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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2020 Army **Date:** March 2019

<b>Appropriation/Budget Activity</b> 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development					<b>R-1 Program Element (Number/Name)</b> PE 0203735A / Combat Vehicle Improvement Programs							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	293.921	336.063	334.463	-	334.463	273.052	199.165	158.680	142.288	Continuing	Continuing
280: RECOV VEH IMPROV PROG	-	12.800	25.312	68.752	-	68.752	94.584	85.047	57.429	7.830	Continuing	Continuing
330: Abrams Tank Improve Prog	-	93.739	165.655	119.645	-	119.645	83.983	68.332	63.419	99.979	Continuing	Continuing
371: Bradley Improve Prog	-	121.374	86.877	89.697	-	89.697	46.925	23.381	24.843	19.974	Continuing	Continuing
431: M113 IMPROVEMENTS	-	0.000	7.905	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.905
EE2: Stryker Improvement	-	63.032	50.314	56.369	-	56.369	47.560	22.405	12.989	14.505	0.000	267.174
FD8: Light Armored Vehicle Improvement	-	2.976	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.976

## Note

PE Number 0203735A/Project EE2 funds development 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, and Stryker Lethality ECPs (formerly referred to as Stryker ECP 2). PE Number 0203735A/Project FD8 funds the development of LAV25 enhancements.

## A. Mission Description and Budget Item Justification

This Program Element (PE) 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 3Q FY 2011.

The Recovery Vehicle Improvement program is a group of ECPs that will allow the current recovery vehicle to regain Single Vehicle Recovery (SVR) for the heaviest tracked combat vehicle. The current M88A2 is not capable of Single Vehicle Recovery of the M1A2 SEPv2 in all situations and the M1A2C (formerly M1A2 SEPv3) fielding in FY 2020 will further exacerbate the recovery problem.

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 Engineering Change Proposals (ECPs) to support the

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<p>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.</p> <p>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).</p> <p>Stryker Improvement will address the development of Lethality, Survivability, Mobility, 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 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, and an under-armor fire capability for Stryker-equipped reconnaissance troops. 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 mast 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.</p> <p>Light Armored Vehicle improvement program will design, test and modify two Light Armored Vehicles (LAV-25A2s) for Low Velocity Air Drop (LVAD) to inform operational concepts for Infantry Brigade Combat Teams (IBCT) in support of Global Response Force early entry operations. This directly supports the expeditionary maneuver excursion conducted by the XVIII Airborne Corps in FY 2017- FY 2018. The Light Armored Vehicle improvement program will also execute a Company-size LAV-25 excursion that will inform the development of initial Company Tactics, Techniques, and Procedures (TTP) to be utilized during the FY 2020 Mobile Protected Firepower (MPF) Soldier Vehicle Assessment (SVA).</p>		

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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			
B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	343.175	411.927	335.086	-	335.086
Current President's Budget	293.921	336.063	334.463	-	334.463
Total Adjustments	-49.254	-75.864	-0.623	-	-0.623
• Congressional General Reductions	-0.251	-0.364			
• Congressional Directed Reductions	-33.000	-117.500			
• Congressional Rescissions	-	-			
• Congressional Adds	11.000	42.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-14.874	-			
• SBIR/STTR Transfer	-12.129	-			
• Adjustments to Budget Years	-	-	-0.623	-	-0.623
Change Summary Explanation					
FY 2018 Congressional Rescission of \$40M.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 280 / RECOV VEH IMPROV PROG			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
280: RECOV VEH IMPROV PROG	-	12.800	25.312	68.752	-	68.752	94.584	85.047	57.429	7.830	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 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 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.

FY 2020 Base dollars will continue the design, development, integration, prototype build, as well as pay government salaries. The prototype vehicles will enter testing in FY 2021 to confirm technical solutions meet performance requirements.

## B. Accomplishments/Planned Programs (\$ in Millions)

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
<b>Title:</b> Program Management Office (PMO) Support	2.000	2.000	6.080	-	6.080
<b>Description:</b> 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.					
<b>FY 2019 Plans:</b> Continue United States Government (USG) acquisition activities to support a contractor full vehicle prototype delivery in FY 2021, continue the agreement with a target completion in FY 2022. These activities will include conducting contractor surveillance, receipt of CDRLS, contract changes as required and conducting of key program milestones.					

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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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Execute ramp up activities within the PMO office to support the design maturity review, support subsystem design reviews. Conduct contract surveillance, receipt of CDRLS, and manage the Other Transaction Authority agreement to support vehicle prototype testing in FY 2021.  <b>FY 2020 Base Plans:</b> Oversight of 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.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase in efforts will require additional government and in-house contractor Program Management Support.						
<b>Title:</b> Test and Evaluation  <b>Description:</b> Concept and Evaluation activities include contractor and government testing, as well as test documentation development. Contractor prove-out testing will be conducted using U.S. Army test facilities. 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.		1.000	-	-	-	-
<b>Title:</b> Product Development  <b>Description:</b> Design, and Development of Engineering Change Proposals (ECPs).  <b>FY 2019 Plans:</b> Funding will support the award of the M88A3 Single Vehicle Recovery ECP, execute the start of work meeting, and support baseline requirements assessment. Funding will also support allocation to meet single vehicle recovery of the heaviest tracked combat vehicle. Finally, the funding will support the ordering of long lead prototype hardware to support vehicle integration activities.  <b>FY 2020 Base Plans:</b> Funding will support contractor development of the M88A3 Single Vehicle Recovery ECP, design maturity review, support subsystem technical review, finalize design to support vehicle integration activities in late FY 2020 and early FY 2021.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b>		9.800	22.852	62.672	-	62.672

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Army					<b>Date:</b> March 2019	
<b>Appropriation/Budget Activity</b> 2040 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>		<b>Project (Number/Name)</b> 280 / <i>RECOV VEH IMPROV PROG</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
			<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>
The increase in FY 2020 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.						
<b>Title:</b> FY 2019 SBIR / STTR Transfer			-	0.460	-	-
<b>Description:</b> FY 2019 SBIR / STTR Transfer						
<b>FY 2019 Plans:</b> FY 2019 SBIR / STTR Transfer						
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> FY 2019 SBIR / STTR Transfer						
<b>Accomplishments/Planned Programs Subtotals</b>			12.800	25.312	68.752	-
<b>C. Other Program Funding Summary (\$ in Millions)</b>						
<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>
• GA0570: <i>Improved Recovery Vehicle (M88A2 HERCULES)</i>	153.378	152.854	0.000	80.146	80.146	-
• G80571: <i>M88 FOV MODS</i>	4.826	4.517	4.500	-	4.500	8.000
						6.000
						-
						-
						0.000
						27.843
<b>Remarks</b>						
<b>D. Acquisition Strategy</b>						
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 2021. After completion of the test, a follow-on OTA contract will be awarded to produce up to 3 brigades of initial production vehicles. FAR based contracts will be awarded to complete production of the remaining vehicles up to the Army Acquisition Objective (AAO).						
<b>E. Performance Metrics</b>						
N/A						

