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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army **Date:** February 2016

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 Program Element (Number/Name) PE 0603627A / Smoke, Obscurant and Target Defeating Sys-Adv Dev
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	13.426	28.244	-	28.244	7.137	1.714	0.000	0.000	0.000	50.521
E79: SMOKE/OBSCURANT SYSTEM	-	0.000	13.426	28.244	-	28.244	7.137	1.714	0.000	0.000	0.000	50.521

Note

Nuclear Biological Chemical Radiological Vehicle Sensor Suite (NBCRVSS) funding is expected to move to a separate Program Element during the FY16 President's Budget cycle. It will be reflected under PE 655038, Project Code EQ7.

A. Mission Description and Budget Item Justification

SOM: US Forces must be able to effectively neutralize and degrade energy weapon systems and electro-optical systems/smart weapons that operate in the full range of the electromagnetic spectrum to improve platform survivability and soldier protection levels of maneuver forces on the battlefield. Improvements are sought across the entire multi-spectral range from visual through infrared (IR) and millimeter wavelengths (MMW) radar for incorporation into self-protection using sustained generated obscuration technology. SOM will be man portable and modular to facilitate quick mounting on manned/unmanned platforms and dismounted operations.

NBCRV: This program upgrades the Stryker Nuclear Biological Chemical Radiological Vehicle Sensor Suite (NBCRVSS) for increased sensitivity, chemical detection at increased maneuver speeds, and increased reliability. The NBCRVSS consists of a chemical point detector for solid, liquid, and vapor Chemical Warfare Agents, a biological point detection system, a Chemical Vapor Sampling System, a Training Aids, Devices, and Simulation System, and the Sensor Processing Group. The NBCRVSS provides the Stryker NBCRV the ability to detect, identify, collect, report, and mark NBC hazards. NBCRVSS funding is expected to move to a separate Program Element during the FY16 President's Budget cycle. It will be reflected under PE 655038, Project Code EQ7.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	0.000	13.426	13.400	-	13.400
Current President's Budget	0.000	13.426	28.244	-	28.244
Total Adjustments	0.000	0.000	14.844	-	14.844
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	14.844	-	14.844

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<u>Change Summary Explanation</u> The FY 2016 funding request was reduced for \$4.517 million to account for the availability of prior year execution balances.		

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Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603627A / <i>Smoke, Obscurant and Target Defeating Sys-Adv Dev</i>				Project (Number/Name) E79 / <i>SMOKE/OBSCURANT SYSTEM</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
E79: <i>SMOKE/OBSCURANT SYSTEM</i>	-	0.000	13.426	28.244	-	28.244	7.137	1.714	0.000	0.000	0.000	50.521
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Screening Obscuration Module (SOM): US Forces must be able to effectively neutralize and degrade enemy weapon systems and electro-optical systems/smart weapons that operate in the full range of the electromagnetic spectrum to improve platform survivability and soldier protection levels of maneuver forces on the battlefield. SOM provides visual through near-infrared screening of the electromagnetic spectrum. SOM will be man-portable and modular to facilitate quick mounting on manned/unmanned platforms and dismounted operations. The SOM replaces out-dated 1930s technology Combat smoke pots that are safety hazards containing potential carcinogenic constituents and are fire hazards. Combat smoke pots lack a turn on/off ability, are unsafe to mount on combat vehicles and produce a smoke cloud that is too small, and too short in duration to meet current requirements, SOM addresses these issues.

NBCRV: This program upgrades the Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite (NBCRVSS). The NBCRVSS is the Mission Equipment Package for the Stryker Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) and consists of chemical point detectors, a standoff chemical vapor detector, a biological point detector, a Chemical Vapor Sampling System, and a Sensor Processing group. The NBCRVSS provides the Stryker NBCRV the ability to detect, identify, collect, report, and mark Nuclear Biological Chemical (NBC) Hazards. Starting in FY16, a Chemical Surface Detector will be developed to replace the Dual Wheel Sampling System to increase maneuverability of the Stryker NBCRV and increase reliability. Starting in FY17, a Chemical Mass Spectrometer will be developed to replace the Chemical Biological Mass Spectrometer Block II to increase reliability, sensitivity, and the number of chemicals detected. Also in FY17 an update to the Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD) will be developed to increase range and probability of detection by reducing its field of view.

