Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army											Date: February 2020	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0203735A *I Combat Vehicle Improvement Programs*							
COST ($ in Millions)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
Total Program Element	-	321.513	277.633	268.919	-	268.919	218.391	135.229	121.242	103.734	Continuing	Continuing
280: *RECOV VEH IMPROV PROG*	-	24.852	66.752	137.583	-	137.583	92.630	58.572	7.823	0.000	Continuing	Continuing
330: *Abrams Tank Improve Prog*	-	159.688	119.645	83.546	-	83.546	67.899	62.982	99.503	89.527	Continuing	Continuing
371: *Bradley Improve Prog*	-	81.125	47.779	14.815	-	14.815	23.292	0.000	0.000	0.000	Continuing	Continuing
431: *M113 IMPROVEMENTS*	-	7.615	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.615
EE2: *Stryker Improvement*	-	48.233	43.457	32.975	-	32.975	34.570	13.675	13.916	14.207	0.000	201.033

Note

In Fiscal Year (FY) 2021, $356 thousand in Reimbursable Manpower for Program Element (PE) 0203735A Combat Vehicle Improvement Programs Project 330 Abrams Tank Improve Prog has been realigned from Reimbursable Civilian Funding to Direct Operations and Maintenance. Program support costs have been accurately updated to reflect the realignment.

In FY 2021, $.534 million in Reimbursable Manpower for PE 0203735A Combat Vehicle Improvement Programs Project EE2 Stryker Improvement has been realigned from Reimbursable Civilian Funding to Direct Operations and Maintenance. Program support costs have been accurately updated to reflect the realignments. FY 2021 funding request was reduced by $14.019 million to account for the availability of prior execution balances.

A. Mission Description and Budget Item Justification

PE 0203735A Combat Vehicle Improvement Programs corrects vehicle deficiencies identified during Army operations; continues technical system upgrades to include the integration of applicable technologies on ground systems; addresses needed evolutionary enhancements to tracked combat vehicles; and develops technology improvements which have application to or insertion opportunities across multiple Ground Combat Systems vehicles. This PE provides combat effectiveness and Operating and Support (O&S) cost reduction enhancements for the Abrams tanks, Bradley Fighting Vehicles and Stryker Family of Vehicles (FOVs) through a series of product improvements.

The strategy for Abrams and Bradley will focus on incrementally delivering capability to the warfighter to meet both near-term limitations as well as mitigating gaps and maintaining combat overmatch in the future. This effort was approved by the Army Acquisition Executive in 3rd Quarter (QTR) Fiscal Year (FY) 2011.

The Recovery Vehicle Improvement program is a group of Engineering Change Proposals (ECPs) that will allow the current recovery vehicle to regain Single Vehicle Recovery (SVR) for the heaviest tracked combat vehicle as defined in the Heavy Equipment Recovery Combat Utility Lift and Evacuation System (HERCULES) Enhanced M88A2E1 Capability Production Document Increment 2 dated 20 January 2017. The fielded M88A2 HERCULES lacks the necessary power, weight, and braking ability to safely support the recovery of the M1A2SEPv2 in all situations and with the next generation M1A2SEPv3 weight growth, the problem will get worse. The M88A3 HERCULES vehicles will bring back the operational capability of the single vehicle recovery. The increased winching and lifting capability accommodates

all 80 ton Abrams variants. Without this increased capability, units must use two M88A2 Medium Recovery Vehicles to perform the necessary spectrum of recovery operations.

The Abrams M1A2 SEP V2 and M2/M3A3 Bradley Fighting Vehicles are at or exceed Space, Weight, and Power-Cooling (SWaP-C) limitations. In order to host and restore lost platform capability, the Abrams Tank and Bradley Fighting Vehicle programs will execute a series of ECPs to support the current embedded systems and to facilitate integration of technologies currently in development under other existing Programs of Record. The ECPs are not intended to exceed the operational capability outlined in current system requirements documents, but rather to ensure that the existing system performance is not further degraded and that Army mission equipment packages can be integrated on the Abrams and Bradley Platforms.

Stryker Improvement will address the development of Lethality, Survivability, Mobility, Network Lethality, and Communication, Command and Control (C3) improvements within the Stryker FoV. Principal development efforts include upgrades associated with the Stryker Double V-Hull (DVH) A1 ECP, Stryker 30mm Infantry Carrier Vehicle Dragoon (ICVD) Operational Needs Statement (ONS), Common Remotely Operated Weapon Station-Javelin (CROWS-J) ONS, Stryker Survivability Enhancement, and Stryker Lethality ECPs. DVH A1 ECP power generation, suspension, and network upgrades restores Stryker DVH Space, Weight, and SWaP-C lost as a result of incorporating vehicle changes to counter threats encountered during deployment operations while allowing the future network to be hosted without further degradation in vehicle protection and mobility. The Stryker 30mm ICVD and CROWS-J ONS efforts addressed Urgent Operational Need to increase the firepower of Stryker Infantry Carrier Vehicles (ICV) within the US Army European Command (USAREUR). The 30mm ICVD ONS effort integrates a 30mm-equipped weapon station providing, USAREUR with precision direct firepower to overwhelm the enemy in encounter actions and suppressive fire to preserve mounted and dismounted freedom of movement. The Stryker Survivability Enhancement will address evolving threats by assessing survivability improvements, to include passive protection systems, active protection systems, an under-armor fire capability for Stryker-equipped reconnaissance troops, 360 Situational Awareness, and reactive armor tiles. Stryker Fire Direction Center (FDC) Variant will provide an on-the move, protective vehicle that processes voice and digital information in a timely manner while maintaining contact with the indirect fire team over extended distances. Stryker Lethality ECP efforts focus on the integration of a suite of complementary Mission Equipment Package (MEP) lethality upgrades (medium caliber weapon ECP, CROWS-J ECP, Anti-Tank Guided Missile (ATGM) ECP, common masted sensor ECP, and other capabilities) that will improve the suppressive fire and armored vehicle engagement capabilities across the Army's Stryker Brigade Combat Teams (SBCTs) and address Remote Weapon Station (RWS) and Modified Improved Target Acquisitions System (MITAS) obsolescence issues that will impact fleet sustainment beginning in FY 2020. The ATGM ECP will upgrade the MITAS, incorporate a far target locator and disseminate target acquirement information utilizing network lethality, providing a common operating picture.

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army					Date: February 2020
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 7: *Operational Systems Development*			R-1 Program Element (Number/Name) PE 0203735A / *Combat Vehicle Improvement Programs*		
B. Program Change Summary ($ in Millions)	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**
Previous President's Budget	336.063	334.463	273.052	-	273.052
Current President's Budget	321.513	277.633	268.919	-	268.919
Total Adjustments	-14.550	-56.830	-4.133	-	-4.133
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-56.830			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-14.550	-			
• Adjustments to Budget Years	-	-	-4.133	-	-4.133

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / *Combat Vehicle Improvement Programs*	Project (Number/Name) 280 / *RECOV VEH IMPROV PROG*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
280: *RECOV VEH IMPROV PROG*	-	24.852	66.752	137.583	-	137.583	92.630	58.572	7.823	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The M88A2 Heavy Equipment Recovery Combat Utility Lift and Evacuation System (HERCULES), designated as an Acquisition Category (ACAT IC) program on 15 Jun 2016, has been providing towing, winching, and hoisting operations to support battlefield recovery operations and evacuation of heavy tanks and other tracked combat vehicles since its production and deployment in 1998. The HERCULES recovers tanks mired to different depths, removes M1 Abrams turrets and power packs, and uprights overturned heavy combat vehicles. Currently, the M88A2 is unable to safely perform Single Vehicle Recovery (SVR) of the Abrams tank in all conditions, due to added weight/survivability improvements made to the tank. In order to ensure SVR is met, Project Director- Main Battle Tank Systems (PD-MBTS) will develop and integrate Engineering Change Proposal (ECP) technologies for the M88A2 HERCULES through an Operations and Support (O&S) initiative to meet its operational requirements of SVR throughout its life cycle. This initiative is not intended to exceed current operational capability, but will instead regain SVR capability of the heaviest tracked combat vehicle.

Analyses conducted to date suggests that upgrades to the M88A2 track, suspension, hydraulics, engine, transmission and other related components are required to meet single vehicle recovery for the heaviest tracked combat vehicle.

Fiscal Year (FY) 2021 Base dollars will continue the design, development, integration, prototype build, and continue Government Systems Engineering and Program Management office support. This will include labor, training, travel, supplies, and equipment to effectively manage the program. The prototype vehicles will enter testing in FY 2022 to confirm technical solutions meet performance requirements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Program Management Office (PMO) Support	2.123	2.127	3.457
Description: Program Management Office Support includes Systems Engineering, Government and in-house support Contractor salaries, travel and other support costs required to effectively manage the program.			
FY 2020 Plans: Oversight of Other Transaction Authority (OTA) project agreement holder, technical solution development, prototype build and preparation of follow-on OTA production contract(s). Continue Government Systems Engineering and Program Management office support in FY 2020. This will include labor, training, travel, supplies, and equipment to effectively manage the program.			
FY 2021 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 280 / *RECOV VEH IMPROV PROG*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
The program continues OTA project oversight, supports technical solution development for continued M88A3 prototype builds and continued preparation of follow-on OTA production contract(s). Continue Government Systems Engineering and Program Management office support in FY 2021. This will include labor, training, travel, supplies, and equipment to effectively manage the program. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Contract award and ramping up of efforts will require additional government and in-house contractor Program Management Support.			
Title: Product Development ***Description:*** Design, and Development of ECPs. ***FY 2020 Plans:*** Funding supported contractor development of the M88A3 Single Vehicle Recovery ECP, designed maturity review, supported subsystem technical review, finalized design to support vehicle integration activities in late FY 2020 and early FY 2021. ***FY 2021 Plans:*** The program continues development of M88A3 prototype builds, component qualification testing and system level verification (SLV) testing, finalize design and integration activities in FY 2021. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** The increase in FY 2021 will be used for ramp-up of the design and development effort, as well as build up to 9 prototype vehicles; this is a continuation of the efforts awarded in FY 2019 and FY 2020.	22.729	64.625	134.126
Accomplishments/Planned Programs Subtotals	24.852	66.752	137.583