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 280 / RECOV VEH IMPROV PROG					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Office (PMO) Support	MIPR	PMO Support Offices : Various	-	1.500	May 2018	2.000	Jan 2019	6.080	Jan 2020	-		6.080	0.000	9.580	-
Subtotal			-	1.500		2.000		6.080		-		6.080	0.000	9.580	N/A
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	Various	Various : TBD	-	10.798	Jul 2019	22.852	Jul 2019	62.672	Jan 2020	-		62.672	0.000	96.322	-
FY 2019 SBIR / STTR Transfer	TBD	TBD : TBD	-	-		0.460	Nov 2018	-		-		-	0.000	0.460	-
Subtotal			-	10.798		23.312		62.672		-		62.672	0.000	96.782	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	Various	Various : Various	-	0.502	Jul 2018	-		-		-		-	0.000	0.502	-
Subtotal			-	0.502		-		-		-		-	0.000	0.502	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	12.800		25.312		68.752		-		68.752	0.000	106.864	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army																Date: March 2019												
Appropriation/Budget Activity 2040 / 7										R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs								Project (Number/Name) 280 / RECOV VEH IMPROV PROG										
Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
M88A3 ECP Pre-Contract Award Activity																												
M88A3 ECP OTA Contract Award																												
M88A3 ECP Design/Develop Prototype Build																												
M88A3 ECP Developmental Test (DT)																												
M88A3 ECP Initial Production Contract Award																												
M88A3 ECP Fielding Start Date (First Unit Equipped)																												
M88A3 ECP Production Award																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Army			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> 280 / <i>RECOV VEH IMPROV PROG</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
M88A3 ECP Pre-Contract Award Activity	3	2018	3	2019
M88A3 ECP OTA Contract Award	3	2019	3	2019
M88A3 ECP Design/Develop Prototype Build	4	2019	3	2021
M88A3 ECP Developmental Test (DT)	2	2021	4	2022
M88A3 ECP Initial Production Contract Award	1	2023	1	2023
M88A3 ECP Fielding Start Date (First Unit Equipped)	3	2024	3	2024
M88A3 ECP Production Award	1	2024	1	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 330 / Abrams Tank Improve Prog			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
330: Abrams Tank Improve Prog	-	93.739	165.655	119.645	-	119.645	83.983	68.332	63.419	99.979	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
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 3Q 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, 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Abrams Power Engineering Change Proposal M1A2SEPV3/ECP 1A								7.842	6.283	11.709	-	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 2019 Plans: The USG will complete Live Fire Test and Evaluation (LFT&E) and Follow-on Operational Test and Evaluation (FOT&E). The USG will continue Production Qualification Testing (PQT). Logistics will finalize technical manual development and complete the logistics demonstration.												
FY 2020 Base Plans: The USG will complete Production Qualification Testing (PQT), logistics product development, engineering actions following the completion of USG testing, and contract close out actions.												
FY 2019 to FY 2020 Increase/Decrease Statement:												

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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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
FY 2020 increase is due to the contract closing out in FY 2020 and funding the incentive fee.						
Title: Training Device Updates		3.761	0.491	-	-	-
Description: Development and design of training device upgrades to reflect upgrades to the vehicle.						
FY 2019 Plans: Continue development, design, test, and evaluation activities of training device upgrade kits.						
FY 2019 to FY 2020 Increase/Decrease Statement: Training Device Updates funded in FY 2019.						
Title: Abrams Lethality Engineering Change Proposal M1A2SEP V4/ECP 1B		61.289	129.521	91.535	-	91.535
Description: The Abrams SEP V4 program consists of lethality improvements. The primary focus is the integration of 3GEN Forward Looking Infrared (FLIR) and the integration of Ammunition Data Link (ADL) for the Advanced Multi-purpose (AMP) round. Additional improvements to the target acquisition sensors consist of inclusion of color cameras, laser capabilities, and image processing improvements. Other potential improvements consist of an improved environmental control system, laser warning receiver, vehicle smoke generation, survivability enhancements, signature management improvements, embedded training enhancements, 360 degree 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 2019 Plans: SEP V4 completed a Preliminary Design Review (PDR) in 1Q FY 2019 and began critical design efforts. The primary tasks focused on systems engineering, design trade studies, engineering modeling and analysis, initial hardware mockups, and software development. Early hardware will be used to continue Design Verification Testing (DVT). Test and logistics planning will be completed throughout FY 2019. PM Abrams will begin to integrate the Advanced Multi-Purpose (AMP) round into the Abrams SEP V4.						
FY 2020 Base Plans: SEP V4 will complete a Critical Design Review (CDR) in 1Q FY 2020, begin component qualification testing, and continue prototype vehicle build planning. The primary tasks will be focused on systems engineering, test						

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
planning, prototype hardware procurement, software development, logistics planning, and TDP development. Final hardware will be used for component qualification testing. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> The decrease in SEP V4 funding results from being complete with the design phase and purchase of many long lead items. In FY 2020 many of the items that were procured with FY 2019 dollars begin arriving for component qualification testing and early prototype vehicle build.						
<b>Title:</b> Program Management Office (PMO) Support  <b>Description:</b> Program Management Office Support includes Systems Engineering and Government and Contractor salaries, travel and other support costs required to effectively manage the program.  <b>FY 2019 Plans:</b> Continue Government Systems Engineering and Program Management office support in FY 2019. This includes labor, training, travel, supplies, and equipment to effectively manage the program.  <b>FY 2020 Base Plans:</b> Will 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.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Program Management has decreased due to completion of the SEP V4 design phase in early FY 2020 and completion of the SEP V3 contract in mid FY 2020.		6.567	7.873	7.473	-	7.473
<b>Title:</b> Test & Evaluation  <b>Description:</b> 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.  <b>FY 2019 Plans:</b>		12.780	14.520	3.660	-	3.660

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
The USG will complete Live Fire Test and Evaluation (LFT&E) and Follow-on Operational Test and Evaluation (FOT&E). The USG will continue Production Qualification Testing (PQT).						
FY 2020 Base Plans: The USG will complete any remaining SEP V3 and AMP testing.						
FY 2019 to FY 2020 Increase/Decrease Statement: The decrease is due to the completion of SEP V3 testing in mid FY 2020.						
Title: Test & Evaluation - Engineering Change Proposal M1A2SEP V4/ECP 1B		-	-	3.268	-	3.268
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 Base Plans: Begin SEP V4 testing and evaluation. Testing will include component qualification testing, detailed vehicle test planning, and initial test site preparation (spares, test equipment, instrumentation, etc.).						
FY 2019 to FY 2020 Increase/Decrease Statement: Begin SEP V4 testing.						
Title: Lethality and Survivability Enhancements		1.500	1.000	2.000	-	2.000
Description: Enhances lethality primarily through integration of improved munitions (smart rounds). Survivability enhancements will focus on improved sensors, 360 Situational Awareness, active protection systems, or other vehicle protection system technologies.						
FY 2019 Plans: Abrams will continue integration of next generation smart rounds. PM Abrams will complete the integration of the Advanced Multi-Purpose (AMP) round into the Abrams family of vehicles (FOV). AMP efforts will focus on laser development and qualification, vehicle testing, and tech data development. Other efforts include integration of survivability sensors and enhancements such as Laser Warning Receivers, 360 SA, or other emerging technologies.						
FY 2020 Base Plans:						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Army										<b>Date:</b> March 2019	
<b>Appropriation/Budget Activity</b> 2040 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				<b>Project (Number/Name)</b> 330 / <i>Abrams Tank Improve Prog</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>											
						<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	
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).											
<b><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i></b> Additional work reflecting AROC guidance received Summer FY 2018. Increase in FY 2020 supports initial integration of next generation smart rounds, vehicle testing and survivability enhancements.											
<b><i>Title:</i></b> FY 2019 SBIR / STTR Transfer						-	5.967	-	-	-	
<b><i>Description:</i></b> FY 2019 SBIR / STTR Transfer											
<b><i>FY 2019 Plans:</i></b> FY 2019 SBIR / STTR Transfer											
<b><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i></b> FY 2019 SBIR / STTR Transfer											
<b>Accomplishments/Planned Programs Subtotals</b>						93.739	165.655	119.645	-	119.645	
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• GA0750: <i>Abrams Upgrade Program</i>	1,088.300	1,527.243	1,752.784	-	1,752.784	797.444	1,074.597	1,429.138	1,499.122	Continuing	Continuing
• GA0700: <i>M1 Abrams Tank (MOD)</i>	602.026	959.041	348.800	13.100	361.900	399.314	369.166	386.422	370.544	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b> Abrams Power M1A2: Research & Development Contract - Sole Source, Cost Plus Incentive Fee (CPIF); M1A2D - Research & Development Contract - Sole Source, Cost Plus Incentive Fee (CPIF)											
<b>E. Performance Metrics</b> N/A											

