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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Army **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0305219A: <i>MQ-1 Gray Eagle - Army UAV (MIP)</i>
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COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	119.195	121.846	74.618	-	74.618	14.705	2.513	19.760	20.092	Continuing	Continuing
MQ1: <i>MQ-1 GRAY EAGLE - ARMY UAV (MIP)</i>	119.195	121.846	74.618	-	74.618	14.705	2.513	19.760	20.092	Continuing	Continuing

**Note**

Prior to FY2011, ERMP RDT&E funding was in PE 0305204A, Project D09.

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

The production MQ-1C Gray Eagle Unmanned Aircraft System (UAS) has changed based on new Army Guidance from a company sized unit equipped with twelve (12) Unmanned Aircraft (UA) and associated support equipment to balanced Platoons, each capable of operating independently with four (4) Aircraft. Each will be equipped with a Standard Equipment Package (SEP), Ground Equipment and the following Payloads: Electro-Optical/Infrared, Laser Range Finder/Laser Designator (EO/IR/LRF/LD), communications relay, and up to four (4) HELLFIRE Missiles. The SEP includes: two (2) Universal Ground Control Stations (UGCS), two (2) Ground Data Terminal?s (GDT?s), one (1) Satellite Communication (SATCOM) Ground Data Terminal (SGDT), one (1) Portable Ground Control Station (PGCS), one (1) Portable Ground Data Terminal (PGDT), one (1) Automatic Take-off and Landing System (ATLS) set which includes (2) Tactical Automatic Landing Systems (TALS), and ground support equipment.

Ground Based Sense and Avoid (GBSAA) provides a solution to the ?See and Avoid? issues associated with gaining access to the National Airspace System (NAS) for UAS. GBSAA is a ground-based means of detecting airborne traffic and providing the necessary intelligence to the UAS, allowing it to Sense and Avoid (SAA) as an alternate means of compliance with CFR Part 91.

Justification: FY 2013 funding of \$74,618 million will provide for software/hardware fixes identified from the Initial Test and Evaluation (IOTE) in FY2012. It will provide funding to conduct the Follow-On Test and Evaluation (FOTE) for the Universal Ground Control Station (UGCS) and the Universal Ground Data Terminal, GBSAA development, testing and integration of the Phase I Plus systems.

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<b>B. Program Change Summary (\$ in Millions)</b>	<b><u>FY 2011</u></b>	<b><u>FY 2012</u></b>	<b><u>FY 2013 Base</u></b>	<b><u>FY 2013 OCO</u></b>	<b><u>FY 2013 Total</u></b>
Previous President's Budget	123.156	137.038	66.124	-	66.124
Current President's Budget	119.195	121.846	74.618	-	74.618
Total Adjustments	-3.961	-15.192	8.494	-	8.494
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-3.961	-15.192	8.494	-	8.494

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COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
MQ1: <i>MQ-1 GRAY EAGLE - ARMY UAV (MIP)</i>	119.195	121.846	74.618	-	74.618	14.705	2.513	19.760	20.092	Continuing	Continuing
Quantity of RDT&E Articles											

**Note**

Prior to FY2011, Gray Eagle RDT&E funding was in PE 0305204A, Project D09.

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

The production MQ-1C Gray Eagle Unmanned Aircraft System (UAS) has changed based on new Army Guidance from a company sized unit equipped with twelve (12) Unmanned Aircraft (UA) and associated support equipment to balanced Platoons, each capable of operating independently with four (4) Aircraft. Each will be equipped with a Standard Equipment Package (SEP), Ground Equipment and the following Payloads: Electro-Optical/Infrared, Laser Range Finder/Laser Designator (EO/IR/LRF/LD), communications relay, and up to four (4) HELLFIRE Missiles. The SEP includes: two (2) Universal Ground Control Stations (UGCS), two (2) Ground Data Terminal?s (GDT?s), one (1) Satellite Communication (SATCOM) Ground Data Terminal (SGDT), one (1) Portable Ground Control Station (PGCS), one (1) Portable Ground Data Terminal (PGDT), one (1) Automatic Take-off and Landing System (ATLS) set which includes (2) Tactical Automatic Landing Systems (TALS), and ground support equipment.

Ground Based Sense and Avoid (GBSAA) provides a solution to the ?See and Avoid? issues associated with gaining access to the National Airspace System (NAS) for UAS. GBSAA is a ground-based means of detecting airborne traffic and providing the necessary intelligence to the UAS, allowing it to Sense and Avoid (SAA) as an alternate means of compliance with CFR Part 91.

