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**Department of Defense
Fiscal Year (FY) 2016 President's Budget Submission**

February 2015



Army

Justification Book of

Research, Development, Test & Evaluation, Army

RDT&E – Volume III, Budget Activity 7

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RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY

APPROPRIATION LANGUAGE

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, \$6,926,459,000.00 to remain available for obligation until September 30, 2017.

The following Justification Books were prepared at a cost of \$1,187,353.84: Aircraft (ACFT), Missile (MSLS), Weapons & Tracked Combat Vehicles (WTCV), Ammunition (AMMO), Other Procurement Army (OPA) 1 - Tactical & Support Vehicles, Other Procurement Army (OPA) 2 – Communications & Electronics, Other Procurement Army (OPA) 3 & 4 - Other Support Equipment & Spares, Research, Development, Test and Evaluation (RDTE) for: Budget Activity 1, Budget Activity 2, Budget Activity 3, Budget Activity 4, Budget Activity 5A, Budget Activity 5B, Budget Activity 6, and Budget Activity 7.

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 Total Obligational Authority
 (Dollars in Thousands)

15 Jan 2015

Appropriation	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Research, Development, Test & Eval, Army	7,124,298	6,673,146	2,000	6,675,146	6,924,959	1,500	6,926,459
Total Research, Development, Test & Evaluation	7,124,298	6,673,146	2,000	6,675,146	6,924,959	1,500	6,926,459

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Summary Recap of Budget Activities	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Basic Research	425,321	460,268		460,268	425,079		425,079
Applied Research	930,900	981,421		981,421	879,685		879,685
Advanced Technology Development	1,044,919	1,113,149		1,113,149	895,747		895,747
Advanced Component Development & Prototypes	424,652	302,922	2,000	304,922	498,659	1,500	500,159
System Development & Demonstration	1,955,833	1,622,353		1,622,353	2,068,950		2,068,950
RDT&E Management Support	1,317,280	1,015,139		1,015,139	1,027,542		1,027,542
Operational Systems Development	1,025,393	1,177,894		1,177,894	1,129,297		1,129,297
Total Research, Development, Test & Evaluation	7,124,298	6,673,146	2,000	6,675,146	6,924,959	1,500	6,926,459
Summary Recap of FYDP Programs							
Strategic Forces	58,383						
General Purpose Forces	581,979	716,615		716,615	693,053		693,053
Intelligence and Communications	201,878	165,416		165,416	163,446		163,446
Research and Development	6,222,823	5,710,126	2,000	5,712,126	6,015,482	1,500	6,016,982
Central Supply and Maintenance	54,392	76,187		76,187	48,442		48,442
Administration and Associated Activities	126						
Classified Programs	4,717	4,802		4,802	4,536		4,536
Total Research, Development, Test & Evaluation	7,124,298	6,673,146	2,000	6,675,146	6,924,959	1,500	6,926,459

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Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
1	0601101A	In-House Laboratory Independent Research	01	21,255	13,427		13,427	13,018		13,018	U
2	0601102A	Defense Research Sciences	01	216,774	248,283		248,283	239,118		239,118	U
3	0601103A	University Research Initiatives	01	76,682	89,776		89,776	72,603		72,603	U
4	0601104A	University and Industry Research Centers	01	110,610	108,782		108,782	100,340		100,340	U
		Basic Research		425,321	460,268		460,268	425,079		425,079	
5	0602105A	Materials Technology	02	45,243	46,000		46,000	28,314		28,314	U
6	0602120A	Sensors and Electronic Survivability	02	42,677	46,258		46,258	38,374		38,374	U
7	0602122A	TRACTOR HIP	02	35,493	16,358		16,358	6,879		6,879	U
8	0602211A	Aviation Technology	02	54,667	63,414		63,414	56,884		56,884	U
9	0602270A	Electronic Warfare Technology	02	17,464	18,500		18,500	19,243		19,243	U
10	0602303A	Missile Technology	02	58,426	62,180		62,180	45,053		45,053	U
11	0602307A	Advanced Weapons Technology	02	25,310	38,513		38,513	29,428		29,428	U
12	0602308A	Advanced Concepts and Simulation	02	23,364	27,423		27,423	27,862		27,862	U
13	0602601A	Combat Vehicle and Automotive Technology	02	63,476	72,861		72,861	68,839		68,839	U
14	0602618A	Ballistics Technology	02	73,906	85,575		85,575	92,801		92,801	U
15	0602622A	Chemical, Smoke and Equipment Defeating Technology	02	4,378	3,970		3,970	3,866		3,866	U
16	0602623A	Joint Service Small Arms Program	02	7,592	6,850		6,850	5,487		5,487	U
17	0602624A	Weapons and Munitions Technology	02	52,013	63,057		63,057	48,340		48,340	U
18	0602705A	Electronics and Electronic Devices	02	68,062	73,422		73,422	55,301		55,301	U

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19	0602709A	Night Vision Technology	02	42,624	44,935		44,935	33,807		33,807	U
20	0602712A	Countermine Systems	02	30,019	29,428		29,428	25,068		25,068	U
21	0602716A	Human Factors Engineering Technology	02	21,118	23,778		23,778	23,681		23,681	U
22	0602720A	Environmental Quality Technology	02	22,333	15,653		15,653	20,850		20,850	U
23	0602782A	Command, Control, Communications Technology	02	33,580	33,807		33,807	36,160		36,160	U
24	0602783A	Computer and Software Technology	02	10,232	10,761		10,761	12,656		12,656	U
25	0602784A	Military Engineering Technology	02	69,192	67,302		67,302	63,409		63,409	U
26	0602785A	Manpower/Personnel/Training Technology	02	17,395	23,288		23,288	24,735		24,735	U
27	0602786A	Warfighter Technology	02	30,950	32,044		32,044	35,795		35,795	U
28	0602787A	Medical Technology	02	81,386	76,044		76,044	76,853		76,853	U
		Applied Research		930,900	981,421		981,421	879,685		879,685	
29	0603001A	Warfighter Advanced Technology	03	64,337	78,109		78,109	46,973		46,973	U
30	0603002A	Medical Advanced Technology	03	100,646	106,264		106,264	69,584		69,584	U
31	0603003A	Aviation Advanced Technology	03	78,513	102,950		102,950	89,736		89,736	U
32	0603004A	Weapons and Munitions Advanced Technology	03	72,934	72,908		72,908	57,663		57,663	U
33	0603005A	Combat Vehicle and Automotive Advanced Technology	03	146,486	147,485		147,485	113,071		113,071	U
34	0603006A	Space Application Advanced Technology	03	10,706	6,880		6,880	5,554		5,554	U
35	0603007A	Manpower, Personnel and Training Advanced Technology	03	6,145	13,574		13,574	12,636		12,636	U

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36	0603008A	Electronic Warfare Advanced Technology	03	40,345	44,851		44,851				U
37	0603009A	TRACTOR HIKE	03	9,161	7,492		7,492	7,502		7,502	U
38	0603015A	Next Generation Training & Simulation Systems	03	13,168	16,740		16,740	17,425		17,425	U
39	0603020A	TRACTOR ROSE	03	10,662	14,483		14,483	11,912		11,912	U
40	0603125A	Combating Terrorism - Technology Development	03	14,546	24,257		24,257	27,520		27,520	U
41	0603130A	TRACTOR NAIL	03	3,192	3,440		3,440	2,381		2,381	U
42	0603131A	TRACTOR EGGS	03	2,366	2,406		2,406	2,431		2,431	U
43	0603270A	Electronic Warfare Technology	03	24,652	26,046		26,046	26,874		26,874	U
44	0603313A	Missile and Rocket Advanced Technology	03	81,951	79,934		79,934	49,449		49,449	U
45	0603322A	TRACTOR CAGE	03	11,857	11,105		11,105	10,999		10,999	U
46	0603461A	High Performance Computing Modernization Program	03	213,238	221,518		221,518	177,159		177,159	U
47	0603606A	Landmine Warfare and Barrier Advanced Technology	03	22,233	13,070		13,070	13,993		13,993	U
48	0603607A	Joint Service Small Arms Program	03	4,902	7,318		7,318	5,105		5,105	U
49	0603710A	Night Vision Advanced Technology	03	43,459	44,119		44,119	40,929		40,929	U
50	0603728A	Environmental Quality Technology Demonstrations	03	11,540	11,445		11,445	10,727		10,727	U
51	0603734A	Military Engineering Advanced Technology	03	23,838	17,606		17,606	20,145		20,145	U
52	0603772A	Advanced Tactical Computer Science and Sensor Technology	03	34,042	39,149		39,149	38,163		38,163	U

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53	0603794A	C3 Advanced Technology	03					37,816		37,816	U
		Advanced Technology Development		1,044,919	1,113,149		1,113,149	895,747		895,747	
54	0603305A	Army Missile Defense Systems Integration	04	23,117	25,795		25,795	10,347		10,347	U
55	0603308A	Army Space Systems Integration	04	13,448	13,996		13,996	25,061		25,061	U
56	0603619A	Landmine Warfare and Barrier - Adv Dev	04					49,636		49,636	U
57	0603627A	Smoke, Obscurant and Target Defeating Sys-Adv Dev	04					13,426		13,426	U
58	0603639A	Tank and Medium Caliber Ammunition	04	31,580	29,318		29,318	46,749		46,749	U
59	0603653A	Advanced Tank Armament System (ATAS)	04	54,259							U
60	0603747A	Soldier Support and Survivability	04	11,513	6,997	2,000	8,997	6,258	1,500	7,758	U
61	0603766A	Tactical Electronic Surveillance System - Adv Dev	04	10,390	8,953		8,953	13,472		13,472	U
62	0603774A	Night Vision Systems Advanced Development	04	8,760	3,050		3,050	7,292		7,292	U
63	0603779A	Environmental Quality Technology - Dem/Val	04	2,544	7,826		7,826	8,813		8,813	U
64	0603782A	Warfighter Information Network-Tactical - DEM/VAL	04	118,256							U
65	0603790A	NATO Research and Development	04	3,743	2,952		2,952	6,075		6,075	U
66	0603801A	Aviation - Adv Dev	04	4,848							U
67	0603804A	Logistics and Engineer Equipment - Adv Dev	04	11,623	13,380		13,380	21,233		21,233	U
68	0603807A	Medical Systems - Adv Dev	04	17,524	23,647		23,647	31,962		31,962	U

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69	0603827A	Soldier Systems - Advanced Development	04	13,844	6,828		6,828	22,194		22,194	U
70	0603850A	Integrated Broadcast Service	04	79							U
71	0604100A	Analysis Of Alternatives	04		9,910		9,910	9,805		9,805	U
72	0604115A	Technology Maturation Initiatives	04	10,741	44,214		44,214	40,917		40,917	U
73	0604120A	Assured Positioning, Navigation and Timing (PNT)	04	7,500	9,925		9,925	30,058		30,058	U
74	0604319A	Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)	04	76,559	96,131		96,131	155,361		155,361	U
75	0604785A	Integrated Base Defense (Budget Activity 4)	04	4,324							U
Advanced Component Development & Prototypes				424,652	302,922	2,000	304,922	498,659	1,500	500,159	
76	0604201A	Aircraft Avionics	05	64,396	41,236		41,236	12,939		12,939	U
77	0604220A	Armed, Deployable Helos	05	26,000							U
78	0604270A	Electronic Warfare Development	05	134,260	5,999		5,999	18,843		18,843	U
79	0604280A	Joint Tactical Radio	05	30,752	9,827		9,827	9,861		9,861	U
80	0604290A	Mid-tier Networking Vehicular Radio (MNVR)	05	22,553	9,725		9,725	8,763		8,763	U
81	0604321A	All Source Analysis System	05	4,837	5,532		5,532	4,309		4,309	U
82	0604328A	TRACTOR CAGE	05	28,229	19,929		19,929	15,138		15,138	U
83	0604601A	Infantry Support Weapons	05	82,332	34,575		34,575	74,128		74,128	U
84	0604604A	Medium Tactical Vehicles	05	2,068	210		210				U
85	0604611A	JAVELIN	05	4,471	4,164		4,164	3,945		3,945	U
86	0604622A	Family of Heavy Tactical Vehicles	05	23,944	12,906		12,906				U

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87	0604633A	Air Traffic Control	05	514	16,756		16,756	10,076		10,076	U
88	0604641A	Tactical Unmanned Ground Vehicle (TUGV)	05		2,769		2,769	40,374		40,374	U
89	0604710A	Night Vision Systems - Eng Dev	05	47,811	65,299		65,299	67,582		67,582	U
90	0604713A	Combat Feeding, Clothing, and Equipment	05	1,874	3,034		3,034	1,763		1,763	U
91	0604715A	Non-System Training Devices - Eng Dev	05	22,168	8,943		8,943	27,155		27,155	U
92	0604741A	Air Defense Command, Control and Intelligence - Eng Dev	05	38,412	15,898		15,898	24,569		24,569	U
93	0604742A	Constructive Simulation Systems Development	05	19,596	4,394		4,394	23,364		23,364	U
94	0604746A	Automatic Test Equipment Development	05	6,498	11,079		11,079	8,960		8,960	U
95	0604760A	Distributive Interactive Simulations (DIS) - Eng Dev	05	12,193	10,022		10,022	9,138		9,138	U
96	0604780A	Combined Arms Tactical Trainer (CATT) Core	05	26,720	34,712		34,712	21,622		21,622	U
97	0604798A	Brigade Analysis, Integration and Evaluation	05	91,427	85,246		85,246	99,242		99,242	U
98	0604802A	Weapons and Munitions - Eng Dev	05	16,770	14,998		14,998	21,379		21,379	U
99	0604804A	Logistics and Engineer Equipment - Eng Dev	05	43,497	24,566		24,566	48,339		48,339	U
100	0604805A	Command, Control, Communications Systems - Eng Dev	05	7,131	4,431		4,431	2,726		2,726	U
101	0604807A	Medical Materiel/Medical Biological Defense Equipment - Eng Dev	05	33,890	30,384		30,384	45,412		45,412	U
102	0604808A	Landmine Warfare/Barrier - Eng Dev	05	87,895	57,674		57,674	55,215		55,215	U

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103	0604814A	Artillery Munitions - EMD	05	6,352							U
104	0604818A	Army Tactical Command & Control Hardware & Software	05	22,900	29,675		29,675	163,643		163,643	U
105	0604820A	Radar Development	05	1,796	5,221		5,221	12,309		12,309	U
106	0604822A	General Fund Enterprise Business System (GFEBBS)	05	3,218				15,700		15,700	U
107	0604823A	Firefinder	05	17,734	23,480		23,480	6,243		6,243	U
108	0604827A	Soldier Systems - Warrior Dem/Val	05	25,477	6,155		6,155	18,776		18,776	U
109	0604854A	Artillery Systems - EMD	05	117,241	1,911		1,911	1,953		1,953	U
110	0605013A	Information Technology Development	05	59,329	69,728		69,728	67,358		67,358	U
111	0605018A	Integrated Personnel and Pay System-Army (IPPS-A)	05	34,400	68,434		68,434	136,011		136,011	U
112	0605028A	Armored Multi-Purpose Vehicle (AMPV)	05	27,345	92,309		92,309	230,210		230,210	U
113	0605030A	Joint Tactical Network Center (JTNC)	05	65,849	8,436		8,436	13,357		13,357	U
114	0605031A	Joint Tactical Network (JTN)	05		17,989		17,989	18,055		18,055	U
115	0605032A	TRACTOR TIRE	05					5,677		5,677	U
116	0605035A	Common Infrared Countermeasures (CIRCM)	05		145,337		145,337	77,570		77,570	U
117	0605051A	Aircraft Survivability Development	05					18,112		18,112	U
118	0605350A	WIN-T Increment 3 - Full Networking	05		113,155		113,155	39,700		39,700	U
119	0605380A	AMF Joint Tactical Radio System (JTRS)	05	9,874	6,878		6,878	12,987		12,987	U
120	0605450A	Joint Air-to-Ground Missile (JAGM)	05	15,684	83,799		83,799	88,866		88,866	U
121	0605456A	PAC-3/MSE Missile	05	86,223	34,991		34,991	2,272		2,272	U

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Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
122	0605457A	Army Integrated Air and Missile Defense (AIAMD)	05	358,192	152,516		152,516	214,099		214,099	U
123	0605625A	Manned Ground Vehicle	05	96,820	49,134		49,134	49,247		49,247	U
124	0605626A	Aerial Common Sensor	05	10,377	17,748		17,748	2		2	U
125	0605766A	National Capabilities Integration (MIP)	05	21,132	15,212		15,212	10,599		10,599	U
126	0605812A	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	05	81,388	45,694		45,694	32,486		32,486	U
127	0605830A	Aviation Ground Support Equipment	05		10,036		10,036	8,880		8,880	U
128	0210609A	Paladin Integrated Management (PIM)	05		80,263		80,263	152,288		152,288	U
129	0303032A	TROJAN - RH12	05	3,463	983		983	5,022		5,022	U
130	0304270A	Electronic Warfare Development	05	10,801	8,961		8,961	12,686		12,686	U
		System Development & Demonstration		1,955,833	1,622,353		1,622,353	2,068,950		2,068,950	
131	0604256A	Threat Simulator Development	06	23,598	22,057		22,057	20,035		20,035	U
132	0604258A	Target Systems Development	06	13,139	10,037		10,037	16,684		16,684	U
133	0604759A	Major T&E Investment	06	38,534	56,285		56,285	62,580		62,580	U
134	0605103A	Rand Arroyo Center	06	18,281	20,601		20,601	20,853		20,853	U
135	0605301A	Army Kwajalein Atoll	06	187,225	175,956		175,956	205,145		205,145	U
136	0605326A	Concepts Experimentation Program	06	21,563	19,430		19,430	19,430		19,430	U
137	0605502A	Small Business Innovative Research	06	182,958							U
138	0605601A	Army Test Ranges and Facilities	06	335,270	274,980		274,980	277,646		277,646	U
139	0605602A	Army Technical Test Instrumentation and Targets	06	63,944	45,573		45,573	51,550		51,550	U

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Appropriation: 2040A Research, Development, Test & Eval, Army

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140	0605604A	Survivability/Lethality Analysis	06	42,865	33,294		33,294	33,246		33,246	U
141	0605606A	Aircraft Certification	06	5,953	4,700		4,700	4,760		4,760	U
142	0605702A	Meteorological Support to RDT&E Activities	06	7,210	6,411		6,411	8,303		8,303	U
143	0605706A	Materiel Systems Analysis	06	19,694	20,744		20,744	20,403		20,403	U
144	0605709A	Exploitation of Foreign Items	06	7,125	7,015		7,015	10,396		10,396	U
145	0605712A	Support of Operational Testing	06	55,062	49,217		49,217	49,337		49,337	U
146	0605716A	Army Evaluation Center	06	64,425	55,031		55,031	52,694		52,694	U
147	0605718A	Army Modeling & Sim X-Cmd Collaboration & Integ	06	1,239	1,124		1,124	938		938	U
148	0605801A	Programwide Activities	06	81,013	64,160		64,160	60,319		60,319	U
149	0605803A	Technical Information Activities	06	33,018	32,303		32,303	28,478		28,478	U
150	0605805A	Munitions Standardization, Effectiveness and Safety	06	56,543	64,027		64,027	32,604		32,604	U
151	0605857A	Environmental Quality Technology Mgmt Support	06	5,019	2,611		2,611	3,186		3,186	U
152	0605898A	Management HQ - R&D	06	53,476	49,583		49,583	48,955		48,955	U
153	0909999A	Financing for Cancelled Account Adjustments	06	126							U
		RDT&E Management Support		1,317,280	1,015,139		1,015,139	1,027,542		1,027,542	
154	0603778A	MLRS Product Improvement Program	07	93,621	17,103		17,103	18,397		18,397	U
155	0603813A	TRACTOR PULL	07					9,461		9,461	U
156	0607131A	Weapons and Munitions Product Improvement Programs	07					4,945		4,945	U

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Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
157	0607133A	TRACTOR SMOKE	07					7,569		7,569	U
158	0607135A	Apache Product Improvement Program	07		86,099		86,099	69,862		69,862	U
159	0607136A	Blackhawk Product Improvement Program	07		48,446		48,446	66,653		66,653	U
160	0607137A	Chinook Product Improvement Program	07		35,424		35,424	37,407		37,407	U
161	0607138A	Fixed Wing Product Improvement Program	07		819		819	1,151		1,151	U
162	0607139A	Improved Turbine Engine Program	07		49,328		49,328	51,164		51,164	U
163	0607140A	Emerging Technologies from NIE	07		4,916		4,916	2,481		2,481	U
164	0607141A	Logistics Automation	07	3,592	3,652		3,652	1,673		1,673	U
165	0607664A	Biometric Enabling Capability (BEC)	07		1,332		1,332				U
166	0607665A	Family of Biometrics	07	7,160				13,237		13,237	U
167	0607865A	Patriot Product Improvement	07	33,935	57,962		57,962	105,816		105,816	U
168	0102419A	Aerostat Joint Project - EMD	07	58,383							U
169	0202429A	Aerostat Joint Project - COCOM Exercise	07	22,252	43,248		43,248	40,565		40,565	U
170	0203726A	Adv Field Artillery Tactical Data System	07	24,120	1,273		1,273				U
171	0203728A	Joint Automated Deep Operation Coordination System (JADOCS)	07		36,658		36,658	35,719		35,719	U
172	0203735A	Combat Vehicle Improvement Programs	07	171,543	297,850		297,850	257,167		257,167	U
173	0203740A	Maneuver Control System	07	35,337	45,065		45,065	15,445		15,445	U
174	0203744A	Aircraft Modifications/Product Improvement Programs	07	227,333							U

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175	0203752A	Aircraft Engine Component Improvement Program	07	309	381		381	364		364	U
176	0203758A	Digitization	07	5,978	5,993		5,993	4,361		4,361	U
177	0203801A	Missile/Air Defense Product Improvement Program	07	1,830	5,112		5,112	3,154		3,154	U
178	0203802A	Other Missile Product Improvement Programs	07	60,005	38,323		38,323	35,951		35,951	U
179	0203808A	TRACTOR CARD	07	18,768	22,691		22,691	34,686		34,686	U
180	0205402A	Integrated Base Defense - Operational System Dev	07		4,362		4,362	10,750		10,750	U
181	0205410A	Materials Handling Equipment	07		834		834	402		402	U
182	0205412A	Environmental Quality Technology - Operational System Dev	07		280		280				U
183	0205456A	Lower Tier Air and Missile Defense (AMD) System	07		78,720		78,720	64,159		64,159	U
184	0205778A	Guided Multiple-Launch Rocket System (GMLRS)	07		45,353		45,353	17,527		17,527	U
185	0208053A	Joint Tactical Ground System	07	14,504	10,209		10,209	20,515		20,515	U
187	0303028A	Security and Intelligence Activities	07	7,596	12,518		12,518	12,368		12,368	U
188	0303140A	Information Systems Security Program	07	9,040	14,167		14,167	31,154		31,154	U
189	0303141A	Global Combat Support System	07	39,834	4,525		4,525	12,274		12,274	U
190	0303142A	SATCOM Ground Environment (SPACE)	07	17,644	11,006		11,006	9,355		9,355	U
191	0303150A	WWMCCS/Global Command and Control System	07	13,852	2,150		2,150	7,053		7,053	U
193	0305179A	Integrated Broadcast Service (IBS)	07					750		750	U

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Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2014 (Base & OCO)	FY 2015 Base Enacted	FY 2015 OCO Enacted	FY 2015 Total Enacted	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Sec
194	0305204A	Tactical Unmanned Aerial Vehicles	07	33,515	22,870		22,870	13,225		13,225	U
195	0305206A	Airborne Reconnaissance Systems	07					22,870		22,870	U
196	0305208A	Distributed Common Ground/Surface Systems	07	27,607	20,155		20,155	25,592		25,592	U
197	0305219A	MQ-1C Gray Eagle UAS	07	13,074	46,472		46,472				U
198	0305232A	RQ-11 UAV	07	5,984							U
199	0305233A	RQ-7 UAV	07	12,025	16,389		16,389	7,297		7,297	U
200	0307665A	Biometrics Enabled Intelligence	07	7,443	1,973		1,973				U
201	0310349A	Win-T Increment 2 - Initial Networking	07		3,247		3,247	3,800		3,800	U
202	0708045A	End Item Industrial Preparedness Activities	07	54,392	76,187		76,187	48,442		48,442	U
9999	9999999999	Classified Programs		4,717	4,802		4,802	4,536		4,536	U
		Operational Systems Development		1,025,393	1,177,894		1,177,894	1,129,297		1,129,297	
Total Research, Development, Test & Eval, Army				7,124,298	6,673,146	2,000	6,675,146	6,924,959	1,500	6,926,459	

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Integrated Base Defense - Operational System Dev	0205402A	180	07.....	317
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MLRS Product Improvement Program	0603778A	154	07.....	1
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TRACTOR PULL	0603813A	155	07.....	35
TRACTOR SMOKE	0607133A	157	07.....	59
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Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	93.621	17.103	18.397	-	18.397	49.986	68.969	-	23.713	Continuing	Continuing
093: Multi-Launch Rocket System (MLRS)	-	38.678	14.111	-	-	-	-	-	-	-	Continuing	Continuing
784: Guided MLRS	-	15.200	-	-	-	-	-	-	-	23.713	-	38.913
78G: Gmlrs Alternative Warheads	-	38.528	-	-	-	-	-	-	-	-	-	38.528
DX8: HIMARS Product Improvement Program	-	1.215	2.992	1.355	-	1.355	9.986	1.969	-	-	Continuing	Continuing
DZ8: Long Range Precision Fires	-	-	-	17.042	-	17.042	40.000	67.000	-	-	-	124.042

Note

Adjustments to Budget Years: Funding adjusted to reflect changes to FY2014-2015 activities. Funding adjusted in FY2016 for higher priority weapon system.

A. Mission Description and Budget Item Justification

Projects 090/DX8. The M142 High Mobility Artillery Rocket System (HIMARS) is a full spectrum, combat proven, all weather, 24/7 lethal and responsive, precision strike weapon system that fully supports more deployable, affordable and lethal, Brigade Combat Teams (BCT), Fires Brigades, Modular Forces, and Joint Expeditionary Forces. The HIMARS launcher is a C-130 transportable, wheeled, indirect fire, rocket/missile launcher capable of firing all rockets and missiles in the current and future Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM) and Army Tactical Missile System (ATACMS) Family of Munitions (AFOM) engaging targets with precision out to ranges of 300 kilometers. HIMARS satisfies the Army's digitization requirements by interfacing with the Advanced Field Artillery Tactical Data System (AFATDS) fire support command and control system. The HIMARS product improvement program provides funding for research, development test, and integration efforts necessary for incorporation of advanced automotive, armor, armament, life cycle enhancements, system hardware and software technologies, including Common Operating Environment (COE) and Network Integrated Evaluation (NIE), obsolescence mitigation, reliability improvements and decreasing the logistics footprint. This effort includes performing technical assessments, concept studies, and risk reduction efforts for incorporation of future requirements. The HIMARS product improvement program maintains compliance with Intra-Army Interoperability and Digital Communications. HIMARS was deployed to Operation Iraqi Freedom (OIF) and is still supporting Operation Enduring Freedom (OEF) with great success by both US Army and Marine Corps units.

Project 093. MLRS is a full spectrum, combat proven, all weather, 24/7 lethal and responsive, Precision Strike weapon system that is organic/assigned to Fires Brigades supporting BCT. The MLRS launcher provides critical missile precision strike, operational shaping fires, counterfire, and close support destructive and suppressive fires. The launcher is complimented by the MFOM to include the Guided Multiple Launch Rocket System (GMLRS), engaging targets up to 60 kilometers (km). AFOM munitions are capable of engaging targets up to a range of 300 km. The MLRS product improvement program provides funding for research, development, test and integration efforts necessary for incorporation of advanced automotive, armament and system hardware and software technologies, including COE and NIE,

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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 0603778A / <i>MLRS Product Improvement Program</i>
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obsolescence mitigation, reliability improvements, and decreasing the logistics footprint. This effort includes performing technical assessments, concept studies, and risk reduction efforts for incorporation of future requirements. The MLRS product improvement program maintains compliance with intra-army interoperability and digital communications via joint variable message format.

Projects 784/78G. Beginning in FY2015, GMLRS will have its own separate Program Element, 0205778A, to include Projects EG2 (GMLRS Alternative Warhead) and EG3 (Guided MLRS), previously under Program Element 0603778A Project Codes 78G and 784, respectively. GMLRS rockets are surface-to-surface artillery rockets fired from the MLRS and HIMARS launchers. GMLRS rockets provide 24/7, all-weather precision fires to engage both area and point targets at short, medium, and long ranges.

The GMLRS Program consists of three separate increments: GMLRS Dual Purpose Improved Conventional Munition (DPICM) cluster munition to engage area or imprecisely located targets; GMLRS Unitary utilizes a 200 lb high explosive warhead to engage point targets with limited collateral damage; and GMLRS Alternative Warhead (AW) is being developed as a non-cluster munition to replace GMLRS DPICM. GMLRS DPICM Production was terminated in response to the June 2008 Department of Defense (DoD) Cluster Munitions Policy. GMLRS Unitary is currently in full rate production. GMLRS AW is currently in the Engineering and Manufacturing Development (EMD) Phase and scheduled to enter full rate production in FY2015. The GMLRS AW rocket is 90% common with the Unitary variant.

Project DZ8. The Army G-3/5/7 has directed that GMLRS Increment 4 change its name to Long Range Precision Fires (LRPF) to better reflect the solution as an Army Tactical Missile System (ATACMS) replacement versus a follow-on increment to the GMLRS program. LRPF is being developed as a non-cluster munition to provide Joint Force Command with a 24/7 all weather long-range fires capability without placing aircraft and crews at risk.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	96.424	17.112	76.172	-	76.172
Current President's Budget	93.621	17.103	18.397	-	18.397
Total Adjustments	-2.803	-0.009	-57.775	-	-57.775
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.203	-			
• Adjustments to Budget Years	-	-0.009	-57.775	-	-57.775
• Other Adjustments 1	0.400	-	-	-	-

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 093: *Multi-Launch Rocket System (MLRS)*

FY 2014	FY 2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0603778A / <i>MLRS Product Improvement Program</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)	FY 2014	FY 2015
Congressional Add: <i>MLRS Product Improvement Program</i>	38.678	14.111
Congressional Add Subtotals for Project: 093	38.678	14.111
Congressional Add Totals for all Projects	38.678	14.111

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program				Project (Number/Name) 093 / Multi-Launch Rocket System (MLRS)			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
093: Multi-Launch Rocket System (MLRS)	-	38.678	14.111	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Multiple Launch Rocket System (MLRS) is a full spectrum, combat proven, all weather, 24/7, tracked weapon system. These precision strike weapon systems are organic/assigned to Field Artillery Brigades (FABs). The MLRS launcher provides critical missile precision strike, operational shaping fires, counterfire, and close support destructive and suppressive fires. The launcher is complemented by the MLRS Family of Munitions (MFOM) to include the Guided Multiple Launch Rocket System (GMLRS), and the Army Tactical Missile System (ATACMS) Family of Munitions (AFOM), capable of engaging targets up to a range of 300 kilometers. The MLRS product improvement program provides funding for research, development, test, and integration efforts necessary for incorporation of advanced automotive armament, and system hardware and software technologies, including Common Operating Environment (COE) and Network Integrated Evaluation (NIE), obsolescence mitigation, reliability improvements, and decreasing the logistics footprint. This effort includes performing technical assessments, concept studies, and risk reduction efforts for incorporation of future requirements. The MLRS product improvement program maintains compliance with intra-army interoperability and digital communications via joint variable message format.

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

	FY 2014	FY 2015
Congressional Add: MLRS Product Improvement Program	38.678	14.111
<p>FY 2014 Accomplishments: Execute the Improved Armored Cab (IAC) and Fire Control System Update (FCS-U) programs. The IAC program provides increased crew protection, blast protection and numerous automotive and cab improvements that promote commonality between the M270A1 and HIMARS weapon systems. Conducted Critical Design Review (CDR), built seven prototype cabs, conducted integration and checkout of cab to launcher, and began qualification test activities for the IAC program. The FCS-U program mitigates hardware obsolescence and provides a government designed and built fire control system software that reduces Software Lines of Code and provides commonality between two weapon systems. Completed PDR and are progressing to CDR in 1QFY15 for the FCS-U program. Additional activities include the continuation to maintain C4I and network interoperability certification. Continue to improve system design and development hardware and software integration with upcoming C2 initiatives to include the COE and the NIE.</p> <p>FY 2015 Plans: Complete testing for IAC that includes system level live fire testing, missile firing, user testing with field exercises and automotive/environmental testing. Continue preparation for award of production contract for IAC. Complete CDR for FCS-U and build prototypes to conduct qualification and certification tests. Integrate FCS-U hardware with the Government developed Fire Control System Software that replaces aging contractor</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / <i>MLRS Product Improvement Program</i>	Project (Number/Name) 093 / <i>Multi-Launch Rocket System (MLRS)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015
developed software. Additional activities include FCS-U qualification tests, C4I/interoperability and network interoperability certification and maintenance. Redesign subsystems as required to mitigate obsolescence. Continue to improve system design and development hardware and software integration with upcoming C2 initiatives to include the COE and the NIE. Incorporate new assurance requirements into system software and evaluate IA performance.		
Congressional Adds Subtotals	38.678	14.111

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• C67500000: <i>MLRS Mods (C67500)</i>	11.571	10.494	36.259	-	36.259	37.589	38.117	38.694	58.189	Continuing	Continuing
• CA0265000: <i>MLRS Mod Initial Spares (CA0265)</i>	1.083	1.087	1.067	-	1.067	1.089	1.099	1.115	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

The MLRS product improvement program conducts concept studies to support obsolescence mitigation, automotive updates, and hardware/software enhancements. Development efforts underway include Enhanced C2 and efforts supporting interoperability certifications, information assurance compliance, IAC, and mitigating obsolescence of the Fire Control System through the FCS-U effort. The IAC effort enhances the level of crew protection. A contract was awarded following a competitive bid process (full and open competition) to ensure best value for the government. Seven prototype cabs have been delivered with integration of cab to launcher ongoing; testing will be completed in FY15. The FCS-U is driven by the need to mitigate obsolete electronic components that are being sustained through life of type purchases. These purchased components will be exhausted, thus requiring an update to the design. This update to the design will preserve current and future capability of firing the complete set of MLRS family of munitions per the Operational Requirements Document (ORD). The FCS-U development effort began in FY13, utilizing the industrial Engineering Services contract that was previously sole source awarded. Contract efforts include finalizing design, testing, and qualification of the FCS-U with scheduled completion in FY16. Government activities to close out government efforts to continue in FY16. PDR has been conducted and CDR was completed in 1Q FY15 with prototype delivery to begin in 2QFY15.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 093 / Multi-Launch Rocket System (MLRS)
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Program Management	Various	PFRMS Proj Ofc, Redstone Arsenal, Alabama : Redstone Arsenal, Alabama	7.049	1.200		0.706	Oct 2014	-		-		-	Continuing	Continuing	Continuing
Subtotal			7.049	1.200		0.706		-		-		-	-	-	-

Remarks
PFRMS - Precision Fires Rocket and Missile Systems

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Other Government Agencies OGA	MIPR	FT SILL OK, CECOM-NJ AMRDEC-RSA AL, : various	16.245	-		-		-		-		-	Continuing	Continuing	Continuing
MLRS IAC	C/CPFF	Lockheed Martin : Grand Praire, TX	22.577	5.761		2.160		-		-		-	Continuing	Continuing	Continuing
MLRS FCS Development	SS/CR	Lockheed Martin : Grand Praire, TX	35.451	24.916		9.833		-		-		-	Continuing	Continuing	Continuing
Subtotal			74.273	30.677		11.993		-		-		-	-	-	-

Remarks
 C CPFF - Competitive Cost-Plus Fixed-Fee
 SS CR - Sole Source Cost
 AMRDEC - United States Army Aviation and Missile Research, Development, and Engineering Center
 RSA AL - Redstone Arsenal, Alabama Ft Sill OK - Oklahoma
 CECOM - United States Army Communication - Electronics Command
 MIPR - Military Interdepartmental Purchase Request
 LM - Lockheed Martin, Grand Praire, Texas

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 093 / Multi-Launch Rocket System (MLRS)
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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Support Contract	Various	Multiple : Multiple	4.010	0.400		0.424	Dec 2015	-		-		-	Continuing	Continuing	Continuing
Subtotal			4.010	0.400		0.424		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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, Joint Interoperability Test Certificate	MIPR	CTSF, Ft. Hood : Texas	3.323	6.401		0.988	Dec 2014	-		-		-	Continuing	Continuing	Continuing
Subtotal			3.323	6.401		0.988		-		-		-	-	-	-

Remarks
 CTSF - Central Technical Support Facility
 MIPR - Military Interdepartmental Purchase Request

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	88.655	38.678	14.111	-	-	-	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 093 / Multi-Launch Rocket System (MLRS)
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Comd, Cntrl, Com, Comp, and Intell (C4I)/Interop Cert Tests, Imp Oper T																												
Software Interoperability Testing/Network Interoperability Testing/Certific																												
FCS-U Development																												
Fire Control System Update Production - Award 3Q FY16; 1st Del/Instal																												
Improved Armored Cab Development Award 3Q FY12; Testing Complete																												
Improved Armored Cab Production - 1st Delivery/Install 1Q FY17																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 093 / Multi-Launch Rocket System (MLRS)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Comd, Cntrl, Com, Comp, and Intell (C4I)/Interop Cert Tests, Imp Oper Timeline	1	2010	4	2015
Software Interoperability Testing/Network Interoperability Testing/Certification	1	2010	4	2015
FCS-U Development	1	2013	3	2016
Fire Control System Update Production - Award 3Q FY16; 1st Del/Install 3Q/FY17	3	2016	4	2020
Improved Armored Cab Development Award 3Q FY12; Testing Complete 3QFY15	3	2012	3	2015
Improved Armored Cab Production - 1st Delivery/Install 1Q FY17	1	2017	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 784 / Guided MLRS
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
784: Guided MLRS	-	15.200	-	-	-	-	-	-	-	23.713	-	38.913
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY2015, Guided Multiple Launch Rocket System (GMLRS) will have its own separate Program Element, 0205778A, to include Projects EG2 (GMLRS Alternative Warhead) and EG3 (Guided MLRS), previously under Program Element 0603778A Project Codes 78G and 784, respectively.

A. Mission Description and Budget Item Justification

The United States (U.S.) Army continues to explore ways to enhance Guided Multiple Launch Rocket System (GMLRS) Unitary rockets and common components and to mitigate obsolescence issues under the Guided MLRS project code. The Army is requesting funding for the following GMLRS Research, Development, Test and Evaluation (RDT&E) activities: (1) evaluation of enhanced operational capabilities to provide more flexibility across the target set to include increased range, flight performance, and end game optimization; (2) investigation of potential life cycle cost savings through obsolescence initiatives; (3) development of enhancements to the Multiple Launch Rocket System (MLRS) common test equipment; and (4) evaluation and development of technologies to enhance overall product performance and survivability to include Long-Range Precision Fires (LRPF) capabilities and (5) Insensitive Munitions (IM) compliance.

