Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army											Date: February 2018	
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*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	-	57.737	115.221	95.347	-	95.347	99.584	106.102	109.471	111.610	0.000	695.072
DS3: *TECHNOLOGY MATURATION INITIATIVES*	-	43.314	115.221	95.347	-	95.347	99.584	106.102	109.471	111.610	0.000	680.649
EX3: *Ground Vehicle Prototyping*	-	14.423	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	14.423

A. Mission Description and Budget Item Justification

This Program Element (PE) funds experimental prototyping and demonstration of selected technology enabled capabilities to support advanced ground systems, aviation systems, command, control, communications & reconnaissance systems and equipment, precision weapons, High Energy Laser (HEL) systems, and Soldier equipment. Funding facilitates maturation and demonstration of advanced technologies and systems in relevant environments and tactical/operational scenarios, as well as the maturation and demonstration of a robust Virtual Proving Ground (VPG) for rapid, accurate, and computational prototyping of major Army platforms. Benefits include maturing technologies to a goal of Technology Readiness Level (TRL) 7, informing emerging requirements for future programs of record, and reducing technology risk in order to transition of leap-ahead capabilities into acquisition programs. In Project DS3, Technology Maturation Initiative efforts mature and integrate advanced component technologies into system and sub-system technology demonstrators and experimental prototypes, which are then validated and transitioned to priority Army experimentation efforts and programs of record. Computational Prototyping Environment (CPE) efforts include demonstration of physics-based, computational modeling integrated with new advances in deep learning to explore design tradespaces and understand defeat strategies for prototype platforms. Project EX3 funds experimental prototyping and demonstration of ground vehicles to assess future concepts and designs against selected capability trades, and emerging technologies for current and future combat vehicles across the combat vehicle portfolio. This PE provides the Army an improved mechanism for enabling greater competition in the latter stages of technology maturation and establishes a closer alignment between Science and Technology (S&T) efforts and acquisition programs. Efforts in this PE support the Cross-Functional Teams established by the Army to speed materiel development activities in support of the Army Modernization Priorities.

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering S&T priority focus areas and the Army Modernization Strategy. This investment supports the Army Modernization priorities, including future capability opportunities for the Network, Next Generation Combat Vehicle, and Air and Missile Defense.

Work in this PE is performed by Research, Development and Engineering Command (RDECOM), the Engineer Research Development Center (ERDC), and US Army Space and Missile Defense Command/Army Forces Strategic Command (SMDC/ARSTRAT).

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army					Date: February 2018
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*			
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	70.047	115.221	96.372	-	96.372
Current President's Budget	57.737	115.221	95.347	-	95.347
Total Adjustments	-12.310	0.000	-1.025	-	-1.025
• Congressional General Reductions	-0.029	-			
• Congressional Directed Reductions	-10.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.281	-			
• Adjustments to Budget Years	-	-	-1.025	-	-1.025

Change Summary Explanation

FY2017 Congressional Directed Reduction to Project EX3, Ground Vehicle Prototyping.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army			Date: February 2018
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) DS3 / *TECHNOLOGY MATURATION INITIATIVES*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
DS3: *TECHNOLOGY MATURATION INITIATIVES*	-	43.314	115.221	95.347	-	95.347	99.584	106.102	109.471	111.610	0.000	680.649
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

This Project funds the maturation, integration, and demonstration of advanced technology demonstrators and experimental prototypes to support advanced ground systems; aviation systems; command, control, communication & reconnaissance systems and equipment; precision weapons, High Energy Laser (HEL) systems; and Soldier equipment. Technology Maturation Initiative (TMI) efforts mature and integrate component technologies into early system and sub-system experimental prototypes for demonstration in relevant environments and tactical/operational scenarios, taking technologies to a goal of Technology Readiness Level (TRL) 7. Technology demonstrators and experimental prototypes are validated and transitioned to priority Army experimentation and acquisition efforts to inform requirements for future programs of record and reduce the risk of technology insertion. These efforts are typically 2-4 years in duration, and are approved by Army senior leadership based on priority and opportunity, to ensure that demonstrations have high potential for filling capability gaps and transitioning. Activities include the maturation, integration, and demonstration of HEL prototype weapons performance on a combat platform in realistic operational environments, in support of the Army's objective capability for Maneuver-Short Range Air Defense (M-SHORAD). A 50 kW-class laser weapon system has the potential to engage and defeat rockets, artillery, mortars (RAM), unmanned aerial vehicles (UAVs), sensors, and optics for maneuvering brigade combat teams (BCTs). Activities also include sub-system prototyping and integration of leap-ahead ground combat vehicle powertrain technologies; and integration and demonstration of key Active Protection System (APS) components to provide modular and layered vehicle protection effects (hard-kill and soft-kill), enabling power projection and enhanced survivability. Computational Prototyping Environment (CPE) efforts include demonstration of physics-based, computational modeling integrated with new advances in deep learning to explore design tradespaces and understand defeat strategies for prototype platforms. This Project provides the Army an improved mechanism for enabling greater competition in the latter stages of technology maturation and establishing a closer alignment between Science and Technology (S&T) efforts and acquisition programs.

