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 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604115A *I Technology Maturation Initiatives*							
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	-	209.220	281.314	252.000	-	252.000	257.310	260.051	262.885	265.513	0.000	1,788.293
AX3: *Technology Maturation Initiatives*	-	161.343	281.314	252.000	-	252.000	257.310	260.051	262.885	265.513	0.000	1,740.416
AX8: *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*	-	22.552	-	-	-	-	-	-	-	-	0.000	22.552
AX9: *Adv Mobility Experimental Prototype Adv Tech*	-	14.678	-	-	-	-	-	-	-	-	0.000	14.678
AY2: *Army Operational Fires*	-	10.647	-	-	-	-	-	-	-	-	0.000	10.647

A. Mission Description and Budget Item Justification

This Program Element (PE) funds the Technology Maturation Initiative (TMI), which matures and integrates component technologies into early system and sub-system experimental prototypes for demonstration in relevant environments and tactical/operational scenarios. The Technology Maturation Initiative takes emerging Science and Technology (S&T) Technology Readiness Level (TRL) 6 products to a goal of TRL 7, integrating them into technology demonstrators and experimental prototypes that meet existing Program of Record (PoR) requirements and reduce the risk of technology insertion for future acquisition programs. This Initiative streamlines the development and insertion of mature technologies that support advanced ground systems; aviation systems; command, control, communication and reconnaissance systems and equipment; precision and hypersonic weapons; navigation and situational awareness systems; and Soldier equipment. It provides the Army an improved mechanism for incorporating innovative technologies and advanced capabilities in the early stages of acquisition program planning, and more closely aligns high-priority S&T products and Programs of Record modernization plans.

This PE also provides a tiered evaluation and feasibility application of innovation and disruptive technologies to Army capability gaps at any stage in a technology's lifecycle. The project will partner with academia, small, non-traditional companies, and the defense industrial base to incubate ideas, stage pilot evaluations and to ensure more rapid integration and prototyping of the best, most innovative solutions into Army systems. Project teams comprised of both Science and Technology Subject Matter Experts (SMEs) and PoR technical leads to develop the project concept, execute the program, fabricate and evaluate the prototype, and develop the acquisition plan for incorporating the technology into the PoR upon successful evaluation of the prototype.

Through the Army's Technology Maturation Board, Army senior leadership approves Technology Maturation Initiative projects prior to budget year programming based on priority and opportunity, ensuring that demonstrations have a high potential for filling capability gaps, and the project's plan for transitioning to Army PoRs. Approved Technology Maturation Initiative projects are typically 2-4 years in duration and are budgeted under Projects AX3, AX8, AX9, and AY2.

The cited work is consistent with the Under Secretary of Defense, Research and Engineering priority focus areas and the Army Modernization Strategy.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*

Work in this Project is performed by Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	219.742	281.314	256.495	-	256.495
Current President's Budget	209.220	281.314	252.000	-	252.000
Total Adjustments	-10.522	0.000	-4.495	-	-4.495
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.502	-			
• SBIR/STTR Transfer	-8.020	-			
• Adjustments to Budget Years	-	-	-4.495	-	-4.495

Change Summary Explanation

Decrease in funding to focus efforts on approved Secretary of the Army Technology Maturation Initiatives.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AX3 / *Technology Maturation Initiatives*	

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
AX3: *Technology Maturation Initiatives*	-	161.343	281.314	252.000	-	252.000	257.310	260.051	262.885	265.513	0.000	1,740.416
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds the Technology Maturation Initiative (TMI), which matures and integrates component technologies into early system and sub-system experimental prototypes for demonstration in relevant environments and tactical/operational scenarios. The focus is to improve technology transition to Programs of Record (PoR) supporting 3 categories of projects: (1) Super system projects that prototype, integrate, and demonstrate emerging technologies that fill requirements across traditional PEO/PoR boundaries. (2) Technology Product Prototyping projects that mature technologies from S&T BA3 that have demonstrated at TRL6, but are experimental prototypes with higher risk (but potentially greater impact) than the baseline approach currently taken by a PoR, (3) Emerging / Disruptive Technology Opportunity projects (from S&T, industry, or non-traditional sources) that require out-of-cycle funding to prototype and evaluate disruptive impact against PoR requirements (threshold or objective).

This Initiative streamlines the development and insertion of mature technologies that support advanced ground systems; aviation systems; command, control, communication and reconnaissance systems and equipment; precision and hypersonic weapons; navigation and situational awareness systems; and Soldier equipment. It provides the Army an improved mechanism for incorporating innovative technologies and advanced capabilities in the early stages of acquisition program planning, and more closely aligns high-priority S&T products and Programs of Record modernization plans.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Integrated Vision Augmented System (IVAS) for Air and Ground Vehicle Platforms	2.543	7.851	-
Description: This effort leverages the technologies developed under the IVAS (Integrated Vision Augmented System) program and applies them for use on Air and Ground vehicle platforms. Air: This architecture will enable better situational awareness for the air crew (pilots and rear crew) and passenger warfighters in the air platform with augmented reality data system for displaying 360-degree sensors, pilotage and targeting sensors, blue/red force tracking data, communications, mission data, and vehicle flight data. Ground Vehicle: This architecture will enable better situational awareness for the crew (commander, gunner, driver, and vehicle crew) and passenger warfighters in the ground platform with augmented reality data system for displaying 360-degree			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
sensors, driver, commander, and targeting sensors, blue/red force tracking data, communications, mission data, and vehicle data. The system will interface to the Advanced Targeting and Lethality Aided System (ground system) and other architecture systems. ***FY 2024 Plans:*** Evaluate system readiness for operational testing and fielding for legacy air and ground platforms and soldier end users. Finalize and deliver B-kit advanced processing components, artificial reality software applications for user experiences, supporting Interface Control Documents, and A-kit and B-kit baseline architecture to transition partners. Demonstrate IVAS platform integration, computing, and control features, and enhanced crew situational awareness, pilotage, targeting, and mission features for soldiers wearing the IVAS and helmet mounted displays. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Decrease in funding due to effort conclusion in FY24.			
Title: Universal MDO Fire Control and SA Systems ***Description:*** This effort supports experimental prototypes to demonstrate high priority capability to provide mid to large caliber weapon platforms a real time 360-degree situational awareness (SA) and sensor input to the targeting / firing control systems. This effort will prototype a common architecture and interface kit containing infrared/radio frequency (IR/RF) sensors to ensure interoperability and sustainment across platforms. This effort is needed to enable a timely start of common architecture and interface definitions and interface hardware development that supports a platform agnostic prototype demonstration of 360-degree sensing system for fire control and SA across dynamic battlefield conditions. The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy. ***FY 2024 Plans:*** Build upon the FY 2023 sub-system and algorithm prototyping and integrate/fabricate full Universal 360 vision and data systems and architecture with an iterated prototype on Main Battle Tank (MBT) and on a second Ground Combat Systems platform to evaluate scalability of the Universal 360 architecture. Incorporate the Integrated Visual Augmentation System (IVAS) Ground hardware, software, and architecture/interface baseline, the vehicle crew helmet mounted display, and the Advanced Targeting and Lethality Aided System algorithms into the vehicle targeting systems, and the full 360 degree multi-spectral sensors and the vehicle data systems to the Universal 360 system. Complete Universal 360 system assessment on two PEO-GCS platforms (including MBT) and complete the technical data package on the scalable data/sensor architecture for transition to PEO-GCS platforms. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Decrease in funding due to effort conclusion in FY24.	23.630	32.650	-
Title: Anubis Software Defined Chipset for M-Code and Advanced PNT Applications	24.546	16.490	-

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Description: This effort supports experimental prototypes to demonstrate M-Code Global Positioning System (GPS) receiver capability on a commercially available System on Chip (SoC). This effort will prototype mounted, dismounted, and munition GPS receiver reference designs to be used for testing and evaluation and then insertion into Army Programs of Record. This effort will also include security certification through Space Force to handle the required encryption keys. The cited work is consistent with the Army Modernization Strategy. ***FY 2024 Plans:*** Continue the security certification process with Space Force and enable M-Code capability on core SoC components. Complete fabrication of prototypes. Complete integration testing of GPS receivers for selected form factor (mounted, dismounted, or munition) and complete user evaluations. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Decrease due to this effort concluding in FY24 and transitioning to PEO IEWS, JPEO A&A, and PEO Soldier.			
Title: Target Seeking (TS) - Extended Range (ER) Seeker (TS-ER) ***Description:*** The TS-ER Seeker will combine advances made by the Strategic Capabilities Office, Defense Advanced Research Projects Agency, Air Force, and Army in the fields of airframes, electronics, and seeker technologies to enable: extended range performance from 70km to 150km by integrating with advanced airframes; decrease risk of performance against red force countermeasures from medium to low by improving Automatic Target Recognition capability; improve munition terminal effects against armored targets and Integrated Air Defense Systems by enhancing munition accuracy. These seeker technologies will be integrated with the XM1155 Extended Range Artillery Projectile, with the requirement to prosecute moving or relocated targets in Global Positioning System denied environments at extended ranges (150km in accordance with the Cannon Delivered Area Effects Munition (C-DAEM) draft Capabilities Development Document). Enhanced seeker technologies will be critical in enabling munition performance at these ranges with high target location error. ***FY 2024 Plans:*** Complete integration of algorithms and software into the electronics architecture, along with system integration into the chosen test vehicle platform. Complete modeling and simulation, and hardware-in-the-loop activities to validate the performance of the system against a range of use cases and inform the test events. Complete a succession of range tests, with increasing complexity and culminating with a closed loop demonstration to ensure the various design aspects achieve the program requirements for transition C-DAEM Program of Record in FY 2025. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Decrease due to this effort concluding in FY24 and transitioning to C-DAEM Program of Record.	17.170	20.087	-
Title: Autonomous Operations for Unmanned Aerial Systems (UAS)	12.236	33.167	29.061

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Description: Autonomous Operations for Uncrewed Aerial Systems (UAS) will provide Army aircraft reconnaissance, targeting and weapon options to engage and defeat threat targets at standoff. It will provide crewed and uncrewed aircraft capabilities to operate dispersed as part of the larger collaborative lethality network or as autonomous contributors for reconnaissance, surveillance, and target acquisition (RSTA). ***FY 2024 Plans:*** Continue to transition products to enable autonomous operations for RSTA missions using 5 or more ALE collaborating under a single human supervisor while operating in contested environments. Down-select candidate technologies and complete integration to the PM UAS Family of Systems Architecture and Requirements Specification for various Programs of Record. Refine autonomy software, message sets, and platform integration, and demonstrate in laboratory and live-fly test events. Perform testing to optimize communications waveforms, link budgets and other requirements for operationally relevant environments and mature all software and hardware components for Airworthiness Release. ***FY 2025 Plans:*** Continue technology maturation for CONOPS, execute additional demonstration flight tests, and coordinate actions with Off-Board Survivability (OBS) to integrate software between the systems. Submit final reports and complete integration to the PM UAS Family of Systems Architecture and Requirements Specification for various Programs of Record. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The funding decrease in FY 2025 is due to change in focus from development, testing, and integration to finalization of required integration to complete transition of technology to a Program of Record and includes multiple testing events.			
Title: Air Launched Effects (ALE) Off-board Survivability ***Description:*** This effort will develop a new variant of the LE Family of Systems focused on protection of the crewed helicopter fleet in contested environments. The effort will mature multispectral payloads that offload survivability and targeting functions from crewed platforms. ***FY 2024 Plans:*** Continue to implement multiple survivability and targeting payloads using off-board ALE platforms to relay critical information to manned systems for battlespace situation awareness and tactics execution. Will focus on maturation for the chosen payloads. Will focus on payload SWaP optimization and aircraft integration, including Hardware and Software in the Loop testing with the digital twin as well as live-fly testing. ***FY 2025 Plans:***	27.489	32.307	33.212

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Continue technology maturation for OBS CONOPS and execute initial flight tests for both EW and IR payloads. Execute additional flight tests for each payload. Coordinate actions with Autonomy TMI to integrate software between the systems. Submit final reports, and complete integration to the PM UAS Family of Systems Architecture and Requirements Specification for various Programs of Record. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The funding increase in FY 2025 is due to change in focus from design, development, and integration to finalization of required integration to complete transition of technology to a Program of Record and includes multiple testing events.			
Title: Tactical Analytics Architecture (TA2) ***Description:*** This effort will prototype Artificial Intelligence (AI) software/algorithms and hardware for AI-Enabled Command and Control (C2) Common Operating Picture (COP) / decision-support for Multi-Domain Operations at multiple echelons. Increased speed and accuracy of decision making will be demonstrated thru integration of AI-enabled decision support technologies that are emerging from Science and Technology programs and existing C2 systems used across warfighting functions and domains. ***FY 2024 Plans:*** Continue the development of SW prototype COP services that integrate data, information and knowledge-sharing across echelon and function including Maneuver, Integrated Air and Missile Defense, Fires, Intel, Logistics, etc. Unify secure data persistence with tactical data fabric in an initial operational capability to ingest multitudes of other Warfighter functional data sources across the network to facilitate increased speed and accuracy of decision making. Introduce common DevSecOps and AI machine learning operations to influence design and obtain operational data in the environment. ***FY 2025 Plans:*** Integrate and demonstrate the TA2 prototype AI-based algorithms into program of record Command & Control, Movement & Maneuver, Fires, Intel, and Logistics systems; to deliver AI-enabled decision support tools, data science platform environment tools, and data fabric capabilities to include Soldier definable visualizations / workflows, through a unified and secure tactical data fabric capable of cloud deployment. Demonstrate integrated high payoff target selection capability enhancements, sensor to shooter enhancements, and synchronization of fires data to Sustainment services supporting predictive combat power decision support capabilities. Transition modularized TA2 software technologies to the Command Post Computing Environment (CPCE), Distributed Common Ground Station - Army (DCGS-A) Intel Apps (IA), Tactical Intelligence Targeting Access Node (TITAN), and Joint Targeting Integrated Command & Coordination Suite (JTIC2S) PORs. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The funding decrease is due to drawdown of development as each effort transitions to respective programs of record.	21.582	27.156	25.480
Title: Tactical Navigation Warfare (NAVWAR) Plexus	8.267	13.402	9.652

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Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Description: Tactical Navigation Warfare (NAVWAR) Plexus supports the technology maturation and integration of NAVWAR Situational Awareness technologies into Electronic Warfare and field artillery systems. This effort incorporates NAVWAR sensors, data fusion algorithms, and decision-making software to maintain Army Fires capabilities in Global Positioning System degraded and denied environments. NAVWAR sensor interfaces will be modernized to comply with open system standards and their data will be processed through fusion algorithms to produce a real time Common Operating Picture (COP) of the NAVWAR environment. This COP will be distributed to the Fires Command and Control system to optimize the performance of field artillery in degraded environments. ***FY 2024 Plans:*** Complete Electronic Warfare Planning Management Tool (EWPMT) NAVWAR algorithm work, prototype, evaluation and transition to EWPMT Program of Record (PoR). Begin PLASMA-X sensor/Position, Navigation and Timing data fusion processor work. Start integration of the NAVWAR algorithm to Advanced Field Artillery Tactical Data System (AFATDS). Modernize and transition sensor/client interface to the Mounted Mission Command PoR. ***FY 2025 Plans:*** Will demonstrate sensor and workflow transfer of situational awareness to guide decisions driven by NAVWAR situational understanding. Will provide mature NAVWAR interface implementation details to utilize in component programs. Will optimize integration and utilization of NAVWAR sensor data. Will demonstrate duration of a fires mission planning and execution in NAVWAR degraded environment. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The funding decrease represents accomplishment of bulk of maturation efforts of components followed by finalization, integration, and demonstration.			
Title: Assured Navigation for Future Tactical Unmanned Aerial Systems (FTUAS) ***Description:*** This effort will build on previous Defense Advanced Research Projects Agency (DARPA) All Source Positioning and Navigation (ASPN), and Seeker Cost Transformation (SECTR) vision based navigation technology efforts, as well as the Army Aviation and Missile Center's (AvMC) current efforts under the Future Vertical Lift Cross Functional Team (FVL CFT) and Program Executive Office Aviation's efforts focused on low altitude vision based navigation (VBN) to deliver a full government owned navigation system in small size, weight, and power (SWaP) for tactical Unmanned Aerial Systems. DARPA SECTR is a production prototype that has been demonstrated in cross country flight and currently works at altitudes of 1000+feet. This effort will extend the technology to all operational altitudes, and miniaturize and ruggedize the technology. This effort will be part of an overall Assured Position Navigation and Timing (APNT) solution that will enable the use of FTUAS and Air Launched Effects in Global Positioning System (GPS) denied environments.	5.492	7.774	5.708

