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

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0305206A / <i>Airborne Reconnaissance Systems</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
Total Program Element	-	0.000	22.870	11.799	-	11.799	3.133	9.977	8.010	7.554	Continuing	Continuing
EH2: <i>EMARSS ADV DEV (MIP)</i>	-	0.000	1.740	0.000	-	0.000	0.000	3.205	3.218	0.000	Continuing	Continuing
EH3: <i>EMARSS Payloads ADV DEV (MIP)</i>	-	0.000	3.532	0.130	-	0.130	0.133	4.772	4.792	6.543	Continuing	Continuing
EH4: <i>ARL ADV DEV (MIP)</i>	-	0.000	5.100	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
EH5: <i>ARL Payloads ADV DEV (MIP)</i>	-	0.000	12.498	11.669	-	11.669	3.000	2.000	0.000	1.011	Continuing	Continuing

Note
This program is not a New Start and funding transferred from Program Element (PE) 0605626.

A. Mission Description and Budget Item Justification

Airborne Reconnaissance Low - Enhanced (ARL-E) is a worldwide self-deployable airborne Intelligence Surveillance Reconnaissance (ISR) system designed for timely, accurate, assured support to tactical forces over the full spectrum of operations. This system is a De Havilland DHC-8 aircraft replacing the DHC-7 in accordance with the Aerial ISR (AISR) 2020 Strategy. ARL-E will enhance the ARL-M sensor capability sets through the procurement of new and refurbished sensors to meet the ARL-E Capabilities Production Document (CPD) requirements. It provides a persistent capability to include: Broad-Area Surveillance and/or Focused Stare on Target Areas of Interest (Point or Objective Targets), Electro-Optical/Infrared (EO/IR)/Full-Motion Video (FMV) , Multi-Mode Radar, Robust Communications Intelligence (COMINT), on-Board Collection, Analysis, Sensor Cross Cue and dissemination through Distributed Common Ground System-Army (DCGS-A) Enabled workstations. ARL-E will be assigned to the U.S. Army Intelligence and Security Command's Aerial ISR Brigade providing AISR support to combatant commanders. For the overall system, the Army Acquisition Objective and the Army Procurement Objective, is nine. The Mission Equipment Package (MEP) objective is eight.

The Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS) is the Army's next generation C-12 based, direct support, manned airborne intelligence collection, processing, and targeting support system. It provides a persistent capability to detect, locate, classify/identify, and track surface targets with a high degree of timeliness and accuracy. EMARSS will be assigned to the U.S. Army Intelligence and Security Command's Aerial Exploitation Battalions, providing Aerial Intelligence, Surveillance and Reconnaissance support to combatant commanders. The Army Acquisition Objective for EMARSS is 36 systems, with an Army Procurement Objective of 24, to include the following variants: eight EMARSS-G (Geo-INT); four EMARSS-V (Vehicle and Dismount Exploitation Radar, VaDER); eight EMARSS-M (Multi-INT); and four EMARSS-S (SIGINT).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army	Date: February 2016
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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305206A / <i>Airborne Reconnaissance Systems</i>
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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	22.870	0.130	-	0.130
Current President's Budget	0.000	22.870	11.799	-	11.799
Total Adjustments	0.000	0.000	11.669	-	11.669
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	11.669	-	11.669

Change Summary Explanation

Fiscal Year (FY) 2017 funds increase is a result of a funds realignment to support the Long Range Radar development.

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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 0305206A / Airborne Reconnaissance Systems				Project (Number/Name) EH2 / EMARSS ADV DEV (MIP)			
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
EH2: EMARSS ADV DEV (MIP)	-	0.000	1.740	0.000	-	0.000	0.000	3.205	3.218	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS) is the Army's next generation C-12 based, direct support, manned airborne intelligence collection, processing, and targeting support system. It provides a persistent capability to detect, locate, classify/identify, and track surface targets with a high degree of timeliness and accuracy. EMARSS will be assigned to the U.S. Army Intelligence and Security Command's Aerial Exploitation Battalions, providing Aerial Intelligence, Surveillance and Reconnaissance support to combatant commanders. The Army Acquisition Objective for EMARSS is 36 systems, with an Army Procurement Objective of 24, to include the following variants: eight EMARSS-G (Geo-INT); four EMARSS-V (Vehicle and Dismount Exploitation Radar, VaDER); eight EMARSS-M (Multi-INT); and four EMARSS-S (SIGINT).