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

	FY 2014	FY 2015	FY 2016
<p>Title: Assess and improve GMLRS rockets.</p> <p>Description: Funding is provided for the following efforts</p> <p>FY 2014 Accomplishments: Continue to seek improvements in rocket reliability, increased range, collateral damage, and effectiveness.</p>	2.128	-	-
<p>Title: Conduct development engineering for IM program.</p> <p>Description: Funding is provided for the following efforts</p> <p>FY 2014 Accomplishments: Continue to procure test articles to qualify improvements to satisfy JCIDS requirements.</p>	8.816	-	-
<p>Title: Investigate obsolescence/cost reduction opportunities/second source suppliers.</p> <p>Description: Funding is provided for the following efforts</p> <p>FY 2014 Accomplishments:</p>	1.064	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 784 / Guided MLRS
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Continue to design and integrate enhanced operational capability and flexibility across the target set, as well as investigate obsolescence issues and cost reduction initiatives.			
Title: Conduct System Test and Evaluation activities.	3.192	-	-
Description: Funding is provided for the following efforts			
FY 2014 Accomplishments: Conduct IM System testing.			
Accomplishments/Planned Programs Subtotals	15.200	-	-

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• GMLRS (C64400): GMLRS (C64400)	273.025	127.145	251.060	-	251.060	155.428	170.820	205.038	232.632	Continuing	Continuing
• Gmlrs Alternative Warhead (78G & EG: Gmlrs Alternative Warhead (78G & EG2)	38.528	33.880	0.319	-	0.319	-	-	-	-	Continuing	Continuing

Remarks
GMLRS Procurement funding includes C65404 and C65406.

D. Acquisition Strategy
Project 784 is intended to support, investigate, and develop alternative material changes to improve the GMLRS family of munitions as they are identified by the material developer or combat developer. This project also supports IM activities to improve the overall posture of the system all the way down to component level. Future initiatives include a missile modernization program to extend the shelf life of the GMLRS rocket.

Beginning in FY2015, GMLRS will have its own separate Program Element, 0205778A, to include Projects EG2 (GMLRS Alternative Warhead) and EG3 (Guided MLRS), previously under Program Element 0603778A Project Codes 78G and 784, respectively.

E. Performance Metrics
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 784 / Guided MLRS
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Program Management	TBD	PFRMS Project Office, : RSA	27.696	0.130	Oct 2013	-		-		-		-	-	27.826	-
Subtotal			27.696	0.130		-		-		-		-	-	27.826	-

Remarks
TBD-To Be Determined; Cont.-Continuing; PFRMS - Precision Fires Rocket and Missile Systems; RSA-Redstone Arsenal, Alabama

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Unitary Contracts/Multiple	SS/CPFF	LMMFCS : Dallas, TX	284.626	14.603	Dec 2013	-		-		-		-	-	299.229	-
Other Government Agencies	TBD	AMCOM/AMRDEC, : RSA	77.986	-		-		-		-		-	-	77.986	-
Subtotal			362.612	14.603		-		-		-		-	-	377.215	-

Remarks
SS/CPFF-Sole Source/Cost Plus Fixed Fee; Cont.-Continuing; LMMFCS - Lockheed Martin Missile and Fire Control System; TX - Texas; AMCOM-Aviation and Missile Command; TBD-To Be Determined; AMRDEC - U.S. Army Research, Development and Engineering Command; RSA - Redstone Arsenal, Alabama

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Support Contract	C/CPFF	Camber Research/ S3/TMI, : Alabama	20.684	-		-		-		-		-	-	20.684	-
Subtotal			20.684	-		-		-		-		-	-	20.684	-

Remarks
C/CPFF-Cost/Cost Plus Fixed Fee; Cont.-Continuing; S3-Systems Studies Simulation, Inc.; TMI-Tec Masters, Inc.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 784 / Guided MLRS
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Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	TBD	WSMR, : NM	109.467	0.467		-		-		-		-	-	109.934	-
Subtotal			109.467	0.467		-		-		-		-	-	109.934	-

Remarks
TBD-To Be Determined; Cont.-Continuing; WSMR, NM - White Sands Missile Range, New Mexico

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	520.459	15.200	-	-	-	-	-	535.659	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 784 / Guided MLRS
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Technical Assessment/ Concept, Survivability																												
Obsolescence/ Cost Reduction Opportunities and Second Source Supp																												
IM/ Enhanced Technology Improvements																												
ISD Safety Analysis and Qualification Plan																												
ISD Developmental Test																												
ISD Qualification Testing																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 784 / Guided MLRS

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Technical Assessment/ Concept, Survivability	1	2011	4	2014
Obsolescence/ Cost Reduction Opportunities and Second Source Suppliers	1	2011	4	2014
IM/ Enhanced Technology Improvements	4	2010	4	2014
ISD Safety Analysis and Qualification Plan	3	2013	1	2014
ISD Developmental Test	4	2013	1	2014
ISD Qualification Testing	2	2014	4	2014

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program				Project (Number/Name) 78G / Gmlrs Alternative Warheads			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
78G: Gmlrs Alternative Warheads	-	38.528	-	-	-	-	-	-	-	-	-	38.528
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY2015, Guided Multiple Launch Rocket System (GMLRS) will have its own separate Program Element, 0205778A, to include Projects EG2 (GMLRS Alternative Warhead) and EG3 (Guided MLRS), previously under Program Element 0603778A Project Codes 78G and 784, respectively.

A. Mission Description and Budget Item Justification

The United States (U.S.) Army is funding the development of the Guided Multiple Launch Rocket System (GMLRS) Alternative Warhead (AW) increment under the 78G-GMLRS AW project code. GMLRS AW is being developed as a non-cluster munition to replace GMLRS Dual Purpose Improved Conventional Munitions (DPICM) and service the same area and imprecisely-located targets. GMLRS DPICM Production was terminated in response to the June 2008 Department of Defense (DoD) Cluster Munitions Policy.

The GMLRS AW increment completed Milestone B (MS B) on February 19, 2012 and is currently in the Engineering and Manufacturing Development (EMD) Phase. The three-year EMD contract was awarded on March 30, 2012. Funding was requested in FY2013 for the second year of the EMD contract and for other government and contracted EMD activities to include engineering developmental testing and the Critical Design Review (CDR). GMLRS AW is scheduled for a combined Milestone C (MS C) and Full Rate Production (FRP) Decision in FY2015 and Initial Operational Capability (IOC) in FY2016.

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

	FY 2014	FY 2015	FY 2016
Title: Conduct Development Engineering, Design Component Testing, and Performance Analysis.	17.761	-	-
Description: Funding is provided for the following efforts			
FY 2014 Accomplishments: Perform design optimization trade studies, qualification of manufacturing procedures, conduct Development Test/Operational testing.			
Title: Perform technical assessments and concept studies.	9.748	-	-
Description: Funding is provided for the following efforts			
FY 2014 Accomplishments: Perform system integration trade studies, assessment of Manufacturing Readiness Levels (MRL).			
Title: Prepare Milestone Documentation, Risk Reduction, and Program Reviews.	1.657	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 78G / Gmlrs Alternative Warheads

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Description: Funding is provided for the following efforts			
FY 2014 Accomplishments: Assess EMD testing; begin milestone support documentation development.			
Title: Conduct System Test and Evaluation Activities.	9.362	-	-
Description: Funding is provided for the following efforts			
FY 2014 Accomplishments: Engineering Production Qualification Testing (PQT) , Development Test/Operational Test (DT/OT), ground testing, and system Insensitive Munitions (IM) testing.			
Accomplishments/Planned Programs Subtotals	38.528	-	-

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• GMLRS (C64400): GMLRS (C64400)	273.025	127.145	251.060	-	251.060	155.428	170.820	205.038	232.632	Continuing	Continuing
• Guided MLRS (784 & EG3): Guided MLRS (784 & EG3)	15.200	11.473	17.208	-	17.208	27.829	29.669	29.406	24.036	Continuing	Continuing

Remarks
GMLRS Procurement funding includes C65404 and C65406.

D. Acquisition Strategy
The GMLRS AW rocket is a product improved version of the current GMLRS rocket. During EMD, GMLRS AW will undergo further development, integration, and testing under a Firm Fixed Price (FFP) contract.

Beginning in FY2015, GMLRS will have its own separate Program Element, 0205778A, to include Projects EG2 (GMLRS Alternative Warhead) and EG3 (Guided MLRS), previously under Program Element 0603778A Project Codes 78G and 784, respectively.

E. Performance Metrics
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 78G / Gmlrs Alternative Warheads
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Program Management	TBD	PFRMS Project Office, : RSA	9.816	4.046	Oct 2013	-		-		-		-	-	13.862	-
Subtotal			9.816	4.046		-		-		-		-	-	13.862	-

Remarks
TBD-To Be Determined; Cont.-Continuing; PFRMS-Precision Fires Rocket and Missile Systems; RSA-Redstone Arsenal, Alabama

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
AWP Contracts (Multiple)	Various	ATK (Plymouth, MN) : LMMFCS (Dallas, TX), Systems Integrator	65.489	21.922	Dec 2013	-		-		-		-	-	87.411	-
Other Government Agencies	TBD	AMCOM/AMRDEC, : RSA	19.745	2.658	Dec 2013	-		-		-		-	-	22.403	-
Subtotal			85.234	24.580		-		-		-		-	-	109.814	-

Remarks
AWP-Alternative Warhead Program; Various-Competitive/Firm Fixed Price/Sole Source/Cost Plus Fixed Fee; TBD-To Be Determined; Cont.-Continuing; AMCOM-Army Materiel Command; AMRDEC-U.S. Army Research, Development and Engineering Command; RSA-Redstone Arsenal, Alabama; ATK-Alliant Techsystems, Inc.; MN-Minnesota; LMMFCS-Lockheed Martin Missile and Fire Control System; TX-Texas

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Support Contract	C/CPFF	Camber Research/ S3/TMI, : Alabama	0.759	0.193	Dec 2013	-		-		-		-	-	0.952	-
Subtotal			0.759	0.193		-		-		-		-	-	0.952	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 78G / Gmlrs Alternative Warheads
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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			

Remarks
C/CPFF-Competitive/Cost Plus Fixed Fee; Cont.-Continuing; S3-Systems Studies Simulation, Inc.; TMI-Tec Master, Inc.

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	TBD	WSMR, : NM	22.570	9.709	Dec 2013	-		-		-		-	-	32.279	-
Subtotal			22.570	9.709		-		-		-		-	-	32.279	-

Remarks
TBD-To Be Determined; Cont.-Continuing; WSMR,NM-White Sands Missile Range, New Mexico

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	118.379	38.528	-	-	-	-	-	156.907	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 78G / Gmlrs Alternative Warheads
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Production Qualification Testing (PQT)	[Bar]																											
Development Test/Operational Test (DT/OT)	[Bar]																											
Insensitive Munitions (IM) Testing	[Bar]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) 78G / Gmlrs Alternative Warheads

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Production Qualification Testing (PQT)	4	2013	3	2014
Development Test/Operational Test (DT/OT)	3	2014	3	2014
Insensitive Munitions (IM) Testing	1	2014	3	2014

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program				Project (Number/Name) DX8 / HIMARS Product Improvement Program			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DX8: HIMARS Product Improvement Program	-	1.215	2.992	1.355	-	1.355	9.986	1.969	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project DX8 HIMARS Product Improvement Program previously funded on Project 090 MLRS HIMARS.

A. Mission Description and Budget Item Justification

The M142 High Mobility Artillery Rocket System (HIMARS) is a full spectrum, combat proven, all weather, 24/7 lethal and responsive, precision strike weapon system that fully supports more deployable, affordable and lethal, Brigade Combat Teams, Fires Brigades, Modular Forces, and Joint Expeditionary Forces. The HIMARS launcher is a C-130 transportable, wheeled, indirect fire, rocket/missile launcher capable of firing all rockets and missiles in the current and future Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM) and Army Tactical Missile System (ATACMS) Family of Munitions (AFOM) engaging targets with precision out to ranges of 300 kilometers. HIMARS satisfies the Army's digitization requirements by interfacing with the Advanced Field Artillery Tactical Data System (AFATDS) fire support command and control system. The HIMARS product improvement program provides funding for research, development, test and integration efforts necessary for incorporation of advanced automotive, armor, armament, life cycle enhancements, system hardware and software technologies, including Common Operating Environment (COE) and Network Integrated Evaluation (NIE), obsolescence mitigation, reliability improvements, and decreasing the logistics footprint. This effort includes performing technical assessments, concept studies, and risk reduction efforts for incorporation of future requirements. The HIMARS product improvement program maintains compliance with Intra-Army Interoperability and Digital Communications. HIMARS was deployed to Operation Iraqi Freedom (OIF) and is still supporting Operation Enduring Freedom (OEF) with great success by both U.S. Army and Marine Corps units.

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

	FY 2014	FY 2015	FY 2016
Title: MLRS Production Improvement Program (PIP)-HIMARS PIP	1.215	2.992	1.355
Description: Improve system design and develop hardware and software integration with upcoming command and control initiatives to include the COE and the NIE. Perform technical assessments, concept studies, cost reduction, risk reduction, field issue resolution and required documentation concerning upgrades to enhanced command and control (C2), improved initialization, hardware and software obsolescence mitigation, tactical fire control, embedded training, launcher loader module electric drive, diagnostics/prognostics, alternate coupling, situational awareness, long range communication, automotive chassis life cycle enhancements and future munitions integration.			
FY 2014 Accomplishments: Completed Software Modification (SW MOD Version 8.0) development phase to address software obsolescence in the Universal Fire Control System software suite. SW MOD 8.0 was developed by the Software Engineering Directorate, Redstone Arsenal, AL; it will reduce sustainment cost and enhance responsiveness for future upgrades. Maintain C4I/interoperability and network			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) DX8 / HIMARS Product Improvement Program

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>interoperability certification. Conduct technical assessments and concept studies in the areas of automotive and hardware/software technologies to support evolving mission requirements, planning for technology insertion, and continued obsolescence mitigation. Improve system design and develop hardware and software integration with upcoming C2 initiatives to include the (COE) and the (NIE).</p> <p>FY 2015 Plans: The focus of the FY15 HIMARS Product Improvement Program is to continue SW MOD 8.0 software and hardware integration, conduct software testing and debugging, conduct missile firings and field exercises to validate software and obtain a software material release of the Software Modification Version 8.0 software that mitigates software obsolescence of the Fire Control System. Maintain C4I and network interoperability certification. Conduct technical assessments and concept studies in the areas of automotive and hardware/software technologies to support evolving mission requirements, planning for technology insertion, and continued obsolescence mitigation. Improve system design and develop hardware and software integration with upcoming C2 initiatives to include the (COE) and (NIE), development and implementation of Global Positioning System (GPS).</p> <p>FY 2016 Plans: The focus of the FY16 HIMARS Product Improvement Program is to complete testing and certification of Software Modification Version 8 that will enable fielding to start in FY16. Maintain C4I and network interoperability certification. Conduct technical assessments and concept studies in the areas of automotive and hardware/software technologies to support evolving mission requirements, planning for technology insertion, and continued obsolescence mitigation. Improve system design and develop hardware and software integration with the upcoming C2 initiatives to include the (COE) and (NIE), development and implementation of GPS.</p>			
Accomplishments/Planned Programs Subtotals	1.215	2.992	1.355

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• C03000: HIMARS Launcher (C03000)	-	-	-	-	-	-	-	-	-	-	-
• C67501: HIMARS Modifications (C67501)	6.105	6.008	3.148	-	3.148	2.457	12.353	15.290	17.766	Continuing	Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / <i>MLRS Product Improvement Program</i>	Project (Number/Name) DX8 / <i>HIMARS Product Improvement Program</i>

D. Acquisition Strategy

The HIMARS product improvement program conducts concept studies to support obsolescence mitigation, automotive updates, and hardware/software enhancements. Development efforts underway include Enhanced C2 and efforts supporting interoperability certifications, information assurance compliance, and mitigating obsolescence of the fire control system on the M142 HIMARS. HIMARS follow-on technology insertion efforts include automotive chassis life cycle enhancements, fire control system obsolescence mitigation and associated enhancements to training devices as improvements when applicable.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) DX8 / HIMARS Product Improvement Program
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Program Management	TBD	PFRMS Project Office, Redstone Arsenal, Alabama : Various	0.000	0.050	Oct 2013	0.137	Oct 2014	0.289	Oct 2015	-		0.289	Continuing	Continuing	-
Subtotal			0.000	0.050		0.137		0.289		-		0.289	-	-	-

Remarks
PFRMS - Precision Fires Rocket and Missile System; C - Competitive

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Other Government Agencies (OGA)	C/TBD	AMCOM, GSA, RSA : Various	0.000	0.075	Oct 2013	0.193	Oct 2014	0.059	Oct 2015	-		0.059	Continuing	Continuing	-
Battle Command	SS/CPFF	CECOM, PEO STRI, AMRDEC, CGI, LMMFC : Various	0.000	0.914	Oct 2013	2.210	Oct 2014	0.059	Oct 2015	-		0.059	Continuing	Continuing	-
Subtotal			0.000	0.989		2.403		0.118		-		0.118	-	-	-

Remarks
AMCOM - US Army Aviation & Missile Life Cycle Management Command; GSA - General Services Administration; RSA - Redstone Arsenal, Alabama; C - Competitive SS - Sole Source; CPFF - Cost Plus Fixed Fee; CECOM - US Army Communications Electronics Command; PEO STRI - Program Executive Office for Simulation, Training and Instrumentation; AMRDEC - Aviation and Missile Research, Development and Engineering Center; LMMFC - Lockheed Martin Missiles and Fire Control

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Support Contract	C/TBD	Camber Research, S3, TMI : Various	0.000	0.063	Oct 2013	0.165	Oct 2014	0.345	Oct 2015	-		0.345	Continuing	Continuing	-
Subtotal			0.000	0.063		0.165		0.345		-		0.345	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) DX8 / HIMARS Product Improvement Program
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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			

Remarks
S3 - Systems, Studies, Simulation, Incorporated; TMI - Tec Masters, Incorporated

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	C/TBD	Ft Hood, TX, ATEC, APG, MD, WSMR, RTC, RSA : Various	0.000	0.113	Oct 2013	0.287	Oct 2014	0.603	Oct 2015	-		0.603	Continuing	Continuing	-
Subtotal			0.000	0.113		0.287		0.603		-		0.603	-	-	-

Remarks
ATEC - US Army Test and Evaluation Command; APG MD - Aberdeen Proving Grounds, Maryland; WSMR - White Sands Missile Range; RTC RSA - Redstone Test Center, Redstone Arsenal, Alabama

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.215	2.992	1.355	-	1.355	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) DX8 / HIMARS Product Improvement Program
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Central Technical Support Facility Certification																												
Enhanced Command and Control Development and Testing																												
Software Modification V8.0 Final IPR																												
Software Modification V8.0 Qualification Testing & Certification																												
Software Modification V8.0 Unit Fieldings																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) DX8 / HIMARS Product Improvement Program

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Central Technical Support Facility Certification	1	2014	4	2020
Enhanced Command and Control Development and Testing	1	2014	4	2020
Software Modification V8.0 Final IPR	4	2014	4	2014
Software Modification V8.0 Qualification Testing & Certification	1	2015	1	2016
Software Modification V8.0 Unit Fieldings	2	2016	1	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 I 7					R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program				Project (Number/Name) DZ8 / Long Range Precision Fires			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DZ8: Long Range Precision Fires	-	-	-	17.042	-	17.042	40.000	67.000	-	-	-	124.042
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The Army G-3/5/7 has directed that Guided Multiple Launch Rocket System (GMLRS) Increment 4 change its name to Long-Range Precision Fires (LRPF) to better reflect the solution as an Army Tactical Missile System (ATACMS) replacement versus a follow-on increment to the GMLRS program. Beginning in FY2016, LRPF is a New Start program.

A. Mission Description and Budget Item Justification

The LRPF is being developed as a cluster and insensitive munition-compliant system that replaces and improves upon ATACMS capabilities to provide Joint Force Commanders with a 24/7, all-weather, area target, long-range fires capability without placing aircraft and crews at risk. The mission of the LRPF System will be to attack/neutralize/suppress/destroy targets using missile delivered indirect precision fires. The LRPF will counter the enemy's ability to conduct combat maneuver and air defense operations. Targets include counterfire, air defense, command and control, and other high payoff targets at all depths of the tactical battlefield. LRPF requirements include 300km range; specified lethality against the designated target set, a Missile Launch Pod Container (MLPC) that holds a minimum of two missiles; and compatibility with the existing launcher platforms (M270A1 and High Mobility Artillery Rocket System (HIMARS)). The Army is conducting an Analysis of Alternatives (AoA), based on an Office of the Secretary of Defense (OSD) approved Material Development Decision (MDD) on 6 November 2013. The AoA is scheduled for completion in March 2015.

The Army is funding the development of the LRPF under Program Element 0603778A project code DZ8. The LRPF program currently has a Milestone (MS) A Decision scheduled for 1QFY16. Funding is requested in FY2016 to conduct competitive sub-system risk reduction activities under DoD Section 845 Other Transaction Authority (OTA), to mature the rocket motor and warhead technology to support the award of Technology Maturation/Risk Reduction (TM/RR) system demonstration contracts in FY17. LRPF will be developed using competitive prototyping, carrying two or more contractors through the TM/RR Phase. LRPF is scheduled for a MS B in FY2019 and MS C in FY2022.

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

	FY 2014	FY 2015	FY 2016
Title: TM/RR	-	-	17.042
Description: Funding is provided for the following effort			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / <i>MLRS Product Improvement Program</i>	Project (Number/Name) DZ8 / <i>Long Range Precision Fires</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Execute IM rocket motor and warhead risk reduction prototyping through DOTC OTA. Conduct source selection for TMRR contract; Qualify GFE flight termination systems for use in TM/RR systems integration and test.			
Accomplishments/Planned Programs Subtotals	-	-	17.042

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

N/A

Remarks

D. Acquisition Strategy

The LRPF is being developed as a cluster and insensitive munition-compliant system that replaces and improves upon ATACMS capabilities to provide Joint Force Commanders with a 24/7, all-weather, area target, long-range fires capability without placing aircraft and crews at risk. An AoA supporting a MS A decision is being conducted by U.S. Army Training and Doctrine Command (TRADOC) Analysis Center-White Sands Missile Range (TRAC-WSMR), with the final report to be completed in March 2015. The Milestone Decision Authority will hold a MS A decision review in 1QFY16. The Acquisition Strategy is for competitive prototyping for TM/RR at both the sub-system and system demonstration levels. After a MS A decision directing a new start LRPF system, the program office will initiate TM/RR activities with awards in 3QFY16 for critical sub-system prototyping under the DoD Ordnance Technology Consortium (DOTC) Section 845 (NDAA 1994) Other Transaction Authority. The program will also conduct a full and open competition in FY2016 of a 24-month TM/RR competitive prototyping and flight demonstration phase to be awarded to two contractors in 2QFY2017. Flight demonstrations and PDRs in FY18 will lead to a limited competition for the EMD contract and competitive down select at MS B.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) DZ8 / Long Range Precision Fires
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Program Management	TBD	PFRMS Project Office, : RSA	0.000	-		-		2.446	Oct 2015	-		2.446	-	2.446	-
Subtotal			0.000	-		-		2.446		-		2.446	-	2.446	-

Remarks
PFRMS-Precision Fires Rocket and Missile Systems; RSA-Redstone Arsenal, Alabama; TBD-To Be Determined

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
LRPF Risk Reduction – DOTC OTA (Sec 845)	C/TBD	TBD : TBD	0.000	-		-		12.033	Apr 2016	-		12.033	Continuing	Continuing	Continuing
Other Government Agencies	TBD	AMCOM/AMRDEC, : RSA	0.000	-		-		1.038	Apr 2016	-		1.038	-	1.038	-
Subtotal			0.000	-		-		13.071		-		13.071	-	-	-

Remarks
LRPF-Long-Range Precision Fires; LMMFCS-Lockheed Martin Missile and Fire Control System; TX-Texas; C-Competitive; TBD: To Be Determined; AMCOM-Army Materiel Command; AMRDEC-U.S. Army Research, Development and Engineering Command; RSA-Redstone Arsenal, AL

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Support Contract	TBD	TBD : TBD	0.000	-		-		1.126	Oct 2015	-		1.126	-	1.126	-
Subtotal			0.000	-		-		1.126		-		1.126	-	1.126	-

Remarks
S3-Systems Studies Simulation, Inc.; TMI-Tec Master, Inc.; TBD-To Be Determined

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) DZ8 / Long Range Precision Fires
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Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	TBD	WSMR, NM; : RTC, AL	0.000	-		-		0.399	May 2016	-		0.399	-	0.399	-
Subtotal			0.000	-		-		0.399		-		0.399	-	0.399	-

Remarks
WSMR, NM-White Sands Missile Range, New Mexico; RTC, AL-Redstone Test Center, Alabama

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		17.042		-		17.042	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) DZ8 / Long Range Precision Fires
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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) MDD	▲				▲																							
AoA	■				■																							
(2) MS A	▲				▲																							
TM/RR									■				■															
DOTC Sub-System Contracts									■																			
Vendor #1 Contract Award/Preparation/Execution of Flight Demo													■				■											
Vendor #2 Contract Award/Preparation/Execution of Flight Demo													■				■											
(3) MS B																					▲							
Engineering Manufacturing Development Phase																					■							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program	Project (Number/Name) DZ8 / Long Range Precision Fires

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MDD	1	2014	1	2014
AoA	1	2014	2	2015
MS A	1	2016	1	2016
TM/RR	2	2016	1	2019
DOTC Sub-System Contracts	3	2016	1	2017
Vendor #1 Contract Award/Preparation/Execution of Flight Demo	2	2017	1	2019
Vendor #2 Contract Award/Preparation/Execution of Flight Demo	2	2017	1	2019
MS B	1	2019	1	2019
Engineering Manufacturing Development Phase	1	2019	2	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0603813A / <i>TRACTOR PULL</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	-	9.461	-	9.461	10.320	10.057	10.193	10.859	-	50.890
ET1: <i>Tractor Peel</i>	-	-	-	9.461	-	9.461	10.320	10.057	10.193	10.859	-	50.890

Note

The details of this program are reported in accordance with Title 10, United States Code, Section 119(a)(1).

A. Mission Description and Budget Item Justification

The details of this program are reported in accordance with Title 10, United States Code, Section 119(a)(1).

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	9.461	-	9.461
Total Adjustments	-	-	9.461	-	9.461
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	9.461	-	9.461

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	-	4.945	-	4.945	4.322	10.990	6.719	7.002	-	33.978
ER2: <i>Close Combat Technology</i>	-	-	-	0.870	-	0.870	0.550	3.375	1.013	1.127	-	6.935
ER5: <i>Indirect Fire and Fuze Technology</i>	-	-	-	1.771	-	1.771	1.539	4.779	2.958	2.953	-	14.000
ER6: <i>Direct Fire Technology and NATO Ammo Eval</i>	-	-	-	2.304	-	2.304	2.233	2.836	2.748	2.922	-	13.043

A. Mission Description and Budget Item Justification

ER2 - This program includes development efforts to upgrade Close Combat technologies, energetics, and munitions, such as counter explosives, grenades, demolitions, shoulder launched munitions, pyrotechnic simulators, non-lethal ammunition/systems, networked munitions and mines, that have been fielded or have received approval for full rate production. This program will identify, characterize, study, analyze, test and develop technologies to resolve close combat munition reliability, safety, environmental, storage, standardization, obsolescence and manufacturing/producibility issues.

ER5 - Indirect Fire and Fuze Technology: This program will identify, study, analyze and support enhanced lethality, range extension and standardization to improve target engagement effectiveness; increase reliability, safety, and exportability of indirect fires weapons and munitions; and reduce taxpayer costs including elimination of sole source supply of indirect fires ammunition materials as well as studies and analyses of such technology solutions in comparison to current stock pile indirect fire conventional weapons and munitions and their associated production and life cycle support processes. Additionally, environmental impacts of legacy propellants, explosives and metal parts will be studied. Replacement of hazardous materials such as Ammonium Perchlorate, Diphenylamine, Lead, etc. and addition of propellant anti-tubewear additives will remain a focus. This program supports the standardization and interoperability of legacy and new production weapons and ammunition to maximize battlefield interchangeability/compatibility between domestic US and Allied Nations under the auspices of the international Joint Ballistics Memorandum Of Understanding (JBMOU). Maximizing standardization, interchangeability, and exportability will potentially increase FMS sales of US products to maintain domestic production and economies of scale.

This program also supports the identification, study, analysis and development of fuzing technologies and safe and arm devices in production and in the field. This program will implement these technologies into fuzing systems to preclude obsolescence, maximize standardization, enhance performance, and improve the safety and exportability of existing munitions. The program addresses two major areas: (1) analysis and (2) block upgrades. Analysis efforts will identify second sources for fuzing systems that may reduce cost by providing competition, and maintain production when sources or parts are no longer available. It will also allow for the performance enhancement of current ammunition items by conducting studies of major fuze components to detect and identify latent defects. The second major area is block upgrades, which will identify and perform studies on improvements to fuzes; increase commonality of fuze components and requirements. Block upgrades will enable the introduction of the latest technologies into fuzing, keep the fuzing design current to avoid obsolescence issues, and add capabilities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>
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ER6 - Direct Fire Technology and NATO Ammo Eval: This program funding will be used to support direct fire ammunition from small caliber ammunition, 40mm grenade, medium caliber cannon ammunition and large caliber ammunition enhancements to lethality, effectiveness, survivability, accuracy and general product improvements. In addition, this program assures complete interchangeability of direct fire ammunition and weapons among all the NATO countries with all of the associated logistic, strategic and tactical advantages of the alliance. Project involves development and testing compliance of NATO standardization agreements (STANAGS) and staffing of the North American Regional Test Center (NARTC). FY 2016 funds will be used for a more lethal and safer design for 40mm grenades that will be built and tested. An improved 30mm training round for the Apache helicopter will allow pilots to see where the rounds strike. Warhead improvements for the 30mm Apache ammunition are also under development. A number of studies on potential improvements for training ammunition and better primers will be conducted.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	4.945	-	4.945
Total Adjustments	-	-	4.945	-	4.945
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	4.945	-	4.945

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER2 / <i>Close Combat Technology</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
ER2: <i>Close Combat Technology</i>	-	-	-	0.870	-	0.870	0.550	3.375	1.013	1.127	-	6.935
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

ER2 is a new project in 2016. Grenades MK3A2 Replacement, Concussion Grenade Optimization Effort and Claymore Force-on-Force Training Aids, Devices, Simulators, and Simulations (TADSS) Trainer are efforts previously funded under project 296 PE 0605805A - Munitions Standardization, Effectiveness and Safety.

A. Mission Description and Budget Item Justification

This program includes development efforts to upgrade Close Combat technologies, energetics, and munitions, such as counter explosives, grenades, demolitions, shoulder launched munitions, pyrotechnic simulators, non-lethal ammunition/systems, networked munitions and mines, that have been fielded or have received approval for full rate production. This program will identify, characterize, study, analyze, test and develop technologies to resolve close combat munition reliability, safety, environmental, storage, standardization, obsolescence and manufacturing/producibility issues.

FY 2016 funds will be used to improve the MK3A2 Offensive Hand Grenade and develop an improved Claymore Force-on-Force Training Aids, Device, Simulator and Simulation (TADSS) Trainer.

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

	FY 2014	FY 2015	FY 2016
<p>Title: MK3A2 Replacement, Concussion Grenade Optimization Effort</p> <p>Description: This effort incorporates modern materials and insensitive explosives to provide a safer, producible concussion grenade. Use of the MK3A2 offensive grenade has been suspended due to age and safety issues. The current MK3A2 can expose the Soldier to toxic levels of asbestos. War fighters cannot safely employ the offensive grenade. Alternate munitions such as the M84 do not satisfy User needs for incapacitation of the enemy. Effort will continue to finalize design in anticipation of Production Verification Testing (PVT) in FY16 with type classification in FY17 and full material release in FY18.</p> <p>FY 2016 Plans: Finalize design and specification, produce PVT test quantities, initiate Type Classification/Full Material Release (TC/FMR) documentation and PVT, Final Hazard Classification (FHC) & Insensitive Munitions (IM) testing.</p>	-	-	0.500
<p>Title: Claymore Force-on-Force Training Aids, Devices, Simulators, and Simulations (TADSS) Trainer</p> <p>Description: Develop an improved Claymore Force-on-Force Training Aids, Devices, Simulators, and Simulations (TADSS) Trainer. While the Claymore is one of the most popular items used by the soldier, the system does not have a TADSS trainer with sight, sound & Multiple Integrated Laser Engagement System (MILES) capability. Development of an improved Claymore trainer</p>	-	-	0.370

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER2 / <i>Close Combat Technology</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
will allow Claymore to be trained at Combat Training Centers (CTCs) and will provide more realistic and effective training for the user when they are training Claymore as an end item and when training Claymore as initiated by Spider.			
<i>FY 2016 Plans:</i> Design and test Fireset Board, Non-Pyro Claymore simulation and Multiple Integrated Laser Engagement System (MILES) Emitting Unit. Conduct a Preliminary Design Review, perform user assessments and demonstrations and a preliminary Drop and Loose Cargo test. Conduct a Systems Verification Test. All efforts will lead to delivery of a production representative prototype Claymore TADSS trainer.			
Accomplishments/Planned Programs Subtotals	-	-	0.870

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

N/A

Remarks

D. Acquisition Strategy

Not Applicable for these items.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs	Project (Number/Name) ER2 / Close Combat Technology
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Claymore Force-on-Force TADSS Trainer - Program Management	MIPR	PM CCS : Picatinny Arsenal, NJ	0.000	-		-		0.020		-		0.020	-	0.020	-
MK3A2 Replacement, Concussion Grenade Optimization Effort	MIPR	PM CCS : Picatinny Arsenal	0.000	-		-		0.020		-		0.020	-	0.020	-
Subtotal			0.000	-		-		0.040		-		0.040	-	0.040	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
MK3A2 Replacement, Concussion Grenade Optimization Effort	MIPR	ARDEC : Picatinny Arsenal, NJ	0.000	-		-		0.480		-		0.480	-	0.480	-
Claymore Force-on-Force TADSS Trainer - Design, Develop and Deliver a Production Prototype	MIPR	ARDEC : Picatinny Arsenal, NJ	0.000	-		-		0.350		-		0.350	-	0.350	-
Subtotal			0.000	-		-		0.830		-		0.830	-	0.830	-

Project Cost Totals	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	-	-	0.870	-	0.870	-	0.870	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs	Project (Number/Name) ER2 / Close Combat Technology
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020																				
	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																	
Claymore Force-on-Force TADSS Trainer																																													
Fireset Board Design and Test																																													
Fireset Board Design and Test																																													
Non-Pyro Claymore Simulation Design and Test																																													
Non-Pyro Claymore Simulation Design and Test																																													
Multiple Integrated Laser Engagement Sys (MILES) Emitting Unit Design and Test																																													
MILES Emitting Unit Design and Test																																													
(1) Preliminary Design Review													▲ PDR																																
(2) User Assessments and Demonstrations													▲ User Assessments and Demonstrations																																
Preliminary Drop and Loose Cargo Test																																													
Preliminary Drop and Loose Cargo Test																																													
(3) Systems Verification Test																	▲ SVT																												
(4) Delivery 1 - Production Representative Prototypes																					▲ D1																								
(5) Delivery 2 - Production Representative Prototypes																									▲ D2																				
(6) Delivery 3 - Production Representative Prototypes																													▲ D3																
(7) Technical Data Package - Level 3																																	▲ TDP												
(8) Final Design Review																	▲ FDR																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER2 / <i>Close Combat Technology</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Produce Test Quantity									Produce Test Quantity																			
Detailed Spec, Type Classification/Full Material Release (TC/FMR) D																	TC/FMR Documentation											
Production Validation Testing																	PVT, IM, FHC											
(1) Type Classification																					▲ TC							
(2) Full Material Release																									▲ FMR			

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER2 / <i>Close Combat Technology</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Claymore Force-on-Force TADSS Trainer	1	2016	2	2016
Fireset Board Design and Test	1	2016	2	2016
Non-Pyro Claymore Simulation Design and Test	1	2016	3	2016
Multiple Integrated Laser Engagement Sys (MILES) Emitting Unit Design and Test	1	2016	3	2016
Preliminary Design Review	1	2016	1	2016
User Assessments and Demonstrations	2	2016	2	2016
Preliminary Drop and Loose Cargo Test	4	2016	4	2016
Systems Verification Test	4	2016	4	2016
Delivery 1 - Production Representative Prototypes	2	2017	2	2017
Delivery 2 - Production Representative Prototypes	3	2017	3	2017
Delivery 3 - Production Representative Prototypes	4	2017	4	2017
Technical Data Package - Level 3	4	2017	4	2017
Final Design Review	2	2016	2	2016
Produce Test Quantity	2	2016	3	2016
Detailed Spec, Type Classification/Full Material Release (TC/FMR) Documentation	2	2016	2	2018
Production Validation Testing	3	2016	1	2017
Type Classification	3	2017	3	2017
Full Material Release	3	2018	3	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>				Project (Number/Name) ER5 / <i>Indirect Fire and Fuze Technology</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
ER5: <i>Indirect Fire and Fuze Technology</i>	-	-	-	1.771	-	1.771	1.539	4.779	2.958	2.953	-	14.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program supports product improvement development efforts to upgrade indirect fire weapon systems and munition that have already been fielded and/or are in production. Indirect Fire Weapons and Munitions Product Improvement Programs include enhanced lethality, range extension, improved target engagement; increased reliability, availability, maintainability, and safety; standardization and interoperability with weapons and munitions of Allied Nations; defense exportability features under the auspices of Better Buying Power; reduced taxpayer life-cycle costs; reduction of failure mechanisms and supply chain risk through introduction of new and alternative technology and material solutions; materiel and technology obsolescence mitigation; improvement of manufacturing methods and their associated production and life cycle support processes; new capabilities in response the evolving and emerging threats and countermeasures; and reduction/elimination of potential environmental and health risks associated with these products and their underlying components, materials, and production processes.

This program supports the standardization and interoperability of legacy and new production U.S. weapons and ammunition with Allied Nations to maximize battlefield interchangeability/compatibility under the auspices of the international Joint Ballistics Memorandum Of Understanding (JBMOU). Maximizing standardization, interchangeability, and exportability will also potentially increase Foreign Military Sales (FMS) of U.S. indirect fire Weapon and Munition products to maintain critical mass domestic production and affordable taxpayer costs through increased economies of scale.

