Live-Fire Testing	MIPR	U.S. Army Aberdeen Test Center (ATC) : Aberdeen, Maryland	-	-		0.500	Mar 2024	-		-		-	Continuing	Continuing	Continuing
U.S. Army Aberdeen Test Center (ATC) Special Purpose	MIPR	Aberdeen Proving Ground : Aberdeen, Maryland	0.500	-		1.000	Oct 2023	-		-		-	0.000	1.500	-
Special Purpose User Assessment	MIPR	Maneuver Battle Labs : Fort Benning, Georgia	-	-		0.550	Oct 2023	-		-		-	Continuing	Continuing	Continuing
Reduced Range Ammunition Prototype Testing	MIPR	U.S. Army Aberdeen Test Center (ATC) : Aberdeen, Maryland	0.500	0.500	Mar 2023	-		-		-		-	Continuing	Continuing	Continuing
Reduced Range Ammo User Assessment	MIPR	Maneuver Battle Labs : Fort Benning, Georgia	-	-		0.350	Oct 2023	-		-		-	0.000	0.350	-
Tracer Live-Fire Testing	MIPR	U.S. Army Aberdeen Test Center (ATC) : Aberdeen, Maryland	-	-		1.200	Oct 2023	0.750	Oct 2024	-		0.750	Continuing	Continuing	Continuing
Tracer Production Qualification Tests	TBD	To Be Determined : To Be Determined	-	-		0.700	Oct 2023	0.500	Oct 2024	-		0.500	Continuing	Continuing	Continuing
User Assessment Tracer Ammunition	MIPR	Maneuver Battle Labs : Fort Benning, Georgia	0.083	-		0.250	Oct 2023	0.250	Oct 2024	-		0.250	0.000	0.583	-
Blank, DDI, HPT Developmental Tests	TBD	To Be Determined : To Be Determined	-	-		0.400	Oct 2023	0.400	Oct 2024	-		0.400	Continuing	Continuing	Continuing
Special Purpose Live-Fire Testing	MIPR	U.S. Army Aberdeen Test Center (ATC : Aberdeen, Maryland	-	-		-		2.000	Oct 2024	-		2.000	0.000	2.000	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CCMCK Developmental Testing	TBD	To Be Determined : To Be Determined	-	-		-		0.750	Oct 2024	-		0.750	0.000	0.750	-
		Subtotal	1.983	2.500		4.950		4.650		-		4.650	Continuing	Continuing	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	44.400	32.625		11.809		11.955		-		11.955	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*