This funding line supports non-recurring engineering (NRE), development of supplemental type certificates (STC), testing, integration and Pre-Planned Product Improvement (P3I) of Army Aerial, Intelligence, Surveillance and Reconnaissance (AISR) systems. Funding provides for Department of Defense (DoD) mandated safety equipment to meet current and evolving International Standards. It also enhances aircraft communications, navigations and surveillance (CNS); aircraft survivability equipment (ASE) and the integration of the AISR mission equipment package (MEP) as well as obsolescence issues involved with the conversion of Liberty Project Aircraft (LPA) to the EMARSS Program of Record (POR), in regards to the Navy AAR-47 converting to Army AAR-57, Blue Force Tracker (BFT) to Blue Force Tracker-2 (BFT-2) and Common Missile Warning Systems (CMWS) upgrades.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Non-Recurring Engineering	-	1.740	-	-	-
Description: This funding line supports NRE, development of STC, testing and integration of Army AISR systems. Funding provides for DoD mandated safety equipment to meet current and evolving International Standards. It also enhances aircraft CNS, ASE and the integration of the AISR MEP as well as obsolescence issues involved with the LPA in regards to the Navy AAR-47 changing to Army AAR-57, BFT to BFT-2.					
FY 2016 Plans: Will provide for all associated NRE for conversion of initial Quick Reaction Capability (QRC) systems into the EMARSS POR. Upgraded communication and MEP will ensure continued worldwide deployability and over match dominance for AISR.					
Accomplishments/Planned Programs Subtotals	-	1.740	-	-	-

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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 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH2 / EMARSS ADV DEV (MIP)
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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>
• Aerial Common Sensors (ACS): A02005	119.890	96.500	-	-	-	-	-	-	-	0	216.390
• EMARSS SEMA Mods (MIP): A02112	-	13.669	13.197	42.700	55.897	3.279	21.139	4.416	5.981	Continuing	Continuing
• EMARSS Payloads (MIP): AZ2054	-	13.670	13.197	3.900	17.097	3.279	21.138	4.418	5.982	Continuing	Continuing
• EMARSS Payloads Adv Dev (MIP): 375206-EH3	-	3.532	0.130	-	0.130	0.133	4.772	4.792	6.543	Continuing	Continuing

Remarks

The EMARSS RDTE efforts are found in the following two project lines; 0305206AEH2 EMARSS ADV DEV (MIP) (Fixed Wing Project Office) and 0305206AEH3 EMARSS Payloads ADV DEV (Project Manager Sensors - Aerial Intelligence). The supporting procurement lines are A02112 and AZ2054. Separate funding lines support the Army Acquisition Executive's directive, codified in the October 28, 2011 memorandum, to assign overall acquisition lead for manned airborne intelligence systems to Program Executive Officer for Aviation; and overall sensor, processing, exploitation, and dissemination responsibilities to Program Executive Officer for Intelligence, Electronic Warfare, and Sensors.

D. Acquisition Strategy

The acquisition strategy, supported by the EMARSS CPD, is to design and test 24 systems as well as provide enhancements to the following sensor capabilities in order to maintain relevancy to the Warfighter: Electro-optical/Infrared (EO/IR)/Full Motion Video (FMV); Communications Intelligence (COMINT); Wide Area Aerial Surveillance (WAAS); Light Imaging Detection and Ranging (LiDAR) and improved Synthetic Aperture Radar / Moving Target Indicator (SAR/MTI) radar; line-of-site (LOS) and beyond line-of-site (BLOS) communications; and Processing Exploitation and Dissemination (PED) supporting two Distributed Common Ground System - Army (DCGS-A) enabled operator workstations. The EMARSS fleet of 24 systems will consist of the following variants: eight (8) EMARSS-G (Geo-INT); four (4) EMARSS-V (Vehicle and Dismount Exploitation Radar, VaDER); eight (8) EMARSS-M (Multi-INT); and four (4) EMARSS-S (SIGINT).