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

	FY 2015	FY 2016	FY 2017
Title: SOM: Product Development	-	1.700	5.100
Description: Provide SOM Development			
FY 2016 Plans: SOM:Initiate design and development of the SOM system.			
FY 2017 Plans: SOM: Continue design and development of the SOM system.			
Title: SOM: Test and Evaluation of SOM systems	-	0.286	0.800
Description: Provide Test and Evaluation of SOM systems			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>FY 2016 Plans: SOM: Initiate test and evaluation planning</p> <p>FY 2017 Plans: SOM: Continue test and evaluation planning.</p>				
<p>Title: SOM: Project Management</p> <p>Description: Provide Project Management</p> <p>FY 2016 Plans: SOM: Initiate Government program management, systems engineering, and Integrated Product Team (IPT) support.</p> <p>FY 2017 Plans: SOM: Continue Government program management, systems engineering, and Integrated Product Team (IPT) support.</p>		-	0.600	1.125
<p>Title: NBCRV: Sensor Suite Upgrade Development</p> <p>Description: Provide Sensor suite upgrade development</p> <p>FY 2016 Plans: NBCRV: Initiate task orders for sensor suite development.</p> <p>FY 2017 Plans: NBCRV: Continue sensor suite upgrade development</p>		-	8.140	17.019
<p>Title: NBCRV Integration Support</p> <p>Description: Provide ILS and Integration support to the sensor suite upgrades</p> <p>FY 2016 Plans: NBCRV: Initiate ILS and Integration support to the sensor suite upgrades</p> <p>FY 2017 Plans: NBCRV: Continue ILS and Integration support to the sensor suite upgrades</p>		-	0.700	0.700
<p>Title: NBCRV: Test & Evaluation</p> <p>Description: Provide NBCRV testing of prototypes</p> <p>FY 2016 Plans:</p>		-	0.500	1.500

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
NBCRV: Initiate test and evaluation planning and support for sensor suite upgrade prototypes.			
FY 2017 Plans: NBCRV: Continue test and evaluation planning and support for sensor suite upgrade prototypes			
Title: NBCRV: Project Management Description: Provide NBCRV Project Management Labor	-	1.500	1.800
FY 2016 Plans: NBCRV: Initiate government program management, systems engineering, and Integrated Product Team (IPT) support.			
FY 2017 Plans: NBCRV: Continue government program management, systems engineering, and Integrated Product Team (IPT) support.			
Title: CRESS: Engineering Studies Description: Chemical Reconnaissance and Explosives Screening Set (CRESS)	-	-	0.200
FY 2017 Plans: CRESS: Initiate engineering studies			
Accomplishments/Planned Programs Subtotals	-	13.426	28.244

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SMOKE/OBSCURANT SYSTEM: <i>Project 200 Smoke, Obscurant and Target Defeating Sys - Eng Dev</i>	-	-	-	-	-	-	-	-	-	0.000	0.000
• Target Defeating System: <i>Project 198 Smoke, Obscurant and Target Defeating Sys - Eng Dev</i>	-	-	-	-	-	-	-	-	-	0.000	0.000

Remarks

D. Acquisition Strategy

Acquisition Strategy:

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<p>SOM: The Screening Obscuration Module (SOM) acquisition strategy is a single-step Technology Maturation and Risk Reduction (TMRR) phase leading to a Milestone B/C production decision. The path forward for the TMRR phase will include the release of a formal request for proposal (RFP) to develop and test a SOM system capable of obscuring the Visual through Near IR wavelengths of the electromagnetic spectrum. The SOM RFP will utilize a Full and Open Competitive cost plus best value contract approach to execute the TMRR phase and a fixed price contract option for production. This acquisition strategy includes system development and demonstration, full system integration, design for producibility and a demonstration of interoperability, safety, utility and reliability.</p> <p>NBCRV: The Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite (NBCRVSS) Upgrade is a single-step in the evolutionary acquisition strategy for the Stryker Nuclear Biological Chemical Reconnaissance Vehicle. The contract approach of the Chemical Surface Detector (CSD) will be a Full and Open cost plus fixed fee competitive prototyping contract. The contract approach of the Chemical Mass Spectrometer (CMS) will be a Full and Open cost plus fixed fee competitive prototyping contract. The contract approach for the update of the Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD) will be a Sole Source cost plus fixed fee Indefinite Delivery Indefinite Quantity with firm fixed price production task orders.</p> <p><u>E. Performance Metrics</u> N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 4				PE 0603627A / Smoke, Obscurant and Target Defeating Sys-Adv Dev				E79 / SMOKE/OBSCURANT SYSTEM							
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
SOM-Project Management Personnel	MIPR	JPM NBC CA : Edgewood, MD	5.630	-		0.600		1.125		-		1.125	Continuing	Continuing	Continuing
NBCRV-Project Management Personnel	MIPR	JPM NBC CA & JPEO CBD : Edgewood, MD	0.000	-		1.500		1.800		-		1.800	Continuing	Continuing	Continuing
Subtotal			5.630	-		2.100		2.925		-		2.925	-	-	-
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
SOM Product Development	C/CPFF	TBD : TBD	21.551	-		1.700	Jan 2016	5.100		-		5.100	Continuing	Continuing	Continuing
NBCRV Product Development (CSD)	C/CPFF	TBD : TBD	0.000	-		8.140	Mar 2016	7.673	Nov 2016	-		7.673	Continuing	Continuing	Continuing
NBCRV: Product Development (CMS)	C/CPFF	TBD : TBD	0.000	-		-		6.573	Nov 2016	-		6.573	Continuing	Continuing	Continuing
NBCRV: Product Development (JSLSCAD RFOV)	SS/CPFF	Chemring Detection Systems : Charlotte, NC	0.000	-		-		2.773	Nov 2016	-		2.773	Continuing	Continuing	Continuing
Subtotal			21.551	-		9.840		22.119		-		22.119	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
NBCRV ILS	MIPR	ECBC : Edgewood, MD	0.000	-		0.700		0.700		-		0.700	Continuing	Continuing	Continuing
Subtotal			0.000	-		0.700		0.700		-		0.700	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army **Date:** February 2016