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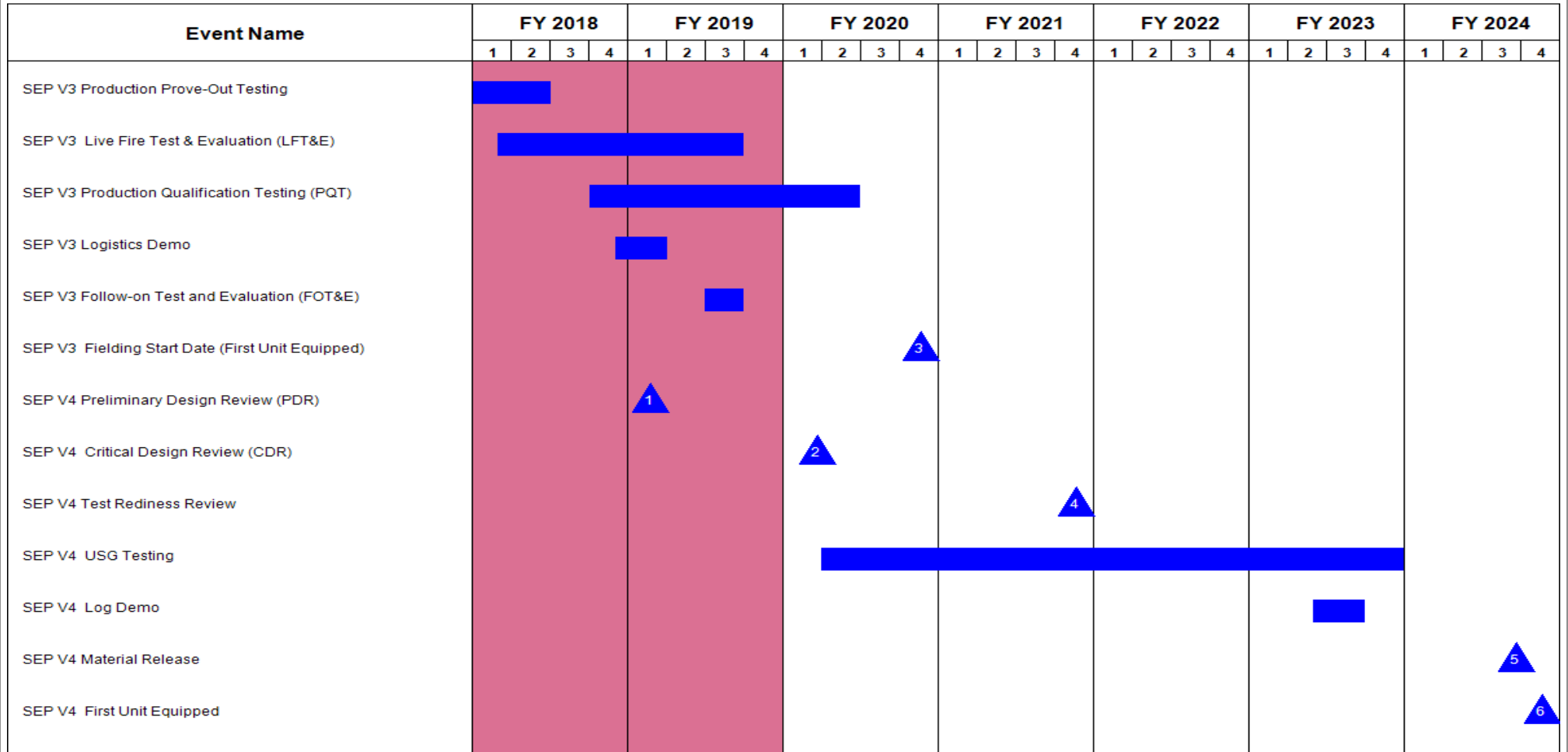
Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs					Project (Number/Name) 330 / Abrams Tank Improve Prog				
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Abrams SEP V3	SS/CPIF	General Dynamics Land Systems : Sterling Heights, MI	331.132	3.900	Dec 2017	3.642	Feb 2019	11.709	Feb 2020	-		11.709	Continuing	Continuing	Continuing
SEP V3 Training Device Upgrades	MIPR	PEO, STRI : Orlando, FL	-	3.761	Jul 2018	0.491	Dec 2018	-		-		-	Continuing	Continuing	Continuing
Abrams SEP V4	SS/CPIF	General Dynamics Land Systems : Sterling Heights, MI	34.293	61.289	Oct 2017	129.521	Nov 2018	91.535	Nov 2019	-		91.535	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	51.888	1.500	Apr 2018	1.000	Apr 2019	2.000	Mar 2020	-		2.000	Continuing	Continuing	-
FY 2019 SBIR / STTR Transfer	TBD	TBD : TBD	-	-		5.967	Nov 2018	-		-		-	0.000	5.967	-
Subtotal			424.441	70.450		140.621		105.244		-		105.244	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Office (PMO)Support	MIPR	PMO Support Offices : Various	72.427	6.567	Jan 2018	7.873	Jan 2019	7.473	Jan 2020	-		7.473	Continuing	Continuing	Continuing
Program Management Office (PMO) Support - Survivability Enhancements	MIPR	PMO Support Offices : Various	2.207	-		-		-		-		-	0.000	2.207	-
Subtotal			74.634	6.567		7.873		7.473		-		7.473	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 330 / Abrams Tank Improve Prog					
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Testing	MIPR	Aberdeen Proving Ground; Yuma Proving Ground; White Sands Missile Range, : Various	35.602	12.780	Jan 2018	14.520	Jan 2018	2.000	Jan 2020	-		2.000	Continuing	Continuing	Continuing
Government Testing SEP V3	MIPR	Various : Various	-	-		-		1.239	Jan 2020	-		1.239	Continuing	Continuing	-
Contractor Testing SEP V3	Various	Various : Various	34.961	3.942	Dec 2017	2.641	Feb 2019	1.660	Feb 2020	-		1.660	Continuing	Continuing	Continuing
Contractor Testing SEP V4	Various	Various : Various	-	-		-		2.029	Feb 2020	-		2.029	Continuing	Continuing	-
Government Testing - Survivability Enhancements	Various	Various : Various	24.491	-		-		-		-		-	0.000	24.491	-
Subtotal			95.054	16.722		17.161		6.928		-		6.928	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			594.129	93.739		165.655		119.645		-		119.645	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2020 Army</b>			<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 2040 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>		<b>Project (Number/Name)</b> 330 / <i>Abrams Tank Improve Prog</i>	



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Army			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> 330 / <i>Abrams Tank Improve Prog</i>	

## Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Abrams Engineering Change Proposal SEP V3	4	2011	4	2011
SEP V3 Component Qualification Testing	4	2014	1	2017
SEP V3 Contractor Prototype Proveout	3	2015	1	2016
SEP V3 Production Prove-Out Testing	1	2016	2	2018
SEP V3 Live Fire Test & Evaluation (LFT&E)	1	2018	3	2019
SEP V3 Production Qualification Testing (PQT)	4	2018	2	2020
SEP V3 Logistics Demo	4	2018	1	2019
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
Abrams Engineering Change Proposal SEP V4	4	2017	4	2017
SEP V4 Preliminary Design Review (PDR)	1	2019	1	2019
SEP V4 Critical Design Review (CDR)	1	2020	1	2020
SEP V4 Test Rediness Review	4	2021	4	2021
SEP V4 USG Testing	2	2020	4	2023
SEP V4 Log Demo	2	2023	3	2023
SEP V4 Material Release	3	2024	3	2024
SEP V4 First Unit Equipped	4	2024	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 371 / Bradley Improve Prog			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
371: Bradley Improve Prog	-	121.374	86.877	89.697	-	89.697	46.925	23.381	24.843	19.974	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The Bradley Family of Vehicles is at or exceeds Space, Weight, and Power-Cooling (SWAP-C) limitations. To restore lost platform capability and to host other Army existing program of records, the Bradley Fighting Vehicle program shall execute a series of Engineering Change Proposals (ECPs). The track and suspension ECP improves the vehicle's track and suspension while the Bradley A4 (Mobility) ECP improves the power train and electrical system to enable the Bradley fleet to host inbound technologies from Army program of records, including mission command systems. The Bradley A4 development effort led to a production decision in FY 2017. Product Manager Bradley will characterize a Non Developmental Item (NDI) to develop force protection and survivability improvements to counter evolving threats to include, but not limited to Active Protection System. A separate integration effort began in FY 2018 for an underbelly armor kit for improved survivability against blast threats.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Bradley A4 Engineering Change Proposal (ECP) Program								23.513	0.250	11.443	-	11.443
Description: The Bradley Fighting Vehicle System (BFVS) improvements implemented through the Engineering Change Proposal (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 2019 Plans: The Bradley A4 ECP program will continue reliability upgrades identified in government developmental testing in order to meet or exceed the reliability requirement.												
FY 2020 Base Plans: Provides funding for the development of maintenance training devices related to A4 (Mobility).												
FY 2019 to FY 2020 Increase/Decrease Statement: Increase in FY 2020 funds the training device requirement for fielding A4.												
Title: Bradley A5 Engineering Change Proposal (ECP) Program								5.000	-	-	-	-
Description: Continues Third Generation Forward Looking Infrared (3GEN FLIR) and other necessary technology integration efforts.												