This program also supports the identification, study, analysis and development of fuzing technologies and safe and arm devices in production and in the field. This program will implement these technologies into fuzing systems to preclude obsolescence, maximize standardization, enhance performance, and improve the safety and exportability of existing munitions. The program addresses two major areas: (1) analysis and (2) block upgrades. Analysis efforts will identify second sources for fuzing systems that may reduce cost by providing competition, and maintain production when sources or parts are no longer available. It will also allow for the performance enhancement of current ammunition items by conducting studies of major fuze components to detect and identify latent defects. The second major area is block upgrades, which will identify and perform studies on improvements to fuzes; increase commonality of fuze components and requirements. Block upgrades will enable the introduction of the latest technologies into fuzing, keep the fuzing design current to avoid obsolescence issues, and add capabilities.

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

	FY 2014	FY 2015	FY 2016
Title: ARDEC Fuze Technology Improvements	-	-	1.336
Description: Activities include Maturation, Validation, and Risk Reduction of fuze component alternatives to increase sources of supply, improve performance, and lower cost; the integration of fuze initiation improvements to increase reliability and lower fuze costs. Evaluation of fuze electronic upgrades to improve safety and increase performance reliability. Evaluation of inductive fuze setting improvements to lower costs. Evaluation of fuze sensing interface improvements for increased safety.			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER5 / <i>Indirect Fire and Fuze Technology</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p><i>FY 2016 Plans:</i> Block Upgrades: Will mature and evaluate Micro Electro Mechanical Systems (MEMS) component packaging improvements for increased performance and lower cost. Will conduct engineering tests to demonstrate improvements to the mortar fuze electronics. Will conduct tests to prove-out the mortar fuze delay primer improvements. Will mature the mortar fuze impact switch upgrade and integrate with the fuze electronics. Will mature the fuze setback spring interface improvements. Will evaluate improvements to the inductive fuze setter interface and initialization of large caliber indirect fire munitions.</p>			
<p><i>Title:</i> Indirect Fires Weapons And Munitions Standardization and Interoperability</p> <p><i>Description:</i> Activities include maturation, validation, and risk reduction of battlefield interchangeability/compatibility and associated enabling technologies between U.S. and Allied 155mm weapons and munitions.</p> <p><i>FY 2016 Plans:</i> Activities include ballistic testing including firing tables, safety, reliability and performance.</p>	-	-	0.435
Accomplishments/Planned Programs Subtotals	-	-	1.771

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

N/A

Remarks

D. Acquisition Strategy

The Joint Ballistics Memorandum of Understanding (JBMOU) Concerning the Standardization of Elements of 155mm Weapons and Ammo between United States, France, Germany, Italy, and United Kingdom was signed 18 Dec 2009. This is a FY 2016 continuation of live fire testing, evaluation, and validation and any corresponding NATO Armaments Ballistics Kernel (NABK) and Firing Control Input (FCI) database changes, enables battlefield interchangeability of existing/new 155mm cannon munitions between domestic US and NATO/Allied Nations Indirect Fires Weapons And Munitions.

This is a FY 2016 continuation of ARDEC Fuze Technology Integration (FTI) which improves current production munitions by exploiting existing fuzing technologies and inserting them into current production fuzes, providing safer, more producible, and more lethal fuzing solutions. FTI develops second source suppliers and resolve component obsolescence issues to mitigate risk and prevent production interruptions in order to continue to provide safer, more reliable munitions for the Warfighter with significant risk reduction to production fuzes also benefiting the U.S. Taxpayer. FTI will conduct ballistic tests to evaluate proximity sensor improvements that will eliminate the potential of an early M734A1 fuze function due to undesired out-range response and generate the engineering change proposals (ECPs) to incorporate changes into the M734A1 fuze Technical Data Package; will evaluate the omni-directional G-switch performance of the M433 grenade, and evaluate if it will reduce duds, due to improved reliability on soft targets and graze angles. FTI will analyze the design modification to the escapement housing to ensure the M433 High Explosive Dual Purpose (HEDP) round and M918 training rounds will decrease the risk of having a defeated safety. FTI will evaluate the design and integration of the Micro Electro

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army Date: February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER5 / <i>Indirect Fire and Fuze Technology</i>
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Mechanical Systems (MEMS) G-Switch for setback sensing into the M734A1/M783 through analysis, bench and sub-scale testing. FTI will conduct tests to evaluate the delay primer improvements and evaluate changes to the explosive content of the delay primer input cup assembly which will reduce the occurrences of instantaneous firings and will subsequently generate an ECP to incorporate into the M734A1 and M783 fuze(TDPs). FTI will evaluate the improvements to the inductive fuze setter and incorporate the changes to the software that will provide cost savings and simplify integration with future weapon platforms.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 7				PE 0607131A / Weapons and Munitions Product Improvement Programs				ER5 / Indirect Fire and Fuze Technology								
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Fuze Technology Development	MIPR	Picatinny : NJ	0.000	-		-		1.266	Dec 2015	-		1.266	-	1.266	-	
Subtotal			0.000	-		-		1.266		-		1.266	-	1.266	-	
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Government Engineering	MIPR	Picatinny : NJ	0.000	-		-		0.235		-		0.235	-	0.235	-	
Subtotal			0.000	-		-		0.235		-		0.235	-	0.235	-	
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Ballistic Testing	MIPR	Yuma : AZ	0.000	-		-		0.070	Mar 2016	-		0.070	-	0.070	-	
Interoperability Testing	MIPR	Yuma : AZ	0.000	-		-		0.200	Jun 2016	-		0.200	-	0.200	-	
Subtotal			0.000	-		-		0.270		-		0.270	-	0.270	-	
Project Cost Totals			0.000	-		-		1.771		-		1.771	-	1.771	-	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER5 / <i>Indirect Fire and Fuze Technology</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Safe & Arm Device Technology Integration of MEMs G-switch																												
M734A1/M783 Delay Primer Improvements																												
M734A1 Electronics Upgrade																												
M734A1/M783 Impact Switch Upgrade																												
40mm M550 Setback Spring Interface Improvement																												
Fuze Initialization Improvement																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER5 / <i>Indirect Fire and Fuze Technology</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Safe & Arm Device Technology Integration of MEMs G-switch	1	2016	4	2016
M734A1/M783 Delay Primer Improvements	1	2016	4	2016
M734A1 Electronics Upgrade	1	2016	4	2017
M734A1/M783 Impact Switch Upgrade	1	2016	4	2017
40mm M550 Setback Spring Interface Improvement	1	2016	4	2017
Fuze Initialization Improvement	1	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs				Project (Number/Name) ER6 / Direct Fire Technology and NATO Ammo Eval			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
ER6: Direct Fire Technology and NATO Ammo Eval	-	-	-	2.304	-	2.304	2.233	2.836	2.748	2.922	-	13.043
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Direct Fire Technology and NATO Ammo Eval is currently on PE 0605805A Munitions Standardization, Effectiveness and Safety Project F21 for FY 2015 and prior.

A. Mission Description and Budget Item Justification

This program funding will be used to support direct fire ammunition from small caliber ammunition, 40mm grenade, medium caliber cannon ammunition and large caliber ammunition enhancements to lethality, effectiveness, survivability, accuracy and general product improvements. In addition, this program assures complete interchangeability of direct fire ammunition and weapons among all the NATO countries with all of the associated logistic, strategic and tactical advantages of the alliance. Project involves development and testing compliance of NATO standardization agreements (STANAGS) and staffing of the North American Regional Test Center (NARTC).

FY 2016 funds will be used for a more lethal and safer design for 40mm grenades that will be built and tested. An improved 30mm training round for the Apache helicopter will allow pilots to see where the rounds strike. Warhead improvements for the 30mm Apache ammunition are also under development. A number of studies on potential improvements for training ammunition and better primers will be conducted.

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

	FY 2014	FY 2015	FY 2016
Title: New Ammo Design Qualification & NATO Mission Support	-	-	0.200
Description: This program assures complete interchangeability of small caliber and automated cannon-caliber, and 40mm grenade ammunition and weapons among NATO countries to achieve the associated logistic, strategic and tactical advantages.			
FY 2016 Plans: Support NATO small arms ammunition interchangeability group meetings, documentation and test operations.			
Title: Small Caliber Ammunition Training Range Impact Reduction Engineering Study	-	-	0.100
Description: Perform an engineering study on the feasibility of reducing the surface danger zone of small caliber training ammunition while maintaining a ballistic match to the combat ammunition out to maximum effective range of the combat ammunition. The results of the study will assist in establishing the baseline requirements for future training ammunition.			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER6 / <i>Direct Fire Technology and NATO Ammo Eval</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Evaluate .50 Caliber ball and trace potential candidates.				
<p>Title: M433 Warhead Improvement</p> <p>Description: 40mm: Improve lethality (fragmentation) of the M433 grenade.</p> <p>FY 2016 Plans: Demonstrate subsystem and system maturity by conducting two integrated system demonstration tests. Testing will confirm integration maturity and enable improvements in system manufacturing. Contracting actions will be performed to find a source to manufacture developmental test and evaluation hardware.</p>		-	-	0.629
<p>Title: Improved M789 Lethality, Warhead Fragmentation Improvement</p> <p>Description: Improve M789 warhead fragmentation for lethality by utilizing fragmentation sleeves, scoring or other technologies within the warhead to promote more efficient fragmentation.</p> <p>FY 2016 Plans: In FY 2016 program will encompass the production qualification of the improved design.</p>		-	-	0.530
<p>Title: Target Practice Spotter Technology Insertion</p> <p>Description: Training Cartridge with impact initiated spotting charge. Goal is visible signature upon impact under all conditions.</p> <p>FY 2016 Plans: Design Qualification will be pursued in FY 2016.</p>		-	-	0.450
<p>Title: Metastable Intermolecular Composite (MIC) Primer Lead Free Primer</p> <p>Description: Integrate environmental friendly lead free primary explosives within the primer of the M789 and remove lead Styphnate. Conduct small caliber 7.62mm and .50cal testing.</p> <p>FY 2016 Plans: Design and develop automated pilot primer line to include mixing, dispensing, drying and packaging of MIC green primers. Temperature development, mix optimization and initial testing will occur in FY 2016.</p>		-	-	0.100
<p>Title: Support Sniper Ammunition Integration Into Army Standard Sniper Weapons</p> <p>Description: Modify existing sniper ammunition to support integration into new Army standard sniper weapons. Maintain compatibility with legacy sniper weapons while improving operational availability.</p> <p>FY 2016 Plans:</p>		-	-	0.100

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs	Project (Number/Name) ER6 / Direct Fire Technology and NATO Ammo Eval		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
FY 2016 will support ammunition integration into new Army standard sniper weapons. Maintain compatibility with legacy sniper weapons while improving operational availability.				
<p>Title: 120mm Tank Ammunition Propellant High Temperature Improvement</p> <p>Description: Develop improved tank ammunition propellants that can withstand higher temperatures and meet international norms.</p> <p>FY 2016 Plans: Study changes and conduct test fixes to determine extent of engineering required.</p>		-	-	0.100
<p>Title: Modular Handgun Integration</p> <p>Description: Support handgun ammunition integration into new Army standard handgun weapon. Maintain compatibility with handgun weapon while improving operational availability.</p> <p>FY 2016 Plans: FY 2016 will support ammunition integration into new Army standard handgun weapon. Maintain compatibility with legacy handgun weapon while improving operational availability.</p>		-	-	0.050
<p>Title: Close Combat Mission Capability Kit (CCMCK)</p> <p>Description: CCMCK is a user installed weapons modification system, which allows the Soldier to employ weapons at a short range for force-on-force training using low velocity marking ammunition while precluding the weapon from firing standard service ammunition. The system provides normal environmental/weapon employment cues and immediate target feedback through force-on-force, interactive live fire scenario tasks, and mission execution.</p> <p>FY 2016 Plans: Engineering study to analyze unmet user requirements.</p>		-	-	0.025
<p>Title: Improved Door Breach Munition</p> <p>Description: Product improved grenade rifle entry munition to allow rapid breaching beyond current capability.</p> <p>FY 2016 Plans: Qualify improved grenade rifle entry munition to meet user requirements.</p>		-	-	0.020
Accomplishments/Planned Programs Subtotals		-	-	2.304

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER6 / <i>Direct Fire Technology and NATO Ammo Eval</i>
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy No contracts required.		
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015				
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs				Project (Number/Name) ER6 / Direct Fire Technology and NATO Ammo Eval								
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
PM-MAS	MIPR	PM-MAS : Picatinny Arsenal, NJ	0.000	-		-		0.200		-		0.200	-	0.200	-	
Subtotal			0.000	-		-		0.200		-		0.200	-	0.200	-	
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
ARDEC	MIPR	ARDEC : Picatinny Arsenal, NJ	0.000	-		-		1.000		-		1.000	-	1.000	-	
Subtotal			0.000	-		-		1.000		-		1.000	-	1.000	-	
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
NSWC	MIPR	Naval Surface Warfare Center : Dahlgren, VA	0.000	-		-		0.452		-		0.452	-	0.452	-	
ATC	MIPR	Aberdeen Test Center : Aberdeen, MD	0.000	-		-		0.452		-		0.452	-	0.452	-	
NARTC	MIPR	North American Regional Test Center : Rock island, IL	0.000	-		-		0.200		-		0.200	-	0.200	-	
Subtotal			0.000	-		-		1.104		-		1.104	-	1.104	-	
Project Cost Totals			0.000	-		-		2.304		-		2.304	-	2.304	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army							Date: February 2015			
Appropriation/Budget Activity 2040 / 7			R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs			Project (Number/Name) ER6 / Direct Fire Technology and NATO Ammo Eval				
	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER6 / <i>Direct Fire Technology and NATO Ammo Eval</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				
	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	
Testing of Various NATO Caliber Rounds																													
(1) Ammunition Test and Technology Team of Experts Meeting 1									▲ 1																				
(2) Standardization Agreements/Proof of Inspection Test Documents 1													▲ 2																
(3) Standardization Agreements/Proof of Inspection Test Documents 2													▲ 3																
(4) Ammunition Test and Technology Team of Experts Meeting 2													▲ 4																
(5) Standardization Agreements/Proof of Inspection Test Documents 3																	▲ 5												
(6) Standardization Agreements/Proof of Inspection Test Documents 4																	▲ 6												
(7) Ammunition Test and Technology Team of Experts Meeting 3																	▲ 7												
(8) Standardization Agreements/Proof of Inspection Test Documents 5																					▲ 8								
(9) Standardization Agreements/Proof of Inspection Test Documents 6																					▲ 9								
(10) Ammunition Test and Technology Team of Experts Meeting 4																					▲ 10								
(11) Standardization Agreements/Proof of Inspection Test Documents 7																									▲ 11				
(12) Standardization Agreements/Proof of Inspection Test Documents 8																									▲ 12				

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER6 / <i>Direct Fire Technology and NATO Ammo Eval</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020								
	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) Ammunition Test and Technology Team of Experts Meeting 5																									▲								
(2) Standardization Agreements/Proof of Inspection Test Documents 9																													▲ 2				
(3) Standardization Agreements/Proof of Inspection Test Documents 10																													▲ 3				

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i>	Project (Number/Name) ER6 / <i>Direct Fire Technology and NATO Ammo Eval</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Testing of Various NATO Caliber Rounds	1	2016	4	2020
Ammunition Test and Technology Team of Experts Meeting 1	1	2016	1	2016
Standardization Agreements/Proof of Inspection Test Documents 1	2	2016	2	2016
Standardization Agreements/Proof of Inspection Test Documents 2	3	2016	3	2016
Ammunition Test and Technology Team of Experts Meeting 2	1	2017	1	2017
Standardization Agreements/Proof of Inspection Test Documents 3	2	2017	2	2017
Standardization Agreements/Proof of Inspection Test Documents 4	3	2017	3	2017
Ammunition Test and Technology Team of Experts Meeting 3	1	2018	1	2018
Standardization Agreements/Proof of Inspection Test Documents 5	2	2018	2	2018
Standardization Agreements/Proof of Inspection Test Documents 6	3	2018	3	2018
Ammunition Test and Technology Team of Experts Meeting 4	1	2019	1	2019
Standardization Agreements/Proof of Inspection Test Documents 7	2	2019	2	2019
Standardization Agreements/Proof of Inspection Test Documents 8	3	2019	3	2019
Ammunition Test and Technology Team of Experts Meeting 5	1	2020	1	2020
Standardization Agreements/Proof of Inspection Test Documents 9	2	2020	2	2020
Standardization Agreements/Proof of Inspection Test Documents 10	3	2020	3	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0607133A / <i>TRACTOR SMOKE</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	-	7.569	-	7.569	8.256	8.046	8.154	8.687	-	40.712
ET2: <i>Tractor Stove</i>	-	-	-	7.569	-	7.569	8.256	8.046	8.154	8.687	-	40.712

Note

The details of this program are reported in accordance with Title 10, United States Code, Section 119(a)(1).

A. Mission Description and Budget Item Justification

The details of this program are reported in accordance with Title 10, United States Code, Section 119(a)(1).

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	7.569	-	7.569
Total Adjustments	-	-	7.569	-	7.569
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	7.569	-	7.569

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0607135A / <i>Apache Product Improvement Program</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	86.099	69.862	-	69.862	66.131	54.577	31.383	32.917	-	340.969
ES2: <i>Apache Product Improvement Program</i>	-	-	86.099	69.862	-	69.862	66.131	54.577	31.383	32.917	-	340.969

A. Mission Description and Budget Item Justification

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	86.099	69.862	-	69.862
Total Adjustments	-	86.099	69.862	-	69.862
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-	-	-	-	-
• Adjustments to Budget Years	-	86.099	69.862	-	69.862

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607135A / Apache Product Improvement Program				Project (Number/Name) ES2 / Apache Product Improvement Program			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
ES2: Apache Product Improvement Program	-	-	86.099	69.862	-	69.862	66.131	54.577	31.383	32.917	-	340.969
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

For FY 2015 and all outyears, all funding for AH-64E was moved from PE 273744, Project D17 to PE 677135, Project ES2.

A. Mission Description and Budget Item Justification

The FY 2016 budget request for Apache AH-64E, previously known as Apache Block III, will fund the non-recurring engineering (NRE), development, and testing work associated with the planned remanufacture and new build of 690 Apache aircraft in the AH-64E configuration (deliveries began in Oct 2011). The AH-64E - program consists of two Major Defense Acquisition Programs (MDAP), AH-64E Remanufacture and AH-64E New Build. This project also addresses obsolescence and reliability challenges and provides increased combat capability to the aircraft. Upgrades include: Unmanned Aircraft System (UAS) Level III-IV Control, Improved Situational Awareness, Upgraded Communications Suite, Improved Drive and Propulsion Systems, Improved Targeting Capability, Increased Computer Processing Capability and Speed, Improved Navigation Systems, and Improved Diagnostics and Maintainability. Upgrades are integrated as incremental block modifications. The program addresses operational shortfalls identified during real-world combat missions and meets Longbow Apache Capability Production Document (CPD) requirements for modernization.

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

Title: Product Development

Description: Funding is provided for the following efforts by Boeing, Longbow Limited Liability (LBL), and Lockheed Martin

FY 2015 Plans:

Development, Integration & Testing work associated with the planned remanufacture and new build of Apache aircraft in the AH-64E Lot 6 configuration (joint interoperability, crashworthy fuel tank kits, embedded diagnostics, communications, mission processor, and navigation upgrades) and to enhance operational capabilities. Risk reduction for Version 6 CPD capabilities to include cognitive decision aiding, soldier radio waveform, modernized dayside assembly, modernized radio frequency interferometer, maritime targeting, and radar upgrades. Provides NRE for design of the Hydra Launcher Electronics Assembly for development of the MRL.

FY 2016 Plans:

	FY 2014	FY 2015	FY 2016
	-	75.377	62.628

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607135A / Apache Product Improvement Program	Project (Number/Name) ES2 / Apache Product Improvement Program		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Development, Integration & Testing work associated with the planned remanufacture and new build of Apache aircraft in the AH-64E Capability Version 6 configuration (cognitive decision aiding, soldier radio waveform, modernized dayside assembly, modernized radio frequency interferometer, maritime targeting, and radar upgrades) and to enhance operational capabilities.				
Title: Support Costs		-	1.726	1.000
Description: Funding is provided for the following effort.				
FY 2015 Plans: GFE supporting Apache AH-64E tests and government R&D Facilities				
FY 2016 Plans: GFE supporting Apache AH-64E tests and government R&D Facilities.				
Title: Test and Evaluation		-	3.700	3.295
Description: Funding is provided for Development Testing and Evaluation and Operational Test and Evaluation.				
FY 2015 Plans: Funding is provided for Development Testing and Evaluation and Operational Test and Evaluation, Government test oversight, test ranges, flight hour costs for MRL testing.				
FY 2016 Plans: Funding is provided for Development Testing and Evaluation and Operational Test and Evaluation.				
Title: Management Services		-	5.296	2.939
Description: Funding is provided for the following effort: Payroll, TDY, Support Contractors, Matrix Support.				
FY 2015 Plans: Funding is provided for the following effort: Payroll, TDY, Support Contractors, Matrix Support.				
FY 2016 Plans: Funding is provided for the following effort: Payroll, TDY, Support Contractors, Matrix Support.				
Accomplishments/Planned Programs Subtotals		-	86.099	69.862

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607135A / Apache Product Improvement Program	Project (Number/Name) ES2 / Apache Product Improvement Program
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• AH-64 Mods: <i>AH-64 Mods</i>	48.487	181.869	116.153	-	116.153	133.846	177.919	145.955	134.063	-	938.292
• AH-64 Apache Block IIIA Reman: <i>AH-64 Apache Block IIIA Reman</i>	752.600	873.347	1,378.391	-	1,378.391	1,074.191	1,264.377	1,138.097	1,132.134	-	7,613.137
• AH-64 Apache Block IIIB New Build: <i>AH-64</i> <i>Apache Block IIIB New Build</i>	142.000	-	-	-	-	-	-	-	-	-	142.000

Remarks

D. Acquisition Strategy

The NRE will encompass subsystem integration and will utilize existing test aircraft, incorporate the technical insertions, and initiate appropriate qualification and operational flight-testing.

In FY14, a contract for Apache AH-64E Lot 3, initiating Full Rate Production, is planned with options for Lot 4 and will continue to a total of 690 remanufactured and new build aircraft.

Training device concurrency will be maintained with each technical insertion. The EMD effort is managed as Cost Reimbursable. Production efforts will be awarded as Firm Fixed Price (FFP) and include the Advance Procurement requirements.

In FY13, FY14, and FY15 MRL NRE will encompass US Government (USG) design of the Hydra Launcher Electronics Assembly (LEA), modification of the M261 launcher, launcher fabrication, and launcher testing.

In FY15-FY18, Apache AH-64E Development & Integration (D&I) Contract.

Multi-year authority may be requested for the out years.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607135A / Apache Product Improvement Program	Project (Number/Name) ES2 / Apache Product Improvement Program
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Management Services (In-House, Travel, etc.)	MIPR	PMO AAH Matrix Support AMCOM Express : Redstone Arsenal, AL	0.000	-		5.296		2.939	Dec 2016	-		2.939	3.480	11.715	-
Subtotal			0.000	-		5.296		2.939		-		2.939	3.480	11.715	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
The Boeing Company	SS/CPIF	Boeing Contracts : Mesa, AZ	0.000	-		54.377	Apr 2015	55.024	Dec 2016	-		55.024	-	109.401	-
Longbow Limited Liability (LBL) Contracts	SS/CPIF	Longbow Limited Liability (LBL) Contracts : Orlando, FL	0.000	-		9.000		7.604	Dec 2016	-		7.604	-	16.604	-
Ground Fire Acquisition Development (GFAD)	SS/CPIF	TBD : TBD	0.000	-		12.000		-		-		-	-	12.000	-
Subtotal			0.000	-		75.377		62.628		-		62.628	-	138.005	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Support Activities	MIPR	Various : Various	0.000	-		1.726		1.000	Dec 2016	-		1.000	1.568	4.294	-
Subtotal			0.000	-		1.726		1.000		-		1.000	1.568	4.294	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607135A / Apache Product Improvement Program	Project (Number/Name) ES2 / Apache Product Improvement Program
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020						
	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			
NRE Contracts - Boeing	NRE Contracts - Boeing																														

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607135A / <i>Apache Product Improvement Program</i>	Project (Number/Name) ES2 / <i>Apache Product Improvement Program</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NRE Contracts - Boeing	1	2011	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	48.446	66.653	-	66.653	50.153	34.777	18.459	5.829	-	224.317
ES3: <i>Blackhawk Product Improvement Program</i>	-	-	48.446	66.653	-	66.653	50.153	34.777	18.459	5.829	-	224.317

A. Mission Description and Budget Item Justification

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	48.446	66.653	-	66.653
Total Adjustments	-	48.446	66.653	-	66.653
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-	-	-	-	-
• Adjustments to Budget Years	-	48.446	66.653	-	66.653

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i>				Project (Number/Name) ES3 / <i>Blackhawk Product Improvement Program</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
ES3: <i>Blackhawk Product Improvement Program</i>	-	-	48.446	66.653	-	66.653	50.153	34.777	18.459	5.829	-	224.317
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

The H-60L Digital BLACK HAWK, now designated as UH-60V, is designed to update the existing H-60L analog architecture to a digital infrastructure enabling the upgraded aircraft to have a similar Pilot-Vehicle Interface (PVI) to the H-60M. The program will address current capability gaps and meet operational requirements by employing an evolutionary acquisition approach to leverage mature technologies that have been successfully integrated on other military aircraft. The program will reduce obsolescence and increase commonality and interoperability by installing a digital cockpit, bussing and upgrading the communication/identification suite, improving navigation guidance, and integrating Aircraft Survivability Equipment (ASE), digital moving map, and Joint Variable Message Format (JVFM) messaging.

FY 2016 UH-60V funds hardware and software development as well as prototype support. Tasks include build of aircraft 1 and 2, Bench Test Facility Assembly, and developmental testing.

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

	FY 2014	FY 2015	FY 2016
Title: UH-60V	-	48.446	66.653
Description: The UH-60V program provides an integrated digital map, integrated performance planning, common functionality and commonality of training with UH-60M			
FY 2015 Plans: Begin UH-60V cockpit digitization effort, an upgrade program to digitize UH-60V with integrated digital map, performance planning, common Pilot Vehicle Interface (PVI) with UH-60M.			
FY 2016 Plans: Continue UH-60V cockpit digitization effort.			
Accomplishments/Planned Programs Subtotals	-	48.446	66.653

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i>	Project (Number/Name) ES3 / <i>Blackhawk Product Improvement Program</i>

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

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• UH-60 A and L Models A05009: <i>UH-60 Black Hawk A and L Models A05009</i>	-	-	46.641	-	46.641	46.588	75.714	168.304	210.832	-	548.079

Remarks

A05009 UH-60 Black Hawk A and L Models provides procurement funding for UH-60V conversions starting in FY2018.

D. Acquisition Strategy

The UH-60V program plans to leverage a Government-owned Government-operated (GOGO) facility to design, integrate and build 3 production representative aircraft. (2 more aircraft will be built at Corpus Christi Army Depot (CCAD).) The GOGO facility uses a cost plus contract vehicle and will conduct full and open competition for the selection of the avionics solution provider.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 7				PE 0607136A / Blackhawk Product Improvement Program				ES3 / Blackhawk Product Improvement Program								
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
UH-60V - Organic	TBD	Various : Various	0.000	-		3.603	Oct 2014	3.827	Oct 2015	-		3.827	-	7.430	-	
UH-60V - Contractor	TBD	Various : Various	0.000	-		2.573	Oct 2014	2.622	Oct 2015	-		2.622	-	5.195	-	
Subtotal			0.000	-		6.176		6.449		-		6.449	-	12.625	-	
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
UH-60V Development Engineering	C/CPFF	AMRDEC PIF : Redstone Arsenal, AL	0.000	-		39.002	Mar 2015	54.777	Mar 2016	-		54.777	-	93.779	-	
Subtotal			0.000	-		39.002		54.777		-		54.777	-	93.779	-	
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
UH-60V	Various	Huntsville, AL : Huntsville, AL	0.000	-		3.168	Oct 2014	3.511	Oct 2015	-		3.511	-	6.679	-	
Subtotal			0.000	-		3.168		3.511		-		3.511	-	6.679	-	
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
UH-60V	TBD	Redstone Test Center : Redstone Arsenal	0.000	-		0.100	Oct 2014	1.916	Oct 2015	-		1.916	-	2.016	-	
Subtotal			0.000	-		0.100		1.916		-		1.916	-	2.016	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army								Date: February 2015				
Appropriation/Budget Activity 2040 / 7			R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i>				Project (Number/Name) ES3 / <i>Blackhawk Product Improvement Program</i>					
	Prior Years	FY 2014	FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-	48.446		66.653		-		66.653	-	115.099	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i>	Project (Number/Name) ES3 / <i>Blackhawk Product Improvement Program</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
UH-60V Development					UH-60V EMD																							
UH-60V (Trainers/Manuals Development) RDTE					Trainers/Manuals																							
UH-60V Digital Modifications (LRIP) APA					UH-60V LRIP																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i>	Project (Number/Name) ES3 / <i>Blackhawk Product Improvement Program</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
UH-60V Development	4	2014	3	2018
UH-60V (Trainers/Manuals Development) RDTE	3	2018	4	2020
UH-60V Digital Modifications (LRIP) APA	3	2018	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0607137A / Chinook Product Improvement Program							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	35.424	37.407	-	37.407	79.339	73.185	60.865	45.330	-	331.550
ES4: Chinook Product Improvement Program	-	-	35.424	37.407	-	37.407	79.339	73.185	60.865	45.330	-	331.550

Note

PE 273744 Project Number 430 was realigned starting in FY 15 to new PE 0607137A Project Number ES4.

A. Mission Description and Budget Item Justification

The CH-47 Chinook is the only heavy lift helicopter for the Army and is an essential element of the current Army Aviation master plan. This program funds improvements to the CH-47F System that include: T55-GA-714A engine control and component upgrades to increase power to support emerging 6K/95 requirements, continued development and testing of the Advanced Chinook Rotor Blades (ACRB) which will provide increased lift in high/hot conditions and reduce O&S costs. Production of the ACRB will begin in FY 2018. Funding also initiates advanced flight control and drive train component improvements to improve aircraft performance. Development of requirements specifications, studies and risk reduction prototyping are also part of this effort.

B. Program Change Summary (\$ in Millions)

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	35.424	37.407	-	37.407
Total Adjustments	-	35.424	37.407	-	37.407
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• PE & PROJECT 273744 430 realigned to 0607137A ES4	-	35.424	37.407	-	37.407

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607137A / Chinook Product Improvement Program				Project (Number/Name) ES4 / Chinook Product Improvement Program			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
ES4: Chinook Product Improvement Program	-	-	35.424	37.407	-	37.407	79.339	73.185	60.865	45.330	-	331.550
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

The CH-47 Chinook is the only heavy lift helicopter for the Army and is an essential element of the current Army Aviation master plan. This program funds improvements to the CH-47F System that include: T55-GA-714A engine control and component upgrades to increase power to support emerging 6K/95 requirements, continued development and testing of the Advanced Chinook Rotor Blades (ACRB) which will provide increased lift in high/hot conditions and reduce O&S costs. Production of the ACRB will begin in FY 2018. Funding also initiates advanced flight control and drive train component improvements to improve aircraft performance. Development of requirements specifications, studies and risk reduction prototyping are also part of this effort.

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

	FY 2014	FY 2015	FY 2016
<p>Title: Electronic Control Unit (ECU) Software Upgrade</p> <p>Description: This effort is to develop, generate, and qualify the latest software version of the T55-GA-714A Electronic Control Unit. Effort will correct any deficiencies noted in the field and/or incorporate upgrades as needed.</p> <p>FY 2015 Plans: This effort is to develop, generate, and qualify the latest software version of the T55-GA-714A Electronic Control Unit. Effort will correct any deficiencies noted in the field and/or incorporate upgrades as needed.</p> <p>FY 2016 Plans: This effort is to develop, generate, and qualify the latest software version of the T55-GA-714A Electronic Control Unit. Effort will correct any deficiencies noted in the field and/or incorporate upgrades as needed.</p>	-	3.505	2.485
<p>Title: Ratio Detector Power Supply (RDPS)</p> <p>Description: This effort will consist of design, development, and qualification of a replacement T55-GA-714A Engine Ratio Detector Power Supply (RDPS) and torque head to alleviate obsolescence issues with the current system.</p> <p>FY 2015 Plans:</p>	-	2.665	3.010

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i>	Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>This effort will consist of design, development, and qualification of a replacement T55-GA-714A Engine Ratio Detector Power Supply (RDPS) and torque head to alleviate obsolescence issues with the current system.</p> <p>FY 2016 Plans: This effort will consist of design, development, and qualification of a replacement T55-GA-714A Engine Ratio Detector Power Supply (RDPS) and torque head to alleviate obsolescence issues with the current system.</p>				
<p>Title: Modernization Integration</p> <p>Description: The Modernization Integration effort is aimed at system engineering, associated programmatic activity, manufacturing and modification planning, integrated test planning, and associated logistics planning that will coordinate multiple independent engineering change proposals into a ground and flight test program.</p> <p>FY 2015 Plans: This effort provides the systems engineering approach to ensure successful integration of upgrades at the platform level to realize efficiencies and reduce costs.</p> <p>FY 2016 Plans: The Modernization Integration effort is aimed at system engineering, associated programmatic activity, manufacturing and modification planning, integrated test planning, and associated logistics planning that will coordinate multiple independent engineering change proposals into a ground and flight test program.</p>		-	11.396	4.181
<p>Title: Advanced Chinook Rotor Blade (ACRB)</p> <p>Description: This effort provides an Advanced Chinook Rotor Blade which is a redesign of the current rotor blade to provide increased hover lift in payload capability. It improves high/hot performance and is a Form, Fit, Function replacement for the legacy blade.</p> <p>FY 2015 Plans: This effort provides an Advanced Chinook Rotor Blade which is a redesign of the current rotor blade to provide increased hover lift in payload capability. It improves high/hot performance and is a Form, Fit, Function replacement for the legacy blade.</p> <p>FY 2016 Plans: This effort provides an Advanced Chinook Rotor Blade which is a redesign of the current rotor blade to provide increased hover lift in payload capability. It improves high/hot performance and is a Form, Fit, Function replacement for the legacy blade.</p>		-	8.350	15.184
<p>Title: Improved Drive Train</p>		-	5.396	7.266

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i>	Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>Description: This effort addresses Operation and Support Cost reduction while simultaneously re-qualifying the combining, forward, and aft transmissions to a higher power level to utilize engine power available at sea-level conditions. The effort also supports the development of the MH-47 and CH-47 Active Parallel Actuator System effort that provides pilot tactical cueing and high accuracy torque measurement. Funding completes Preliminary Design Review and begins Phase II effort.</p> <p>FY 2015 Plans: The Improved Drive Train effort addresses Operation and Support cost reduction while simultaneously re-qualifying the combining, forward and aft transmissions to a higher power level to utilize engine power available at sea-level conditions. The effort also supports the development of the MH-47 and CH-47 Active Parallel Actuator System effort that provides pilot tactical cueing and high accuracy torque measurement.</p> <p>FY 2016 Plans: The Improved Drive Train effort addresses Operation and Support cost reduction while simultaneously re-qualifying the combining, forward and aft transmissions to a higher power level to utilize engine power available at sea-level conditions. The effort also supports the development of the MH-47 and CH-47 Active Parallel Actuator System effort that provides pilot tactical cueing and high accuracy torque measurement.</p>				
<p>Title: In-house and Program Management Administration</p> <p>Description: This funding provides support costs for various government agencies.</p> <p>FY 2015 Plans: This funding provides support costs for various government agencies.</p> <p>FY 2016 Plans: This funding provides support costs for various government agencies.</p>		-	1.771	1.781
<p>Title: Testing and Evaluation</p> <p>Description: This effort incorporates all testing requirements to integrate numerous Engineering Change Proposals (ECPs) into one system level requirement to include Advanced Chinook Rotor Blade (ACRB).</p> <p>FY 2015 Plans: This effort incorporates all testing requirements to integrate numerous Engineering Change Proposals (ECPs) into one system level requirement to include Advanced Chinook Rotor Blade (ACRB).</p> <p>FY 2016 Plans:</p>		-	2.341	3.500

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i>	Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
This effort incorporates all testing requirements to integrate numerous Engineering Change Proposals (ECPs) into one system level requirement to include Advanced Chinook Rotor Blade (ACRB).			
Accomplishments/Planned Programs Subtotals	-	35.424	37.407

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• AA0252: CH-47 CARGO HELICOPTER MODS	91.064	32.092	86.330	-	86.330	103.672	144.866	90.339	90.582	Continuing	Continuing
• A05105: CH-47 SLEP (Including Adv Proc)	639.021	758.622	766.111	-	766.111	735.775	307.254	233.343	242.331	Continuing	Continuing
• A05008: CH-47 CARGO HELICOPTER NEW BUILD	290.005	236.243	357.820	-	357.820	0.197	268.764	-	-	-	1,153.029

Remarks
The CH-47F program replaces one for one, the aging CH-47D aircraft by FY2020, incorporates a new machined airframe, and includes a new Common Avionics Architecture System (CAAS) cockpit with digital communication/navigation capability allowing improved interoperability on the digital battlefield. The CH-47F program includes recapitalization of key dynamic components, bringing them to a near zero time.

