Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army												Date: February 2018
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604641A / *TACTICAL UNMANNED GROUND VEHICLE*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	-	32.315	0.000	0.000	-	0.000	0.000	15.814	27.176	15.643	0.000	90.948
DV7: *Small Unmanned Ground Vehicle*	-	32.315	0.000	0.000	-	0.000	0.000	15.814	27.176	15.643	0.000	90.948

A. Mission Description and Budget Item Justification

The Common Robotic System - Individual (CRS(I)) will be a man-packable, small (<25lbs), highly mobile, unmanned robotic system with advanced sensors/mission modules for dismounted Service Members. The CRS(I) will be designed so operator can quickly re-configure for other various missions by adding or removing modules and/or payloads. The CRS(I) will also include the Army universal controller used by all unmanned ground and aerial vehicles within the battalion formation providing interoperability, logistics, and training efficiencies. The CRS(I) will provide interrogation, detection, confirmation, and neutralization capabilities employed to support a wide spectrum of mobility missions for current and future forces. This capability provides commanders the ability to persistently monitor the Operating Environment (OE) while protecting and sustaining the force. The CRS(I) complements the Joint Integrated War-fighting Force by providing standoff to the War fighter during major combat, stability, and homeland security operations.

The Robotics Enhanced Program (REP) uses a "buy, try, and inform" methodology to evaluate Commercial Off the Shelf (COTS), Government Off the Shelf (GOTS) and Non-Developmental Item (NDI) products that have the potential to enhance Soldier combat effectiveness. Actual operational user feedback and evaluation results obtained will inform emerging capabilities and requirements documents in support of a Cost-Benefit Analysis to support future Army decision making.

Robotics Architecture (RA) provides the engineering and development resources to manage the overarching architecture for robotic systems that are both modular and interoperable across the Joint Force in order to facilitate future modernization efforts. It will manage the interoperability standards, modular payload interface, common software and universal controllers. RA includes the construction of program specific Interoperability Profiles (IOP) (i.e. Small Multipurpose Equipment Transport (SMET), Leader/Follower (LF), Route Clearance Interrogation System (RCIS), Common Robotics System-Vehicle (CRS(V)), CRS(I) Inc II, etc.) and new standards addressing emerging requirements (i.e. Cyber Security, Information Assurance, new payloads, etc).

Robotics Development (RD) includes efforts necessary to evaluate integrated technologies, validate material solutions and determine initial Analysis of Alternatives (AoA) in support of pre-Material Development Decision (MDD) activities for emerging requirements and programs of record. RD is designed to facilitate the transition of robotics and autonomous systems technology from Science and Technology (S&T) projects, REP initiatives and/or Small Business Innovative Research (SBIR) into emerging programs of record through development of emerging capabilities. This line is for robotic systems that are transported by individual Soldiers, by vehicle, maneuver under their own power, or are installed as robotic applique kits. RD supports early evaluations for operational effectiveness studies of platforms (i.e. SMET, Leader/Follower (LF), Route Clearance Interrogation Systems (RCIS), CRS(V), CRS(I) Inc II, Soldier Born Sensors, etc) to determine Technology Readiness Levels (TRL) and Manufacturing Readiness Levels (MRL). Studies support AoA that include Army Material Systems Analysis Activity (AMSAA), RAND Corporatin studies, and/or modeling to increase confidence in the material solution defined in the emerging Capability Development Document (CDD)/Capability Production Document(CPD) that support appropriate Acquisition Category (ACAT), Milestone Decision Authority (MDA) and office of primary responsibility designations.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army	Date: February 2018
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604641A / *TACTICAL UNMANNED GROUND VEHICLE*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	39.282	0.000	0.000	-	0.000
Current President's Budget	32.315	0.000	0.000	-	0.000
Total Adjustments	-6.967	0.000	0.000	-	0.000
• Congressional General Reductions	-0.015	-			
• Congressional Directed Reductions	-5.750	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.202	-			