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• GA0570: *Improved Recovery Vehicle (M88A2 HERCULES)*	172.853	80.146	0.000	-	0.000	186.816	184.813	199.801	200.800	0.000	1,025.229
• G80571: *M88 FOV MODS*	4.517	4.500	18.382	-	18.382	16.484	6.993	-	-	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 280 / *RECOV VEH IMPROV PROG*

D. Acquisition Strategy

The Project Director (PD) for MBTS intends to execute an ECP to regain single vehicle recovery capability of the M88A2 HERCULES vehicle. The strategy is to utilize the Detroit Arsenal Automotive Other Transaction Authority (DA2 OTA) to competitively award a single contract to develop, integrate and produce up to 9 prototype vehicles that will enter testing in FY 2022. After achieving OTA success criteria, a follow-on OTA will be awarded using procurement dollars to produce up to 70 initial production vehicles; with long lead items procured in FY 2022, and production starting in FY 2023. Federal Acquisition Regulation (FAR) based contracts will be awarded to complete production of the remaining vehicles up to the Army Acquisition Objective (AAO).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / *Combat Vehicle Improvement Programs*	Project (Number/Name) 280 / *RECOV VEH IMPROV PROG*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	Various	Various : TBD	10.798	22.729	Aug 2019	64.625	Jan 2020	134.126	Jan 2021	-		134.126	0.000	232.278	-
		Subtotal	10.798	22.729		64.625		134.126		-		134.126	0.000	232.278	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Office (PMO) Support	MIPR	PMO Support Offices : Various	1.500	2.123	Jan 2019	2.127	Jan 2020	3.457	Jan 2021	-		3.457	0.000	9.207	-
		Subtotal	1.500	2.123		2.127		3.457		-		3.457	0.000	9.207	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	Various	Various : Various	0.502	-		-		-		-		-	0.000	0.502	-
		Subtotal	0.502	-		-		-		-		-	0.000	0.502	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.800	24.852		66.752		137.583		-		137.583	0.000	241.987	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 280 / *RECOV VEH IMPROV PROG*

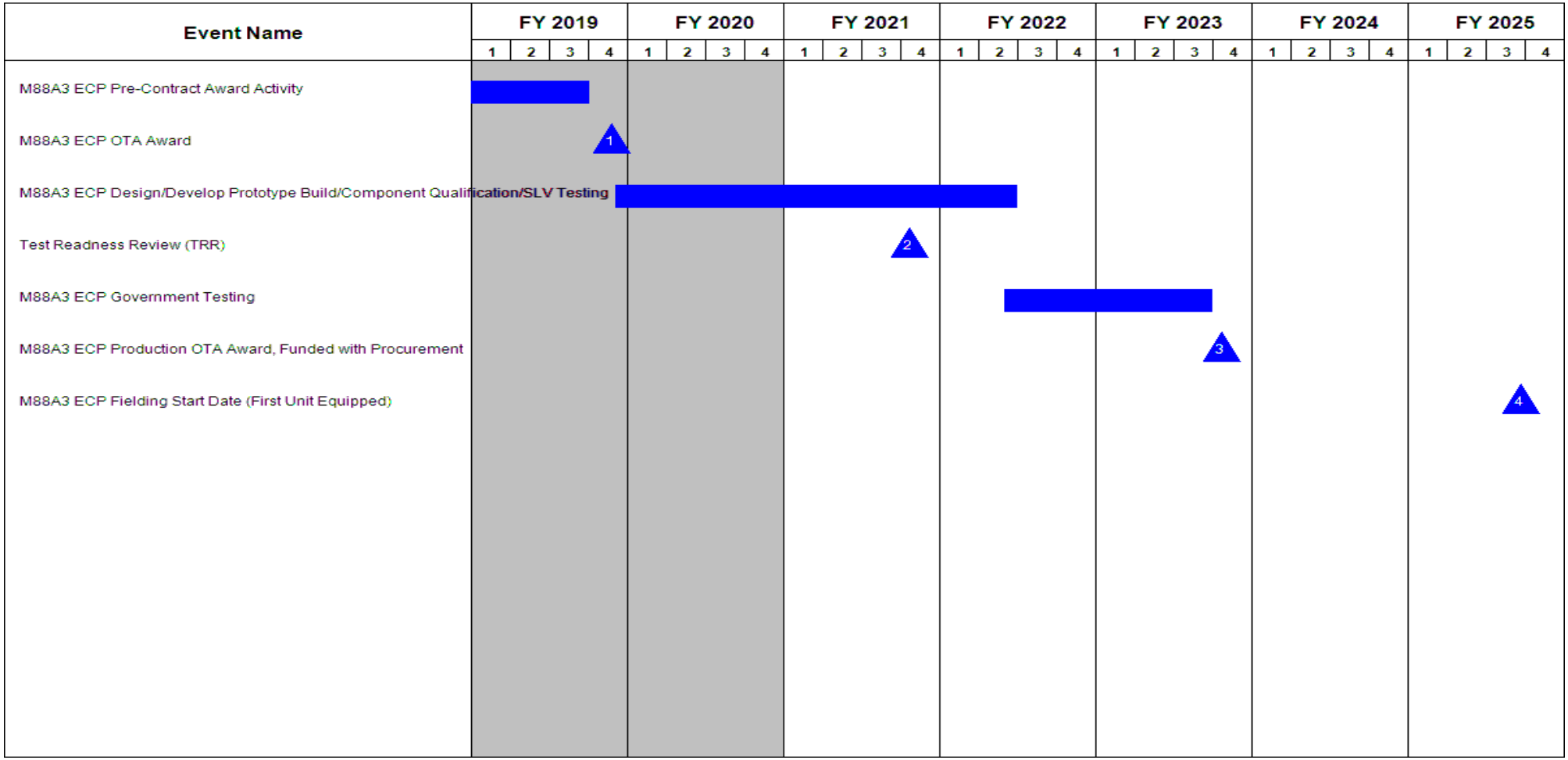


Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 280 / *RECOV VEH IMPROV PROG*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
M88A3 ECP Pre-Contract Award Activity	3	2018	3	2019
M88A3 ECP OTA Award	4	2019	4	2019
M88A3 ECP Design/Develop Prototype Build/Component Qualification/SLV Testing	4	2019	2	2022
Test Readness Review (TRR)	4	2021	4	2021
M88A3 ECP Government Testing	2	2022	3	2023
M88A3 ECP Production OTA Award, Funded with Procurement	4	2023	4	2023
M88A3 ECP Fielding Start Date (First Unit Equipped)	3	2025	3	2025

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / *Combat Vehicle Improvement Programs*	Project (Number/Name) 330 / *Abrams Tank Improve Prog*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
330: *Abrams Tank Improve Prog*	-	159.688	119.645	83.546	-	83.546	67.899	62.982	99.503	89.527	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In Fiscal Year (FY) 2021, $356 thousand in Reimbursable Manpower for Program Element (PE) 0203735A Combat Vehicle Improvement Programs Project 330 Abrams Tank Improve Prog has been realigned from Reimbursable Civilian Funding to Direct Operations and Maintenance. Program support costs have been accurately updated to reflect the realignment.

A. Mission Description and Budget Item Justification

The Army has approved Engineering Change Proposals (ECPs) for the Abrams Main Battle Tank to restore lost capability, host inbound technologies, and to meet objective performance requirements called out in approved platform requirements documents. The strategy for Abrams will focus on incrementally delivering capability to the warfighter to meet both near-term limitations as well as mitigating gaps and maintaining combat overmatch in the future. This approach was approved by the Army Acquisition Executive in 3rd Quarter (Q) FY 2011.

The Abrams vehicle is at or exceeds Space, Weight, and Power-Cooling (SWaP-C) limitations. In order to restore lost platform capability, the Abrams Tank will execute a series of ECPs to support the current embedded systems and to facilitate integration of technologies currently in development. The ECPs are not intended to exceed the operational capability outlined in current system requirements documents, but rather to ensure that the existing system performance is not further degraded and that Army mission equipment packages can be integrated on the Abrams. The ECPs will incorporate lost power generation and distribution technologies, lethality improvements, force protection and survivability improvements to counter evolving threats to include, but not limited to Active Protection Systems, technologies to mitigate obsolescence issues, in-bound technologies under development technologies to decrease the overall weight of the tank, and technologies in support of any validated Army requirement.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Abrams Power Engineering Change Proposal M1A2SEP V3/ECP 1A	4.000	11.709	-
Description: The improvements implemented through the M1A2SEP v3/ECP 1A Abrams Power program will restore lost power generation and distribution, mitigate impending obsolescence, and incorporate inbound technologies currently under development.			
FY 2020 Plans: The United States Government (USG) completed Production Qualification Testing (PQT), logistics product development, engineering actions following the completion of USG testing, and contract close out actions.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 330 / *Abrams Tank Improve Prog*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
The SEP v3 contract is complete in FY 2020 and no additional funds are required for FY 2021.			
Title: Training Device Updates ***Description:*** Development and design of training device upgrades to reflect upgrades to the vehicle.	0.491	-	-
Title: Abrams Lethality Engineering Change Proposal M1A2SEP V4/ECP 1B ***Description:*** The Abrams SEP v4 program consists of lethality improvements primarily focused on the integration of 3rd Gen Forward Looking Infrared (FLIR) and the Advanced Multi-Purpose (AMP) round. Additional improvements include a Laser Warning Receiver (LWR), Improved Thermal Management System (ITMS), and target acquisition sensor upgrades consisting of inclusion of color cameras, laser capabilities, and image processing. Other potential improvements include vehicle smoke generation, survivability enhancements, signature management improvements, embedded training enhancements, 360 situational awareness cameras, and weight reduction efforts. Trade studies, analysis and technology maturation will be performed to evaluate prospective improvements, along with obsolescence mitigation, and incorporation of inbound technologies currently under development. ***FY 2020 Plans:*** SEP V4 completed a Critical Design Review (CDR) in 1Q FY 2020, begun component qualification testing, and continued prototype vehicle build planning. The primary tasks focused on systems engineering, test planning, prototype hardware procurement, software development, logistics planning, and Technical Data Package (TDP) development. Final hardware to be used for component qualification testing. ***FY 2021 Plans:*** The program will complete prototype vehicle build, component qualification testing, and Original Equipment Manufacturer (OEM) vehicle testing. The USG will conduct a Test Readiness Review (TRR) in preparation to begin USG vehicle testing in FY 2022. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** The funding decrease is due to a majority of subcontractors completing their hardware deliveries and all design activities. The overall program activities will switch from heavy engineering efforts to mostly test and production planning support.	135.600	91.535	58.963
Title: Program Management Office (PMO) Support ***Description:*** Program Management Office Support includes Systems Engineering and Government and Contractor salaries, travel and other support costs required to effectively manage the program. ***FY 2020 Plans:***	7.873	7.473	5.760