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering S&T priority focus areas and the Army Modernization Strategy. This investment supports the Army Modernization priorities, including future capability opportunities for the Network, Next Generation Combat Vehicle, and Air and Missile Defense.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Maturation and Prototyping for Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Systems	8.834	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** DS3 / *TECHNOLOGY MATURATION INITIATIVES*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: This effort selects technologies that show high promise for advancing command, control, communication and reconnaissance capabilities required under acquisition programs; prototypes, evaluates, and demonstrates integrated technologies within a high fidelity and realistic operating environment, and transitions them to a formal program of record at reduced cost and/or risk.			
Title: Vehicle Survivability Subsystem Demonstrator	9.779	10.271	7.650
Description: The Vehicle Survivability Subsystem effort integrates and demonstrates cost effective, lightweight designs for the optimization of hull, frame, body, cab and armor technologies to achieve survivability systems weight reductions of 10-15% and increased vehicle survivability against advanced and emerging threats. This effort is coordinated with efforts in PE 0603005A. ***FY 2018 Plans:*** Leverage the data from the previous year testing to integrate lessons learned while fabricating and integrating advanced components and optimized subsystems for a survivability demonstrator, targeting tracked combat vehicles with limited ground standoff. Integrate matured blast components & subsystems for demonstrator testing, to include: armor, advanced energy absorbing (EA) floors, adjustable EA seats, lighter weight hull with same or better protection levels. Optimize the number and placement of active blast mitigation system countermeasures into a blast demonstrator for underbody blast and structural evaluation. Perform design optimization of the survivability demonstrator for Fiscal Year (FY) 2019. ***FY 2019 Plans:*** Will complete design optimization of the integrated survivability demonstrator to prepare for system level durability and blast testing, achieving survivability systems weight reductions and increasing survivability against advanced and emerging threats. Will integrate passive blast technologies and active blast mitigation system countermeasures into a demonstrator for underbody blast and structural evaluation. Will conduct durability and blast testing to demonstrate the performance of integrated blast components, including surrogate armor, active blast mitigation, advanced energy absorbing (EA) floors, adjustable EA seats and restraints, and lighter weight hull with same or better levels of protection. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Planned progression of the Vehicle Survivability Subsystem Demonstrator effort.			
Title: Advanced Powertrain Subsystem Demonstrator	9.142	12.950	11.018
Description: The Advanced Powertrain Subsystem Demonstrator effort fabricates, integrates, and demonstrates next generation, scalable combat vehicle powertrain technologies into a high power dense and more fuel efficient combat vehicle powertrain. This powertrain will demonstrate advancements in engine and transmission subsystem components specific for military platforms in order to provide an integrated advanced propulsion system . This effort is coordinated with efforts in PE 0603005A.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** DS3 / *TECHNOLOGY MATURATION INITIATIVES*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: Integrate the major subsystem to include the multi-cylinder engine and the advanced high efficient transmission as part of the overall advanced powertrain demonstrator integration. As part of the subsystem integration, verify and validate a functional opposed-piston, multi-cylinder engine that is operationally mated to a high efficiency, cross drive transmission (to include steering and braking) to support military tracked vehicles. The technology is being developed for future military vehicle application such as the Bradley Family of Vehicles and future fighting vehicles. ***FY 2019 Plans:*** Will build upon and add components to the major subsystem integration of the multi-cylinder engine and the advanced high efficiency transmission, as part of the overall advanced powertrain demonstrator integration. Will verify and validate that all components function as expected. Using a reduced risk strategy, will mature and demonstrate high power-density and more fuel efficient integrated powertrain to support military tracked vehicles. Will optimize system controls to improve performance for a wide range of powertrain applications. The technology is being developed for future military vehicle application such as the Bradley Family of Vehicles and future infantry vehicles. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Planned progression of the Advanced Powertrain Subsystem Demonstrator effort.			