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Event Name	FY 2015				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				
SOM Design and Fabrication																																
SOM Developmental Testing #1																																
SOM Developmental Testing #2																																
SOM User Testing																																
SOM MS B/C/FRP																																
SOM Production Award																																
SOM FAT																																
NBCRV: Chemical Surface Detector (CSD) Award (TMRR)																																
NBCRV: CSD Design and Fabrication																																
NBCRV: CSD Developmental Testing																																
NBCRV: CMS Award																																
NBCRV: CMS Design and Fabrication																																
NBCRV: JSLSCAD RFOV Task Order Award																																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army **Date:** February 2016

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603627A / <i>Smoke, Obscurant and Target Defeating Sys-Adv Dev</i>	Project (Number/Name) E79 / <i>SMOKE/OBSCURANT SYSTEM</i>
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Event Name	FY 2015				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
NBCRV: JSLSCAD RFOV Desgin and Fabrication																												
NBCRV: Sensor Suite Milestone B																												
NBCRV: CSD Maturation																												
NBCRV: CMS Maturation																												
NBCRV: JSLSCAD RFOV Maturation																												
NBCRV: Production Qualification Testing (PQT)																												
NBCRV: Operational Test																												
NBCRV: CSD Low Rate Initial Production (LRIP)																												
NBCRV: CMS LRIP																												
NBCRV: JSLSCAD LRIP																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603627A / <i>Smoke, Obscurant and Target Defeating Sys-Adv Dev</i>	Project (Number/Name) E79 / <i>SMOKE/OBSCURANT SYSTEM</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SOM Design and Fabrication	2	2016	1	2018
SOM Developmental Testing #1	4	2017	4	2017
SOM Developmental Testing #2	2	2018	2	2019
SOM User Testing	2	2019	2	2019
SOM MS B/C/FRP	1	2020	1	2020
SOM Production Award	1	2020	1	2020
SOM FAT	4	2020	4	2020
NBCRV: Chemical Surface Detector (CSD) Award (TMRR)	2	2016	2	2016
NBCRV: CSD Design and Fabrication	2	2016	3	2017
NBCRV: CSD Developmental Testing	3	2016	1	2018
NBCRV: CMS Award	1	2017	1	2017
NBCRV: CMS Design and Fabrication	1	2017	1	2018
NBCRV: JSLSCAD RFOV Task Order Award	1	2017	1	2017
NBCRV: JSLSCAD RFOV Desgin and Fabrication	1	2017	1	2018
NBCRV: Sensor Suite Milestone B	1	2018	1	2018
NBCRV: CSD Maturation	1	2018	1	2019
NBCRV: CMS Maturation	1	2018	1	2019
NBCRV: JSLSCAD RFOV Maturation	1	2018	1	2019
NBCRV: Production Qualification Testing (PQT)	4	2018	2	2019
NBCRV: Operational Test	3	2020	4	2020
NBCRV: CSD Low Rate Initial Production (LRIP)	4	2019	3	2020
NBCRV: CMS LRIP	4	2019	3	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army			Date: February 2016	
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Events	Start		End	
	Quarter	Year	Quarter	Year
NBCRV: JSLSCAD LRIP	4	2019	3	2020