E. Performance Metrics

N/A

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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 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH2 / EMARSS ADV DEV (MIP)
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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
Non-Recurring Engineering																												
Pre Planned Product Improvements																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / <i>Airborne Reconnaissance Systems</i>	Project (Number/Name) EH2 / <i>EMARSS ADV DEV (MIP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Non-Recurring Engineering	1	2016	4	2016
Pre Planned Product Improvements	1	2019	4	2020

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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 0305206A / Airborne Reconnaissance Systems				Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)			
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
EH3: EMARSS Payloads ADV DEV (MIP)	-	0.000	3.532	0.130	-	0.130	0.133	4.772	4.792	6.543	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The EMARSS RDTE efforts are found in the following two (2) project lines; 0305206AEH2 EMARSS ADV DEV (MIP) (Fixed Wing Project Office) and 0305206AEH3 EMARSS Payloads ADV DEV (Project Manager Sensors - Aerial Intelligence). The supporting procurement lines are A02112 and AZ2054. Separate funding lines support the Army Acquisition Executive's directive, codified in the October 28, 2011 memorandum, to assign overall acquisition lead for manned airborne intelligence systems to Program Executive Officer for Aviation; and overall sensor, processing, exploitation, and dissemination responsibilities to Program Executive Officer for Intelligence, Electronic Warfare, and Sensors.

A. Mission Description and Budget Item Justification

The Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS) is the Army's next generation C-12 based, direct support, manned airborne intelligence collection, processing, and targeting support system. It provides a persistent capability to detect, locate, classify/identify, and track surface targets with a high degree of timeliness and accuracy. EMARSS will be assigned to the U.S. Army Intelligence and Security Command's Aerial Exploitation Battalions, providing Aerial Intelligence, Surveillance and Reconnaissance support to combatant commanders. The Army Acquisition Objective for EMARSS is 36 systems, with an Army Procurement Objective of 24, to include the following variants: eight EMARSS-G (Geo-INT); four EMARSS-V (Vehicle and Dismount Exploitation Radar, VaDER); eight EMARSS-M (Multi-INT); and four EMARSS-S (SIGINT).

This funding line supports enhancements to the following sensor capabilities in order to maintain relevancy to the Warfighter: Electro-Optical/Infrared (EO/IR)/Full Motion Video (FMV); Communications Intelligence (COMINT); Wide Area Aerial Surveillance (WAAS); Light Imaging Detection and Ranging (LiDAR) and improved Synthetic Aperture Radar / Moving Target Indicator (SAR/MTI) radar; line-of-site (LOS) and beyond line-of-site (BLOS) communications; and Processing Exploitation and Dissemination (PED) supporting two Distributed Common Ground System - Army (DCGS-A) enabled operator workstations.

Fiscal Year (FY) 2017 funding in the amount of \$130,000 provides Mission Equipment Packages (MEP) and PED Sensor Engineering Support.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: EMARSS - Product Enhancement	-	2.579	-	-	-
Description: Research, Development, Test, and Evaluation (RDTE) funds Sensor Engineering Change Proposals (ECPs) and contractor system support.					
FY 2016 Plans:					

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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 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Sensor ECPs and contractor system support.					
Title: EMARSS - Sensor Engineering Support	-	0.200	0.130	-	0.130
Description: Matrix Government and Matrix Contractor engineering support for sensor enhancements.					
FY 2016 Plans: Funds Matrix Government and Matrix Contractor engineering support for sensor enhancements.					
FY 2017 Base Plans: Funds Matrix Government and Matrix Contractor engineering support for sensor enhancements.					
Title: Program Management Support	-	0.195	-	-	-
Description: Program Management Office (PMO) support and travel, as well as Systems Engineering and Technical Assistance (SETA) support.					
FY 2016 Plans: PMO support and travel, as well as SETA support.					
Title: EMARSS - Test and Evaluation	-	0.558	-	-	-
Description: Sensor Specific Testing					
FY 2016 Plans: Sensor specific testing resulting from engineering design and development.					
Accomplishments/Planned Programs Subtotals	-	3.532	0.130	-	0.130

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
• Aerial Common Sensor: A02005	119.890	96.500	-	-	-	-	-	-	-	0	216.390
• EMARSS SEMA: A02112	-	13.669	13.197	42.700	55.897	3.279	21.139	4.416	5.981	Continuing	Continuing
• EMARSS MEP/PED Procurement: AZ2054	-	13.670	13.197	3.900	17.097	3.279	21.138	4.418	5.982	Continuing	Continuing
• EMAARSS SEMA: 375206 EH2	-	1.740	-	-	-	-	3.205	3.218	-	Continuing	Continuing