Title: Modular Active Protection System (MAPS) Demonstration ***Description:*** This effort conducts Active Protection System (APS) component and subsystem technology maturation and adaption, aligned with Survivability Sets 1, 2, and 3, as well as Expedited APS activity, to increase component reliability, comply with the Army's modular approach to active protection, and resolve component integration challenges. It integrates subsystem technology demonstrators and conducts demonstrations of soft-kill and hard-kill APS capability to verify APS performance within the modular and safe design approach, and to reduce technical risk for APS transition for the current and future combat and tactical vehicle platforms. ***FY 2018 Plans:*** Complete build of soft-kill/hard-kill Modular APS Controller subsystem technology demonstrator and demonstrate in a relevant environment. Implement Modular APS framework for Survivability Set 1 (SS1) capabilities, including passive threat sensing (i.e., laser warning receiving and passive infrared (IR) cue) and smoke technologies; mature Modular APS framework for Survivability Set 2 (SS2) soft-kill capabilities, including passive threat sensing, smoke, and countermeasure technologies. Continue evaluation of APS installation on current Army Abrams, Bradley, and Stryker platforms. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	15.559	9.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** DS3 / *TECHNOLOGY MATURATION INITIATIVES*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Planned progression of the MAPS Demonstration effort, which concludes in FY2018.			
Title: Active Protection Systems (APS) Integration and Demonstration ***Description:*** This effort will synchronize emerging S&T products with the Vehicle Protection Suite (VPS) Program of Record and will mature key Active Protection System (APS) technologies to a Technology Readiness Level 7 for integration onto current and future ground platforms. It will mature Modular Active Protection Framework (MAF)-compliant effectors and sensors and integrate them onto ground combat vehicles for prototype system test and demonstration. It will conduct independent evaluation to inform system development processes that ensure safety compliance for future VPS increment upgrades as new threats emerge. ***FY 2019 Plans:*** Will conduct system-level testing of the Modular Active Protection Framework and Controller base-kit. Will determine best candidate APS effector and sensor technologies that are MAF-compliant for system-level integration and validation. Will begin system-level integration of selected APS effector and sensor technologies on desired combat platform prototypes. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Planned FY19 Active Protection System Integration and Demonstration effort. This effort addresses the Army Modernization priorities for Next Generation Combat Vehicle.	-	-	7.695
Title: Multi-Mission High Energy Laser (MMHEL) ***Description:*** This effort matures and integrates a 50 kW-class laser system into a Stryker platform, providing a system-level, High Energy Laser (HEL) experimental prototype for demonstration in realistic operating environments. These demonstrations will inform requirements, decrease risk for future Army HEL acquisition programs, and support the future development of warfighter Tactics/Techniques/Procedures (TTPs) and Concept of Operations (CONOPS). HEL weapon systems are expected to complement conventional offensive and defensive weapons at a lower cost-per-shot than current systems and without the need to stockpile ordnance. A 50 kW-class laser weapon system has the potential to engage and defeat rockets, artillery, mortars (RAM); UAVs; sensors; and optics for maneuvering BCTs. Demonstrations will also inform potential future capability to defeat both fixed- and rotary-wing manned aircraft. Leveraging Government investments and Industry technology advancements, will review and select existing HEL subsystem designs for integration into a Stryker vehicle; will conduct integration and demonstration of a system-level HEL experimental prototype; and will provide assessment of technical performance in an operational environment. ***FY 2018 Plans:*** Establish government/industry teams for execution of the MMHEL effort. Leveraging previous advanced technology development and risk-reduction activities, update and review existing 50kW-class laser subsystem designs and interfaces for integration into a Stryker vehicle (including laser, beam control, power, thermal management, and Army Battle Management Command, Control, and Computers (BMC3) architecture). Assess and select sub-system designs for utilization in MMHEL and develop overall	-	82.000	56.894

