Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army	Date: March 2019
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605038A *I Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite*

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
Total Program Element	-	15.481	15.135	6.054	-	6.054	0.000	0.000	0.000	0.000	0.000	36.670
EQ7: *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*	-	15.481	15.135	6.054	-	6.054	0.000	0.000	0.000	0.000	0.000	36.670

A. Mission Description and Budget Item Justification

The Nuclear, Biological, and Chemical Reconnaissance Vehicles (NBCRV) Sensor Suite Upgrade (SSU) provides maneuver formations the ability to conduct mounted reconnaissance and surveillance missions of CBRN named areas of interest (NAIs). The NBCRV SSU will answer the commander's priority intelligence requirements (PIR), and facilitate proactive risk-based decisions to ensure freedom of action and survivability. A modern and capable NBCRV SSU is a critical component for Joint Force success when operating in the complex CBRN environment. Operating with combat vehicles fighting against increasingly capable and determined enemies requires like capability with regard to protection, mobility, and lethality. The NBCRV SSU will accomplish this by integrating the capability for command and control of unmanned systems with CBRN payload. The NBCRV SSU will provide a CBRN detection, tipping and queueing to accomplish desired standoff distances to keep the warfighter out of harm's way and reduce sustainment costs over the current system. A Chemical Surface Detector (CSD) will be developed to replace the Dual Wheel Sampling System to increase maneuver speed when conducting NBC missions and increase reliability.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	16.125	17.154	5.985	-	5.985
Current President's Budget	15.481	15.135	6.054	-	6.054
Total Adjustments	-0.644	-2.019	0.069	-	0.069
• Congressional General Reductions	-0.013	-0.019			
• Congressional Directed Reductions	-	-2.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.631	-			
• Adjustments to Budget Years	-	-	0.069	-	0.069

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605038A / *Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite*	Project (Number/Name) EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*	

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
EQ7: *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*	-	15.481	15.135	6.054	-	6.054	0.000	0.000	0.000	0.000	0.000	36.670
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Nuclear, Biological, and Chemical Reconnaissance Vehicles (NBCRV) Sensor Suite Upgrade (SSU) provides maneuver formations the ability to conduct mounted reconnaissance and surveillance missions of CBRN named areas of interest (NAIs). The NBCRV SSU will answer the commander's priority intelligence requirements (PIR), and facilitate proactive risk-based decisions to ensure freedom of action and survivability. A modern and capable NBCRV SSU is a critical component for Joint Force success when operating in the complex CBRN environment. Operating with combat vehicles fighting against increasingly capable and determined enemies requires like capability with regard to protection, mobility, and lethality. The NBCRV SSU will accomplish this by integrating the capability for command and control of unmanned systems with CBRN payload. The NBCRV SSU will provide a CBRN detection, tipping and queueing to accomplish desired standoff distances to keep the warfighter out of harm's way and reduce sustainment costs over the current system. A Chemical Surface Detector (CSD) will be developed to replace the Dual Wheel Sampling System to increase maneuver speed when conducting NBC missions and increase reliability. In FY20, NBCRV SSU program will develop a prototype of integrated sensors for demonstration in Joint Warfighter Assessment 2020.

Note: FY 2016-FY 2017 funded under 0603627A E79, Smoke, Obscurant and Target Defeating Sys-Adv Dev.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Product Development and Unmanned Platform Integration	13.743	12.778	5.254
Description: Development of CSD, radiological detectors, standoff chemical vapor detector, unmanned platform identification and integration, Government strategic planning, system engineering, logistics, training, and Integrated Product Team (IPT) support.			
FY 2019 Plans: Continued CBRN sensor and integrated sensor suite prototype development, maturation, and procurement. Continued government strategic planning, systems engineering, logistics, training, test and evaluation, and technical support. Initiated NBCRV SSU acceleration effort with the bulk of integration product development occurring in FY20.			
FY 2020 Plans: Continued CBRN sensor and integrated sensor suite prototype development, maturation, and procurement. Continued government strategic planning, systems engineering, logistics, training, test and evaluation, technical support, and the bulk of integration product development for the acceleration of the program.			
FY 2019 to FY 2020 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605038A / *Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite*	**Project (Number/Name)** EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Funding increase in FY19 is due to continued acceleration efforts to meet JWAs, where FY20 funding is decreased due to program schedule and level of effort required			
Title: Program Management and Oversight ***Description:*** Program Management and Oversight ***FY 2019 Plans:*** Continue Government program management, system engineering, and Integrated Product Team (IPT) support. ***FY 2020 Plans:*** Continue Government program management, system engineering, and Integrated Product Team (IPT) support. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funding is decrease commensurate to the level of effort required.	1.738	1.739	0.800
Title: FY19 SBIR/STTR Transfer ***FY 2019 Plans:*** ABO database not correctly pushing SBIR/STTR info, so added a line to address ***FY 2019 to FY 2020 Increase/Decrease Statement:*** ABO database not correctly pushing SBIR/STTR info, so added a line to address	-	0.618	-
Accomplishments/Planned Programs Subtotals	15.481	15.135	6.054

