Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army

Appropriation/Budget Activity

R-1 Program Element (Number/Name)

2040: Research, Development, Test & Evaluation, Army I BA 5: System

PE 0604852A I Suite of Vehicle Protection Systems - EMD

Development & Demonstration (SDD)

COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	98.600	-	98.600	28.900	50.000	96.729	100.607	Continuing	Continuing
FE8: Vehicle Protection Suite	-	0.000	0.000	14.800	-	14.800	28.900	50.000	96.729	100.607	Continuing	Continuing
XU9: Active Protection System	-	0.000	0.000	83.800	-	83.800	0.000	0.000	0.000	0.000	0.000	83.800

Note

Project FE8 (Vehicle Protection Suite) is a new start effort.

Project XU9 (Active Protection System) is a continuation of efforts previously executed under PE 0203735A - Combat Vehicle Improvement Programs.

A. Mission Description and Budget Item Justification

Current ground combat vehicle platforms and Tactical Wheeled Vehicles (TWVs) within Army Brigade Combat Teams (BCTs) lack the ability to effectively detect, track, divert, disrupt, neutralize, or destroy incoming direct or indirect fired threat munitions. Current solutions to defeat these threats, Explosive Reactive Armor (ERA) and Slat armor, do not provide preemptive or active protection and impose secondary blast hazards to crew, dismounted soldiers, and adjacent vehicles and equipment. The Suite of Vehicle Protection Systems - EMD Program Element (0604852A) will develop and mature solutions to increase the protection of the Army's ground systems from both current and next generation direct or indirect fired threat munitions.

The Active Protection System Project (XU9) will install and characterize Non-Developmental Item (NDI) Active Protection Systems on Abrams, Bradley, and Stryker demonstrator vehicles. The Active Protection System effort will assess the maturity, performance, and integration risk of NDI Active Protection Systems, develop and refine Abrams, Bradley, and Stryker Active Protection System installation kit designs, and build prototypes necessary to conduct performance and safety testing to obtain an Active Protection System Urgent Materiel Release (UMR). The Active Protection System NDI effort will also serve to inform the Vehicle Protection Suite Analysis of Alternatives (AoA).

The Vehicle Protection Suite (VPS) Project (FE8) will design, mature, and evaluate combinations of active, reactive, and passive solutions and leverage both Horizontal Technology Integration (HTI) principles and the Army's Modular Active Protection System (MAPS) to develop tailored vehicle Survivability Sets that will mitigate existing protection gaps, allow for future technology insertion to meet evolving threats, and minimize the impact to the current capabilities hosted on Army ground system platforms.

UNCLASSIFIED
Page 1 of 15

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army

Appropriation/Budget Activity

R-1 Program Element (Number/Name)

2040: Research, Development, Test & Evaluation, Army I BA 5: System Development & Demonstration (SDD)

PE 0604852A I Suite of Vehicle Protection Systems - EMD

Date: May 2017

,					
B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	98.600	-	98.600
Total Adjustments	0.000	0.000	98.600	-	98.600
 Congressional General Reductions 	-	-			
 Congressional Directed Reductions 	-	-			
 Congressional Rescissions 	-	-			
 Congressional Adds 	-	-			
 Congressional Directed Transfers 	-	-			
Reprogrammings	-	-			
SBIR/STTR Transfer	-	-			
Other Adjustments 1	0.000	0.000	98.600	-	98.600
	0.000	0.000	98.600	-	98.600

Change Summary Explanation

FY18 Base includes the new start Vehicle Protection Suite (Project FE8) effort and the continuation of Active Protection System (APS) (Project XU9) efforts previously executed under PE 0203735A - Combat Vehicle Improvement Programs.