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** DS3 / *TECHNOLOGY MATURATION INITIATIVES*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
system-level experimental prototype design. Develop interface controls with the Army Battle Management Communications, Command, Control, Computers and Intelligence (BMC4I) network, and refine system architecture accordingly. Initiate build and integration of system-level experimental prototype hardware. ***FY 2019 Plans:*** Will complete design reviews of HEL subsystems (including laser, beam control, power, thermal management, and Army Battle Management Command, Control, and Computers (BMC3) architecture). Will begin integration of HEL subsystem hardware and evaluate 50kW-class laser subsystems against performance parameters. Will develop initial fire control logic for BMC4I software and define BMC4I interfaces with Army BMC4I network. Will develop target laser vulnerability module which provides data on the amount of laser energy required to destroy a given target based upon the location of the laser spot on the target. As complete subsystems are delivered, will integrate into a system-level experimental prototype and begin system checkout. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Planned progression of the MMHEL effort. This effort supports the Army Modernization priority for Air and Missile Defense.			
Title: Next Generation Close Combat Missile ***Description:*** The Next Generation Close Combat Missile (NG CCM) effort will demonstrate a prototype close combat missile with a multi-pulse, boost-sustain flight propulsion system providing extended range and decreased time of flight. Activities will mature proof-of-principle hardware into an integrated tactical-representative design and demonstrate a prototype missile with lethality overmatch of emerging threats to address near-term Warfighter needs, in advance of acquisition program of record. ***FY 2019 Plans:*** Will optimize and tailor missile propellant formulation to balance performance vs. shock-sensitivity. Will conduct a Force Effectiveness Experiment with the Maneuver Center of Excellence/Maneuver Battle Lab. Will evaluate preliminary design concepts as a basis for trade studies, development of detailed designs, and NG CCM prototype development and testing. Will fabricate wind tunnel models to support further system maturation and testing of NG CCM?s increased range and standoff capabilities. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Planned FY19 Next Generation Close Combat Missile effort. This effort supports the Army Modernization priority for Soldier Lethality.	-	-	9.795
Title: Computational Prototyping Environment ***Description:*** The Computational Prototyping Environment (CPE) effort creates an integrated, robust, and verified system that leverages recent Department of Defense advancements in large data tradespace analytics, high-fidelity physics-based modeling, deep learning techniques, high performance computing capabilities, and inverse modeling approaches. The CPE demonstrates	-	1.000	2.295