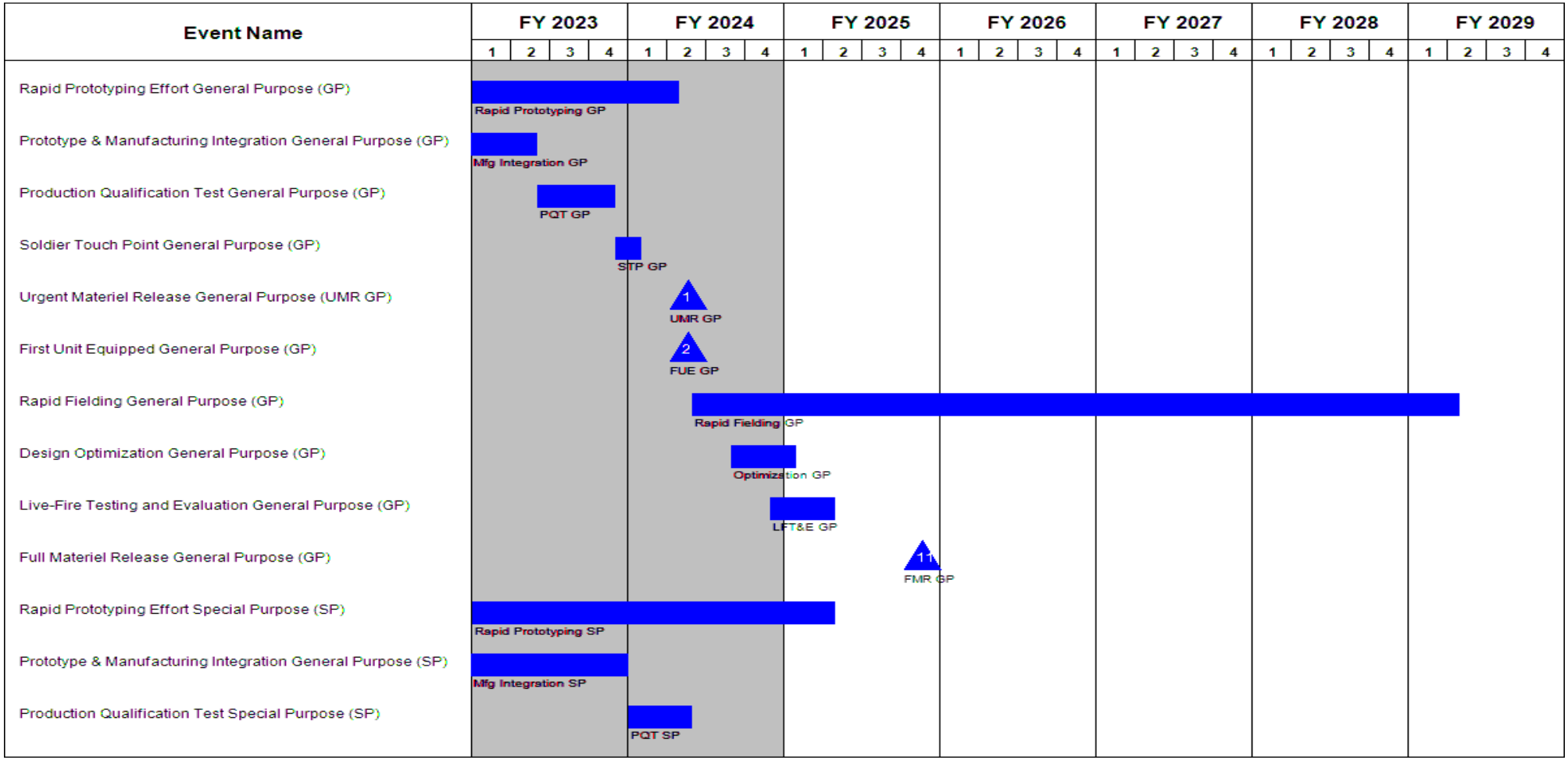


Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*

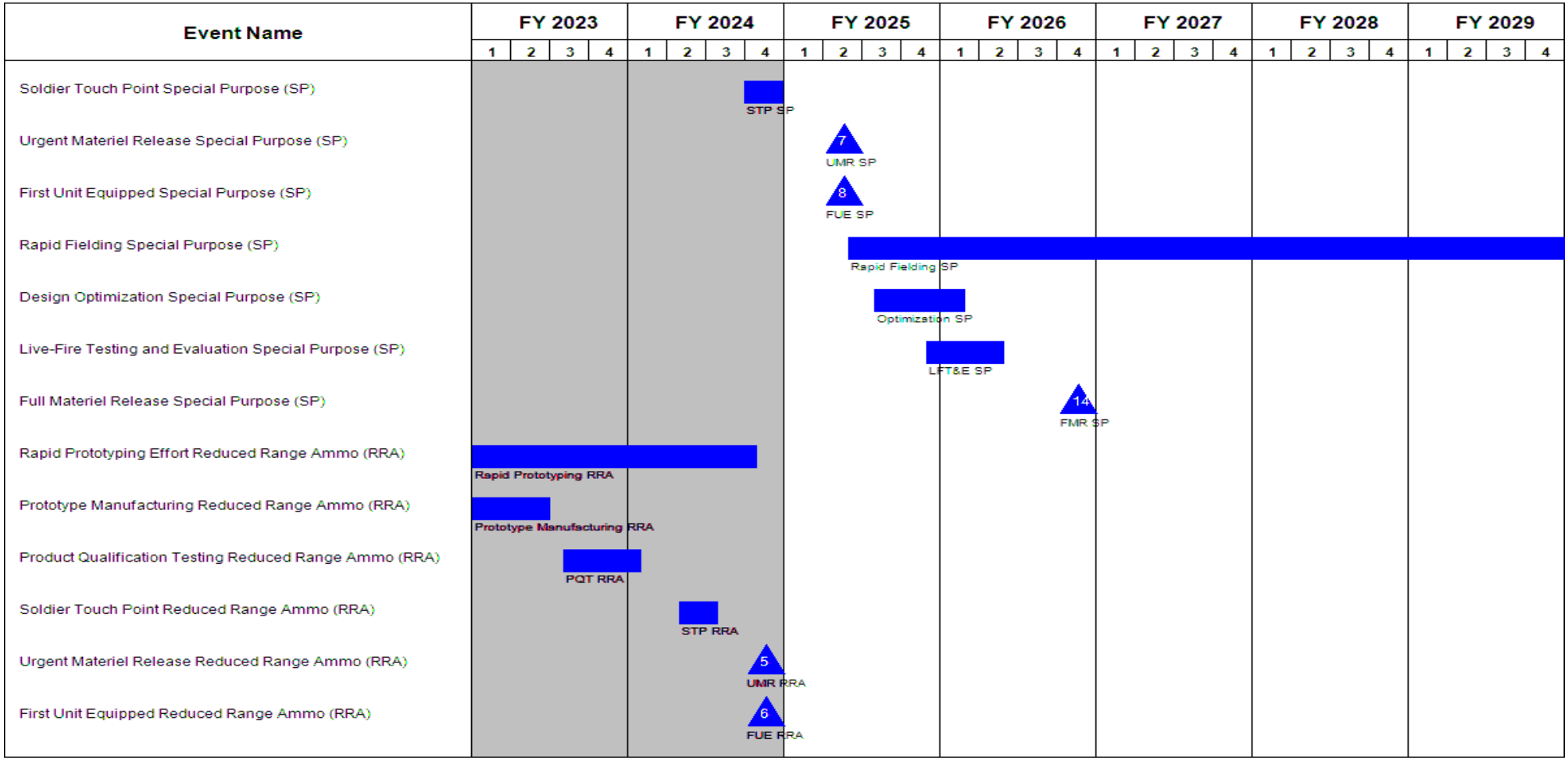


Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*

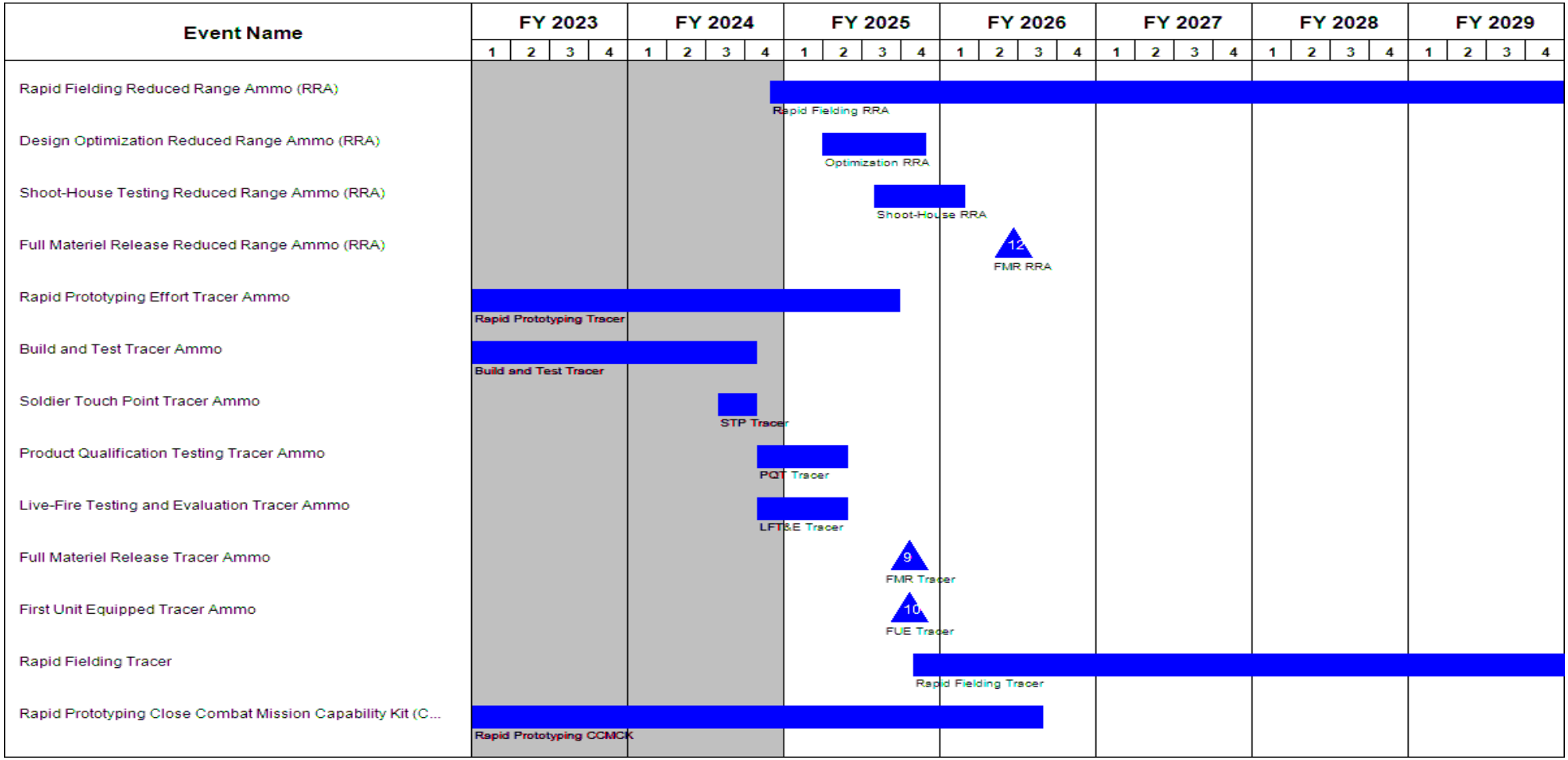


Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*

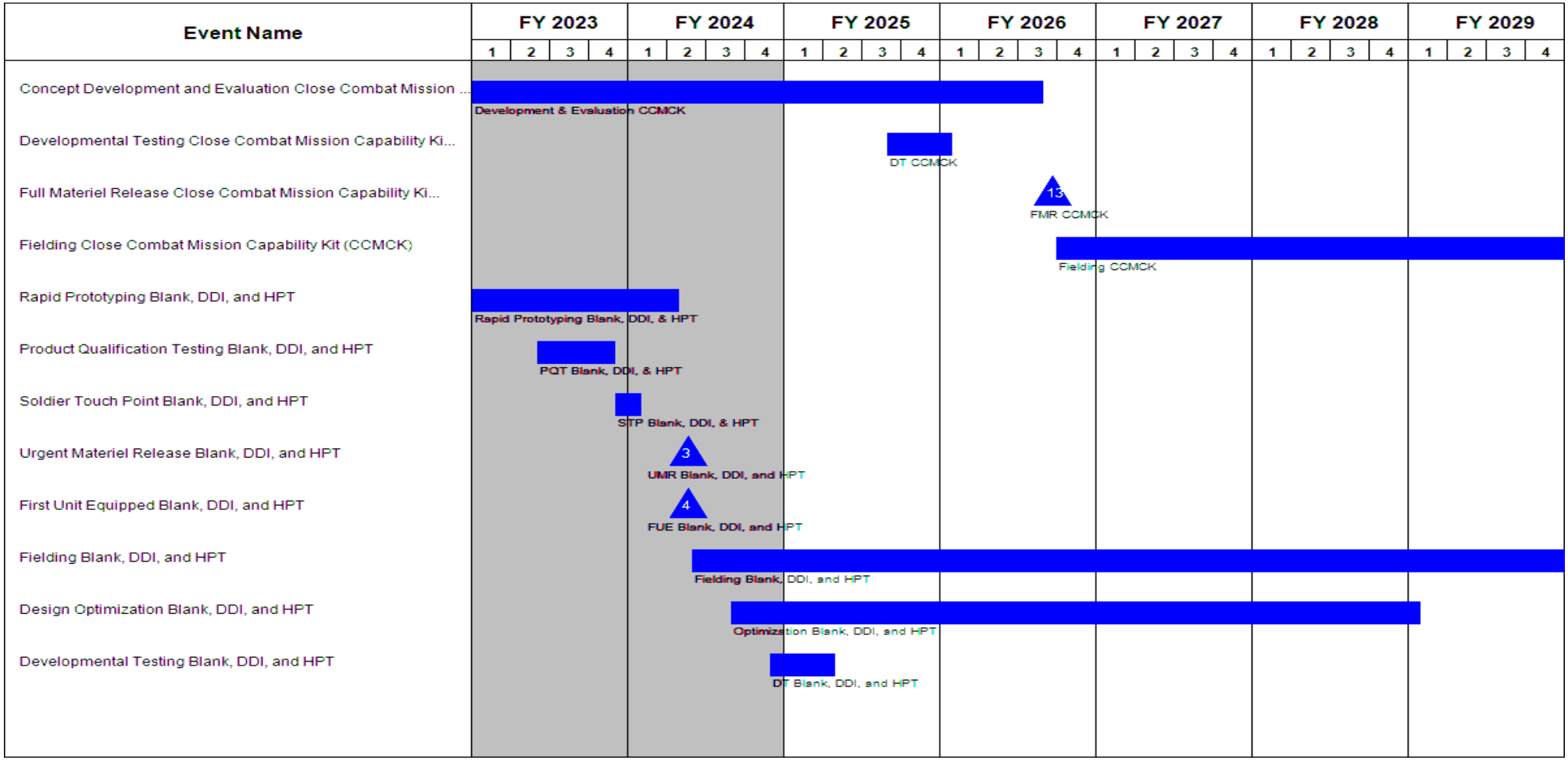


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Rapid Prototyping Effort General Purpose (GP)	1	2019	2	2024
Prototype & Manufacturing Integration General Purpose (GP)	4	2021	2	2023
Production Qualification Test General Purpose (GP)	2	2023	4	2023
Soldier Touch Point General Purpose (GP)	4	2023	1	2024
Urgent Materiel Release General Purpose (UMR GP)	2	2024	2	2024
First Unit Equipped General Purpose (GP)	2	2024	2	2024
Rapid Fielding General Purpose (GP)	2	2024	2	2029
Design Optimization General Purpose (GP)	3	2024	1	2025
Live-Fire Testing and Evaluation General Purpose (GP)	4	2024	2	2025
Full Materiel Release General Purpose (GP)	4	2025	4	2025
Rapid Prototyping Effort Special Purpose (SP)	1	2019	2	2025
Prototype & Manufacturing Integration General Purpose (SP)	4	2021	4	2023
Production Qualification Test Special Purpose (SP)	1	2024	2	2024
Soldier Touch Point Special Purpose (SP)	4	2024	4	2024
Urgent Materiel Release Special Purpose (SP)	2	2025	2	2025
First Unit Equipped Special Purpose (SP)	2	2025	2	2025
Rapid Fielding Special Purpose (SP)	2	2025	2	2030