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019			
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs	Project (Number/Name) 371 / Bradley Improve Prog				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p><b>Title:</b> Survivability Enhancements</p> <p><b>Description:</b> Developing force protection and survivability improvements to counter evolving threats to include, but not limited to the underbelly interim solution (UBIS). The Bradley Family of Vehicles (BFV) will integrate underbelly armor for improved survivability against underbelly blast events.</p> <p><b>FY 2019 Plans:</b> Engineering, logistics, test, and program management will continue development; begin contractor testing; conduct USG testing; and the logistics support Maintenance Allocation Chart (MAC), provisioning plan, test support package, MWO development, and Logistics Demonstration (LOGDEMO) of the Underbelly Interim Solution (UBIS). Development of software upgrades such as, but not limited to, rearview sensor system and installation of a man portable short range air defense (SHORAD).</p> <p><b>FY 2020 Base Plans:</b> Engineering, logistics, test, and program management to continue development; complete contractor testing; conduct USG testing; and complete the logistics support Maintenance Allocation Chart (MAC), provisioning plan, test support package, MWO development, and Logistics Demonstration (LOGDEMO) of the Underbelly Interim Solution (UBIS). Integration analysis, installation assessment and engineering support for execution of Bradley modifications.</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> FY 2020 funding has decreased since the underbelly interim solution development is scheduled to complete in FY 2020.</p>		-	22.400	2.249	-	2.249
<p><b>Title:</b> Program Management Office (PMO) Support</p> <p><b>Description:</b> Program Management Office Support includes systems engineering, government and contractor salaries, travel, training and other support costs required to effectively manage the program.</p> <p><b>FY 2019 Plans:</b> 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, engineering phases of Bradley A5 ECP (Lethality), and execute UBIS and other development activities.</p> <p><b>FY 2020 Base Plans:</b></p>		8.393	9.084	5.560	-	5.560

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army				Date: March 2019		
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) 371 / Bradley Improve Prog		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
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 execute UBIS and other development activities.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Program Management has increased slightly in FY 2020 due to the fluctuations in support costs.						
<b>Title:</b> Test & Evaluation  <b>Description:</b> Test & Evaluation efforts support developmental and operational test events. These events include test planning, system and subsystem testing, and development of test documentation.  <b>FY 2019 Plans:</b> Conduct Bradley A4 ECP operational testing and will continue MWO test activities.  <b>FY 2020 Base Plans:</b> Will conduct Bradley A4 Operational Testing and continue MWO, current fleet enhancement, and Bradley improvement test activities.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Test and Evaluation has decreased in FY 2020 due to the cancellation of SAPA transmission testing and A4 Production Verification Testing will be procurement funded.		9.937	17.125	16.235	-	16.235
<b>Title:</b> Current Fleet Enhancements  <b>Description:</b> 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.  <b>FY 2019 Plans:</b> Conduct integration activities for Army directed improvements such as, but not limited to, rear view sensor system, vehicle generated smoke, and upgrade and maintain software for the current fleet of vehicles.  <b>FY 2020 Base Plans:</b>		-	32.158	41.918	-	41.918

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army								Date: March 2019				
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 371 / Bradley Improve Prog				
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Will continue to conduct integration activities for Army directed improvements such as, but not limited to, rear view sensor system, vehicle generated smoke, and upgrade and maintain software for the current fleet of vehicles.												
FY 2019 to FY 2020 Increase/Decrease Statement: Funding added in FY 2020 will allow Bradley to enhance the architecture with the current fleet.												
Title: Bradley Improvements								34.531	-	12.292	-	12.292
Description: Provides funding for the analysis, engineering, development, and integration to support Army directed inbound technologies and other improvements to the Bradley Family of Vehicles.												
FY 2020 Base Plans: Will conduct 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 2019 to FY 2020 Increase/Decrease Statement: Funding added in FY 2020 will allow Bradley to improve vehicle diagnostics and user interface, increased situational awareness, and improved powertrain performance and reliability.												
Title: FY 2018 Congressional Rescission								40.000	-	-	-	-
Title: FY 2019 SBIR / STTR Transfer								-	5.860	-	-	-
Description: FY 2019 SBIR / STTR Transfer												
FY 2019 Plans: FY 2019 SBIR / STTR Transfer												
FY 2019 to FY 2020 Increase/Decrease Statement: FY 2019 SBIR / STTR Transfer												
Accomplishments/Planned Programs Subtotals								121.374	86.877	89.697	-	89.697
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• GZ2400: Bradley Program (MOD)	585.851	515.424	638.781	-	638.781	715.310	487.603	60.919	55.913	0.000	3,059.801	

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Army			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> 371 / <i>Bradley Improve Prog</i>	

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• G80718: <i>BRADLEY PROGRAM</i>	483.050	205.000	0.000	-	0.000	-	-	-	-	0.000	688.050

**Remarks**

**D. Acquisition Strategy**

Product Manager Bradley will execute a series of Engineering Change Proposals (ECP) reestablishing Space, Weight, Power and Cooling (SWAP-C) to facilitate integration of technologies being developed under existing Programs of Record (POR). The Track and Suspension ECP production contract was awarded in FY 2014, and began fielding in FY 2015. Bradley A4 development has been executed on a sole source cost plus incentive fee contract to the current platform Original Equipment Manufacturer. Bradley A4 (Mobility) ECP is scheduled to begin fielding in FY 2020 to address powertrain and electrical power upgrades, which will enable the vehicle to host inbound technologies from Army program of records, including mission command systems, with no further performance degradation to the vehicle. Product Manager Bradley will characterize a Non-Developmental Item (NDI) Active Protection System in order to develop force protection and survivability improvements to counter evolving threats.

**E. Performance Metrics**

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 371 / Bradley Improve Prog					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Bradley A4 Engineering Change Proposal (ECP) Program	SS/CPIF	PMO : Warren	79.009	-		0.250	Feb 2019	-		-		-	0.000	79.259	-
Non Recurring Engineering-Bradley A4 ECP	SS/FFP	L3COM : Muskegon, MI	16.223	-		-		-		-		-	0.000	16.223	-
Non Recurring Engineering- Bradley A4 ECP	SS/CPIF	BAE : Sterling Heights, MI	253.017	23.513	Nov 2017	-		-		-		-	0.000	276.530	-
Non Recurring Engineering- Bradley A4 ECP TADDS	TBD	TBD : TBD	-	-		-		11.443	Mar 2020	-		11.443	Continuing	Continuing	Continuing
Bradley A5 ECP (Lethality)	SS/CPIF	BAE : Sterling Heights, MI	39.817	5.000	Nov 2017	-		-		-		-	0.000	44.817	-
Survability Enhancements - Underbelly Armor	SS/CPIF	TBD : TBD	0.182	-		20.400	Sep 2019	2.249	Sep 2020	-		2.249	0.000	22.831	-
Current Fleet Enhancements	C/TBD	TBD : TBD	-	-		34.158	Aug 2019	41.918	Dec 2020	-		41.918	Continuing	Continuing	Continuing
Bradley Improvements	C/TBD	TBD : TBD	-	34.531		-		12.292	Mar 2020	-		12.292	Continuing	Continuing	Continuing
FY 2019 SBIR / STTR Transfer	TBD	TBD : TBD	-	-		5.860	Nov 2018	-		-		-	0.000	5.860	-
FY 2018 Congressional Recission	SS/ Various	TBD : TBD	-	40.000	Nov 2018	-		-		-		-	0.000	40.000	-
Subtotal			388.248	103.044		60.668		67.902		-		67.902	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PMO/PEO Support/OGA	MIPR	PMO/PEO : Bradley ECP Program	27.314	4.622	Dec 2017	6.903	Dec 2019	3.360	Dec 2020	-		3.360	Continuing	Continuing	Continuing