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** DS3 / *TECHNOLOGY MATURATION INITIATIVES*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
the early developmental verification and validation of selected weapons platform variations in a way that accurately identifies potential performance and design failures, while also testing and mitigating solutions and multiple trades in a Virtual Proving Ground (VPG) prior to cost-bearing production and manufacturing. CPE efforts facilitate rapid, accurate, and computational prototyping in a robust VPG for early performance verification of new capabilities. ***FY 2018 Plans:*** Develop sustainable integration framework. Begin build of initial VPG and complete CPE architecture. ***FY 2019 Plans:*** Will complete initial prototype VPG build. Will integrate and validate existing high-fidelity, physics-based models and simulation tools with the prototype VPG to provide an initial proof of concept in support of future VPG development. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Planned progression of the Computational Prototyping Environment effort.			
Accomplishments/Planned Programs Subtotals	43.314	115.221	95.347

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0604120A: *RDT&E,A PE 0604120A*	83.279	108.847	87.914	-	87.914	37.847	28.851	-	-	Continuing	Continuing

Remarks

Program Element 0604120A (Assured Positioning, Navigation and Timing (PNT))

D. Acquisition Strategy

Activities will be conducted both in-house and through competitively awarded contracts using best value source selection procedures. Multiple competitive contracts will be awarded. The Other Transaction Agreement (OTA) # W15QKN-14-9-1001 Initiative (Task Order) DOTC-16-01-INIT-0302 will be the primary contract vehicle for the MMHEL effort.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** DS3 / *TECHNOLOGY MATURATION INITIATIVES*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Maturation and Prototyping for C4ISR Systems	C/Various	Various : Various	36.748	8.834		-		-		-		-	0.000	45.582	-
Vehicle Survivability Subsystem Demonstrator	C/Various	Various : Various	2.175	9.779		10.271		7.650		-		7.650	0.000	29.875	-
Advanced Powertrain Subsystem Demonstrator	C/Various	Various : Various	5.370	9.142		12.950		11.018		-		11.018	0.000	38.480	-
Modular Active Protection Systems (MAPS) Demonstrations	C/Various	Various : Various	5.514	15.559		9.000		-		-		-	0.000	30.073	-
Active Protection Systems (APS) Integration	C/Various	Various : Various	-	-		-		7.695		-		7.695	19.900	27.595	-
Multi-Mission High Energy Laser (MMHEL)	C/Various	Various : Huntsville, AL	-	-		82.000		56.894		-		56.894	104.000	242.894	-
Computational Prototyping Environment	C/Various	Various : Various	-	-		1.000		2.295		-		2.295	16.500	19.795	-
Next Generation Close Combat Missile	C/Various	Various : Various	-	-		-		9.795		-		9.795	12.000	21.795	-
		Subtotal	49.807	43.314		115.221		95.347		-		95.347	152.400	456.089	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	49.807	43.314		115.221		95.347		-		95.347	152.400	456.089	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** DS3 / *TECHNOLOGY MATURATION INITIATIVES*