Exhibit R-2A, RDT&E Project Ju	stification	: FY 2018 A	rmy							Date: May	2017	
Appropriation/Budget Activity 2040 / 5						52A / Suite o	it (Number/ of Vehicle P		Project (N FE8 / Vehic		,	
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
FE8: Vehicle Protection Suite	-	0.000	0.000	14.800	-	14.800	28.900	50.000	96.729	100.607	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	_	-	-	-	-		

Note

The Vehicle Protection Suite program is a new start effort.

A. Mission Description and Budget Item Justification

Current ground combat vehicle platforms and Tactical Wheeled Vehicles (TWVs) within Army Brigade Combat Teams (BCTs) lack the ability to effectively detect, track, divert, disrupt, neutralize, or destroy incoming direct or indirect fired threat munitions. Current solutions to defeat these threats, Explosive Reactive Armor (ERA) and Slat armor, do not provide preemptive or active protection and impose secondary blast hazards to crew, dismounted soldiers, and adjacent vehicles and equipment.

Vehicle Protection Suite (VPS) will design, mature, and evaluate combinations of active, reactive, and passive solutions and leverage both Horizontal Technology Integration (HTI) principles and the Army's Modular Active Protection System (MAPS) to develop tailored vehicle Survivability Sets that will mitigate existing protection gaps, allow for future technology insertion to meet evolving threats, and minimize the impact to the current capabilities hosted on Army ground system platforms.

B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2018	FY 2018
	FY 2016	FY 2017	Base	oco	Total
Title: MAPS Controller Characterization - Hardware and Installation	-	-	8.200	-	8.200
Description: Funding is provided for the following effort					
FY 2018 Base Plans: Installation of MAPS-enabled softkill and hardkill solutions to allow characterization of the MAPS controller to inform the VPS Analysis of Alternatives (AoA).					
Title: VPS - Analysis of Alternatives (AoA)	-	-	3.050	-	3.050
Description: Funding is provided for the following effort					
FY 2018 Base Plans: Perform Analysis of Alternatives (AoA) of both existing and developmental active, reactive, and passive protection solutions. The VPS AoA will assess the cost, maturity, complexity, performance, and physical properties of alternative survivability sets to determine the optimal application of VPS into to the Army's ground platforms.					
Title: MAPS Controller Characterization - Test and Planning Support	-	-	1.200	-	1.200

PE 0604852A: Suite of Vehicle Protection Systems - EM...

UNCLASSIFIED
Page 3 of 15

R-1 Line #114

Army

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
2040 / 5	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- 3 (umber/Name) icle Protection Suite

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Description: Funding is provided for the following effort					
FY 2018 Base Plans: Test planning support in preparation for FY19 characterization of the MAPS controller.					
Title: Vehicle Protection Suite Government Engineering and Program Management	-	-	2.350	-	2.350
Description: Funding is provided for the following effort					
FY 2018 Base Plans: Government program management support (labor, travel, training, supplies, and equipment) to support VPS program planning, to include the oversight of MAPS characterization, the VPS AoA, and preparation for source selection of vendor(s) to develop MAPS-compliant VPS survivability sets.					
Accomplishments/Planned Programs Subtotals	-	-	14.800	-	14.800

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

N/A

Remarks

D. Acquisition Strategy

In FY 2018, the VPS program will initiate characterization of the MAPS controller with both softkill and hardkill countermeasures to inform the VPS Analysis of Alternatives (AoA). The VPS AoA will assess the cost, maturity, complexity, performance and physical properties of alternative survivability sets to support a FY2019 Materiel Development Decision (MDD). Informed by the results of the MDD, Source Selection Evaluation Boards (SSEB) will be initiated in FY19 to select vendors that will mature common MAPS components and integrate tailored MAPS-compliant survivability sets onto ground combat vehicle platforms. The VPS platform integration contracts are planned for award in the first quarter of FY 2020.