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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 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)

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>
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Remarks

The EMARSS RDTE efforts are found in the following two (2) project lines; 0305206AEH2 EMARSS ADV DEV (MIP) (Fixed Wing Project Office) and 0305206AEH3 EMARSS Payloads ADV DEV (Project Manager Sensors - Aerial Intelligence). The supporting procurement lines are A02112 and AZ2054. Separate funding lines support the Army Acquisition Executive's directive, codified in the October 28, 2011 memorandum, to assign overall acquisition lead for manned airborne intelligence systems to Program Executive Officer for Aviation; and overall sensor, processing, exploitation, and dissemination responsibilities to Program Executive Officer for Intelligence, Electronic Warfare, and Sensors.

D. Acquisition Strategy

The acquisition strategy, supported by the EMARSS CPD, is to design and test 24 systems as well as provide enhancements to the following sensor capabilities in order to maintain relevancy to the Warfighter: EO/IR FMV; COMINT; WAAS; LiDAR and improved SAR/MTI radar; LOS and BLOS communications; and PED supporting two DCGS-A enabled operator workstations. The EMARSS fleet of 24 systems will consist of the following variants: eight EMARSS-G (Geo-INT); four EMARSS-V (Vehicle and Dismount Exploitation Radar, VaDER); eight EMARSS-M (Multi-INT); and four EMARSS-S (SIGINT).

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army **Date:** February 2016

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
PMO	RO	PEO IEW&S, PM SAI : APG, MD	0.000	-		0.095		-		-		-	0	0.095	0
SETA	C/CPFF	BAH : APG, MD	0.000	-		0.100		-		-		-	0	0.100	0
Subtotal			0.000	-		0.195		-		-		-	0.000	0.195	0.000

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
LiDAR sensor enhancement	SS/CPFF	JHU APL : Laurel, MD	0.000	-		1.205		-		-		-	0	1.205	0
AWAPSS Sensor enhancement	C/CPIF	BAE : Nashua, CT	0.000	-		1.374	Nov 2015	-		-		-	0	1.374	0
Subtotal			0.000	-		2.579		-		-		-	0.000	2.579	0.000

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Matrix Government Engineering Support	MIPR	USACERDEC, I2WD : APG, MD	0.000	-		0.100		0.130	Jan 2017	-		0.130	0	0.230	0
Matrix Contractor Engineering Support	C/CPFF	BAH : APG, MD	0.000	-		0.100		-		-		-	0	0.100	0
Subtotal			0.000	-		0.200		0.130		-		0.130	0.000	0.330	0.000

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Engineering Development Testing	MIPR	USA ATEC : APG, MD	0.000	-		0.558		-		-		-	0	0.558	0

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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 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)
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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
EMARSS - P3I/Test																												
QRC to POR - Modification and Conversion																												
Fielding																												
Sensor Upgrades/Enhancements																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
EMARSS - P3I/Test	3	2016	2	2017
QRC to POR - Modification and Conversion	2	2015	4	2019
Fielding	3	2017	2	2020
Sensor Upgrades/Enhancements	1	2019	4	2021

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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 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH4 / ARL ADV DEV (MIP)
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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
EH4: ARL ADV DEV (MIP)	-	0.000	5.100	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Airborne Reconnaissance Low - Enhanced (ARL-E) is a worldwide self-deployable airborne Intelligence Surveillance Reconnaissance (ISR) system designed for timely, accurate, assured support to tactical forces over the full spectrum of operations. This system is a De Havilland DHC-8 aircraft replacing the DHC-7 IAW the Aerial ISR (AISR) 2020 Strategy. ARL-E will enhance the ARL-M sensor capability sets through the procurement of new and refurbished sensors to meet the ARL-E Capabilities Production Document (CPD) requirements. It provides a persistent capability to include: Broad-Area Surveillance and/or Focused Stare on Target Areas of Interest (Point or Objective Targets), Electro-Optical/Infrared (EO/IR)/Full-Motion Video (FMV) , Multi-Mode Radar, Robust Communications Intelligence (COMINT), on-Board Collection, Analysis, Sensor Cross Cue and dissemination through Distributed Common Ground System-Army (DCGS-A) Enabled workstations. ARL-E will be assigned to the U.S. Army Intelligence and Security Command's Aerial ISR Brigade providing AISR support to combatant commanders. For the overall system, the Army Acquisition Objective and the Army Procurement Objective, is nine. The Mission Equipment Package (MEP) objective is eight.