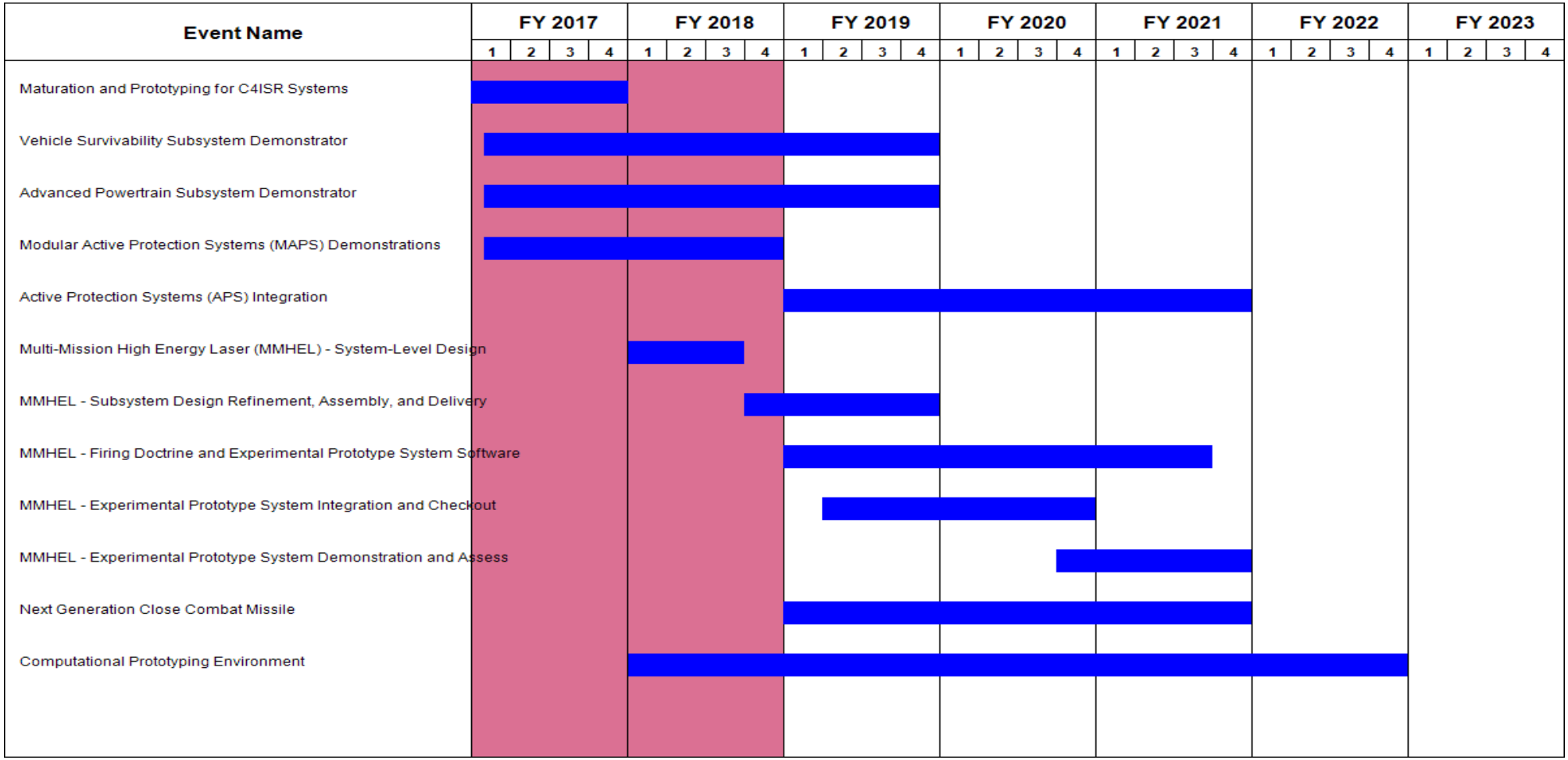

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** DS3 / *TECHNOLOGY MATURATION INITIATIVES*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Maturation and Prototyping for C4ISR Systems	3	2014	4	2017
Vehicle Survivability Subsystem Demonstrator	1	2017	4	2019
Advanced Powertrain Subsystem Demonstrator	1	2017	4	2019
Modular Active Protection Systems (MAPS) Demonstrations	1	2017	4	2018
Active Protection Systems (APS) Integration	1	2019	4	2021
Multi-Mission High Energy Laser (MMHEL) - System-Level Design	1	2018	3	2018
MMHEL - Subsystem Design Refinement, Assembly, and Delivery	4	2018	4	2019
MMHEL - Firing Doctrine and Experimental Prototype System Software	1	2019	3	2021
MMHEL - Experimental Prototype System Integration and Checkout	2	2019	4	2020
MMHEL - Experimental Prototype System Demonstration and Assess	4	2020	4	2021
Next Generation Close Combat Missile	1	2019	4	2021
Computational Prototyping Environment	1	2018	4	2022

Note

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army			Date: February 2018
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) EX3 / *Ground Vehicle Prototyping*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
EX3: *Ground Vehicle Prototyping*	-	14.423	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	14.423
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program transitioned to PEO-GCS in FY18.

A. Mission Description and Budget Item Justification

This Project funds the prototyping and demonstration of ground vehicle technologies. The main goals are to conduct technical assessments against selected capability trades and future technologies for current and future combat vehicles across the combat vehicle portfolio. The funding will support continuing advanced concept development, trade studies, technology maturation/testing, technical/operational/affordability analyses, and system and subsystem iterative and integrated prototyping to assess future designs that integrate emerging science and technology advancements for current and future combat vehicles and to inform the Army's Force 2025 Maneuvers campaign of learning.

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering Science and Technology priority focus areas and the Army Combat Vehicle Modernization Strategy.

This work is fully coordinated with and complementary to Program Element (PE) 0603005A (Combat Vehicle and Automotive Advanced Technology), and PE 0603645/ EV7 (Armored Systems Modernization Advance Development/Combat Vehicle Prototyping).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Ground Vehicle Prototyping	14.423	-	-
Description: This effort conducts system level ground vehicle advanced concepting, prototyping and demonstration. This effort partners Government and industry for an iterative and integrated combat vehicle concepting and prototyping process to inform future vehicle Requirements, inform current and future vehicle performance characteristics, reduce future acquisition risk, and evaluate and update Operational Concepts. Activity includes the integration and demonstration of a series of subsystem demonstrators building off of previous investment in ground combat acquisition and science and technology programs.			
Accomplishments/Planned Programs Subtotals	14.423	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** EX3 / *Ground Vehicle Prototyping*

C. Other Program Funding Summary ($ in Millions)

Remarks

Program Element 0603645A, Armored Systems Modernization Adv Dev, Proj EV7, Combat Vehicle Prototyping

D. Acquisition Strategy

Competitive contracts awarded. This project exercises competitively awarded contracts using best value source selection procedures.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army			Date: February 2018
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) EX3 / *Ground Vehicle Prototyping*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Vehicle Prototyping	C/Various	Various : Various	-	14.423		-		-		-		-	0.000	14.423	-
		Subtotal	-	14.423		-		-		-		-	0.000	14.423	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	14.423		0.000		-		-		-	0.000	14.423	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** EX3 / *Ground Vehicle Prototyping*