D. Acquisition Strategy
N/A

E. Performance Metrics
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0607137A / Chinook Product Improvement Program				Project (Number/Name) ES4 / Chinook Product Improvement Program							
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Electronic Control Unit (ECU) Software Upgrade	SS/CPFF	Honeywell : Phoenix, AZ	0.000	-		3.505	May 2015	2.485	Mar 2016	-		2.485	Continuing	Continuing	Continuing
Ratio Dectector Power Supply (RDPS)	SS/CPFF	Boeing Ridley : Park, PA	0.000	-		2.665	Jun 2015	3.010	Mar 2016	-		3.010	Continuing	Continuing	Continuing
Modernization Integration	SS/CPFF	Boeing Ridley : Park PA	0.000	-		11.396	May 2015	4.181	Mar 2016	-		4.181	Continuing	Continuing	Continuing
Advanced Chinook Rotor Blade (ACRB)	SS/CPFF	Boeing Ridley : Park PA	0.000	-		8.350	Jun 2015	15.184	Dec 2016	-		15.184	Continuing	Continuing	Continuing
Improved Drive Train	SS/CPFF	Boeing Ridley : Park, PA	0.000	-		5.396	May 2015	7.266	Jan 2016	-		7.266	Continuing	Continuing	Continuing
Subtotal			0.000	-		31.312		32.126		-		32.126	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
PMO/OGA	Various	Various Government : Redstone Arsenal AL	0.000	-		1.771	Mar 2015	1.781	Dec 2015	-		1.781	Continuing	Continuing	Continuing
Subtotal			0.000	-		1.771		1.781		-		1.781	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Testing of configuration update ECPs to include the Advanced Chinook Rotor Blades	SS/CPFF	Boeing Ridley : Park PA	0.000	-		2.341	May 2015	3.500	Mar 2016	-		3.500	Continuing	Continuing	Continuing
Subtotal			0.000	-		2.341		3.500		-		3.500	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army								Date: February 2015					
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i>				Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i>					
	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		35.424		37.407		-		37.407	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i>	Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Full Rate Production					Full Rate Production																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i>	Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Full Rate Production	2	2015	2	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0607138A / Fixed Wing Product Improvement Program							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	0.819	1.151	-	1.151	0.999	1.085	2.256	1.790	-	8.100
ES5: Fixed Wing Product Improvement Program	-	-	0.819	1.151	-	1.151	0.999	1.085	2.256	1.790	-	8.100

A. Mission Description and Budget Item Justification

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	0.819	1.151	-	1.151
Total Adjustments	-	0.819	1.151	-	1.151
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-	-	-	-	-
• Adjustments to Budget Years	-	0.819	1.151	-	1.151

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: ES5: Fixed Wing Product Improvement Program

Congressional Add: Program Increase

	FY 2014	FY 2015
	-	0.819
Congressional Add Subtotals for Project: ES5	-	0.819
Congressional Add Totals for all Projects	-	0.819

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607138A / Fixed Wing Product Improvement Program				Project (Number/Name) ES5 / Fixed Wing Product Improvement Program			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
ES5: Fixed Wing Product Improvement Program	-	-	0.819	1.151	-	1.151	0.999	1.085	2.256	1.790	-	8.100
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Funding for this PE was previously on PE 0203744A Project D18 - Aircraft Modifications/Product Improvement Programs

A. Mission Description and Budget Item Justification

The budget line provides for Non-Recurring Engineering (NRE), development of supplemental type certificates (STC) and associated developmental testing, and integration of all Army fixed wing aircraft to provide Communications, Navigation and Surveillance (CNS), Aircraft Survivability Equipment (ASE), and Department of Defense (DoD) mandated safety equipment to meet current and evolving international and Army standards. FY 2016 Research, Development, Test and Evaluation (RDT&E) dollars in the amount of \$1.151 million provides funding for developmental NRE for aircraft modifications to CNS, ASE, and integration of Intelligence, Surveillance and Reconnaissance (ISR) Mission Equipment Packages (MEP). The increased performance will permit the Army fixed wing aircraft to operate in compliance with other existing and emerging regulations. As requirements for new avionics equipment continue, aircraft delays and airspace exclusions are likely for aircraft not properly equipped. Upgrade of communication and aircraft modifications will assure worldwide deployability for those required to deploy. This budget line will also provide funding for studies, evaluations and Analysis of Alternatives to support emerging Army fixed wing requirements for product improvements to support the Army fleet.

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

	FY 2014	FY 2015	FY 2016
Title: Non-recurring Engineering	-	-	1.082
Description: Non-recurring engineering efforts provide improved performance to Army fixed wing aircraft for communication, navigation, and surveillance equipment.			
FY 2016 Plans: Non-recurring engineering efforts provide improved performance to Army fixed wing aircraft for communication, navigation, and surveillance equipment.			
Title: Program Management	-	-	0.069
Description: Program Management of PM FW			
FY 2016 Plans: Program Management of PM FW			
Accomplishments/Planned Programs Subtotals	-	-	1.151

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607138A / <i>Fixed Wing Product Improvement Program</i>	Project (Number/Name) ES5 / <i>Fixed Wing Product Improvement Program</i>

	FY 2014	FY 2015
Congressional Add: Program Increase	-	0.819
FY 2015 Plans: Program Increase		
Congressional Adds Subtotals	-	0.819

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

N/A

Remarks

D. Acquisition Strategy

The US Army Fixed Wing acquisition and modernization strategy leverages commercial derivative aircraft through the use of supplemental type certificates (STC) and associated testing and includes cockpit modernization for civil and tactical upgrades of military unique equipment and integration of Intelligence, Surveillance and Reconnaissance (ISR) Mission Equipment Packages (MEP). Cockpit modernization upgrades include items such as dual Flight Management Systems, Terrain Area Warning Systems, transponder, Mode S/5 transponders, Satellite Communications, Traffic Alert and Collision Avoidance II, Flight Data Recorders, Cockpit Voice Recorders, communication radios, military Global Positioning System (GPS), Wide Area Augmentation System/ Localizer Performance with Vertical Guidance, Automatic Dependence Surveillance Broadcast (ADS-B) Out, M-code GPS, Blue Force Tracker, and Smart books. ISR MEP upgrades include integration of multi-intelligence systems.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607138A / Fixed Wing Product Improvement Program	Project (Number/Name) ES5 / Fixed Wing Product Improvement Program
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Management Support	Various	PM Fixed Wing : Redstone Arsenal, AL	0.000	-		-		0.069		-		0.069	-	0.069	-
Subtotal			0.000	-		-		0.069		-		0.069	-	0.069	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Fixed Wing Non-recurring Engineering	Various	Various : Various	0.000	-		0.819		1.082		-		1.082	-	1.901	-
Subtotal			0.000	-		0.819		1.082		-		1.082	-	1.901	-

Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract			
Project Cost Totals			0.000	-		0.819		1.151		-		1.151	-	1.970	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607138A / Fixed Wing Product Improvement Program	Project (Number/Name) ES5 / Fixed Wing Product Improvement Program
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
FW Non-recurring Engineering																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607138A / <i>Fixed Wing Product Improvement Program</i>	Project (Number/Name) ES5 / <i>Fixed Wing Product Improvement Program</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FW Non-recurring Engineering	4	2014	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607139A / <i>Improved Turbine Engine Program</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	49.328	51.164	-	51.164	99.728	169.765	171.555	178.608	-	720.148
ES6: <i>Improved Turbine Engine Program</i>	-	-	49.328	51.164	-	51.164	99.728	169.765	171.555	178.608	-	720.148

Note

For Fiscal Year (FY) 2014 and prior, all funding for ITEP was contained in Program Element (PE) 0203744A – Aircraft Modifications/Product Improvement Programs, Project 504. FY 2015 funding has moved from PE 0203744A, Project EB1 to PE 0607139A, Project ES6.

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification: The Improved Turbine Engine Program (ITEP) develops, tests, qualifies, and integrates the next generation turboshaft engine on the Blackhawk and Apache aircraft. The Improved Turbine Engine (ITE) replaces the existing T700 engine design originated in the 1970's and meets the operational requirement of 6K/95. The ITE will fit inside the existing engine bays of the Black Hawk and Apache Helicopters and provides a significant power enhancement of up to fifty percent (total of 3,000 shaft horsepower) with increased fuel efficiency. Additional benefits include improved design life, enhanced reliability, lower maintenance cost and restored capability lost due to aircraft weight growth, without increasing the logistics footprint. The program consists of systems engineering and program management, detailed design engineering, design assurance, hardware manufacturing and testing, component and module level development and testing, system level testing and qualification, as well as integration into the airframe.

FY 2015 funding provides for systems engineering/program management in support of draft and formal Request For Proposal (RFP) release, initial Source Selection Evaluation Board (SSEB) for Preliminary Design Review (PDR) competitive contracts, and platform/engine integration trade studies. FY 2016 funding provides for dual vendor competitive PDR contract awards, initial engine design effort, and continues platform/engine integration trade studies. FY 2017 continues engine design effort and platform/engine integration trade studies. FY 2018 funds the remaining PDR engine design effort, the Engineering Manufacturing and Development (EMD) SSEB for entry into Milestone B (MS B), EMD contract award, and continues platform/engine integration trade studies. FY 2019 continues both the EMD effort and platform/engine integration trade studies, and results in a Critical Design Review (CDR) in FY 2019. FY 2020 continues both the EMD effort and platform/engine integration trade studies. FY 2021 continues the EMD effort, provides for First Engine To Test (FETT), and begins physical airframe integration.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607139A / <i>Improved Turbine Engine Program</i>
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B. Program Change Summary (\$ in Millions)	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	49.328	51.164	-	51.164
Total Adjustments	-	49.328	51.164	-	51.164
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	49.328			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	51.164	-	51.164

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607139A / Improved Turbine Engine Program				Project (Number/Name) ES6 / Improved Turbine Engine Program			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
ES6: Improved Turbine Engine Program	-	-	49.328	51.164	-	51.164	99.728	169.765	171.555	178.608	-	720.148
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

For Fiscal Year (FY) 2014 and prior, all funding for ITEP was contained in Program Element (PE) 0203744A – Aircraft Modifications/Product Improvement Programs, Project 504. FY 2015 funding has moved from PE 0203744A, Project EB1 to PE 0607139A, Project ES6.

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification: The Improved Turbine Engine Program (ITEP) develops, tests, qualifies, and integrates the next generation turboshaft engine on the Blackhawk and Apache aircraft. The Improved Turbine Engine (ITE) replaces the existing T700 engine design originated in the 1970's and meets the operational requirement of 6K/95. The ITE will fit inside the existing engine bays of the Black Hawk and Apache Helicopters and provides a significant power enhancement of up to fifty percent (total of 3,000 shaft horsepower) with increased fuel efficiency. Additional benefits include improved design life, enhanced reliability, lower maintenance cost and restored capability lost due to aircraft weight growth, without increasing the logistics footprint. The program consists of systems engineering and program management, detailed design engineering, design assurance, hardware manufacturing and testing, component and module level development and testing, system level testing and qualification, as well as integration into the airframe.

FY 2015 funding provides for systems engineering/program management in support of draft and formal Request For Proposal (RFP) release, initial Source Selection Evaluation Board (SSEB) for Preliminary Design Review (PDR) competitive contracts, and platform/engine integration trade studies. FY 2016 funding provides for dual vendor competitive PDR contract awards, initial engine design effort, and continues platform/engine integration trade studies. FY 2017 continues engine design effort and platform/engine integration trade studies. FY 2018 funds the remaining PDR engine design effort, the Engineering Manufacturing and Development (EMD) SSEB for entry into Milestone B (MS B), EMD contract award, and continues platform/engine integration trade studies. FY 2019 continues both the EMD effort and platform/engine integration trade studies, and results in a Critical Design Review (CDR) in FY 2019. FY 2020 continues both the EMD effort and platform/engine integration trade studies. FY 2021 continues the EMD effort, provides for First Engine To Test (FETT), and begins physical airframe integration.

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

	FY 2014	FY 2015	FY 2016
Title: ITEP	-	49.328	51.164
Description: ITEP - a multi-platform turbine engine improvement required across existing Army aircraft to fill the capability gaps for Army Aviation Operations			
FY 2015 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607139A / <i>Improved Turbine Engine Program</i>	Project (Number/Name) ES6 / <i>Improved Turbine Engine Program</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Systems Engineering/Program Management requirements. Draft and formal RFP release and initial SSEB for dual vendor competitive PDR effort. Funds OEM aircraft trade studies and preliminary integration activities. <i>FY 2016 Plans:</i> Systems Engineering/Program Management requirements. Provides for dual vendor competitive PDR contract awards, initial engine design effort, and continues aircraft platform/engine integration trade studies.			
Accomplishments/Planned Programs Subtotals	-	49.328	51.164

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

N/A

Remarks

For Fiscal Year (FY) 2014 and prior, all funding for ITEP was contained in Program Element (PE) 0203744A – Aircraft Modifications/Product Improvement Programs, Project 504. FY 2015 funding has moved from PE 0203744A, Project EB1 to PE 0607139A, Project ES6.

D. Acquisition Strategy

Full and Open Competition is planned for the ITEP Preliminary Design Review (PDR) contracts. Award Fixed Price Incentive (Firm Target) contracts in FY 2016 to no more than two vendors for PDR.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607139A / Improved Turbine Engine Program	Project (Number/Name) ES6 / Improved Turbine Engine Program
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
ITEP SEPM - Organic	TBD	PMO Huntsville, AL Various : PMO Huntsville, AL Various	0.000	-		7.241		10.696		-		10.696	-	17.937	-
ITEP SEPM - Contractor	TBD	PMO Huntsville, AL Various : PMO Huntsville, AL Various	0.000	-		2.178		2.433		-		2.433	-	4.611	-
ITEP SEPM - OGA	TBD	PMO Huntsville, AL Various : PMO Huntsville, AL Various	0.000	-		5.211		2.335		-		2.335	-	7.546	-
Subtotal			0.000	-		14.630		15.464		-		15.464	-	30.094	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
ITEP PDR Contracts	C/FPIF	Various : Various	0.000	-		-		29.800		-		29.800	-	29.800	-
ITEP Air Vehicle Platform Integration	SS/IDIQ	Various : Various	0.000	-		34.698		5.900		-		5.900	-	40.598	-
Subtotal			0.000	-		34.698		35.700		-		35.700	-	70.398	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
	Project Cost Totals		0.000	-	49.328	51.164	51.164	-	100.492

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607139A / Improved Turbine Engine Program	Project (Number/Name) ES6 / Improved Turbine Engine Program
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Improved Turbine Engine Program Systems Engineering/Program Manag	ITEP SEPM																											
Improved Turbine Engine Program Development Engineering	ITEP PDR																											
Improved Turbine Engine Program Detailed Design (EMD)	ITEP Detailed Design (EMD)																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607139A / <i>Improved Turbine Engine Program</i>	Project (Number/Name) ES6 / <i>Improved Turbine Engine Program</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Improved Turbine Engine Program Systems Engineering/Program Management	1	2015	1	2026
Improved Turbine Engine Program Development Engineering	2	2016	2	2018
Improved Turbine Engine Program Detailed Design (EMD)	3	2018	1	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607140A / <i>Emerging Technologies from NIE</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	4.916	2.481	-	2.481	2.506	2.532	2.559	2.584	-	17.578
ES7: <i>Emerging Technologies from NIE</i>	-	-	4.916	2.481	-	2.481	2.506	2.532	2.559	2.584	-	17.578

Note

Congressional Directed Transfer: Funding and Requirements were transferred from PE 0203758 Project EC8 to this newly established Program Element.

A. Mission Description and Budget Item Justification

Emerging Technologies from NIE supports the Army's Equipment Modernization Strategy, Army Force Generation (ARFORGEN) and consolidates capabilities to gain efficiencies. IAW the National Defense Authorization Act 804 and support of OSD's reports to Congress, the Army is poised to implement the "Agile Business Process" that will result in an iterative and incremental approach to software development and hardware/software capability integration. This process will improve effectiveness in the identification, assessment and acquisition of capability solutions for the Army.

B. Program Change Summary (\$ in Millions)

	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	4.916	2.481	-	2.481
Total Adjustments	-	4.916	2.481	-	2.481
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-	4.916	2.481	-	2.481

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607140A / <i>Emerging Technologies from NIE</i>				Project (Number/Name) ES7 / <i>Emerging Technologies from NIE</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
<i>ES7: Emerging Technologies from NIE</i>	-	-	4.916	2.481	-	2.481	2.506	2.532	2.559	2.584	-	17.578
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

As a result of the language that was incorporated into the Senate Report 112-196 that accompanied the Department of Defense Appropriations Bill 2013, House Report 5856, Project EC8 "Emerging Technologies from NIE's was established under PE 0203758A "Digitization" specifically for the transition of promising technologies from NIEs to the field, particularly those developed by nontraditional vendors.

Congressional Directed Transfer in 2014: Funding and Requirements were transferred from PE 02037558 Project EC8 to this newly established Project under PE 06047140.

Program control will be exercised by review of individual projects and approval by Army Gatekeepers, much like the Network Integration Evaluation (NIE) Program (PE 0604798A).

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

	FY 2014	FY 2015	FY 2016
Title: Emerging Technologies from NIEs	-	4.916	2.481
Description: To mature, test, integrate and evaluate traditional and nontraditional small business and industry's technologies.			
FY 2015 Plans: These funds will be used to mature, test, and integrate small business and industry technologies that are demonstrated and evaluated during various NIE Events. This includes improvements of technologies from previous NIEs that will be then evaluated and baselined at a NIE for fielding in a Capability Set (CS). The technologies that will benefit from these funds for further development are dependent upon the Gatekeeper's approval. These funds will affect technologies from NIE 15.1, (2 QTR FY15), NIE 15.2 (4QTR FY15) and/or NIE 16.1 (2QTR FY16).			
FY 2016 Plans: These funds will be used to mature, test, and integrate small business and industry technologies that are demonstrated and evaluated during various NIE Events. This includes improvements of technologies from previous NIEs that will be then evaluated and baselined at a NIE for fielding in a Capability Set (CS). The technologies that will benefit from these funds for further			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607140A / <i>Emerging Technologies from NIE</i>	Project (Number/Name) ES7 / <i>Emerging Technologies from NIE</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
development are dependent upon the Gatekeeper's approval. These funds will affect technologies from NIE 16.1, (2 QTR FY16), NIE 16.2 (4QTR FY16) and/or NIE 17.1 (2QTR FY17).			
Accomplishments/Planned Programs Subtotals	-	4.916	2.481

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

N/A

Remarks

This is the only project within this Program Element.

D. Acquisition Strategy

Technologies will be selected dependent upon the Gatekeeper's approval.

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607140A / <i>Emerging Technologies from NIE</i>	Project (Number/Name) ES7 / <i>Emerging Technologies from NIE</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
NIE 15.1 Planning - Execution																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607140A / <i>Emerging Technologies from NIE</i>	Project (Number/Name) ES7 / <i>Emerging Technologies from NIE</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NIE 15.1 Planning - Execution	3	2013	1	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607141A / <i>Logistics Automation</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	3.592	3.652	1.673	-	1.673	4.815	4.424	3.645	3.690	Continuing	Continuing
DY1: <i>Logistics Information Warehouse (LIW)</i>	-	1.093	1.477	0.301	-	0.301	2.174	1.940	1.475	1.493	Continuing	Continuing
DY2: <i>Lead Material Integrator (LMI) (DST)</i>	-	2.499	2.175	1.372	-	1.372	2.641	2.484	2.170	2.197	Continuing	Continuing

Note
 Prior to FY 2014, these efforts were programmed and funded within the PE 0303141A Global Combat Support System-Army (GCSS-A). In FY 2014, this PE was created to move non GCSS-A efforts out of PE 0303141A.

The FY 2016 funding request was reduced by \$1.988 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

The Logistics Information Warehouse (LIW) has been designated by the Secretary of the Army as the primary system for the accessing, acquiring, and delivery of materiel data. This includes data from all sources designated as Authoritative, as well as, system derived data and appropriate reference data. This data will be used in support of materiel sourcing and distribution and other Materiel Enterprise missions. It enables Command visibility of business intelligence and resulting metrics for critical logistics components enabling enterprise-level analytics to be performed in support of the equipping mission within the Army's Tiered Readiness processes. LOGSA and its LIW suite of products and services provide the Army community with vital logistics data necessary for the planning, conducting and sustainment of war fighting capability worldwide. The LMI-DST directly supports Tiered Readiness by linking available equipment to the Generated Force model. Specifically, LMI-DST synchronizes an Army authoritative Demand Signal for manning, equipping, services & infrastructure and authoritative resourcing (money) information, resulting in an accurate prediction of a ready and properly equipped force. The Army Financial Liability Investigation of Property Loss Tracker (AFT) tool is a web-based, automated FLIPL processing and tracking system which provides an electronic FLIPL documentation packet that includes intelligent, digital versions of required forms and allows for attachment of supporting documentation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0607141A / <i>Logistics Automation</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	3.715	3.654	3.661	-	3.661
Current President's Budget	3.592	3.652	1.673	-	1.673
Total Adjustments	-0.123	-0.002	-1.988	-	-1.988
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-0.123	-0.002	-1.988	-	-1.988

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607141A / <i>Logistics Automation</i>				Project (Number/Name) DY1 / <i>Logistics Information Warehouse (LIW)</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DY1: <i>Logistics Information Warehouse (LIW)</i>	-	1.093	1.477	0.301	-	0.301	2.174	1.940	1.475	1.493	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Logistics Information Warehouse (LIW) is designated as the Army's authoritative materiel data repository. As chartered by the Secretary of The Army, LIW will provide enterprise-accepted and trusted information for analysis, aggregation, and reuse in support of the Lead Materiel Integrator (LMI) mission. As an Army enterprise-level repository and retrieval system to facilitate accurate choices and rapid decision making. Specifically, LIW will provide all required data structured in a way that allows for querying and reporting; e.g., equipment authorizations, equipment on-hand, new procurement schedules, RESET production schedules and in transit visibility from origin and distribution to final destination, in support of the information needs of the Army Materiel Command (AMC) and other command logistics managers. This includes data from all sources designated as authoritative, as well as system derived data and appropriate reference data. This data will be used in support of materiel sourcing and distribution and other Materiel Enterprise missions. LIW enables visibility of business intelligence and resulting metrics for critical logistics components enabling enterprise-level analytics to be performed in support of the equipping mission within the Army's Tiered Readiness processes. LIW supports the tenants of Mission Command by logistically empowering the Commander to successfully integrate and synchronize logistics information with warfighter functions in time and space to maximize potential for mission success. **ADDITIONAL CAPABILITIES:** LIW provides the data and custom business intelligence environment to enable Command-specific analysis and presentation of business intelligence displays to satisfy unique command management requirements. LIW serves as the single logistics repository which bridges the Army ERP systems (GCSS-Army, LMP, AESIP, GFEBs) with enduring legacy systems.

LOGSA is requesting RDT&E funds to develop and host the Army Financial Liability Investigation of Property Loss Tracker (AFT) tool. The AFT will be a web-based, automated FLIPL processing and tracking system which provides an electronic FLIPL documentation packet that includes intelligent, digital versions of required forms and allows for attachment of supporting documentation. The AFT will be designed to follow the DA Form 7531, instructing and assisting investigating officers, records managers, and commanders in the proper execution of the FLIPL process. The AFT will have business intelligence and work flow processing that ensures FLIPLs contain the key documents critical to a supportable FLIPL and the resulting determinations.

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

	FY 2014	FY 2015	FY 2016
Title: LIW	1.093	1.477	0.301
Description: Execution of tasks to create Army Logistics Repository.			
FY 2014 Accomplishments: Execute Priority Group 3 Sprint, continue Best of Breed.			
FY 2015 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607141A / <i>Logistics Automation</i>	Project (Number/Name) DY1 / <i>Logistics Information Warehouse (LIW)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Execute Priority Group 3 Sprint, continue Best of Breed.				
FY 2016 Plans: Execute Priority Group 3 Sprint, continue Best of Breed.				
Accomplishments/Planned Programs Subtotals		1.093	1.477	0.301
C. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
D. Acquisition Strategy Utilize contract services available through LITES contract vehicle in CHESS.				
E. Performance Metrics N/A				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army										Date: February 2015			
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607141A / <i>Logistics Automation</i>					Project (Number/Name) DY1 / <i>Logistics Information Warehouse (LIW)</i>			

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Priority Group 3 Sprint, continue Best of Breed	TBD	TBD - Recompete : Huntsville, AL	0.000	1.093		1.477		0.301		-		0.301	Continuing	Continuing	Continuing
Subtotal			0.000	1.093		1.477		0.301		-		0.301	-	-	-
Project Cost Totals			0.000	1.093		1.477		0.301		-		0.301	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607141A / <i>Logistics Automation</i>	Project (Number/Name) DY1 / <i>Logistics Information Warehouse (LIW)</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Priority Group 3 Sprint, Best of Breed																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607141A / <i>Logistics Automation</i>	Project (Number/Name) DY1 / <i>Logistics Information Warehouse (LIW)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Priority Group 3 Sprint, Best of Breed	4	2014	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607141A / Logistics Automation				Project (Number/Name) DY2 / Lead Material Integrator (LMI) (DST)			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DY2: Lead Material Integrator (LMI) (DST)	-	2.499	2.175	1.372	-	1.372	2.641	2.484	2.170	2.197	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Lead Materiel Integrator Decision Support Tool (LMI DST) is a software solution, resident within the Logistics Information Warehouse, that supports the Army Materiel Command in its mission as the Army Lead Materiel Integrator as well as materiel managers at Army Commands, Army Service Component Commands, Direct Reporting Units, Corps and Divisions with making informed equipping decisions. The LMI DST directly supports Army Forces Generation (ARFORGEN) by linking available equipment to the Generated Force model.

Specifically, development will enable the tool to consume and display additional data sources, such as maintenance data from both legacy and Enterprise data sources - a critical capability during the fielding of GCSS-Army; provide additional modules, including Second Destination Transportation Planning, supporting USARC and NGB requirements to deprecate legacy systems and a Readiness Cost Banding module to implement analysis algorithms to deliver decisions to optimize readiness within Army cost constraints. New development will also enable equippers to redistribute items, based on their level of modernization, limiting transportation costs of moving outdated equipment.

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

	FY 2014	FY 2015	FY 2016
Title: LMI/DST	2.499	2.175	1.372
Description: The Lead Materiel Integrator Decision Support Tool (LMI DST) is a software solution, resident within the Logistics Information Warehouse.			
FY 2014 Accomplishments: Development of LMI DST Version 5.			
FY 2015 Plans: Development of LMI DST Version 5.			
FY 2016 Plans: Development of LMI DST Version 5.			
Accomplishments/Planned Programs Subtotals	2.499	2.175	1.372

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army Date: February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607141A / <i>Logistics Automation</i>	Project (Number/Name) DY2 / <i>Lead Material Integrator (LMI) (DST)</i>
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C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy

The LMI DST is a development effort to meet the Secretary of the Army's intent in designating the Army Materiel Command as the Lead Materiel Integrator and the Logistics Information Warehouse (LIW) as the authoritative repository of Army logistics domain data. The LMI DST integrates logistics domain data from the LIW with materiel demand requirements from the Readiness Enterprise to enable automated decision support for equippers throughout the Army. In August 2011, a sole source contract was awarded to ProModel Corporation to leverage their COTS modeling and simulation capability, the ProModel Application Framework to develop the Lead Materiel Integrator Decision Support Tool, which is a GOTS product. The project utilizes an agile development methodology. Versions 1-4 were released on a six-month cadence between December 2011 and April 2013. LMI DST development and sustainment have been transitioned to LOGSA's Information and Technology Services Contract. Requirements for additional development were collected from Army Commands and vetted through a General Officer Steering Committee, chaired by Army Materiel Command. RDTE funding supports future major version releases.

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607141A / <i>Logistics Automation</i>	Project (Number/Name) DY2 / <i>Lead Material Integrator (LMI) (DST)</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Development of LMI DST Version 5																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607141A / <i>Logistics Automation</i>	Project (Number/Name) DY2 / <i>Lead Material Integrator (LMI) (DST)</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development of LMI DST Version 5	4	2014	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0607664A / Biometric Enabling Capability (BEC)
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	1.332	-	-	-	-	-	-	-	-	1.332
EG4: Biometrics Enabling Capability	-	-	1.332	-	-	-	-	-	-	-	-	1.332

Note

No FY 16 RDT&E is requested as the Army is currently undergoing an Analysis of Alternatives (AoA) update to determine the appropriate course of action for the future Biometrics Enabling Capability system. The Army has decided to use the current DoD ABIS capability to meet mission requirements; funding for DoD ABIS to support this strategy is found in the Family of Biometrics Program Element (PE) 0607665ADT2.

A. Mission Description and Budget Item Justification

The Biometrics Enabling Capability (BEC) product office has full life-cycle management responsibility of the upgraded authoritative biometrics enterprise repository system, known as DoD Automated Biometrics Identification System (DoD ABIS). DoD ABIS is an information technology system that supports identity superiority by providing the critical capability for Warfighters to identify known or suspected terrorists and third country nationals in the course of military operations. DoD ABIS is the authoritative biometrics enterprise system that provides matching, sharing and storing of biometrics data. The capability can receive multi-model biometrics submissions to include iris, face, palm and finger prints from biometrics collection devices, which will support the Warfighter in making, retain, capture or release decisions. The system has a direct impact on the availability of critical intelligence information that is of vital interest to DoD and other government agencies, including Department of Justice (DoJ), Federal Bureau of Investigation (FBI), Department of Homeland Security (DHS), and Department of State (DoS).

Justification:

No FY 16 RDT&E is requested as the Army is currently undergoing an Analysis of Alternatives (AoA) update to determine the appropriate course of action for the future Biometrics Enabling Capability system. The Army has decided to use the current DoD ABIS capability to meet mission requirements; funding for DoD ABIS to support this strategy is found in the Family of Biometrics Program Element (PE) 0607665ADT2.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0607664A / <i>Biometric Enabling Capability (BEC)</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	1.332	11.156	-	11.156
Current President's Budget	-	1.332	-	-	-
Total Adjustments	-	-	-11.156	-	-11.156
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-	-	-11.156	-	-11.156

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607664A / <i>Biometric Enabling Capability (BEC)</i>				Project (Number/Name) EG4 / <i>Biometrics Enabling Capability</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EG4: <i>Biometrics Enabling Capability</i>	-	-	1.332	-	-	-	-	-	-	-	-	1.332
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project 0607664A was created for the FY 2015 President's Budget to clearly delineate between the future Biometrics Enabling Capability (Authoritative Biometrics System) and Family of Biometrics (current Authoritative Biometrics Repository System) efforts. Project 0607664A does not represent a New Start program, the funding in this PE was previously included in PE 0607665A.

A. Mission Description and Budget Item Justification

The Biometrics Enabling Capability (BEC) product office has full life-cycle management responsibility of the upgraded authoritative biometrics enterprise repository system, known as DoD Automated Biometrics Identification System (DoD ABIS). DoD ABIS is an information technology system that supports identity superiority by providing the critical capability for Warfighters to identify known or suspected terrorists and third country nationals in the course of military operations. DoD ABIS is the authoritative biometrics enterprise system that provides matching, sharing and storing of biometrics data. The capability can receive multi-model biometrics submissions to include iris, face, palm and finger prints from biometrics collection devices, which will support the Warfighter in making, retain, capture or release decisions. The system has a direct impact on the availability of critical intelligence information that is of vital interest to DoD and other government agencies, including Department of Justice (DoJ), Federal Bureau of Investigation (FBI), Department of Homeland Security (DHS), and Department of State (DoS).

Justification:

No FY 16 RDT&E is requested as the Army is currently undergoing an AOA update to determine the appropriate course of action for the future Biometrics Enabling Capability system. The Army has decided to use the current DoD ABIS capability to meet the mission requirements; funding to support this strategy for DoD ABIS is found in the Family of Biometrics Program Element (PE) 0607665ADT2

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

	FY 2014	FY 2015	FY 2016
Title: DoD ABIS v1.2	-	1.332	-
Description: Supports development and testing activities for the DoD ABIS v1.2			
FY 2015 Plans: FY15 Base RDT&E funding is addressing software problem fixes, information assurance vulnerability management (IAVM) additions and integration support to DoD ABIS v1.2.			
Accomplishments/Planned Programs Subtotals	-	1.332	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607664A / <i>Biometric Enabling Capability (BEC)</i>	Project (Number/Name) EG4 / <i>Biometrics Enabling Capability</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• Other Procurement, Army Base: <i>Biometrics Enabling Capability-OPA</i>	3.800	-	-	-	-	-	-	-	-	-	3.800
• Operations and Maintenance: <i>Biometrics Enabling Capability-OMA</i>	7.250	5.748	16.675	-	16.675	-	-	-	-	-	29.673
• RDT&E: <i>Family of Biometrics-</i> <i>RDTE-0607665ADT2</i>	7.160	-	11.770	-	11.770	-	-	-	-	-	18.930

Remarks

D. Acquisition Strategy

The Army will apply funds to a service life extension of the current capability until an AoA update is completed to determine the future course of action for the Biometrics Enabling Capability system.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607664A / <i>Biometric Enabling Capability (BEC)</i>	Project (Number/Name) EG4 / <i>Biometrics Enabling Capability</i>
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Product Development	C/CPFF	Various : Various	0.000	-		1.332		-		-		-	-	1.332	-
Subtotal			0.000	-		1.332		-		-		-	-	1.332	-
Project Cost Totals			0.000	-		1.332		-		-		-	-	1.332	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607664A / <i>Biometric Enabling Capability (BEC)</i>	Project (Number/Name) EG4 / <i>Biometrics Enabling Capability</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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) Systems Engineering Support & Test Planning																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607664A / <i>Biometric Enabling Capability (BEC)</i>	Project (Number/Name) EG4 / <i>Biometrics Enabling Capability</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
(1) Systems Engineering Support & Test Planning	1	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607665A / <i>Family of Biometrics</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	7.160	-	13.237	-	13.237	1.459	0.723	1.474	1.489	Continuing	Continuing
DT2: <i>Non-MIP Biometrics</i>	-	7.160	-	11.770	-	11.770	-	-	-	-	-	18.930
DU2: <i>Management Agency</i>	-	-	-	1.467	-	1.467	1.459	0.723	1.474	1.489	Continuing	Continuing

Note

FY14 funds provided via ATR 14-11PA.

A. Mission Description and Budget Item Justification

The Biometrics Enabling Capability (BEC) product office has full life-cycle management responsibility of the upgraded authoritative biometrics enterprise repository system, known as DoD Automated Biometrics Identification System (DoD ABIS). DoD ABIS is an information technology system that supports identity superiority by providing the critical capability for Warfighters to identify known or suspected terrorists and third country nationals in the course of military operations. DoD ABIS is the authoritative biometrics enterprise system that provides matching, sharing and storing of biometrics data. The capability can receive multi-model biometrics submissions to include iris, face, palm and finger prints from biometrics collection devices, which will support the Warfighter in making, retain, capture or release decisions. The system has a direct impact on the availability of critical intelligence information that is of vital interest to DoD and other government agencies, including Department of Justice (DoJ), Federal Bureau of Investigation (FBI), Department of Homeland Security (DHS), and Department of State (DoS).

The Defense Forensics and Biometrics Agency (DFBA) as the Executive Manager for Army Biometrics acts as the DoD proponent to establish and maintain Research, Development, Test & Evaluation (RDTE) and information management support throughout the Armed Services. DFBA leads in the development and implementation of biometric technologies for Combatant Commands (CCMDs), Services, and Agencies; delivers capabilities that contribute to the enhancement of the biometric community; increases Joint Service interoperability and; empowers the warfighter by improving operational effectiveness on the battlefield. The DFBA strategy pursues technology opportunities through scientific discovery and makes investments responsive to specific requirements identified by combat developers. These directives are carried out by DFBA's Office of the Chief Scientist (OCS). OCS coordinates all science and technology (S&T) efforts and oversees the RDT&E program.

Justification:

FY16 Research Development Test and Evaluation (RDT&E) funding in the amount of \$11.770 million supports integration and testing of upgraded Commercial Off the Shelf (COTS) Search Core software to replace obsolete technology and extend the service life of the DoD ABIS system baseline. Funds will also support software upgrades to the Electronic Biometrics Transmission Specification (EBTS 2.0) to comply with current DoD Information Technology Standards Registry (DISR) EBTS 3.0 Standards.

FY 2016 funding in the amount of \$1.467 million will provide DFBA the ability to actively manage internal and external research efforts to ensure scientific merit, feasibility, and DFBA objectives and requirements are met. DFBA conducts biometric T&E activities, including standards conformance and Automated Biometric Identification System (ABIS) interoperability assessments, supporting DoD acquisition organizations, and providing subject matter expertise to DoD and non-DoD government stakeholders.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0607665A / <i>Family of Biometrics</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	7.160	-	13.237	-	13.237
Total Adjustments	7.160	-	13.237	-	13.237
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	7.160	-	13.237	-	13.237

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607665A / <i>Family of Biometrics</i>				Project (Number/Name) DT2 / <i>Non-MIP Biometrics</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DT2: <i>Non-MIP Biometrics</i>	-	7.160	-	11.770	-	11.770	-	-	-	-	-	18.930
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Biometrics Enabling Capability (BEC) product office has full life-cycle management responsibility of the upgraded authoritative biometrics enterprise repository system, known as DoD Automated Biometrics Identification System (DoD ABIS). DoD ABIS is an information technology system that supports identity superiority by providing the critical capability for Warfighters to identify known or suspected terrorists and third country nationals in the course of military operations. DoD ABIS is the authoritative biometrics enterprise system that provides matching, sharing and storing of biometrics data. The capability can receive multi-model biometrics submissions to include iris, face, palm and finger prints from biometrics collection devices, which will support the Warfighter in making, retain, capture or release decisions. The system has a direct impact on the availability of critical intelligence information that is of vital interest to DoD and other government agencies, including Department of Justice (DoJ), Federal Bureau of Investigation (FBI), Department of Homeland Security (DHS), and Department of State (DoS).

Justification:

FY16 Research Development Test and Evaluation (RDT&E) funding in the amount of \$11.770 million supports integration and testing of upgraded Commercial Off the Shelf (COTS) Search Core software to replace obsolete technology and extend the service life of the DoD ABIS system baseline. Funds will also support software upgrades to the Electronic Biometrics Transmission Specification (EBTS 2.0) to comply with current DoD Information Technology Standards Registry (DISR) EBTS 3.0 Standards.

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

	FY 2014	FY 2015	FY 2016
Title: DoD ABIS v1.2	7.160	-	11.770
Description: Supports development and testing activities for the DoD ABIS v1.2			
FY 2014 Accomplishments: FY14 Base RDT&E funding will support prime system integrator support, Master Recovery System testing and deployment and Joint Interoperability Test Command (JITC) interoperability testing.			
FY 2016 Plans: FY16 Base RDT&E funding will support two key software development activities to upgrade and test the Search Core and upgrade the EBTS in support of the service life extension to the DoD ABIS system baseline.			
Accomplishments/Planned Programs Subtotals	7.160	-	11.770

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 I 7	R-1 Program Element (Number/Name) PE 0607665A / Family of Biometrics	Project (Number/Name) DT2 I Non-MIP Biometrics
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPA: Biometrics Enabling Capability-OPA	3.800	-	-	-	-	-	-	-	-	-	3.800
• OMA: Biometrics Enabling Capability-OMA	7.250	5.748	16.675	-	16.675	-	-	-	-	-	29.673
• R&D: Biometrics Enabling Capability-RDTE-0607664AEG4	-	1.332	-	-	-	-	-	-	-	-	1.332

Remarks

D. Acquisition Strategy

The Army Acquisition Strategy for this program is to upgrade critical software components to extend the service life of the current capability and transition to sustainment.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607665A / Family of Biometrics	Project (Number/Name) DT2 / Non-MIP Biometrics
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
PM Management Services	C/FFP	Alexandria : Virginia	15.829	-		-		-		-		-	-	15.829	-
Subtotal			15.829	-		-		-		-		-	-	15.829	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Product Development	C/CPFF	Various : various	81.349	4.670		-		-		-		-	-	86.019	-
Search Core Upgrade	C/CPFF	TBD : TBD	0.000	-		-		9.270		-		9.270	-	9.270	-
EBTS 3.0 Upgrade	C/CPFF	TBD : TBD	0.000	-		-		2.500		-		2.500	-	2.500	-
Subtotal			81.349	4.670		-		11.770		-		11.770	-	97.789	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
PM Civilian Personnel	TBD	Alexandria : Virginia	3.358	-		-		-		-		-	-	3.358	-
Other Support Costs (Facility Related Expenses)	TBD	Alexandria : Virginia	0.794	-		-		-		-		-	-	0.794	-
Subtotal			4.152	-		-		-		-		-	-	4.152	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 and Evaluation (System Testing)	MIPR	Army Test and Evaluation (ATEC); Joint Interoperability Test Command : Various Locations	0.792	2.490		-		-		-		-	-	3.282	-
Subtotal			0.792	2.490		-		-		-		-	-	3.282	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607665A / Family of Biometrics	Project (Number/Name) DT2 / Non-MIP Biometrics
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	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	102.122	7.160	-	11.770	-	11.770	-	121.052	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607665A / Family of Biometrics	Project (Number/Name) DT2 / Non-MIP Biometrics
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020							
	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) IOT&E																																
(2) System Engineering Support & Test Planning																																
(3) FOT&E																																
(4) System Sustainment																																
(5) Search Core Upgrade																																
(6) EBTS 3.0 Upgrade																																
(7) Data Center Consolidation																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607665A / <i>Family of Biometrics</i>	Project (Number/Name) DT2 / <i>Non-MIP Biometrics</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
(1) IOT&E	3	2014	4	2014
(2) System Engineering Support & Test Planning	1	2015	4	2015
(3) FOT&E	1	2015	4	2015
(4) System Sustainment	1	2016	4	2020
(5) Search Core Upgrade	2	2016	1	2018
(6) EBTS 3.0 Upgrade	2	2016	1	2018
(7) Data Center Consolidation	1	2017	2	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607665A / Family of Biometrics				Project (Number/Name) DU2 / Management Agency			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DU2: Management Agency	-	-	-	1.467	-	1.467	1.459	0.723	1.474	1.489	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Defense Forensics and Biometrics Agency (DFBA) as the Executive Manager for Army biometrics acts as the DoD proponent to establish and maintain Research, Development, Test & Evaluation (RDTE) and information management support throughout the armed services. DFBA leads in the development and implementation of biometric technologies for Combatant Commands (CCMDs), Services, and Agencies; delivers capabilities that contribute to the enhancement of the biometric community; increases Joint Service interoperability and; empowers the warfighter by improving operational effectiveness on the battlefield. The DFBA strategy pursues technology opportunities through scientific discovery and makes investments responsive to specific requirements identified by combat developers. These directives are carried out by DFBA's Office of the Chief Scientist (OCS). OCS coordinates all science and technology (S&T) efforts and oversees the RDT&E program.