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 330 / *Abrams Tank Improve Prog*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Continued Government Systems Engineering and Program Management office support in FY 2020. This included labor, training, travel, supplies, and equipment to effectively manage the program. ***FY 2021 Plans:*** Will continue Government Systems Engineering and Program Management office support in FY 2021. This will include labor, training, travel, supplies, and equipment to effectively manage the program ***FY 2020 to FY 2021 Increase/Decrease Statement:*** The decrease is due to the completion of the SEP v3 developmental contract in FY 2020. In FY 2021, $356K in Reimbursable Manpower for this line has been realigned from Reimbursable Civilian Funding to Direct Operations and Maintenance. Program support costs have been accurately updated to reflect the realignments.			
Title: Test & Evaluation ***Description:*** Test and Evaluation activities includes contractor and government testing, as well as test documentation development. Contractor shakedown/proveout testing will be conducted using U.S. Army test facilities. Government development testing of prototype vehicles will evaluate vehicle performance, to include Reliability, Availability, and Maintainability testing. Early User evaluation will also be performed. Test and evaluation activities also include the testing of other platform inbound technologies, along with the development of test documentation to include Test and Evaluation Master Plans, test procedures, and reports. ***FY 2020 Plans:*** The USG completed any remaining SEP V3 and AMP testing. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** The decrease is due to the completion of the SEP v3 developmental contract and corresponding testing in FY 2020.	10.127	3.660	-
Title: Test & Evaluation - Engineering Change Proposal M1A2SEP V4/ECP 1B ***Description:*** Comprises government and contractor test and evaluation of the SEP V4. Testing will cover component qualification testing, detailed vehicle test planning, and initial test site preparation. ***FY 2020 Plans:*** Begun SEP V4 testing and evaluation. Testing included component qualification testing, detailed vehicle test planning, and initial test site preparation (spares, test equipment, instrumentation, etc.). ***FY 2021 Plans:*** Continues SEPv4 testing and evaluation. Increase in funding supports continued conduct of USG component qualification testing and vehicle testing, vehicle test planning, continued test site preparation (spares, test equipment, instrumentation, etc.).	-	3.268	16.823

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 330 / *Abrams Tank Improve Prog*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** OEM vehicle testing will begin at USG test sites and this will significantly ramp up the test costs compared to the test site planning and preparation in FY 2020.			
Title: Lethality and Survivability Enhancements ***Description:*** Enhances lethality primarily through integration of improved munitions (smart rounds), gun turret drive improvements, cannon improvements, image processing enhancements and advanced algorithms. Survivability enhancements will focus on improved sensors, 360 situational awareness, active protection systems, armor improvements, and unmanned system defeat. ***FY 2020 Plans:*** Abrams continued the integration of next generation smart rounds, survivability enhancements, and improved sensors (such as 360 SA, Laser Warning Receiver, or other emerging technology). ***FY 2021 Plans:*** Abrams will continue the integration of next generation smart rounds, survivability enhancements, and improved sensors (such as 360 SA, Laser Warning Receiver, or other emerging technology).	1.437	2.000	2.000
Title: FY 2018 NDAA SEC 825 MDAP Cost Overrun	0.160	-	-
Accomplishments/Planned Programs Subtotals	159.688	119.645	83.546

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• GA0750: *Abrams Upgrade Program*	1,527.243	1,746.007	807.253	-	807.253	1,117.837	1,432.396	1,410.176	1,577.193	Continuing	Continuing
• GA0700: *M1 Abrams Tank (MOD)*	959.041	353.292	392.013	-	392.013	374.060	387.201	389.299	497.035	Continuing	Continuing

Remarks

D. Acquisition Strategy

Abrams SEPv3: Research & Development Contract - Sole Source, Cost Plus Incentive Fee (CPIF); SEPv4 - Research & Development Contract - Sole Source, CPIF.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 330 / *Abrams Tank Improve Prog*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Abrams SEP V3	SS/CPIF	General Dynamics Land Systems : Sterling Heights, MI	335.032	4.000	Feb 2019	11.709	Feb 2020	-		-		-	Continuing	Continuing	Continuing
SEP V3 Training Device Upgrades	MIPR	PEO, STRI : Orlando, FL	3.761	0.491	Dec 2018	-		-		-		-	Continuing	Continuing	Continuing
Abrams SEP V4	SS/CPIF	General Dynamics Land Systems : Sterling Heights, MI	95.582	135.600	Nov 2018	91.535	Nov 2019	58.963	Nov 2020	-		58.963	Continuing	Continuing	Continuing
Advanced Multi-Purpose (AMP) Round	SS/CPIF	General Dynamics Land Systems : Sterling Heights, MI	7.128	-		-		-		-		-	Continuing	Continuing	-
Lethality and Survivability Enhancements	Option/ CPFF	General Dynamics Land Systems (GDLS) : Sterling Heights, MI	53.388	1.437	Apr 2019	2.000	Mar 2020	2.000	Mar 2021	-		2.000	Continuing	Continuing	-
		Subtotal	494.891	141.528		105.244		60.963		-		60.963	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Office (PMO)Support	MIPR	PMO Support Offices : Various	78.994	7.873	Jan 2019	7.473	Jan 2020	5.760	Jan 2021	-		5.760	Continuing	Continuing	Continuing
Program Management Office (PMO) Support - Survivability Enhancements	MIPR	PMO Support Offices : Various	2.207	-		-		-		-		-	0.000	2.207	-
FY 2018 NDAA SEC 825 MDAP Cost Overrun	TBD	TBD : TBD	-	0.160		-		-		-		-	0.000	0.160	-
		Subtotal	81.201	8.033		7.473		5.760		-		5.760	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / *Combat Vehicle Improvement Programs*	Project (Number/Name) 330 / *Abrams Tank Improve Prog*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Testing	MIPR	Aberdeen Proving Ground; Yuma Proving Ground; White Sands Missile Range, : Various	48.382	10.127	Jan 2019	2.000	Jan 2020	2.915	Jan 2021	-		2.915	Continuing	Continuing	Continuing
Government Testing SEP V3	MIPR	Various : Various	-	-		1.239	Jan 2020	-		-		-	Continuing	Continuing	-
Contractor Testing SEP V3	Various	Various : Various	38.903	-		1.660	Feb 2020	-		-		-	Continuing	Continuing	Continuing
Contractor Testing SEP V4	Various	Various : Various	-	-		2.029	Feb 2020	13.908	Feb 2021	-		13.908	Continuing	Continuing	-
Government Testing - Survivability Enhancements	Various	Various : Various	24.491	-		-		-		-		-	0.000	24.491	-
		Subtotal	111.776	10.127		6.928		16.823		-		16.823	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	687.868	159.688		119.645		83.546		-		83.546	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 330 / *Abrams Tank Improve Prog*