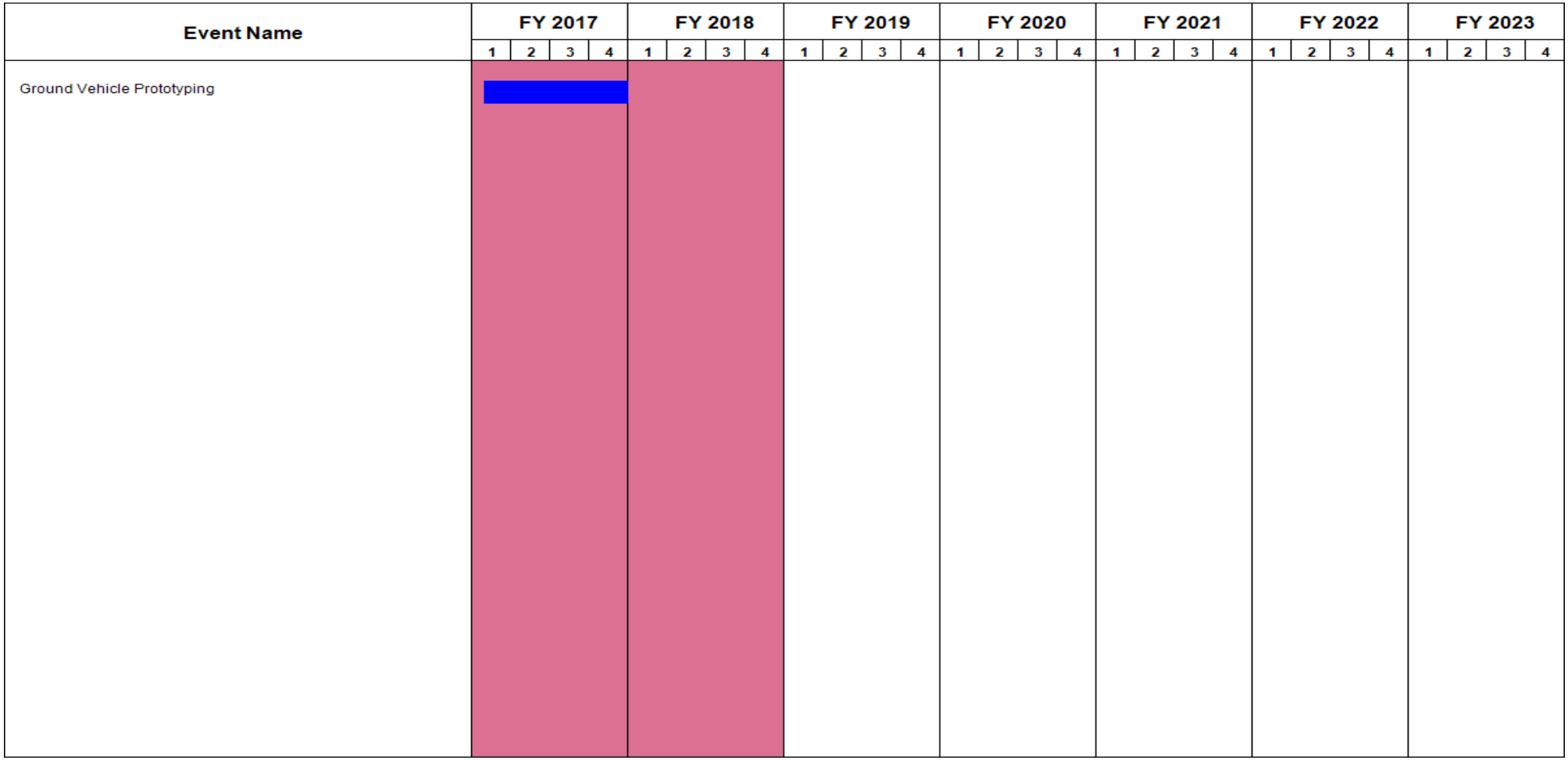

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** EX3 / *Ground Vehicle Prototyping*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ground Vehicle Prototyping	1	2017	4	2017