Justification:

FY2016 funding in the amount of \$1.467 million will provide DFBA the ability to actively manage internal and external research efforts to ensure scientific merit, feasibility, and DFBA objectives and requirements are met. DFBA conducts biometric T&E activities, including standards conformance and Automated Biometric Identification System (ABIS) interoperability assessments, supporting DoD acquisition organizations, and providing subject matter expertise to DoD and non-DoD government stakeholders.

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

	FY 2014	FY 2015	FY 2016
Title: Development and Implementation of Biometric Technologies	-	-	1.467
Description: Development and Implementation of Biometric Technologies			
FY 2016 Plans: FY2016 funding in the amount of \$1.467 million will provide DFBA the ability to actively manage internal and external research efforts to ensure scientific merit, feasibility, and DFBA objectives and requirements are met. DFBA conducts biometric T&E activities, including standards conformance and Automated Biometric Identification System (ABIS) interoperability assessments, supporting DoD acquisition organizations, and providing subject matter expertise to DoD and non-DoD government stakeholders.			
Accomplishments/Planned Programs Subtotals	-	-	1.467

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

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607665A / <i>Family of Biometrics</i>	Project (Number/Name) DU2 / <i>Management Agency</i>
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D. Acquisition Strategy

Support DoD Acquisition organizations in developmental testing, systems integration, and/or independent verification and validation of biometric systems.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607665A / Family of Biometrics	Project (Number/Name) DU2 / Management Agency
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
BIMA RDTE efforts	MIPR	Various Activities : Various locations	7.814	-		-		1.467		-		1.467	Continuing	Continuing	-
Subtotal			7.814	-		-		1.467		-		1.467	-	-	-
Project Cost Totals			7.814	-		-		1.467		-		1.467	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607665A / Family of Biometrics	Project (Number/Name) DU2 / Management Agency
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
BIMA RDTE Efforts																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607665A / <i>Family of Biometrics</i>	Project (Number/Name) DU2 / <i>Management Agency</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
BIMA RDTE Efforts	1	2016	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	33.935	57.962	105.816	-	105.816	131.365	167.013	129.318	115.517	Continuing	Continuing
DV8: <i>Patriot Product Improvement</i>	-	33.935	57.962	105.816	-	105.816	131.365	167.013	129.318	115.517	Continuing	Continuing

Note
 FY15 Congressional reduction; program increase only for counter-EA improvements
 FY16 Across the board reductions to the planned efforts.

A. Mission Description and Budget Item Justification

PATRIOT is an advanced Surface-to-Air guided missile system with a high probability of kill, capable of operation in the presence of Electronic Countermeasures (ECM) and able to conduct multiple simultaneous engagements against high performance air breathing targets and ballistic missiles likely to be encountered by U.S. Forces. The PATRIOT Product Improvement Program provides for the upgrade of the PATRIOT System through individual materiel changes and upgrades to the PATRIOT system to address operational lessons learned, enhancements to joint force interoperability, and other system performance improvements to provide overmatch capability with the emerging threat. Efforts will be made to expedite PATRIOT materiel solutions (e.g. Radar Digital Processor, Communications Upgrades, address Tactical Ballistic Missile (TBM) capability, Combat ID, and Advanced ECM improvements) to both enhance capability and facilitate integration into the Integrated Air and Missile Defense (IAMD) architecture. Near term efforts are modifications and FY15 initiates competitive modernization through development of the Lower Tier Air & Missile Defense-Capability (LTAMD-C).

The software funding provides improvements to the PATRIOT system against the evolving threat. This effort supports work with national agencies to evaluate, assess, and develop means to mitigate threat trends and specific threat developments potentially impacting system performance, and prioritize the improvements in the overall development cycle. Specific improvements may be developed and fielded under this task if warranted. The effort maintains the Mission Tailoring Database, responding to immediate tactical concerns; Database updates are fielded between major software upgrades as necessary.

FY2016 base dollars continue Software Improvement for Threat Evolution, Upper Tier Debris Mitigation (UTDM), Radar Digital Processor (RDP) Development, RDP Waveform Suite, THAAD PATRIOT Interoperability, Advanced Electronic Counter Measures (AECM), Tasks 2, 6, and 7 activities, Combat ID Enhancements, Common Warfighter Machine Interface (CWMI), Lower Tier Air & Missile Defense-Capability (LTAMD-C), Concept Development and Anti-Radiation Missile (ARM) Asset Defense for the PATRIOT Product Improvement Program (PIP).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0607865A / <i>Patriot Product Improvement</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	35.034	152.991	143.939	-	143.939
Current President's Budget	33.935	57.962	105.816	-	105.816
Total Adjustments	-1.099	-95.029	-38.123	-	-38.123
• Congressional General Reductions	-	-0.029			
• Congressional Directed Reductions	-	-95.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.099	-			
• Adjustments to Budget Years	-	-	-38.123	-	-38.123

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i>				Project (Number/Name) DV8 / <i>Patriot Product Improvement</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DV8: <i>Patriot Product Improvement</i>	-	33.935	57.962	105.816	-	105.816	131.365	167.013	129.318	115.517	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Continues effort funded in PE 273801A - PATRIOT PROD IMP PGM (Project 036).

A. Mission Description and Budget Item Justification

Software Improvements for threat evolution: Performs necessary analysis and development efforts to maintain PATRIOT system effectiveness against evolving threat technologies and specific threat capabilities. This effort identifies evolving threats and threat characteristics that might present a challenge to PATRIOT's current capabilities and develops initial concepts to maintain system effectiveness relative to these threats.

Upper-Tier Debris Mitigation (UTDM): Implements algorithms to mitigate system impacts of debris from Upper Tier intercepts associated with operating in the Ballistic Missile Defense System (BMDS) environment. Debris from Upper Tier intercepts can cause significant radar loading effects and the potential for erroneous engagements and missile wastage on debris.

Radar Digital Processor (RDP) Development: Incorporates improvements to mitigate radar hardware obsolescence, improves Reliability, Availability and Maintainability (RAM) and improves performance of the PATRIOT Radar Set against evolving threat sets. This program includes the implementation of Identification Friend or Foe (IFF) Mode 5 Level 1 / Level 2, and a Non-Cooperative Target Recognition (NCTR) Combat ID technique to mitigate potential fratricide risk, and the development of CONOPS to incorporate the new Combat ID capabilities into system operation. The RDP also provides the necessary radar processing capability to support follow-on Evolutionary Development Program (EDP) Tasks 6 and 7 to counter emerging threats and provide data necessary to support migration to IAMD. The RDP is a pre-requisite for migration to an IAMD Netted Sensor.

RDP Waveform Suite: Develops a comprehensive set of waveforms in the RDP to improve PATRIOT radar capabilities against current and evolving threats, including support to Task 6 and 7 efforts(see below),and implements advanced data collection enabled by the RDP to support further system improvements. The RDP implementation allows significant radar waveform improvements necessary to counter evolving threats.

SIPRNet/NIPRNet Access Point/Troposcatter (SNAP/TROPO): Provides hardware interfaces to support extended range communications within the battalion (TROPO) and Force Operations interfaces to satellite for access to SIPR/NIPR worldwide communication networks.

THAAD/PATRIOT Interoperability: Implements improvements to THAAD/PATRIOT Interoperability and addresses Joint Defense Network (JDN) deficiencies that impact Tactical Ballistic Missile (TBM) battle management and force/engagement operations. Efforts will be concentrated on joint, collaborative force operations (defense design and planning) and enhanced Tactical Digital Information Link - Joint (TADIL J) interoperability.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i>	Project (Number/Name) DV8 / <i>Patriot Product Improvement</i>
<p>Advanced Electronic Counter Measures (AECM): This task investigates the implications of advanced technology Digital Radio Frequency Memory (DRFM) available on airborne platforms that enables new ECM techniques which could adversely affect Air and Missile Defense System effectiveness.</p> <p>Task 2: Implements improved ground system and interceptor capabilities (Patriot Advanced Capability-2 / Guidance Enhanced Missiles(PAC-2/GEM), Patriot Advanced Capability-3 (PAC-3), and Missile Segment Enhancement (MSE)) to counter stressing TBM threats.</p> <p>Task 6: Software improvements enhance discrimination of higher altitude TBM Re-entry Vehicles (RVs) from associated objects to support the full engagement capabilities of the interceptor. Longer-range detection, track, and improved high-altitude discrimination are required to achieve the required lethality performance against the RV and to mitigate missile wastage against separation debris. This task leverages the signal processing capabilities of the RDP, and supports the high altitude engagements required by the Patriot Advanced Capability-3 (PAC-3) and PAC-3 Missile Segment Enhancement (MSE) missiles.</p> <p>Task 7: Software improvements analyze existing and evolving TBM countermeasures and their effects on Patriot system effectiveness. Develops concepts to address countermeasure effects and ensure the Patriot system maintains its effectiveness. Develops detailed system requirements to implement concepts; design/code/test software implementation leveraging RDP, Modernized Adjunct Processor (MAP), Enhanced Weapons Control Computer - Emulator (EWCC-E) and Flight Solution Computer - Redesign (FSC-R) processing capabilities.</p> <p>Combat ID Enhancements: Develop and implement improvements to the RDP-C Combat ID capabilities and additional NCTR technique to further mitigate misclassification and fratricide risk, and to provide the Warfighter with improved situational awareness.</p> <p>Common Warfighter-Machine Interface (CWMI): Leverages modern manstation capabilities to implement CWMI concepts to improve training commonality and cost-efficiency, and to provide better situational awareness. Brings the man-machine interface under development for the IBCS program into the legacy Patriot system so that while the IAMD Battle Command System (IBCS) is fielding, the warfighter has the same interface whether he/she is fighting the battle from legacy Patriot or from the IBCS. The incorporation of CWMI significantly mitigates the impact to the Institutional Training Base (ITB) and manning requirements during the 8-year transition from legacy Patriot to the IBCS system.</p> <p>Lower Tier Air & Missile Defense-Capability (LTAMD-C), Concept Study: This task provides studies for initial concepts and performance capabilities related to the implementation of an Active Electronically Scanned Array (AESA) transmitter/antenna into the Patriot radar. These assessments are needed to refine user community expectations and requirements, and to prepare a viable set of requirements to support a competitive modernization competition.</p> <p>Anti-Radiation Missile (ARM) Asset Defense: Provides improved capability for Patriot to protect other Army and Joint Services Sensors from ARM attacks. Builds on an initial capability provided in Post-Deployment Build (PDB)-7 by determining remaining gaps, identifying and evaluating alternatives, and implementing further improvements.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i>	Project (Number/Name) DV8 / <i>Patriot Product Improvement</i>
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Lower Tier Air & Missile Defense-Capability (LTAMD-C): LTAMD Capability tasks include all the programmatic and engineering activities needed for the LTAMD Capability Materiel Development Decision (MDD), Analysis of Alternatives (AOA), and Business Case Analyses/Trades. Once the material solution has been determined, the development effort for LTAMD-C will be accomplished. These activities will continue through the Technology Maturation and Risk Reduction (TMRR) and Engineering and Manufacturing Development (EMD) phase to enable the prototyping, development, and testing of the LTAMD Capability.

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

	FY 2014	FY 2015	FY 2016
Title: PATRIOT Product Improvement	33.935	57.962	105.816
Description: Software Improvement for Threat Evolution			
FY 2014 Accomplishments: Continued Software Improvement for Threat Evolution. Radar Digital Processor (RDP) continued development to support U.S. FY 2016 fielding. Supported improvements for the Advanced Electronic Counter Measures (AECM), SIPRNet/NIPRNet Access Point/Troposcatter (SNAP/TROPO), Lower Tier Air & Missile Defense-Capability (LTAMD-C), Concept Development, Combat ID Enhancements, and Task 6 efforts for the PATRIOT Product Improvement Program (PIP).			
FY 2015 Plans: Continues Software Improvement for Threat Evolution. Radar Digital Processor development continues efforts to support U.S. FY 2016 fielding, providing the field with additional capability and growth potential to counter stressing threats. Continues efforts for AECM, Combat ID Enhancements, Tasks 2, 6, and 7 activities, SNAP/TROPO, Lower Tier Air & Missile Defense-Capability (LTAMD-C), and Concept Development for the PATRIOT Product Improvement Program (PIP).			
FY 2016 Plans: Continues Software Improvement for Threat Evolution. Continues efforts for AECM, RDP Development, Lower Tier Air & Missile Defense-Capability (LTAMD-C), Concept Development, Combat ID Enhancements, THAAD/ PATRIOT Interoperability, and Tasks 2, 6, and 7 activities. Begins RDP Waveform Suite development, Anti-Radiation Missile (ARM) Asset Defense, Common Warfighter-Machine Interface (CWMI) and Upper-Tier Debris Mitigation for the PATRIOT Product Improvement Program (PIP).			
Accomplishments/Planned Programs Subtotals	33.935	57.962	105.816

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

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2016</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• C50700: <i>Patriot Mods (C50700)</i>	326.438	183.838	241.883	-	241.883	207.692	321.879	354.907	197.147	Continuing	Continuing

Remarks

The improvements/enhancements developed through the PATRIOT Product Improvement Program (PIP) are procured and installed under the Missile Procurement, Army (MIPA) appropriation's PATRIOT Mods program.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607865A / Patriot Product Improvement	Project (Number/Name) DV8 / Patriot Product Improvement

D. Acquisition Strategy

The design objective of the PATRIOT system was to provide a baseline system capable of modification to cope with continuing threat evolution. This program minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems. The PATRIOT Product Improvement Program upgrades the PATRIOT system to address operational lessons learned, enhancements to joint force interoperability and communications, and other system performance improvements to provide overmatch capability against the emerging threat. Upgrades are implemented through individual hardware and software materiel changes and fielded incrementally. This program encompasses several changes which will require the use of a variety of acquisition methods to develop, test, procure and field. Future software capabilities will be incorporated into future PDB releases.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607865A / Patriot Product Improvement	Project (Number/Name) DV8 / Patriot Product Improvement
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Program Management	Various	RSA, AL : MIPR	0.538	0.600	Oct 2013	0.762	Oct 2014	0.400	Oct 2015	-		0.400	Continuing	Continuing	Continuing
U.S. Contracts	C/FFP	Intuitive Research and Technology Corp. (IRTC) : Huntsville, AL	0.361	-		1.800	Feb 2015	1.600	Feb 2016	-		1.600	Continuing	Continuing	Continuing
Subtotal			0.899	0.600		2.562		2.000		-		2.000	-	-	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Software Improvement for Threat Evolution	Various	Multiple : Multiple	5.370	7.500	Jan 2014	8.900	Jan 2015	9.600	Jan 2016	-		9.600	Continuing	Continuing	-
Upper Tier Debris Mitigation (UTDM)	Various	Multiple : Multiple	0.000	-		-		5.000	Jan 2016	-		5.000	Continuing	Continuing	-
Radar Digital Processor (RDP) Development	Various	Raytheon : Andover, Massachusetts	23.300	16.335	Aug 2014	8.700	Jan 2015	1.500	Jan 2016	-		1.500	Continuing	Continuing	-
SNAP/TROPO	Various	Multiple : Multiple	0.000	2.000	Feb 2014	0.400	Feb 2015	-		-		-	Continuing	Continuing	-
RDP Waveform Suite	Various	Raytheon : Andover, Massachusetts	0.000	-		-		2.000	Jan 2016	-		2.000	Continuing	Continuing	-
THAAD PATRIOT Interoperability	Various	Multiple : Multiple	1.200	-		-		2.000	Jan 2016	-		2.000	Continuing	Continuing	-
Advanced Electronic Counter Measures (AECM)	Various	Multiple : Multiple	3.700	3.000	Jan 2014	20.000	Jan 2015	10.000	Jan 2016	-		10.000	Continuing	Continuing	-
Task 2 Non-Ballistic Tactical Ballistic Missile (TBM)	Various	Multiple : Multiple	5.200	-		5.500	Jan 2015	12.000	Jan 2016	-		12.000	Continuing	Continuing	-
Task 6 Discrimination Improvements	Various	Multiple : Multiple	2.100	2.000	Feb 2014	2.400	Feb 2015	18.616	Feb 2016	-		18.616	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607865A / Patriot Product Improvement	Project (Number/Name) DV8 / Patriot Product Improvement
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Task 7 Tactical Ballistic Missile (TBM) Countermeasures	Various	Multiple : Multiple	0.000	-		1.000	Jan 2015	15.000	Jan 2016	-		15.000	Continuing	Continuing	-
Combat ID Enhancements	Various	Multiple : Multiple	0.000	0.800	Feb 2014	1.000	Feb 2015	13.500	Feb 2016	-		13.500	Continuing	Continuing	-
Common Warfighter-Machine Interface (CWMI)	Various	Multiple : Multiple	0.000	-		-		10.000	Jan 2016	-		10.000	Continuing	Continuing	-
Lower Tier Air & Missile Defense-Capability (LTAMD-C), Concept Development	Various	Multiple : Multiple	0.000	0.300	Jan 2014	1.000	Jan 2015	2.000	Jan 2016	-		2.000	Continuing	Continuing	-
Anti-Radiation Missile (ARM) Asset Defense	Various	Multiple : Multiple	0.000	-		-		2.000	Jan 2016	-		2.000	Continuing	Continuing	-
Lower Tier Air & Missile Defense-Capability (LTAMD-C)	Various	Multiple : Multiple	0.000	-		5.000	Feb 2015	-		-		-	-	5.000	-
Subtotal			40.870	31.935		53.900		103.216		-		103.216	-	-	-

Remarks
The contract method type Sole Source/Various is Fixed Price Level of Effort which includes Cost Plus Fixed Fee for material, ODC, and travel.

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
RDEC and Other Govt Agencies	Various	RSA, AL : MIPR	0.412	1.400	Jan 2014	1.500	Jan 2015	0.600	Jan 2016	-		0.600	Continuing	Continuing	Continuing
Subtotal			0.412	1.400		1.500		0.600		-		0.600	-	-	-

Project Cost Totals	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
	42.181	33.935	57.962	105.816	-	105.816	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i>	Project (Number/Name) DV8 / <i>Patriot Product Improvement</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Software Build	Software Build																											
Advanced Electronic Counter Measures (AECM)	AECM																											
Software Improvement for Threat Evolution	Software Threat																											
Combat ID Enhancements	Combat ID Enhancements																											
(1) PDB 8 IOC																												
PDB 8 Fielding																												
Task 2 Non-Ballistic Tactical Ballistic Missile (TBM)	Task 2 Non-Ballistic TBM																											
Task 6 Discrimination Improvements	Task 6 Discrimination Improvements																											
Task 7 Tactical Ballistic Missile (TBM) Countermeasures	Task 7 TBM Countermeasures																											
Common Warfighter-Machine Interface (CWMI)	CWMI																											
Radar Digital Processor Development	RDP Development																											
Lower Tier Air & Missile Defense-Capability (LTAMD-C), Concept Development	LTAMD-C, Concept Development																											
Lower-Tier Air & Missile Defense - Capability	LTAMD-C																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i>	Project (Number/Name) DV8 / <i>Patriot Product Improvement</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Software Build	4	2005	4	2020
Advanced Electronic Counter Measures (AECM)	1	2014	4	2019
Software Improvement for Threat Evolution	1	2014	4	2020
Combat ID Enhancements	1	2014	4	2019
PDB 8 IOC	4	2017	4	2017
PDB 8 Fielding	4	2017	4	2020
Task 2 Non-Ballistic Tactical Ballistic Missile (TBM)	1	2015	4	2020
Task 6 Discrimination Improvements	1	2014	4	2017
Task 7 Tactical Ballistic Missile (TBM) Countermeasures	1	2015	4	2018
Common Warfighter-Machine Interface (CWMI)	1	2016	4	2017
Radar Digital Processor Development	1	2012	3	2016
Lower Tier Air & Missile Defense-Capability (LTAMD-C), Concept Development	1	2014	4	2016
Lower-Tier Air & Missile Defense - Capability	4	2016	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102419A / <i>Aerostat Joint Project - EMD</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	57.976	-	-	-	-	-	-	-	-	-	57.976
E55: <i>Joint Aero Stat Program - EMD Effort</i>	-	57.976	-	-	-	-	-	-	-	-	-	57.976

Note

An FY 2014 Congressional realignment divided the JLENS Research, Development, Test, and Evaluation (RDT&E) funding line between two separate Program Elements (PEs). PE/Project 0102419A/E55 funds the Engineering and Manufacturing Development (EMD) and a second PE/Project 0202429A/EP8 funds the JLENS COCOM Exercise.

A. Mission Description and Budget Item Justification

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) is a supporting program of the Army and Joint Integrated Air and Missile Defense, providing persistent, over the horizon surveillance and fire control quality data on Army and Joint networks. This over-the-horizon radar system enables protection of the U.S. and coalition forces, as well as geopolitical assets from Cruise Missiles, Aircraft, Unmanned Air Vehicles, Tactical Ballistic Missiles, Large Caliber Rockets, and Surface Moving Targets.

A JLENS Orbit consists of two systems: a fire control radar system and a wide-area surveillance radar system. Each radar system consists of a separate 74-meter tethered aerostat, mobile mooring station, radar and communications payload, processing station, and associated ground support equipment. The systems are designed to work together, but can operate independently. The JLENS Orbit is transportable by road, rail, sea and air.

JLENS uses advanced sensor and networking technologies to provide persistent, 360-degree, wide-area surveillance and precision tracking of Land Attack Cruise Missiles and other types of Air Breathing Threats. This information is distributed via joint service networks and provides fire control quality data to Surface to Air missile systems, such as Army Patriot and Navy Aegis, increasing the weapons' capabilities by allowing systems to engage targets normally below, outside, or beyond surface based weapons' field of view. JLENS also provides fire control quality data to fighter aircraft, allowing the aircraft to engage hostile threats from extended ranges, and contributes to the development of a single integrated air picture.

JLENS Product Office successfully demonstrated the system's operational capability with the Weapon Systems Evaluation Program (WSEP) proof of concept for the National Capital Region Integrated Air Defense System exercise. The Exercise used JLENS with an United States Air Force (USAF) operational aircraft and a Norwegian Advanced Surface to Air Missile System (NASAMS), to track and neutralize targets in August 2013.

JLENS has been directed to support a Homeland Defense Operational Exercise in the National Capital Region (NRC) from Fiscal Year (FY) 2014 to FY 2017 and will be assessed during the exercise to support a follow on decision from the Joint Requirements Oversight Council (JROC). The JLENS Product Office has a requirement for the acquisition of services through the JLENS Exercise Contract to support the deployment of a JLENS Orbit at Aberdeen Proving Grounds (APG), MD as directed by the Joint Requirements Oversight Council Memorandum (JROCM) 021-13 signed by the Vice Chairman of the Joint Chiefs of Staff on 31 January 2013.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102419A / <i>Aerostat Joint Project - EMD</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	83.406	54.076	50.167	-	50.167
Current President's Budget	57.976	-	-	-	-
Total Adjustments	-25.430	-54.076	-50.167	-	-50.167
• Congressional General Reductions	-	-0.028			
• Congressional Directed Reductions	-	-10.800			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-23.450	-43.248			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.980	-			
• Adjustments to Budget Years	-	-	-50.167	-	-50.167

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0102419A / Aerostat Joint Project - EMD	Project (Number/Name) E55 / Joint Aero Stat Program -EMD Effort
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
E55: Joint Aero Stat Program - EMD Effort	-	57.976	-	-	-	-	-	-	-	-	-	57.976
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

An FY 2014 Congressional realignment divided the JLENS Research, Development, Test, and Evaluation (RDT&E) funding line between two separate Program Elements (PEs). PE/Project 0102419A/E55 funds the Engineering and Manufacturing Development (EMD) and a second PE/Project 0202429A/EP8 funds the JLENS COCOM Exercise.

A. Mission Description and Budget Item Justification

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A JLENS Orbit consists of two systems: a fire control radar system and a wide-area surveillance radar system. Each radar system consists of a separate 74-meter tethered aerostat, mobile mooring station, radar and communications payload, processing station, and associated ground support equipment. The systems are designed to work together, but can operate independently. The JLENS Orbit is transportable by road, rail, sea and air.

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JLENS has been directed to support a Homeland Defense Operational Exercise in the National Capital Region (NRC) from Fiscal Year (FY) 2014 to FY 2017 and will be assessed during the exercise to support a follow on decision from the Joint Requirements Oversight Council (JROC). The JLENS Product Office has a requirement for the acquisition of services through the JLENS Exercise Contract to support the deployment of a JLENS Orbit at Aberdeen Proving Grounds (APG), MD as directed by the Joint Requirements Oversight Council Memorandum (JROCM) 021-13 signed by the Vice Chairman of the Joint Chiefs of Staff on 31 January 2013.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0102419A / Aerostat Joint Project - EMD		Project (Number/Name) E55 / Joint Aero Stat Program -EMD Effort
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>Title: Government System Test and Evaluation (STE)</p> <p>Description: Government STE program in support of Engineering and Manufacturing Development (EMD).</p> <p>FY 2014 Accomplishments: Support closeout of EMD activities, provides support and materials for Identification Friend or Foe (IFF) Mode 5 certification, Cooperative Engagement Capability (CEC) testing, safety assessment for the JLENS Exercise, and shutdown of the testing facility at White Sands Missile Range (WSMR), NM. Perform technical assessments, studies, cost reduction, risk reduction, and complete required program documentation to include necessary enhancements, as required to address Information Assurance, Cyber Security, and System Trouble Reports. All Government System Test and Evaluation costs will be accounted for under the EMD funding line.</p>		2.875	-	-
<p>Title: Engineering and Manufacturing Development (EMD) Phase Other Contractor/Other Government Agencies (OGAs) Support</p> <p>Description: Other contracts and OGAs support of EMD phase activities. Perform technical assessments, concept studies, cost reduction, risk reduction and required documentation.</p> <p>FY 2014 Accomplishments: Support closeout of EMD activities, provides support and materials for IFF Mode 5 certification, CEC testing, safety assessment for the JLENS Exercise, shutdown of facilities at White Sands Missile Range (WSMR), and the emplacement and checkout of the Orbit at Aberdeen Proving Grounds (APG), MD. This support was in preparation for the JLENS Exercise in the National Capital Region (NCR) in FY 2015. Also to perform technical assessments, studies, cost reduction, risk reduction, and complete required program documentation to include necessary enhancements, as required to address Information Assurance, Cyber Security, and System Trouble Reports. All EMD Phase Other Contractor/OGAs Support costs will be accounted for under the EMD funding line.</p>		6.631	-	-
<p>Title: Software Maintenance and Engineering Support</p> <p>Description: Contract and Government support for software maintenance and upgrades and engineering support.</p> <p>FY 2014 Accomplishments: Contract and Government support for software maintenance, upgrades, and engineering support activities, after conclusion of the EMD program and transition to JLENS Exercise. Support closeout of EMD activities, provides support and materials for Identification Friend or Foe (IFF) Mode 5 certification, Cooperative Engagement Capability (CEC) testing, safety assessment for the JLENS Exercise, shutdown of facilities at White Sands Missile Range (WSMR), NM, packing and shipment of an Orbit from Utah Test and Training Range (UTTR), the installation, checkout, and testing of the Surveillance System (SuS) at Aberdeen Proving Grounds (APG), MD. Conduct technical assessments, studies, cost reduction, risk reduction, and complete required program documentation, to include necessary enhancements as required to address Information Assurance, Cyber Security, and</p>		42.628	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0102419A / Aerostat Joint Project - EMD	Project (Number/Name) E55 / Joint Aero Stat Program -EMD Effort
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Systems Trouble Reports. All Government Program Management (PM) Support costs will be accounted for under the Engineering and Manufacturing Development (EMD) funding line.			
Title: Government Program Management (PM) Support Description: Provide Government PM support of Engineering and Manufacturing Development (EMD) activities. FY 2014 Accomplishments: Provides PM oversight of the contract and Government software maintenance, upgrades, and engineering support activities after conclusion of the EMD program and transition to Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS) Exercise; support closeout of EMD activities, provides support and materials for Identification Friend or Foe (IFF) Mode 5 certification, Cooperative Engagement Capability (CEC) testing, safety assessment for the JLENS Exercise, shutdown of facilities at White Sands Missile Range (WSMR), NM, packing and shipment of an Orbit from Utah Test and Training Range (UTTR), the installation, checkout and testing of the Surveillance System (SuS) at Aberdeen Proving Grounds (APG), MD; perform oversight of technical assessments, studies, cost reduction, risk reduction, and complete required program documentation to include necessary enhancements, as required, to address Information Assurance, Cyber Security, and System Trouble Reports. All Government PM Support costs will be accounted for under the EMD funding line.	5.590	-	-
Title: Government Furnished Equipment (GFE) Integration Description: The GFE will be provided to the Prime Contractor for hardware and system integration. FY 2014 Accomplishments: The GFE will continue to be provided to the Prime Contractor for hardware and system integration. Perform technical assessments, studies, cost reduction, risk reduction, and complete required program documentation. All Government Furnished Equipment GFE Integration costs will be accounted for under the Engineering and Manufacturing Development (EMD) funding line.	0.252	-	-
Accomplishments/Planned Programs Subtotals	57.976	-	-

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• PE 0605456A, Proj PA3: <i>Proj PA3, PAC-3/MSE Missile</i>	86.223	34.991	2.271	-	2.271	-	-	-	-	Continuing	Continuing
• SSN C53101: <i>MSE Missile</i>	690.401	532.605	414.946	-	414.946	430.622	462.676	493.613	569.488	Continuing	Continuing
• PE 0205456, Proj EF9: <i>Proj EF9, System Integration and Test</i>	-	78.720	64.159	-	64.159	60.214	58.722	75.315	96.392	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0102419A / Aerostat Joint Project - EMD	Project (Number/Name) E55 / Joint Aero Stat Program -EMD Effort
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• SSN C50016: <i>Lower Tier Air and Missile Defense (AMD)</i>	-	110.300	115.075	-	115.075	130.366	113.676	123.582	151.421	Continuing	Continuing
• PE 0604319A Proj DU3: <i>Proj DU3, IFPC2 (FY 20011/2012 PE0603305A IFPC II-Intercept)</i>	76.559	96.131	155.361	-	155.361	90.323	58.562	43.384	109.495	Continuing	Continuing
• SSN C62001: <i>IFPC Inc 2-I Block 1 Missile</i>	-	-	-	-	-	-	73.552	123.106	186.480	Continuing	Continuing
• SSN C62002: <i>IFPC Inc 2-I Block 1 System</i>	-	-	-	-	-	19.920	48.076	139.362	175.738	Continuing	Continuing
• PE 0604820A, Proj E10: <i>Proj E10, SENTINEL</i>	1.796	5.221	12.309	-	12.309	11.465	10.971	12.191	30.277	Continuing	Continuing
• PE 0605457A, Proj S40: <i>Proj S40, Army Integrated Air and Missile Defense (AIAMD)</i>	358.192	152.516	214.099	-	214.099	227.103	169.575	153.451	33.242	Continuing	Continuing
• SSN BZ5075: <i>Army IAMD Battle Command System (IBCS)</i>	-	-	20.917	-	20.917	204.513	296.361	375.763	443.637	Continuing	Continuing
• PE 0604741A, Proj 126, 146, 149: <i>Air Defense C2I Eng Dev</i>	38.412	15.898	24.569	-	24.569	27.131	20.524	20.018	18.082	Continuing	Continuing
• SSN AD50700: <i>AIR & MSL Defense Planning & Control Sys</i>	13.090	27.374	28.176	-	28.176	32.443	32.690	33.032	13.366	Continuing	Continuing

Remarks

This is a supporting program of the Army Integrated Air and Missile Defense (IAMD) architecture.

D. Acquisition Strategy

JLENS Operational Requirements Document (ORD) calls for initial fielding to Block I requirements (tethered aerostat platforms for Fire Control and Surveillance radars), followed by fielding of Block II (untethered platforms for Fire Control and Surveillance radars), and Block III (both radars on a single untethered platform). There is currently no funding beyond Block I.

On 28 Jun 05, the Defense Acquisition Board (DAB) approved the JLENS program for entry into Engineering and Manufacturing Development (EMD). The DAB elected to maintain oversight of JLENS as an Acquisition Category (ACAT) 1D program as stated in the Acquisition Decision Memorandum (ADM) signed on August 5, 2005.

On 24 May 2012, the Acting Defense Acquisition Executive (DAE) signed the JLENS Nunn-McCurdy (NM) ADM certifying the restructured JLENS Program, and signed a memorandum rescinding the Milestone B approval for the JLENS program, originally granted on August 5, 2005. This ADM directed the Army to restructure the

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0102419A / <i>Aerostat Joint Project - EMD</i>	Project (Number/Name) E55 / <i>Joint Aero Stat Program -EMD Effort</i>
<p>JLENS program to consist of two Engineering and Manufacturing Development (EMD) Orbits; complete scheduled EMD tests and evaluation, to include the Naval Integrated Fire Control-Counter Air demonstration, Limited User Test, Developmental Test 2, and Developmental Test 3; to assist in site selection and planning for the employment of one JLENS Orbit to support an operational Continental United States based exercise. Letters were provided to Congress notifying them that the NM review was complete and the program was certified and restructured as detailed above.</p> <p>The Joint Requirements Oversight Council (JROC) reviewed the results of the Army's 60 Day Deep-Dive employment assessment of JLENS for Homeland Defense and concurred with the proposed JLENS employment to Aberdeen Proving Ground, MD for an operational exercise duration Fiscal Year 2014-2017.</p> <p>The JLENS Acquisition Program Baseline (APB) was reset by the Nunn-McCurdy Process in accordance with 10 U.S.C. § 2435(d). The proposed APB was signed by the Army Acquisition Executive (AAE) on 10 July 2013 and the Defense Acquisition Executive (DAE) on 8 August 2013. The new Acquisition Program Baseline (APB) reclassified the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) program as an Acquisition Category (ACAT) IC program and removed all Nunn-McCurdy unit cost breaches and reporting requirements.</p> <p>JLENS has been directed to support the Homeland Defense Operational Exercise in the National Capital Region from FY 2014 to FY 2017 and will be assessed during the exercise to support a follow on decision from Joint Requirements Oversight Council (JROC). The JLENS Product Office has a requirement for the acquisition of services through the JLENS Exercise Contract to support the deployment of JLENS Orbit deployed at Aberdeen Proving Grounds (APG), MD as directed by the Joint Requirements Oversight Council Memorandum (JROCM) 021-13 signed by the Vice Chairman of the Joint Chiefs of Staff on 31 January 2013.</p> <p><u>E. Performance Metrics</u> N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0102419A / Aerostat Joint Project - EMD	Project (Number/Name) E55 / Joint Aero Stat Program -EMD Effort
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 and Manufacturing Development (EMD) Government Program Management	Various	PEO Missiles and Space : Various	25.154	5.590		-		-		-		-	-	30.744	-
Subtotal			25.154	5.590		-		-		-		-	-	30.744	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Technology Development (TD) Phase Contracts and Government	Various	Various : Multiple	301.083	-		-		-		-		-	-	301.083	-
Contractor Engineering and Manufacturing Development (EMD) Hardware/Software	SS/CPIF	Raytheon Systems Co. : Andover, MA	1,683.443	-		-		-		-		-	-	1,683.443	1,688.627
EMD Other Government Agency System Engineering/Logistics	Various	Multiple : Various	65.972	5.713		-		-		-		-	-	71.685	-
Lightweight X-Band Radar Antenna	Various	Multiple : Various	7.811	-		-		-		-		-	-	7.811	-
EMD System Engineering/Logistics Contracts	Various	Multiple : Various	153.113	0.918		-		-		-		-	-	154.031	-
EMD Government Furnished Equipment (GFE) Various	Various	Multiple : Various	23.994	0.227		-		-		-		-	-	24.221	-
EMD GFE - Cooperative Engagement Transmission Processing Set (CETPS)	Various	Multiple : Various	45.844	0.025		-		-		-		-	-	45.869	-
EMD Organizational Support Equipment	Various	Multiple : Various	18.650	-		-		-		-		-	-	18.650	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0102419A / Aerostat Joint Project - EMD	Project (Number/Name) E55 / Joint Aero Stat Program -EMD Effort
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Software maintenance and upgrades and engineering support - Contracts and Government	Various	Multiple : Various	0.000	42.628		-		-		-		-	-	42.628	-
Subtotal			2,299.910	49.511		-		-		-		-	-	2,349.421	1,688.627

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
TD Phase Miscellaneous Support	Various	Various : Multiple	2.084	-		-		-		-		-	-	2.084	-
Subtotal			2.084	-		-		-		-		-	-	2.084	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Technology Development (TD) Phase Test Bed Maintenance	SS/CPFF	Clark and Stender (CAS), Inc. : TX/NM	3.056	-		-		-		-		-	-	3.056	3.056
Engineering and Manufacturing Development (EMD) Contractor System Test and Evaluation	SS/CPIF	Raytheon Systems Co. : MA/CA/FL/TX	126.315	-		-		-		-		-	-	126.315	141.100
EMD Government System Test and Evaluation	Various	Multiple : Various	139.037	2.875		-		-		-		-	-	141.912	-
JLENS Exercise - Miscellaneous Expenses	TBD	Various : Multi Various	40.350	-		-		-		-		-	-	40.350	-
Subtotal			308.758	2.875		-		-		-		-	-	311.633	144.156

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0102419A / <i>Aerostat Joint Project - EMD</i>	Project (Number/Name) E55 / <i>Joint Aero Stat Program -EMD Effort</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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 & Manufacturing Development (EMD)	EMD																											
Engineering & Manufacturing Development Key Events	Key Events																											
(1) Orbit Verification and Validation (V&V) Start	▲ V&V Start																											
(2) Orbit Verification and Validation (V&V) End	▲ V&V End																											
(3) Utah Test & Training Range, UT (UTTR) Drawdown	▲ UTTR Drawdown																											
Military Construction (MILCON) Planning	CON Planning																											
Planning	Planning																											
(4) Funds Available	▲ Funds Available																											
(5) Military Construction Contract Award	▲ MILCON Contract Award																											
Training	JLENS Training																											
New Equipment Training For Soldiers	NET																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0102419A / <i>Aerostat Joint Project - EMD</i>	Project (Number/Name) E55 / <i>Joint Aero Stat Program -EMD Effort</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Engineering & Manufacturing Development (EMD)	1	2013	4	2014
Engineering & Manufacturing Development Key Events	1	2013	3	2014
Orbit Verification and Validation (V&V) Start	3	2014	3	2014
Orbit Verification and Validation (V&V) End	4	2014	4	2014
Utah Test & Training Range, UT (UTTR) Drawdown	4	2014	4	2014
Military Construction (MILCON) Planning	1	2013	2	2014
Planning	1	2013	2	2014
Funds Available	2	2014	2	2014
Military Construction Contract Award	3	2014	3	2014
Training	1	2013	4	2014
New Equipment Training For Soldiers	2	2014	4	2014

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0202429A / <i>Aerostat Joint Project - COCOM Exercise</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	22.659	43.248	40.565	-	40.565	46.371	6.746	-	-	-	159.589
EP8: <i>COCOM Exercise</i>	-	22.659	43.248	40.565	-	40.565	46.371	6.746	-	-	-	159.589

Note

An FY 2014 Congressional realignment divided the JLENS Research, Development, Test, and Evaluation (RDT&E) funding line between two separate Program Elements (PEs). PE/Project 0102419A/E55 funds the Engineering and Manufacturing Development (EMD) and a second PE/Project 0202429A/EP8 funds the JLENS COCOM Exercise.