Change Summary Explanation

FY 2017 Request was congressionally decremented by $5.750M for EMD Contract delay; $.015M for FFRDC Reduction; and $1.202M for SBIR/STTR Reduction.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army											Date: February 2018	
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604641A / *TACTICAL UNMANNED GROUND VEHICLE*				Project (Number/Name) DV7 / *Small Unmanned Ground Vehicle*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
DV7: *Small Unmanned Ground Vehicle*	-	32.315	0.000	0.000	-	0.000	0.000	15.814	27.176	15.643	0.000	90.948
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604641A / *TACTICAL UNMANNED GROUND VEHICLE*	**Project (Number/Name)** DV7 / *Small Unmanned Ground Vehicle*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: CRS-I and emerging robotic requirements.	32.315	-	-
Description: The CRS(I) program expects Milestone B in the second quarter of FY 2018. The CRS(I) program achieved Material Development Decision (MDD) approval in the first quarter of FY 2016 and released a Request for Proposal (RFP) in the third quarter of FY 2017. In FY 2015, CRS(I) completed an AoA letter of sufficiency, began the program Test & Evaluation Working-Level Integrated Product Team (T&E WIPT), and formed a CRS(I) program IPT to support the acquisition process. An IPT was formed to support emerging robotic system requirements and REP initiatives.			
Accomplishments/Planned Programs Subtotals	32.315	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• G99595: *Common Robotic System-Individual (CRS-I)*	-	-	3.161	-	3.161	8.297	28.603	49.745	75.093	Continuing	Continuing

Remarks

D. Acquisition Strategy

The CRS(I) Acquisition Strategy was approved in Jan 2016 and will enter MS-B as an ACAT III program. CRS(I) strategy includes the following considerations: Full and open competition contract (i.e. cost plus fixed fee for EMD and Firm Fixed Price (FFP) for LRIP and Production) with up to two vendors selected to complete PDR and CDR with a Run-Off event in FY 2019 to select a single vendor to complete EMD for MS-C in the first quarter of FY 2021.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604641A / *TACTICAL UNMANNED GROUND VEHICLE*	**Project (Number/Name)** DV7 / *Small Unmanned Ground Vehicle*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CRS(I)	Various	PM FP, PdM UGV : Warren, MI	2.884	3.406	Jan 2017	-		-		-		-	0.000	6.290	-
REP	Various	PM FP, PdM UGV & PdM ALUGS : Warren, MI	2.733	0.621	Jan 2017	-		-		-		-	0.000	3.354	-
Robotics Development	Various	PM FP, PdM UGV & PdM ALUGS : Warren, MI	-	2.256	Mar 2017	-		-		-		-	0.000	2.256	-
Robotics Architecture	MIPR	PM FP, PdM UGV : Warren, MI	-	0.750	Jun 2017	-		-		-		-	0.000	0.750	-
		Subtotal	5.617	7.033		-		-		-		-	0.000	12.650	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
REP	TBD	PM FP, PdM UGV & PdM ALUGS : Warren, MI	2.750	0.636	Jul 2017	-		-		-		-	0.000	3.386	-
Robotic Architecture	MIPR	PM FP, PdM UGV, PdM ALUGS & TARDEC : Warren, MI	-	0.753	May 2017	-		-		-		-	0.000	0.753	-
Robotics Development	TBD	PM FP, PdM UGV & PdM ALUGS : Warren, MI	-	2.975	Dec 2016	-		-		-		-	0.000	2.975	-
		Subtotal	2.750	4.364		-		-		-		-	0.000	7.114	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army			Date: February 2018
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604641A / *TACTICAL UNMANNED GROUND VEHICLE*	Project (Number/Name) DV7 / *Small Unmanned Ground Vehicle*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CRS(I)	Various	PM FP, PdM UGV : Warren, MI	3.000	4.111	Nov 2016	-		-		-		-	0.000	7.111	-
REP	Various	PM FP, PdM UGV & PdM ALUGS : Warren, MI	1.895	2.109	Jun 2017	-		-		-		-	0.000	4.004	-
Robotic Architecture	Various	PM FP, PdM UGV & PdM ALUGS : Warren, MI	-	0.500	Nov 2016	-		-		-		-	0.000	0.500	-
Robotics Development	Various	PM FP, PdM UGV & PdM ALUGS : Warren, MI	-	4.786	Aug 2017	-		-		-		-	0.000	4.786	-
		Subtotal	4.895	11.506		-		-		-		-	0.000	16.401	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CRS(I)	MIPR	PM FP, PdM UGV : Warren, MI	0.500	3.513	Aug 2017	-		-		-		-	0.000	4.013	-
REP	MIPR	PM FP, PdM UGV & PdM ALUGS : Warren, MI	0.500	2.634	Jul 2017	-		-		-		-	0.000	3.134	-
Robotics Development	MIPR	PM FP, PdM UGV & PdM ALUGS : Warren, MI	-	3.265	Aug 2017	-		-		-		-	0.000	3.265	-
		Subtotal	1.000	9.412		-		-		-		-	0.000	10.412	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	14.262	32.315		0.000		-		-		-	0.000	46.577	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604641A / *TACTICAL UNMANNED GROUND VEHICLE*	**Project (Number/Name)** DV7 / *Small Unmanned Ground Vehicle*