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Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY 2024 Plans: Mature and complete final optimization of low altitude VBN algorithms and software. Evaluate progress of prototype sensor package and processing module and finalize miniaturized prototype design. Integrate vision based navigation software with the sensor package and processing module for the ruggedized prototype. Demonstrate low altitude VBN prototype providing APNT at below 1000 ft. and assess progress for prototype design and testing activities. ***FY 2025 Plans:*** Will optimize low altitude vision-based navigation algorithms and software. Will integrate miniaturized prototype onto target platform. Will perform flight testing and evaluate prototype in GPS denied environments and in varying operational conditions. Will demonstrate final prototype solution. Will deliver production prototypes. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The funding decrease reflects refined target areas of interest and focused technological advancements as this effort completes it maturation.			
Title: Common Hypersonic Glide Body (CHGB) Seeker Integration ***Description:*** The Army Long Range Hypersonic Weapon (LRHW) Common Hypersonic Glide Body (CHGB) Seeker Integration activities are leveraging development efforts that were executed with prior year 6.3 Science and Technology (S&T) funding, supporting Seeker Component Development. The 6.3 S&T CHGB Seeker Component Development will continue through FY 2027, and will transition mature technologies to the 6.4 CHGB Seeker Integration efforts. Per the TMI Board decision in May 2021, the TMI program will fund these 6.4 CHGB Seeker Integration efforts in FY 2023. Starting in FY 2024, the RCCTO Transition Partner, Program Executive Office Missiles and Space, will continue CHGB Seeker Integration efforts to support the development timeline for implementation into future LRHW batteries.	7.500	-	-
Title: Reconfigurable Aperture Precision Targeting Radar (RAPTR) for Vehicle and Dismount Exploitation Radar (VADER) (RADER) ***Description:*** The current RADAR sensor (VADER) was designed for counterinsurgency operations limiting the effectiveness against near-peer threats. This effort will mature wide-band, multi-function RF, aperture technology developed under Army Science and Technology (S&T) to deliver an advanced payload that significantly increases range, accuracy and survivability of current airborne surveillance radar systems to the High Accuracy Detection and Exploitation System (HADES) program. This effort will integrate an advanced payload into a digital radar with an open architecture radar backend to facilitate integration of advanced algorithms and advanced operational modes to the HADES system. ***FY 2024 Plans:***	10.888	13.267	10.379

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Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Complete maturation of advanced radar modes for Common Open Architecture-compliant back-end. Continue maturation of Common Open Architecture-compliant back-end in preparation for integration of advanced modes and dual-band Active Electronically Scanned Array for FY 2025 Airborne Radar Testbed for evaluations. ***FY 2025 Plans:*** Mature advanced radar modes based on testbed demonstration. Develop test plan and integrate engineering prototype for flight test evaluation. Conduct flight demonstrations in relevant environments for evaluation of advanced radar modes. Deliver open architecture processor system with integrated third party modes. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease is due to with project progression to finalizing prototype, performing prototype evaluation, and performance validation.			
Title: Lethality Smart Systems (LSS) ***Description:*** The Lethality Smart Systems (LSS) is the next generation weapon targeting sensor for use on the Next Generation Squad Weapon (NGSW) which provides additional situational awareness and lethality by wirelessly interfacing to other Soldier devices. This effort will mature and prototype the LSS weapon sight system to evaluate improved reliability, achieving weapon shock requirements of the NGSW and implement interoperability between the latest version of the Intra Soldier Wireless (ISW) protocol to both the Enhanced Night Vision Goggle -Binocular (ENVG-B) and Integrated Visual Augmentation System (IVAS). Additionally, LSS will provide improved system interfacing and capabilities at a reduced Size, Weight and Power (SWaP). ***FY 2024 Plans:*** Conduct Soldier Touch Points and developmental test activities to collect Soldier feedback and engineering data to further refine the LSS design and maturation/risk reduction opportunities. Integrate and test LSS prototypes with fielded IVAS and ENVG-B to inform ISW Interface Control Documents (ICD). Integrate and test LSS prototypes on NGSW systems to evaluate power/data rail interface and weapon shock survivability performance. Begin building prototype of LSS for integration and testing of improved LSS weapon sight. ***FY 2025 Plans:*** Will finalize ISW interface with fielded HUD systems.? Will continue to integrate and assess LSS prototypes on NGSW systems for ongoing power evaluation and system ruggedization.? Will complete maturation and demonstrate final LSS weapon sight prototype. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The funding decrease is due to the project ramping down for transition to PEO Soldier.	-	6.012	3.321
Title: Lightweight Polymers for Modern Small Caliber Apps - Ammo Casing Only	-	5.701	3.633

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Description: The Army currently relies on metal for small caliber cartridge casings. Polymer-based casings offer the potential to achieve significant weight reductions that can be applied to future and legacy systems. This effort will mature and prototype lightweight polymers and casing design solutions for use in extreme military operational environments. The polymer-based casings will reduce the tactical weight burden on the warfighter, reduce transit costs, and increase lethality across all operational environments. ***FY 2024 Plans:*** Survey, formulate, and refine commercial lightweight polymers for initial cartridge prototyping and iterate polymer-based casing design. Mature and evaluate the adhesives and bonding protocols for joining metallic and polymers components. ***FY 2025 Plans:*** Will optimize commercial lightweight polymers and adhesives for lightweight design. Will optimize lightweight cartridge design. Will prototype and evaluate cartridge performance with optimized polymers, adhesives, and cartridge designs ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The funding decrease is due to the project ramping down for transition to JPEO A&A.			
Title: Optical Threat Detection	-	9.743	11.624
Description: Optical Threat Detection builds on Army Research Development Technology & Experimentation investments in Pre-Shot technologies to prototype detecting threats beyond their effective weapons range. The effort will mature and prototype an automated operation of the system to utilize onboard sensors and provide cues of potential targets to users for evaluation of the threat. The Optical Threat Detection system will provide a multi-band solution to rapidly locate enemy optical targeting or surveillance systems in support of On-The-Move operations. This effort will incorporate adaptable architecture for integration of future technology (i.e., sensors and algorithms) as new capabilities emerge. ***FY 2024 Plans:*** Initiate the design, fabrication and assembly of the baseline prototype sensor system. Perform a Preliminary Design Review and a Critical Design Review to evaluate baseline sensor design in preparation for platform integration to ensure the design will meet mission performance requirements. ***FY 2025 Plans:*** Will validate system level performance. Will validate critical design factors, drawings and interface control documentation. Will finalize approaches for modular system configuration. Will demonstrate system and subsystems with prototype hardware and sub-assembly improvements. Will mature GUI through user feedback and manufacturing of components for latest configuration. ***FY 2024 to FY 2025 Increase/Decrease Statement:***			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Funding increase is due to efforts to validate critical documentation and system and subsystem demonstrations.			
Title: Solid State High Power Microwave System (SS-HPM) ***Description:*** Solid State-High Powered Microwave (SS-HPM) will mature and prototype a mission kit consisting of source and emitter for technical insertion into the Indirect Fire Protection Capability-High Power Microwave (IFPC-HPM) program's prototype system. SS-HPM System will mature solid state technologies intended for Counter-Unmanned Aerial System applications (focusing on groups and swarms) and provide indirect fire protection capabilities with increased range, reliability, and lower costs. ***FY 2024 Plans:*** Design, develop, and deliver a solid state HPM source and emitter (mission kit) for technical insertion that is compatible with the IFPC-HPM prototype. ***FY 2025 Plans:*** Test and deliver a solid state HPM source and emitter (mission kit) for technical insertion that is compatible with the IFPC-HPM prototype ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The funding decrease represents the normal progression towards completion of hardware development and testing and the transition of the technology to a Program of Record.	-	9.329	2.076
Title: Collaborative Links for Integrated Fires (CLIF) ***Description:*** Complex terrain, clutter, and countermeasures can challenge Cannon Delivered Area Effects Munition (C-DAEM) Armor and supporting Fires System-of-Systems (SoS) solutions, and reduce munition effectiveness. Collaborative Links for Integrated Fires (CLIF) leverages prior algorithm and software efforts to prototype image-based navigation, multi-agent autonomous target recognition (ATR) and optimized munition-target assignment in a Fires SoS solution. This effort will enable more efficient volley fires reducing shoot and move time, rounds to defeat, and the logistics burden while improving fire team capacity. The CLIF approach is modular and enables the rapid integration of new seeker and collaborative modalities to outpace emerging threats. ***FY 2024 Plans:*** Conduct design trade studies of technology integration using the Excalibur hit to kill (HTK) modeling simulation environment. Modify and integrate technology solutions into Hardware in the Loop (HWIL) and test subsystems. Complete preliminary design of the collaborative links system and projectiles. ***FY 2025 Plans:***	-	9.474	11.520

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Prototype, integrate, and test Fires SoS solutions. Complete the development of collaborative capabilities integration of software in the loop simulation for HWIL integration. Build of demonstration hardware and evaluate prototype during live fire demonstration for transition to the CDAEM Program of Record. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The funding increase represents the completion and evaluation of the prototype during live fire demonstration.			
Title: Multi-Network, Multi-Waveform Software Defined Radio ***Description:*** This effort leverages commercial 5G radio / data System on a Chip (SoC) technologies to prototype a common software defined radio capable of supporting multiple military waveforms. This replaces multiple radios with a single low Size, Weight, and Power (SWaP) radio for communications across multiple secure military communication networks and systems and hardware commonality across platforms. Prototypes will be evaluated supporting ground and air Army applications. The cited work is consistent with the Army Modernization Strategy and the Army Integrated Tactical Network Capability Sets. ***FY 2024 Plans:*** Initiate porting of multiple military communication waveforms to the SoC architecture. Design initial prototype multi-waveform / multi-communication system prototype radios for air and ground applications. ***FY 2025 Plans:*** Will complete porting of one military terrestrial and one celestial waveform to at least one radio hardware form factor prototype suitable for user demonstration. Will initiate development of a second tranche of waveforms and at least one additional form factor. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The funding increase represents the ramp up of the project to develop two form factor prototypes for demonstration.	-	10.667	35.288
Title: Consolidated prototype platform for Joint Common Artificial Intelligence / Autonomous Operations, Data architectures, and Power systems ***Description:*** This effort will prototype integration of emerging data fabrics across Service, Combatant Commands (CCMD) and sub-organizational commands to allow interchangeable command and control (C2) of remote operations across echelons (allow echelon tasking and ISR sensor data collection/data share) of autonomously operated ground and air system platforms. The system will also expand hybrid power source alternatives that support the platform, mission, and autonomous system power requirements. ***FY 2024 Plans:***	-	26.237	25.013

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Compare Army, USMC and USAF data needs and data fabrics to determine requirements to develop a common data fabric and communications system for remote platform ISR data share and platform tasking. Using emerging Service data fabrics and processing frameworks, develop necessary application programming interfaces to integrate the sharing of data, algorithms, and Machine learning tools; and translate across different architectures and standards for the operation of remotely controlled / autonomous ground systems to seamlessly execute tactical and operational mission sets interchangeably between Army and non-Army organizations within CCMDs. Optimize platform autonomous systems for command and control of the platform and autonomous operations and optimize hybrid power systems designs meeting platform, communications, and autonomous operations, and mission needs. ***FY 2025 Plans:*** Prototype common data fabric and communication systems for remote platform ISR data share and platform tasking addressing Army, USMC and USAF data needs. Prototype optimized platform autonomous systems for command and control of the platform and autonomous operations. Prototype hybrid power systems designs meeting platform, communications, and autonomous operations, and mission needs. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort to focus efforts to prototype command and control for autonomous systems.			
Title: Aviation Lightweight Armor ***Description:*** This effort builds on previous Army science and technology investments in lightweight spaced armor technology for aviation platforms to increase amor protection against worldwide threats while reducing weight, increasing military operating payload for troops, fuel, and munitions. The effort will prototype an advanced armor kit for Future Long Range Assault Aircraft (FLRAA) compatible with the FLRAA platform design.? The prototype armor will be evaluated on the FLRAA mock-up aircraft to validate ballistic performance and compatibility with FLRAA aircraft requirements. ***FY 2025 Plans:*** Engage with FLRAA vendor to ensure compatibility of the amor kit with the platform design and performance requirements. Optimize the armor system configuration and conduct preliminary ballistic testing to ensure the armor meets the requirements of the FLRAA aircraft. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase to begin effort approved by the Technology Maturation Board for FLRAA armor.	-	-	3.321
Title: Electro-Magnetic Battlespace Shaping and Protection (EM-BSP) ***Description:*** Electro-Magnetic Battlespace Shaping and Protection (EM-BSP) will provide an on-demand denial of the electro-magnetic (EM) spectrum to enemy forces at any location on the battlefield supporting Multi-Domain Operations (MDOs). This	-	-	10.569

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
program will mature and prototype a smoke screen capable of disrupting the EM spectrum to mask, conceal, and preserve combat lethality overmatch. This munition delivered capability will degrade/deny enemy anti-access/area denial systems as well as the enemy's use of the EM spectrum. The overall super-system capability will integrate both hardware and software technology solutions across multiple Programs of Record for combined increased effect. EM-BSP will culminate in a live-fire Technology Readiness Level (TRL) 7 demonstration of the prototype System-of-Systems (SoS). ***FY 2025 Plans:*** Begin prototyping activities across multiple Program Executive Offices (PEOs) to support an end-state integrated SoS demonstration. Virtually prototype the SoS architecture.?Refine system and subsystem requirements and interfaces. Prototype RF Smoke technology candidates across EM spectrums of interest and initiate design-of-experiment analysis for optimal material payload mix against target sets. Virtually prototype dispense mechanism to aid in RF Smoke material candidate analysis for a Cargo Rocket/Missile application. Define application interfaces, virtually prototype RF Smoke effects model software for battle management of the smoke across Electronic Warfare and artillery fire control systems. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase to begin effort approved by the Technology Maturation Board to support SoS demonstrations in the EM-BSP program.			
Title: Combination Soldier and Logistics Aerial Insertion (Combodrop) ***Description:*** Combination Soldier and Logistics Aerial Insertion will provide Commanders with high altitude, high offset capability for precision insertion of personnel and cargo into enemy denied areas with a reduced probability of detection. This effort will prototype common mission planner and navigation software for all personnel and equipment and integrate radios for communication between personnel and cargo equipment for situational awareness and in-flight contingency operations. This effort will culminate with a demonstration in an operational environment. ***FY 2025 Plans:*** Complete initial development and integration of preflight mission planning software and mission execution software. Develop User Interfaces to provide command and control (C2) capabilities and display mission critical situational awareness information for cargo aerial delivery platforms. Conduct initial evaluation of C2 radios for communications between personnel and cargo systems. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase to begin effort approved by the Technology Maturation Board to develop C2 capabilities for cargo aerial delivery platforms.	-	-	2.595
Title: Containerized Weapon System - Counter UAS ***Description:*** This effort will prototype the ability to counter threat Group 3 small Unmanned Aircraft Systems (sUAS) that operate at higher altitudes with significant standoff range. Leveraging existing investments in the Containerized Weapon System (CWS),	-	-	8.926

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
this project will optimize the operator's Fire Control Station to enable Group 3 sUAS engagement.? The operator's Fire Control Station will provide single operator, automated slew-to-cue, and improved Target Verification System.?? All of which enhance the weapons suite to enable the targeting and defeat of Group 3 sUAS. This effort will culminate in a live-fire experimentation of the prototype system in FY26. ***FY 2025 Plans:*** Optimize Fire Control Station for single operator and incorporate the target Illumination Verification System (TIVS) into the Fire Control System and utilize AI to increase the probability of hit with minimal operator input. Begin verification of the dual-safe APKWS proximity fuse through the Safety Review Board process and obtain limited release approval from the Ignition System Safety Review Board (ISSRB). ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase to begin effort approved by the Technology Maturation Board for integration of the target TIVS.			
Title: Expeditionary Field Artillery Sensor (ExFAS) ***Description:*** Expeditionary Field Artillery Sensor (ExFAS) will provide and medium range sensor enabling greater survivability and accuracy for the entire network of field artillery sensors against complex, evolving Rocket, Artillery, and Mortar (RAM) threats. This project will mature and prototype state of the art, dual/multi-band, short-medium range CTA (Counter Target Acquisition) system designed to cover required ranges, while also enabling key survivability and accuracy improvement features through dual/multi-band hardware. Additional technology maturations, including resource optimization techniques, perused within the ExFAS effort will inform and provide risk reduction for of the field artillery radar sensor modernization effort. The effort will culminate with in a live-fire demonstration and component qualification testing. ***FY 2025 Plans:*** Will evaluate fires radar open system architecture, and dual wideband technology through model and simulation and digital engineering framework to determine initial design. Will perform analysis of design concepts through realistic virtual prototype. Will develop a physical prototype based on the design concept. Will mature the virtual prototype of the design and validate digital engineering performance alongside of a physical prototype. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase to begin effort approved by the Technology Maturation Board to evaluate open architecture and development of a physical prototype for ExFAS.	-	-	2.175
Title: Iron Sense ***Description:*** Partnering with the Army PEO-IEW&S Tactical Exploitation of National Capabilities (TENCAP) and leveraging prior work from PE 0603766A / Tactical Electronics Surveillance Systems - Adv Dev, this effort is a TMI Technology Prototyping Effort	-	-	9.936