E. Performance Metrics

N/A

					Ul	ICLAS:	סורובט								
Exhibit R-3, RDT&E I	Project C	ost Analysis: FY 2	.018 Army	,								Date:	May 201	7	
Appropriation/Budge 2040 / 5	et Activity	1	•			PE 060	ogram Ele 14852A / S as - EMD	•		,	_	(Number ehicle Pro	,	uite	
Management Service	es (\$ in M	illions)		FY 2	2016	FY:	2017	FY 2	2018 ise	FY 2	2018 CO	FY 2018 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	Total Cost	Target Value of Contract
Vehicle Protection Suite Program Management	MIPR	TACOM Warren, Michigan : Various	0.000	-		-		2.350	Oct 2017	-		2.350	Continuing	Continuing	Continuin
		Subtotal	0.000	-		-		2.350		-		2.350	-	-	-
Product Developme	nt (\$ in M	illions)		FY 2	2016	FY:	2017	FY 2	2018 ise	FY 2	2018 CO	FY 2018 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	Total Cost	Target Value of Contract
MAPS-enabled softkill/ hardkill hardware and installation	MIPR	Various TACOM Warren : Warren, MI	0.000	-		-		5.075	Nov 2017	-		5.075	Continuing	Continuing	Continuin
Contractor technical support of MAPS-enabled softkill/hardkill installation	TBD	Various : Various	0.000	-		-		3.125	Nov 2017	-		3.125	Continuing	Continuing	Continuin
		Subtotal	0.000	-		-		8.200		-		8.200	-	-	-
Support (\$ in Million	s)			FY 2	2016	FY:	2017	FY 2	2018 ise		2018 CO	FY 2018 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	Total Cost	Target Value of Contract
Vehicle Protection Suite Analysis of Alternatives (AoA)	MIPR	Various : TACOM Warren Michigan	0.000	-		-		3.050	Jan 2018	-		3.050	Continuing	Continuing	Continuir
· · ·		Subtotal	0.000	-		-		3.050		-		3.050	-	-	_

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	- 3 (umber/Name)
2040 / 5	PE 0604852A I Suite of Vehicle Protection Systems - EMD	FE8 / Vehi	cle Protection Suite

Test and Evaluation	(\$ in Milli	ons)		FY 2	2016	FY 2	2017		2018 ase		2018 CO	FY 2018 Total			
Cost Category Item MAPS-enabled softkill/ hardkill characterization	Contract Method & Type	Performing Activity & Location Various : TACOM Warren, MI	Prior Years	Cost -	Award Date	Cost	Award Date	Cost 1.200	Award Date	Cost -	Award Date	Cost 1.200	Cost To Complete	Total Cost	Target Value of Contract Continuin
planning		Subtotal	0.000	-		-		1.200		-		1.200	-	-	-
			Prior Years	FY 2	2016	FY:	2017		2018 ase		2018 CO	FY 2018 Total	Cost To	Total Cost	Target Value of Contrac

0.000

14.800

Remarks

Project Cost Totals

0.000

14.800

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army																		Date	e: M	ay 2	017				
Appropriation/Budget Activity 2040 / 5				PE 0	6048		1/5	ement Suite of					Project (Number/Name) FE8 / Vehicle Protection Suite							te					
Event Name	\vdash	Y 20				2017			FY 201	_	_	FY 20				Y 202				202		 		022	_
Charles and Charle	1	2 3	3 4	1	2	3	4	1	2 3	4	1	2	3	4	1 2	2 3	4	1	2	3	4	1	2	3	4
Characterization of MAPS with Softkill/Hardkill Solutions Vehicle Protection Suite (VPS) Analysis of Alternatives (AoA) Vehicle Protection Suite (VPS) Source Selection Evaluation Boards (SS) (1) Vehicle Protection Suite (VPS) Milestone B (2) Vehicle Protection Suite (VPS) Development Contract Awards Vehicle Protection Suite (VPS) MAPS Development/Maturation Vehicle Protection Suite (VPS) Platform Integration		2 3	3 4		2	3		M	Analysis	racte	terna	on	SSEB	s VPS M	MSB 2 ent C		ct Av	vard:	s atura	ition	ntegra		2	3	