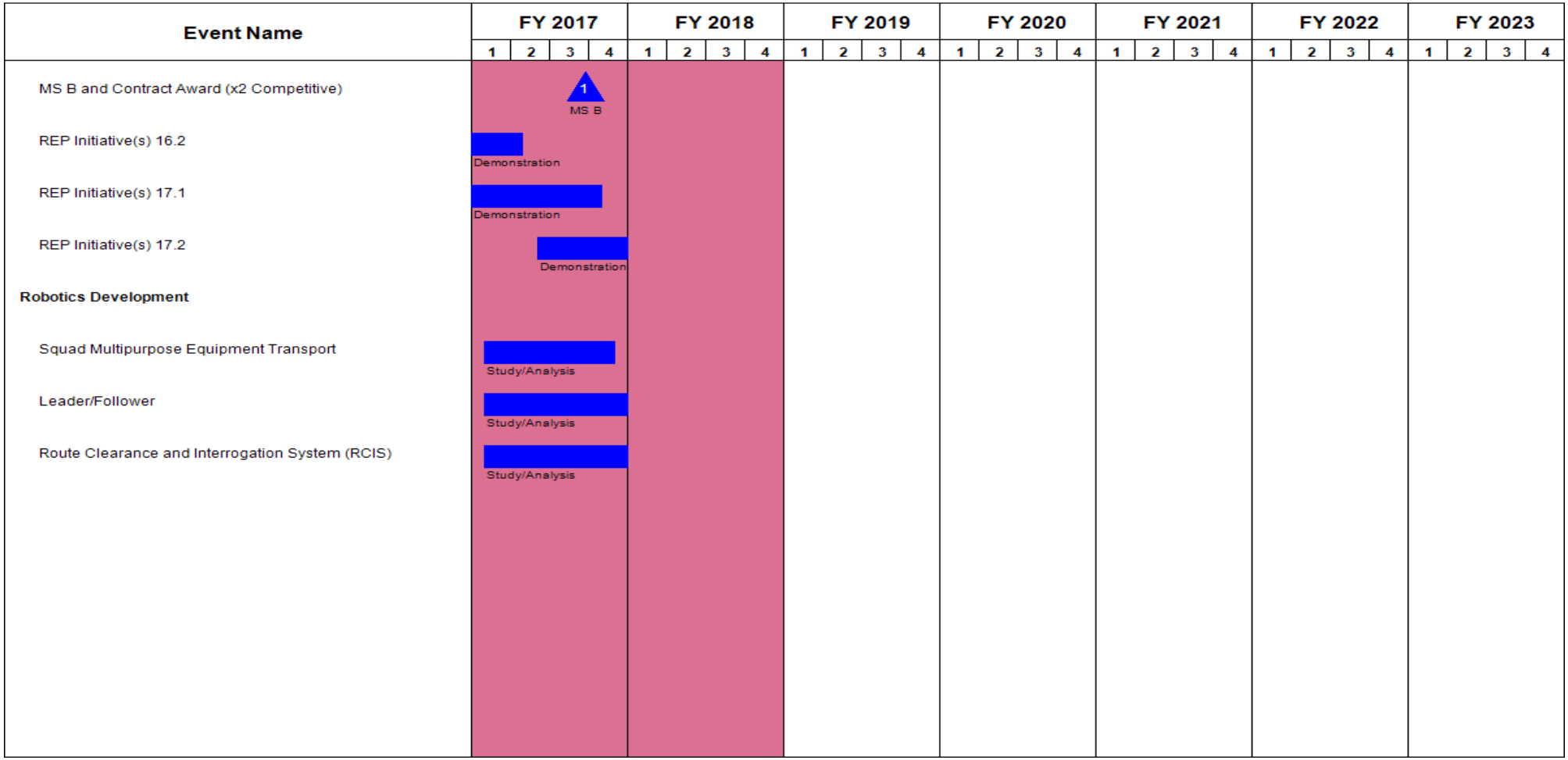

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604641A / *TACTICAL UNMANNED GROUND VEHICLE*	**Project (Number/Name)** DV7 / *Small Unmanned Ground Vehicle*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CRS(I)	1	2016	1	2016
MS B and Contract Award (x2 Competitive)	3	2017	3	2017
REP	2	2015	2	2015
REP Initiative(s) 16.1	1	2016	4	2016
REP Initiative(s) 16.2	2	2016	1	2017
REP Initiative(s) 17.1	4	2016	4	2017
REP Initiative(s) 17.2	2	2017	4	2017
Robotics Development	1	2017	1	2017
Squad Multipurpose Equipment Transport	1	2017	4	2017
Leader/Follower	1	2017	4	2017
Route Clearance and Interrogation System (RCIS)	1	2017	4	2017