This funding line supports non-recurring engineering (NRE), development of supplemental type certificates (STC), testing, and integration. Funding provides for Department of Defense (DoD) mandated safety equipment to meet current and evolving International Standards. It also enhances aircraft communications, navigations and surveillance (CNS); aircraft survivability equipment (ASE) and the integration of the AISR mission equipment package (MEP) as well as obsolescence issues involved with the conversion of Quick Reaction Capability (QRC) to the ARL-E Program of Record (POR).

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Non-Recurring Engineering	-	5.100	-	-	-
Description: Funding will provide for NRE and the technical drawing package associated with the Department of Army mandated installation of ASE on a DeHavilland dash 8 and the associated validation testing required for the installed ASE. This funding will also be utilized for the associated system level testing after the final sensor installation on the ARL-E DeHavilland dash 8 replacement platforms.					
FY 2016 Plans: Will provide Department of Army mandated ASE compliance and total system level testing for the ARL-E DeHavilland dash 8 replacement Program of Record aircraft. These aircraft will provide the Department of Army with a state of the art AISR platform ready for worldwide deployment in support of national interest.					
Accomplishments/Planned Programs Subtotals	-	5.100	-	-	-

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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 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH4 / ARL ADV DEV (MIP)
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• ARL SEMA (MIP): A02109	-	-	-	-	-	-	12.103	12.294	9.796	Continuing	Continuing
• ARL SEMA Mods (MIP): A02110	-	48.302	6.793	-	6.793	18.223	19.636	22.023	-	Continuing	Continuing
• ARL Payloads (MIP): AZ2050	131.892	68.540	74.380	-	74.380	53.365	7.613	8.215	-	Continuing	Continuing
• ARL Payloads ADV DEV (MIP): 375206-EH5	-	12.498	11.669	-	11.669	3.000	2.000	-	1.011	Continuing	Continuing

Remarks

Note: The Airborne Reconnaissance Low- Enhanced (ARL-E) RDTE efforts are found in the following two (2) project lines; 0305206AEH4 ARL ADV DEV (MIP) (Fixed Wing Project Office) and 0305206AEH5 ARL Payloads ADV DEV (Project Manager Sensors - Aerial Intelligence). The supporting procurement lines are A02110 and AZ2050. Separate funding lines support the Army Acquisition Executive's directive, codified in the October 28, 2011 memorandum, to assign overall acquisition lead for manned airborne Intelligence systems to Program Executive Officer for Aviation; and overall sensor, processing, exploitation, and dissemination responsibilities to Program Executive Officer for Intelligence, Electronic Warfare, and Sensors.

D. Acquisition Strategy

ARL-E will enhance the ARL-M sensor capability sets through the procurement of new and refurbished sensors to meet the ARL-E CPD requirements. It provides a persistent capability to include: Broad-Area Surveillance and/or Focused Stare on Target Areas of Interest (Point or Objective Targets), EO/IR FMV, COMINT, on-Board Collection, Analysis, Sensor Cross Cue and dissemination through DCGS-A Enabled workstations.

The development and testing of Long Range radar (LRR) is required to replace the current ARL Phoenix Eye Radar to increase performance and meet the improved requirements of the Appendix J Payload for the approved ARL-E CPD. The remainder will fund software development to enhance COMINT collection capabilities. The software will be added to the existing COMINT systems to effectively prosecute high priority and emerging modern signal emitters.

E. Performance Metrics

N/A

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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 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH4 / ARL ADV DEV (MIP)
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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
Non-Recurring Engineering associated with MEP/Sensor Integration																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH4 / ARL ADV DEV (MIP)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Non-Recurring Engineering associated with MEP/Sensor Integration	3	2016	3	2017

Note

This budget line provides for Non-Recurring Engineering (NRE) and the technical drawing package associated with the Department of Army mandated installation of Aviation Survival Equipment (ASE) on a DeHavilland dash 8 and the associated validation testing required for the installed ASE. This funding will also be utilized for the associated system level testing after the final MEP/sensor installation on the Aerial Reconnaissance Low Enhanced (ARL-E) DeHavilland dash 8 replacement platforms.