Justification: FY 2013 funding of \$74,618 million will provide for software/hardware fixes identified from the Initial Test and Evaluation (IOTE) in FY2012. It will provide funding to conduct the Follow-On Test and Evaluation (FOTE) for the Universal Ground Control Station (UGCS) and the Universal Ground Data Terminal, GBSAA development, testing and integration of the Phase I Plus systems.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2011	FY 2012	FY 2013
<b>Title:</b> ERMP EMD System including Electro-Optical / Infrared, synthetic Aperture Radar, and communications Relay Payloads	57.695	79.039	-
<b>Articles:</b>	0	0	
<b>Description:</b> ERMP EMD System including Electro-Optical / Infrared, synthetic Aperture Radar, and communications Relay Payloads			
<b>FY 2011 Accomplishments:</b>			

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0305219A: <i>MQ-1 Gray Eagle - Army UAV (MIP)</i>	<b>PROJECT</b> MQ1: <i>MQ-1 GRAY EAGLE - ARMY UAV (MIP)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
ERMP EMD System including Electro-Optical / Infrared, synthetic Aperture Radar, and communications Relay Payloads <b>FY 2012 Plans:</b> ERMP EMD System including Electro-Optical / Infrared, synthetic Aperture Radar, and Communications Relay Payloads				
<b>Title:</b> Gray Eagle Software / Hardware Development <b>Description:</b> Gray Eagle Software / Hardware Development <b>FY 2013 Plans:</b> Gray Eagle Software / Hardware Development		-	-	18.919
<b>Title:</b> Government Test support including IOT&E, LUT, Logistics Demonstration Operational Tempo (OPTEMPO) <b>Description:</b> Government Test support including IOT&E, LUT, Logistics Demonstration Operational Tempo (OPTEMPO) <b>FY 2011 Accomplishments:</b> Government Test support including IOT&E, LUT, Logistics Demonstration Operational Tempo (OPTEMPO) <b>FY 2012 Plans:</b> Government Test support including IOT&E, LUT, Logistics Demonstration Operational Tempo (OPTEMPO) <b>FY 2013 Plans:</b> Government Test support including FOT&E		20.500 <b>Articles:</b> 0	18.165 0	28.031
<b>Title:</b> Gray Eagle System Training and Training Equipment Development <b>Description:</b> Gray Eagle System Training and Training Equipment Development <b>FY 2011 Accomplishments:</b> Gray Eagle System Training and Training Equipment Development <b>FY 2012 Plans:</b> Gray Eagle System Training and Training Equipment Development <b>FY 2013 Plans:</b> Gray Eagle System Training and Training Equipment Development		18.900 <b>Articles:</b> 0	20.764 0	11.525
<b>Title:</b> Gray Eagle Support including Engineering and Program Management		22.100 <b>Articles:</b> 0	3.878 0	8.450

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Description:</b> Gray Eagle Support including Engineering and Program Management  <b>FY 2011 Accomplishments:</b> Gray Eagle Support including Engineering and Program Management  <b>FY 2012 Plans:</b> Gray Eagle Support including Engineering and Program Management  <b>FY 2013 Plans:</b> Gray Eagle Support including Engineering and Program Management			
<b>Title:</b> Ground Base Sense and Avoid (GBSAA)  <b>Description:</b> Ground Base Sense and Avoid (GBSAA)  <b>FY 2013 Plans:</b> Ground Base Sense and Avoid (GBSAA)	-	-	7.693
<b>Accomplishments/Planned Programs Subtotals</b>	119.195	121.846	74.618

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MQ-1 UAV / APA (A00005): <i>MQ-1 UAV / APA (A00005) - Base</i>	459.310	550.798	518.088		518.088		232.321			0.000	2,278.977
• MQ-1 UAV / APA (A00025): <i>MQ-1 UAV / APA (A00025) - Weaponization UAS</i>	14.644									0.000	14.644

**D. Acquisition Strategy**

Extended Range Multi-Purpose (ERMP) Operational Requirement Document (ORD) was approved by the Joint Requirement Oversight Council (JROC) 6 Apr 2005, Milestone B occurred 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. Capabilities Production Document was approved 14 Mar 09. To meet the required capability, evolutionary acquisition has been employed to implement the incremental approach outlined in the CPD. The Gray Eagle UAS is being matured during the System Development and Demonstration (SDD) phase, which includes the development and integration of key components such as the Tactical Common Data Link (TCDL), Link-16, and integration of Government Furnished Equipment (GFE), payloads, appropriate Common Aviation Ground Support Equipment and the One System GCS. PM JAMS is developing the P+ model of the HELLFIRE missile and participating in the integration and test activities for the entire Gray Eagle system. PM JAMS is budgeting for the