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army			Date: May 2017
	,	- 3 (umber/Name) icle Protection Suite

Schedule Details

	St	art	E	nd
Events	Quarter	Year	Quarter	Year
Characterization of MAPS with Softkill/Hardkill Solutions	1	2018	3	2019
Vehicle Protection Suite (VPS) Analysis of Alternatives (AoA)	2	2018	2	2019
Vehicle Protection Suite (VPS) Source Selection Evaluation Boards (SSEB)	2	2019	4	2019
Vehicle Protection Suite (VPS) Milestone B	4	2019	4	2019
Vehicle Protection Suite (VPS) Development Contract Awards	1	2020	1	2020
Vehicle Protection Suite (VPS) MAPS Development/Maturation	1	2020	1	2021
Vehicle Protection Suite (VPS) Platform Integration	1	2020	4	2025

Exhibit R-2A, RDT&E Project Ju	istification	: FY 2018 A	rmy							Date: May	2017	
Appropriation/Budget Activity 2040 / 5					_	am Elemen 52A / Suite o EMD	•	•	Project (N XU9 / Activ		,	
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
XU9: Active Protection System	-	0.000	0.000	83.800	-	83.800	0.000	0.000	0.000	0.000	0.000	83.800
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project XU9 (Active Protection System) is a continuation of efforts previously executed under PE 0203735A - Combat Vehicle Improvement Programs.

A. Mission Description and Budget Item Justification

The Active Protection System effort will install and characterize Non-Developmental Item (NDI) Active Protection Systems on Abrams, Bradley, and Stryker demonstrator vehicles. The Active Protection System effort will assess the maturity, performance, and integration risk of NDI Active Protection Systems, develop and refine Abrams, Bradley, and Stryker Active Protection System installation kit designs, and build prototypes necessary to conduct performance and safety testing to obtain an Active Protection System Urgent Materiel Release (UMR). The Active Protection System NDI effort will also serve to inform the Vehicle Protection Suite Analysis of Alternatives (AoA).

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Active Protection System Installation Kit Refinement and System Test - Abrams	-	-	36.800	-	36.800
Description: Funding is provided for the following effort					
FY 2018 Base Plans: Engineering, logistics, and program management to mature the Abrams Active Protection System (APS) integration kit design, build Abrams APS prototypes, and execute system performance and safety testing necessary to obtain an Abrams APS Urgent Materiel Release (UMR).					
Title: Active Protection System Installation Kit Refinement and System Test - Bradley	-	-	30.000	-	30.000
Description: Funding is provided for the following effort					
FY 2018 Base Plans: Engineering, logistics, and program management to mature the Bradley Active Protection System (APS) integration kit design, develop software releases across Bradley vehicle variants to operate the APS, and execute contractor testing of the Vehicle Software Version Updates prior to the execution of system performance and safety testing necessary to obtain a Bradley APS Urgent Material Release (UMR).					
Title: Active Protection System Installation Kit Refinement and System Test - Stryker	-	-	17.000	-	17.000

UNCLASSIFIED
Page 9 of 15

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
2040 / 5	, ,	, ,	umber/Name) ve Protection System

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Description: Funding is provided for the following effort					
FY 2018 Base Plans: Engineering, logistics, and program management to mature the Stryker Active Protection System (APS) integration kit design, build Stryker APS prototypes, and execute system performance and safety testing necessary to obtain a Stryker APS Urgent Materiel Release (UMR).					
Accomplishments/Planned Programs Subtotals	-	-	83.800	-	83.800

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

	•	-	FY 2018	FY 2018	FY 2018					Cost To	
Line Item	FY 2016	FY 2017	<u>Base</u>	OCO	<u>Total</u>	FY 2019	FY 2020	FY 2021	FY 2022	Complete	Total Cost
GA0700: Abrams Tank (MOD)	430.939	480.166	248.826	138.700	387.526	238.500	272.200	280.467	275.000	Continuing	Continuing
GZ2400: Bradley Program (MOD)	210.042	490.033	444.851	30.000	474.851	333.000	403.872	417.000	431.946	Continuing	Continuing

Remarks

FY18 OCO funding in GA0700 and GZ2400 supports the procurement of Non-Development Item (NDI) Active Protection Systems (APS) for installation onto Abrams and Bradley vehicles.