The FY 2016 funding request was reduced by \$10.366 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) is a supporting program for Army and Joint Integrated Air and Missile Defense, providing elevated, persistent, over the horizon surveillance and fire control quality data on Army and Joint networks, enabling protection of the U.S. and coalition forces as well as critical geo political assets from Cruise Missiles, Aircraft, Unmanned Aerial Vehicles, Tactical Ballistic Missiles, Large Caliber Rockets, and Surface Moving Targets. A JLENS Orbit consists of two systems: a fire control radar system and a wide-area surveillance radar system. Each radar system consists of a separate 74-meter tethered aerostat, mobile mooring station, radar and communications payload, processing station, and associated ground support equipment. The systems are designed to work together, but can operate independently. The JLENS Orbit is transportable by road, rail, sea and air.

JLENS uses advanced sensor and networking technologies to provide persistent, 360-degree, wide-area surveillance and precision tracking of Land Attack Cruise Missiles and other types of Air Breathing Threats. This information is distributed via joint service networks and provides fire control quality data to Surface to Air missile systems, such as Army Patriot and Navy Aegis, increasing the weapons' capabilities by allowing systems to engage targets normally below, outside, or beyond surface based weapons' field of view. JLENS also provides fire control quality data to fighter aircraft, allowing the aircraft to engage hostile threats from extended ranges, and contributes to the development of a single integrated air picture.

JLENS will participate in the NORAD-USNORTHCOM National Capital Region IADS Operational Exercise (OPEX) from FY14- FY17. The OPEX will include an operational assessment to "inform a future decision for enduring operational employment", in accordance with Joint Requirements Oversight Council Memorandum (JROCM) 021-13. The Combatant Command (CCMD) objective for the OPEX is to provide the full range of JLENS Orbit level capability to include: Persistent Wide Area Surveillance (WAS) through Battle Command System Fixed (BCS-F) Integration Combat Identification (CID) / Electronic Identification (EID) Precision Cue to Fighters/ Ground-Based Air Defense (GBAD) via Tactical Data Link (TDL) Integrated Fire Control to Fighters (IFC)/GBAD via TDL.

The JLENS Product Office has a requirement for the acquisition of services through the JLENS Exercise Contract to support the deployment of a JLENS Orbit at Aberdeen Proving Grounds (APG), MD as directed by the Joint Requirements Oversight Council Memorandum (JROCM) 021-13 signed by the Vice Chairman of the Joint Chiefs of Staff on 31 January 2013.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0202429A / <i>Aerostat Joint Project - COCOM Exercise</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	22.659	43.248	40.565	-	40.565
Total Adjustments	22.659	43.248	40.565	-	40.565
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	23.450	43.248			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.791	-			
• Adjustments to Budget Years	-	-	40.565	-	40.565

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0202429A / Aerostat Joint Project - COCOM Exercise	Project (Number/Name) EP8 / COCOM Exercise
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EP8: COCOM Exercise	-	22.659	43.248	40.565	-	40.565	46.371	6.746	-	-	-	159.589
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

An FY 2014 Congressional realignment divided the JLENS Research, Development, Test, and Evaluation (RDT&E) funding line between two separate Program Elements (PEs). PE/Project 0102419A/E55 funds the Engineering and Manufacturing Development (EMD) and a second PE/Project 0202429A/EP8 funds the JLENS COCOM Exercise.

A. Mission Description and Budget Item Justification

JLENS is a supporting program for Army and Joint Integrated Air and Missile Defense, providing elevated, persistent, over the horizon surveillance and fire control quality data on Army and Joint networks, enabling protection of the U.S. and coalition forces as well as critical geo-political assets from Cruise Missiles, Aircraft, Unmanned Aerial Vehicles, Tactical Ballistic Missiles, Large Caliber Rockets, and Surface Moving Targets. A JLENS Orbit consists of two systems: a fire control radar system and a wide-area surveillance radar system. Each radar system consists of a separate 74-meter tethered aerostat, mobile mooring station, radar and communications payload, processing station, and associated ground support equipment. The systems are designed to work together, but can operate independently. The JLENS Orbit is transportable by road, rail, sea and air.

JLENS uses advanced sensor and networking technologies to provide persistent, 360-degree, wide-area surveillance and precision tracking of Land Attack Cruise Missiles and other types of Air Breathing Threats. This information is distributed via joint service networks and provides fire control quality data to Surface to Air missile systems, such as Army Patriot and Navy Aegis, increasing the weapons' capabilities by allowing systems to engage targets normally below, outside, or beyond surface based weapons' field of view. JLENS also provides fire control quality data to fighter aircraft, allowing the aircraft to engage hostile threats from extended ranges, and contributes to the development of a single integrated air picture.

JLENS will participate in the NORAD-USNORTHCOM National Capital Region IADS Operational Exercise (OPEX) from FY14- FY17. The OPEX will include an operational assessment to "inform a future decision for enduring operational employment", in accordance with Joint Requirements Oversight Council Memorandum (JROCM) 021-13. The Combatant Command (CCMD) objective for the OPEX is to provide the full range of JLENS Orbit level capability to include: Persistent Wide Area Surveillance (WAS) through Battle Command System Fixed (BCS-F) Integration Combat Identification (CID) / Electronic Identification (EID) Precision Cue to Fighters/ Ground-Based Air Defense (GBAD) via Tactical Data Link (TDL) Integrated Fire Control to Fighters (IFC)/GBAD via TDL.

The JLENS Product Office has a requirement for the acquisition of services through the JLENS Exercise Contract to support the deployment of a JLENS Orbit at Aberdeen Proving Grounds (APG), MD as directed by the Joint Requirements Oversight Council Memorandum (JROCM) 021-13 signed by the Vice Chairman of the Joint Chiefs of Staff on 31 January 2013.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0202429A / <i>Aerostat Joint Project - COCOM Exercise</i>	Project (Number/Name) EP8 / <i>COCOM Exercise</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Title: JLENS Exercise</p> <p>Description: Plan and execute JLENS participation in the NORAD-USNORTHCOM National Capital Region IADS OPEX.</p> <p>FY 2014 Accomplishments: Provided for pre-site development activities at Aberdeen Proving Grounds (APG), MD (wetlands mitigation, unexploded ordnance removal, bunker refurbishment, etc) and establishment of a JLENS Forward presence (personnel, facilities, etc). Perform technical assessments, studies, cost reduction, risk reduction, and complete required program documentation to include necessary enhancements, as required, to address National Capital Region (NCR) specific requirements for JLENS and System Trouble Reports. Provides funding for the emplacement of the Fire Control System (FCS) at APG.</p> <p>FY 2015 Plans: Provides new equipment training, execution of operations of the JLENS Exercise extended test program in support of North American Aerospace Defense Command (NORAD)/United States Northern Command (NORTHCOM), and government program management support of the JLENS Exercise. Supports the continued emplacement of the Fire Control System (FCS) at APG. Perform technical assessments, studies, cost reduction, risk reduction, and complete required program documentation to include necessary enhancements, as required, to address NCR specific requirements for JLENS, Information Assurance, Cyber Security, and System Trouble Reports. Provides for the continued readiness support of all Orbits, to include staging of a second JLENS Orbit.</p> <p>FY 2016 Plans: Provides for new equipment training, execution of operations of the JLENS Exercise extended test program in support of NORAD/NORTHCOM, and government program management support of the JLENS Exercise. Perform technical assessments, studies, cost reduction, risk reduction, and complete required program documentation to include necessary enhancements, as required, to address NCR specific requirements for JLENS, Information Assurance, Cyber Security, and System Trouble Reports. Provides for the continued readiness support of all Orbits, to include staging of the second JLENS Orbit.</p>	22.659	43.248	40.565
Accomplishments/Planned Programs Subtotals	22.659	43.248	40.565

C. Other Program Funding Summary (\$ in Millions)												
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>	
• PE 0605456A: <i>Proj PA3, PAC-3/MSE MISSILE</i>	-	-	2.272	-	2.272	-	-	-	-	-	Continuing	Continuing
• SSN C53101: <i>MSE Missile</i>	-	-	414.946	-	414.946	-	-	-	-	-	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0202429A / Aerostat Joint Project - COCOM Exercise	Project (Number/Name) EP8 / COCOM Exercise
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0205456: <i>Proj EF9, System Integration and Test</i>	-	-	64.159	-	64.159	60.214	58.722	75.315	96.392	Continuing	Continuing
• SSN C50016: <i>Lower Tier Air and Missile Defense (AMD)</i>	-	110.300	115.075	-	115.075	130.366	113.676	123.582	151.421	Continuing	Continuing
• PE 0102419A, <i>Proj E55,; Joint Aero Stat Program - EMD Effort</i>	57.976	-	-	-	-	-	-	-	-	Continuing	Continuing
• PE 0604319A, <i>Proj DU3,; IFPC2 (FY12 PE0603305A IFPC II - Intercept)</i>	76.559	96.131	155.361	-	155.361	90.323	58.562	43.384	109.495	Continuing	Continuing
• SSN C62002,; <i>IFPC Inc 2-I Block 1 Missile</i>	-	-	-	-	-	-	73.552	123.106	186.480	Continuing	Continuing
• SSN C62001,; <i>IFPC Inc 2-I Block 1 System</i>	-	-	-	-	-	19.920	48.076	139.362	175.738	Continuing	Continuing
• PE 0604820A, <i>Proj E10,; Sentinel</i>	1.796	5.221	12.309	-	12.309	11.465	10.971	12.191	30.277	Continuing	Continuing
• PE 0605457A, <i>Proj S40,; Army Integrated Air and Missile Defense (AIAMD)</i>	358.192	152.516	214.099	-	214.099	227.103	169.575	153.451	33.424	Continuing	Continuing
• SSN BZ5075,; <i>IAMD Battle Command System</i>	-	-	20.917	-	20.917	204.513	296.361	375.763	443.637	Continuing	Continuing
• PE 0604741A, <i>Proj 126, 146, 149,; Air Defense C2I Eng Dev</i>	38.412	15.898	24.569	-	24.569	27.131	20.524	20.018	18.082	Continuing	Continuing
• SSN AD50700,; <i>AIR & MSL Defense Planning & Control Sys</i>	13.090	27.374	28.176	-	28.176	32.443	32.690	33.032	13.366	Continuing	Continuing

Remarks

This program is an integral part of the Army Integrated Air and Missile Defense (IAMD) architecture.

D. Acquisition Strategy

JLENS has been directed to support the Homeland Defense Operational Exercise in the National Capital Region from FY 2014 to FY 2017 and will be assessed during the exercise to support a follow on decision from Joint Requirements Oversight Council (JROC). The JLENS Product Office has a requirement for the acquisition of services through the JLENS Exercise Contract to support the deployment of JLENS Orbit deployed at Aberdeen Proving Grounds (APG), MD as directed by the Joint Requirements Oversight Council Memorandum (JROCM) 021-13 signed by the Vice Chairman of the Joint Chiefs of Staff on 31 January 2013.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0202429A / <i>Aerostat Joint Project - COCOM Exercise</i>	Project (Number/Name) EP8 / <i>COCOM Exercise</i>
<p>Exercise preparation was conducted in FY 2013 on a limited basis to facilitate 2014 Activities as funding became available. Site development was projected to be completed 2014 with MILCON funding, followed by emplacement of the Orbit on the developed tactical sites at APG in 1Q 2015. Due to new start constraints related to the Continuing Resolution Act (CRA), MILCON funding was not received in time to complete construction in 2014 as planned. The sites are being constructed sequentially with the Surveillance Radar System (SuS) being the first to be completed. Current projection for both sites to be completed is June 2015. To allow operations to commence as early as possible, the MILCON contractor agreed to co-occupancy of the SuS site to allow JLENS System Integration and Check-out concurrent with completion of MILCON activities.</p> <p>Transfer of operational control for operations to the Combatant Command is expected to be in 2QFY15 with end of the exercise at the end of 3QFY2017. The Orbit will be disassembled and placed in storage at the conclusion of the Exercise unless directed otherwise. The COCOM Exercise Contract is to support the JLENS NCR Exercise at APG, MD. December 5, 2014 the contract was awarded as an Undefinitized Contract Action (UCA) for the 6 month base period of the contract. The contract is scheduled to be definitized and Option 1 awarded by May 2015. This contract is planned to have 3 option periods beginning every June until the contract ends in September 2017.</p> <p>The JLENS system is sustained by a two-Level maintenance concept consisting of Field and Sustainment Levels. Sustainment level maintenance for common support equipment is supported by standard Army procedures and all sustainment level maintenance for JLENS peculiar or unique equipment is provided by the Prime Contractor. Prime Contractor will serve as the supply chain manager and ensure failed spares are requisitioned and replaced to ensure system is operational. There is no organic capability for the JLENS peculiar equipment at this time. The JLENS Product Office retains major end item management responsibilities and performs oversight of the contractor's efforts.</p> <p>A recommendation for continuing JLENS operations as an enduring mission will be considered by the Joint Requirements Oversight Council (JROC) based on results of the Combatant Commander's assessment of the initial operations period in support of the NCR Exercise. Upon receipt of direction to proceed with Enduring Mission or to store or dispose of the system, the Department of Defense will address funding needs to meet the requirements of the decision. Based on the system being an EMD versus Production unit, an enduring mission decision will require major technical refresh of the system due to obsolescence and wear and tear. A competitive or sole source contract will be pursued if the decision is for an enduring mission. The current budget provides funding through FY 2017 for the JLENS Homeland Defense Operational Exercise and FY 2018 for program close-out. Depending on the results of the enduring mission decision, POM submissions will be required for continued operations, to include technical refresh, for transportation to storage and cost of storage, or for transportation to appropriate location for demilitarization along with the cost of demilitarization.</p> <p>The EMD contract was completed 31 December 2013 and close-out tasks were initiated. The SDD JLENS Systems, sub-systems, components, etc. were transferred to the Government on 19 December 2013 via DD250s. A modification to the current Engineering Services contract was awarded on 20 December 2013, incorporating all Government Furnished Property (GFP). The current Engineering Services Contract will continue through September 30th, 2015, for technical refresh assessments; conducting analysis required in support of the Homeland Defense Exercise; training of soldiers; maintaining equipment until ready for shipment to the exercise location; packaging, handling and transportation of equipment to the exercise location; and system set-up, integration and check-out. The JLENS Product Office anticipates that a new technical requirements contract will be awarded in the first quarter of 2016 for contractor technical requirements support during the Exercise.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0202429A / <i>Aerostat Joint Project - COCOM Exercise</i>	Project (Number/Name) EP8 / <i>COCOM Exercise</i>

<u>E. Performance Metrics</u> N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0202429A / Aerostat Joint Project - COCOM Exercise	Project (Number/Name) EP8 / COCOM Exercise
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
JLENS Exercise - Program Management Support, OGA, Travel, Transportation, Licenses and Agreements	MIPR	Multiple Various : AL/MD/UT/SC	0.000	-		8.298		9.868		-		9.868	12.145	30.311	-
JLENS Exercise Aberdeen Proving Ground, MD (APG) Support	MIPR	Multiple Various : MD	0.000	3.532		6.016		4.600		-		4.600	11.020	25.168	-
Subtotal			0.000	3.532		14.314		14.468		-		14.468	23.165	55.479	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
JLENS - COCOM Exercise Contract	SS/FFP	Multiple Various : AL/MD/NC/MA/CA	0.000	12.001	Dec 2014	26.100	Jun 2015	23.000	Jun 2016	-		23.000	23.767	84.868	-
JLENS - Technical Services Contract	SS/FFP/LOE	Multiple Various : MD/MA/CA	0.000	7.126	Dec 2013	2.000		2.000	Jan 2016	-		2.000	5.300	16.426	-
UTTR Orbit 2 Staging	IA	Various : UT	0.000	-		0.834		1.097		-		1.097	0.885	2.816	-
Subtotal			0.000	19.127		28.934		26.097		-		26.097	29.952	104.110	-

Project Cost Totals	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	22.659	43.248	40.565	-	40.565	53.117	159.589	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0202429A / <i>Aerostat Joint Project - COCOM Exercise</i>	Project (Number/Name) EP8 / <i>COCOM Exercise</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Aberdeen Proving Grounds (APG) Site Planning and Preparation	Planning & Preparation																											
JLENS NCR Exercise Contract					UCA Awarded				Contract																			
(1) Undefinitized Contract Action (UCA)									▲ 1																			
(2) Definitized Contract Award									▲ 2																			
JLENS NCR Operations					JLENS NCR Operations																							
(3) Surveillance System (SuS) Initial Capability Delivery (ICD)									▲ 3																			
(4) Fire Control System (FCS) Initial Capability Delivery (ICD)									▲ 4																			
(5) Orbit Initial Capability Delivery (ICD)									▲ 5																			
Combatant Command (COCOM) Assessment									COCOM Assessment																			
(6) Enduring Operation Decision Point									▲ 6																			
(7) JLENS NCR Operations Final Data Submission													▲ 7															
New Equipment Training for Replacement Soldiers					JLENS Training																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0202429A / <i>Aerostat Joint Project - COCOM Exercise</i>	Project (Number/Name) EP8 / <i>COCOM Exercise</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Aberdeen Proving Grounds (APG) Site Planning and Preparation	1	2014	3	2015
JLENS NCR Exercise Contract	1	2015	4	2017
Undefinitized Contract Action (UCA)	1	2015	1	2015
Definitized Contract Award	3	2015	3	2015
JLENS NCR Operations	1	2015	4	2017
Surveillance System (SuS) Initial Capability Delivery (ICD)	2	2015	2	2015
Fire Control System (FCS) Initial Capability Delivery (ICD)	3	2015	3	2015
Orbit Initial Capability Delivery (ICD)	3	2015	3	2015
Combatant Command (COCOM) Assessment	3	2015	1	2016
Enduring Operation Decision Point	2	2016	2	2016
JLENS NCR Operations Final Data Submission	4	2017	4	2017
New Equipment Training for Replacement Soldiers	4	2015	2	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0203726A / <i>Adv Field Artillery Tactical Data System</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	24.120	1.273	-	-	-	-	-	-	-	-	25.393
322: <i>Adv Field Artillery Tactical Data System(AFA)</i>	-	17.778	-	-	-	-	-	-	-	-	-	17.778
DU5: <i>AFATDS Increment II</i>	-	-	1.273	-	-	-	-	-	-	-	-	1.273
F19: <i>JADOCs</i>	-	6.342	-	-	-	-	-	-	-	-	-	6.342

Note

The Army Acquisition Executive (AAE) determined that AFATDS Increment 2 (program element 0203726A project code DU5) is a software modernization effort of the existing AFATDS program. Therefore, the Army moved funding for AFATDS Increment 2 from program element 0203726A project code DU5 (PB2015 BLIN 163), to the current AFATDS funding (program element 0203728A project code EF8) as AFATDS version 7.0. Previous "AFATDS Increment 1" efforts are delineated as V6.x in program element 0203728A project code EF8.

FY14:

Other Adjustment 1: Program element 0203726A project code DU5 (PB2015 BLIN 163) reduced by \$1.169 million due to change in the AFATDS development effort.

Other Adjustment 2: Program element 0203726A project code F19 reduced by \$0.218 million.

Note: \$5.547 million moved from program element 0203726A project code DU5 (PB2015 BLIN 163) to program element 0203726A project code 322 due to change in the AFATDS development effort.

FY15:

Other Adjustment 1: Program element 0203726A project code DU5 (PB2015 BLIN 163) reduced by \$21.101 million due to change in the AFATDS development effort.

FY16:

Other Adjustment 1: Program element 0203726A project code DU5 (PB2015 BLIN 163) reduced by \$41.034 million due to change in the AFATDS development effort.

A. Mission Description and Budget Item Justification

The Advanced Field Artillery Tactical Data System (AFATDS) provides the Army, Navy, and Marine Corps automated fire support command, control and communications. AFATDS is used to plan, execute, and deliver lethal and non-lethal effects. AFATDS provides Joint/Coalition Situational Awareness for fires execution and mission management. The system interoperates and integrates with over 80 different battlefield systems, including Navy and Air Force command and control weapon systems; and the German, French, Turkish, and Italian fire support systems. AFATDS automates the planning, coordination, and control of all fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopters, offensive electronic warfare, fire support meteorological systems, forward observers, and fire support radars). AFATDS provides eleven core services that manage user input and handle dissemination of complex fires processes. These core services are: Attack/Engagement Analysis, Fire Support Planning, Mission Guidance, Target Definition, Mission Area Definition, Cross-System Graphics/Mapping management, Unit Task

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0203726A / <i>Adv Field Artillery Tactical Data System</i>
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Organization Data, Fires Conflict Detection, Mobile Air/Ground Tracking, Mission Execution and Mission Trigger Events. These AFATDS services promote situational awareness of data, intelligence information and targeting data, in near real time, in order to effectively manage target selection and target engagement in accordance with the Maneuver Commanders guidance and priorities.

Joint Automated Deep Operations Coordination System (JADOCS) is a Joint and Coalition targeting, coordination, and de-confliction mission management software application. It links Command and Control (C2), Intelligence, and Air operations information with execution systems using real time collaborative targeting managers, customized for each service or specific functional area. JADOCS is used to significantly enhance the Joint Force and Component Command's capability to simultaneously develop, coordinate and execute dynamic and Time Sensitive Targets as well as planned targets and fire missions. JADOCS provides coordination and de-confliction of targeting information at all levels of command structure for the military as well as enabling common system information exchange to coordinate, collaborate, and de-conflict missions. The JADOCS' system-to-system interface enables automated communications with Joint and Coalition systems to minimize targeting process time and increase dynamic targeting accuracy. JADOCS coordination managers provide operators and commanders with a clear definition of the targeting cycle's workflow process steps, responsibilities and status. JADOCS is used by Air, Ground, Maritime, and Special Operations forces supporting time sensitive and dynamic targeting, battle space coordination, search and rescue, and disaster relief / recover operations worldwide. It provides horizontal (across Services) as well as vertical (within Services) coordination of missions to ensure a common picture of targeting operational status across the entire Joint force. Mission Summary windows display the coordination and targeting status of each mission using intuitive color coded indicators referred to as coordination status. As a software application, JADOCS can be configured and customized for each user and location. The client and server software can be installed on typical Windows OS.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	25.507	22.374	41.034	-	41.034
Current President's Budget	24.120	1.273	-	-	-
Total Adjustments	-1.387	-21.101	-41.034	-	-41.034
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-1.169	-21.101	-41.034	-	-41.034
• Other Adjustments 2	-0.218	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System				Project (Number/Name) 322 / Adv Field Artillery Tactical Data System(AFA)			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
322: Adv Field Artillery Tactical Data System(AFA)	-	17.778	-	-	-	-	-	-	-	-	-	17.778
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Effective for PB2015: funds (\$5.425 million) were transferred to program element 0203728A project code EF8 from program element 0203726A project code 322 (PB2014 BLIN 161) due to Major Automated Information System (MAIS) transparency requirements; funds (\$12.300 million) were transferred to program element 0203728A project code EF8 from program element 0203726A project code DU5 (PB2015 BLIN 163) due to Army requested transfer; funds (\$8.800 million) were removed from program element 0203726A project code DU5 (PB2015 BLIN 163) due to program delays.

The Army Acquisition Executive (AAE) determined that AFATDS Increment 2 (program element 0203726A project code DU5) is a software modernization effort of the existing AFATDS program. Therefore, the Army moved funding for AFATDS Increment 2 from program element 0203726A project code DU5, to the current AFATDS funding (program element 0203728A project code EF8) as AFATDS version 7.0. Previous "AFATDS Increment 1" efforts are delineated as V6.x in program element 0203728A project code EF8.

A. Mission Description and Budget Item Justification

The Advanced Field Artillery Tactical Data System (AFATDS) provides the Army, Navy, and Marine Corps automated fire support command, control and communications. AFATDS is used to plan, execute, and deliver lethal and non-lethal effects. AFATDS provides Joint/Coalition Situational Awareness for fires execution and mission management. The system interoperates and integrates with over 80 different battlefield systems, including Navy and Air Force command and control weapon systems; and the German, French, Turkish, and Italian fire support systems. AFATDS automates the planning, coordination, and control of all fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopters, offensive electronic warfare, fire support meteorological systems, forward observers, and fire support radars).

AFATDS provides eleven core services that manage user input and handle dissemination of complex fires processes. These core services are: Attack/Engagement Analysis, Fire Support Planning, Mission Guidance, Target Definition, Mission Area Definition, Cross-System Graphics/Mapping management, Unit Task Organization Data, Fires Conflict Detection, Mobile Air/Ground Tracking, Mission Execution and Mission Trigger Events. These AFATDS services promote situational awareness of data, intelligence information and targeting data, in near real time, in order to effectively manage target selection and target engagement in accordance with the Maneuver Commanders guidance and priorities.

Network Assisted GPS for Precision Fires (NA GPS) is a development effort to improve performance and mission reliability for GPS-guided munitions. Regardless of terrain-constrained operational conditions and GPS degraded environments, NA GPS will permit Precision Fires Mission availability. NA GPS is tailored to support standardized messaging with Joint Battle Command-Platform (JBC-P), AFATDS, M777A2 Towed Howitzer Digital Fire Control System and Mortar Fire Control System.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System	Project (Number/Name) 322 / Adv Field Artillery Tactical Data System(AFA)
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FY15 funding for program element 0203726A project code 322 (PB2014 BLIN 161) was moved to program element 0203728A project code EF8.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Title: Program Support Costs for AFATDS software development</p> <p>Description: Provide program support for AFATDS software development efforts for Versions 6.8.0.1 and 6.8.1.</p> <p>FY 2014 Accomplishments: Program management functions include oversight, planning, engineering, funds execution, and contract management.</p>	0.720	-	-	-	-
<p>Title: AFATDS software development efforts</p> <p>Description: Development of AFATDS requirements - including Version 6.8.0.1 and 6.8.1</p> <p>FY 2014 Accomplishments: Initiated and completed release V6.8.0.1 to implement AN/PRC-150 Long Range Communication capabilities.</p> <p>Continued the design and development of V6.8.1 to implement Common Operating Environment (COE) client authentication and Web Map Service, Munitions/Platform integration and data updates, Link 16 protocol, Artillery System Cooperation Activities (ASCA) communications configurations, Digital Fires Support Training System (DFSTS) integration, Targeting and Tracking enhancements, Enhanced Battlefield graphics and map display, Air tasking and visualization, Global Command and Control System Joint (GCCS-J) Interface, Graphical User Interface (GUI) convergence, Electronic Intelligence (ELINT) management and JADOCS-like functionality/capabilities.</p>	12.013	-	-	-	-
<p>Title: Network Assisted GPS for Precision Fires</p> <p>Description: Define system architecture and standardize tactical GPS Satellite data exchange solutions. Initiate WAN and LAN based system-of-systems Network Assisted GPS capability for PGMs.</p> <p>FY 2014 Accomplishments: Continued development and testing of individual SW products for JBCP, AFATDS, M777A2 Towed Howitzer Digital Fire Control System and Mortar Fire Control System. Continued standard message exchanges between systems in a laboratory test environment.</p>	3.000	-	-	-	-
<p>Title: Operational and Developmental Testing</p> <p>Description: Conduct and support test activities for AFATDS development of V6.8.1 requirements</p>	2.045	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System	Project (Number/Name) 322 / Adv Field Artillery Tactical Data System(AFA)
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<i>FY 2014 Accomplishments:</i> AFATDS V6.8.1: Conduct Army Interoperability Certification (AIC), Government Confidence Demonstration (GCD), Network Integration Evaluation (NIE) and Air Force Operation Testing; Development Testing (DT): Independent Verification and Validation (IV&V), System-of-system (SoS) testing, and Air Force Developmental Testing					
Accomplishments/Planned Programs Subtotals	17.778	-	-	-	-

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	<u>Cost To Complete</u>	<u>Total Cost</u>
• B28620: MOD OF IN-SVC EQUIP, AFATDS B28620	14.701	8.163	-	0.048	0.048	2.829	2.776	2.280	-	-	30.797

Remarks

D. Acquisition Strategy
AFATDS version 6.7 is the current fielded version of software. Product Director, Fire Support Command and Control (PdD FSC2) fielded AFATDS version 6.8.0 to the International Security Assistance Force (ISAF) in June 2013. PdD FSC2 fielded AFATDS version 6.8.0.1 in September 2014 to maintain compatibility with the fielded Joint Automated Deep Operations Coordination System (JADOCS) version 1.0.5.2. AFATDS version 6.8.1.1 remains under development with a Full Materiel Release projected for 3QFY2016. The PM projects that AFATDS version 6.8.1.1, the final software improvement under the superseded AFATDS Operational Requirements Document (ORD), will achieve Full Operational Capability (FOC) in 4QFY2016.

Based on the approved AFATDS Increment 2 Capability Development Document (CDD), the Army Acquisition Executive approved the development of AFATDS version 7.0. This is a modernization of the existing software code to meet the approved key performance parameters as well as meet Army Common Operating Environment (COE) standards. The PM will re-design AFATDS version 7.0 to provide the operator role/duty-based interaction, a dynamic embedded training capability, and allowance for more efficient insertion of future capabilities. The PM will competitively award this contract for this effort in 3QFY2016 with fielding projected for FY2019.

Development of future AFATDS capabilities will be considered based on requirements approved through the Fires Center of Excellence (FCoE) Tactical Software Requirements Governance Board.

E. Performance Metrics
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System	Project (Number/Name) 322 / Adv Field Artillery Tactical Data System(AFA)
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Management for AFATDS Support	Sub Allot	PM Mission Command (MC) : APG, MD	17.728	0.560		-		-		-		-	-	18.288	18.838
Subtotal			17.728	0.560		-		-		-		-	-	18.288	18.838

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Software Development of AFATDS 6.7 Requirements	SS/CPAF	Raytheon Systems Corp. : Ft. Wayne, IN	311.020	-		-		-		-		-	-	311.020	-
Software Development of AFATDS Version 6.8	SS/CPAF	Raytheon Systems Corp. : Ft. Wayne, IN	38.476	-		-		-		-		-	-	38.476	310.361
Software Development of AFATDS Version 6.8.1	C/CPFF	Raytheon Systems Corp. : Ft. Wayne, IN	23.171	12.254		-		-		-		-	-	35.425	33.188
Network Assisted GPS for Precision Fires Development	C/CPFF	PM Combat Ammunition Systems (PM CAS), PM Mission Command, and various Army agencies : Various Locations	5.000	3.000		-		-		-		-	-	8.000	-
Subtotal			377.667	15.254		-		-		-		-	-	392.921	343.549

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Information Assurance and Engineering Support for AFATDS V6.8.x requirements	C/CPFF	CSC : Aberdeen, MD	0.090	0.155		-		-		-		-	-	0.245	0.405

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 7				PE 0203726A / Adv Field Artillery Tactical Data System				322 / Adv Field Artillery Tactical Data System(AFA)								
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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				
Subtotal			0.090	0.155	-	-	-	-	-	-	-	-	-	-	0.245	0.405
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 for AFATDS V6.8.x requirements	C/CPFF	Engility and various contractors : Various Locations	2.105	0.525		-		-		-		-		-	2.630	5.030
Government Confidence Demo for AFATDS V6.8.1 requirements	IA	Army Test & Evaluation Command (ATEC)/Fires Test Directorate (FTD) : Various Locations	15.477	1.284		-		-		-		-		-	16.761	17.232
Subtotal			17.582	1.809	-	-	-	-	-	-	-	-	-	-	19.391	22.262
Project Cost Totals			413.067	17.778	-	-	-	-	-	-	-	-	-	-	430.845	385.054
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System	Project (Number/Name) 322 / Adv Field Artillery Tactical Data System(AFA)
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Development and Testing V6.8.1																												
Development and Testing Network Assisted GPS for Precision Fires.																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System	Project (Number/Name) 322 / Adv Field Artillery Tactical Data System(AFA)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development and Testing V6.8.1	1	2014	2	2015
Development and Testing Nework Assisted GPS for Precision Fires.	1	2014	2	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203726A / <i>Adv Field Artillery Tactical Data System</i>				Project (Number/Name) DU5 / <i>AFATDS Increment II</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DU5: <i>AFATDS Increment II</i>	-	-	1.273	-	-	-	-	-	-	-	-	1.273
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Effective for PB2015: funds (\$5.425 million) were transferred to program element 0203728A project code EF8 from program element 0203726A project code 322 (PB2014 BLIN 161) due to Major Automated Information System (MAIS) transparency requirements; funds (\$12.300 million) were transferred to program element 0203728A project code EF8 from program element 0203726A project code DU5 (PB2015 BLIN 163) due to Army requested transfer; funds (\$8.800 million) were removed from program element 0203726A project code DU5 (PB2015 BLIN 163) due to program delays.

The Army Acquisition Executive (AAE) determined that AFATDS Increment 2 (program element 0203726A project code DU5) is a software modernization effort of the existing AFATDS program. Therefore, the Army moved funding for AFATDS Increment 2 from program element 0203726A project code DU5, to the current AFATDS funding (program element 0203728A project code EF8) as AFATDS version 7.0. Previous "AFATDS Increment 1" efforts are delineated as V6.x in program element 0203728A project code EF8.

A. Mission Description and Budget Item Justification

The Advanced Field Artillery Tactical Data System (AFATDS) provides the Army, Navy, and Marine Corps automated fire support command, control and communications. AFATDS is used to plan, execute, and deliver lethal and non-lethal effects. AFATDS provides Joint/Coalition Situational Awareness for fires execution and mission management. The system interoperates and integrates with over 80 different battlefield systems, including Navy and Air Force command and control weapon systems; and the German, French, Turkish, and Italian fire support systems. AFATDS automates the planning, coordination, and control of all fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopters, offensive electronic warfare, fire support meteorological systems, forward observers, and fire support radars).

AFATDS provides eleven core services that manage user input and handle dissemination of complex fires processes. These core services are: Attack/Engagement Analysis, Fire Support Planning, Mission Guidance, Target Definition, Mission Area Definition, Cross-System Graphics/Mapping management, Unit Task Organization Data, Fires Conflict Detection, Mobile Air/Ground Tracking, Mission Execution and Mission Trigger Events. These AFATDS services promote situational awareness of data, intelligence information and targeting data, in near real time, in order to effectively manage target selection and target engagement in accordance with the Maneuver Commanders guidance and priorities.

AFATDS FY15 funding in the amount \$1.273 million will support efforts to finalize AFATDS V7.0 requirements through market studies and contracted research, and contracting efforts (Request For Information, Request For Proposal, Performance Work Statement, etc).

Funding in FY16 through FY20 was moved from program element 0203726A project code DU5 (PB2015 BLIN 163), formerly known as AFATDS Increment 2. The Army Acquisition Executive (AAE) decided that AFATDS Increment 2 was a software modernization effort instead of a new acquisition program. The AAE determined that

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System	Project (Number/Name) DU5 / AFATDS Increment II
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AFATDS Increment 2 reflected a modernization of the software code for the current AFATDS Project Manager (PM) Mission Command presented a Software Change Proposal for the current AFATDS as the appropriate approach to execute this effort. PM Mission Command will execute AFATDS software version 7.0 development effort as a follow on to the current AFATDS program.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Program Support Costs for AFATDS software development	-	0.140	-	-	-
Description: Provide program support for AFATDS software development efforts for Version 7.0					
FY 2015 Plans: Provide program support for AFATDS software development efforts for Version 7.0. Program managements functions include oversight, planning, engineering, business, funds execution and contract management.					
Title: AFATDS V7.0 Acquisition and Contracting Efforts	-	1.133	-	-	-
Description: Risk reduction analysis, solution refinement and initiate software development of version 7.0.					
FY 2015 Plans: Conduct Risk Reduction Analysis, Solution Refinement, Requirements Development, RFP Development for AFATDS V7.0.					
Accomplishments/Planned Programs Subtotals	-	1.273	-	-	-

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

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• B28620: MOD OF IN-SVC EQUIP, AFATDS B28620	14.701	8.163	-	0.048	0.048	2.829	2.776	2.280	-	-	30.797

Remarks

D. Acquisition Strategy

AFATDS version 6.7 is the current fielded version of software. AFATDS version 6.8.0 was fielded to the International Security Assistance Force (ISAF) in June 2013. Product Director, Fire Support Command and Control (FSC2) fielded AFATDS version 6.8.0.1 in September 2014 to maintain compatibility with the fielded Joint Automated Deep Operations Coordination System (JADOCS) version 1.0.5.2. AFATDS version 6.8.1 remains under development with a Full Materiel Release projected for 3QFY2016. AFATDS version 6.8.1.1, the final software improvement under the superseded AFATDS Operational Requirements Document (ORD), is projected to achieve Full Operational Capability (FOC) in 4QFY2016.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army Date: February 2015

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
2040 / 7	PE 0203726A / Adv Field Artillery Tactical Data System	DU5 / AFATDS Increment II

Based on the approved AFATDS Increment 2 Capability Development Document (CDD) (CARDS # 04031), the Army Acquisition Executive approved the development of AFATDS version 7.0. This is a modernization of the existing software code to meet the approved key performance parameters as well as meet Army Common Operating Environment (COE) standards. AFATDS version 7.0 will be re-designed to provide the operator role/duty-based interaction with a dynamic embedded training capability, as well as allow for more efficient insertion of future capabilities. The contract for this effort will be competitively awarded with fielding projected for FY2019.