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU) is an upgrade for the Stryker NBCRV. The acquisition strategy for the Stryker NBCRV SSU is to integrate mature sensors into the Stryker NBCRV in FY19 for demonstration in Joint Warfighting Assessment (JWA) 19 and system level testing FY 2019. Following the testing and demonstration, the hardware and software will be fixed and updated for demonstration in JWA 20 and test in FY 2020. An In Progress Review will be held in late FY 2020 to execute a Modification Work Order for fielding in FY 2021. This schedule was accelerated from the previous schedule based on the maturity of the sensor and guidance from the Chief of Staff of the Army. The NBCRV SSU program will conduct system level testing in FY 2021 using Defense Wide funding after the Modification Work Order In Process Review to ensure system performance.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605038A / *Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite*	**Project (Number/Name)** EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605038A / *Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite*	Project (Number/Name) EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Personnel	MIPR	JPEO-CBRND : Edgewood, MD	-	1.738	Nov 2017	1.739	Nov 2018	0.800	Nov 2019	-		0.800	Continuing	Continuing	Continuing
FY 2019 SBIR / STTR Transfer	TBD	TBD : TBD	-	-		0.618	Oct 2018	-		-		-	0.000	0.618	-
		Subtotal	-	1.738		2.357		0.800		-		0.800	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development and Sensor Integration	C/Various	Various : Various	-	-		10.654	Jan 2019	4.754	Nov 2019	-		4.754	Continuing	Continuing	Continuing
Product Development (CSD) AGENTASE, LLC (TMRR)	Option/ CPFF	AGENTASE, LLC : Elkridge, MD	-	2.552	Jan 2018	0.393	Nov 2018	-		-		-	0.000	2.945	-
Product Development (CSD) L3 (TMRR)	Option/ CPFF	L-3 Communications Sonoma EO, Inc : Santa Rosa,, CA	-	2.627	Nov 2017	-		-		-		-	0.000	2.627	-
Product Development (CSD) UTC (TMRR)	Option/ CPFF	Hamilton Sundstand Space Systems : Pomona, CA	-	2.087	Nov 2017	-		-		-		-	0.000	2.087	-
Product Development (CSD) Rad/Nuc (M2PRDS)	C/CPFF	Advanced Technologies International : Summerville, SC	-	1.942	Jul 2018	-		-		-		-	0.000	1.942	-
Product Development (ECBC Matrix)	MIPR	ECBC : Aberdeen Proving Ground	-	2.259	Oct 2017	-		0.500	Oct 2019	-		0.500	0.000	2.759	-
Product Development Unmanned Platform Development and Integration	MIPR	Various : Various	-	0.645	Dec 2017	-		-		-		-	0.000	0.645	-
		Subtotal	-	12.112		11.047		5.254		-		5.254	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605038A / *Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite*	**Project (Number/Name)** EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	MIPR	ECBC : Edgewood, MD	-	-		1.638	Nov 2018	-		-		-	Continuing	Continuing	Continuing
Requirements Development Support	Various	Various : Various	-	0.531	Nov 2017	0.093	Nov 2018	-		-		-	0.000	0.624	-
		Subtotal	-	0.531		1.731		-		-		-	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	MIPR	ECBC : Edgewood, MD	-	1.100	Oct 2017	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	-	1.100		-		-		-		-	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	-	15.481		15.135		6.054		-		6.054	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605038A / *Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite*	**Project (Number/Name)** EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*