D. Acquisition Strategy

The Active Protection System Project (XU9) is a continuation of efforts previously executed under PE 0203735A - Combat Vehicle Improvement Programs.

The Active Protection System (APS) installation and characterization effort will evaluate platform (Abrams, Bradley, Stryker) performance with an Non-Developmental Item (NDI) APS solution installed. Platform performance evaluation includes APS sensor assessments, minimum live threat characterization, surface danger zone characterization, co-site mitigation (antennas/radiators), electromagnetic interference assessment/characterization, energetic radiation assessment, and a durability assessment. The NDI APS installation and characterization is being executed through a partnership between the US Army, NDI APS solution vendors, and prime contractors for Abrams, Bradley, and Stryker vehicles. NDI APS vendor support, to include procurement of demonstration hardware, is contracted on a Firm-Fixed Price (FFP) basis, while platform prime contractor technical support is provided on a Cost Plus Fixed-Fee (CPFF) basis. The results from the installation and characterization effort will inform FY17 and FY18 decisions to pursue the additional prototyping and testing necessary to obtain Urgent Materiel Releases (UMR) for NDI APS systems.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army

Date: May 2017

Appropriation/Budget Activity

2040 / 5

R-1 Program Element (Number/Name)
PE 0604852A / Suite of Vehicle Protection

Project (Number/Name) XU9 / Active Protection System

Systems - EMD

Product Developmen	nt (\$ in Mi	llions)		FY 2	2016	FY 2	2017	FY 2 Ba	2018 se		2018 CO	FY 2018 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
Active Protection System (APS) Installation Kit Development and Prototype Build - Abrams	SS/ Various	US Army TARDEC; Rafael Advanced Defense Systems; General Dynamics Land Systems (GDLS): Warren, MI	0.000	-		-		23.881	Oct 2017	-		23.881	0.000	23.881	0.000
Active Protection System (APS) Installation Kit Development and Prototype Build - Bradley	SS/ Various	US Army TARDEC; Israeli Military Industries (IMI); BAE Systems : Warren, MI	0.000	-		-		28.948	Jan 2018	-		28.948	0.000	28.948	0.000
Active Protection System (APS) Installation Kit Development and Prototype Build - Stryker	SS/ Various	US Army TARDEC; Artis, LLC.; General Dynamics Land Systems (GDLS): Warren, MI	0.000	-		-		5.183	Jan 2018	-		5.183	0.000	5.183	0.000
		Subtotal	0.000	-		-		58.012		-		58.012	0.000	58.012	0.000

Support (\$ in Million	s)			FY 2	2016	FY 2	2017	FY 2 Ba	2018 Ise		2018 CO	FY 2018 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	PEO Ground Combat Systems : Warren, MI	0.000	-		-		3.223	Oct 2017	-		3.223	0.000	3.223	0.000
		Subtotal	0.000	-		-		3.223		-		3.223	0.000	3.223	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army

Appropriation/Budget Activity

2040 / 5

R-1 Program Element (Number/Name)
PE 0604852A / Suite of Vehicle Protection
Systems - EMD