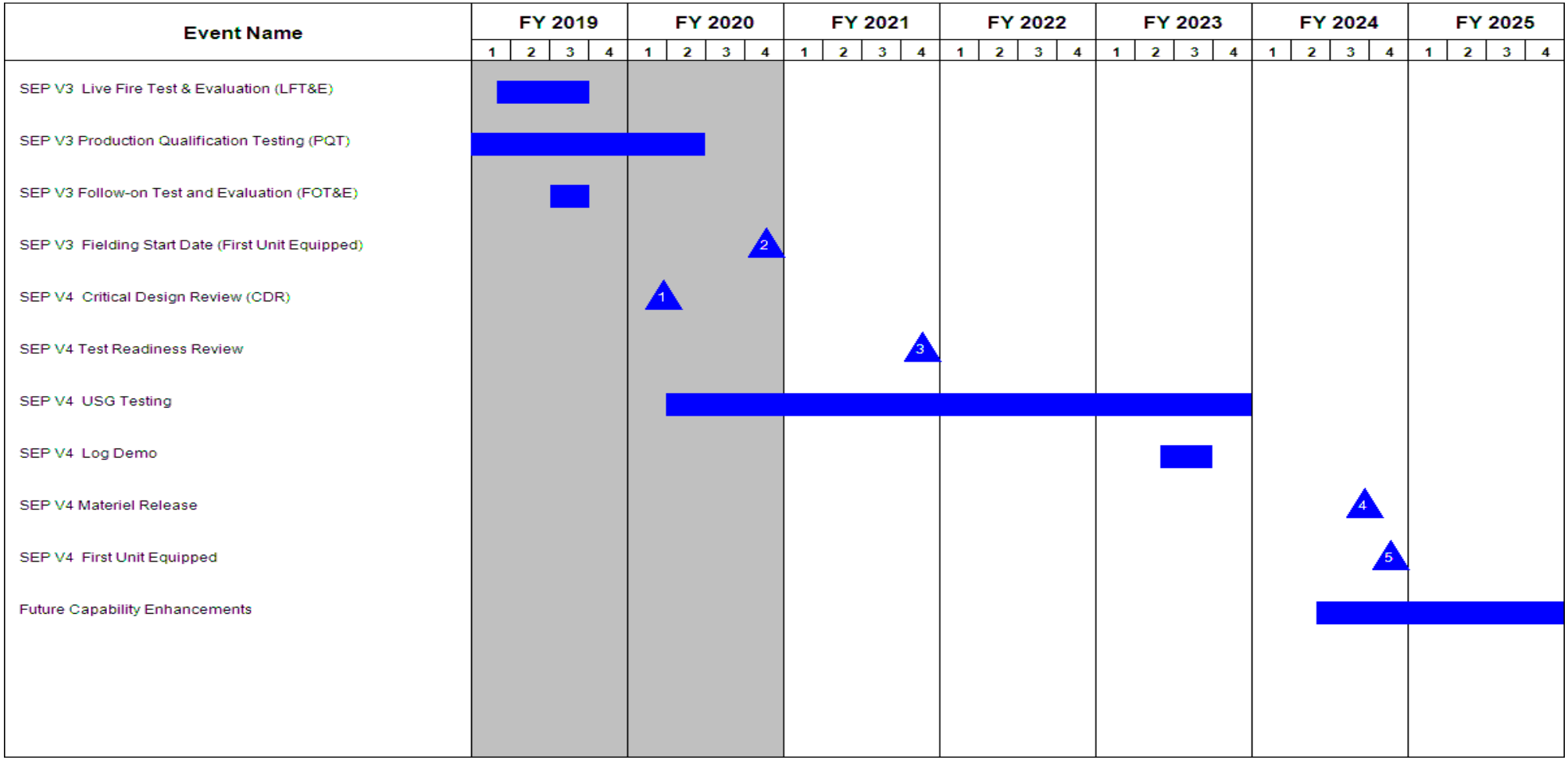


Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 330 / *Abrams Tank Improve Prog*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SEP V3 Live Fire Test & Evaluation (LFT&E)	1	2018	3	2019
SEP V3 Production Qualification Testing (PQT)	4	2018	2	2020
SEP V3 Follow-on Test and Evaluation (FOT&E)	3	2019	3	2019
SEP V3 Fielding Start Date (First Unit Equipped)	4	2020	4	2020
SEP V4 Critical Design Review (CDR)	1	2020	1	2020
SEP V4 Test Readiness Review	4	2021	4	2021
SEP V4 USG Testing	2	2020	4	2023
SEP V4 Log Demo	2	2023	3	2023
SEP V4 Materiel Release	3	2024	3	2024
SEP V4 First Unit Equipped	4	2024	4	2024
Future Capability Enhancements	2	2024	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / *Combat Vehicle Improvement Programs*	Project (Number/Name) 371 / *Bradley Improve Prog*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
371: *Bradley Improve Prog*	-	81.125	47.779	14.815	-	14.815	23.292	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Bradley Fighting Vehicle will continue to be a major combat vehicle in the Army Operational Force for the next 15-20 years. Current modernization efforts, such as the Track and Suspension Engineering Change Proposal (ECP) and the A4 Mobility ECP, address current space, weight, and power-cooling (SWAP-C) limitations. The Bradley will continue to modernize to support additional capabilities required to counter evolving threats in multi-domain operations including, but not limited to improved vehicle diagnostics and systems to increase maintainability, mobility, survivability, sensor digitization, improved power distribution, and cyber and software improvements. These improvements increase the Bradley Fighting Vehicle's ability to survive in a cyber and electronic warfare permissive environment.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Bradley A4 ECP Program	23.392	11.443	-
Description: Current projections indicate the Bradley Fighting Vehicle and the Bradley Fire Support Vehicle will remain in the armored brigade combat team (ABCT) formation until the 2050s. Given this, additional Research and Development (R&D) is required to keep the force relevant. The Bradley Fighting Vehicle System (BFVS) improvements implemented through the ECP Program will focus on restoring lost platform capability and provide capacity to support Army inbound technologies and to facilitate integration of technologies currently in development under other existing programs of record. ***FY 2020 Plans:*** Provided funding for the development of maintenance training devices related to A4 (Mobility). ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Fiscal Year (FY) 2020 to FY 2021 decrease to reflect the reduction in efforts needed to complete development to A4.			
Title: Survivability Enhancements	0.025	2.249	-
Description: Developing force protection and survivability improvements to counter evolving threats to include, but not limited to the underbelly interim solution (UBIS). The Bradley Fighting Vehicle (BFV) will integrate underbelly armor for improved survivability against underbelly blast events. ***FY 2020 Plans:*** Engineering, logistics, test, and program management continued development; completed contractor testing; conducted USG testing; and completed the logistics support Maintenance Allocation Chart (MAC), provisioning plan, tested support package,			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 371 / *Bradley Improve Prog*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Modification Work Order (MWO) development, and Logistics Demonstration (LOGDEMO) of the Underbelly Interim Solution (UBIS). Integration analysis, installation assessment and engineering support for execution of Bradley modifications. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2020 to FY 2021 decrease is due to survivability efforts transitioning to production.			
Title: Program Management Office (PMO) Support ***Description:*** Program Management Office Support includes systems engineering, government and contractor salaries, travel, training and other support costs required to effectively manage the program. ***FY 2020 Plans:*** Continued government program management and system engineering support costs. These funds covered the costs of government and direct support contractor salaries, travel, training, supplies, equipment and facilities to manage the issues resulting from Bradley A4 ECP testing and developing logistics products and executed UBIS and other development activities. ***FY 2021 Plans:*** Will continue government program management and system engineering support costs. These funds will cover the costs of government and direct support contractor salaries, travel, training, supplies, equipment and facilities to manage the issues resulting from Bradley A4 ECP testing and developing logistics products and other development activities. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2020 to FY 2021 decrease is due to personnel support costs transitioning to production.	6.361	5.560	1.481
Title: Test & Evaluation ***Description:*** Test & Evaluation efforts support developmental and operational test events. These events include test planning, system and subsystem testing, and development of test documentation. ***FY 2020 Plans:*** Conducted Bradley A4 Operational Testing and continue MWO, current fleet enhancement, and Bradley improvement test activities. ***FY 2021 Plans:*** Provides funding to test additional Bradley modifications to include, but not limited to, diagnostics and vehicle software qualification testing, and sensor digitization. It also provides funding to support test asset overhaul. ***FY 2020 to FY 2021 Increase/Decrease Statement:***	6.561	16.235	3.440

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 371 / *Bradley Improve Prog*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
FY2020 to FY2021 decrease is due to ramping down A4 Operational Testing.			
Title: Current Fleet Enhancements ***Description:*** Current fleet enhancement efforts support development and integration of capabilities to the current Bradley Family of Vehicles fleet to maintain the Bradley?s battlefield dominance against current and future threats.	2.580	-	-
Title: Bradley Improvements ***Description:*** Provides funding for the analysis, engineering, development, and integration to support Army directed inbound technologies and other improvements to the Bradley vehicles. ***FY 2020 Plans:*** Conducted integration activities for Army directed improvements and inbound technologies such as, but not limited to, diagnostics and powertrain issues, force protection and system survivability enhancements, and increased situational awareness. ***FY 2021 Plans:*** Will conduct integration activities for Army directed improvements and inbound technologies such as, but not limited to, power architecture, sensor digitization, force protection, system survivability enhancements, diagnostics, and cyber security. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2020 to FY 2021 decrease is due to completion of development efforts	17.150	12.292	9.894
Title: FY 2019 Rescission ***Description:*** FY 2019 Rescission	25.000	-	-
Title: FY 2018 NDAA SEC 825 MDAP Cost Overrun ***Description:*** FY 2018 NDAA SEC 825 MDAP Cost Overrun	0.056	-	-
Accomplishments/Planned Programs Subtotals	81.125	47.779	14.815

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• GZ2400: *Bradley Program (MOD)*	514.424	415.740	493.109	-	493.109	467.648	261.313	54.993	30.562	Continuing	Continuing
• G80718: *BRADLEY PROGRAM*	205.000	-	0.000	-	0.000	-	-	-	-	0.000	205.000

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 371 / *Bradley Improve Prog*