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
(prototyping higher risk / higher impact technologies to validate functionality) for transition to Army TENCAP fielding of capability. This effort Addressing the ongoing requirements to ensure that the Army's ability to exploit National and Commercial space based ISR and communications, to close the deep-sensing gap in Multi-Domain operations, and to enable rapid targeting of threats / pace the threat. ***FY 2025 Plans:*** FY25 will leverage National Investments and advances in Signal Intelligence (SIGINT), Electronics Warfare, and Cyber capabilities to prototype increased capability for use and advancement of Army Warfighter Capability. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase to begin effort approved by the Technology Maturation Board to prototype increased capability for Army Warfighter Capability.			
Title: Critical Common Electronics for Scalable Unmanned Aircraft Systems ***FY 2025 Plans:*** Assess commercial technologies for optimizing systems enabling critical common electronics, components, and algorithms for Army UAS platforms. Fabricate initial component prototypes to assess performance and interoperability of the systems. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase to begin start effort approved by the Technology Maturation Board and Army Senior Leadership for the assessments of commercial technology for optimizing critical common electronics, components and algorithms for Army UAS platforms.	-	-	8.511
Accomplishments/Planned Programs Subtotals	161.343	281.314	252.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
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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
Integrated Vision Augmented System (IVAS) for Air and Ground Vehicle Platforms	TBD	DEVCOM C5ISR : Fort. Belvoir, VA	-	-		7.851		-		-		-	0.000	7.851	-
IVAS - Design Platform Augmented Reality (AR) Architecture	TBD	C5ISR Fort Belvoir, VA; : TBD	5.021	-		-		-		-		-	0.000	5.021	-
IVAS - AR Architecture Implementation, Integration, and Fabrication	TBD	C5ISR Fort Belvoir, VA; : TBD	11.449	2.028		-		-		-		-	0.000	13.477	-
IVAS - Systems Engineering - Interfaces, Head Pose Tracking, Position, Navigation, Timing, Power	TBD	C5ISR Fort Belvoir, VA; : TBD	10.459	-		-		-		-		-	0.000	10.459	-
IVAS - Software Engineering - AR User Experiences	TBD	C5ISR Fort Belvoir, VA; : TBD	6.292	-		-		-		-		-	0.000	6.292	-
IVAS - Capability Demonstration	TBD	C5ISR Fort Belvoir, VA; : TBD	4.169	0.514		-		-		-		-	0.000	4.683	-
IVAS - Software/Hardware Integration - IVAS and Pilot / Crew Helmet Mounted Displays	TBD	C5ISR Fort Belvoir, VA; : TBD	4.254	-		-		-		-		-	0.000	4.254	-
Universal 360 MDO Fire Control and SA Systems	TBD	DEVCOM C5ISR : Ft. Belvoir, VA	-	-		32.650		-		-		-	0.000	32.650	-
Universal 360 MDO Sensor Prototypes	TBD	C5ISR Ft. Belvoir : TBD	0.758	2.474		-		-		-		-	0.000	3.232	-
Universal 360 MDO Common Architecture & Data Framework	TBD	C5ISR Ft. Belvoir : TBD	2.602	1.440		-		-		-		-	0.000	4.042	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
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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
Mature AI software architecture & prototype ATR	TBD	C5ISR Ft. Belvoir : TBD	1.305	2.317		-		-		-		-	0.000	3.622	-
Mature & Demonstrate Crew Station, Crew HMD, Troop HMD, and Fire Control	TBD	C5ISR Ft. Belvoir : TBD	4.055	5.073		-		-		-		-	0.000	9.128	-
Platform Prototyping, Integration & Demonstration	TBD	C5ISR Ft. Belvoir : TBD	2.360	12.326		-		-		-		-	0.000	14.686	-
Anubis: COTS-based M-Code GPS Receiver	TBD	DEVCOM-ARL : TBD	10.599	24.547		16.490		-		-		-	0.000	51.636	-
Target Seeking - Extended Range (ER) Seeker (TS-ER)	TBD	PEO Ammo : Picatinny Arsenal, NJ	-	17.170		20.087		-		-		-	0.000	37.257	-
Autonomous Operations for Unmanned Aerial Systems (UAS)	TBD	DEVCOM AvMC : TBD	-	12.236		33.167		29.061		-		29.061	0.000	74.464	-
Air Launched Effects (ALE) Off-board Survivability	TBD	DEVCOM AvMC : TBD	-	27.489		32.307		33.212		-		33.212	0.000	93.008	-
Artificial Intelligence (AI) Enabled Operations / TA2	TBD	AFC : TBD	-	21.582		27.156		25.480		-		25.480	0.000	74.218	-
Tactical NAVWAR Plexus	TBD	DEVCOM C5ISRC : TBD	-	8.267		13.402		9.652		-		9.652	0.000	31.321	-
Assured NAV for FTUAS	TBD	TBD : TBD	-	5.492		7.774		5.708		-		5.708	0.000	18.974	-
Common Hypersonic Glide Body (CHGB) Seeker Integration	C/Various	RCCTO : Various : Various	-	7.500		-		-		-		-	0.000	7.500	-
Reconfigurable Aperture Precision Targeting Radar (RAPTR) for Vehicle and Dismount Exploitation Rada	TBD	DEVCOM C5ISR : TBD	-	10.888		13.267		10.379		-		10.379	0.000	34.534	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
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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
Lethality Smart System (LSS)	TBD	DEVCOM C5ISR : Fort Belvoir, VA	-	-		6.012		3.321		-		3.321	0.000	9.333	-
Lightweight Polymers for Modern Small Caliber Apps	TBD	DEVCOM ARL : TBD	-	-		5.701		3.633		-		3.633	0.000	9.334	-
Optical Threat Detection	TBD	DEVCOM C5ISR : Fort Belvoir, VA	-	-		9.743		11.624		-		11.624	0.000	21.367	-
Solid State High Power Microwave System	TBD	RCCTO : Various	-	-		9.329		2.076		-		2.076	0.000	11.405	-
Collaborative Links for Integrated Fires	TBD	PEO Ammo : Picatinny Arsenal, NJ	-	-		9.474		11.520		-		11.520	0.000	20.994	-
Multinetwork - 5G Capability	TBD	DEVCOM C5ISR : Fort Belvoir, VA	-	-		10.667		35.288		-		35.288	0.000	45.955	-
Consolidated prototype platform for Joint Common Artificial Intelligence / Autonomous Operations, Da	TBD	TBD : TBD	-	-		26.237		25.013		-		25.013	0.000	51.250	-
Aviation Lightweight Armor	TBD	DEVCOM AvMC : Ft. Eustis, VA	-	-		-		3.321		-		3.321	0.000	3.321	-
Electro-Magnetic Battlespace Shaping and Protection (EM-BSP)	TBD	JPEO A&A : Various	-	-		-		10.569		-		10.569	0.000	10.569	-
Combination Soldier and Logistics Aerial Insertion	TBD	DEVCOM SC : Natick, MA	-	-		-		2.595		-		2.595	0.000	2.595	-
Containerized Weapon System - Counter UAS	TBD	DEVCOM AvMC : Redstone Arsenal, AL	-	-		-		8.926		-		8.926	0.000	8.926	-
Expeditionary Field Artillery Sensor (ExFAS)	TBD	DEVCOM C5ISR : Aberdeen Proving Ground, MD	-	-		-		2.175		-		2.175	0.000	2.175	-
Iron Sense	TBD	PEO IEWS : Various	-	-		-		9.936		-		9.936	0.000	9.936	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army		Date: March 2024
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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
Critical Common Electronics for Scalable Unmanned Aircraft Systems (UAS)	TBD	PEO Aviation, PEO IEWS, Various : Various	-	-		-		8.511		-		8.511	0.000	8.511	-
		Subtotal	63.323	161.343		281.314		252.000		-		252.000	0.000	757.980	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	63.323	161.343		281.314		252.000		-		252.000	0.000	757.980	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
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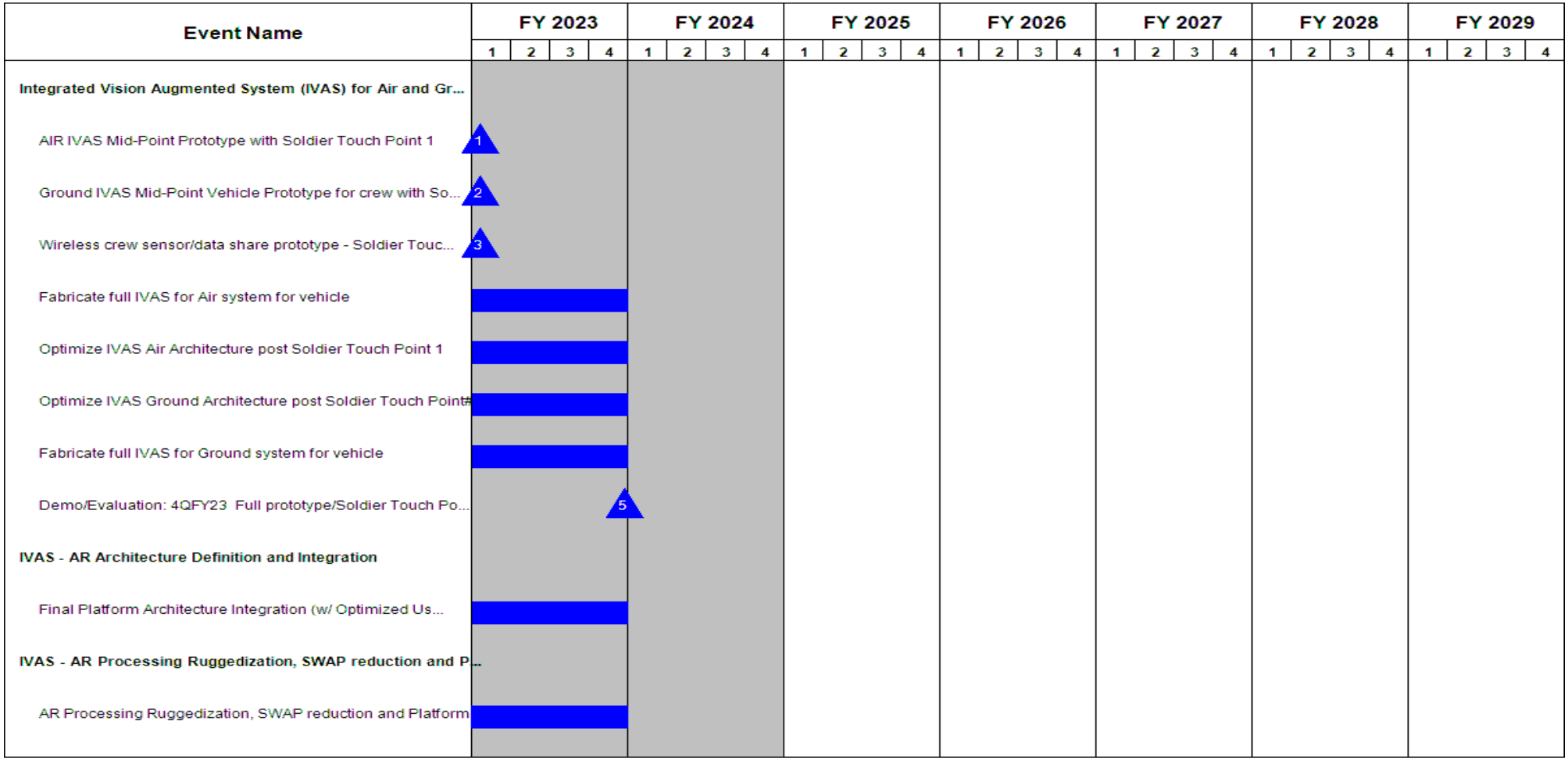

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
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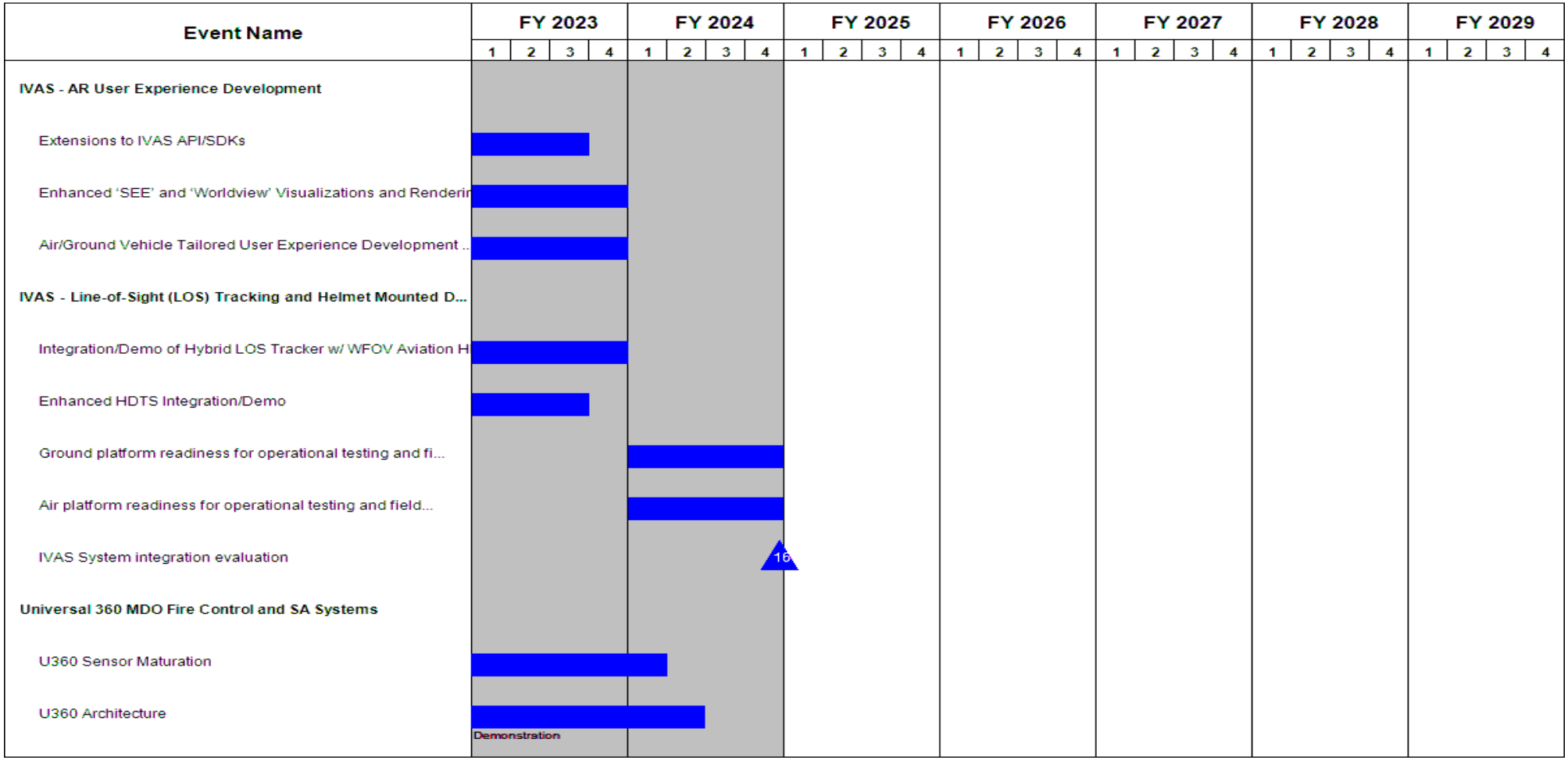