Design Optimization Special Purpose (SP)	3	2025	1	2026
Live-Fire Testing and Evaluation Special Purpose (SP)	4	2025	2	2026
Full Materiel Release Special Purpose (SP)	4	2026	4	2026
Rapid Prototyping Effort Reduced Range Ammo (RRA)	1	2021	4	2024
Prototype Manufacturing Reduced Range Ammo (RRA)	1	2021	2	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Product Qualification Testing Reduced Range Ammo (RRA)	3	2023	1	2024
Soldier Touch Point Reduced Range Ammo (RRA)	2	2024	3	2024
Urgent Materiel Release Reduced Range Ammo (RRA)	4	2024	4	2024
First Unit Equipped Reduced Range Ammo (RRA)	4	2024	4	2024
Rapid Fielding Reduced Range Ammo (RRA)	4	2024	4	2029
Design Optimization Reduced Range Ammo (RRA)	2	2025	4	2025
Shoot-House Testing Reduced Range Ammo (RRA)	3	2025	1	2026
Full Materiel Release Reduced Range Ammo (RRA)	2	2026	2	2026
Rapid Prototyping Effort Tracer Ammo	1	2022	3	2025
Build and Test Tracer Ammo	1	2022	4	2024
Soldier Touch Point Tracer Ammo	3	2024	4	2024
Product Qualification Testing Tracer Ammo	4	2024	2	2025
Live-Fire Testing and Evaluation Tracer Ammo	4	2024	2	2025
Full Materiel Release Tracer Ammo	4	2025	4	2025
First Unit Equipped Tracer Ammo	4	2025	4	2025
Rapid Fielding Tracer	4	2025	4	2030
Rapid Prototyping Close Combat Mission Capability Kit (CCMCK)	1	2022	3	2026
Concept Development and Evaluation Close Combat Mission Capability Kit (CCMCK)	1	2022	3	2026