D. Acquisition Strategy

Product Manager Bradley will execute modification work orders following completion of development to support integrating FY 2021 funded capabilities into the formation at an average rate of three Battle Command Trainings (BCTs) per year. Software capability upgrades, including cyber, will be included in the next iteration of Voice, Video and Integrated Data (VVID) software in FY 2022 - 2023 time frame. The improved power distribution funding supports a Critical Design Review decision in late FY 2021/ early FY 2022 to continue development.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 371 / *Bradley Improve Prog*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Bradley A4 Engineering Change Proposal (ECP) Program	MIPR	PMO : Warren, Picatinny NJ	79.009	23.392	Sep 2019	-		-		-		-	0.000	102.401	-
Non Recurring Engineering- Bradley A4 ECP	SS/CPIF	BAE : Sterling Heights, MI	276.530	-		-		-		-		-	0.000	276.530	-
Non Recurring Engineering- Bradley A4 ECP TADDS	TBD	TBD : TBD	-	-		11.443	Mar 2020	-		-		-	0.000	11.443	-
Survability Enhancements - Underbelly Armor	SS/ Various	TBD : TBD	0.182	0.025	Apr 2019	2.249	Sep 2020	-		-		-	0.000	2.456	-
Current Fleet Enhancements	SS/ Various	TBD : TBD	-	2.580	Aug 2019	-		-		-		-	Continuing	Continuing	Continuing
Bradley Improvements	MIPR	TBD : TBD	34.531	17.150		12.292	Mar 2020	4.359	Sep 2021	-		4.359	Continuing	Continuing	Continuing
Bradley Improvements - IBAS	SS/TBD	DRS : Melbourne, FL	-	-		-		2.958	Dec 2020	-		2.958	Continuing	Continuing	Continuing
Bradley Imrovements - Power Architecture	SS/TBD	BAE : Sterling Heights, MI	-	-		-		2.577	Jul 2021	-		2.577	Continuing	Continuing	Continuing
		Subtotal	390.252	43.147		25.984		9.894		-		9.894	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMO/PEO Support/OGA	MIPR	PMO/PEO : Bradley ECP Program	31.936	3.585	Dec 2018	3.360	Dec 2020	1.036	Dec 2020	-		1.036	Continuing	Continuing	Continuing
Government Engineering Support	MIPR	Various : Bradley ECP Program	48.204	2.776	Dec 2018	2.200	Dec 2020	0.445	Dec 2020	-		0.445	Continuing	Continuing	Continuing
FY 2019 Rescission	TBD	FY 2019 Pending Recission : TACOM	-	25.000	Dec 2019	-		-		-		-	0.000	25.000	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / *Combat Vehicle Improvement Programs*	Project (Number/Name) 371 / *Bradley Improve Prog*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FY 2018 NDAA SEC 825 MDAP Cost Overrun	TBD	FY 2018 NDAA SEC 825 MDAP Cost Overrun : TACOM	-	0.056		-		-		-		-	0.000	0.056	-
		Subtotal	80.140	31.417		5.560		1.481		-		1.481	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Testing	MIPR	Various : Test Sites	42.991	6.561	Jan 2019	16.235	Jul 2020	3.440	Jul 2021	-		3.440	Continuing	Continuing	Continuing
		Subtotal	42.991	6.561		16.235		3.440		-		3.440	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	513.383	81.125		47.779		14.815		-		14.815	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 371 / *Bradley Improve Prog*

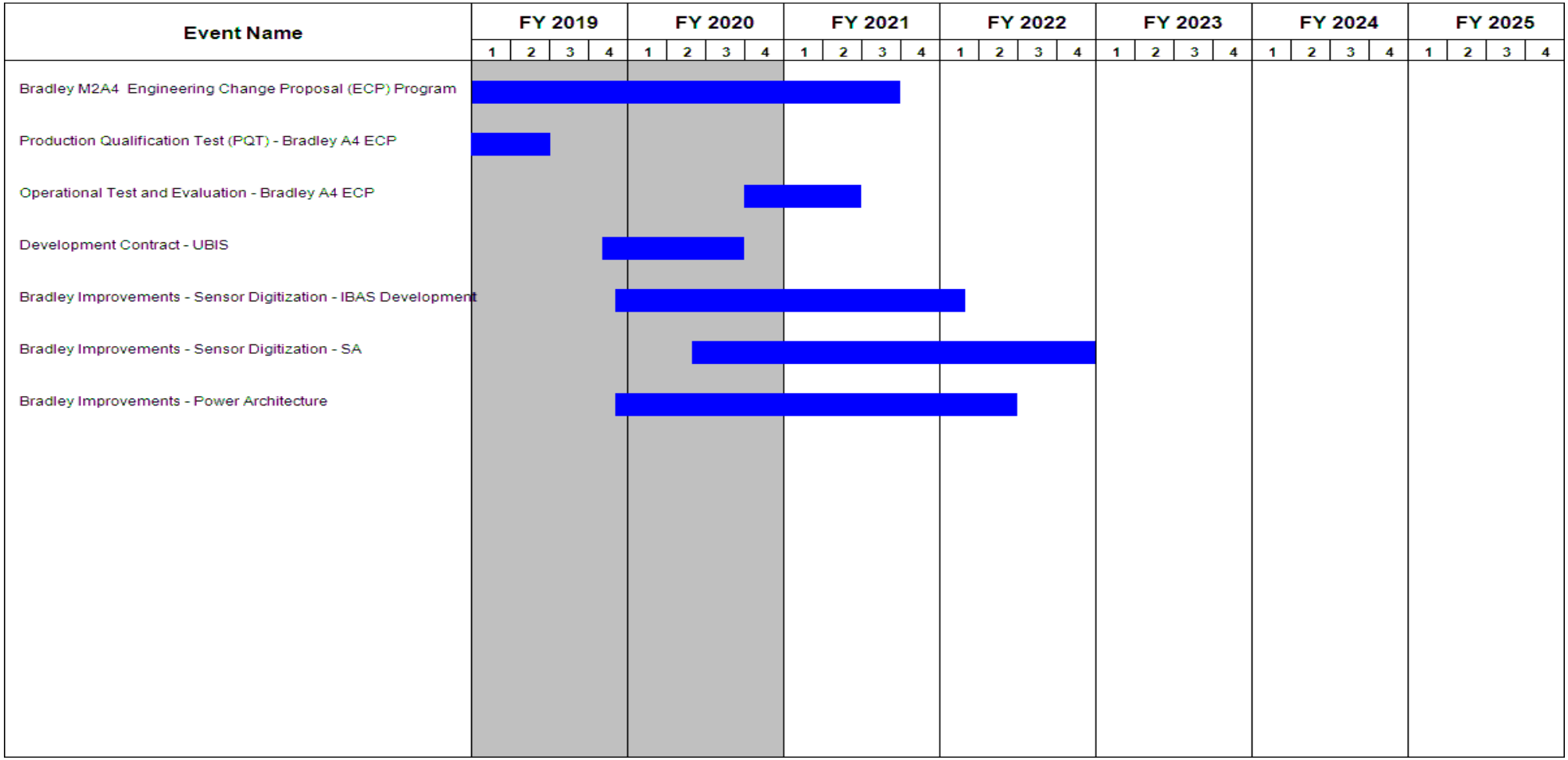


Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 371 / *Bradley Improve Prog*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Bradley M2A4 Engineering Change Proposal (ECP) Program	1	2012	3	2021
Production Qualification Test (PQT) - Bradley A4 ECP	2	2016	2	2019
Operational Test and Evaluation - Bradley A4 ECP	4	2020	2	2021
Development Contract - UBIS	4	2019	3	2020
Bradley Improvements - Sensor Digitization - IBAS Development	4	2019	1	2022
Bradley Improvements - Sensor Digitization - SA	2	2020	4	2022
Bradley Improvements - Power Architecture	4	2019	2	2022

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / *Combat Vehicle Improvement Programs*	Project (Number/Name) 431 / *M113 IMPROVEMENTS*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
431: *M113 IMPROVEMENTS*	-	7.615	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.615
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

M113 improvements will develop an affordable solution for upgrading the M113s to enhance protection, survivability, mobility and power generation to support the current and future network systems. This will provide the necessary enhancements to the M113 capability for Echelons Above Brigade (EAB) units with priority to the forward deployed units and equipment sets. The Armored Multi Purpose Vehicle (AMPV) program will replace all M113 family of vehicles in Armored Brigade Combat Teams (ABCT).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Product Development ***Description:*** Design, fabrication and testing of Engineering Change Proposals (ECPs).	6.015	-	-
Title: Government Program Management ***Description:*** Program Management Office Support includes Systems Engineering, support to logistics development, Government salaries, travel, training and other support costs required to effectively manage the program.	1.600	-	-
Accomplishments/Planned Programs Subtotals	7.615	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / *Combat Vehicle Improvement Programs*	Project (Number/Name) 431 / *M113 IMPROVEMENTS*	

Management Services ($ in Millions)

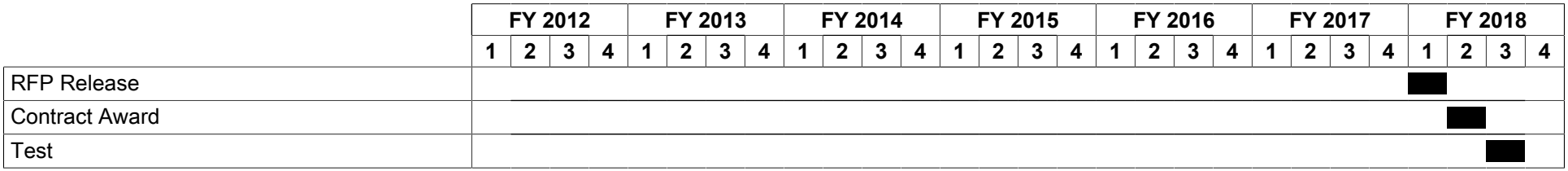
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/FFP	TBD : TBD	-	6.015	May 2019	-		-		-		-	0.000	6.015	-
Program Management Support	MIPR	TBD : TBD	-	1.600	May 2019	-		-		-		-	0.000	1.600	-
		Subtotal	-	7.615		-		-		-		-	0.000	7.615	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	7.615		0.000		-		-		-	0.000	7.615	N/A

Remarks

Program has been cancelled.