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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 0305206A / Airborne Reconnaissance Systems				Project (Number/Name) EH5 / ARL Payloads ADV DEV (MIP)			
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
EH5: ARL Payloads ADV DEV (MIP)	-	0.000	12.498	11.669	-	11.669	3.000	2.000	0.000	1.011	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Airborne Reconnaissance Low - Enhanced (ARL-E) is a worldwide self-deployable airborne Intelligence Surveillance Reconnaissance (ISR) system designed for timely, accurate, assured support to tactical forces over the full spectrum of operations. This system is a De Havilland DHC-8 aircraft replacing the DHC-7 IAW the Aerial ISR (AISR) 2020 Strategy. ARL-E will enhance the ARL-M sensor capability sets through the procurement of new and refurbished sensors to meet the ARL-E Capabilities Production Document (CPD) requirements. It provides a persistent capability to include: Broad-Area Surveillance and/or Focused Stare on Target Areas of Interest (Point or Objective Targets), Electro-Optical/Infrared (EO/IR)/Full-Motion Video (FMV) , Multi-Mode Radar, Robust Communications Intelligence (COMINT), on-Board Collection, Analysis, Sensor Cross Cue and dissemination through Distributed Common Ground System-Army (DCGS-A) Enabled workstations. ARL-E will be assigned to the U.S. Army Intelligence and Security Command's Aerial ISR Brigade providing AISR support to combatant commanders. For the overall system, the Army Acquisition Objective and the Army Procurement Objective, is nine. The Mission Equipment Package (MEP) objective is eight.

Fiscal Year (FY) 2017 funding of \$11.669 million completes the Long Range Radar (LRR) effort, and initiates new signal enhancement efforts. This funding line supports development and testing of the LRR to replace the current ARL Phoenix Eye Radar to meet the increased performance requirements of the Appendix J Payload for ARL-E approved CPD. LRR effort will add required SAR modes, address obsolescence, Information Assurance (IA) issues, and improved probability at greater required ranges. Effort will produce a prototype and conduct flight testing to characterize the prototype performance. Funding is planned for test and evaluation of LRR capability integrated in ARL-E system. Also, it supports the software development to enhance COMINT collection capabilities to effectively prosecute high priority and emerging modern signal emitters.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Long Range Radar Development	-	12.498	-	-	-
Description: LRR Research and Development (R&D) Support					
FY 2016 Plans: Completion of LRR prototype effort					
Title: Test Support to LRR and New Signals (COMINT/Software Upgrades)	-	-	4.000	-	4.000
Description: Complete the LRR test and New Signal Upgrades					
FY 2017 Base Plans:					

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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 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH5 / ARL Payloads ADV DEV (MIP)
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Complete the LRR test and New Signal Upgrades					
Title: New Signals (COMINT/Software Upgrades)	-	-	7.669	-	7.669
Description: Add new COMINT Software Upgrades					
FY 2017 Base Plans: Start development of COMINT Software Upgrades					
Accomplishments/Planned Programs Subtotals	-	12.498	11.669	-	11.669

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
• AZ2050 ARL MODS (MIP): AZ2050	116.892	68.540	74.380	-	74.380	53.365	7.613	8.215	-	0.000	329.005
• Theater Net-Centric Geol: 0605766A-DX9	-	-	1.360	-	1.360	1.898	0.257	0.257	-	0	3.772
• A02109 ARL SEMA: A02109	-	-	-	-	-	-	12.103	12.294	9.796	0.000	34.193
• A02110 ARL SEMA MODS (MIP): A02110	-	48.302	6.793	-	6.793	18.223	19.636	22.023	-	Continuing	Continuing
• ARL ADV DEV (MIP): 0305206A-EH4	-	5.100	-	-	-	-	-	-	-	Continuing	Continuing

Remarks
The Airborne Reconnaissance Low- Enhanced (ARL-E) RDTE efforts are found in the following two (2) project lines; 0305206AEH4 ARL ADV DEV (MIP) (Fixed Wing Project Office) and 0305206AEH5 ARL Payloads ADV DEV (Project Manager Sensors - Aerial Intelligence). The supporting procurement lines are A02110 and AZ2050. Separate funding lines support the Army Acquisition Executive's directive, codified in the October 28, 2011 memorandum, to assign overall acquisition lead for manned airborne Intelligence systems to Program Executive Officer for Aviation; and overall sensor, processing, exploitation, and dissemination responsibilities to Program Executive Officer for Intelligence, Electronic Warfare, and Sensors.