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Army	<b>DATE:</b> February 2012
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<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>	<b>PROJECT</b>
2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>	PE 0305219A: <i>MQ-1 Gray Eagle - Army UAV (MIP)</i>	MQ1: <i>MQ-1 GRAY EAGLE - ARMY UAV (MIP)</i>

procurement of missiles for the fielded systems. PM Night Vision/Reconnaissance, Surveillance, and Target Acquisition (RSTA) under PEO Intelligence and Electronic Warfare Systems (IEWS) develops, manages, and competes in the POM and is responsible for meeting all ERMP costs associated for payloads, payload integration, and payload sustainment. Field Tests at the Electronic Proving Grounds in Ft Huachuca, AZ, and integration tests at the Central Technical Support Facility in Ft Hood, TX, are examples of the tests planned to reduce risk in the SDD phase.

FY2013 and beyond funding allows for the development and integration of Pre-Planned Product Improvements, such as interoperability compliance initiatives and a Universal Armament Interface, and Block upgrades. These improvements will be implemented through a CPFF engineering services contract and/or engineering change proposals with the Gray Eagle prime contractor.

The LRIP will:

- a. Establish an effective and efficient production base for the system required to provide a solid foundation on which to build FRP systems.
- b. Permit an orderly increase in production rate to mitigate risk.
- c. Procure production representative equipment to support test & evaluation.
- d. Support Doctrine, Training, Leadership Development, Organization, Materiel, Personnel and Facilities (DTLOMPF) and Tactics, Techniques and Procedures (TTP) development.
- e. Provide an opportunity to incorporate lessons learned from the comprehensive test and evaluation program into the production baseline.

**E. Performance Metrics**

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Army** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0305219A: <i>MQ-1 Gray Eagle - Army UAV (MIP)</i>	<b>PROJECT</b> MQ1: <i>MQ-1 GRAY EAGLE - ARMY UAV (MIP)</i>
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<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management	MIPR	PM UAS:Redstone Arsenal, AL	36.112	3.602		3.380		-		3.380	Continuing	Continuing	Continuing
<b>Subtotal</b>			36.112	3.602		3.380		-		3.380			

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Development Engineering	C/CPIF	General Atomics / ASI:San Diego, CA	116.521	35.862		13.674		-		13.674	Continuing	Continuing	Continuing
Prototype Manufacturing	Various	General Atomics / ASI:San Diego, CA	213.776	-		-		-		-	Continuing	Continuing	0.000
Ground Support Equipment	C/CPIF	Various:Various	9.075	-		-		-		-	Continuing	Continuing	0.000
Ground Base Sense & Avoid (GBSAA)	SS/CPFF	General Atomics / ASI:San Diego, CA	-	-		7.693		-		7.693	Continuing	Continuing	0.000
Software / Hardware Development	SS/CPIF	General Atomics:San Diego, CA	-	19.844		7.568		-		7.568	Continuing	Continuing	0.000
<b>Subtotal</b>			339.372	55.706		28.935		-		28.935			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Contractor Engineering Support	MIPR	Ft. Huachuca:Ft. Huachuca	83.046	11.954		4.558		-		4.558	Continuing	Continuing	Continuing
Training and Training Equipment	MIPR	Ft. Huachuca:Ft. Huachuca	36.943	20.730		11.525		-		11.525	Continuing	Continuing	Continuing
Government Engineering Support	C/FFP	Various:Various	87.086	5.404		5.070		-		5.070	Continuing	Continuing	0.000
<b>Subtotal</b>			207.075	38.088		21.153		-		21.153			





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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Army		<b>DATE:</b> February 2012
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	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
System Deployment																												
First Unit Equipped																												
Initial Operational Test and Evaluation (IOT&E)																												
Engineering Software / Hardware Development																												
Full Rate Production Contract Award																												
Initial Operating Capability																												
Follow-on Operational Test and Evaluation																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Army		<b>DATE:</b> February 2012
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
System Deployment	2	2012	2	2012
First Unit Equipped	3	2012	3	2012
Initial Operational Test and Evaluation (IOT&E)	4	2012	4	2012
Engineering Software / Hardware Development	1	2013	1	2014
Full Rate Production Contract Award	3	2013	3	2013
Initial Operating Capability	1	2014	1	2014
Follow-on Operational Test and Evaluation	4	2013	4	2013