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2020 Army												<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 2040 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				<b>Project (Number/Name)</b> 371 / <i>Bradley Improve Prog</i>				

<b>Support (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Government Engineering Support	MIPR	Various : Bradley ECP Program	44.433	3.771	Dec 2017	2.181	Dec 2018	2.200	Dec 2020	-		2.200	Continuing	Continuing	Continuing
<b>Subtotal</b>			71.747	8.393		9.084		5.560		-		5.560	Continuing	Continuing	N/A

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Government Testing	MIPR	Various : Test Sites	33.054	9.937	Dec 2017	17.125	Jan 2019	16.235	Jul 2020	-		16.235	Continuing	Continuing	Continuing
<b>Subtotal</b>			33.054	9.937		17.125		16.235		-		16.235	Continuing	Continuing	N/A

			<b>Prior Years</b>	<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			493.049	121.374		86.877		89.697		-		89.697	Continuing	Continuing	N/A

**Remarks**

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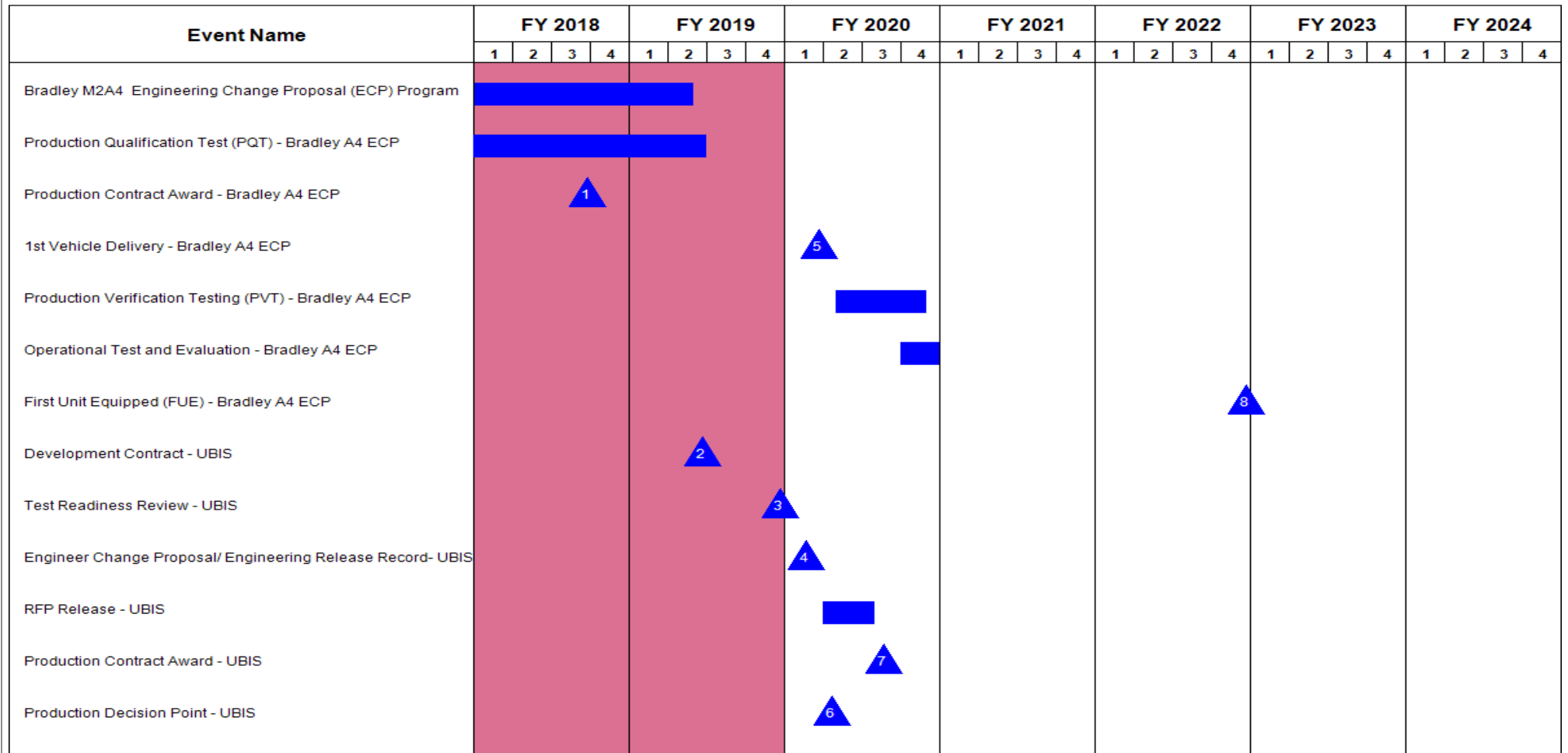
**Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army**

**Date:** March 2019

**Appropriation/Budget Activity**  
2040 / 7

**R-1 Program Element (Number/Name)**  
PE 0203735A / *Combat Vehicle Improvement Programs*

**Project (Number/Name)**  
371 / *Bradley Improve Prog*



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Army			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> 371 / <i>Bradley Improve Prog</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Bradley M2A4 Engineering Change Proposal (ECP) Program	1	2012	2	2019
Production Qualification Test (PQT) - Bradley A4 ECP	2	2016	2	2019
Production Contract Award - Bradley A4 ECP	3	2018	3	2018
1st Vehicle Delivery - Bradley A4 ECP	1	2020	1	2020
Production Verification Testing (PVT) - Bradley A4 ECP	2	2020	4	2020
Operational Test and Evaluation - Bradley A4 ECP	4	2020	4	2020
First Unit Equipped (FUE) - Bradley A4 ECP	4	2022	4	2022
Development Contract - UBIS	2	2019	2	2019
Test Readiness Review - UBIS	4	2019	4	2019
Engineer Change Proposal/ Engineering Release Record- UBIS	1	2020	1	2020
RFP Release - UBIS	2	2020	3	2020
Production Contract Award - UBIS	3	2020	3	2020
Production Decision Point - UBIS	2	2020	2	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 431 / M113 IMPROVEMENTS			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
431: M113 IMPROVEMENTS	-	0.000	7.905	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.905
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Product Development								-	6.015	-	-	-
Description: Design, fabrication and testing of Engineering Change Proposals (ECPs). Program cancelled in FY 2018.												
FY 2019 Plans: Program has been canceled.												
FY 2019 to FY 2020 Increase/Decrease Statement: Program has been canceled.												
Title: Government Program Management								-	1.600	-	-	-
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.												
FY 2019 Plans: Program has been canceled.												
FY 2019 to FY 2020 Increase/Decrease Statement: Program has been canceled.												
Title: FY 2019 SBIR / STTR Transfer								-	0.290	-	-	-
Description: FY 2019 SBIR / STTR Transfer												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Army				<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 2040 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>		<b>Project (Number/Name)</b> 431 / M113 IMPROVEMENTS		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
		<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
<b>FY 2019 Plans:</b> FY 2019 SBIR / STTR Transfer						
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> FY 2019 SBIR / STTR Transfer						
<b>Accomplishments/Planned Programs Subtotals</b>		-	7.905	-	-	-
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A						
<b>Remarks</b>						
<b>D. Acquisition Strategy</b> N/A						
<b>E. Performance Metrics</b> N/A						

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2020 Army</b>													<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 2040 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				<b>Project (Number/Name)</b> 431 / M113 IMPROVEMENTS					
<b>Management Services (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
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	-
<b>Subtotal</b>			-	-		7.615		-		-		-	0.000	7.615	N/A
<b>Product Development (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
FY 2019 SBIR / STTR Transfer	TBD	TBD : TBD	-	-		0.290	Nov 2018	-		-		-	0.000	0.290	-
<b>Subtotal</b>			-	-		0.290		-		-		-	0.000	0.290	N/A
			<b>Prior Years</b>	<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	-		7.905		-		-		-	0.000	7.905	N/A
<b>Remarks</b> Program has been cancelled.															