D. Acquisition Strategy
ARL-E will enhance the ARL-M sensor capability sets through the procurement of new and refurbished sensors to meet the ARL-E CPD requirements. It provides a persistent capability to include: Broad-Area Surveillance and/or Focused Stare on Target Areas of Interest (Point or Objective Targets), EO/IR FMV, COMINT, on-Board Collection, Analysis, Sensor Cross Cue and dissemination through DCGS-A Enabled workstations.

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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 0305206A / <i>Airborne Reconnaissance Systems</i>	Project (Number/Name) EH5 / <i>ARL Payloads ADV DEV (MIP)</i>
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The development and testing of LRR is required to replace the current ARL Phoenix Eye Radar to increase performance and meet the improved requirements of the Appendix J Payload for the approved ARL-E CPD. The remainder will fund software development to enhance COMINT collection capabilities. The software will be added to the existing COMINT systems to effectively prosecute high priority and emerging modern signal emitters.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army **Date:** February 2016

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH5 / ARL Payloads ADV DEV (MIP)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Long Range Radar Development	C/CPFF	Northrop Grumman : Linthicum Heights, MD	0.000	-		11.498	Mar 2016	-		-		-	0	11.498	0
New Signals (COMINT/ Software Upgrades)	C/CPFF	Leidos : Aberdeen Proving Ground	0.000	-		-		7.669	Nov 2016	-		7.669	0	7.669	0
Subtotal			0.000	-		11.498		7.669		-		7.669	0.000	19.167	0.000

Remarks

Long Range Radar Contract: W15P7T-10-D-D408/KZ01. FY17 will complete the development and integration and of Long Range Radar (LRR). The development and integration of the LRR is required to replace the current ARL Phoenix Eye Radar to increase performance meet the improved requirement documents of the Appendix J Payload for Airborne Reconnaissance Low -Enhanced (ARL-E) approved Capability Production Document (CPD).

New Signals Contract: W56KGY-16-D-0001. The remaining FY17 funding will fund software development to enhance the COMINT collection capabilities. The software will be added to existing COMINT subsystems to effectively prosecute high priority and emerging modern signal emitters.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Test Support to LRR and New Signals (COMINT/ Software Upgrades)	C/CPFF	Leidos : Aberdeen Proving Ground, MD	0.000	-		1.000		4.000	Nov 2016	-		4.000	0	5.000	0
Subtotal			0.000	-		1.000		4.000		-		4.000	0.000	5.000	0.000

Remarks

Long Range Radar Contract: W15P7T-10-D-D408/KZ01. FY17 will complete the testing of Long Range Radar (LRR). The testing of the LRR is required to determine if the LRR meets the requirements in Appendix J Payload for Airborne Reconnaissance Low - Enhanced (ARL-E) approved Capability Production Document (CPD).

New Signals Contract: W56KGY-16-D-0001. The remaining FY17 funding will support the testing of the software to see if it meets the requirements in the ARL-E CPD.

	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	-	12.498	11.669	-	11.669	0.000	24.167	0.000

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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 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH5 / ARL Payloads ADV DEV (MIP)
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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
(1) ARL-E - Radar Development Contract Award	Radar Development Contract Award				Radar Development Contract Award																							
ARL-E Radar Development					Radar Development																							
(2) ARL-E MEP Contract Award	ARL-E MEP Contract Award				ARL-E MEP Contract Award																							
ARL-E MEP Integration									Test & Evaluation																			
(3) ARL-E System LUT													Test & Evaluation															
ARL-E New Signals Development and Test									Development & Test				Development & Test															
(4) ARL-E System LRR FOT&E																	Test and Evaluation											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH5 / ARL Payloads ADV DEV (MIP)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ARL-E - Radar Development Contract Award	3	2015	3	2015
ARL-E Radar Development	4	2015	4	2017
ARL-E MEP Contract Award	1	2016	1	2016
ARL-E MEP Integration	1	2017	3	2018
ARL-E System LUT	3	2018	3	2018
ARL-E New Signals Development and Test	1	2017	1	2020
ARL-E System LRR FOT&E	4	2019	4	2019