Developmental Testing Close Combat Mission Capability Kit (CCMCK)	3	2025	1	2026
Full Materiel Release Close Combat Mission Capability Kit (CCMCK)	3	2026	3	2026
Fielding Close Combat Mission Capability Kit (CCMCK)	4	2026	4	2031
Rapid Prototyping Blank, DDI, and HPT	1	2022	2	2024
Product Qualification Testing Blank, DDI, and HPT	2	2023	4	2023
Soldier Touch Point Blank, DDI, and HPT	4	2023	1	2024
Urgent Materiel Release Blank, DDI, and HPT	2	2024	2	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** FL4 / *Small Caliber Ammo for Next Gen Squad Weapons*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
First Unit Equipped Blank, DDI, and HPT	2	2024	2	2024
Fielding Blank, DDI, and HPT	2	2024	4	2033
Design Optimization Blank, DDI, and HPT	3	2024	1	2029
Developmental Testing Blank, DDI, and HPT	4	2024	2	2025

Note

Special Purpose (SP)
General Purpose (GP)
Close Combat Mission Capability Kit (CCMCK)
Drill Dummy Inert (DDI)
High Pressure Test (HPT)

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) MS1 / *Battalion Mortar System Modernization*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
MS1: *Battalion Mortar System Modernization*	-	-	-	6.012	-	6.012	-	-	-	-	0.000	6.012
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Battalion Mortar System Modernization is a new start within the Weapons and Munitions - Eng Dev program in FY 2025.

