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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 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/Product Improvement Programs
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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	0.000	35.793	-	35.793	39.579	18.499	6.863	12.026	Continuing	Continuing
EB6: MQ-1C Gray Eagle MODS	-	0.000	0.000	35.793	-	35.793	39.579	18.499	6.863	12.026	Continuing	Continuing

Note

Fiscal Year

A. Mission Description and Budget Item Justification

Gray Eagle provides Reconnaissance, Surveillance, Target Acquisition (RSTA), Command and Control, Communications Relay, Signals Intelligence (SIGINT), Battle Damage Assessment, and Manned-Unmanned Teaming capability. Gray Eagle is a dedicated, assured, multi-mission Unmanned Aircraft System (UAS) fielded to all Army Divisions, Army Intelligence and Security Command and Army Special Operations Command in support of the commander's warfighting priorities.

The MQ-1C Gray Eagle Modification/Product Improvement Program (PIP) funding is required for the implementation of the Alternate Munition Integration integration, Global Positioning System (GPS) Denied, an electronic warfare capability, Universal Ground Control Station (UGCS) improvements, and Ground Based Sense And Avoid (GBSAA) Block II.

The Fiscal Year (FY) 2017 Aircraft Modification/Product Improvement funding of \$35.793 million will support the development required to integrate JAGM, GPS Denied, UGCS Improvements into the MQ-1C Gray Eagle product. GBSAA Research, Development, Test, and Evaluation (RDTE) will provide development, integration and testing of Block 2. Block 2 decreases operational & sustainment costs, operator workload, hardware/software costs, increases system safety, and provides full material release for soldier operation.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	35.793	-	35.793
Total Adjustments	0.000	0.000	35.793	-	35.793
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	35.793	-	35.793

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Army										Date: February 2016		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs				Project (Number/Name) EB6 / MQ-1C Gray Eagle MODS			
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
EB6: MQ-1C Gray Eagle MODS	-	0.000	0.000	35.793	-	35.793	39.579	18.499	6.863	12.026	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Gray Eagle provides Reconnaissance, Surveillance, Target Acquisition (RSTA), Command and Control, Communications Relay, Signals Intelligence (SIGINT), Battle Damage Assessment, and Manned-Unmanned Teaming capability. Gray Eagle is a dedicated, assured, multi-mission Unmanned Aircraft System (UAS) fielded to all Army Divisions, Army Intelligence and Security Command and Army Special Operations Command in support of the commander's warfighting priorities.

The MQ-1C Gray Eagle Modification/Product Improvement Program (PIP) funding is required for the implementation of the Alternate Munition integration, Global Positioning System (GPS) Denied, an electronic warfare capability, Universal Ground Control Station (UGCS) improvements, and Ground Based Sense And Avoid (GBSAA) Block II.

The Fiscal Year (FY) 2017 Aircraft Modification/Product Improvement funding of \$35.793 million will support the development required to integrate Alternate Munition, GPS Denied, UGCS Improvements into the MQ-1C Gray Eagle product. GBSAA Research, Development, Test, and Evaluation (RDTE) will provide development, integration and testing of Block 2. Block 2 decreases operational & sustainment costs, operator workload, hardware/software costs, increases system safety, and provides full material release for soldier operation.

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

	FY 2015	FY 2016	FY 2017
Title: Global Positioning System (GPS) Denied Description: GPS Denied FY 2017 Plans: Funding supports development of an electronic warfare capability and a capability to continue operations during periods of GPS outage as well as the ability to identify GPS jammer position will provide a significant combat multiplier to the Warfighter.	-	-	2.741
Title: Universal Ground Control Station (UGCS) Improvement Description: UGCS Improvement FY 2017 Plans: Development of UGCS Improvement - Funding supports development of Hardware, Software and documentation improvements based on Follow-On Test & Evaluation (FOTE) findings.	-	-	7.825
Title: Alternate Munition Integration	-	-	11.973

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Description: Alternate Munition Integration			
FY 2017 Plans: Development of Alternate Munition Integration - Funding supports implementation of software changes and documentation/training which provides the ability of Soldiers to operate and maintain the MQ-1C system with Alternate Munition and Hellfire missiles.			
Title: Ground Base Sense and Avoid (GBSAA) Block 2	-	-	12.851
Description: GBSAA Block 2			
FY 2017 Plans: Development and Integration for Block 2 to provide GBSAA display moved to Ground Control Station (GCS). Maneuver Recommendation to Aircraft Operator (AO), and Boundary Awareness/ Keep out zones.			
Title: Ground Base Sense and Avoid (GBSAA) Test Block 2	-	-	0.403
Description: Ground Base Sense and Avoid (GBSAA) Test Block 2			
FY 2017 Plans: Test Block 2. Additional capabilities for functionality and software bug fixes.			
Accomplishments/Planned Programs Subtotals	-	-	35.793