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

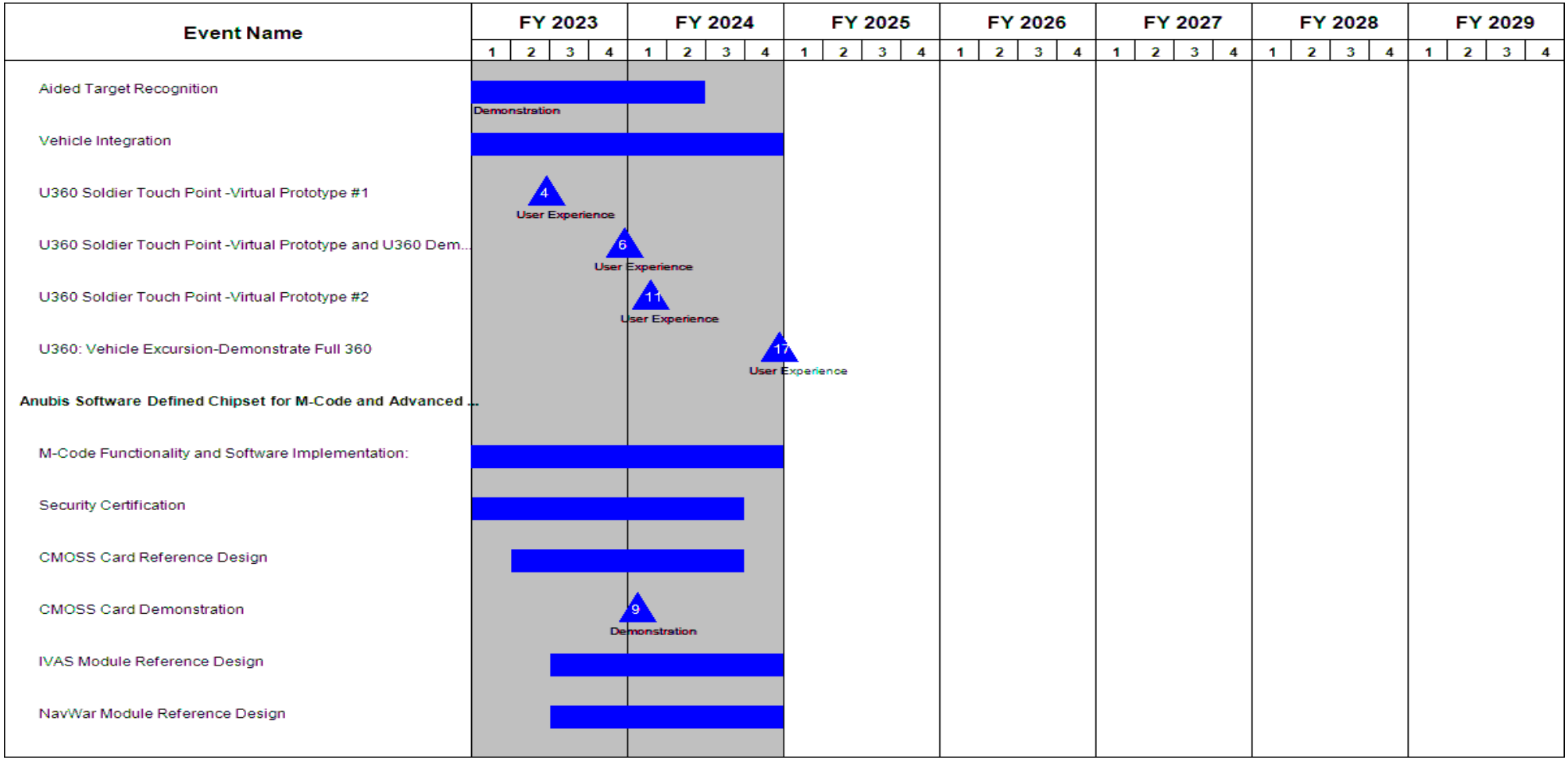

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

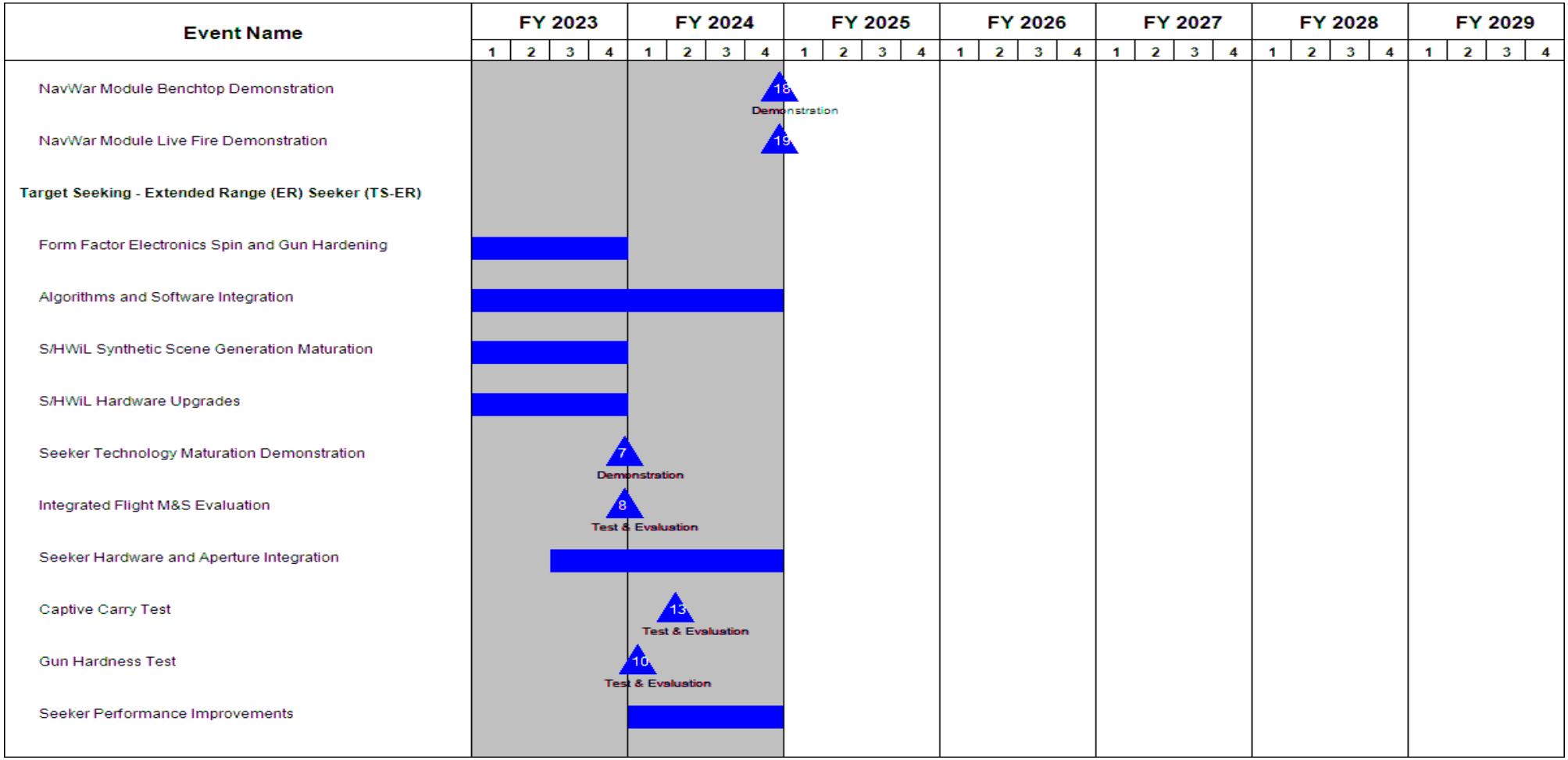

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

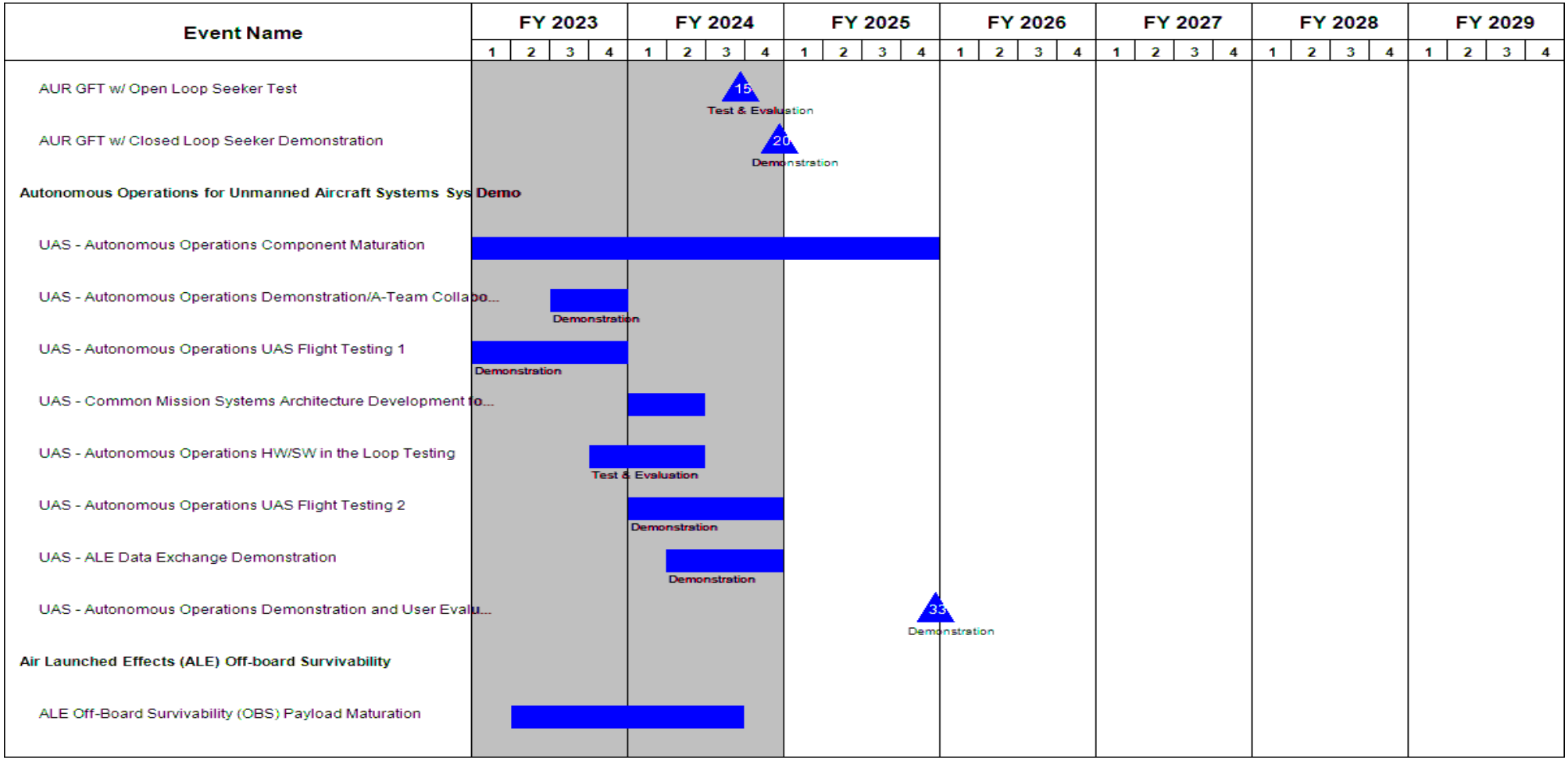

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

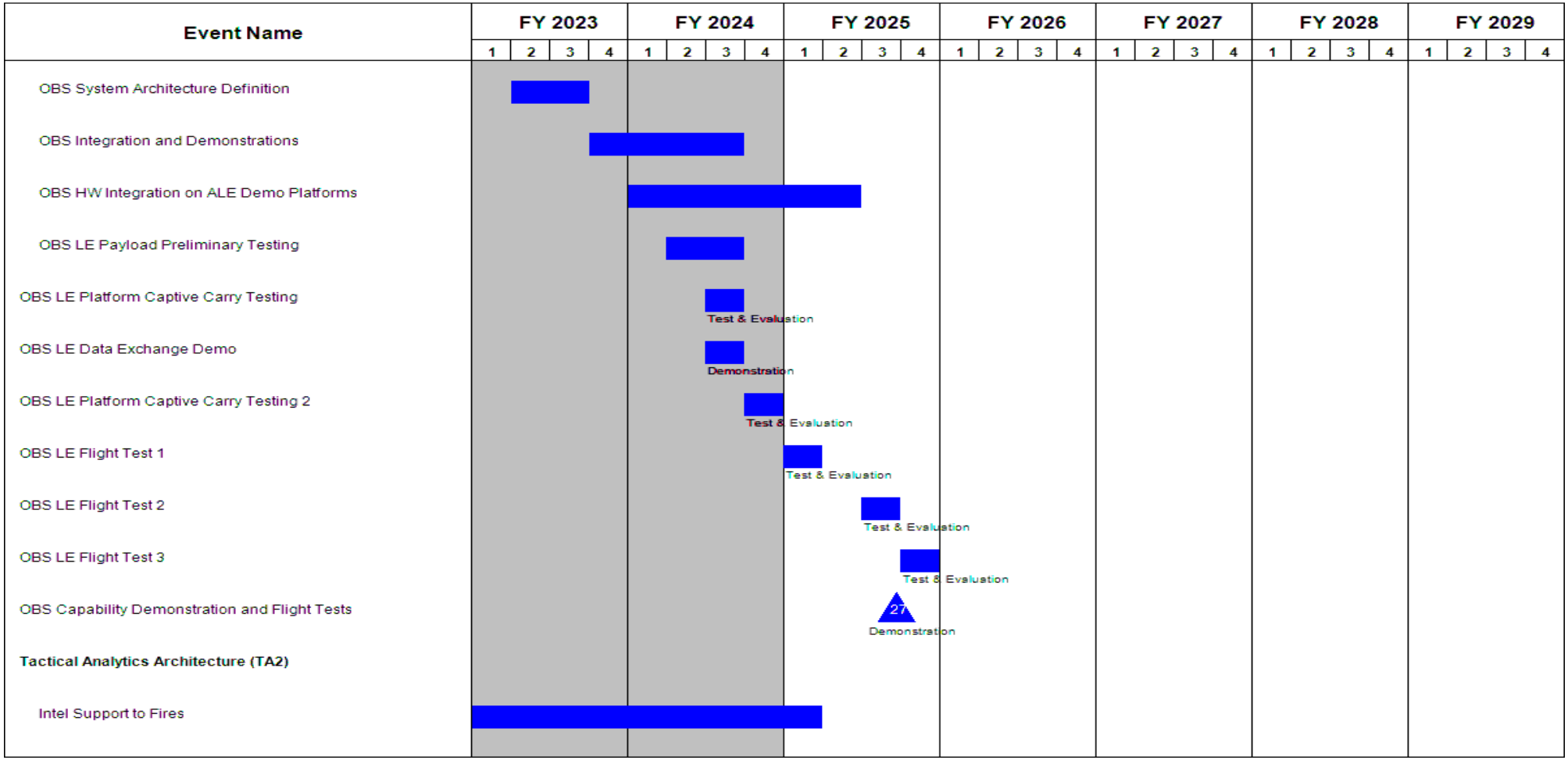

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

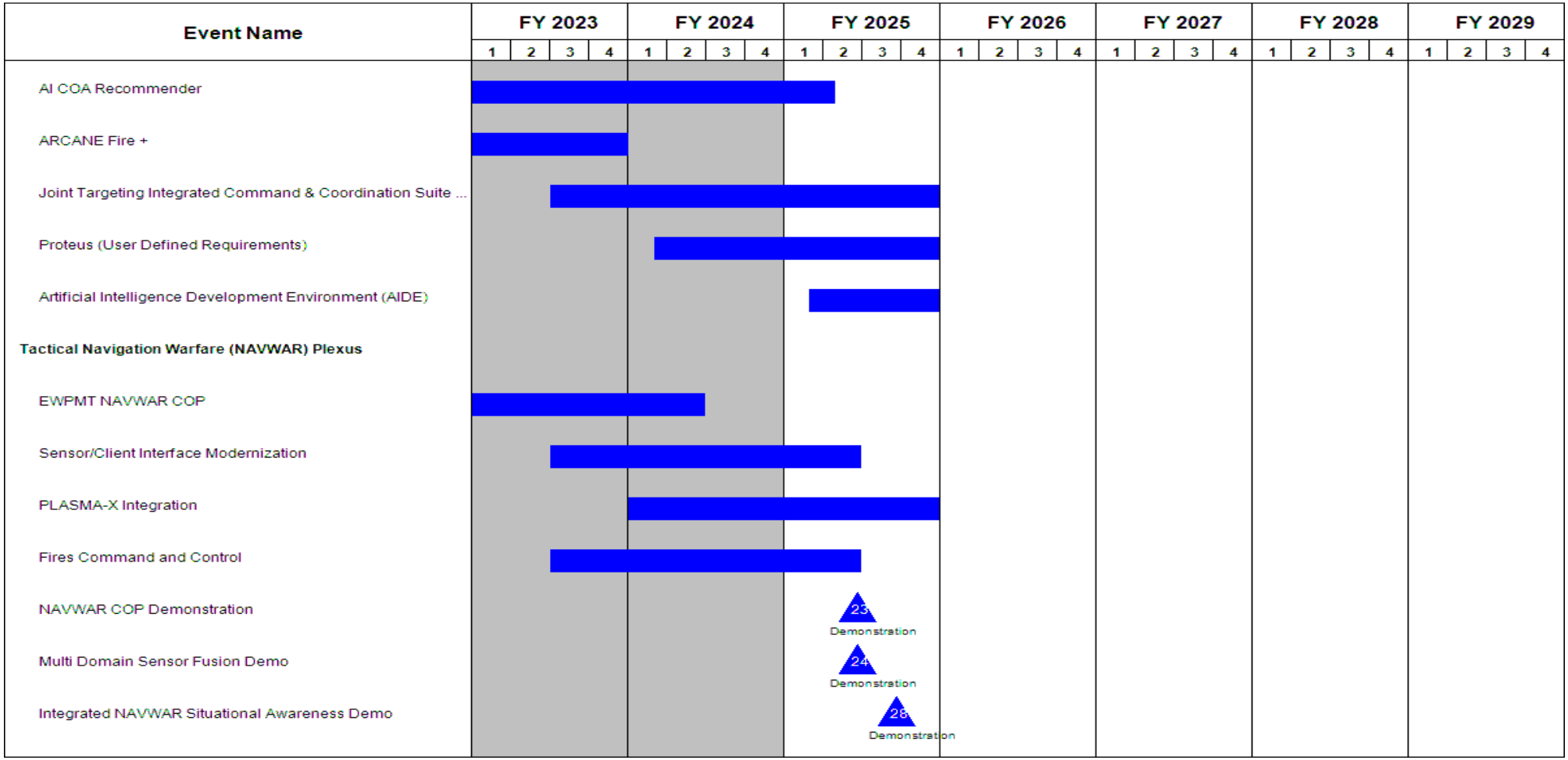

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

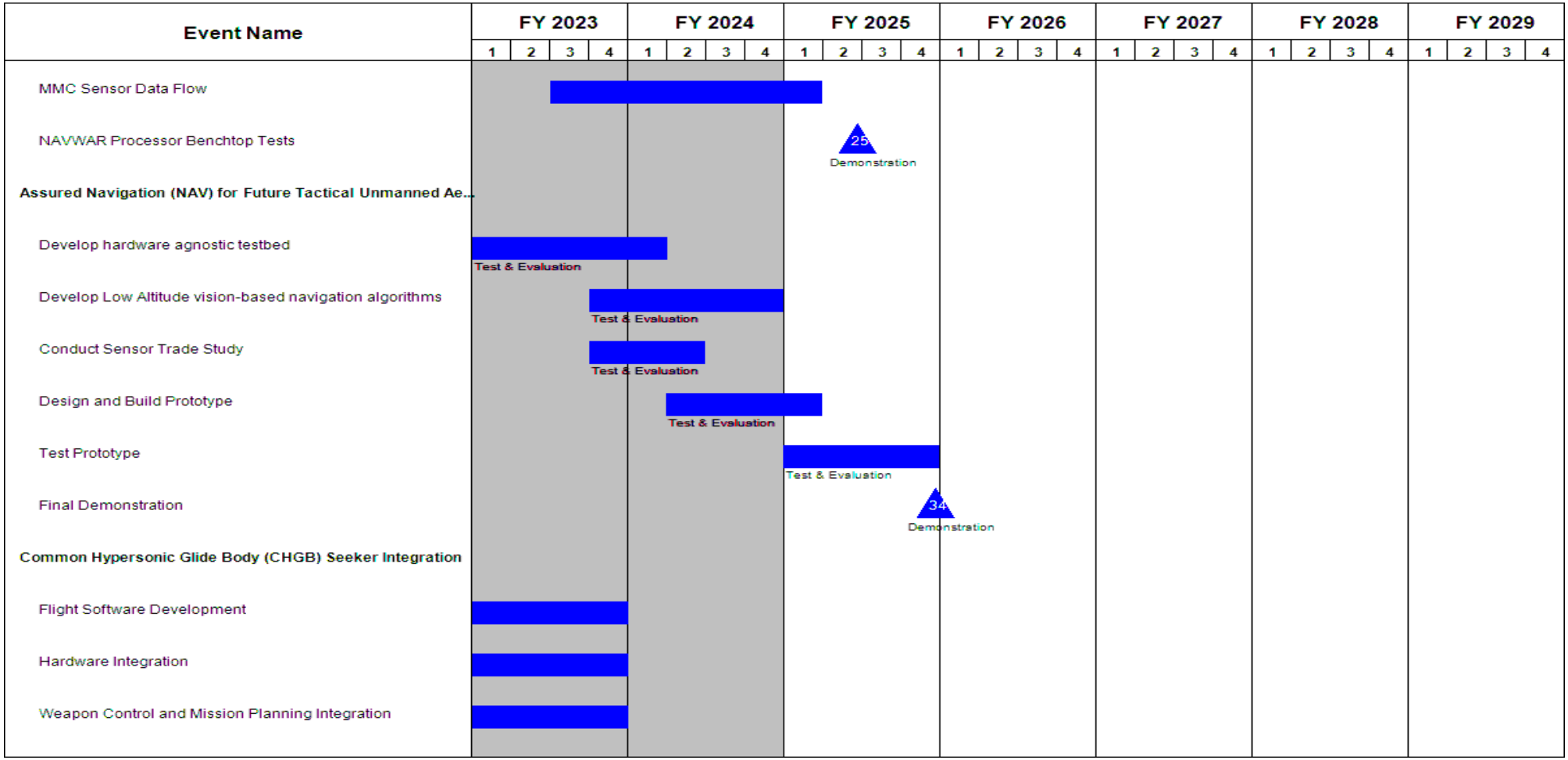

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

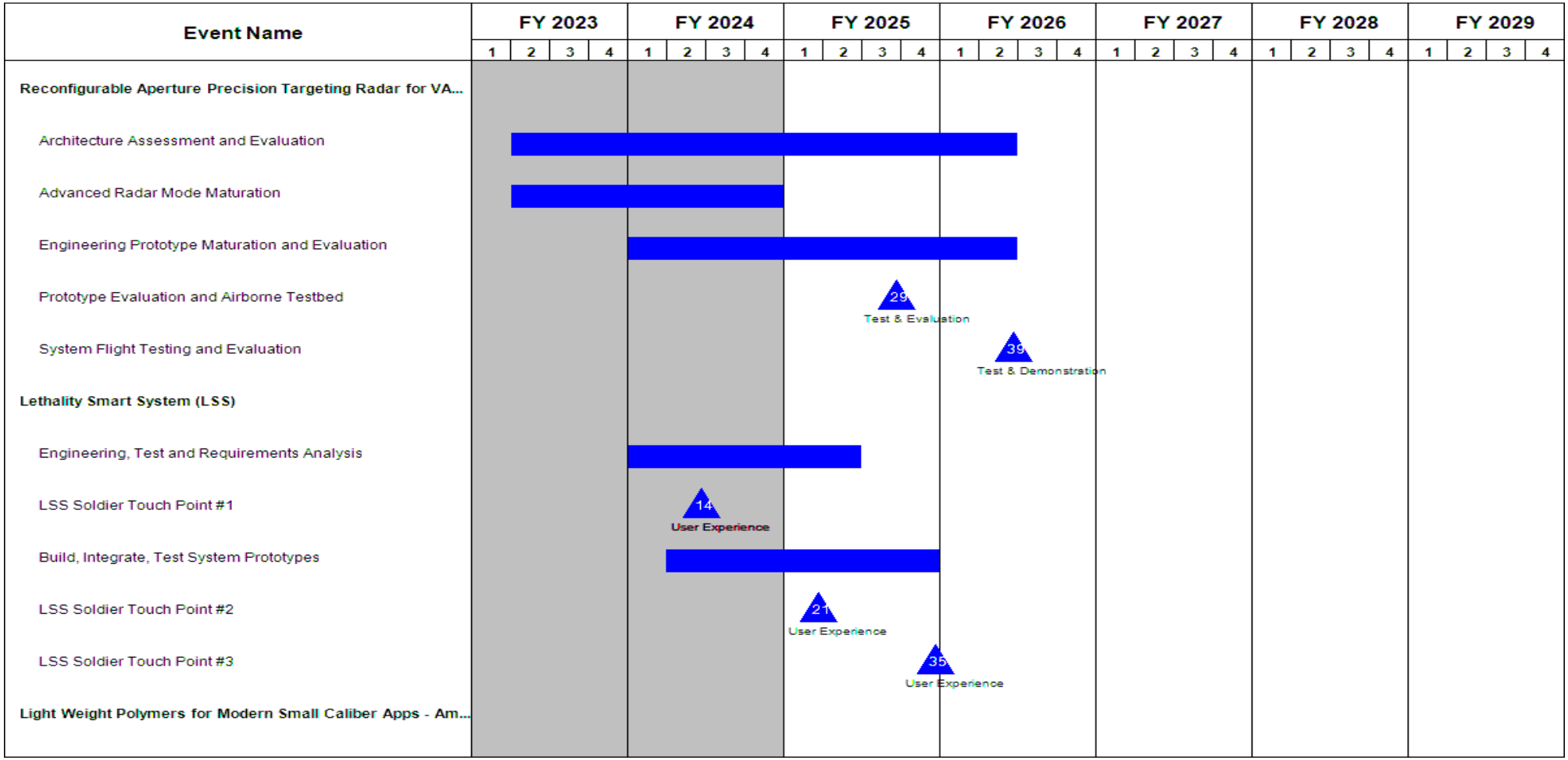

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

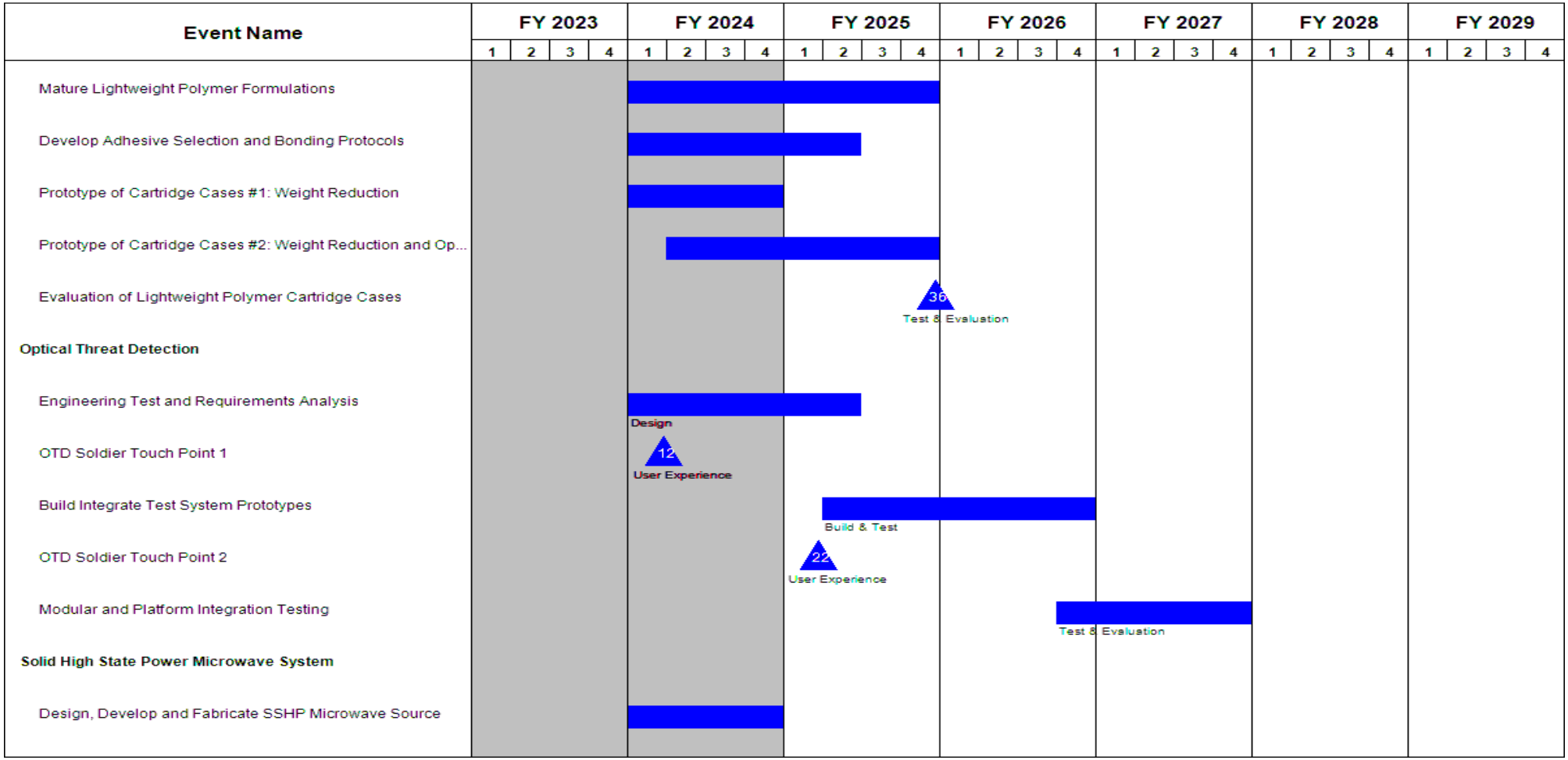

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

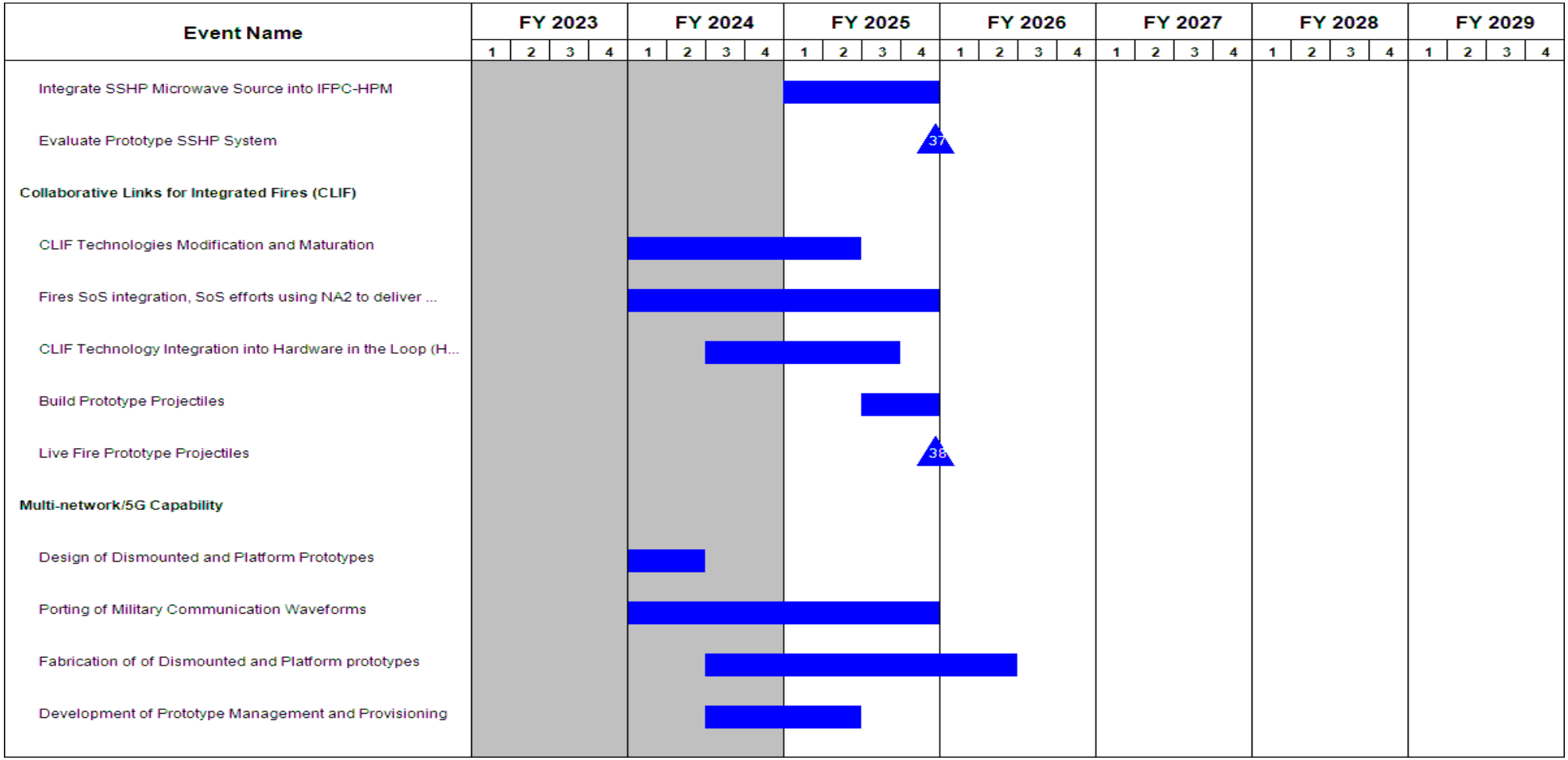

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

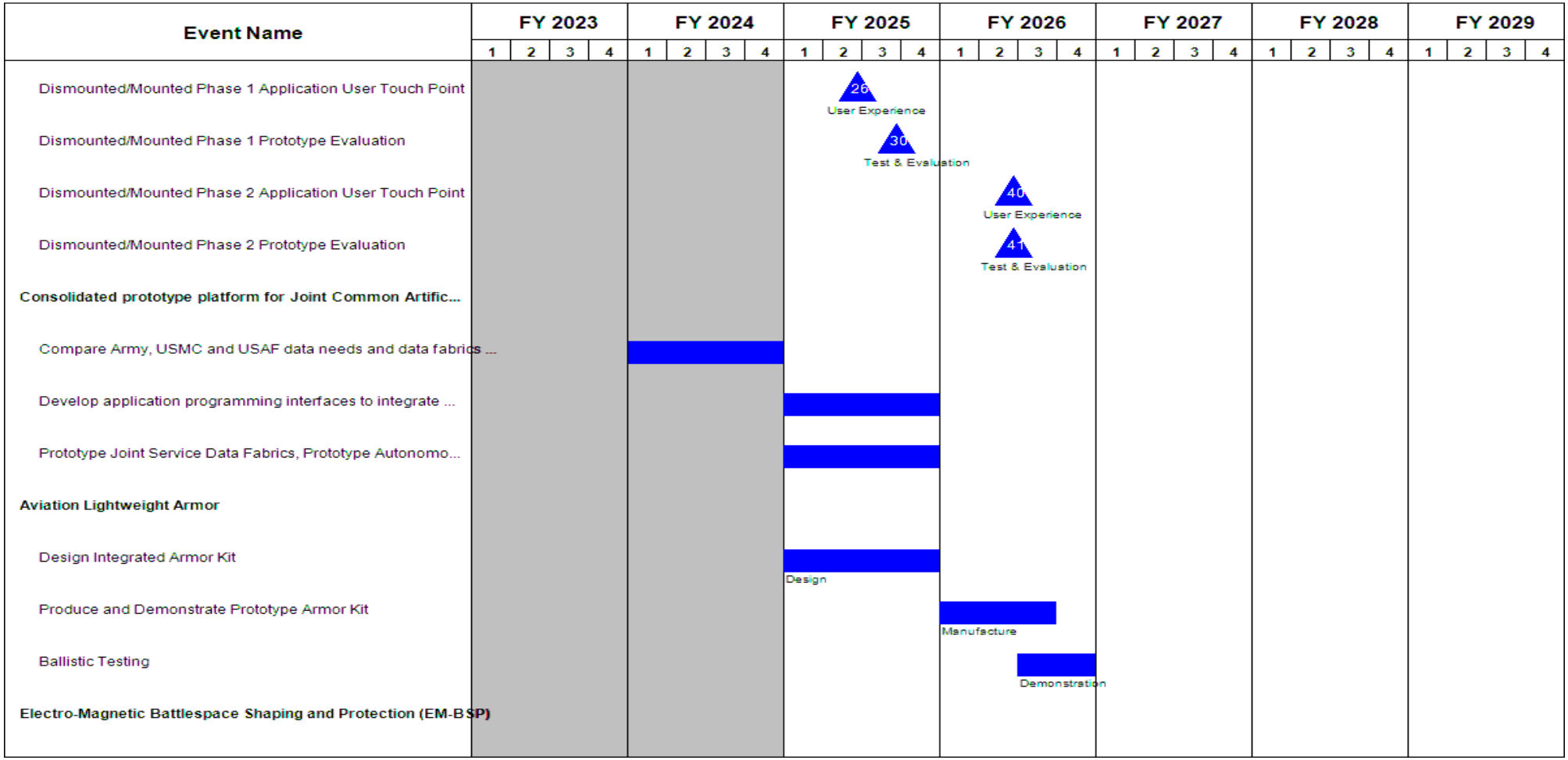

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

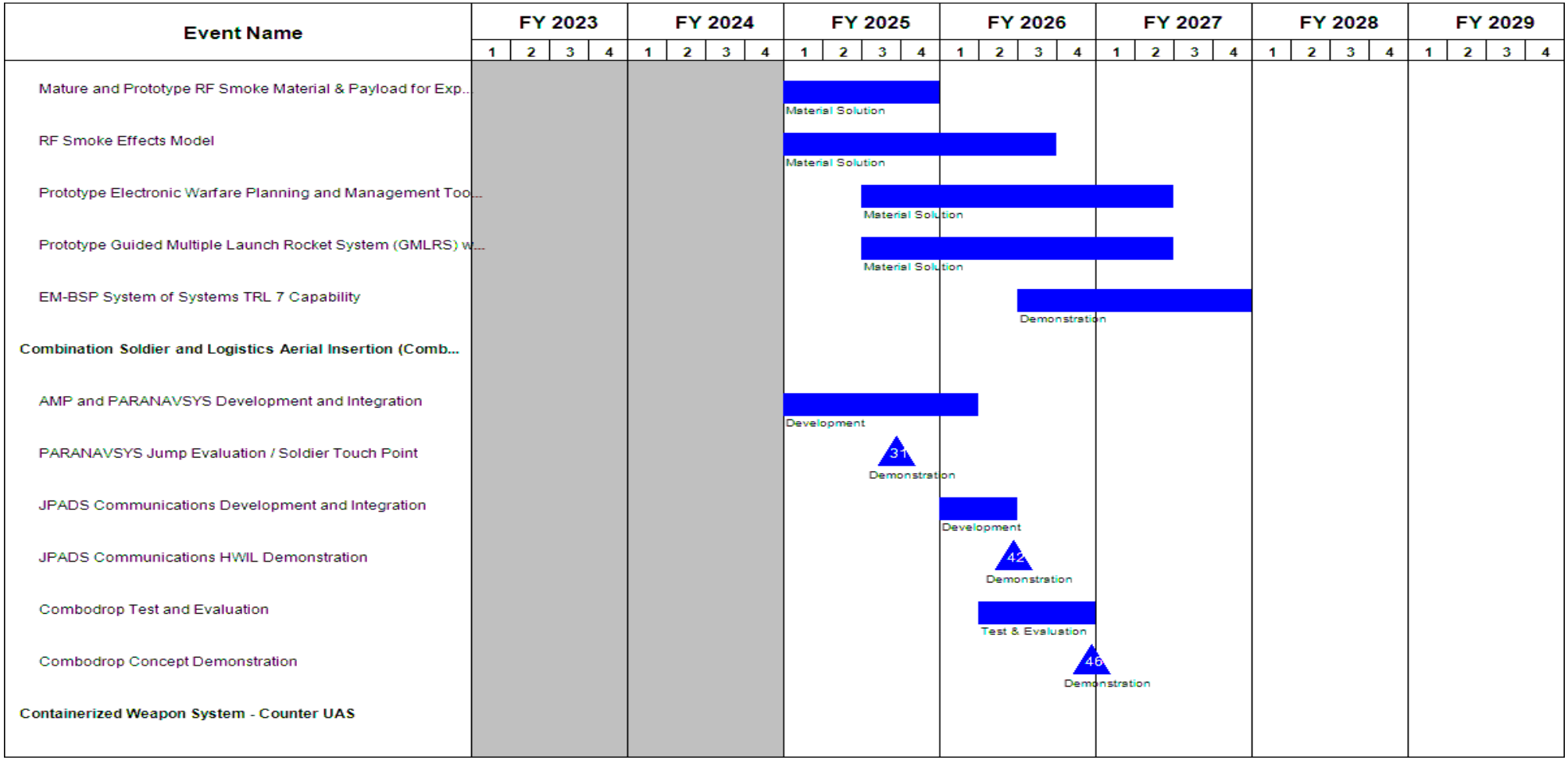

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

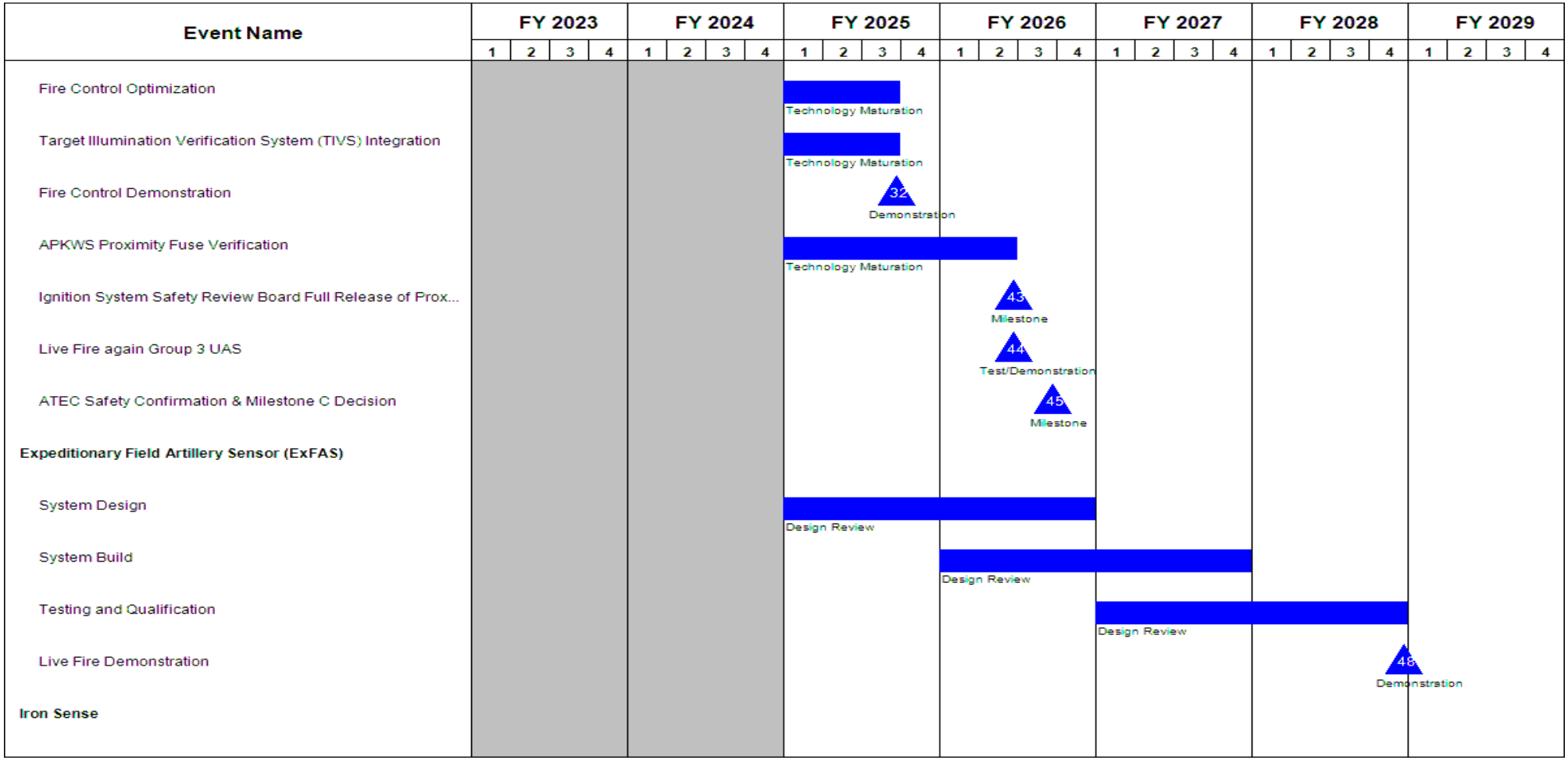

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

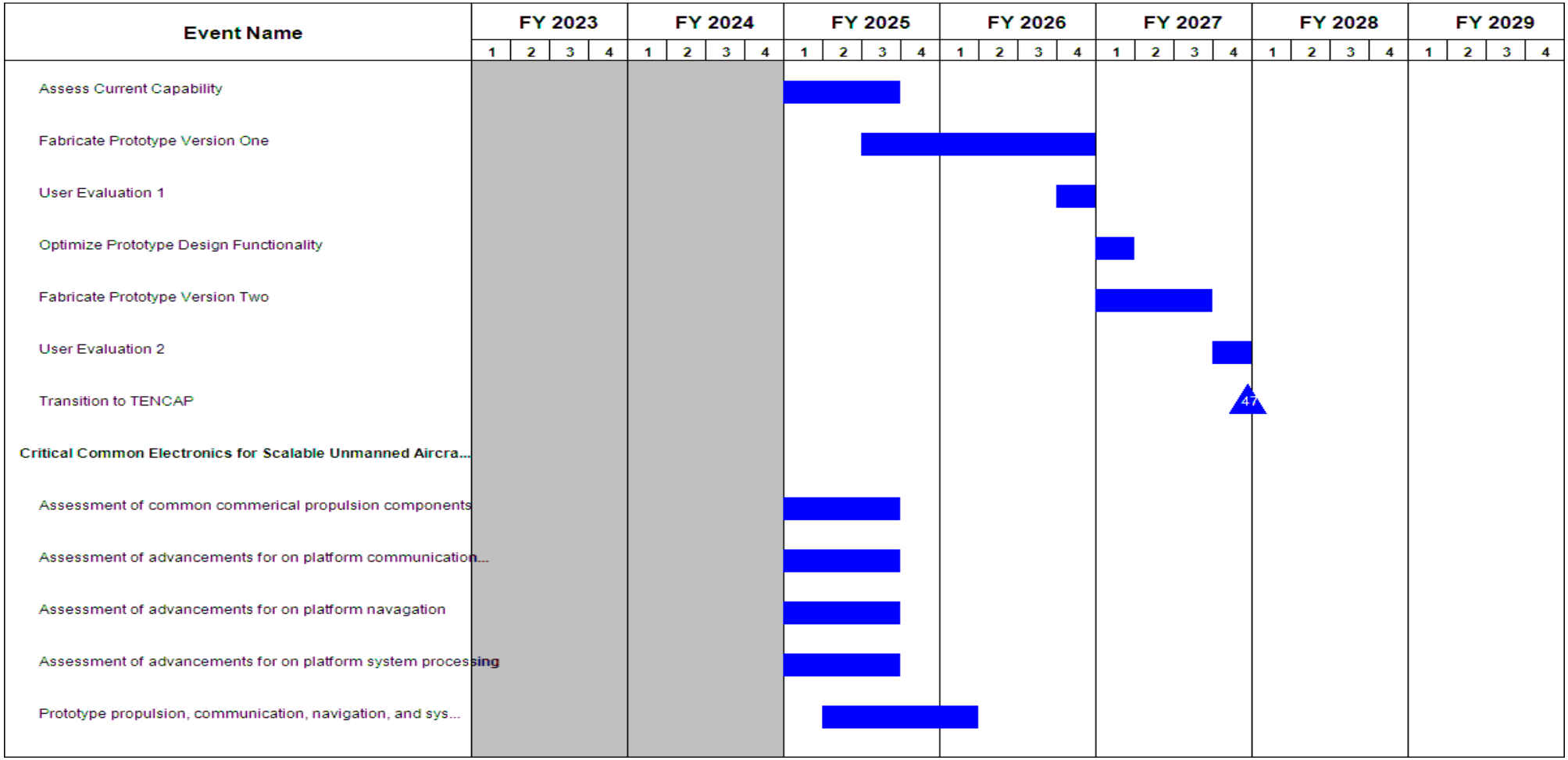

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

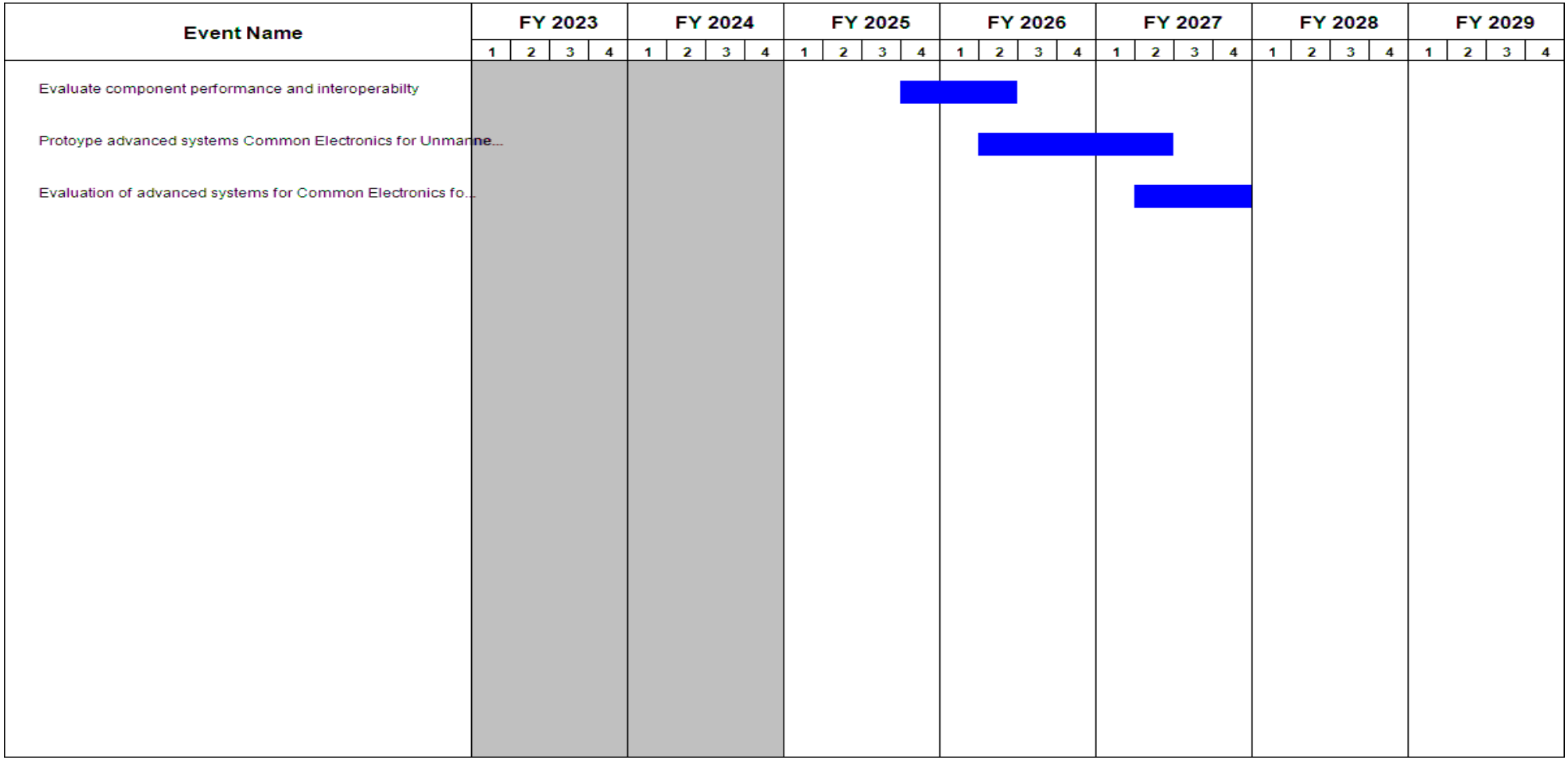

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Integrated Vision Augmented System (IVAS) for Air and Ground Vehicle Platforms	1	2023	4	2024
AIR IVAS Mid-Point Prototype with Soldier Touch Point 1	1	2023	1	2023
Ground IVAS Mid-Point Vehicle Prototype for crew with Soldier Touch Point 1	1	2023	1	2023
Fabricate wireless crew sensor/data share prototype for Soldier Touch Point 1	1	2022	4	2022
Wireless crew sensor/data share prototype - Soldier Touchpoint 1.	1	2023	1	2023
Fabricate full IVAS for Air system for vehicle	1	2023	4	2023
Optimize IVAS Air Architecture post Soldier Touch Point 1	1	2023	4	2023
Optimize IVAS Ground Architecture post Soldier Touch Point#1	1	2023	4	2023
Fabricate full IVAS for Ground system for vehicle	1	2023	4	2023
Demo/Evaluation: 4QFY23 Full prototype/Soldier Touch Point#2	4	2023	4	2023
IVAS - AR Architecture Definition and Integration	3	2021	4	2023
Hardware/Software Architecture Definition (SysML digital model-based)	1	2022	4	2022
Partial Platform Architecture Integration (w/ Baseline User Experiences)	3	2022	4	2022
Final Platform Architecture Integration (w/ Optimized User Experiences)	1	2023	4	2023
IVAS - AR Processing Ruggedization, SWAP reduction and Platform Integration	1	2023	4	2023
AR Processing Ruggedization, SWAP reduction and Platform Integration Spiral #1	3	2021	3	2022
AR Processing Ruggedization, SWAP reduction and Platform Integration Spiral #2	3	2022	4	2023
IVAS - AR User Experience Development	3	2021	4	2023
Extensions to IVAS API/SDKs	1	2022	3	2023
Optimized 'SEE' and 'Worldview' Visualizations and Rendering	1	2022	4	2022
Enhanced 'SEE' and 'Worldview' Visualizations and Rendering	1	2023	4	2023
Air/Ground Vehicle Tailored User Experience Development and Demo	3	2022	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
IVAS - Line-of-Sight (LOS) Tracking and Helmet Mounted Display (HMD) Maturation	4	2021	4	2023
Initial Hybrid Optical Inertial LOS Tracker Maturation and Demo	4	2021	4	2022
Integration/Demo of Hybrid LOS Tracker w/ WFOV Aviation HMD	1	2023	4	2023
Helmet Display and Tracking System (HDTS) Integration/Demo w/ AR Architecture	4	2021	4	2022
Enhanced HDTS Integration/Demo	1	2023	3	2023
Ground platform readiness for operational testing and fielding evaluation	1	2024	4	2024
Air platform readiness for operational testing and fielding evaluation	1	2024	4	2024
IVAS System integration evaluation	4	2024	4	2024
Universal 360 MDO Fire Control and SA Systems	2	2022	4	2024
U360 Sensor Maturation	2	2022	1	2024
U360 Architecture	3	2022	2	2024
Aided Target Recognition	4	2022	2	2024
Vehicle Integration	4	2022	4	2024
Vehicle Excursion - Demonstrate Baseline U360	4	2022	4	2022
U360 Soldier Touch Point -Virtual Prototype #1	2	2023	2	2023
U360 Soldier Touch Point -Virtual Prototype and U360 Demonstration on Stryker	4	2023	4	2023
U360 Soldier Touch Point -Virtual Prototype #2	1	2024	1	2024
U360: Vehicle Excursion-Demonstrate Full 360	4	2024	4	2024
Anubis Software Defined Chipset for M-Code and Advanced PNT Applications	3	2022	4	2024