This Project is a New Start in FY 2025.

A. Mission Description and Budget Item Justification

The Battalion Mortar System Modernization Project supports the development and demonstration of modernized Mortar Weapon Systems to support Infantry Brigade Combat Teams (IBCTs) and Armored Brigade Combat Teams (ABCTs). Efforts include development and qualification of said modernized systems and their required components that will increase lethality, survivability, mobility and readiness. FY 2025 funding will enable design and development effort for the weapon and mobility system for next generation 81mm and 120mm mortar weapon systems. The weapon and mobility systems will be qualified and integrated directly onto light tactical vehicles such as the High Mobility Multipurpose Wheeled Vehicle (HMMWV), the Infantry Squad Vehicle (ISV) and/or Joint Lightweight Tactical Vehicle (JLTV). The mobility system will address obsolescence by eliminating the need for a trailer mounted Mortar Stowage Kit (MSK). The modernized system will increase survivability, maneuverability, and provide a tactical advantage to the Warfighter when matched with pacing threat for direct and indirect fire and will provide overmatching capabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Mortar Weapon and Mobility System Modernization	-	-	6.012
Description: This effort will modernize the 81 millimeter (mm) and 120 mm weapon and mobility systems to increase range, modularity, system survivability, maneuverability, and provide a tactical advantage to the Warfighter when matched with pacing threat for direct and indirect fire and will provide overmatching capabilities.			
FY 2025 Plans: FY 2025 funding will further the 81mm mortar weapon system development, prototyping and testing for the Infantry Battalion Mortar System (IBMS) to increase range and lethality. FY 2025 funding will also evaluate commercially available mobility systems and engineer their integration directly onto light tactical vehicles such as the High Mobility Multipurpose Wheeled Vehicle (HMMWV), the Infantry Squad Vehicle (ISV) and/or Joint Lightweight Tactical Vehicle (JLTV). Additionally, the funding will progress development efforts to re-design the Mortar Stowage Kit (MSK), a key component of the towed 120 mm mortar weapon			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** MS1 / *Battalion Mortar System Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
system and qualify it to be integrated directly onto a tactical vehicle. This will increase mobility and address obsolescence by eliminating the need for a trailer. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** New Start Project in FY 2025 with no funding in FY 2024.			
Accomplishments/Planned Programs Subtotals	-	-	6.012

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• G02200: *Mortar Systems*	21.946	8.013	8.353	-	8.353	14.229	13.892	13.903	14.044	Continuing	Continuing

Remarks

D. Acquisition Strategy

Other Transaction Authority (OTA) contract vehicle(s) under section 4023 will be utilized to execute the engineering, manufacturing/prototyping and development of the Infantry Battalion Mortar System. Mortar Stowage Kit (MSK) modernization will execute an existing Federal Acquisition Regulation (FAR) Mortar Weapon System contract with Elbit Systems to complete modernization activities and purchase test assets. Weapon design, prototype manufacturing and testing will be government led activities at Picatinny Arsenal in New Jersey, the United States Army Combat Capabilities Development Command (DEVCOM) Armaments Center Benet Labs in Watervliet Arsenal New York, and U.S. Army Test and Evaluation Command (ATEC) in Arizona and Maryland.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) MS1 / *Battalion Mortar System Modernization*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Office	Various	Office of the Project Manager (OPM) Combat Ammunition Systems (CAS) : Picatinny Arsenal, NJ	-	-		-		0.100	Oct 2024	-		0.100	0.000	0.100	-
		Subtotal	-	-		-		0.100		-		0.100	0.000	0.100	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mortar Stowage Kit (MSK) Modernization	Reqn	Elbit America : Ft. Worth, TX	-	-		-		1.100	Jan 2025	-		1.100	0.000	1.100	-
Infantry Battalion Mortar System (IBMS) Mobility System	TBD	TBD : TBD	-	-		-		0.500	Dec 2024	-		0.500	0.000	0.500	-
Infantry Battalion Mortar System Forgings	TBD	TBD : TBD	-	-		-		0.500	Dec 2024	-		0.500	0.000	0.500	-
		Subtotal	-	-		-		2.100		-		2.100	0.000	2.100	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MSK Modernization Engineering Support	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ and Watervliet Arsenal, NJ	-	-		-		0.803	Oct 2024	-		0.803	0.000	0.803	-
IBMS Engineering Support	MIPR	DEVCOM AC Benet Labs : Picatinny Arsenal, NJ	-	-		-		1.003	Dec 2024	-		1.003	0.000	1.003	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) MS1 / *Battalion Mortar System Modernization*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		1.806		-		1.806	0.000	1.806	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MSK Modernization Testing	MIPR	ATEC Aberdeen Proving Grounds : Aberdeen, MD	-	-		-		1.003	Mar 2025	-		1.003	0.000	1.003	-
Infantry Battalion Mortar System Testing	MIPR	ATEC : Yuma Proving Ground, Aberdeen Proving Ground	-	-		-		1.003	Jun 2025	-		1.003	0.000	1.003	-
		Subtotal	-	-		-		2.006		-		2.006	0.000	2.006	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		6.012		-		6.012	0.000	6.012	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** MS1 / *Battalion Mortar System Modernization*