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MQ-1 UAV (A00005) - Base APA: MQ-1 UAV / APA A00005 - Base APA	-	-	55.388	-	55.388	10.806	-	-	-	0.000	66.194
• MQ-1 UAV (A00002) - Base APA: MQ-1 UAV (A00002) - Base APA	-	-	-	-	-	92.694	111.806	58.724	27.662	Continuing	Continuing

Remarks

D. Acquisition Strategy

An Extended Range Multi-Purpose (ERMP) Operational Requirement Document (ORD) was approved by the Joint Requirement Oversight Council (JROC) 6 Apr 2005. Milestone B occurred on 20 Apr 2005, and the System Development and Demonstration contract was awarded 8 Aug 2005, as a result of a competitive solicitation which

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<p>included a vendor system capabilities demonstration. A Capabilities Production Document (CPD) was approved 14 Mar 2009. MQ-1C Gray Eagle completed FOTE 12 Jun 2015.</p> <p>The RDTE funded elements for GPS Denied, UGCS Improvements and Alternate Munition Integration addressed in this submission are planned for award on the Gray Eagle Engineering Services contract as a Sub-Engineering Services Memorandum (SESM) task order, and as Military Interdepartmental Purchase Requisitions (MIPRs) to various other Government Agencies. The purpose of the SESMs is to mature the respective designs to a level that Engineering Change Requests (ECR) are submitted to the Government via the Configuration Control Board (CCB). Following successful completion of the SESM and CCB approval, a contract modification to retrofit and/or cut-in the respective engineering change will be awarded on the appropriate Performance Based Logistics (PBL) or Production contract. The RDTE funded element for GBSAA Block II addressed in this submission are planned for award on various contracts and MIPR actions to other government agencies.</p> <p>E. Performance Metrics 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 / 7				PE 0203744A / Aircraft Modifications/ Product Improvement Programs					EB6 / MQ-1C Gray Eagle MODS						
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
Global Positioning System (GPS) Denied	SS/CPFF	General Atomics/ ASI : San Diego, CA	0.000	-		-		2.577	Jan 2017	-		2.577	0	2.577	0
Universal Ground Control Station (UGCS) Improvements	SS/CPFF	General Atomics/ ASI : San Diego, CA	0.000	-		-		7.356	Jan 2017	-		7.356	0	7.356	0
Alternate Munition Integration	MIPR	Various : Various	0.000	-		-		11.214	Jan 2017	-		11.214	0	11.214	0
Ground Base Sense and Avoid Block 2	SS/CPFF	Various : Various	0.000	-		-		12.080	Oct 2017	-		12.080	0	12.080	0
Subtotal			0.000	-		-		33.227		-		33.227	0.000	33.227	0.000
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
Engineering Support - MQ-1	MIPR	Various : Various	0.000	-		-		1.392	Nov 2017	-		1.392	0	1.392	0
Engineering Support - GBSAA	MIPR	Various : Various	0.000	-		-		0.795	Nov 2017	-		0.795	0	0.795	0
Subtotal			0.000	-		-		2.187		-		2.187	0.000	2.187	0.000
Test and Evaluation (\$ 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
Development Testing and Software Testing Block 2 - GBSAA	MIPR	Various : Various	0.000	-		-		0.379	Apr 2017	-		0.379	0	0.379	0
Subtotal			0.000	-		-		0.379		-		0.379	0.000	0.379	0.000

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	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	0.000	-	0.000		35.793	-	35.793	0.000	35.793	0.000	

Remarks

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

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) EB6 / MQ-1C Gray Eagle MODS
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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																																																												
Engineering and Manufacturing Development - GBSAA									EMD - GBSAA																																																																															
Engineering and Software Development - MQ-1 Gray Eagle									ESD-GE																																																																															
Engineering and Software Development - GBSAA																	EMD - GBSAA																																																																							
Training Development and Software/System Testing - MQ-1 Gray Eagle																									DTST-GE																																																															
Training Development and Software/System Testing- GBSAA																																	DTST-GBSAA																																																							
(1) Critical Design Review - GBSAA																																									CDR-GBSAA ¹																																															
Global Positioning System Denied																																																	GPS																																							
Universal Ground Control Station Improvements																																																									UGCS Improvements																															
Alternate Munition Integration																																																																	Alternate Munition Integration																							
(2) First Unit Equipped - GBSAA																																																																									FUE - GBSAA ²															

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

Events	Start		End	
	Quarter	Year	Quarter	Year
Engineering and Manufacturing Development - GBSAA	3	2017	4	2018
Engineering and Software Development - MQ-1 Gray Eagle	2	2017	4	2022
Engineering and Software Development - GBSAA	3	2017	4	2018
Training Development and Software/System Testing - MQ-1 Gray Eagle	3	2017	4	2019
Training Development and Software/System Testing- GBSAA	1	2018	1	2019
Critical Design Review - GBSAA	1	2017	1	2017
Global Positioning System Denied	2	2017	4	2021
Universal Ground Control Station Improvements	2	2017	4	2019
Alternate Munition Integration	2	2017	4	2018
First Unit Equipped - GBSAA	4	2019	4	2019