M-Code Functionality and Software Implementation:	3	2022	4	2024
Security Certification	1	2023	3	2024
CMOSS Card Reference Design	2	2023	3	2024
CMOSS Card Demonstration	1	2024	1	2024
IVAS Module Reference Design	3	2023	4	2024
NavWar Module Reference Design	3	2023	4	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NavWar Module Benchtop Demonstration	4	2024	4	2024
NavWar Module Live Fire Demonstration	4	2024	4	2024
Target Seeking - Extended Range (ER) Seeker (TS-ER)	1	2023	4	2023
Form Factor Electronics Spin and Gun Hardening	1	2023	4	2023
Algorithms and Software Integration	1	2023	4	2024
S/HWiL Synthetic Scene Generation Maturation	1	2023	4	2023
S/HWiL Hardware Upgrades	1	2023	4	2023
Seeker Technology Maturation Demonstration	4	2023	4	2023
Integrated Flight M&S Evaluation	4	2023	4	2023
Seeker Hardware and Aperture Integration	3	2023	4	2024
Captive Carry Test	2	2024	2	2024
Gun Hardness Test	1	2024	1	2024
Seeker Performance Improvements	1	2024	4	2024
AUR GFT w/ Open Loop Seeker Test	3	2024	3	2024
AUR GFT w/ Closed Loop Seeker Demonstration	4	2024	4	2024
Autonomous Operations for Unmanned Aircraft Systems Sys Demo	1	2023	4	2025
UAS - Autonomous Operations Component Maturation	1	2023	4	2025
UAS - Autonomous Operations Demonstration/A-Team Collaboration	3	2023	4	2023
UAS - Autonomous Operations UAS Flight Testing 1	1	2023	4	2023
UAS - Common Mission Systems Architecture Development for Autonomous Ops	1	2024	2	2024
UAS - Autonomous Operations HW/SW in the Loop Testing	4	2023	2	2024
UAS - Autonomous Operations UAS Flight Testing 2	1	2024	4	2024
UAS - ALE Data Exchange Demonstration	2	2024	4	2024
UAS - Autonomous Operations Demonstration and User Evaluations	4	2025	4	2025
Air Launched Effects (ALE) Off-board Survivability	1	2023	4	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ALE Off-Board Survivability (OBS) Payload Maturation	2	2023	3	2024
OBS System Architecture Definition	2	2023	3	2023
OBS Integration and Demonstrations	4	2023	3	2024
OBS HW Integration on ALE Demo Platforms	1	2024	2	2025
OBS LE Payload Preliminary Testing	2	2024	3	2024
OBS LE Platform Captive Carry Testing	3	2024	3	2024
OBS LE Data Exchange Demo	3	2024	3	2024
OBS LE Platform Captive Carry Testing 2	4	2024	4	2024
OBS LE Flight Test 1	1	2025	1	2025
OBS LE Flight Test 2	3	2025	3	2025
OBS LE Flight Test 3	4	2025	4	2025
OBS Capability Demonstration and Flight Tests	3	2025	3	2025
Tactical Analytics Architecture (TA2)	1	2023	4	2025
Intel Support to Fires	1	2023	1	2025
AI COA Recommender	1	2023	2	2025
ARCANE Fire +	1	2023	4	2023
Joint Targeting Integrated Command & Coordination Suite (JTIC2S)	3	2023	4	2025
Proteus (User Defined Requirements)	1	2024	4	2025
Artificial Intelligence Development Environment (AIDE)	1	2025	4	2025
Tactical Navigation Warfare (NAVWAR) Plexus	1	2023	4	2025
EWPMT NAVWAR COP	1	2023	2	2024
Sensor/Client Interface Modernization	3	2023	2	2025
PLASMA-X Integration	1	2024	4	2025
Fires Command and Control	3	2023	2	2025
NAVWAR COP Demonstration	2	2025	2	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Multi Domain Sensor Fusion Demo	2	2025	2	2025
Integrated NAVWAR Situational Awareness Demo	3	2025	3	2025
MMC Sensor Data Flow	3	2023	1	2025
NAVWAR Processor Benchtop Tests	2	2025	2	2025
Assured Navigation (NAV) for Future Tactical Unmanned Aerial Systems (FTUAS)	1	2023	4	2025
Develop hardware agnostic testbed	1	2023	1	2024
Develop Low Altitude vision-based navigation algorithms	4	2023	4	2024
Conduct Sensor Trade Study	4	2023	2	2024
Design and Build Prototype	2	2024	1	2025
Test Prototype	1	2025	4	2025
Final Demonstration	4	2025	4	2025
Common Hypersonic Glide Body (CHGB) Seeker Integration	1	2023	4	2023
Flight Software Development	1	2023	4	2023
Hardware Integration	1	2023	4	2023
Weapon Control and Mission Planning Integration	1	2023	4	2023
Reconfigurable Aperture Precision Targeting Radar for VADER (RADER)	1	2023	4	2025
Architecture Assessment and Evaluation	2	2023	2	2026
Advanced Radar Mode Maturation	2	2023	4	2024
Engineering Prototype Maturation and Evaluation	1	2024	2	2026
Prototype Evaluation and Airborne Testbed	3	2025	3	2025
System Flight Testing and Evaluation	2	2026	2	2026
Lethality Smart System (LSS)	1	2024	4	2025
Engineering, Test and Requirements Analysis	1	2024	2	2025
LSS Soldier Touch Point #1	2	2024	2	2024
Build, Integrate, Test System Prototypes	2	2024	4	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
