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

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E)</i>
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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	-	4.980	3.847	5.976	-	5.976	0.000	0.000	0.000	0.000	0.000	14.803
EQ3: <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i>	-	4.980	3.847	5.976	-	5.976	0.000	0.000	0.000	0.000	0.000	14.803

A. Mission Description and Budget Item Justification

Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) will replace the interim Persistent Surveillance System-Ground (PSS-G) Increment 1 towers with improved persistent surveillance capabilities and will provide network integration and better mobility utilizing modular configurations. GBOSS-E will replace obsolete, quick reaction capability (QRC) surveillance and force protections systems utilizing modular configurations: Light variant (man transportable/detachable) for extra small base camps or small outpost/company, Medium variant (mid sensor height) for small to medium size base, and Heavy variant (high level sensor height) for large contingency base camps. GBOSS-E will operate in a stand-alone mode or as part of an integrated network utilizing government owned software, be easily operated and maintained, and be rugged enough to support employment in expeditionary operations worldwide.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	5.169	3.847	5.981	-	5.981
Current President's Budget	4.980	3.847	5.976	-	5.976
Total Adjustments	-0.189	0.000	-0.005	-	-0.005
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.189	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.005	-	-0.005

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Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E)</i>					Project (Number/Name) EQ3 / <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</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
EQ3: <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i>	-	4.980	3.847	5.976	-	5.976	0.000	0.000	0.000	0.000	0.000	14.803
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) will replace the interim Persistent Surveillance System-Ground (PSS-G) Increment 1 towers with improved persistent surveillance capabilities and will provide network integration and better mobility utilizing modular configurations. GBOSS-E will replace obsolete, quick reaction capability (QRC) surveillance and force protections systems utilizing modular configurations: Light variant (man transportable/detachable) for extra small base camps or small outpost/company, Medium variant (mid sensor height) for small to medium size base, and Heavy variant (high level sensor height) for large contingency base camps. GBOSS-E will operate in a stand-alone mode or as part of an integrated network utilizing government owned software, be easily operated and maintained, and be rugged enough to support employment in expeditionary operations worldwide.

FY21 Base funding in the amount of \$5.981 million completes design engineering and integration activities, builds Low Rate initial Production (LRIP) engineering development models, conducts Initial Operational Test (IOT) and Logistics Demonstration, and provides Program Management support.

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

	FY 2019	FY 2020	FY 2021
Title: GBOSS-E Design and Build	4.979	3.847	5.976
Description: GBOSS-E completes building of Prototype/Engineering Development Models (EDMs) and Development Testing (DT).			
FY 2020 Plans: FY 2020 Plans: Funding supports continued assembly/integration of EDMs and completion of DT and LUT.			
FY 2021 Plans: FY 2021 Plans: Funding supports completion of the Engineering Development phase leading to a Milestone C decision by the Milestone decision authority. Includes the low rate initial production of test assets and operational testing of the system leading to a full rate production decision.			
FY 2020 to FY 2021 Increase/Decrease Statement: FY2021 increase of \$2.1 million is to complete design, integration and build of LRIP test assets and conduct IOT and Log demo.			
Title: FY19 NDAA, Section 8109, MDAP Cost Overrun - \$1,000	0.001	-	-

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Accomplishments/Planned Programs Subtotals	4.980	3.847	5.976

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

N/A

Remarks

D. Acquisition Strategy

Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) will replace the interim Persistent Surveillance System - Ground (PSS-G) Increment 1 towers with improved persistent surveillance capabilities along with network integration and better mobility utilizing modular configurations. The GBOSS-E Capability Design Document (CDD) was AROC approved May 2014. In FY 2013, FY 2014 & FY 2015, the Department of Defense (DoD) Physical Security Enterprise and Analysis Group (PSEAG) provided funds to conduct pre-milestone B activities.

GBOSS-E received an approved Materiel Development Decision (MDD) from the Milestone Decision Authority (MDA) on 4 December 2015. Milestone B decision accomplished 29 September 2017, the existing United States Marine Corps (USMC) tower's design (Ground Based Operational Surveillance System) (GBOSS) will be leveraged and modified to meet the Army's GBOSS-E program requirements.