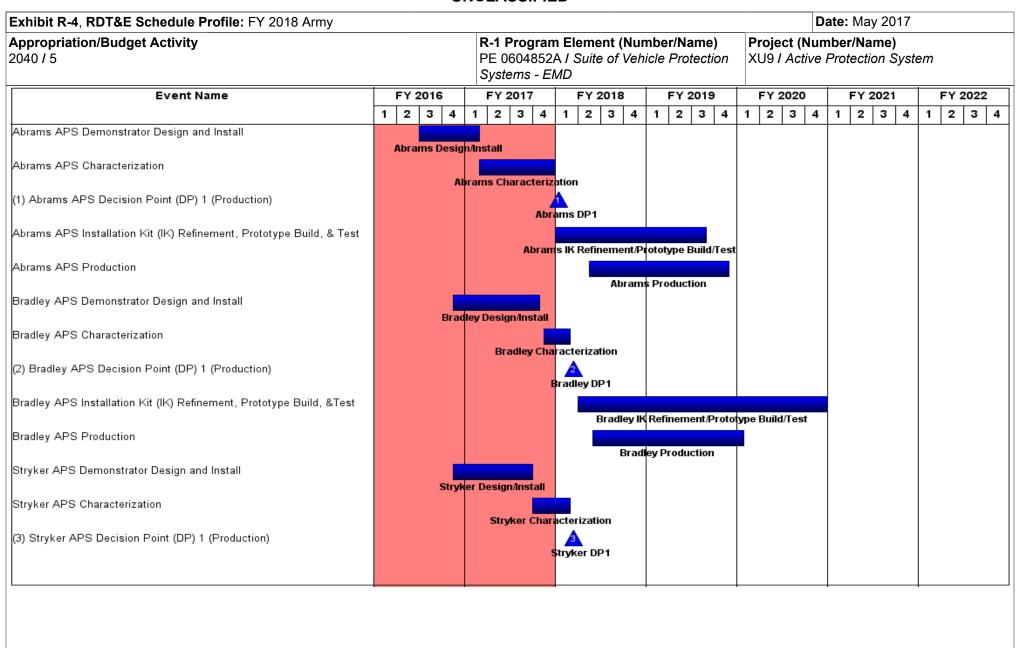
Date: May 2017

Project (Number/Name)
XU9 / Active Protection System

Test and Evaluation	(\$ in Milli	ons)		FY 2	2016	FY 2	2017		2018 ase	FY 2	2018 CO	FY 2018 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 - Abrams Active Protection System (APS)	MIPR	Various : Army Test Centers	0.000	-		-		11.464	Jan 2018	-		11.464	0.000	11.464	0.000
Government Testing - Stryker Active Protection System (APS)	MIPR	Various : Army Test Centers	0.000	-		-		11.101	Mar 2018	-		11.101	0.000	11.101	0.000
		Subtotal	0.000	-		-		22.565		-		22.565	0.000	22.565	0.000
			Prior					EV 1	2018	EV	2018	FY 2018	Cost To	Total	Target

													Target
	Prior					FY 2	2018	FY 2	2018	FY 2018	Cost To	Total	Value of
	Years	FY 2	2016	FY 2	2017	Ва	ise	00	co	Total	Complete	Cost	Contract
Project Cost Totals	0.000	-		0.000		83.800		-		83.800	0.000	83.800	-