LSS Soldier Touch Point #2	1	2025	1	2025
LSS Soldier Touch Point #3	4	2025	4	2025
Light Weight Polymers for Modern Small Caliber Apps - Ammo Casing Only	1	2024	4	2025
Mature Lightweight Polymer Formulations	1	2024	4	2025
Develop Adhesive Selection and Bonding Protocols	1	2024	2	2025
Prototype of Cartridge Cases #1: Weight Reduction	1	2024	4	2024
Prototype of Cartridge Cases #2: Weight Reduction and Operational Environments	2	2024	4	2025
Evaluation of Lightweight Polymer Cartridge Cases	4	2025	4	2025
Optical Threat Detection	1	2024	4	2027
Engineering Test and Requirements Analysis	1	2024	2	2025
OTD Soldier Touch Point 1	1	2024	1	2024
Build Integrate Test System Prototypes	2	2025	4	2026
OTD Soldier Touch Point 2	1	2025	1	2025
Modular and Platform Integration Testing	4	2026	4	2027
Solid High State Power Microwave System	1	2024	4	2025
Design, Develop and Fabricate SSHP Microwave Source	1	2024	4	2024
Integrate SSHP Microwave Source into IFPC-HPM	1	2025	4	2025
Evaluate Prototype SSHP System	4	2025	4	2025
Collaborative Links for Integrated Fires (CLIF)	1	2024	4	2025
CLIF Technologies Modification and Maturation	1	2024	2	2025
Fires SoS integration, SoS efforts using NA2 to deliver reference imagery and other intelligence data to platform	1	2024	4	2025
CLIF Technology Integration into Hardware in the Loop (HWIL) and Subsystem Testing	3	2024	3	2025
Build Prototype Projectiles	3	2025	4	2025
Live Fire Prototype Projectiles	4	2025	4	2025
Multi-network/5G Capability	1	2024	4	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Design of Dismounted and Platform Prototypes	1	2024	2	2024
Porting of Military Communication Waveforms	1	2024	4	2025
Fabrication of of Dismounted and Platform prototypes	3	2024	2	2026
Development of Prototype Management and Provisioning	3	2024	2	2025
Dismounted/Mounted Phase 1 Application User Touch Point	2	2025	2	2025
Dismounted/Mounted Phase 1 Prototype Evaluation	3	2025	3	2025
Dismounted/Mounted Phase 2 Application User Touch Point	2	2026	2	2026
Dismounted/Mounted Phase 2 Prototype Evaluation	2	2026	2	2026
Consolidated prototype platform for Joint Common Artificial Intelligence / Autonomous Operations, Data architectures, and Power systems	1	2024	4	2025
Compare Army, USMC and USAF data needs and data fabrics to determine requirements to develop a common data fabric and comm system	1	2024	4	2024
Develop application programming interfaces to integrate the sharing of data, algorithms, and Machine learning tools;	1	2025	4	2025
Prototype Joint Service Data Fabrics, Prototype Autonomous Operations for Army Platforms, Prototype Platform Hybrid Power Systems	1	2025	4	2025
Aviation Lightweight Armor	1	2025	4	2026
Design Integrated Armor Kit	1	2025	4	2025
Produce and Demonstrate Prototype Armor Kit	1	2026	3	2026
Ballistic Testing	3	2026	4	2026
Electro-Magnetic Battlespace Shaping and Protection (EM-BSP)	1	2025	4	2027
Mature and Prototype RF Smoke Material & Payload for Experimentation	1	2025	4	2025
RF Smoke Effects Model	1	2025	3	2026
Prototype Electronic Warfare Planning and Management Tool (EWPMT), Advanced Field Artillery Tactical Data System (AFATDS, Fire Control	3	2025	2	2027
Prototype Guided Multiple Launch Rocket System (GMLRS) w/RF Smoke Payload	3	2025	2	2027
EM-BSP System of Systems TRL 7 Capability	3	2026	4	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Combination Soldier and Logistics Aerial Insertion (Combodrop)	1	2025	4	2026
AMP and PARANAVSYS Development and Integration	1	2025	1	2026
PARANAVSYS Jump Evaluation / Soldier Touch Point	3	2025	3	2025
JPADS Communications Development and Integration	1	2026	2	2026
JPADS Communications HWIL Demonstration	2	2026	2	2026
Combodrop Test and Evaluation	2	2026	4	2026
Combodrop Concept Demonstration	4	2026	4	2026
Containerized Weapon System - Counter UAS	1	2025	4	2026
Fire Control Optimization	1	2025	3	2025
Target Illumination Verification System (TIVS) Integration	1	2025	3	2025
Fire Control Demonstration	3	2025	3	2025
APKWS Proximity Fuse Verification	1	2025	2	2026
Ignition System Safety Review Board Full Release of Proximity Use	2	2026	2	2026
Live Fire again Group 3 UAS	2	2026	2	2026
ATEC Safety Confirmation & Milestone C Decision	3	2026	3	2026
Expeditionary Field Artillery Sensor (ExFAS)	1	2025	4	2028
System Design	1	2025	4	2026
System Build	1	2026	4	2027
Testing and Qualification	1	2027	4	2028