The acquisition strategy for GBOSS-E was approved by the Milestone Decision Authority (MDA) on 11 December 2016, which approved plans to leverage the Naval Surface Warfare Center (NSWC) at Crane, Indiana and the Night Vision and Electronic Sensors Directorate (NVESD), Fort Belvoir, Virginia to provide system design, development, and integration support, as well as a Technical Data Package (TDP) to support future procurements.

Milestone C is planned for FY 2021.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army **Date:** February 2020

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E)</i>	Project (Number/Name) EQ3 / <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i>
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Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GBOSS-E Project Management	MIPR	PM FPS : Fort Belvoir, VA	1.933	0.767	May 2019	0.308	Jan 2020	0.700	Jan 2021	-		0.700	0.000	3.708	-
CVBIED JUONS 0540 Project Management	MIPR	PM FPS : Fort Belvoir, VA	0.051	-		-		-		-		-	0.000	0.051	-
MDAP Cost Overrun	TBD	OASA(FM&C) : Pentagon DC	-	0.001		-		-		-		-	0.000	0.001	-
Subtotal			1.984	0.768		0.308		0.700		-		0.700	0.000	3.760	N/A

Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GBOSS-E Design Engineering	MIPR	NSWC Crane : Crane, IN	4.154	2.582	Feb 2019	2.257	Jan 2020	0.670	Jan 2021	-		0.670	0.000	9.663	-
GBOSS-E Software Development	TBD	TBD : TBD	0.263	0.050		-		-		-		-	0.000	0.313	-
GBOSS-E Integration Support	MIPR	NSWC Crane : Crane, IN	1.125	-		0.464	Jan 2020	1.183	Jan 2021	-		1.183	0.000	2.772	-
Tech Data	MIPR	NSWC Crane : Crane, IN	-	1.100	Feb 2019	-		-		-		-	0.000	1.100	-
CVBIED JUONS 0540 Wide Area Motion Imagery Sensor Development	MIPR	NAVAIR : Patuxent River, MD	7.208	-		-		-		-		-	0.000	7.208	-
CVBIED JUONS 0540 Wide Area Motion Imagery Sensor Development	MIPR	RDECOM : Fort Belvoir, VA	8.735	-		-		-		-		-	0.000	8.735	-
Hardware Procurement	MIPR	NSWC Crane : Crane Indiana	-	0.100	Feb 2019	-		1.664		-		1.664	0.000	1.764	-
Subtotal			21.485	3.832		2.721		3.517		-		3.517	0.000	31.555	N/A

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Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NVESD Design Support	MIPR	RDECOM CERDEC : Fort Belvoir, VA	0.415	0.163	Jan 2019	0.109	Jan 2020	0.165	Jan 2021	-		0.165	0.000	0.852	-
ARL Human Systems Integration Support	MIPR	US Army ARL : Adelphi, MD	0.054	0.025	Apr 2019	0.030	Nov 2019	0.035	Nov 2020	-		0.035	0.000	0.144	-
CECOM FSD - Safety	MIPR	CECOM : APG, MD	0.054	0.016	Jul 2019	0.030	Nov 2019	0.035	Nov 2020	-		0.035	0.000	0.135	-
CECOM ILSC	MIPR	CECOM : Various	-	0.040	Aug 2019	0.507	Mar 2020	0.225	Mar 2021	-		0.225	0.000	0.772	-
Subtotal			0.523	0.244		0.676		0.460		-		0.460	0.000	1.903	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GBOSS-E Test and Evaluation	MIPR	A TEC : Aberdeen Proving Ground, MD	0.284	0.136		0.142	Jan 2020	1.299	Jan 2021	-		1.299	0.000	1.861	-
JUONS CC-0540 Test and Evaluation Support	MIPR	A TEC : Aberdeen Proving Ground, MD	1.178	-		-		-		-		-	0.000	1.178	-
Subtotal			1.462	0.136		0.142		1.299		-		1.299	0.000	3.039	N/A

			Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			25.454	4.980	3.847	5.976	-	5.976	0.000	40.257	N/A

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
GBOSS-E Engineering Manufacturing & Development	1	2019	1	2022
GBOSS-E Developmental Testing and User Assessment	4	2020	1	2021
GBOSS-E Milestone C	3	2021	3	2021
GBOSS-E Low Rate Initial Production (LRIP)	3	2021	2	2022
GBOSS-E Operational Test & Evaluation	4	2021	1	2022
GBOSS-E Full Rate Production Decision	2	2022	2	2022
GBOSS-E Full Rate Production	2	2022	4	2026