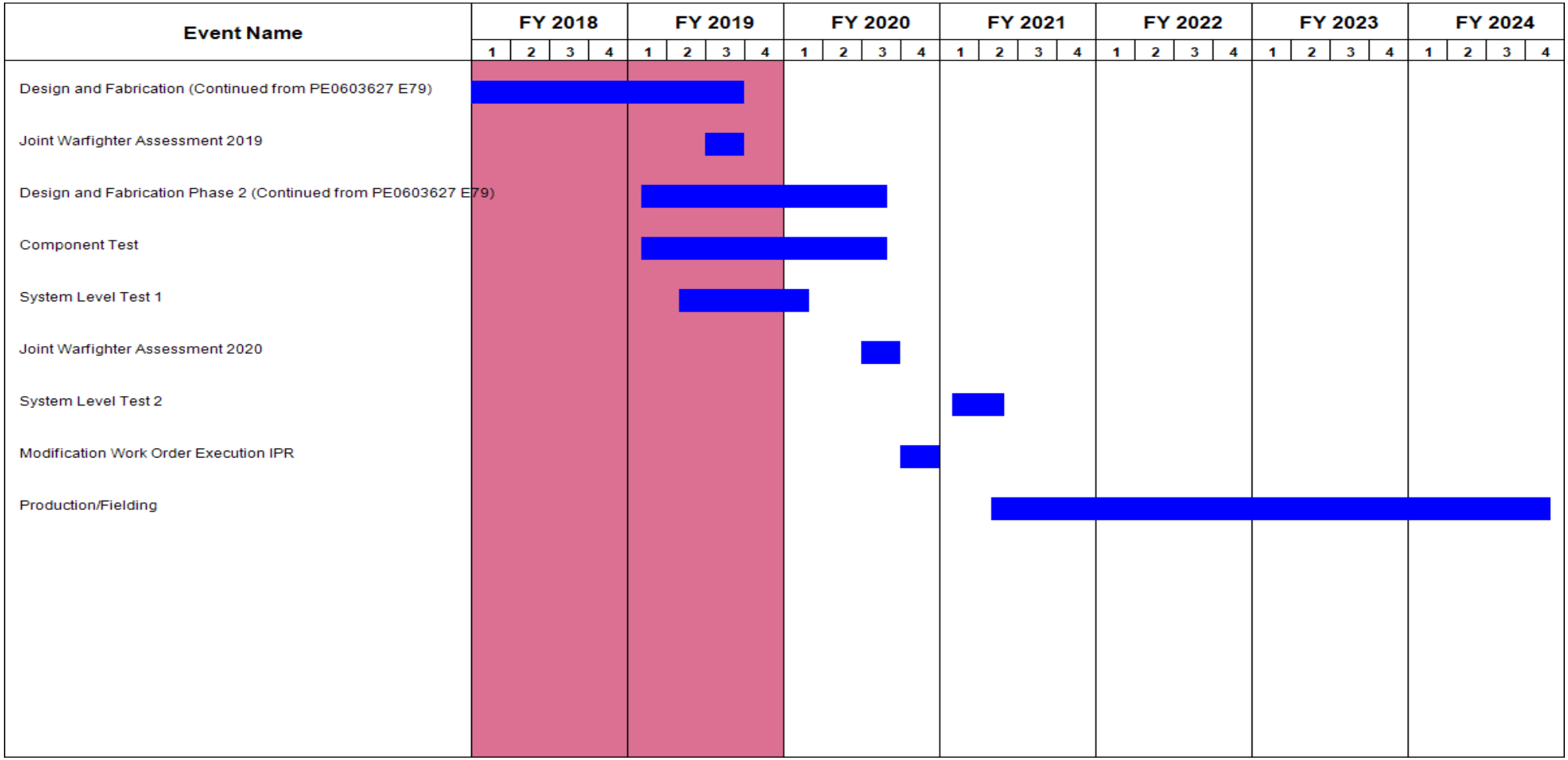

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605038A / *Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite*	**Project (Number/Name)** EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Design and Fabrication (Continued from PE0603627 E79)	2	2017	3	2019
Joint Warfighter Assessment 2019	3	2019	3	2019
Design and Fabrication Phase 2 (Continued from PE0603627 E79)	1	2019	3	2020
Component Test	1	2019	3	2020
System Level Test 1	2	2019	1	2020
Joint Warfighter Assessment 2020	3	2020	3	2020
System Level Test 2	1	2021	2	2021
Modification Work Order Execution IPR	4	2020	4	2020
Production/Fielding	2	2021	4	2024