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 431 / *M113 IMPROVEMENTS*



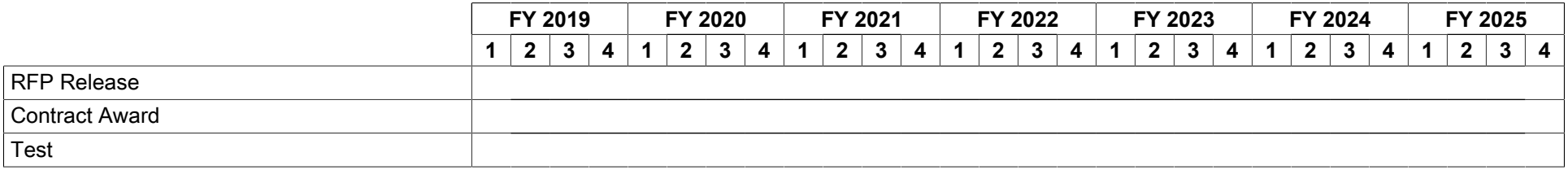


Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** 431 / *M113 IMPROVEMENTS*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
RFP Release	1	2018	1	2018
Contract Award	2	2018	2	2018
Test	3	2018	3	2018

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / *Combat Vehicle Improvement Programs*	Project (Number/Name) EE2 / *Stryker Improvement*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
EE2: *Stryker Improvement*	-	48.233	43.457	32.975	-	32.975	34.570	13.675	13.916	14.207	0.000	201.033
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In Fiscal Year (FY) 2021, $.534 million in Reimbursable Manpower for Program Element (PE) 0203735A Combat Vehicle Improvement Programs Project EE2 Stryker Improvement has been realigned from Reimbursable Civilian Funding to Direct Operations and Maintenance. Program support costs have been accurately updated to reflect the realignments. FY 2021 funding request was reduced by $14.019 million to account for the availability of prior execution balances.

A. Mission Description and Budget Item Justification

Stryker Improvement will address the development of Lethality, Survivability, Mobility, Network Lethality, and Communication, Command and Control (C3) improvements within the Stryker Family of Vehicles (FoV). Principal development efforts include upgrades associated with the Stryker Double V-Hull (DVH) A1 Engineering Change Proposal (ECP), Stryker 30mm Infantry Carrier Vehicle Dragoon (ICVD) Operational Needs Statement (ONS), Common Remotely Operated Weapon Station-Javelin (CROWS-J) ONS, Stryker Survivability Enhancement, and Stryker Lethality ECPs. DVH A1 ECP power generation, suspension, and network upgrades restores Stryker DVH Space, Weight, and Power-Cooling (SWaP-C) lost as a result of incorporating vehicle changes to counter threats encountered during deployment operations while allowing the future network to be hosted without further degradation in vehicle protection and mobility. The Stryker 30mm ICVD and CROWS-J ONS efforts addressed Urgent Operational Need to increase the firepower of Stryker Infantry Carrier Vehicles (ICV) within the United States Army European Command (USAREUR). The 30mm ICVD ONS effort integrates a 30mm-equipped weapon station providing, USAREUR with precision direct firepower to overwhelm the enemy in encounter actions and suppressive fire to preserve mounted and dismounted freedom of movement. The Stryker Survivability Enhancements addresses evolving threats by assessing survivability improvements, to include passive protection systems, active protection systems, an under-armor fire capability for Stryker-equipped reconnaissance troops, 360 Situational Awareness, reactive armor tiles, and integration of emerging and existing technologies such as the Fire Direction Center requirement, Mobile Command, Integrated Visual Augmentation System (IVAS), Turreted Mortar, and other Stryker based platform solutions. The Stryker Fire Direction Center Variant (FDC) variant will provide an on-the move capability that processes voice and digital data while maintaining contact with the indirect fire team over extended distances. Stryker Lethality ECP (30 mm medium caliber weapon, CROWS-J, Anti-Tank Guided Missile (ATGM), common masted sensor, and other capabilities) efforts focus on the integration of a suite of complementary Mission Equipment Package (MEP) lethality upgrades that will improve the suppressive fire and armored vehicle engagement capabilities across the Army's Stryker Brigade Combat Teams (SBCTs). Additionally, the Lethality MEP upgrades will address existing obsolescence issues of the Remote Weapon Station (RWS) with the CROWS and CROWS-J upgrade and Modified Improved Target Acquisitions System (MITAS) with the improved sights. The ATGM ECP will upgrade the MITAS, incorporating a far target locator and disseminate target acquirement information utilizing network lethality, providing a common operating picture. Upgrade of the Stryker flat-bottom hull and DVH variants to mitigate known system deficiencies. The identified deficiencies include, but are not limited to the Mobile Gun System (MGS) and Nuclear Biological Chemical Reconnaissnace Vehicle (NBCRV). Efforts for the Stryker Double V-Hull A1 (DVH A1) Engineering Change Proposal (ECP) (formerly named Stryker ECP 1), Stryker 30mm Infantry Carrier Vehicle Dragoon (ICVD) Operational Needs Statement (ONS) (formerly named Stryker ONS Lethality), Stryker Survivability Enhancements, Stryker Lethality ECPs (formerly referred to as Stryker ECP 2) and Stryker Fire Directional Center Variant (FDC).

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** EE2 / *Stryker Improvement*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Stryker DVH A1 ECP Development (Engineering/Prototypes) ***Description:*** The Stryker DVH A1 ECP is a fleet-wide initiative that mitigates mobility degradation caused by survivability improvements. Addresses vehicle space, weight, power, cooling and computing challenges. Returns the performance of the DVH nearly back to the original design capacity and provides approximately 20% growth potential in gross vehicle weight and power generation capacity posturing these vehicles for efficient upgrades in the future. ***FY 2020 Plans:*** Continued DVH A1 ECP verification and logistic demonstration, revisions to Stryker Operator and Maintenance Manuals, provisioning of DVH A1 ECP-unique parts, and incorporation of DVH A1 ECP design changes resulting from deficiencies identified during prototype build, development testing, and repair of DVH A1 development test assets. ***FY 2021 Plans:*** Will complete DVH A1 ECP verification and logistics products. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease due to completion of DVH A1 ECP logistics product development.	1.644	5.587	0.850
Title: Stryker DVH A1 ECP Testing ***Description:*** Government developmental, operational and live fire testing in support of DVH A1 ECP.	0.710	-	-
Title: Stryker Lethality ECPs Development (Engineering/Protoypes) ***Description:*** Lethality ECPs encompasses the integration of a 30 millimeter (mm) medium caliber weapon, under armor Javelin fire capability, improved optics and targeting systems, and other capabilities into the Stryker fleet. These improvements will provide for increased under armor fire capability, target identification range, provide over-match against peer threats and supporting infantry assault, and address obsolescence within the targeting and reconnaissance systems utilized on the Stryker FoV. ***FY 2020 Plans:*** Continued Stryker Lethality ECPs developmental engineering to include completion of CROWS-J ECP test fixes and logistic products, continuation of ATGM ECP integration, and medium caliber weapon system Bid Sample Assessment. ***FY 2021 Plans:*** Continuing Stryker Lethality ECPs development to include completion of CROWS-J ECP logistic products, completion of ATGM ECP logistic products, and medium caliber weapon system Bid Sample Assessment ***FY 2020 to FY 2021 Increase/Decrease Statement:***	13.230	12.063	7.192

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** EE2 / *Stryker Improvement*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Decrease due to the completion of the CROWS-J and ATGM ECPs development efforts.			
Title: Stryker Lethality ECPs Testing ***Description:*** Government and Contractor Support for developmental, operational and live fire testing in support of Lethality ECPs. ***FY 2020 Plans:*** Continued developmental test, to include safety, performance and environmental test planning and execution activities for the CROWS-J and ATGM ECPs. Begun the medium caliber weapon system Bid Sample Test and Evaluation. ***FY 2021 Plans:*** Construction of the medium caliber weapon system Bid Sample test report. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease is due to the completion of the developmental test activities for the CROWS-J and ATGM ECP in FY 2020.	16.300	16.162	0.427
Title: Government Systems Engineering and Project Management ***Description:*** Government Systems Engineering and Program Management includes salaries, travel and other support costs required to effectively manage all Research, Development, Test, & Evaluation (RDT&E) efforts. ***FY 2020 Plans:*** Continued Government Systems Engineering and Program Management support (labor, travel, training, supplies, and equipment) for Stryker DVH A1 ECP, Survivability Enhancement, and Lethality ECP (CROWS-J ECP, ATGM ECP, medium caliber weapon system) development efforts. Convened a medium caliber weapon system Source Selection and Evaluation Board (SSEB). Fire Direction Center Variant development efforts begun. ***FY 2021 Plans:*** Continuing Government Systems Engineering and Program Management support (labor, travel, training, supplies, and equipment) for Stryker DVH A1 ECP, Survivability Enhancement, Lethality ECPs (CROWS-J, ATGM, and 30mm medium caliber weapon system) and Fire Direction Center Variant development efforts. Completion of the medium caliber weapon system Source Selection and Evaluation Board (SSEB). ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease due to completion of the DVH A1 ECP effort.	8.320	5.772	5.587
Title: Wireless Intercom System ***Description:*** Develop a performance specification for a common Wireless Intercom System.	5.000	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** EE2 / *Stryker Improvement*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Stryker Power System ***Description:*** Development and testing of a non-primary power solution for the Stryker platform. The non-primary power enhancement incorporates, but not limited to, the battery box container, Auxiliary Power Unit (APU) and interface kits. ***FY 2020 Plans:*** Continued the development and testing for non-primary power solutions. Begun development of logistics products for the selected solution. ***FY 2021 Plans:*** Continuation of testing and logistics products development for the non-primary solution. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase in funding due to the increase of development efforts.	3.000	2.200	5.581
Title: Stryker Platform Mission Equipment Packages Integration ***Description:*** Development engineering of Mission Equipment Packages on to the Stryker platforms (Flat-bottom hull, Double V Hull). Integration of the Fire Direction Center MEP on to the DVH A1 platform. ***FY 2021 Plans:*** Continuation of the development effort for the Fire Direction Center Variant onto a DVH A1 platform. Design engineering efforts will begin with early order material for prototype build. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 is the first year of funding for the development engineering efforts of Stryker Fire Direction Center Variant.	-	-	8.811
Title: Stryker Survivability Enhancements ***Description:*** The Stryker Survivability Enhancements will develop strategies, through technical and engineering analyses, for the integration of emerging technologies onto the Stryker Platforms. The Stryker Survivability Enhancements will include, but are not limited to, the Integrated Visual Augmentation System (IVAS), the fleet wide 360 degree Situational Awareness and the integration of the Stryker Reactive Armor Tiles (SRAT) onto the DVH A1 platform. ***FY 2020 Plans:*** Integration of emerging technologies such as 360 degree Situational Awareness through Drivers Vision Enhancements (DVE) Wide enhancements, and assessment of the Integrated Visual Augmentation System (IVAS) onto the DVH A1 platform. ***FY 2021 Plans:***	-	1.673	4.527