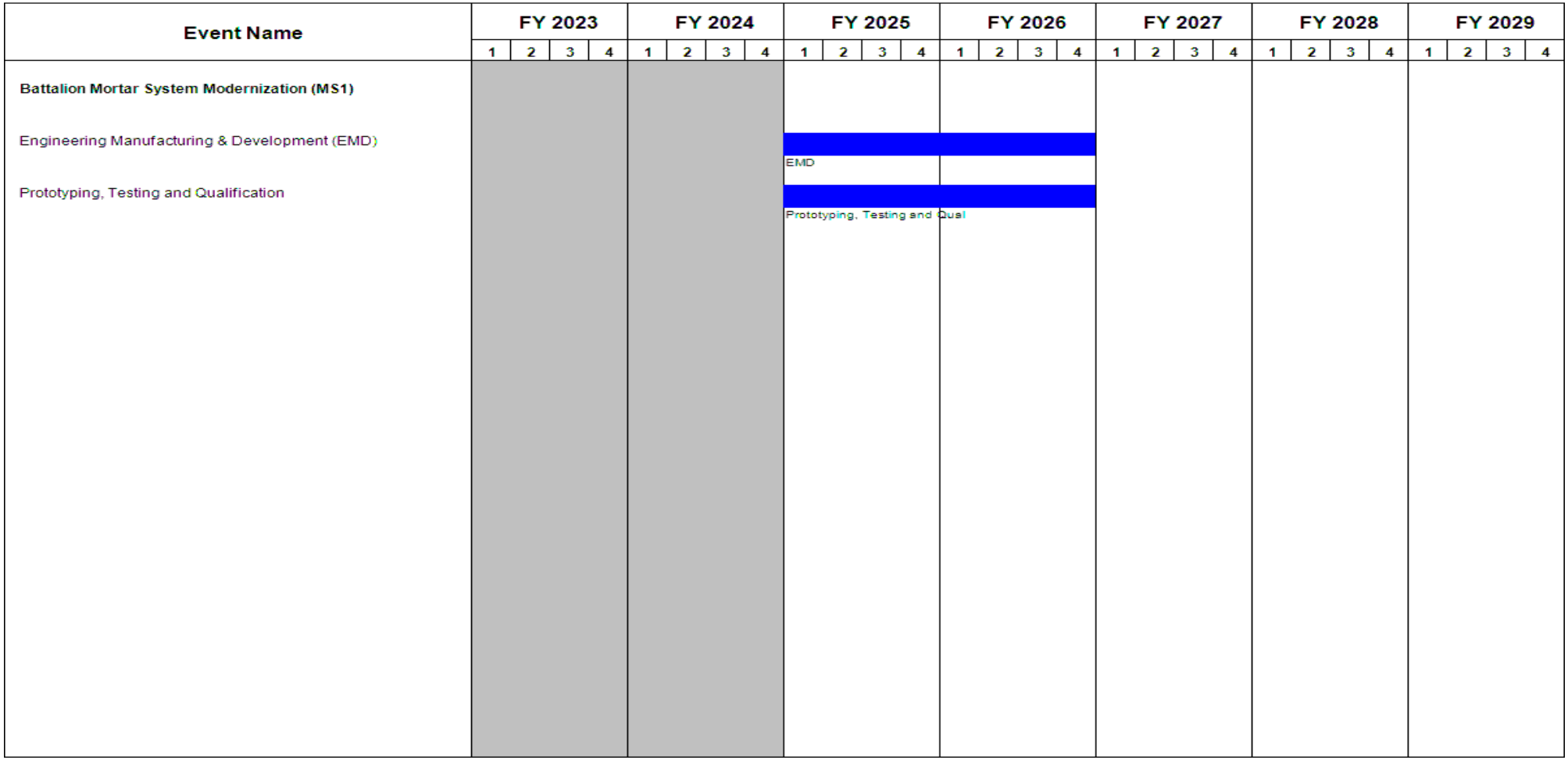


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** MS1 / *Battalion Mortar System Modernization*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Battalion Mortar System Modernization (MS1)	1	2025	1	2025
Engineering Manufacturing & Development (EMD)	1	2025	4	2026
Prototyping, Testing and Qualification	1	2025	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) S36 / *Precision Guidance Kit*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
S36: *Precision Guidance Kit*	-	53.749	33.564	55.637	-	55.637	53.186	47.062	22.317	3.465	0.000	268.980
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Precision Guidance Kit (PGK) Project supports development efforts that will qualify state of the art technologies for a course correcting fuze that provides precision accuracy at extended ranges for current and future 155-millimeter (mm) High Explosive (HE) projectiles by eliminating a portion of the inherent errors associated with ballistic firing solutions, which effectively reduces the number of projectiles required to execute fire missions. The precision course correcting fuze will support projectile operation in Global Positioning System (GPS) degraded environments in support of the Army's Cannon Modernization Strategy. All 39-caliber weapon systems and modernized Self-Propelled Howitzer (SPH) weapon systems with cannon lengths greater than or equal to 52-caliber and new long-range projectiles require the precision course correcting fuze to meet lethality requirements. FY 2025 funding will continue to support the fabrication of precision course correcting fuze hardware, safety and development testing, and further refines the Artillery fuze design.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Long Range-Precision Guidance Kit (LR-PGK) Development	28.749	33.564	55.637
Description: This development effort will qualify state of the art technologies for operation in GPS degraded environments as well as ensure compatibility with 39-caliber weapon systems and all Self-Propelled Howitzer weapon systems with cannon lengths greater than or equal to 52-caliber and projectiles in support of the Army's Cannon Modernization Strategy. ***FY 2024 Plans:*** FY 2024 funding will continue to support the fabrication of LR-PGK hardware, safety and development testing, and accomplishes a Preliminary Design Review (PDR). ***FY 2025 Plans:*** FY 2025 funding will continue to support the fabrication of precision course correcting fuze hardware, safety and development testing, and further refines the Artillery fuze design. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase in funding in FY 2025 due to increase in contract costs associated with precision course correcting fuze development efforts.			
Accomplishments/Planned Programs Subtotals	28.749	33.564	55.637