Remarks



					7001																		
																Da	ite: N	/lay 2	2017				
				PΕ	0604	852	4/5	emer Suite	nt (Nu of Ve	umb hicle	er/Nar e Prote	ne) ection	P X	rojed U9 /	ct (N Acti	lum ve F	ber/l	Nam ction	e) Syst	tem			
	FY 2	2016	T	FY	2017	7	ı	FY 20	018		FY 20	19	T	FY 2	020		F	Y 20	21		FY 2	2022	
1	2	3 4	1	2	2 3	4	1	2	3 4	1	2	3 4	1	2	3	4	1 :	2 3	3 4	1	2	3	4
					Stryk	er IK	Refi	neme	nt/Prot	totype	e Build/I	est					'		'				
													ıctior	1									
			FY 2016 1 2 3 4	FY 2016	PE Sys FY 2016 FY	PE 0604 Systems FY 2016 FY 2017 1 2 3 4 1 2 3	PE 0604852/ Systems - El FY 2016 FY 2017 1 2 3 4 1 2 3 4	PE 0604852A / 3 Systems - EMD FY 2016 FY 2017 1 2 3 4 1 2 3 4 1	PE 0604852A / Suite Systems - EMD FY 2016 FY 2017 FY 2 1 2 3 4 1 2 3 4 1 2	PE 0604852A / Suite of Version Systems - EMD FY 2016 FY 2017 FY 2018 1 2 3 4 1 2 3 4 1 2 3 4	PE 0604852A / Suite of Vehicle Systems - EMD FY 2016 FY 2017 FY 2018 1 2 3 4 1 2 3 4 1 2 3 4 1	PE 0604852A / Suite of Vehicle Protes Systems - EMD FY 2016 FY 2017 FY 2018 FY 20 1 2 3 4 1 2 3 4 1 2 3 4 1 2 Stryker IK Refinement/Prototype Build/I	FY 2016 FY 2017 FY 2018 FY 2019 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 Stryker IK Refinement/Prototype Build/Test	PE 0604852A I Suite of Vehicle Protection Systems - EMD FY 2016 FY 2017 FY 2018 FY 2019 1 2 3 4 1 2 3 4 1 2 3 4 1 Stryker IK Refinement/Prototype Build/Test	PE 0604852A / Suite of Vehicle Protection Systems - EMD FY 2016 FY 2017 FY 2018 FY 2019 FY 2 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2	PE 0604852A	R-1 Program Element (Number/Name) Project (Num Number Numb	R-1 Program Element (Number/Name) PE 0604852A Suite of Vehicle Protection Systems - EMD	R-1 Program Element (Number/Name) Project (Number/Name) Project (Number/Name) XU9 / Active Protection XU9 / Acti	R-1 Program Element (Number/Name) Project (Number/Name) XU9 / Active Protection Systems - EMD XU9 / Active Protection Systems - EMD FY 2016 FY 2017 FY 2018 FY 2019 FY 2020 FY 2021 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 1 3 4 1 3	PE 0604852A I Suite of Vehicle Protection Systems - EMD FY 2016	R-1 Program Element (Number/Name) Project (Number/Name) XU9 / Active Protection Systems - EMD XU9 / Active Protection Systems FY 2016 FY 2017 FY 2018 FY 2019 FY 2020 FY 2021 FY 2020 FY 2020	R-1 Program Element (Number/Name) PE 0604852A Suite of Vehicle Protection Systems - EMD Systems - EMD Project (Number/Name) XU9 Active Protection System Systems Systems FY 2018 FY 2019 FY 2020 FY 2021 FY 2022 1 2 3 4 1 2 3

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army			Date: May 2017
,	1	- , (umber/Name) ve Protection System

Schedule Details

	Sta	art	Er	nd
Events	Quarter	Year	Quarter	Year
Abrams APS Demonstrator Design and Install	3	2016	1	2017
Abrams APS Characterization	1	2017	4	2017
Abrams APS Decision Point (DP) 1 (Production)	1	2018	1	2018
Abrams APS Installation Kit (IK) Refinement, Prototype Build, & Test	1	2018	3	2019
Abrams APS Production	2	2018	4	2019
Bradley APS Demonstrator Design and Install	4	2016	4	2017
Bradley APS Characterization	4	2017	1	2018
Bradley APS Decision Point (DP) 1 (Production)	1	2018	1	2018
Bradley APS Installation Kit (IK) Refinement, Prototype Build, &Test	2	2018	4	2020
Bradley APS Production	2	2018	1	2020
Stryker APS Demonstrator Design and Install	4	2016	3	2017
Stryker APS Characterization	4	2017	1	2018
Stryker APS Decision Point (DP) 1 (Production)	1	2018	1	2018
Stryker APS Installation Kit (IK) Refinement, Prototype Build, & Test	2	2018	4	2018
Stryker APS Production	2	2019	1	2020