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**Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army**

**Date:** March 2019

**Appropriation/Budget Activity**

2040 / 7

### R-1 Program Element (Number/Name)

PE 0203735A / *Combat Vehicle Improvement Programs*

Project (Number/Name)

## 431 / M113 IMPROVEMENTS

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Army			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> 431 / <i>M113 IMPROVEMENTS</i>	

Schedule Details

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

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) EE2 / Stryker Improvement			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
EE2: Stryker Improvement	-	63.032	50.314	56.369	-	56.369	47.560	22.405	12.989	14.505	0.000	267.174
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note PE Number 0203735A/Project EE2 funds development 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, and Stryker Lethality ECPs (formerly referred to as Stryker ECP 2).												
A. Mission Description and Budget Item Justification Stryker Improvement will address the development of Lethality, Survivability, Mobility, 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 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, and an under-armor fire capability for Stryker-equipped reconnaissance troops. 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.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Stryker DVH A1 ECP Development (Engineering/Prototypes)								3.102	1.000	3.941	-	3.941
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												

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army				Date: March 2019		
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) EE2 / Stryker Improvement		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
20% growth potential in gross vehicle weight and power generation capacity posturing these vehicles for efficient upgrades in the future.						
FY 2019 Plans: Continue DVH A1 ECP engineering efforts, to include finalization of In-Vehicle Network (IVN) design, development, validation/verification and logistic demonstration of 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 and development testing.						
FY 2020 Base Plans: Will complete 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 and development testing.						
FY 2019 to FY 2020 Increase/Decrease Statement: Increase for the DVH A1 ECP logistics products.						
Title: Stryker DVH A1 ECP Testing Description: Government developmental, operational and live fire testing in support of DVH A1 ECP.		15.304	0.810	-	-	-
FY 2019 Plans: Complete the DVH A1 ECP test execution and development of final assessment/report.						
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease is due to completion of DVH A1 ECP testing in FY 2019.						
Title: Stryker DVH A1 ECP Training Device Updates Description: Development and redesign of training devices to ensure devices are concurrent with latest upgrades to Stryker vehicles resulting from DVH A1 ECP.		0.250	-	-	-	-
Title: Stryker DVH A1 ECP Contractor Support to Test Description: Contractor support to developmental, operational and live fire testing in support of DVH A1 ECP.		6.702	0.235	-	-	-
FY 2019 Plans:						

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army				Date: March 2019		
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) EE2 / Stryker Improvement		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continued contractor technical support (system troubleshooting, maintenance and repair of prototypes during execution of tests) to ECP 1.						
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease is due to completion of DVH A1 ECP test in FY 2019.						
Title: Stryker ONS Lethality Development (Engineering / Prototypes) Description: The Stryker 30mm Infantry Carrier Vehicle "Dragoon" (ICVD) integrates a 30mm remotely operated turret onto an existing flat bottom Infantry carrier vehicle chassis in response to 2CR Operational Needs Statement (30 MAR 15).		5.636	-	-	-	-
Title: Stryker ONS Lethality Testing Description: Government developmental, operational and live fire testing in support of 30mm ICVD ONS.		1.955	-	-	-	-
Title: Stryker ONS Lethality Training Device Updates Description: Development and redesign of training devices to ensure devices are concurrent with upgrades to Stryker vehicles resulting from 30mm ICVD ONS .		0.125	-	-	-	-
Title: Stryker ONS Lethality Contractor Support to Test Description: Contractor support to government developmental, operational and live fire testing of the 30mm ICVD ONS.		0.024	-	-	-	-
Title: Stryker Lethality ECPs Development (Engineering/Protoypes) Description: Lethality ECPs will integrate a 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 overmatch against peer threats and supporting infantry assault, and address obsolescence within the targeting and reconnaissance systems utilized on the Stryker Family of Vehicle (FoV).  FY 2019 Plans:		14.489	16.927	38.457	-	38.457

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army				Date: March 2019		
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) EE2 / Stryker Improvement		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continued Stryker Lethality ECPs developmental engineering to include completion of CROWS-J ECP integration, continuation of ATGM ECP integration, and initiation of the design and procurement of the early order items supporting prototype build of the medium caliber weapon system. <b>FY 2020 Base Plans:</b> Continuing Stryker Lethality ECPs developmental engineering to include completion of CROWS-J ECP test fixes and logistic products, continuation of ATGM ECP integration, and continuation of the design and procurement of additional early order items supporting prototype build of the medium caliber weapon system. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase due to increasing developmental engineering for the medium caliber weapon design effort.						
<b>Title:</b> Stryker Lethality ECPs Testing <b>Description:</b> Government and Contractor Support for developmental, operational and live fire testing in support of Lethality ECP. <b>FY 2019 Plans:</b> Continued developmental test, to include safety, performance and environmental test planning and execution activities for the CROWS-J ECP. <b>FY 2020 Base Plans:</b> Continuation of developmental test, to include safety, performance and environmental test planning and execution activities for the CROWS-J and ATGM ECPs. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Decrease is due to the completion of some developmental tests for the CROWS-J and ATGM ECP test activities.		1.625	12.394	8.706	-	8.706
<b>Title:</b> Stryker Lethality ECPs Training Device Updates <b>Description:</b> Update of the Stryker training devices and to ensure they are concurrent with the Lethality upgrades. This includes updates for both gunnery and maintenance trainers. <b>FY 2020 Base Plans:</b>		-	-	0.383	-	0.383

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army				Date: March 2019		
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) EE2 / Stryker Improvement		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Incorporate Lethality updates to Stryker training devices. This includes gunnery updates to the platform's Embedded Training software and Desk Top Trainer for the CROWS-J ECP and Maintenance Hands-on Trainer for the ATGM ECP.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase in Lethality ECPs training devices cost is due to design solutions for CROWS-J ECP and ATGM ECP completion in FY 2019 allowing for the initiation of the training device solution.						
<b>Title:</b> Government Systems Engineering and Project Management  <b>Description:</b> Government Systems Engineering and Program Management includes salaries, travel and other support costs required to effectively manage all RDTE efforts.  <b>FY 2019 Plans:</b> Continued Government Systems Engineering and Program Management support (labor, travel, training, supplies, and equipment) for Stryker DVH A1 ECP, 30mm ICVD ONS, Survivability Enhancement, and Lethality ECP (CROWS-J ECP, ATGM ECP, medium caliber weapon system) development efforts.  <b>FY 2020 Base Plans:</b> Continuing 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. Convene a medium caliber weapon system Source Selection and Evaluation Board (SSEB).  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Decrease due to completion DVH A1 and CROWS-J ECP efforts.		13.820	8.867	4.882	-	4.882
<b>Title:</b> Wireless Intercom System  <b>Description:</b> Develop a performance specification for a common Wireless Intercom System. This is a Congressional add.  <b>FY 2019 Plans:</b> Begin assessment of wireless intercom systems, determining key attributes needed for ground combat systems. Developing a common Wireless Intercom system performance specification.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b>		-	5.000	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army									Date: March 2019		
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) EE2 / Stryker Improvement			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
Completion of the system performance specification.											
<b>Title:</b> Stryker Power System <b>Description:</b> Development 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. This a Congressional add.  <b>FY 2019 Plans:</b> Develop and test the potential non-primary power solutions. Development of logistics products for the selected solution.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Decrease is due to the completion of the non-primary solution development.							-	3.000	-	-	-
<b>Title:</b> FY 2019 SBIR / STTR Transfer <b>Description:</b> FY 2019 SBIR / STTR Transfer  <b>FY 2019 Plans:</b> FY 2019 SBIR / STTR Transfer  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> FY 2019 SBIR / STTR Transfer							-	2.081	-	-	-
Accomplishments/Planned Programs Subtotals							63.032	50.314	56.369	-	56.369
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Cost To Total Cost
• GM0100: Stryker (Mod)	285.320	127.301	144.387	4.100	148.487	164.269	283.913	286.396	303.480	Continuing	Continuing
• G85200: Stryker Upgrade	633.000	265.290	550.000	-	550.000	550.000	550.000	550.000	550.000	Continuing	Continuing
<b>Remarks</b>											
23 March 2018 Army Requirements Oversight Council 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 to include Infantry Carrier Vehicle Dragoon (ICVD) production and fielding in FY 2016-2018 and Lethality ECP retrofits in FY 2019-2023.											