	FY 2023	FY 2024
Congressional Add: Anti-Jam Precision Guidance Kit	25.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** S36 / *Precision Guidance Kit*

	FY 2023	FY 2024
FY 2023 Accomplishments: FY 2023 Congressional Add supported Precision Guidance Kit Extended Range (PGK-ER) development efforts that provide a risk mitigation alternative to support the Extended Range Cannon Artillery (ERCA) System of Systems Operational Assessment and demonstrate its anti-jam capability with the 58 caliber ERCA Self-Propelled Howitzer (SPH) system.		
Congressional Adds Subtotals	25.000	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• E99250: *FUZE,155mm ARTY Precision Guidance Kit (PGK)*	69.208	26.016	66.533	-	66.533	1.192	1.191	1.210	1.221	0.000	166.571
• E99251: *LONG-RANGE PRECISION GUIDANCE KIT (LR-PGK)*	-	8.248	0.000	-	0.000	64.904	97.881	99.383	100.377	0.000	370.793

Remarks

Procurement of Ammunition, Army (PAA) funding for Precision Guidance Kit (PGK), Standard Study Number (SSN) E99250, and Long Range-Precision Guidance Kit (LR-PGK), SSN E99251, have been established to deliver precision course correcting fuzes for 39-caliber weapon systems and all Self-Propelled Howitzer weapon systems with cannon lengths greater than or equal to 52-caliber.

D. Acquisition Strategy

The precision course correcting fuze development efforts are focused on addressing performance in Global Positioning System (GPS) degraded environments to include anti-jam capability as well as ensuring compatibility with the Army's 39-caliber weapon systems and new long range 155mm cannon and projectiles. The contracting strategy includes competitive DoD Ordnance Technology Consortium (DOTC) and Cornerstone Other Transaction Agreement (OTA) concept development efforts. This development program has the objective to develop and safety qualify a modernized configuration to support the 39-caliber weapon systems and all Self-Propelled Howitzer weapon systems with cannon lengths greater than or equal to 52-caliber. The Full Materiel Release (FMR) qualification effort will begin in FY 2028 to support Milestone C in FY 2029. The program will transition to a Federal Acquisition Regulation (FAR) based production contract to support deliveries. Subsequent to Milestone C, the program will transition to a FAR based contract for Low Rate Initial Production (LRIP) and Full Rate Production (FRP) to support the delivery of the FMR configuration quantities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) S36 / *Precision Guidance Kit*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Office	Various	Office of the Project Manager (PM) Combat Ammunition Systems (CAS) : Picatinny Arsenal, NJ	14.118	0.100	Oct 2022	0.100	Oct 2023	0.100	Oct 2024	-		0.100	0.000	14.418	14.067
		Subtotal	14.118	0.100		0.100		0.100		-		0.100	0.000	14.418	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Manufacturing Development (EMD)	MIPR	DOD Ordnance Consortium (DOTC) / Multiple : Various	67.596	25.025	Feb 2023	25.713	Nov 2023	48.537	Nov 2024	-		48.537	0.000	166.871	33.046
Cornerstone Hardware - Congressional Add	MIPR	Cornerstone OTA / Multiple : Various	-	22.213	May 2023	-		-		-		-	0.000	22.213	-
Developmental Hardware	Reqn	American Ordnance, LLC : Middletown, IA	0.115	-		-		-		-		-	0.000	0.115	-
Software Engineering	Reqn	Leidos, Inc. : Reston, VA	1.399	-		-		-		-		-	0.000	1.399	-
		Subtotal	69.110	47.238		25.713		48.537		-		48.537	0.000	190.598	N/A

Remarks

Additional funding required in FY 2025 for contractor hardware fabrication in support of Guided Flight Testing and Anti-Jam Testing.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	MIPR	Combat Capabilities Development Command Armaments Center	50.230	2.708	Nov 2022	4.651	Oct 2023	3.500	Oct 2024	-		3.500	0.000	61.089	41.412

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) S36 / *Precision Guidance Kit*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		(DEVCOM AC) : Picatinny Arsenal, NJ													
Engineering Support - Congressional Add	MIPR	Combat Capabilities Development Command Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ	-	1.032	Jun 2023	-		-		-		-	0.000	1.032	-
		Subtotal	50.230	3.740		4.651		3.500		-		3.500	0.000	62.121	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Development Testing	MIPR	Army Test and Evaluation Command (ATEC) Yuma Proving Ground (YPG) : Yuma, AZ	12.095	0.916	Jun 2023	3.100	Nov 2023	3.500	Nov 2024	-		3.500	0.000	19.611	10.442
Testing - Congressional Add	MIPR	Army Test and Evaluation Command (ATEC) Yuma Proving Ground (YPG) : Yuma, AZ	-	1.755	Jan 2024	-		-		-		-	0.000	1.755	-
		Subtotal	12.095	2.671		3.100		3.500		-		3.500	0.000	21.366	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	145.553	53.749		33.564		55.637		-		55.637	0.000	288.503	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604802A / *Weapons and Munitions - Eng Dev*	Project (Number/Name) S36 / *Precision Guidance Kit*	