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** EE2 / *Stryker Improvement*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Continuation of 360 degree Situational Awareness through DVE Wide enhancements, Stryker Reactive Armor Tiles (SRAT), IVAS efforts, and other emerging technologies onto the DVH A1 platform. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase is due to the initiation of the 360 Situational Awareness and SRAT on to the DVH A1 platform.			
Title: FY2018 NDAA SEC 825 MDAP Cost Overrun ***Description:*** MDAP Cost Overrun Tax	0.029	-	-
Accomplishments/Planned Programs Subtotals	48.233	43.457	32.975

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• GM0100: *Stryker (Mod)*	127.289	397.687	0.000	-	0.000	-	-	-	-	Continuing	Continuing
• G85200: *Stryker Upgrade*	265.290	513.858	847.212	-	847.212	903.648	938.202	910.545	906.095	Continuing	Continuing

Remarks

23 March 2018 Army Requirements Oversight Council (AROC) decision to exchange all remaining flat-bottom brigades results in continuing exchange production beginning in FY 2018 funded in Stryker Upgrade (G85200). Stryker MOD (GM0100) supports Stryker Fleet modifications and Lethality ECP retrofits in FY 2019-2025.

Beginning in FY 2021 the requirements and funding in the Stryker MOD (GM0100) will be moved to Stryker Upgrade (G85200).

D. Acquisition Strategy

The Stryker ECP 1 effort will buy back the vehicle space, weight, and power margin lost due to the addition of numerous kits in response to eleven years of war (20-combat rotations & 37+ million total miles), in order to allow integration of the future network (as directed by VCSA in August 2011) without further degrading the performance of the platform. In May 2012, Stryker ECP 1 program (Phase I) was approved, permitting preliminary design and integration efforts on both the Flat Bottom (FB) and DVH variants. In March 2013, Phase II was approved continuing design and integration of ECP 1 mechanical power, electrical power generation, chassis upgrades, and the in-vehicle network upgrades. Based on additional testing conducted in the summer of 2013, the decision was made to focus ECP 1 efforts on the DVH platform and defer efforts on flat-bottom Strykers. The effort has subsequently been renamed the Stryker DVH A1 ECP. The DVH A1 ECP Phase II contract, awarded November 25, 2013, continues development engineering, prototype build test and evaluation. The initial DVH A1 ECP production contract was awarded in October 2016 (Sole-Source Firm Fixed Price arrangement). A second and third buy of DVH A1 ECP vehicles was awarded as a Fixed Price Incentive Fee arrangement. A March 2018 AROC decision to pure fleet the Stryker brigades to DVH with the initial approval for 6 DVH A1 brigades. The objective acquisition strategy is to annually procure 1/2 of a brigade.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0203735A / *Combat Vehicle Improvement Programs*	**Project (Number/Name)** EE2 / *Stryker Improvement*

On July 2, 2015, ASARC authorization was granted to execute the Stryker 30mm ICVD ONS effort. 30mm ICVD Engineering, Manufacturing, and Development (EMD) contracts for Non-Recurring Engineering (NRE) and Logistics Products Development/Test Support were awarded in January 2016 and May 2016, respectively (Cost Plus Incentive-Fee basis). The 30mm ICVD ONS Production/Retrofit contract was awarded in May 2016 through an Undefinitized Contract Action (UCA). Definitization of the Fixed Price Incentive Fee (FPIF) Production contract occurred in March 2017.

The Stryker Lethality ECP efforts will focus on the integration of a suite of complementary Mission Equipment Package MEP lethality upgrades 30mm medium caliber weapon system, CROWS-J, common masted sensor, ATGM target acquisition optics, integration of emerging and existing technologies such as the Fire Direction Center requirement, Mobile Command, Integrated Visual Augmentation System (IVAS), Turreted Mortar, and other Stryker based platform solutions, and other capabilities) that will improve the suppressive fire and armored vehicle engagement capabilities across the Army's SBCTs. Army Acquisition Executive (AAE) approval to initiate the Stryker CROWS-J and ATGM ECP efforts was received in a September 30, 2016 Acquisition Decision Memorandum (ADM). A 30mm medium caliber weapon system (MCWS) decision was made in March 2019. The 30mm MCWS effort will award design studies to 5 vendors, evaluate the bid samples requested for production award to determine if there is a vehicle that is ready for production. If the none of the bid samples are production ready, then additional design/development will be required beginning in FY 2021. To improve platform survivability fleet wide, 360 Situational Awareness will be developed by integrating existing technologies, for fleet wide installation over a period of six years to allow the occupants during both open and closed hatch operations to visualize their immediate surrounding while stationary and on the move in adverse weather conditions.

In 2016, the Army approved the FDC requirement and the Field Artillery Battalion TAC using excess Flat Bottom Hull (FBH) Stryker during Force Design Update (FDU) process. Following the March 2018 Pure fleet AROC decision, Force Design Division (FDD) identified the Double V Hull A1 (DVH A1) as the platform for the FDC.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army			Date: February 2020
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Stryker 30mm ICVD ONS LethalityProject Management	MIPR	PEO GCS/TACOM : Sterling Heights, MI	9.602	-		-		-		-		-	0.000	9.602	-
Survivability Enhancement Government Engineering and Project Management	MIPR	PEO GCS/TACOM : Various	0.534	-		-		-		-		-	0.000	0.534	-
Project Management Office (PMO)	MIPR	PEO GCS/TACOM : Various	31.104	8.291	Jan 2019	5.772	Jan 2020	5.587	Jan 2021	-		5.587	23.488	74.242	-
FY2018 NDAA SEC 825 MDAP Cost Overrun	Allot	ASAALT : Huntsville, Alabama	-	0.029		-		-		-		-	0.000	0.029	-
		Subtotal	41.240	8.320		5.772		5.587		-		5.587	23.488	84.407	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Stryker DVH A1 ECP Development	SS/CPIF	GDLS, MI : Various	172.955	1.673	Dec 2018	5.587	Jan 2020	0.850	Jan 2021	-		0.850	0.000	181.065	-
Stryker DVH A1 ECP Training Device Updates	MIPR	PEO STRI, FL : Various	0.250	-		-		-		-		-	0.000	0.250	-
Stryker 30mm ICVD ONS Development	SS/CPIF	GDLS, MI : Various	79.895	-		-		-		-		-	0.000	79.895	-
Stryker Lethality ECPs Development	C/Various	PM CSW; PM CCWS : Various	36.383	13.230	Jan 2019	12.063	Jan 2020	7.192	Jan 2021	-		7.192	20.917	89.785	-
Stryker Lethaliy ECPs Training Device Updates	MIPR	PEO STRI, FL : Various	0.125	-		-		-		-		-	0.000	0.125	-
Stryker Survivability Enhancement	Various	US Army TARDEC, Various : Sterling Heights, MI	16.169	-		1.673	Jan 2020	3.730	Jan 2021	-		3.730	4.215	25.787	-
Stryker Power System Development	MIPR	US Army TARDEC, Various : US Army TARDEC	-	1.900	Feb 2019	2.200	Feb 2020	1.200		-		1.200	0.000	5.300	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army			Date: February 2020
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Stryker Wireless Intercom Development	C/CPFF	Ricardo Defense : Washington DC	-	2.500	Apr 2019	-		-		-		-	0.000	2.500	-
Stryker Fire Direction Center Variant Development	TBD	TBD : TBD	-	-		-		8.811	Jan 2021	-		8.811	14.815	23.626	-
		Subtotal	305.777	19.303		21.523		21.783		-		21.783	39.947	408.333	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Stryker DVH A1 ECP Testing	MIPR	Army Test Centers : Various	45.259	0.710	Dec 2018	-		-		-		-	0.000	45.969	-
Stryker DVH A1 ECP Contractor Support to Test	SS/CPFF	GDLS, MI : Various	39.258	-		-		-		-		-	0.000	39.258	-
Stryker 30mm ICVD ONS Test	MIPR	Army Test Centers : Various	21.324	-		-		-		-		-	0.000	21.324	-
Stryker 30mm ICVD ONS Contractor Support to Test	SS/CPFF	GDLS, MI : Various	26.724	-		-		-		-		-	0.000	26.724	-
Stryker Lethality ECPs Testing	MIPR	Army Test Centers : Various	5.096	16.300	Dec 2018	16.162	Jan 2020	0.427	Dec 2020	-		0.427	0.000	37.985	-
Stryker Lethality ECPs Contractor Support to Test	MIPR	Various : Various	0.698	-		-		-		-		-	0.000	0.698	-
Stryker Survivability Enhancement	MIPR	Army Test Centers : Various	5.845	-		-		0.797	Dec 2020	-		0.797	0.000	6.642	-
Stryker Power System Testing	MIPR	Army Test Centers : Various	-	1.100	Feb 2019	-		4.381	Dec 2020	-		4.381	0.825	6.306	-
Stryker Wireless Intercom Testing	MIPR	Army Test Centers : Various	-	2.500	Jun 2019	-		-		-		-	0.000	2.500	-
		Subtotal	144.204	20.610		16.162		5.605		-		5.605	0.825	187.406	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army			Date: February 2020
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	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	491.221	48.233		43.457		32.975		-		32.975	64.260	680.146	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
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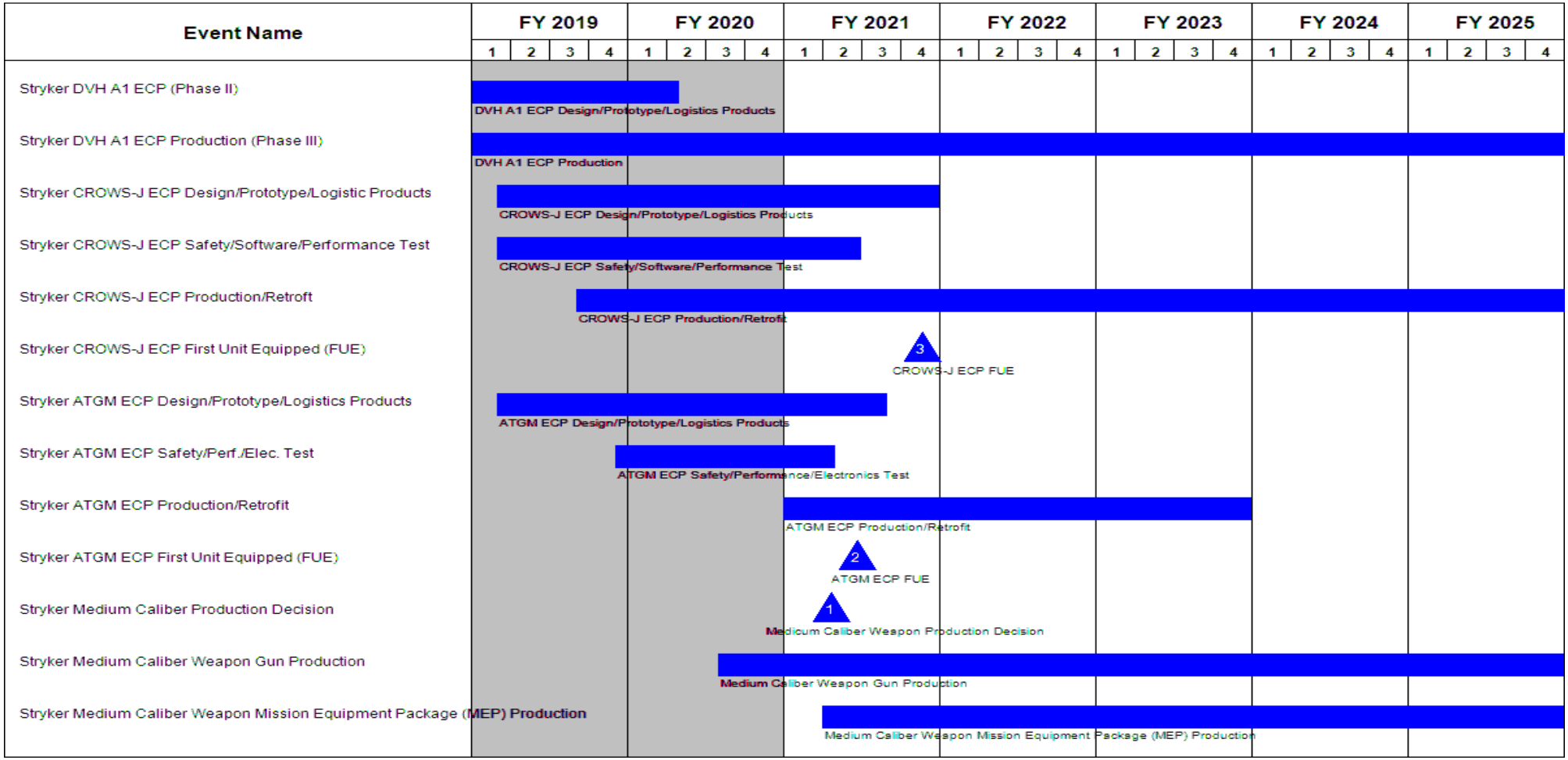

