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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2020 Army **Date:** March 2019

<b>Appropriation/Budget Activity</b> 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development					<b>R-1 Program Element (Number/Name)</b> PE 0305219A / MQ-1 Gray Eagle UAV							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	10.531	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.531
MQ1: MQ-1 Gray Eagle - Army UAV (MIP)	-	10.531	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.531

## **A. Mission Description and Budget Item Justification**

The MQ-1C Gray Eagle provides the Army with an Extended Range, Multi-Purpose (ERMP) Unmanned Aircraft System (UAS); capable of executing reconnaissance, security, attack, and intelligence collection missions in the Range Of Military Operations (ROMO). Sensors/payloads include an Electro-Optical/Infrared/Laser Designator (EO/IR/LD), Synthetic Aperture Radar/Moving Target Indicator (SAR/MTI), Signals Intelligence (SIGINT), and HELLFIRE missiles; providing a near all-weather mission capability. MQ-1C Gray Eagle is a dedicated, assured, multi-mission UAS fielded to all Army Divisions, Intelligence and Security Command and Army Special Operations Command in support of the commander's warfighting priorities.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
Previous President's Budget	9.574	0.000	0.000	-	0.000
Current President's Budget	10.531	0.000	0.000	-	0.000
Total Adjustments	0.957	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.957	-			
• SBIR/STTR Transfer	-	-			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Army										<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 2040 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0305219A / MQ-1 Gray Eagle UAV				<b>Project (Number/Name)</b> MQ1 / MQ-1 Gray Eagle - Army UAV (MIP)			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MQ1: MQ-1 Gray Eagle - Army UAV (MIP)	-	10.531	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.531
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The MQ-1C Gray Eagle provides the Army with an Extended Range, Multi-Purpose (ERMP) Unmanned Aircraft System (UAS); capable of executing reconnaissance, security, attack, and intelligence data collection missions in the Range Of Military Operations (ROMO). Sensors/payloads include an Electro-Optical/Infrared/Laser Designator (EO/IR/LD), Synthetic Aperture Radar/Moving Target Indicator (SAR/MTI), Signals Intelligence (SIGINT), and HELLFIRE missiles; providing a near all-weather mission capability. MQ-1C Gray Eagle is a dedicated, assured, multi-mission UAS fielded to all Army Divisions, Intelligence and Security Command and Army Special Operations Command in support of the commander's warfighting priorities.

The Fiscal Year (FY) 2018 MQ-1 Gray Eagle funding of \$10.531 million supports the Test and Evaluation efforts associated with the MQ-1C Gray Eagle Extended Range Engineering Change Proposal (ECP). The test effort evaluates overall system level performance to ensure it meets developmental and operational requirements. The types of effort required include Environmental Testing, Electromagnetic Environmental Effects (E3) testing, transportability/mobility testing, logistics demonstration, and Follow-On Operational Test and Evaluation (FOTE II).

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
<b>Title:</b> MQ-1C Gray Eagle Extended Range - Testing	10.531	-	-	-	-
<b>Description:</b> MQ-1C ER Testing					
<b>Accomplishments/Planned Programs Subtotals</b>	10.531	-	-	-	-

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

<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• A00005: MQ-1 UAV	224.506	163.326	0.000	54.000	54.000	54.000	-	-	-	0.000	495.832
• AA6601: Gray Eagle Mods2	74.291	129.781	14.699	-	14.699	14.089	1.662	1.548	1.495	Continuing	Continuing
• EB6: MQ-1C Gray Eagle MODS	34.228	17.684	16.486	-	16.486	13.904	11.307	9.187	7.188	Continuing	Continuing

