

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army **Date:** February 2020

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605038A / Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite
---	---

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	14.517	6.054	4.846	-	4.846	8.342	0.000	0.000	0.000	0.000	33.759
EQ7: NBC Reconnaissance Vehicle (NBCRV) Sensor Suite	-	14.517	6.054	4.846	-	4.846	8.342	0.000	0.000	0.000	0.000	33.759

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 queuing 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	15.135	6.054	0.000	-	0.000
Current President's Budget	14.517	6.054	4.846	-	4.846
Total Adjustments	-0.618	0.000	4.846	-	4.846
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.618	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	4.846	-	4.846

Change Summary Explanation

FY 2021 Base dollars in the amount of \$4.846 million supports the development of Nuclear, Biological, and Chemical Reconnaissance Vehicles Sensor Suite Upgrade (NBCRV SSU) with the Chemical Surface Detector (CSD), Improved Mobile Chemical Agent Detector (iMCAD), Joint Chemical Agent Detector (JCAD), standoff bio-sensor detection system, standoff radiation detection system, Unmanned Aerial System (UAS) carrying Chemical, Biological, Radiological and Nuclear sensors while integrated onto the Stryker NBCRV platform and large unmanned ground vehicle. The development of the NBCRV SSU extended into FY 2021 causing a change from PB20 to PB 2021.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army										Date: February 2020		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605038A / <i>Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite</i>				Project (Number/Name) EQ7 / <i>NBC Reconnaissance Vehicle (NBCRV) Sensor Suite</i>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
EQ7: <i>NBC Reconnaissance Vehicle (NBCRV) Sensor Suite</i>	-	14.517	6.054	4.846	-	4.846	8.342	0.000	0.000	0.000	0.000	33.759
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 FY 2020, NBCRV SSU program will develop a prototype of integrated sensors for demonstration in Joint Warfighter Assessment 2020. In FY 2021, NBCRV SSU program will develop hardened and integrated sensors for development test in FY 2022.

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

	FY 2019	FY 2020	FY 2021
Title: Product Development and Unmanned Platform Integration	14.269	5.254	4.341
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 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 2021 Plans: Continue CBRN sensor and integrated sensor suite prototype development, maturation, and procurement. Continue government strategic planning, systems engineering, logistics, training, test and evaluation, and technical support for the accelerated program.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605038A / <i>Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite</i>	Project (Number/Name) EQ7 / <i>NBC Reconnaissance Vehicle (NBCRV) Sensor Suite</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Funding decreases due to program transitioning to production in FY 2022.			
Title: Program Management and Oversight	0.248	0.800	0.505
Description: Program Management and Oversight			
FY 2020 Plans: Continue Government program management, system engineering, and Integrated Product Team (IPT) support.			
FY 2021 Plans: Continue Government program management, system engineering, and Integrated Product Team (IPT) support.			
FY 2020 to FY 2021 Increase/Decrease Statement: Funding decreases due to program transitioning to production in FY 2022.			
Accomplishments/Planned Programs Subtotals	14.517	6.054	4.846

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 FY 2019 for demonstration in Joint Warfighting Assessment (JWA) 19 and system level testing. 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 2022 to execute a Modification Work Order for fielding in FY 2023. 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.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
2040 / 5				PE 0605038A / Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite						EQ7 / NBC Reconnaissance Vehicle (NBCRV) Sensor Suite					
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Project Management Personnel	MIPR	JPEO-CBRND : Edgewood, MD	1.738	0.248	Nov 2018	0.800	Nov 2019	0.505	Nov 2020	-		0.505	Continuing	Continuing	Continuing
Subtotal			1.738	0.248		0.800		0.505		-		0.505	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 and Sensor Integration	C/Various	Various : Various	-	12.094	Nov 2018	4.754	Nov 2019	4.341	Nov 2020	-		4.341	Continuing	Continuing	Continuing
Product Development (CSD) AGENTASE, LLC (TMRR)	Option/CPFF	AGENTASE, LLC : Elkridge, MD	2.552	0.393	Oct 2018	-		-		-		-	0.000	2.945	-
Product Development (CSD) L3 (TMRR)	Option/CPFF	L-3 Communications Sonoma EO, Inc : Santa Rosa,, CA	2.627	-		-		-		-		-	0.000	2.627	-
Product Development (CSD) UTC (TMRR)	Option/CPFF	Hamilton Sundstand Space Systems : Pomona, CA	2.087	-		-		-		-		-	0.000	2.087	-
Product Development (CSD) Rad/Nuc (M2PRDS)	C/CPFF	Advanced Technologies International : Summerville, SC	1.942	-		-		-		-		-	0.000	1.942	-
Product Development (ECBC Matrix)	MIPR	ECBC : Aberdeen Proving Ground	2.259	-		0.500	Oct 2019	-		-		-	0.000	2.759	-
Product Development Unmanned Platform Development and Integration	MIPR	Various : Various	0.645	-		-		-		-		-	0.000	0.645	-
Subtotal			12.112	12.487		5.254		4.341		-		4.341	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605038A / Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite				EQ7 / NBC Reconnaissance Vehicle (NBCRV) Sensor Suite							
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Integrated Logistics Support	MIPR	ECBC : Edgewood, MD	-	1.301	Jan 2019	-		-		-		-	Continuing	Continuing	Continuing
Requirements Development Support	Various	Various : Various	0.531	0.098	Jan 2019	-		-		-		-	0.000	0.629	-
Subtotal			0.531	1.399		-		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	MIPR	ECBC : Edgewood, MD	1.100	0.383	May 2019	-		-		-		-	Continuing	Continuing	Continuing
Subtotal			1.100	0.383		-		-		-		-	Continuing	Continuing	N/A
Project Cost Totals			15.481	14.517		6.054		4.846		-		4.846	Continuing	Continuing	N/A
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605038A / <i>Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite</i>	Project (Number/Name) EQ7 / <i>NBC Reconnaissance Vehicle (NBCRV) Sensor Suite</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Design and Fabrication (Continued from PE0603627 E79)	█																											
Joint Warfighter Assessment 2019			█																									
Design and Fabrication Phase 2 (Continued from PE0603627 E79)	█																											
Component Test									█																			
System Level Test 1									█																			
Joint Warfighter Assessment 2020																					█							
Modification Work Order Execution IPR																									█			
Production/Fielding																									█			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605038A / <i>Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite</i>	Project (Number/Name) EQ7 / <i>NBC Reconnaissance Vehicle (NBCRV) Sensor Suite</i>

Schedule Details

Events	Start		End	
	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)	2	2019	3	2021
Component Test	2	2021	3	2022
System Level Test 1	3	2021	3	2022
Joint Warfighter Assessment 2020	3	2020	3	2020
Modification Work Order Execution IPR	2	2023	2	2023
Production/Fielding	3	2022	4	2024