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
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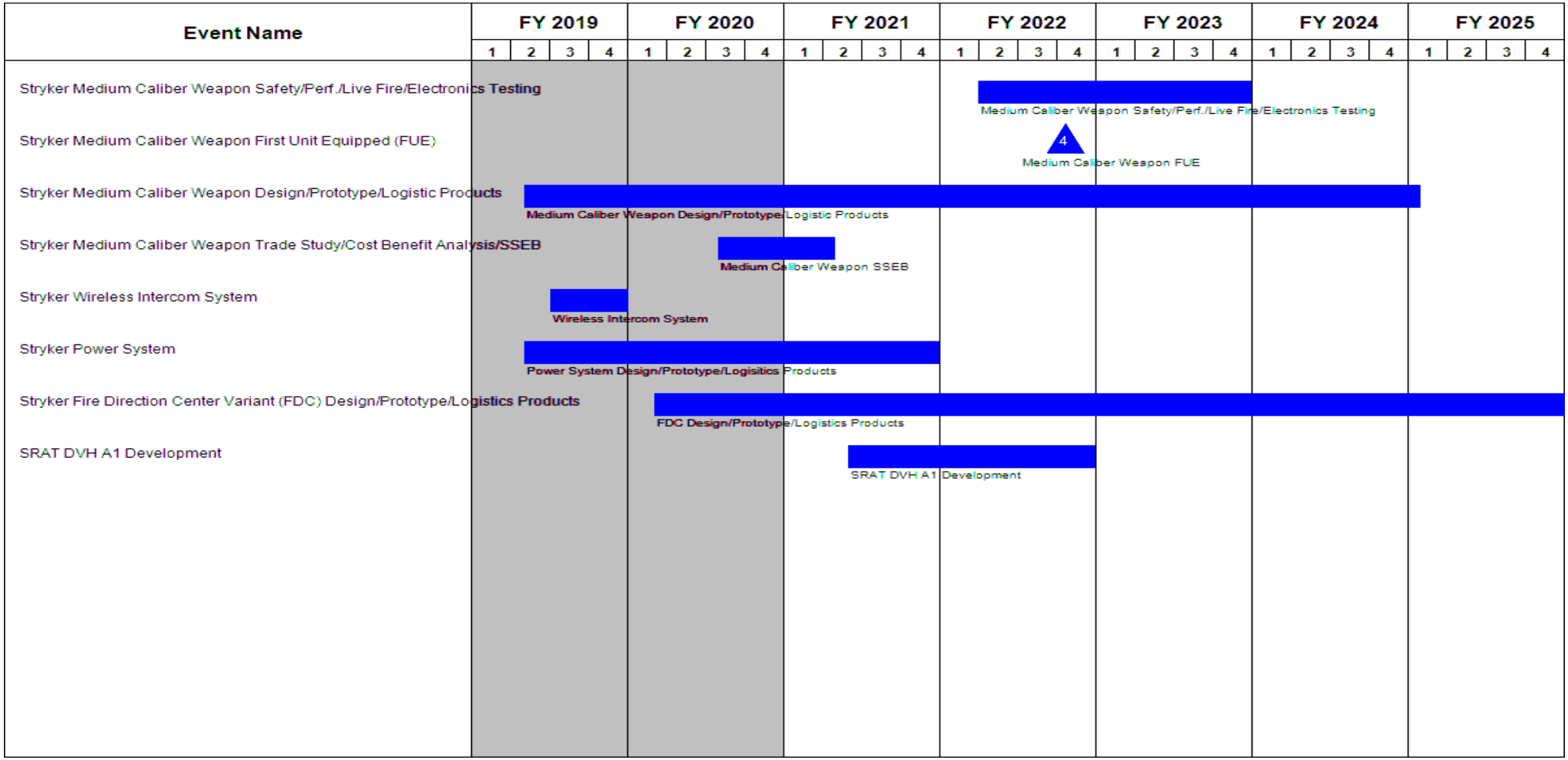

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Stryker DVH A1 ECP (Phase II)	1	2014	2	2020
Stryker DVH A1 ECP Production (Phase III)	1	2017	4	2030
Stryker CROWS-J ECP Design/Prototype/Logistic Products	1	2019	4	2021
Stryker CROWS-J ECP Safety/Software/Performance Test	1	2019	2	2021
Stryker CROWS-J ECP Production/Retroft	3	2019	4	2029
Stryker CROWS-J ECP First Unit Equipped (FUE)	4	2021	4	2021
Stryker ATGM ECP Design/Prototype/Logistics Products	1	2018	3	2021
Stryker ATGM ECP Safety/Perf./Elec. Test	4	2019	2	2021
Stryker ATGM ECP Production/Retrofit	1	2021	4	2023
Stryker ATGM ECP First Unit Equipped (FUE)	2	2021	2	2021
Stryker Medium Caliber Production Decision	2	2021	2	2021
Stryker Medium Caliber Weapon Gun Production	3	2020	4	2025
Stryker Medium Caliber Weapon Mission Equipment Package (MEP) Production	2	2021	4	2025
Stryker Medium Caliber Weapon Safety/Perf./Live Fire/Electronics Testing	2	2022	4	2023
Stryker Medium Caliber Weapon First Unit Equipped (FUE)	4	2022	4	2022
Stryker Medium Caliber Weapon Design/Prototype/Logistic Products	2	2019	1	2025
Stryker Medium Caliber Weapon Trade Study/Cost Benefit Analysis/SSEB	3	2020	2	2021
Stryker Wireless Intercom System	3	2019	4	2019
Stryker Power System	2	2019	4	2021
Stryker Fire Direction Center Variant (FDC) Design/Prototype/Logistics Products	1	2020	1	2030
SRAT DVH A1 Development	2	2021	4	2022