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Army		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> EE2 / <i>Stryker Improvement</i>
<p><b><u>D. Acquisition Strategy</u></b></p> <p>The Stryker Engineering Change Proposal (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 &amp; 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 Double-V Hull (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.</p> <p>On July 2, 2015, ASARC authorization was granted to execute the Stryker 30mm ICVD Operational Needs Statement (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.</p> <p>The Stryker Lethality ECP efforts will focus on the integration of a suite of complementary Mission Equipment Package (MEP) lethality upgrades (medium caliber weapon system, Common Remotely Operated Weapon Station-Javelin (CROWS-J), common masted sensor, Anti-Tank Guided Missile (ATGM) target acquisition optics, and other capabilities) that will improve the suppressive fire and armored vehicle engagement capabilities across the Army's Stryker Brigade Combat Teams (SBCTs). Army Acquisition Executive (AAE) approval to initiate the Stryker CROWS-J ECP and ATGM ECP efforts was received in a September 30, 2016 Acquisition Decision Memorandum (ADM). A medium caliber weapon decision is planned for February 2019.</p> <p><b><u>E. Performance Metrics</u></b></p> <p>N/A</p>		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2020 Army</b>												<b>Date:</b> March 2019			
<b>Appropriation/Budget Activity</b> 2040 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>						<b>Project (Number/Name)</b> EE2 / <i>Stryker Improvement</i>			
<b>Management Services (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Stryker 30mm ICVD ONS LethalityProject Management	MIPR	PEO GCS/TACOM : Sterling Heights, MI	10.833	-		-		-		-		-	0.000	10.833	-
Survivability Enhancement Government Engineering and Project Management	MIPR	PEO GCS/TACOM : Various	0.843	-		-		-		-		-	0.000	0.843	-
Project Management Office (PMO)	MIPR	PEO GCS/TACOM : Various	16.226	13.820	Jan 2018	12.244	Jan 2019	4.882	Jan 2020	-		4.882	14.386	61.558	-
<b>Subtotal</b>			27.902	13.820		12.244		4.882		-		4.882	14.386	73.234	N/A
<b>Product Development (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Stryker DVH A1 ECP Development	SS/CIPIF	GDLS, MI : Various	172.147	3.102	Aug 2018	1.000	Dec 2018	3.941	Dec 2019	-		3.941	0.000	180.190	-
Stryker DVH A1 ECP Training Device Updates	MIPR	PEO STRI, FL : Various	-	0.250	Aug 2018	-		-		-		-	0.000	0.250	-
Stryker 30mm ICVD ONS Development	SS/CIPIF	GDLS, MI : Various	79.220	5.636	Jan 2018	-		-		-		-	0.000	84.856	-
Stryker 30mm ICVD ONS LethalityTraining Device Updates	MIPR	PEO STRI, FL : Various	0.393	0.125	Jan 2018	-		-		-		-	0.000	0.518	-
Stryker Lethality ECPs Development	C/Various	PM CSW; PM CCWS : Various	26.517	14.489	Aug 2018	21.550	Jan 2019	38.457	Jan 2020	-		38.457	42.918	143.931	-
Stryker Lethality ECPs Training Device Updates	MIPR	PEO STRI, FL : Various	-	-		-		0.383	Jan 2020	-		0.383	0.000	0.383	-
Stryker Survivability Enhancement	Various	US Army TARDEC, Various : Sterling Heights, MI	21.230	-		-		-		-		-	0.000	21.230	-
FY 2019 SBIR / STTR Transfer	TBD	TBD : TBD	-	-		2.081	Nov 2018	-		-		-	0.000	2.081	-

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2020 Army</b>												<b>Date: March 2019</b>			
<b>Appropriation/Budget Activity</b> 2040 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>						<b>Project (Number/Name)</b> EE2 / <i>Stryker Improvement</i>			
<b>Product Development (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Subtotal</b>			299.507	23.602		24.631		42.781		-		42.781	42.918	433.439	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Stryker DVH A1 ECP Testing	MIPR	Army Test Centers : Various	31.183	15.304	Oct 2017	0.810	Dec 2018	-		-		-	0.000	47.297	-
Stryker DVH A1 ECP Contractor Support to Test	SS/CPFF	GDLS, MI : Various	35.454	6.702	Feb 2018	0.235	Dec 2018	-		-		-	0.000	42.391	-
Stryker 30mm ICVD ONS Test	MIPR	Army Test Centers : Various	23.546	1.955	Jan 2018	-		-		-		-	0.000	25.501	-
Stryker 30mm ICVD ONS Contractor Support to Test	SS/CPFF	GDLS, MI : Various	26.570	0.024	Aug 2018	-		-		-		-	0.000	26.594	-
Stryker Lethality ECPs Testing	MIPR	Army Test Centers : Various	3.851	1.625	Aug 2018	12.394	Dec 2018	8.372	Dec 2019	-		8.372	20.613	46.855	-
Stryker Lethality ECPs Contractor Support to Test	MIPR	Various : Various	1.015	-		-		0.334	Dec 2019	-		0.334	19.542	20.891	-
Stryker Survivability Enhancement	MIPR	Army Test Centers : Various	6.629	-		-		-		-		-	0.000	6.629	-
<b>Subtotal</b>			128.248	25.610		13.439		8.706		-		8.706	40.155	216.158	N/A
			<b>Prior Years</b>	<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			455.657	63.032		50.314		56.369		-		56.369	97.459	722.831	N/A
<b>Remarks</b>															

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

Date: March 2019

Appropriation/Budget Activity

2040 / 7

R-1 Program Element (Number/Name)

PE 0203735A / Combat Vehicle  
Improvement Programs

Project (Number/Name)