Live Fire Demonstration	4	2028	4	2028
Iron Sense	1	2025	4	2027
Assess Current Capability	1	2025	3	2025
Fabricate Prototype Version One	3	2025	4	2026
User Evaluation 1	4	2026	4	2026
Optimize Prototype Design Functionality	1	2027	1	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Fabricate Prototype Version Two	1	2027	3	2027
User Evaluation 2	4	2027	4	2027
Transition to TENCAP	4	2027	4	2027
Critical Common Electronics for Scalable Unmanned Aircraft Systems	1	2025	4	2027
Assessment of common commerical propulsion components	1	2025	3	2025
Assessment of advancements for on platform communications systems	1	2025	3	2025
Assessment of advancements for on platform navagation	1	2025	3	2025
Assessment of advancements for on platform system processing	1	2025	3	2025
Prototype propulsion, communication, navigation, and system processing components	2	2025	1	2026
Evaluate component performance and interoperabilty	4	2025	2	2026
Protoype advanced systems Common Electronics for Unmanned Aircraft Systems of Army tactical platforms	2	2026	2	2027
Evaluation of advanced systems for Common Electronics for Unmanned Aircraft Systems	2	2027	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AX8 / *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*	

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
AX8: *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*	-	22.552	-	-	-	-	-	-	-	-	0.000	22.552
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Under the Advanced Targeting and Lethality Automated System (ATLAS) effort, this Project matures and integrates advanced Artificial Intelligence/Machine Learning (AI/ML) algorithms to enable aided target detection/recognition capability for NGCV using next generation, multi-spectral electro-optical and infrared (EO/IR) targeting sensors. AI/ML algorithms are integrated with real-time intelligent fire control and mission planning interfaces to demonstrate automated turret capabilities, and provide overmatch via reduced target acquisition and engagement timelines.

Work in this Project is related to and fully integrated with the efforts funded in PE 0603462A (Next Generation Combat Vehicle Advanced Technology) / Project BF5 (Adv Lethality & Accuracy Sys for Med Cal Adv Tech); and Project BG1 (Sensors for Auto Oper and Survivability Adv Tech).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Advanced Targeting and Lethality Automated System (ATLAS)	22.552	-	-
Description: The ATLAS effort matures, integrates, and demonstrates novel algorithms and sensor enhancements for Next Generation Combat Vehicle (NGCV) manned or unmanned vehicle platforms. It integrates autonomous, wide-area search sensors and gimballed targeting sensors with real-time computer aided detection, recognition, and identification of threats for significantly decreased time to engagement. It integrates target acquisition with intelligent fire control systems to demonstrate an end-to-end engagement system on NGCV platforms, and enable experimentation and soldier touch-points for manned, unmanned, or optionally manned platforms.			
Accomplishments/Planned Programs Subtotals	22.552	-	-

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 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX8 / *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AX8 / *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*	

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
ATLAS: Vehicle Integration and Test	TBD	C5ISR Ft. Belvoir : TBD	2.933	1.304		-		-		-		-	0.000	4.237	-
ATLAS: System Design	TBD	C5ISR Ft. Belvoir VA : TBD	-	5.635		-		-		-		-	0.000	5.635	-
ATLAS: Artificial Intelligence/Machine Learning Development	TBD	C5ISR Ft. Belvoir VA : TBD	4.400	7.187		-		-		-		-	0.000	11.587	-
ATLAS: Data Collection and Labeling	TBD	C5ISR Ft. Belvoir VA : TBD	1.100	2.364		-		-		-		-	0.000	3.464	-
ATLAS: Synthetic Imagery Development and Perception Studies	TBD	C5ISR Ft. Belvoir VA : TBD	0.600	1.411		-		-		-		-	0.000	2.011	-
ATLAS: Processor Integration and Test	TBD	C5ISR Ft. Belvoir VA : TBD	1.900	4.651		-		-		-		-	0.000	6.551	-
		Subtotal	10.933	22.552		-		-		-		-	0.000	33.485	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	10.933	22.552		-		-		-		-	0.000	33.485	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX8 / *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*