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Defense Ordnance Technology Consortium (DOTC)
Engineering and Manufacturing Development (EMD)
Army Test and Evaluation Command (ATEC)

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** S36 / *Precision Guidance Kit*

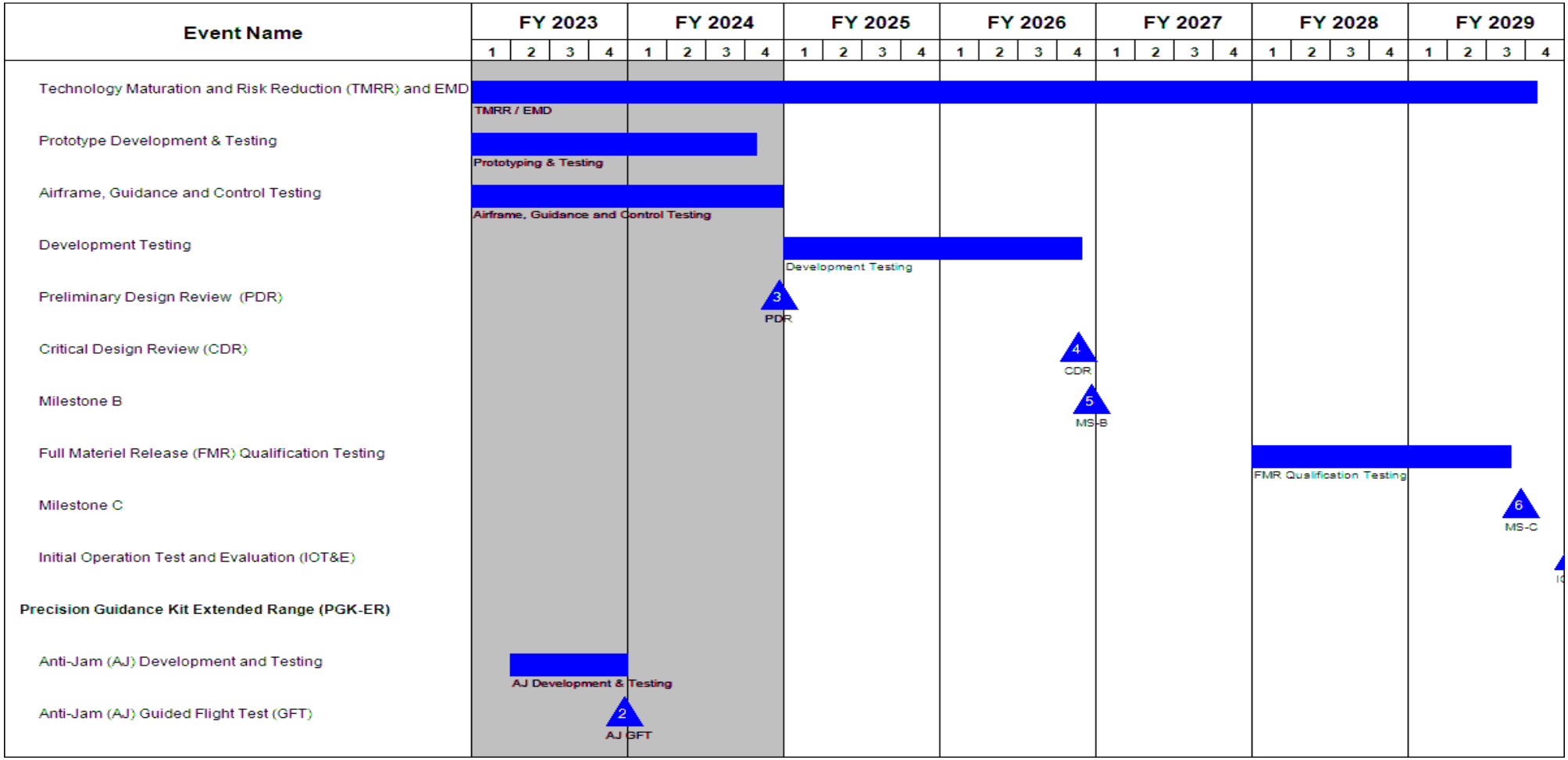


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604802A / *Weapons and Munitions - Eng Dev*	**Project (Number/Name)** S36 / *Precision Guidance Kit*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Long Range Precision Guidance Kit (LR-PGK)	1	2022	1	2022
Technology Maturation and Risk Reduction (TMRR) and EMD	1	2019	4	2029
Prototype Development & Testing	2	2020	4	2024
Airframe, Guidance and Control Testing	3	2021	4	2024
Development Testing	1	2025	4	2026
Preliminary Design Review (PDR)	4	2024	4	2024
Critical Design Review (CDR)	4	2026	4	2026
Milestone B	4	2026	4	2026
Full Materiel Release (FMR) Qualification Testing	1	2028	3	2029
Milestone C	3	2029	3	2029
Initial Operation Test and Evaluation (IOT&E)	1	2030	1	2030
Precision Guidance Kit Extended Range (PGK-ER)	1	2023	1	2023
Anti-Jam (AJ) Development and Testing	1	2023	4	2023
Anti-Jam (AJ) Guided Flight Test (GFT)	4	2023	4	2023