Development of future AFATDS capabilities will be considered based on requirements approved through the Fires Center of Excellence (FCoE) Tactical Software Requirements Governance Board.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System	Project (Number/Name) DU5 / AFATDS Increment II
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Management for AFATDS Development Support	Sub Allot	PM Mission Command : Aberdeen Proving Ground (APG), MD	0.000	-		0.140		-		-		-	-	0.140	-
Subtotal			0.000	-		0.140		-		-		-	-	0.140	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Definition Efforts	PO	TBD : TBD	0.000	-		1.133		-		-		-	-	1.133	-
Subtotal			0.000	-		1.133		-		-		-	-	1.133	-

Remarks
Risk Reduction Analysis, Solution Refinement, Requirements Development, RFP Development, Contracting efforts (RFI, RFP).

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-	1.273	-	-	-	-	1.273	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System	Project (Number/Name) DU5 / AFATDS Increment II
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
V7.0 Infrastructure Initial Design Review																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / <i>Adv Field Artillery Tactical Data System</i>	Project (Number/Name) DU5 / <i>AFATDS Increment II</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
V7.0 Infrastructure Initial Design Review	2	2015	2	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System	Project (Number/Name) F19 / JADOCs
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
F19: JADOCs	-	6.342	-	-	-	-	-	-	-	-	-	6.342
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

Project code F19 funding for FY15 and beyond was transferred to program element 0203728A project code EF6 due to the Major Automated Information System (MAIS) transparency requirements.

A. Mission Description and Budget Item Justification

Joint Automated Deep Operations Coordination System (JADOCs) software provides joint fire support management, and common operational picture (COP) capabilities. JADOCs complements the Mission Command architecture with joint and collaborative capabilities that can be employed and tailored based on the unit mission and operational situation. JADOCs software provides integration between multiple joint command and control (C2) systems of the uniformed services involved in the targeting process at US Army, US Air Force, US Navy, US Marine Corps, Combatant Commands, and Special Operations Command.

Project F19 funds development of JADOCs Version(v) 2.0 software which is the final version of JADOCs to be developed with new functionality. JADOCs v2.0 is required to incorporate critical Joint requirements into JADOCs. These requirements include modification and updates for joint user interfaces, updates to targeting databases, and creation of non-kinetic targeting resources. JADOCs v2.0 development is being completed by CECOM Life Cycle Management Command, Software Engineering Center (SEC).

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: JADOCs Software Development Efforts costs.	3.709	-	-	-	-
Description: JADOCs Increment 1 (Version 2.0) software development effort.					
FY 2014 Accomplishments: JADOCs V2.0 software development awarded to CECOM Life Cycle Management Command, Software Engineering Center (SEC). Conducted Software Development Process Activities (i.e requirement analysis) and began V2.0 development.					
Title: Program Support Costs for JADOCs Software Development Efforts	0.260	-	-	-	-
Description: Program support for JADOCs software development efforts for JADOCs software version 2.0.					
FY 2014 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army				Date: February 2015	
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System		Project (Number/Name) F19 / JADOCs		
B. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continued the program support for JADOCs software version 2.0 software development efforts.					
Title: Testing					
Description: Conduct and Support Army and Joint Testing Activities.					
FY 2014 Accomplishments: Continued support of Army and Joint testing activities for JADOCs software. Including Army Interoperability Certification Testing and Air Force Air Operations Center interface testing.					
	0.300	-	-	-	-
Title: Contractor Management Services and Support.					
Description: Funds Systems Engineering and Technical Assistance support					
FY 2014 Accomplishments: Continued program support for JADOCs training activities.					
	2.073	-	-	-	-
Accomplishments/Planned Programs Subtotals					
	6.342	-	-	-	-
C. Other Program Funding Summary (\$ in Millions)					
N/A					
Remarks					
Project code F19 funding for FY15 and beyond was transferred to program element 0203728A project code EF6 due to Major Automated Information System (MAIS) transparency requirements.					
D. Acquisition Strategy					
JADOCs is a software only development effort that will produce JADOCs Version(v) 2.0 software, which includes software updates that will address Joint Users technical requirements that were generated by the Joint Services that align with the CPD. JADOCs v2.0 will be the last major version of JADOCs software and will be the follow-on version to the development and fielding of the JADOCs 1.0.5.2 software versions. JADOCs v2.0 will be interoperable with AFATDS.					
Program Executive Officer, Command, Control, Communications -Tactical (PEO C3T) signed the JADOCs Milestone C Acquisition Decision Memorandum (ADM) on 2 December 2013. The ADM approved MS C and authorized entrance into the Production and Deployment phase. The ADM also approved the acquisition strategy, APB and established the MS C exit criteria. JADOCs v2.0 reflects continued software enhancements to meet joint requirements.					
E. Performance Metrics					
N/A					

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 7				PE 0203726A / Adv Field Artillery Tactical Data System				F19 / JADOCs								
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Business/Technical Services	Various	Chenega Federal Systems & Other : Various	5.254	2.073	Mar 2014	-		-		-		-	-	7.327	-	
Subtotal			5.254	2.073		-		-		-		-	-	7.327	-	
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Software Development & Test	C/CPFF	Oberon Associates INC. : Manassas, Virginia	13.897	-		-		-		-		-	-	13.897	-	
Software Development & Test	Various	CECOM LCMC SEC C2SD : APG, MD	0.000	3.709		-		-		-		-	-	3.709	-	
Subtotal			13.897	3.709		-		-		-		-	-	17.606	-	
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 - Government	MIPR	PM Mission Command (MC) : APG, MD	1.055	0.260		-		-		-		-	-	1.315	-	
Subtotal			1.055	0.260		-		-		-		-	-	1.315	-	
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Army and Joint Test Support	Various	Joint Service Testing : Various	2.897	0.300		-		-		-		-	-	3.197	-	

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System	Project (Number/Name) F19 / JADOCs
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Software Capability Testing - V1.0.5.2 (CS 11-12)																												
Final Integration Test - V1.0.5.2 (CS 11-12)																												
(1) Army Interoperability Certification 11.9 - V1.0.5.2 (CS 11-12)	▲ 1																											
(2) Milestone C	▲ 2																											
(3) Award - Support Agreement (DD1144) - V2.0 SW Development			▲ 3																									
(4) Materiel Release - V1.0.5.2 (CS 11-12)			▲ 4																									
Fielding - V1.0.5.2 (CS 11-12)																												
Software Development and Testing - V2.0																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203726A / Adv Field Artillery Tactical Data System	Project (Number/Name) F19 / JADOCs

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Software Capability Testing - V1.0.5.2 (CS 11-12)	4	2012	2	2014
Final Integration Test - V1.0.5.2 (CS 11-12)	4	2013	1	2014
Army Interoperability Certification 11.9 - V1.0.5.2 (CS 11-12)	1	2014	1	2014
Milestone C	1	2014	1	2014
Award - Support Agreement (DD1144) - V2.0 SW Development	3	2014	3	2014
Materiel Release - V1.0.5.2 (CS 11-12)	3	2014	3	2014
Fielding - V1.0.5.2 (CS 11-12)	4	2014	1	2015
Software Development and Testing - V2.0	3	2014	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	36.658	35.719	-	35.719	37.078	34.229	34.468	36.605	Continuing	Continuing
EF6: JADOCS	-	-	15.433	13.002	-	13.002	2.496	-	-	-	-	30.931
EF7: Pocket-Sized Forward Entry Device (PFED) Inc 2	-	-	3.503	3.494	-	3.494	3.560	3.628	3.431	3.474	Continuing	Continuing
EF8: AFATDS Increment 1	-	-	17.722	19.223	-	19.223	31.022	30.601	31.037	33.131	-	162.736

Note

Project code EF6 (JADOCS) and EF8 (AFATDS) were previously funded in OSD program element 0203726A project codes F19 and 322 (PB2014 BLIN 161) up to FY2014. Due to Major Automated Information System (MAIS) transparency requirements, beginning in FY2015, all non-MAIS funds were transferred out of 0203726A into 0203728A. Beginning in FY2015, JADOCS funding is justified in project code EF6 and AFATDS funding in project code EF8.

The Army Acquisition Executive (AAE) determined that AFATDS Increment 2 (program element 0203726A project code DU5) is a software modernization effort of the existing AFATDS program. Therefore, the Army moved funding for AFATDS Increment 2 from program element 0203726A project code DU5 (PB2015 BLIN 163), to the current AFATDS funding (program element 0203728A project code EF8) as AFATDS version 7.0. Previous "AFATDS Increment 1" efforts are delineated as V6.x in program element 0203728A project code EF8.

A. Mission Description and Budget Item Justification

There are three developmental efforts that are being executed concurrently: Joint Automated Deep Operations Coordination System (JADOCS) (project code EF6); Pocket-sized Forward Entry Device (Increment II) (project code EF7) and Advanced Field Artillery Tactical Data System (AFATDS) (Increment I) (project code EF8).

Joint Automated Deep Operations Coordination System (JADOCS) is a Joint and Coalition targeting, coordination mission management software application. It links Command and Control (C2), Intelligence, and Air operations information with execution systems using real time collaborative targeting managers, customized for each service or specific functional area. JADOCS is used to significantly enhance the Joint Force and Component Command's capability to simultaneously develop, coordinate and execute Dynamic and Time Sensitive targets and fire missions, as well as battle space coordination, search and rescue, and disaster relief/recover operations worldwide. JADOCS provides coordination and de-confliction of targeting information at all levels of command structure for the military. JADOCS system-to-system interfaces enables automated communications with Joint and Coalition systems to minimize targeting process time and increase dynamic targeting accuracy. JADOCS coordination managers provide operators and commanders with a clear definition of the targeting cycle's workflow process steps, responsibilities and status. JADOCS is used by Air, Ground, Maritime, and Special Operations forces. It provides horizontal (across Services) as well as vertical (within Services) coordination of missions to ensure a common picture of targeting operational status across the entire joint force. As a software application, JADOCS can be configured and customized for each user and location. The client and server software can be installed on typical Windows Operating System.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0203728A / <i>Joint Automated Deep Operation Coordination System (JADOCS)</i>
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Pocket-sized Forward Entry Device (PFED) Increment II will be a software only application that operates on the Nett Warrior End User Device (EUD). It will provide the dismounted Forward Observer (FO) and Fire Support Teams (FISTs) the capability and functionality to accurately and rapidly locate ground targets and enable the Nett Warrior ensemble to digitally process a Call For Fire. PFED Increment II aligns with the Army's Fires and Effects Concept of Operation and contributes to Networked Fires as part of the combined arms teams in Army, Special Operations Forces (SOF), and Joint operations. PFED Increment II answers the Mobile Handheld Computing Environment requirement that all handheld applications reside on the Nett Warrior End User Device. Project code EF7 funds the evolutionary software development of this handheld Fires Command and Control (C2) system.

The Advanced Field Artillery Tactical Data System (AFATDS) provides the Army, Navy, and Marine Corps automated fire support command, control and communications. AFATDS is used to plan, execute, and deliver lethal and non-lethal effects. AFATDS provides Joint/Coalition Situational Awareness for fires execution and mission management. The system interoperates and integrates with over 80 different battlefield systems, including Navy and Air Force command and control weapon systems; and the German, French, Turkish, and Italian fire support systems. AFATDS automates the planning, coordination, and control of all fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopters, offensive electronic warfare, fire support meteorological systems, forward observers, and fire support radars). AFATDS provides eleven core services that manage user input and handle dissemination of complex fires processes. These core services are: Attack/Engagement Analysis, Fire Support Planning, Mission Guidance, Target Definition, Mission Area Definition, Cross-System Graphics/Mapping management, Unit Task Organization Data, Fires Conflict Detection, Mobile Air/Ground Tracking, Mission Execution and Mission Trigger Events. These AFATDS services promote situational awareness of data, intelligence information and targeting data, in near real time, in order to effectively manage target selection and target engagement in accordance with the Maneuver Commanders guidance and priorities.

B. Program Change Summary (\$ in Millions)	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>
Previous President's Budget	-	24.371	16.522	-	16.522
Current President's Budget	-	36.658	35.719	-	35.719
Total Adjustments	-	12.287	19.197	-	19.197
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-	12.297	19.223	-	19.223
• Other Adjustments 2	-	-0.008	-0.026	-	-0.026
• Other Adjustments 3	-	-0.002	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)				Project (Number/Name) EF6 / JADOCS			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EF6: JADOCS	-	-	15.433	13.002	-	13.002	2.496	-	-	-	-	30.931
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project code EF6 was previously funded in program element 0203726A project code F19 (PB2014 BLIN 161) from FY2010 – FY2014. Due to Major Automated Information System (MAIS) transparency requirements, beginning in FY2015, all non-MAIS funds were transferred out of 0203726A into 0203728A. Beginning in FY2015, JADOCS funding is justified in project EF6.

A. Mission Description and Budget Item Justification

Joint Automated Deep Operations Coordination System (JADOCS) is a Joint and Coalition targeting, coordination mission management software application. It links Command and Control (C2), Intelligence, and Air operations information with execution systems using real time collaborative targeting managers, customized for each service or specific functional area. JADOCS is used to significantly enhance the Joint Force and Component Command's capability to simultaneously develop, coordinate and execute Dynamic and Time Sensitive targets and fire missions, as well as battle space coordination, search and rescue, and disaster relief/recover operations worldwide. JADOCS provides coordination and de-confliction of targeting information at all levels of command structure for the military. JADOCS system-to-system interfaces enables automated communications with Joint and Coalition systems to minimize targeting process time and increase dynamic targeting accuracy. JADOCS coordination managers provide operators and commanders with a clear definition of the targeting cycle's workflow process steps, responsibilities and status.

JADOCS is used by Air, Ground, Maritime, and Special Operations forces. It provides horizontal (across Services) as well as vertical (within Services) coordination of missions to ensure a common picture of targeting operational status across the entire joint force. As a software application, JADOCS can be configured and customized for each user and location. The client and server software can be installed on typical Windows Operating System.

JADOCS CPD was approved in April 2012. Project EF6 funds development of JADOCS software version 2.0 to meet the CPD and Joint Users and COCOMs requirements. JADOCS fires and targeting capabilities will migrate to AFATDS Version 7.0. JADOCS capabilities will be sustained until AFATDS meets the Joint Users requirements. JADOCS v 2.0 software is being developed by CECOM Life Cycle Management Command, Software Engineering Center (SEC).

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: JADOCS Software Development Efforts	-	13.693	11.902	-	11.902
Description: Software development of JADOCS v2.0 software.					
FY 2015 Plans: Continue with Software Development Process; conduct capability coordination meeting with Joint stakeholders; conduct software requirement review; develop requirement definition document. There will be three incremental					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army			Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF6 / JADOCS			
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
software (SW) builds. Begin and complete software build 1 and begin software build 2. Begin activities required for material release (e.g. program protection plan, safety assessment, training analysis and documentations). FY 2016 Base Plans: Continue development of JADOCS v2.0 software. Complete software builds 2 and 3. Test each build to meet all requirements. Complete all required software and testing documentations.					
Title: Program Support Costs for JADOCS Software Development Efforts Description: Program support for JADOCS v2.0 software development efforts. FY 2015 Plans: Continue program support for JADOCS version 2.0 software development. FY 2016 Base Plans: Continue program support for JADOCS version 2.0 software development.	-	0.700	0.700	-	0.700
Title: Army and Joint Testing Activities Description: Conduct and support Army and Joint Testing Activities. FY 2015 Plans: Continue support of Army and Joint testing activities; conduct Independent Validation and Verification (IV&V) of the JADOCS version 2.0 software. FY 2016 Base Plans: Continue support of Army and Joint testing activities; conduct Independent Validation and Verification (IV&V) of the JADOCS version 2.0 software.	-	0.300	0.400	-	0.400
Title: Contractor Management Services and Support Description: Funds Systems Engineering and Technical Assistance support provided by Liaison Officers (LNO) and JADOCS training managers. FY 2015 Plans: Continues program support for JADOCS training activities.	-	0.740	-	-	-
Accomplishments/Planned Programs Subtotals	-	15.433	13.002	-	13.002

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / <i>Joint Automated Deep Operation Coordination System (JADOCS)</i>	Project (Number/Name) EF6 / <i>JADOCS</i>
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy JADOCS Version (v) 2.0 is a software only development effort which includes software updates to address Joint Users technical requirements that align with the approved CPD. JADOCS v2.0 will be the last major version of JADOCS software. JADOCS v2.0 will interoperate with AFATDS. JADOCS v 2.0 will be maintained and sustained until the Joint Users requirements are met by AFATDS and other systems. Program Executive Officer, Command, Control, Communications -Tactical (PEO C3T) signed the JADOCS Milestone C Acquisition Decision Memorandum (ADM) on 2 December 2013. The ADM approved MS C and authorized entrance into the Production and Deployment phase. The ADM also approved the acquisition strategy, APB and established the MS C exit criteria. JADOCS v2.0 reflects continued software enhancements to meet joint requirements.		
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 7				PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)				EF6 / JADOCS								
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Business/Technical Services	MIPR	Chenega Federal Systems : Alexandria, VA	0.000	-		0.740		-		-		-	-	0.740	-	
Subtotal			0.000	-		0.740		-		-		-	-	0.740	-	
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Software Development	Various	CECOM LCMC SEC FD : APG, MD	0.000	-		13.693	Feb 2014	11.902		-		11.902	-	25.595	-	
Subtotal			0.000	-		13.693		11.902		-		11.902	-	25.595	-	
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Support	Various	PM Mission Command (MC) : APG, MD	0.000	-		0.700		0.700		-		0.700	-	1.400	-	
Subtotal			0.000	-		0.700		0.700		-		0.700	-	1.400	-	
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Army and Joint Test Support	Various	Joint Service Testing : Various	0.000	-		0.300		0.400		-		0.400	-	0.700	-	
Subtotal			0.000	-		0.300		0.400		-		0.400	-	0.700	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army								Date: February 2015					
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)				Project (Number/Name) EF6 / JADOCS					
	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		15.433		13.002		-		13.002	-	28.435	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF6 / JADOCS
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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) Award - Support Agreement (DD1144) - v2.0 SW Development	▲																											
Software Development v2.0	■																											
Independent Validation & Verification (IV&V) v2.0	■																											
(2) Test Readiness Review (TRR) - v2.0	■												▲															
Formal Qualification Test (FQT) - v2.0	■												■															
Army Operational Test (OT) - v2.0	■												■															
AF Developmental Test - v2.0	■												■															
(3) Army Interoperability Certification - v2.0	■												▲															
AF Operational Test & JITC - v2.0	■												■															
(4) Initial Operational Capability - v2.0	■												▲															
(5) Materiel Release - v2.0	■												▲															
(6) Deployment Decision - v2.0	■												▲															
Filing - v2.0	■																■											

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF6 / JADOCS
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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) Full Operational Capability (FOC) - v2.0																	▲											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / <i>Joint Automated Deep Operation Coordination System (JADOCS)</i>	Project (Number/Name) EF6 / JADOCS

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Award - Support Agreement (DD1144) - v2.0 SW Development	3	2014	3	2014
Software Development v2.0	3	2014	4	2016
Independent Validation & Verification (IV&V) v2.0	3	2015	4	2016
Test Readiness Review (TRR) - v2.0	4	2016	4	2016
Formal Qualification Test (FQT) - v2.0	4	2016	4	2016
Army Operational Test (OT) - v2.0	1	2017	1	2017
AF Developmental Test - v2.0	1	2017	2	2017
Army Interoperability Certification - v2.0	2	2017	2	2017
AF Operational Test & JITC - v2.0	2	2017	3	2017
Initial Operational Capability - v2.0	2	2017	2	2017
Materiel Release - v2.0	3	2017	3	2017
Deployment Decision - v2.0	3	2017	3	2017
Filing - v2.0	3	2017	4	2020
Full Operational Capability (FOC) - v2.0	2	2018	2	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)				Project (Number/Name) EF7 / Pocket-Sized Forward Entry Device (PFED) Inc 2			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EF7: Pocket-Sized Forward Entry Device (PFED) Inc 2	-	-	3.503	3.494	-	3.494	3.560	3.628	3.431	3.474	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Pocket-sized Forward Entry Device (PFED) Increment II will be a software-only application that operates on the Nett Warrior End User Device (EUD). It will provide the dismounted Forward Observer (FO) and Fire Support Teams (FISTs) the capability and functionality to accurately and rapidly locate ground targets and digitally process a Call For Fire. PFED Increment II answers the Mobile Handheld Computing Environment requirement that all handheld applications reside on the Nett Warrior End User Device.

Project code EF7 funds the evolutionary software development of this handheld Fires Command and Control (C2) system.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: PFED INC II Software Development	-	2.800	2.634	-	2.634
Description: PFED INC II software development					
FY 2015 Plans: Undergo a Milestone B decision. Transition Complete Block 1.0 software development. Software development will include removing capabilities from the S&T software that cannot be traced to the PFED Increment II CPD as well as redundant capabilities that will be provided by the Nett Warrior software. The resulting software will be repackaged and delivered to the Nett Warrior software developers for integration onto the Nett Warrior End User Device. Complete Milestone B statutory and regulatory requirements.					
FY 2016 Base Plans: Complete software development for the Block 1.0 capability. Conduct developmental test events, Independent Verification and Validation testing. Conduct a Preliminary Deployment Decision for Block 1.0, to include development of required program documentation, in order to field to the Operational Test unit. Conduct operational test and evaluation events. Conduct a Full Deployment Decision in order to obtain a Full Materiel Release of the Block 1.0 capability. Develop the performance specification for Block 2.0 capabilities based on validated requirements. Conduct a Preliminary Design Review for the Block 2.0 capability.					
Title: Program Support Costs for PFED Increment II Software Development Efforts	-	0.403	0.600	-	0.600

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF7 / Pocket-Sized Forward Entry Device (PFED) Inc 2

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Description: Program support for PFED INC II software development efforts.</p> <p>FY 2015 Plans: Program support for PFED INC II software development.</p> <p>FY 2016 Base Plans: Continue program support for PFED INC II software development.</p>					
<p>Title: Testing</p> <p>Description: Conduct and Support Army Testing Activities</p> <p>FY 2015 Plans: Begin Developmental Testing and Evaluation of the Block 1.0 capability.</p> <p>FY 2016 Base Plans: Continue Developmental Testing and begin Operational Testing and Evaluation of the Block 1.0 capability.</p>	-	0.300	0.260	-	0.260
Accomplishments/Planned Programs Subtotals	-	3.503	3.494	-	3.494

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

N/A

Remarks

D. Acquisition Strategy

On 29 January 2014, the Army Acquisition Executive (AAE) signed the Acquisition Decision Memorandum (ADM) approving the PFED Increment II Materiel Development Decision (MDD). The Acquisition Decision Memorandum (ADM) officially approved entry into the acquisition management system at the Technology Development phase as an Acquisition Category (ACAT) III program with the Program Executive Officer (PEO), Command, Control and Communications-Tactical (C3T) as the Materiel Developer and Milestone Decision Authority.

PFED Increment II leverages an Army Science and Technology investment by transitioning a software application that has been developed and used in proponent experimentation events (i.e. Army Expeditionary Warrior Experiment (AEWE) and Bold Quest). Upon a successful Milestone B decision in FY2015, this software application will be transitioned to PM Mission Command to conduct all Army developmental and operational test and evaluation requirements. PFED Increment II will be integrated onto the Nett Warrior End User Devices (EUDs) and will be fielded by PM Soldier Warrior (PM SWAR). Training on the PFED Increment II software will be conducted by PM Mission Command as units are fielded the capability.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / <i>Joint Automated Deep Operation Coordination System (JADOCS)</i>	Project (Number/Name) EF7 / <i>Pocket-Sized Forward Entry Device (PFED) Inc 2</i>
<p>The PFED Increment II CPD, dated 6 September 2012, was approved as an "Information Technology (IT) Box" requirement. As such, evolutionary development of the software will continue in order to meet emerging requirements that fall within the bounds of the approved IT Box. PM Mission Command will continue to manage future capability Blocks of software development. PM Mission Command will continue to coordinate with PM Soldier Warrior to field and train future versions of the software, as described above.</p> <p>E. Performance Metrics N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 7				PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)				EF7 / Pocket-Sized Forward Entry Device (PFED) Inc 2							
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
PFED Increment II Software Development efforts	MIPR	AMRDEC : Redstone, AL	0.000	-		2.603	Oct 2015	2.634		-		2.634	Continuing	Continuing	Continuing
Subtotal			0.000	-		2.603		2.634		-		2.634	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Support	Various	PM Mission Command (MC) : APG, MD	0.000	-		0.600		0.600		-		0.600	Continuing	Continuing	Continuing
Subtotal			0.000	-		0.600		0.600		-		0.600	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Support	Various	Testing : Various	0.000	-		0.300		0.260		-		0.260	Continuing	Continuing	Continuing
Subtotal			0.000	-		0.300		0.260		-		0.260	-	-	-
Project Cost Totals			0.000	-		3.503		3.494		-		3.494	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF7 / Pocket-Sized Forward Entry Device (PFED) Inc 2
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				
	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) Milestone B					▲ 1																								
Software Development & Testing Block 1.0																													
Developmental Test (DT) Block 1.0																													
(2) Preliminary Deployment Decision (PDD) Block 1.0													▲ 2																
Operational Test (OT) Block 1.0																													
(3) Initial Operational Capability (IOC) Block 1.0																	▲ 3												
(4) Full Deployment Decision (FDD) Block 1.0																	▲ 4												
(5) Materiel Release Block 1.0													▲ 5																
Fielding Block 1.0																													
Software Development & Testing Block 2.0																													
Developmental Test (DT) Block 2.0																													
(6) Preliminary Deployment Decision (PDD) Block 2.0																	▲ 6												
(7) Operational Test (OT) Block 2.0																					▲ 7								

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF7 / Pocket-Sized Forward Entry Device (PFED) Inc 2
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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) Full Deployment Decision (FDD) Block 2.0																												
(2) Materiel Release Block 2.0																												
Fielding Block 2.0																												
Additional SW Capability Development & Testing																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF7 / Pocket-Sized Forward Entry Device (PFED) Inc 2

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone B	2	2015	2	2015
Software Development & Testing Block 1.0	2	2015	4	2016
Developmental Test (DT) Block 1.0	4	2015	1	2016
Preliminary Deployment Decision (PDD) Block 1.0	2	2016	2	2016
Operational Test (OT) Block 1.0	3	2016	3	2016
Initial Operational Capability (IOC) Block 1.0	3	2016	3	2016
Full Deployment Decision (FDD) Block 1.0	4	2016	4	2016
Materiel Release Block 1.0	4	2016	1	2017
Fielding Block 1.0	1	2017	4	2017
Software Development & Testing Block 2.0	1	2017	3	2018
Developmental Test (DT) Block 2.0	2	2018	2	2018
Preliminary Deployment Decision (PDD) Block 2.0	3	2018	3	2018
Operational Test (OT) Block 2.0	4	2018	4	2018
Full Deployment Decision (FDD) Block 2.0	4	2018	4	2018
Materiel Release Block 2.0	1	2019	1	2019
Fielding Block 2.0	1	2019	1	2021
Additional SW Capability Development & Testing	1	2019	1	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203728A / <i>Joint Automated Deep Operation Coordination System (JADOCS)</i>				Project (Number/Name) EF8 / <i>AFATDS Increment 1</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EF8: <i>AFATDS Increment 1</i>	-	-	17.722	19.223	-	19.223	31.022	30.601	31.037	33.131	-	162.736
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Effective for PB2015: funds (\$5.425 million) were transferred to program element 0203728A project code EF8 from program element 0203726A project code 322 (PB2014 BLIN 161) due to Major Automated Information System (MAIS) transparency requirements; funds (\$12.300 million) were transferred to program element 0203728A project code EF8 from program element 0203726A project code DU5 (PB2015 BLIN 163) due to Army requested transfer.

The Army Acquisition Executive (AAE) determined that AFATDS Increment 2 (program element 0203726A project code DU5) is a software modernization effort of the existing AFATDS program. Therefore, the Army moved funding for AFATDS Increment 2 from program element 0203726A project code DU5, to the current AFATDS funding (program element 0203728A project code EF8) as AFATDS version 7.0. Previous "AFATDS Increment 1" efforts are delineated as V6.x in program element 0203728A project code EF8.

A. Mission Description and Budget Item Justification

The Advanced Field Artillery Tactical Data System (AFATDS) provides the Army, Navy, and Marine Corps automated fire support command, control and communications. AFATDS is used to plan, execute, and deliver lethal and non-lethal effects. AFATDS provides Joint/Coalition Situational Awareness for fires execution and mission management. The system interoperates and integrates with over 80 different battlefield systems, including Navy and Air Force command and control weapon systems; and the German, French, Turkish, and Italian fire support systems. AFATDS automates the planning, coordination, and control of all fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopters, offensive electronic warfare, fire support meteorological systems, forward observers, and fire support radars).

AFATDS provides eleven core services that manage user input and handle dissemination of complex fires processes. These core services are: Attack/Engagement Analysis, Fire Support Planning, Mission Guidance, Target Definition, Mission Area Definition, Cross-System Graphics/Mapping management, Unit Task Organization Data, Fires Conflict Detection, Mobile Air/Ground Tracking, Mission Execution and Mission Trigger Events. These AFATDS services promote situational awareness of data, intelligence information and targeting data, in near real time, in order to effectively manage target selection and target engagement in accordance with the Maneuver Commanders guidance and priorities.

AFATDS FY15 funding in the amount of \$17.722 million is for the continued development and testing of the AFATDS 6.8.X Software Release which will align with the Command Post Computing Environment (CPCE) as it fits into the Army's overarching Common Operating Environment (COE) construct. The COE has been directed by the AAE to align all Army networks, procurements, and enhancements.

Network Assisted GPS for Precision Fires (NA GPS) is a development effort to improve performance and mission reliability for GPS-guided munitions. Regardless of terrain-constrained operational conditions and GPS degraded environments, NA GPS will permit Precision Fires Mission availability. NA GPS is tailored to support

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF8 / AFATDS Increment 1
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standardized messaging with Joint Battle Command-Platform (JBC-P), AFATDS, M777A2 Towed Howitzer Digital Fire Control System and Mortar Fire Control System. Network Assisted GPS for Precision Fires will complete the developmental effort in FY15.

Funding in FY16 through FY20 was moved from program element 0203726A project code DU5 (PB2015 BLIN 163), formerly known as AFATDS Increment 2. The Army Acquisition Executive (AAE) decided that AFATDS Increment 2 was a software modernization effort instead of a new acquisition program. Project Manager (PM) Mission Command presented a Software Change Proposal for the current AFATDS as the appropriate approach to execute this effort. PM Mission Command will execute AFATDS software version 7.0 development effort as a continuation of the current AFATDS program.

FY16 funding in the amount of \$19.219 will be used to initiate efforts on AFATDS version 7.0. This will include preliminary design reviews for the application and architectural infrastructure, human factors studies, and contracting (Request For Proposal, contract award). Software development will reorganize and optimize the technical foundation to provide a more adaptable baseline to accommodate future Army Common Operating Environment (COE) requirements while maintaining Joint Command and Control (JC2) interoperability. PM Mission Command will develop a role/duty-based functional architecture (Fire Support, Fire Control, and Fire Direction) that reduces training workload and simplifies usage. AFATDS version 7.0 will also provide embedded computer based training to decrease classroom burden and increase system usability.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Title: Program Support Costs for AFATDS software development</p> <p>Description: Provide program support for AFATDS software development efforts.</p> <p>FY 2015 Plans: Provide matrix support and Program Management Office (PMO) efforts. Conduct Risk Reduction Analysis, Solution Refinement, Requirements Development, Request for Proposal (RFP) Development. Continue development and testing of V6.8.x.</p> <p>FY 2016 Base Plans: Provide matrix support and Program Management Office (PMO) efforts. Conduct Risk Reduction Analysis, Solution Refinement, Requirements Development, Request for Proposal (RFP) Development, Program Design Review (PDR), Human Factors Study.</p>	-	1.747	3.100	-	3.100
<p>Title: AFATDS software development efforts cost</p> <p>Description: Development of AFATDS software - including Version 6.8.1 and V7.0</p> <p>FY 2015 Plans:</p>	-	12.600	14.733	-	14.733

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army			Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF8 / AFATDS Increment 1			
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continue the development on V6.8.1.1. This completes the addition of further JADOCS-like requirements/capabilities into AFATDS. FY 2016 Base Plans: Initiate development on V7.0. V7.0 will focus on architecture modernization to provide role/duty-based functionality for Fire Support, Fire Control, and Fire Direction Capabilities, support for net-centric operations, web-enabled network interoperability, execution of Joint critical operational activities, embedded training, and exploitation of Army Common Operating Environment (COE) Computing Environment.					
Title: Network Assisted GPS for Precision Fires Description: Define system architecture and standardize tactical GPS Satellite data exchange solutions. Initiate WAN and LAN based system-of-systems Network Assisted GPS capability for PGMs. FY 2015 Plans: Develop and test Network-Assisted (NA) GPS for Precision Fires Capability as part of AFATDS COE v2 software: Verification component system's software interoperability in the network, algorithmic corrections to supplement the ephemeris navigation data incorporated into M777A2 Towed Howitzer Digital Fire Control System and Mortar Fire Control System software, conduct field test demonstration on standard message exchange of navigation data from the Air Force GPS Operations Center through all NA GPS capable systems, develop Capability Insertion Plan to document the results of developing and testing the system of systems Network Assisted GPS capability for Precision Fires.	-	1.000	-	-	-
Title: Operational and Developmental Testing Description: Conduct and support test activities for AFATDS development. FY 2015 Plans: For AFATDS Version V6.8.1.1, conduct Army Interoperability Certification (AIC), Government Confidence Demonstration (GCD), Network Integration Evaluation (NIE) and Air Force Operation Testing; Development Testing (DT): Independent Verification and Validation (IV&V), System-of-system (SoS) testing, and Air Force Developmental Testing. FY 2016 Base Plans:	-	2.375	1.390	-	1.390

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF8 / AFATDS Increment 1

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
For AFATDS Version 7.0, conduct Army Interoperability Certification (AIC), Development Testing (DT), System of Systems (SoS) Scrum (developmental) Tests, and Army Warfighting Assessment (AWA).					
Accomplishments/Planned Programs Subtotals	-	17.722	19.223	-	19.223

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• B28620: MOD OF IN-SVC EQUIP, AFATDS	14.701	8.163	-	0.048	0.048	2.829	2.776	2.280	-	-	30.797

Remarks

D. Acquisition Strategy
 AFATDS version 6.7 is the current fielded version of software. Product Director, Fire Support Command and Contral (PdD FSC2) fielded AFATDS version 6.8.0 to the International Security Assistance Force (ISAF) in June 2013. PdD FSC2 fielded AFATDS version 6.8.0.1 in September 2014 to maintain compatibility with the fielded Joint Automated Deep Operations Coordination System (JADOCS) version 1.0.5.2. AFATDS version 6.8.1.1 remains under development with a Full Materiel Release projected for 3QFY2016. The PM projects that AFATDS version 6.8.1.1, the final software improvement under the superseded AFATDS Operational Requirements Document (ORD), will achieve Full Operational Capability (FOC) in 4QFQ2016.

Based on the approved AFATDS Increment 2 Capability Development Document (CDD), the Army Acquisition Executive approved the development of AFATDS version 7.0. This is a modernization of the existing software code to meet the approved key performance parameters as well as meet Army Common Operating Environment (COE) standards. The PM will re-design AFATDS version 7.0 to provide the operator role/duty-based interaction, a dynamic embedded training capability, and allowance for more efficient insertion of future capabilities. The PM will competitively award this contract for this effort in 3QFY2016 with fielding projected for FY2019.

Development of future AFATDS capabilities will be considered based on requirements approved through the Fires Center of Excellence (FCoE) Tactical Software Requirements Governance Board.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF8 / AFATDS Increment 1
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Management for AFATDS Development Support	Sub Allot	PM Mission Command (MC) : APG, MD	0.000	-		1.747		1.594		-		1.594	-	3.341	-
Risk Reduction Analysis, Solution Refinement, Requirements Development, RFP Development.	TBD	PM Mission Command (MC) : APG, MD	0.000	-		-		1.506		-		1.506	-	1.506	-
Subtotal			0.000	-		1.747		3.100		-		3.100	-	4.847	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Network Assisted GPS for Precision Fires Development	IA	PM Combat Ammunition Systems, PM Mission Command, and various Army agencies : Various Locations	0.000	-		1.000		-		-		-	-	1.000	-
Software Development of AFATDS Version 7.0	C/CPFF	TBD : TBD	0.000	-		-		14.733	May 2016	-		14.733	-	14.733	-
Software Development of AFATDS Version 6.8.1	C/CPFF	Raytheon Systems Corp. : Ft. Wayne, IN	0.000	-		12.600		-		-		-	-	12.600	33.188
Subtotal			0.000	-		13.600		14.733		-		14.733	-	28.333	33.188

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Information Assurance and Engineering Support	C/CPFF	CSC : Various Locations	0.000	-		1.060		-		-		-	-	1.060	0.405

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 7				PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)				EF8 / AFATDS Increment 1							
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
for AFATDS V6.8.x requirements															
Subtotal			0.000	-		1.060		-		-		-	-	1.060	0.405
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Developmental Test Support for AFATDS V7.0 requirements	C/CPFF	Engility : Various Locations	0.000	-		0.615		1.390		-		1.390	-	2.005	-
Government Confidence Demo for AFATDS V6.8.x requirements.	IA	Army Test & Evaluation Command (ATEC)/Fires Test Directorate (FTD) : Various Locations	0.000	-		0.700		-		-		-	-	0.700	-
Subtotal			0.000	-		1.315		1.390		-		1.390	-	2.705	-
Project Cost Totals			0.000	-		17.722		19.223		-		19.223	-	36.945	33.593
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF8 / AFATDS Increment 1
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020																							
	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																				
Development and Testing V6.8.1.1																																																
(1) Materiel Release V6.8.1.1																																																
Fielding V6.8.1.1 (OPA Funding)																																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS)	Project (Number/Name) EF8 / AFATDS Increment 1

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development and Testing V6.8.1.1	1	2015	1	2016
Materiel Release V6.8.1.1	3	2016	3	2016
Fielding V6.8.1.1 (OPA Funding)	3	2016	1	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	171.543	297.850	257.167	-	257.167	292.401	184.177	145.203	120.358	Continuing	Continuing
330: <i>Abrams Tank Improve Prog</i>	-	97.901	102.495	77.603	-	77.603	143.636	76.870	62.709	64.193	Continuing	Continuing
371: <i>Bradley Improve Prog</i>	-	73.642	76.192	73.775	-	73.775	113.999	83.848	57.647	30.846	Continuing	Continuing
EE2: <i>Stryker Improvement</i>	-	-	119.163	105.789	-	105.789	34.766	23.459	24.847	25.319	Continuing	Continuing

Note

The Stryker Improvement Program (Project EE2) was submitted under a new Program Element for the FY 2015 President's Budget. The previous Program Element was 0603653A/Project C03 and C51.