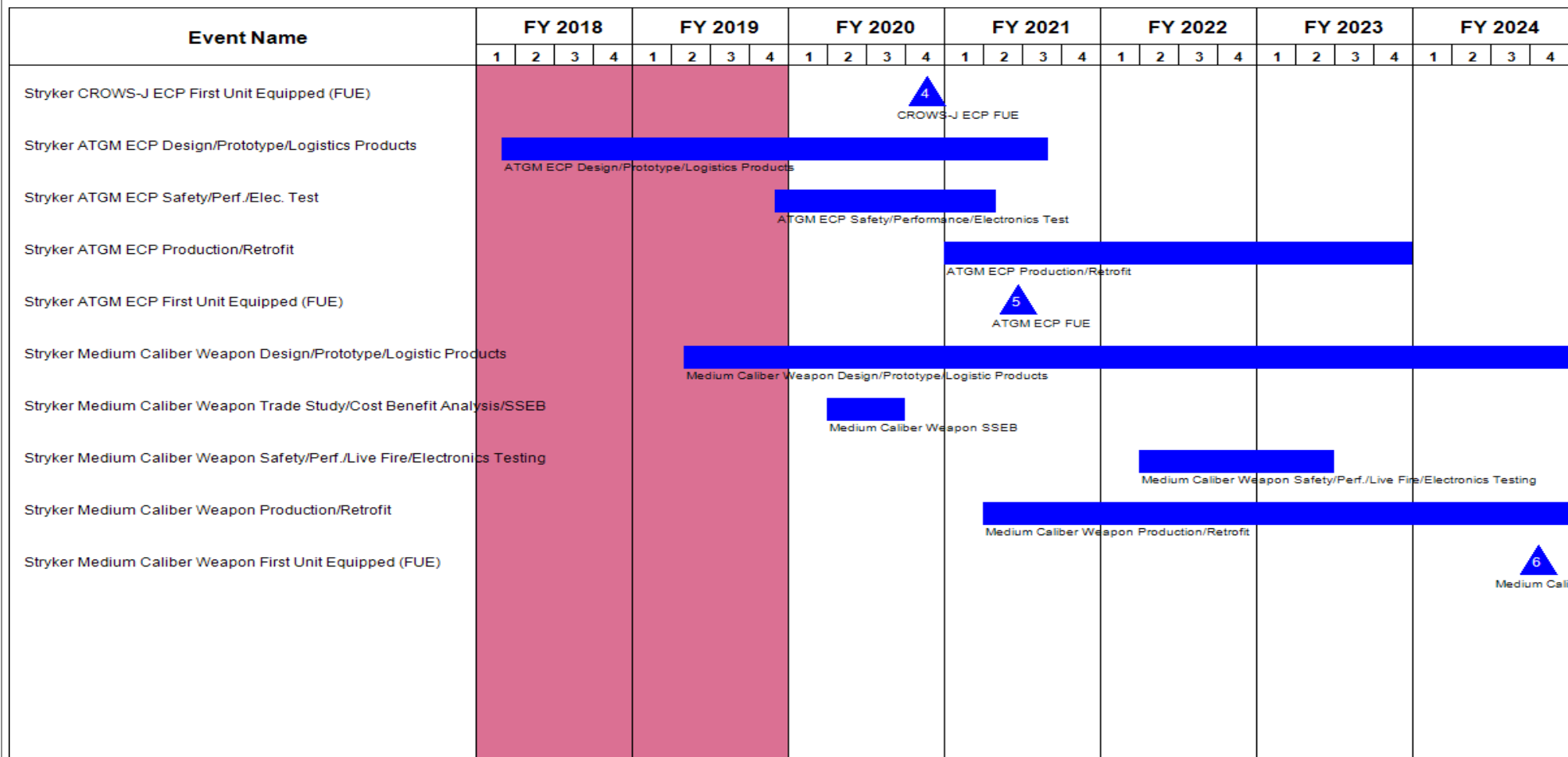
EE2 / Stryker Improvement

Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Stryker DVH A1 ECP (Phase II)																												
DVH A1 ECP Design/Prototype/Logistics Products																												
Stryker DVH A1 ECP Safety/Performance/RAM Test																												
DVH A1 ECP Safety/Performance/RAM Test																												
Stryker DVH A1 ECP Production (Phase III)																												
DVH A1 ECP Production																												
Stryker DVH A1 ECP Follow-on Operational Test & Evaluation																												
Stryker 30mm ICVD ONS Effort																												
ICVD Design/Prototype/Logistics Products																												
Stryker 30mm ICVD ONS Safety/RAM/Live Fire Test/Ammo qual																												
ICVD ONS Safety/Live Fire Test/RAM Test																												
Stryker 30mm ICVD ONS Early User Test & Evaluation																												
ICVD ONS EUTE																												
Stryker 30mm ICVD ONS Production																												
ICVD ONS Production																												
Stryker Survivability Enhancement																												
Survivability Enhancement																												
Stryker Lethality Decision																												
Stryker CROWS-J ECP Design/Prototype/Logistic Products																												
CROWS-J ECP Design/Prototype/Logistics Products																												
Stryker CROWS-J ECP Safety/Software/Performance Test																												
CROWS-J ECP Safety/Software/Performance Test																												
Stryker CROWS-J ECP Production/Retrofit																												
CROWS-J ECP Production/Retrofit																												

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2020 Army</b>	<b>Date:</b> March 2019
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<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> EE2 / <i>Stryker Improvement</i>
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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Army			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> EE2 / <i>Stryker Improvement</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Stryker DVH A1 ECP (Phase II)	1	2014	2	2020
Stryker DVH A1 ECP Tropic Region Test	3	2016	1	2017
Stryker DVH A1 ECP Cold Region Test	1	2016	3	2016
Stryker DVH A1 ECP Safety/Performance/RAM Test	4	2015	2	2019
Stryker DVH A1 ECP Production (Phase III)	4	2017	4	2020
Stryker DVH A1 ECP Follow-on Operational Test & Evaluation	4	2018	4	2018
Stryker 30mm ICVD ONS Effort	1	2016	2	2018
Stryker 30mm ICVD ONS Safety/RAM/Live Fire Test/Ammo qualification	2	2016	2	2018
Stryker 30mm ICVD ONS Early User Test & Evaluation	2	2018	2	2018
Stryker 30mm ICVD ONS Production	4	2017	3	2018
Stryker Survivability Enhancement	1	2017	4	2018
Stryker Lethality Decision	2	2019	2	2019
Stryker CROWS-J ECP Design/Prototype/Logistic Products	1	2019	4	2020
Stryker CROWS-J ECP Safety/Software/Performance Test	1	2019	2	2020
Stryker CROWS-J ECP Production/Retroft	3	2019	4	2027
Stryker CROWS-J ECP First Unit Equipped (FUE)	4	2020	4	2020
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 Weapon Design/Prototype/Logistic Products	2	2019	1	2025
Stryker Medium Caliber Weapon Trade Study/Cost Benefit Analysis/SSEB	2	2020	3	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army			Date: March 2019	
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs	Project (Number/Name) EE2 / Stryker Improvement		
	Start		End	
Events	Quarter	Year	Quarter	Year
Stryker Medium Caliber Weapon Safety/Perf./Live Fire/Electronics Testing	2	2022	2	2023
Stryker Medium Caliber Weapon Production/Retrofit	2	2021	4	2028
Stryker Medium Caliber Weapon First Unit Equipped (FUE)	4	2024	4	2024

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Army										<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 2040 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				<b>Project (Number/Name)</b> FD8 / <i>Light Armored Vehicle Improvement</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
FD8: <i>Light Armored Vehicle Improvement</i>	-	2.976	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.976
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Light Armored Vehicle improvement program will design, test and modify two Light Armored Vehicles (LAV-25A2s) for Low Velocity Air Drop (LVAD) to inform operational concepts for Infantry Brigade Combat Teams (IBCT) in support of Global Response Force early entry operations. This directly supports the expeditionary maneuver excursion conducted by the XVIII Airborne Corps in FY 2017- FY 2018.

The Light Armored Vehicle improvement program will also execute a Company-size LAV-25 excursion that will inform the development of initial Company Tactics, Techniques, and Procedures (TTP) to be utilized during the FY 2020 Mobile Protected Firepower (MPF) Soldier Vehicle Assessment (SVA).

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
<b>Title:</b> Government Systems Engineering and Project Management	0.300	-	-	-	-
<b>Description:</b> Government systems engineering and program management support completion of LAV-25A2 LVAD testing and execution of the LAV-25 Company excursion.					
<b>Title:</b> LAV-25 Company Excursion	2.676	-	-	-	-
<b>Description:</b> Procurement of initial spares, special tools, and test equipment, New Equipment Training (NET), and field technical support to support execution of a Company-size LAV-25 excursion that will inform the development TTPs for the MPF system.					
<b>Accomplishments/Planned Programs Subtotals</b>	2.976	-	-	-	-

**C. Other Program Funding Summary (\$ in Millions)**

N/A

**Remarks**

**D. Acquisition Strategy**

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) FD8 / <i>Light Armored Vehicle Improvement</i>
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs						Project (Number/Name) FD8 / Light Armored Vehicle Improvement			
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Systems Engineering and Program Management	RO	Project Management Office, Mobile Protected Firepower : Warren, MI	0.328	0.300	Nov 2017	-		-		-		-	0.000	0.628	-
Subtotal			0.328	0.300		-		-		-		-	0.000	0.628	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
LAV25 Company Excursion	Various	Various : Various	-	2.676	Oct 2018	-		-		-		-	0.000	2.676	-
Subtotal			-	2.676		-		-		-		-	0.000	2.676	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.328	2.976		0.000		-		-		-	0.000	3.304	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army			Date: March 2019		
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) FD8 / Light Armored Vehicle Improvement	

Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Air Certification Testing																												
Air Certification Testing																												
Airborne & Special Ops Test Directorate Airdrop Testing																												
Airdrop Test																												
NSRDEC Airdrop Design Support & Roller Load Testing																												
Natick Design & Test																												
LAV-25 Company Excursion																												
LAV-25 Company Excursion																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Army			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> FD8 / <i>Light Armored Vehicle Improvement</i>	

## Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Prototype Build	2	2017	3	2017
Air Certification Testing	3	2017	1	2018
Airdrop Certification Test	3	2017	4	2017
ATC Suspension Load Testing	4	2017	4	2017
Airborne & Special Ops Test Directorate Airdrop Testing	3	2017	2	2018
NSRDEC Airdrop Design Support & Roller Load Testing	4	2017	2	2018
LAV-25 Company Excursion	1	2019	4	2020