**Remarks**

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Army		<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305219A / MQ-1 Gray Eagle UAV	<b>Project (Number/Name)</b> MQ1 / MQ-1 Gray Eagle - Army UAV (MIP)
<p><b><u>D. Acquisition Strategy</u></b></p> <p>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 included a vendor system capabilities demonstration. A Capabilities Production Document (CPD), version 8.7 was approved on 17 Jul 15. MQ-1C Gray Eagle completed FOTE 12 Jun 2015. On 14 Jul 2015, the trigger Configuration Steering Board (CSB) concurred with the Course of Action (COA) to validate the revised requirement for the Echelons Above Division (EAD) Gray Eagle and grant authorities through a new Acquisition Decision memorandum (ADM) to pursue the extended range capable Gray Eagle configuration. MQ-1C Gray Eagle Extended Range is an enhanced derivative of the MQ-1C Gray Eagle UAS and closes the capability gap by delivering extended surveillance coverage which supports Army RSTA missions in excess of 34 hours. MQ-1C Gray Eagle Extended Range's increased performance provides the capacity for multi-intelligence payloads, precision strike capability, and reconnaissance in support of Special Operations Forces (SOF), Mission Command from Aerial Intelligence Brigade (AIB) and U.S. Army Special Operations Command (USASOC). The Gray Eagle Research, Development, Test, and Evaluation (RDTE) acquisition strategy emphasis will be to complete Developmental test events (Environmental, E3, Transportability, software and Air Vehicle Performance Tests) to define and address system risks, followed by an FOTE II for the MQ-1C Gray Eagle Extended Range.</p> <p><b><u>E. Performance Metrics</u></b></p> <p>N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0305219A / MQ-1 Gray Eagle UAV				Project (Number/Name) MQ1 / MQ-1 Gray Eagle - Army UAV (MIP)					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Program Management	MIPR	PM UAS : Redstone Arsenal, AL	9.066	-		-		-		-		-	0.000	9.066	-
Subtotal			9.066	-		-		-		-		-	0.000	9.066	N/A
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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 Engineering	C/CPIF	General Atomics / ASI : San Diego, CA	165.070	-		-		-		-		-	0.000	165.070	-
Prototype Manufacturing	Various	General Atomics / ASI : San Diego, CA	213.776	-		-		-		-		-	0.000	213.776	-
Ground Support Equipment	C/CPIF	Various : Various	9.075	-		-		-		-		-	0.000	9.075	-
Ground Base Sense & Avoid (GBSAA)	SS/CPFF	Various : Various	16.445	-		-		-		-		-	0.000	16.445	-
Software / Hardware Development	SS/CPIF	General Atomics : San Diego, CA	95.179	-		-		-		-		-	0.000	95.179	-
Common System Integration (CSI) Obsolescence	SS/CPFF	General Dynamics Mission Systems/ Various : Various	19.985	-		-		-		-		-	0.000	19.985	-
MQ-1C Gray Eagle Extended Range - Longbow Integration	SS/CPFF	GA-ASI : Poway, CA	2.300	-		-		-		-		-	0.000	2.300	-
Subtotal			521.830	-		-		-		-		-	0.000	521.830	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Contractor Engineering Support	MIPR	Ft. Huachuca : Ft. Huachuca	24.501	-		-		-		-		-	0.000	24.501	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0305219A / MQ-1 Gray Eagle UAV				Project (Number/Name) MQ1 / MQ-1 Gray Eagle - Army UAV (MIP)					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Training and Training Equipment	MIPR	Ft. Huachuca : Ft. Huachuca	43.892	-		-		-		-		-	0.000	43.892	-
Government Engineering Support	C/FFP	Various : Various	18.859	-		-		-		-		-	0.000	18.859	-
Subtotal			87.252	-		-		-		-		-	0.000	87.252	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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	Various Government Agencies : Various Government Agencies	81.768	-		-		-		-		-	0.000	81.768	-
MQ-1C Gray Eagle Extended Range Development Testing and Software Testing	MIPR	Various Test Agencies : Various Test Agencies	13.470	10.531		-		-		-		-	0.000	24.001	-
Subtotal			95.238	10.531		-		-		-		-	0.000	105.769	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			713.386	10.531		0.000		-		-		-	0.000	723.917	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army			Date: March 2019		
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0305219A / MQ-1 Gray Eagle UAV		Project (Number/Name) MQ1 / MQ-1 Gray Eagle - Army UAV (MIP)	

Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Operational Test Readiness Review I																												
Electromagnetic Environmental Effects (E3) Qual Test II																												
Environmental Qual Testing																												
First Article Test																												
Operational Test Readiness Review III																												
Logistics Demonstration																												
Follow-on Operational Test and Evaluation II																												
Transport / Mobility Qual Test																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Army			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305219A / MQ-1 Gray Eagle UAV	<b>Project (Number/Name)</b> MQ1 / MQ-1 Gray Eagle - Army UAV (MIP)	

## Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Engineering and Manufacturing Development	3	2005	4	2013
Critical Design Review	2	2006	2	2006
Operational Assessment	3	2009	3	2010
Milestone C	2	2011	2	2011
Initial Operational Test and Evaluation (IOT&E)	4	2012	4	2012
Engineering Software / Hardware Development	1	2013	1	2014
Electromagnetic Environmental Effects (E3) Qual Test	3	2017	3	2017
Operational Test Readiness Review I	3	2018	3	2018
Electromagnetic Environmental Effects (E3) Qual Test II	3	2019	3	2019
Environmental Qual Testing	4	2018	4	2018
First Article Test	4	2017	1	2018
Operational Test Readiness Review III	4	2018	4	2018
Logistics Demonstration	2	2018	2	2018
Follow-on Operational Test and Evaluation II	4	2018	4	2018
Transport / Mobility Qual Test	3	2018	3	2019