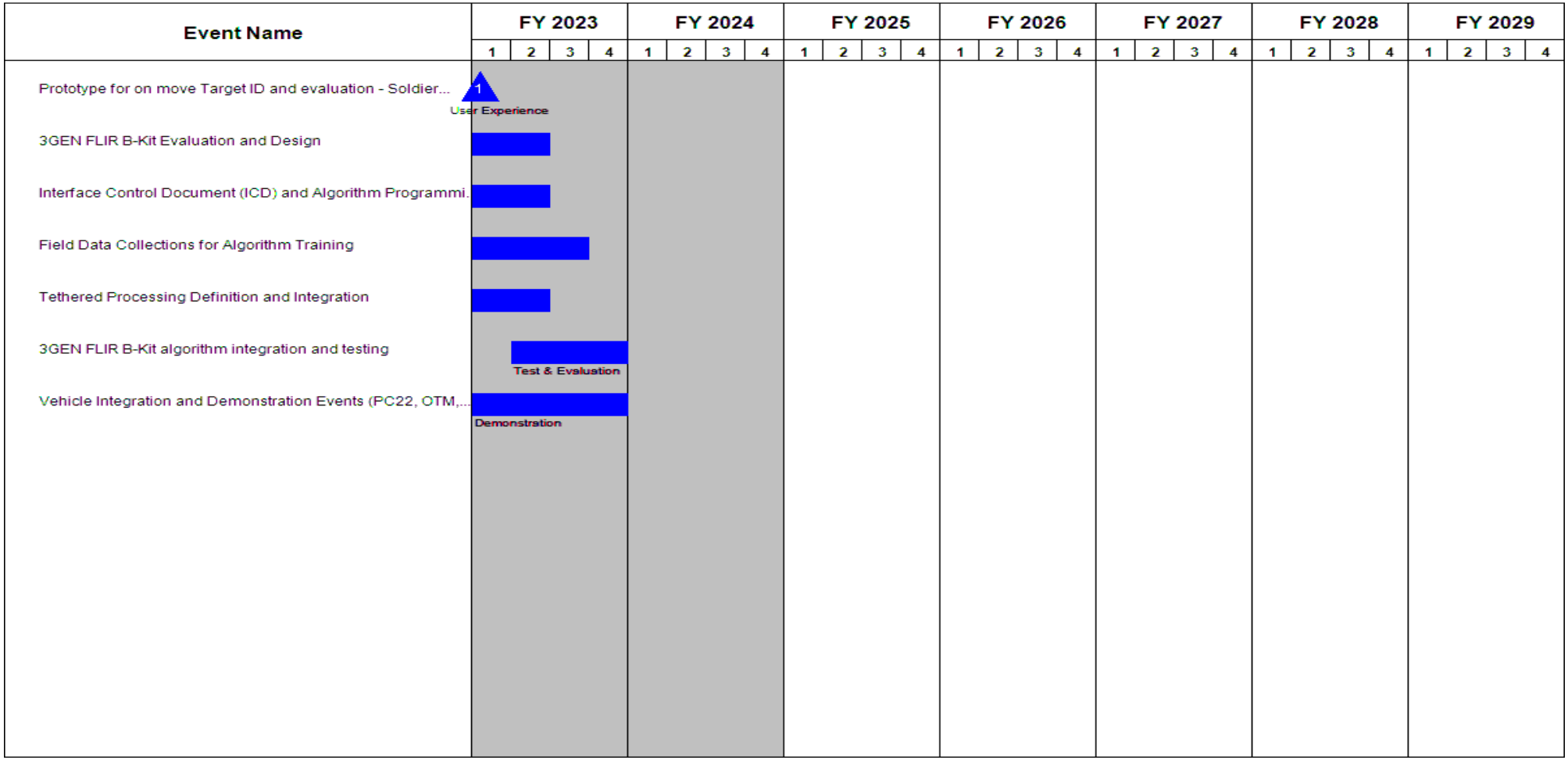

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX8 / *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ATLAS	1	2020	4	2022
Optimize ATLAS Target Acquisition algorithm suite for on the move	1	2022	4	2022
Fabricate ATLAS Prototype for on move Target ID and evaluation via Soldier Touch Point (PC22)	1	2022	4	2022
Prototype for on move Target ID and evaluation - Soldier Touch Point (PC22)	1	2023	1	2023
3GEN FLIR B-Kit Evaluation and Design	1	2022	2	2023
Interface Control Document (ICD) and Algorithm Programming Interface (API) Devel	1	2022	2	2023
Field Data Collections for Algorithm Training	1	2022	3	2023
Tethered Processing Definition and Integration	1	2022	2	2023
3GEN FLIR B-Kit algorithm integration and testing	2	2023	4	2023
Vehicle Integration and Demonstration Events (PC22, OTM, etc)	1	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AX9 / *Adv Mobility Experimental Prototype Adv Tech*	

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
AX9: *Adv Mobility Experimental Prototype Adv Tech*	-	14.678	-	-	-	-	-	-	-	-	0.000	14.678
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project integrates and demonstrates advanced powertrain, power generation, and running gear technologies into a prototype ground combat vehicle. Advanced Mobility Experimental Prototype (AMEP) activities will demonstrate increased mobility, increased maneuver speeds, reduced fuel demands, and onboard power generation available for advanced lethality and protection technologies. The experimental prototype will be evaluated in realistic operating environment to validate performance and capability enhancements to inform ground combat vehicle programs of record.

This work is coordinated with PE 0603462A (Next Generation Combat Vehicle Advanced Technology) / BG4 (Adv Mobility Experimental Prototype Adv Tech Demo).

The cited work is consistent with the Under Secretary of Defense, Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Advanced Mobility Experimental Prototype	14.678	-	-
Description: Efforts integrate advanced powertrain and onboard electrical power generation into a ground combat vehicle to demonstrate reduced percentage of no-go terrain, increased acceleration and maneuver speeds across all traversable terrain, increased electrical payload capabilities and, reduced fuel consumption. These technologies improve operational capabilities by extending time between resupply, improving operational range and tactical maneuver options and, increase onboard electrical power generation for electrical subsystems and payloads. This effort provides advanced powertrain technology mitigating performance and maneuver limitations imposed by legacy powertrains, providing drive-by-wire engine, transmission, generator and thermal management systems enabling multi-domain operational maneuver capabilities for current and future ground combat vehicles. Effort will integrate, mature, and demonstrate an automated main gun and ammunition handling system to reduce time to engage, increase speed of battle, and increase platform lethality.			
Accomplishments/Planned Programs Subtotals	14.678	-	-

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 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX9 / *Adv Mobility Experimental Prototype Adv Tech*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AX9 / *Adv Mobility Experimental Prototype Adv Tech*	

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
Fabricate Powertrain Technologies	C/Various	GVSC : Warren, MI	3.409	1.093		-		-		-		-	0.000	4.502	-
Capability Demonstration	TBD	GVSC : Warren, MI	2.380	3.469		-		-		-		-	5.000	10.849	-
Turret Enhancements	TBD	GVSC : Warren, MI	7.226	10.116		-		-		-		-	0.000	17.342	-
		Subtotal	13.015	14.678		-		-		-		-	5.000	32.693	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	13.015	14.678		-		-		-		-	5.000	32.693	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX9 / *Adv Mobility Experimental Prototype Adv Tech*

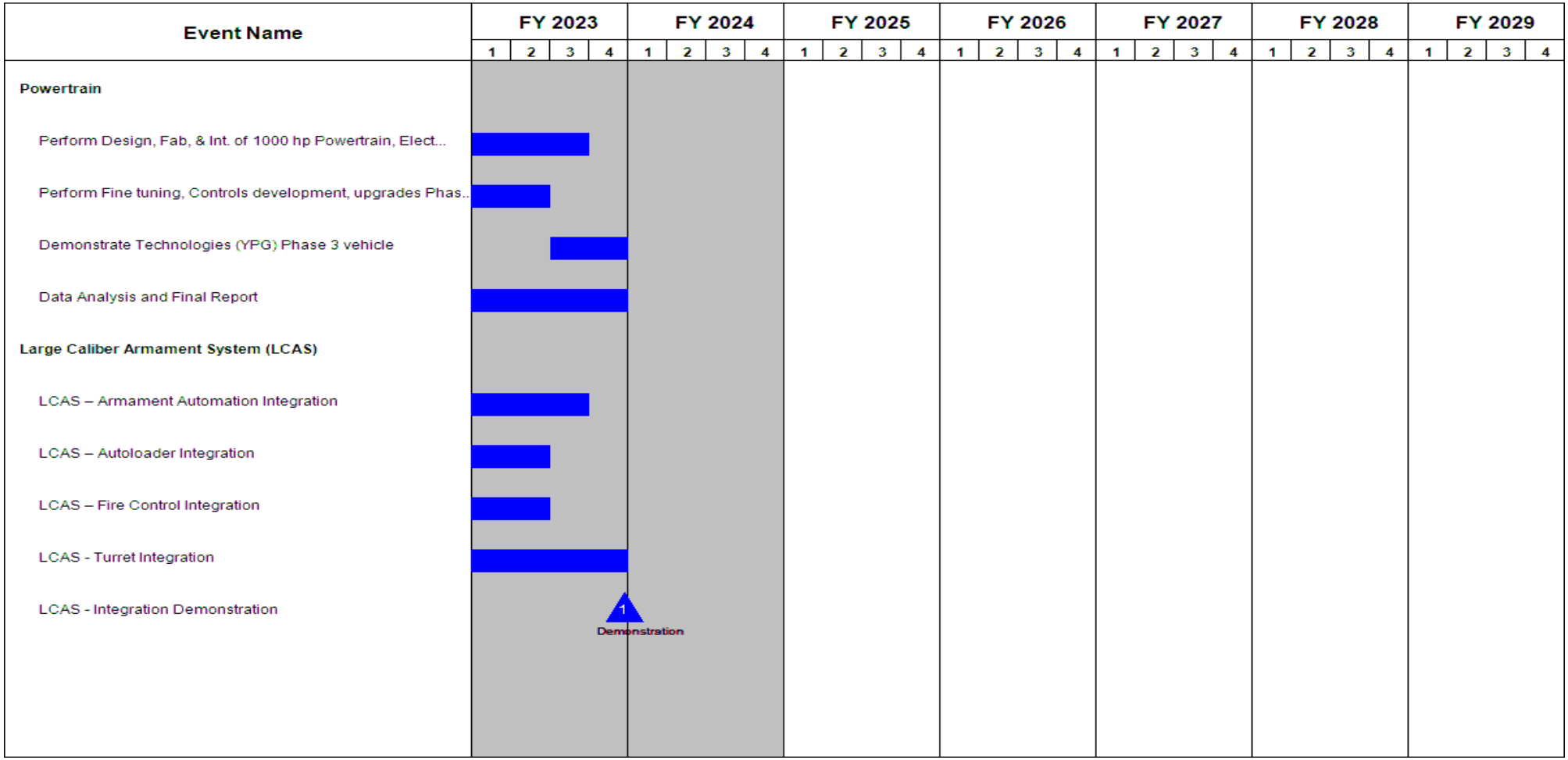

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX9 / *Adv Mobility Experimental Prototype Adv Tech*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Powertrain	1	2020	4	2023
Perform Design, Fab, & Int. of 1000 hp Powertrain, Electrical Power Phase 3	1	2021	3	2023
Demonstrate Technologies (Camp Grayling) Phase 3 vehicle	3	2022	4	2022
Perform Fine tuning, Controls development, upgrades Phase 3 vehicle	4	2022	2	2023
Demonstrate Technologies (YPG) Phase 3 vehicle	3	2023	4	2023
Data Analysis and Final Report	4	2022	4	2023
Large Caliber Armament System (LCAS)	1	2023	4	2023
LCAS - Large Caliber Armament System (LCAS) TMI System Level Design	2	2021	3	2022
LCAS - Armament Automation Integration	2	2021	3	2023
LCAS - Autoloader Integration	2	2021	2	2023
LCAS - Fire Control Integration	2	2021	2	2023
LCAS - Turret Integration	2	2022	4	2023
LCAS - Integration Demonstration	4	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AY2 / *Army Operational Fires*	

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
AY2: *Army Operational Fires*	-	10.647	-	-	-	-	-	-	-	-	0.000	10.647
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates a ground-launched, treaty-compliant weapon system capable of destroying critical relocatable, time critical targets in contested Anti-Access/Area Denial (A2/AD) environments. Activities include system-level prototyping to extend the range of Army fires well beyond 499km to complement other fires developments.

Army senior leadership approves Technology Maturation Initiative projects prior to budget year programming based on priority and opportunity, ensuring that demonstrations have a high potential for filling capability gaps and transitioning.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project complements PE 0604182A (Hypersonics).

Work in this Project is performed by the Rapid Capabilities and Critical Technologies Office (RCCTO).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Army Operational Fires	10.647	-	-
Description: This Project matures and demonstrates a ground-launched, treaty-compliant weapon system capable of destroying critical relocatable, time critical targets in contested Anti-Access/Area Denial (A2/AD) environments. Activities include system-level prototyping to extend the range of Army fires well beyond 499km to complement other fires developments.			
Accomplishments/Planned Programs Subtotals	10.647	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AY2 / *Army Operational Fires*

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
Army Operational Fires	C/CPIF	Lockheed-Martin - Denver : Denver	71.909	10.647		-		-		-		-	52.700	135.256	-
		Subtotal	71.909	10.647		-		-		-		-	52.700	135.256	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	71.909	10.647		-		-		-		-	52.700	135.256	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AY2 / *Army Operational Fires*

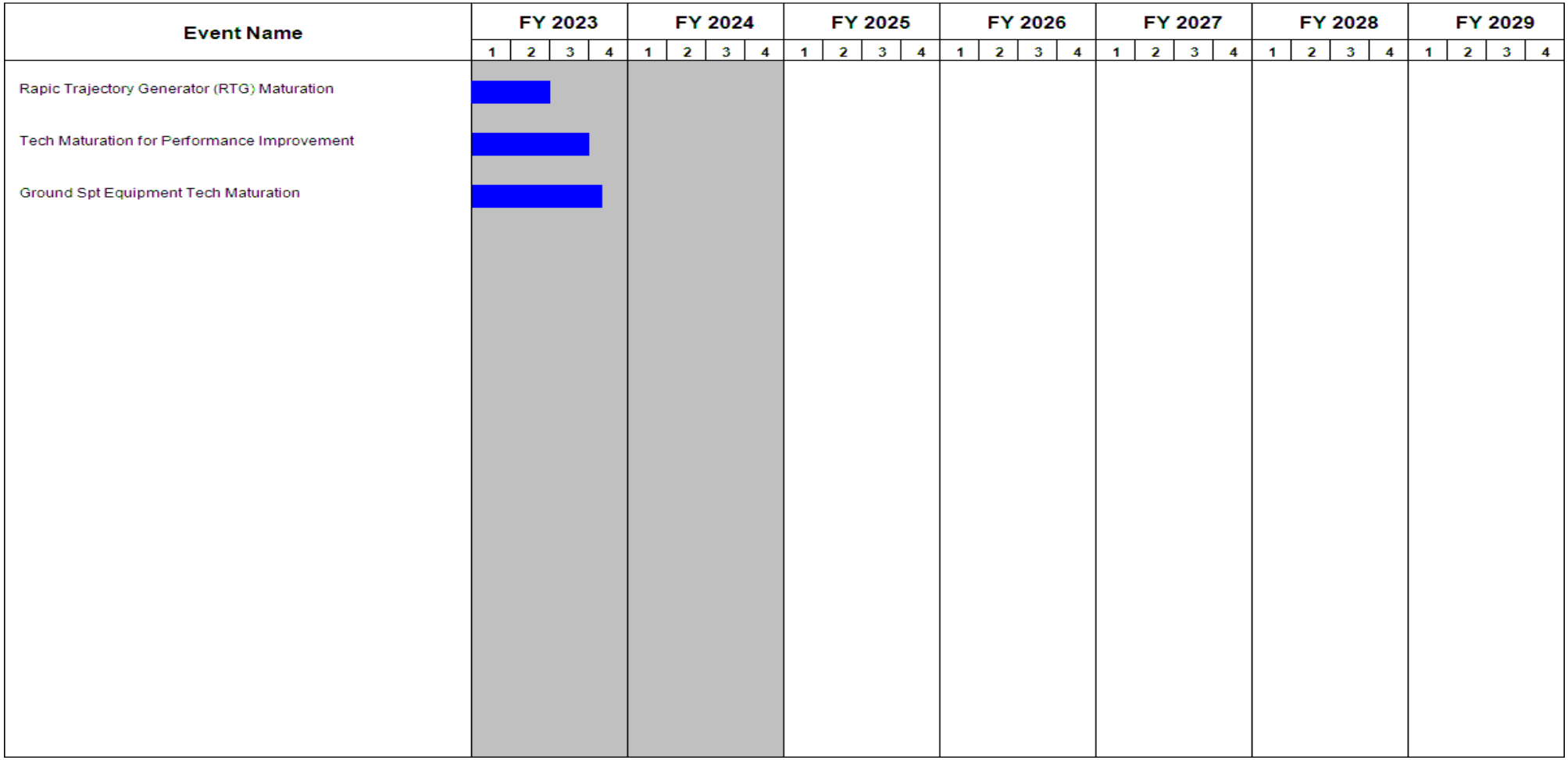

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AY2 / *Army Operational Fires*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AUR HWIL Prototype Tech Maturation	3	2020	2	2022
Short Hot Launch Test Development	4	2020	3	2022
Missile Booster Thermal Protection Manufacturing Tech Maturation	1	2021	4	2022
Rapic Trajectory Generator (RTG) Maturation	4	2020	2	2023
SHOTL Test Series	1	2022	4	2022
RTG Demonstration	2	2022	2	2022
Tech Maturation for Performance Improvement	1	2022	3	2023
Ground Spt Equipment Tech Maturation	1	2022	4	2023
GSE Tech Maturation Demonstration #1	3	2022	3	2022