The FY 2016 funding request was reduced by \$55.853; Abrams (Project 330; \$35.769) and Bradley (Project 371; \$20.084) million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

The Army has approved engineering change proposals for the Abrams, Bradley and Stryker programs to restore lost platform capability and host inbound technologies.

This Program Element (PE) corrects vehicle deficiencies identified in Army operations; continues technical system upgrades to include the integration of applicable technologies on ground systems; addresses needed evolutionary enhancements to tracked combat vehicles; and develops technology improvements which have application to or insertion opportunities across multiple Ground Combat Systems vehicles. This PE provides combat effectiveness and Operating and Support (O&S) cost reduction enhancements for the Abrams tanks, Bradley Fighting Vehicles and Stryker Family of Vehicles (FOVs) through a series of product improvements.

The strategy for Abrams and Bradley will focus on incrementally delivering capability to the warfighter to meet both near-term limitations as well as mitigating gaps and maintaining combat overmatch in the future. This effort was approved by the Army Acquisition Executive in 3Q FY 2011.

The Abrams M1A2 SEP V2 and M2/M3A3 Bradley Fighting Vehicles are at or exceed Space, Weight, and Power-Cooling (SWaP-C) limitations. In order to host and restore lost platform capability, the Abrams Tank and Bradley Fighting Vehicle programs will execute a series of Engineering Change Proposals (ECPs) to support the current embedded systems and to facilitate integration of technologies currently in development under other existing Programs of Record. The ECPs are not intended to exceed the operational capability outlined in current system requirements documents, but rather to ensure that the existing system performance is not further degraded and that Army mission equipment packages can be integrated on the Abrams and Bradley Platforms.

Stryker Improvement Program will address Lethality, Survivability, Mobility, and Communication, Command, and Control (C3) issues with the Stryker family of vehicles. Primary focus is on the Stryker ECP 1 effort which will enable the Stryker Double-V Hull (DVH) fleet to buy back the Space, Weight, and Power-Cooling (SWaP-C) that has been lost as a result of vehicle changes required to counter the evolving threats that were present in the Theater of Operations. The ECP 1 effort will allow the DVH

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>
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fleet to host the future network without further degrading vehicle performance. The upgrade will increase available electrical power while ensuring adequate mechanical power, weight margin, and cooling. Combined with a digital backbone, this will ensure that the DVH fleet can host the future network while retaining its protection and mobility. Funding in FY16-20 supports continued development engineering, prototype build and testing efforts for Stryker ECP 1.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	177.437	295.177	318.674	-	318.674
Current President's Budget	171.543	297.850	257.167	-	257.167
Total Adjustments	-5.894	2.673	-61.507	-	-61.507
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-0.127			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-5.894	-			
• Adjustments to Budget Years	-	2.800	-61.507	-	-61.507

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: EE2: *Stryker Improvement*

Congressional Add: *Stryker ECP 1 Development (Engineering/Prototypes) Congressional Add*

Congressional Add: *Stryker ECP 1 Testing Congressional Add*

Congressional Add: *Contractor Support to Test Congressional Add*

Congressional Add Subtotals for Project: EE2

Congressional Add Totals for all Projects

	FY 2014	FY 2015
	-	21.755
	-	3.918
	-	3.327
Congressional Add Subtotals for Project: EE2	-	29.000
Congressional Add Totals for all Projects	-	29.000

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
330: <i>Abrams Tank Improve Prog</i>	-	97.901	102.495	77.603	-	77.603	143.636	76.870	62.709	64.193	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Army has approved engineering change proposals for the Abrams program to restore lost platform capability and host inbound technologies. The strategy for Abrams will focus on incrementally delivering capability to the warfighter to meet both near-term limitations as well as mitigating gaps and maintaining combat overmatch in the future. This effort was approved by the Army Acquisition Executive in 3Q FY 2011.

The Abrams vehicle is at or exceeds Space, Weight, and Power-Cooling (SWaP-C) limitations. In order to host and restore lost platform capability, the Abrams Tank will execute a series of Engineering Change Proposals (ECPs) to support the current embedded systems and to facilitate integration of technologies currently in development under other existing Programs of Record. The ECPs are not intended to exceed the operational capability outlined in current system requirements documents, but rather to ensure that the existing system performance is not further degraded and that Army mission equipment packages can be integrated on the Abrams Platforms. ECP 1B (formerly ECP 2) preparation/preliminary efforts begin in FY15 with developmental contract award expected in late FY16.

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

	FY 2014	FY 2015	FY 2016
Title: Abrams Engineering Change Proposal (ECP) 1A	87.844	87.692	33.038
Description: The improvements implemented through the Abrams ECP 1A Program will restore lost power generation and distribution, mitigate impending obsolescence, and incorporate inbound technologies currently under development in other existing Programs of Record. Incorporation of force protection improvements will counter evolving threats.			
FY 2014 Accomplishments: The Critical Design Review (CDR) occurred 3Q FY14. The system baseline was finalized to include the technology integration of Handheld Manpack Small (HMS) radios and Joint Battle Command-Platform (JBC-P) to enable network compatibility, Power Generation/Distribution (battery monitoring system, increased amperage generator, slip ring), auxiliary power unit, ammunition data link, armor protection upgrade, Counter Remote Control Improvised Explosive Device (RCIED) Electronics Warfare System (CREW) Duke V3, and Line replaceable modules. Began the nine (9) prototype vehicle builds.			
FY 2015 Plans: FY2015 efforts will consist of completing prototype builds, component qualification testing, contractor vehicle testing, and initial prototype handoff for government testing. Production contract preparation will begin.			
FY 2016 Plans: A System Verification Review and Production Readiness Review will be held in FY 2016. The ECP 1A Technical Data Package (TDP) will be approved in 2Q FY2016 to support a production contract award in late FY2016. United States Government (USG)			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Production Prove-out Test (PPT) will continue throughout FY2016. Engineering will complete root cause and corrective action work as test incident reports arise. Logistics Support Analysis (LSA), technical manual development/updates, Level of Repair Analysis (LORA), and Source of Repair Analysis (SORA) will continue. Preparation for Next Evolution Armor installation into prototypes for live fire testing will also begin.				
Title: ECP 1A Training Device Updates Description: Development and design of training device upgrades to reflect the ECP 1A upgrades to the vehicle. FY 2016 Plans: Development engineering for the Common Driver Trainer (CDT) upgrades to reflect the ECP 1A vehicle configuration.		-	-	0.300
Title: Abrams Engineering Change Proposal (ECP) 1B (formerly ECP 2) - Lethality ECP Description: The Abrams ECP 1B (formerly ECP 2) program consists mainly of lethality improvements. The primary focus is the integration of Improved Forward Looking Infrared (IFLIR) and the integration of Ammunition Data Link (ADL) for the Advanced Multi-purpose (AMP) round. Additional improvements to the target acquisition sensors consist of inclusion of color cameras and laser capabilities. Other potential improvements consist of an improved environmental control system, laser warning receiver, and vehicle smoke generation. Trade studies/analysis will be performed to evaluate other potential improvements. FY 2015 Plans: Begin contract development efforts on ECP 1B (Lethality improvements) to support late FY2016 contract award with continued synchronization with Product Managers (PMs) Bradley Fighting Vehicles, Ground Sensors, and Large Caliber Ammunition Systems. Trade studies/analysis will be performed to evaluate Improved Forward Looking Infrared (IFLIR) integration and the integration of Ammunition Data Link (ADL) for the Advanced Multi-purpose (AMP) round, as well as other potential improvements. FY 2016 Plans: Contract development efforts will continue on ECP 1B (lethality improvements). Contract award is expected in late FY2016. Continue synchronization with Product Managers (PMs) Bradley Fighting Vehicles, Ground Sensors, and Large Caliber Ammunition Systems. Trade studies/analysis will be performed to evaluate Improved Forward Looking Infrared (IFLIR) integration and the integration of Ammunition Data Link (ADL) for the Advanced Multi-purpose (AMP) round, and other potential improvements, i.e. environmental controls, smoke generation and other potential force protection elements. Requirements decomposition and traceability efforts will start in FY2016.		-	0.250	23.590
Title: Program Management Office (PMO) Support Description: Program Management Office Support includes Systems Engineering and Government and Contractor salaries, travel and other support costs required to effectively manage the program.		8.906	7.463	6.137

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p><i>FY 2014 Accomplishments:</i> Continued Government Systems Engineering and Program Management Office Support in FY14. This included labor, travel, training, supplies and equipment to effectively manage the program.</p> <p><i>FY 2015 Plans:</i> Continue Government Systems Engineering and Program Management Office Support in FY15. This will include labor, travel, training, supplies and equipment to effectively manage the program.</p> <p><i>FY 2016 Plans:</i> Continue Government Systems Engineering and Program Management Office Support in FY16. This will include labor, travel, training, supplies and equipment to effectively manage the program.</p>			
<p><i>Title:</i> Test & Evaluation</p> <p><i>Description:</i> Test and Evaluation to support the ECP 1A program will occur in two phases: Production Prove-out Testing (PPT), FY2015 - FY2018, and Production Qualification Test (PQT), FY2018 - FY2020. Contractor testing will be conducted in a structured environment determined by the Original Equipment Manufacturer (OEM). Government testing will be conducted by the U.S. Army Test and Evaluation Center (ATEC).</p> <p><i>FY 2014 Accomplishments:</i> Test & Evaluation efforts to support component level test events and planning and development of test documentation (Test Evaluation Program Plan (TEPP) and Test Evaluation Master Plan (TEMP)).</p> <p><i>FY 2015 Plans:</i> Continue Test & Evaluation efforts to support component level test events and planning and development of test documentation. Original Equipment Manufacturer (OEM) testing to include software, mobility, communications, and slope and grade testing will be conducted. Firing functionality of the main gun and secondary weapon systems will occur at Aberdeen Proving Grounds, MD and Yuma Proving Grounds, AZ.</p> <p><i>FY 2016 Plans:</i> Continue Test and Evaluation to support vehicle level test events and planning and development of test documentation. In 1Q FY16, gun firing and production prove-out testing as well as Automotive/Reliability, Availability and Maintainability (RAM) testing will begin. Electromagnetic Interference/Electromagnetic Compatibility (EMI/EMC) Testing will begin in 3QFY16. These test and evaluation events will occur at various test sites (Aberdeen Proving Ground, Yuma Proving Ground, and White Sands Missile Range).</p>	1.151	7.090	14.538
Accomplishments/Planned Programs Subtotals	97.901	102.495	77.603

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• Abrams Upgrade Program: <i>Abrams Upgrade Program (GA0750) WTCV</i>	90.000	120.000	-	-	-	-	-	-	-	-	210.000
• M1 Abrams Tank Mod (GA0700): <i>M1 Abrams Tank Mod (GA0700) WTCV</i>	178.100	237.023	367.939	-	367.939	489.437	606.014	451.773	496.647	16,622.398	19,449.331

Remarks

D. Acquisition Strategy

Abrams Engineering Change Proposal (ECP) 1A: Research & Development Contract - Sole Source, Cost Plus Incentive Fee (CPIF); ECP 1B - Research & Development Contract - Sole Source, Cost Plus Incentive Fee (CPIF)

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i>
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Abrams Engineering Change Proposal (ECP) 1A	SS/CPIF	General Dynamics Land Systems : Sterling Heights, MI	152.324	87.844	Mar 2014	87.692	Mar 2015	33.038	Mar 2016	-		33.038	-	360.898	-
ECP 1A Training Device Upgrades	MIPR	PEO, STRI : Orlando, FL	0.000	-		-		0.300	Mar 2016	-		0.300	-	0.300	-
Abrams ECP 1B - Lethality ECP	SS/CPIF	General Dynamics Land Systems : Sterling Heights, MI	0.000	-		0.250	Jan 2015	23.590	Jun 2016	-		23.590	-	23.840	-
Subtotal			152.324	87.844		87.942		56.928		-		56.928	-	385.038	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Management Office (PMO)Support	MIPR	PMO Support Offices : Various	42.660	8.906	Dec 2013	7.463	Jan 2015	6.137	Jan 2016	-		6.137	Continuing	Continuing	Continuing
Subtotal			42.660	8.906		7.463		6.137		-		6.137	-	-	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Testing	MIPR	Aberdeen Proving Ground; Yuma Proving Ground; White Sands Missile Range, : Various	11.173	1.151	Jan 2014	3.208	Jan 2015	11.650	Jan 2016	-		11.650	Continuing	Continuing	Continuing
Contractor Testing	Various	Various : Various	0.000	-		3.882	Mar 2015	2.888	Mar 2016	-		2.888	-	6.770	-
Subtotal			11.173	1.151		7.090		14.538		-		14.538	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army								Date: February 2015					
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i>					
	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	206.157	97.901		102.495		77.603		-		77.603	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020																											
	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) ECP 1A Critical Design Review (CDR)																																	▲ 1																			
ECP 1A Component Qualification Testing																																																				
ECP 1A Contractor Prototype Proveout																																																				
ECP 1A Production Prove-Out Testing																																																				
(2) ECP 1A Production Contract Award																																					▲ 2															
ECP 1A Live Fire Test & Evaluation (LFT&E)																																																				
ECP 1A Production Qualification Testing (PQT)																																																				
ECP 1A Logistics Demo																																																				
ECP 1A Follow-on Test and Evaluation (FOT&E)																																																				
(3) ECP 1A Fielding Start Date																																																				
(4) ECP 1B Development Contract Award																									▲ 4																											
(5) ECP 1B System Functional Review (SFR)																									▲ 5																											
(6) ECP 1B Preliminary Design Review (PDR)																									▲ 6																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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) ECP 1B Critical Design Review (CDR)																												



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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ECP 1A Critical Design Review (CDR)	3	2014	3	2014
ECP 1A Component Qualification Testing	4	2014	4	2015
ECP 1A Contractor Prototype Proveout	2	2015	1	2016
ECP 1A Production Prove-Out Testing	4	2015	1	2018
ECP 1A Production Contract Award	3	2016	3	2016
ECP 1A Live Fire Test & Evaluation (LFT&E)	1	2018	4	2018
ECP 1A Production Qualification Testing (PQT)	3	2018	2	2020
ECP 1A Logistics Demo	4	2018	3	2019
ECP 1A Follow-on Test and Evaluation (FOT&E)	4	2019	1	2020
ECP 1A Fielding Start Date	3	2020	3	2020
ECP 1B Development Contract Award	4	2016	4	2016
ECP 1B System Functional Review (SFR)	2	2017	2	2017
ECP 1B Preliminary Design Review (PDR)	2	2018	2	2018
ECP 1B Critical Design Review (CDR)	4	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				Project (Number/Name) 371 / <i>Bradley Improve Prog</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
371: <i>Bradley Improve Prog</i>	-	73.642	76.192	73.775	-	73.775	113.999	83.848	57.647	30.846	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not Applicable for this item.

A. Mission Description and Budget Item Justification

The M2/M3A3 Bradley Fighting Vehicle is at or exceeds Space, Weight, and Power-Cooling (SWAP-C) limitations. To restore lost platform capability and to host other Army Existing Programs of Record, the Bradley Fighting Vehicle program shall execute a series of Engineering Change Proposals (ECPs). ECP 1 improves vehicle's track and suspension while ECP 2 improves the power train and electrical system to enable the A3 fleet to host inbound technologies from Army Program of Records, including Handheld Manpack Small (HMS) Radios and Joint Battle Command – Platform (JBC-P). The ECPs are not intended to exceed the operational capability outlined in current system requirement documents, but rather to ensure that the existing system performance is not further degraded and that Army mission equipment packages can be integrated on the Bradley platform. ECP 2 development effort will lead to a production start in FY 2017. The Bradley M2A4 Vehicle is the combination of the Base Vehicle, ECP 1 and ECP 2. A separate integration effort began in FY 2014 for an underbelly armor kit for improved survivability against blast threats. Additionally, Improved Forward Looking Infrared (IFLIR) integration effort will begin in FY 2016 that will replace the current FLIR for increased lethality through improved target acquisition capability.

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

	FY 2014	FY 2015	FY 2016
Title: Bradley Engineering Change Proposal (ECP) Program	56.007	57.022	29.507
Description: The Bradley Fighting Vehicle System (BFVS) improvements implemented through the Engineering Change Proposal (ECP) Program will focus on restoring lost platform capability to support Army inbound technologies and to facilitate integration of technologies currently in development under other existing Programs of Record.			
FY 2014 Accomplishments: Completed the Critical Design Review, continued qualification testing to move forward with vehicle integration and contractor testing.			
FY 2015 Plans: Build ECP 2 prototypes and begin contractor component & qualification testing, Combat Simulation Integration Lab (CSIL), Vehicle Test Integration Lab (VTIL) test efforts and vehicle level system integration testing. Begin Production Qualification Test (PQT) planning, new equipment training and obtaining equipment for government test.			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 371 / <i>Bradley Improve Prog</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Contractor developmental testing continues throughout FY 2016 in various locations. Government developmental testing begins in 2Q FY 2016 at Yuma Proving Ground (YPG) and Aberdeen Proving Ground (APG) test sites. Software Qualification Testing (SQT) takes place in 2Q FY 2016. Suitability evaluations will incorporate analysis of Manpower and Personnel Integration (MANPRINT) domains and Logistics Development as part of Integrated Product Support (IPS) elements will be driven by the Live Fire (LF) Analysis that occurs throughout FY 2016. Engineering will complete root cause and corrective action work as test incident reports arise.				
<p>Title: Bradley Improvements</p> <p>Description: Continues Underbelly Armor Technologies and initiates Improved Forward Looking Infrared (IFLIR). The Bradley Family of Vehicles will integrate underbelly armor for improved survivability against blast threats and weight reduction efforts and integrates IFLIR for improved lethality.</p> <p>FY 2014 Accomplishments: Concept refinement and decision to support design development towards Underbelly optimized solution for EMD award based upon coordinated modeling and simulation from approved Training and Doctrine Command (TRADOC) requirements.</p> <p>FY 2015 Plans: Contract development efforts will continue on ECP 2B (lethality improvements). Initiate underbelly Trade Study that investigates kitted and System-Level solution trade space for a near-term interim underbelly effort and long-term system-level modification for increased force protection against underbelly threats.</p> <p>FY 2016 Plans: Contract development efforts will continue on ECP 2B (lethality improvements). Contract award is expected in late FY 2016. Continue synchronization with Product Managers (PDMs) MBTS, and Ground Sensors. Trade studies/analysis will be performed to evaluate IFLIR integration and other potential improvements, i.e. laser pointing, color camera, laser range finder, vehicle generated smoke, Vehicular Integration for Command, Control, Communication, Computers, Intelligence, Surveillance and, Reconnaissance/Electronic Warfare (C4ISR/EW) Interoperability (VICTORY) architecture compliance, Environmental Control System, etc. Requirements decomposition and traceability efforts will be started in FY 2016. Underbelly Armor kit development continues in FY 2016 with analysis and development of underbelly kits for increased blast threat survivability while analyzing possible weight savings strategies. Underbelly armor kit development major activities include official Project Initiation/kick-off, Requirements Analysis, Preliminary Design Work, and Modeling and simulation with major events to include system requirements & functional review.</p>		2.046	1.363	9.294
Title: Program Management Office (PMO) Support		11.322	11.766	12.001

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 371 / <i>Bradley Improve Prog</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Description: Program Management Office Support includes Systems Engineering, Government and Contractor salaries, travel and other support costs required to effectively manage the program.</p> <p>FY 2014 Accomplishments: Government System Engineering and Program Management Support Costs. These funds covered the costs of Government/ Contractor salaries, travel and the facilities required to effectively manage the program.</p> <p>FY 2015 Plans: Government System Engineering and Program Management Support Costs. These funds cover the costs of Government/ Contractor salaries, travel and the facilities required to effectively manage the program.</p> <p>FY 2016 Plans: Continue Government Systems Engineering and Program Management Office Support in FY 2016. This will include labor, travel, training, supplies and equipment to effectively manage the program.</p>			
<p>Title: Test & Evaluation</p> <p>Description: Test & Evaluation efforts support system sub-system test events and planning and development of test documentation.</p> <p>FY 2014 Accomplishments: Test & Evaluation efforts supported system sub-system test events and planning and development of test documentation. Began component qualification testing.</p> <p>FY 2015 Plans: Test & Evaluation efforts support system sub-system test events and planning and development of test documentation. Continue component qualification testing. Begin contractor vehicle testing and Government evaluation of contractor testing. Begin contractor component & qualification testing, Combat Simulation Integration Lab (CSIL), Vehicle Test Integration Lab (VTIL) test efforts and vehicle level system integration testing. Begin Production Qualification Test (PQT) planning, new equipment training and obtaining equipment for government test.</p> <p>FY 2016 Plans: Test and Evaluation to support vehicle level test events and planning and development of test documentation. Contractor developmental testing continues throughout FY 2016 in various contractor locations. Government developmental testing begins in 3Q FY 2016. Automotive/Reliability, Availability and Maintainability (RAM) testing will begin as well as automotive performance testing to ensure ECP 2 components do not degrade the current Bradley performance. These test and evaluation events will</p>	4.267	6.041	22.973

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 371 / <i>Bradley Improve Prog</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
occur at various test sites (Aberdeen Proving Ground, Yuma Proving Ground, and White Sands Missile Range). Software Qualification Testing (SQT) takes place in 2Q FY 2016.			
Accomplishments/Planned Programs Subtotals	73.642	76.192	73.775

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• GZ2400: <i>Bradley Program (MOD)</i>	158.000	136.006	225.042	-	225.042	303.672	519.588	573.807	578.628	5,231.449	7,726.192

Remarks

D. Acquisition Strategy

Product Manager Bradley will execute an Engineering Change Proposal (ECP) reestablishing Space, Weight, Power and Cooling (SWAP-C) to facilitate integration of technologies being developed under existing Programs of Record (POR). The proposed ECP will restore lost capability, not to exceed operational envelopes outlined in current approved requirement documents. ECP 1 production contract awarded in FY 2014, scheduled to begin fielding in FY 2015. ECP 2 is scheduled to field in FY 2019 to address powerpack and electrical power upgrades, which will enable the vehicle to host Army directed inbound technologies with no further performance degradation to the vehicle. This ECP development will be executed on a sole source cost plus incentive fee contract to the current platform Original Equipment Manufacturer. Initiate studies and analysis in order to integrate Improved Forward Looking Infrared (IFLIR) sights. The IFLIR (ECP 2B) system will be developed by Project Manager, Terrestrial Sensors (PM TS) and be provided to Product Manager Bradley as a Horizontal Technology Insertion effort. Initiate development contract for Underbelly armor kit development in FY 2016.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 371 / Bradley Improve Prog							
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Bradley Modernization Program	SS/CPPIF	PMO : Warren	79.009	-		-		-		-		-	-	79.009	-
Non Recurring Engineering	SS/CPFF	L3COM : Muskegon, MI	5.630	8.000	Apr 2014	1.030	Apr 2015	0.515	Apr 2016	-		0.515	Continuing	Continuing	Continuing
Non Recurring Engineering	SS/CPPIF	BAE : Sterling Heights, MI	63.342	48.007	Jun 2014	55.992	Apr 2015	28.992	Jan 2016	-		28.992	Continuing	Continuing	Continuing
Bradley Improvement Integration - ECP2B	SS/TBD	BAE : Sterling Heights, MI	0.000	-		1.363	Jun 2015	6.662	Jun 2016	-		6.662	Continuing	Continuing	Continuing
Bradley Improvement Integration - Underbelly Armor	SS/TBD	BAE : Sterling Heights, MI	0.000	2.046	Jun 2014	-		2.632	Aug 2016	-		2.632	Continuing	Continuing	Continuing
Subtotal			147.981	58.053		58.385		38.801		-		38.801	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
PMO/PEO Support	MIPR	PMO/PEO : Bradley ECP Program	10.549	3.952	Dec 2013	6.340	Dec 2014	6.466	Dec 2015	-		6.466	Continuing	Continuing	Continuing
Government Engineering Support	MIPR	Various : Bradley ECP Program	19.889	7.370	Dec 2013	5.426	Dec 2014	5.535	Dec 2015	-		5.535	Continuing	Continuing	Continuing
Subtotal			30.438	11.322		11.766		12.001		-		12.001	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Government Testing	MIPR	Various : Test Sites	2.760	1.812	May 2014	2.691	May 2015	19.487	May 2016	-		19.487	Continuing	Continuing	Continuing
Contractor Testing	SS/CPPIF	BAE : Various	0.000	2.455	May 2014	3.350	Apr 2015	3.486	Jan 2016	-		3.486	Continuing	Continuing	Continuing
Subtotal			2.760	4.267		6.041		22.973		-		22.973	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 371 / <i>Bradley Improve Prog</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Bradley M2A4 Engineering Change Proposal 2 Program																												
(1) Critical Design Review																												
Component Qualification Testing																												
Contractor Vehicle Testing																												
Production Qualification Test (PQT)																												
(2) Production Contract Award																												
(3) 1st Vehicle Delivery																												
Operational Test and Evaluation																												
(4) First Unit Equipped (FUE)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) 371 / <i>Bradley Improve Prog</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Bradley M2A4 Engineering Change Proposal 2 Program	1	2012	4	2019
Critical Design Review	4	2014	4	2014
Component Qualification Testing	3	2014	3	2015
Contractor Vehicle Testing	3	2015	3	2016
Production Qualification Test (PQT)	2	2016	2	2018
Production Contract Award	3	2017	3	2017
1st Vehicle Delivery	2	2019	2	2019
Operational Test and Evaluation	4	2019	1	2020
First Unit Equipped (FUE)	3	2019	3	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				Project (Number/Name) EE2 / <i>Stryker Improvement</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EE2: <i>Stryker Improvement</i>	-	-	119.163	105.789	-	105.789	34.766	23.459	24.847	25.319	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY15, PE Number 0203735A/Project EE2 funds the Stryker Engineering Change Proposal (ECP) 1 program, which was previously funded by PE Number 0603653A/Project C03/C51.

A. Mission Description and Budget Item Justification

Funding will address Lethality, Survivability, Mobility, and Communication, Command, and Control (C3) issues with the Stryker family of vehicles. Primary focus is on the Stryker ECP 1 effort which will enable the Stryker Double-V Hull (DVH) fleet to buy back the Space, Weight, and Power-Cooling (SWaP-C) that has been lost as a result of vehicle changes required to counter the evolving threats that were present in the Theater of Operations. The ECP 1 effort will allow the DVH fleet to host the future network without further degrading vehicle performance. The upgrade will increase available electrical power while ensuring adequate mechanical power, weight margin, and cooling. Combined with a digital backbone, this will ensure that the DVH fleet can host the future network while retaining its protection and mobility. Funding in FY2015-2020 supports continued development engineering, prototype build and testing efforts for Stryker ECP 1.

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

	FY 2014	FY 2015	FY 2016
Title: Stryker ECP 1 Development (Engineering/Prototypes)	-	82.401	63.045
Description: Funding is provided for the following effort			
FY 2015 Plans: Continuing development engineering for the Stryker ECP 1 upgrades and procuring prototypes for the engine, alternator, suspension and in-vehicle network on the DVH variants.			
FY 2016 Plans: Contractor effort to complete ECP1 design for the 7 Stryker Double-V Hull (DVH) variants, to include the Mortar Carrier Vehicle (MCVV), Anti-Tank Guided Missile Vehicle (ATVV), Fire Support Vehicle (FSVV), Engineering Support Vehicle (ESVV), Commanders Vehicle (CVV), Infantry Carrier Double-V (ICVV) and Medical Evaluation Vehicle (MEVV). Completion of ECP 1 prototype builds continuation of logistics products (e.g., Repair Parts and Special Tools List, Provisioning Source Data and Training Products) and development.			
Title: Training Device Updates	-	3.588	4.784
Description: Funding is provided for the following effort			
FY 2015 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) EE2 / <i>Stryker Improvement</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Continuing the development and design of training device upgrades to reflect the ECP 1 upgrades to the vehicles. FY 2016 Plans: Continuing the development and design of training device upgrades to reflect the Stryker ECP 1 upgrades to the vehicles.				
Title: Stryker ECP 1 Testing Description: Funding is provided for the following effort FY 2016 Plans: Continue test execution and logistic demonstration activities for the Stryker ECP 1 upgrade technologies, including tests for safety and human factors, automotive, Communications, Command, and Control (C3), Tropic and Cold Regions and Live Fire testing. These tests include full-up system level live fire, reliability and maintainability, environmental performance, automotive performance, electronics and information assurance testing. These events will be conducted at various test sites throughout the US including Aberdeen Proving Ground (APG), Yuma Proving Ground (YPG), Cold Regions Test Center (CRTC), Tropic Regions Test Center (TRTC), Electronic Proving Ground (EPG) and White Sands Missile Range (WSMR).		-	-	26.729
Title: Contractor Support to Test Description: Funding is provided for the following effort FY 2016 Plans: Continue support of the Stryker ECP 1 platforms during test, which includes vehicle maintenance/repair, support for developmental test and Live Fire testing.		-	-	7.816
Title: Government Engineering and Project Management Description: Funding is provided for the following effort FY 2015 Plans: Continuing Government Systems Engineering and Program Management support which includes labor, travel, training, supplies and equipment. FY 2016 Plans: Continuing Government Systems Engineering and Program Management support which includes labor, travel, training, supplies and equipment.		-	4.174	3.415
Accomplishments/Planned Programs Subtotals		-	90.163	105.789

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) EE2 / <i>Stryker Improvement</i>

	FY 2014	FY 2015
Congressional Add: Stryker ECP 1 Development (Engineering/Prototypes) Congressional Add FY 2015 Plans: Non-Recurring Engineering (NRE) to integrate ECP into 4th DVH ECP Brigade, continues development engineering of the Stryker ECP 1 upgrades and procuring prototypes for the engine, alternator, suspension, and in-vehicle network on the DVH variants.	-	21.755
Congressional Add: Stryker ECP 1 Testing Congressional Add FY 2015 Plans: Supports the development test planning and execution for the ECP 1 upgrade technologies, including tests for safety and human factors, automotive, Communications, Command and Control (C3) and Tropic testing.	-	3.918
Congressional Add: Contractor Support to Test Congressional Add FY 2015 Plans: Contractor support of test planning and execution, to include test preparation, vehicle maintenance/repair and technical support during developmental tests.	-	3.327
Congressional Adds Subtotals	-	29.000

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• Stryker Vehicle: <i>Stryker Vehicle (G85100)</i>	419.100	435.110	181.245	-	181.245	72.260	-	-	-	198.820	1,306.535
• Stryker Modification: <i>Stryker Modification (GM0100)</i>	20.522	39.683	74.085	-	74.085	42.150	76.399	506.376	535.815	1,836.773	3,131.803
• Stryker Upgrade: <i>Stryker Upgrade (G85200)</i>	-	-	305.743	-	305.743	418.163	434.585	112.388	77.780	-	1,348.659
• Stryker Modernization: <i>Stryker Modernization (643653A/C51)</i>	54.259	-	-	-	-	-	-	-	-	-	54.259

Remarks

AAE approval for a 3rd DVH SBCT Brigade of 337 Exchange Vehicles was given on July 26, 2013 (funded in G85100). ASARC production decision planned for 4th quarter FY2016 will provide approval to begin 4th Brigade DVH ECP 1 production, which will be funded in Stryker Upgrade (G85200). Stryker MOD (GM0100) is for Stryker Fleet modifications to include ECP 1 retrofits to the Stryker fleet starting in FY19. Prior to FY15, PE 0603653A/Project C51 funded the Stryker Engineering Change Proposal (ECP) 1 program.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) EE2 / <i>Stryker Improvement</i>

D. Acquisition Strategy

The Stryker ECP 1 effort will buy back the vehicle space, weight, and power margin lost due to the addition of numerous kits in response to eleven years of war (20-combat rotations & 37+ million total miles), in order to allow integration of the future network (as directed by VCSA in August 2011) without further degrading the performance of the platform. In May 2012, Stryker ECP 1 program (Phase I) was approved, permitting preliminary design and integration efforts on both the Flat Bottom (FB) and Double-V Hull (DVH) variants. In March 2013, Phase II approved upgrading the mechanical power, electrical power generation, chassis upgrades and the in-vehicle network for the DVH vehicles. Based on additional testing conducted in the summer of 2013, the decision was made to focus ECP efforts on the DVH and defer efforts on flat bottom Strykers. ECP 1 Phase II contract, awarded November 25, 2013, continues development engineering, prototype build test and evaluation. The Production decision (Phase III) will determine the production requirements of the technologies selected in Phase II. Beginning in FY15, PE Number 0203735A Project EE2 funds the Stryker ECP 1 program, which was previously funded by PE Number 0603653A/Project C03 (FY13) and Project C51 (through FY14).

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 7				PE 0203735A / Combat Vehicle Improvement Programs				EE2 / Stryker Improvement							
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Project Management Office (PMO)	RO	TACOM, MI : Various	0.000	-		4.174	Oct 2014	3.415	Nov 2015	-		3.415	Continuing	Continuing	-
Subtotal			0.000	-		4.174		3.415		-		3.415	-	-	-
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Stryker ECP 1 Development	SS/CPIF	GDLS, MI : Various	0.000	-		104.156	Oct 2014	63.045	Oct 2015	-		63.045	Continuing	Continuing	-
Training Device Updates	MIPR	PEO STRI, FL : Various	0.000	-		3.588	Mar 2015	4.784	Mar 2016	-		4.784	Continuing	Continuing	-
Subtotal			0.000	-		107.744		67.829		-		67.829	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Stryker ECP 1 Testing	Various	Various Test Centers, Multiple : Various	0.000	-		3.918	Dec 2014	26.729	Dec 2015	-		26.729	Continuing	Continuing	-
Contractor Support to Test	SS/CPFF	GDLS, MI : Various	0.000	-		3.327	Oct 2014	7.816	Oct 2015	-		7.816	Continuing	Continuing	-
Subtotal			0.000	-		7.245		34.545		-		34.545	-	-	-
Project Cost Totals			0.000	-		119.163		105.789		-		105.789	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) EE2 / <i>Stryker Improvement</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Stryker Engineering Change Proposal (ECP) 1 (Phase II)	Design/Prototype/Logistics Products																											
(1) ECP 1 Critical Design Review (Phase II)	CDR																											
Tropic Region Test	Tropic Region Test																											
Cold Region Test	Cold Region Test																											
Safety/Performance/RAM Test	Safety/Performance/RAM Test																											
(2) Production Decision (ASARC) (Phase III)	Production Decision																											
ECP Production (Phase III)	ECP Production																											
Follow-on Test & Evaluation	Follow-on Test & Evaluation																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) EE2 / <i>Stryker Improvement</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Stryker Engineering Change Proposal (ECP) 1 (Phase II)	1	2014	2	2018
ECP 1 Critical Design Review (Phase II)	1	2015	1	2015
Tropic Region Test	1	2016	1	2017
Cold Region Test	1	2016	3	2016
Safety/Performance/RAM Test	4	2015	2	2018
Production Decision (ASARC) (Phase III)	3	2016	3	2016
ECP Production (Phase III)	4	2017	4	2020
Follow-on Test & Evaluation	2	2018	3	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0203740A / Maneuver Control System							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	35.337	45.065	15.445	-	15.445	7.179	6.627	6.402	5.266	Continuing	Continuing
484: Maneuver Control System	-	35.337	45.065	15.445	-	15.445	7.179	6.627	6.402	5.266	Continuing	Continuing

Note

FY 2016 funding will support core TMC missions.

The decrease in FY2016-2020 funding reflects the realignment of Common Operating Environment (COE) Infrastructure development and application migration onto a new common core foundation to a separate funding line, Command Post Computing Environment (CPCE) PE/Project 0604818/EJ4.

A. Mission Description and Budget Item Justification

Tactical Mission Command (TMC) is a suite of products and services that provide commanders and their staff executive decision making capability in a collaborative environment. The suite of products currently in development consist of Command Web (CW), Tactical Applications (TacApps), and an Army Voice Communication System (WAVE). TMC satisfies requirements and capabilities identified in the MCS 6.4 Capability Production Document and the Battle Command Sustainment Support System (BCS3) Capability Production Document. The overarching capability includes a user-defined Common Operating Picture (COP) with integrated Command and Control (C2) and Situational Awareness (SA), map-centric collaboration, Army Mission Command Systems (and others) enabling system interoperability, data management, and enterprise services. TMC contributes to Mission Command (MC) Convergence/COE development for commanders and staff to effectively conduct collaborative mission planning and execution across a range of operations and spectrum of conflict. Legacy products supported by this Budget Item include Command Post of the Future (CPOF), Battle Command Common Services (BCCS), Logistics Widgets, and Common Tactical Vision (CTV).

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	36.475	45.092	66.754	-	66.754
Current President's Budget	35.337	45.065	15.445	-	15.445
Total Adjustments	-1.138	-0.027	-51.309	-	-51.309
• Congressional General Reductions	-	-0.027			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-1.138	-	-51.309	-	-51.309

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203740A / Maneuver Control System				Project (Number/Name) 484 / Maneuver Control System			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
484: Maneuver Control System	-	35.337	45.065	15.445	-	15.445	7.179	6.627	6.402	5.266	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The decrease in FY 16 - FY20 reflects realignment of COE Infrastructure development and application migration onto a new common core foundation to a separate funding line - Command Post Computing Environment (CPCE) Proj/PE 604818.EJ4.

A. Mission Description and Budget Item Justification

Tactical Mission Command (TMC) is a suite of products and services that provide commanders and their staff executive decision making capability in a collaborative environment. The suite of products currently in development consist of Command Web (CW), Tactical Applications (TacApps), and WAVE. TMC satisfies requirements and capabilities identified in the MCS 6.4 Capability Production Document and the Battle Command Sustainment Support System (BCS3) Capability Production Document. The overarching capability includes a user-defined COP with integrated Command and Control (C2) and Situational Awareness (SA), map-centric collaboration, Army Mission Command Systems (and others) enabling system interoperability, data management, and enterprise services. TMC contributes to MC Convergence/Common Operating Environment (COE) development for commanders and staff to effectively conduct collaborative mission planning and execution across a range of operations and spectrum of conflict. Legacy products supported by this Budget Item include Command Post of the Future (CPOF), Battle Command Common Services (BCCS), Logistics Widgets, and Common Tactical Vision (CTV).

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Title: Tactical Applications (TacApps)</p> <p>Description: COE v3 CPCE compliant solution set encompassing the capabilities of CW, CTV, CPOF, & Logistic Widgets with in a seamless suite. Enhance ease of use and admin simplification</p> <p>FY 2015 Plans: Developing detailed requirements, architecture and design in support of COE v3 CPCE contributions</p> <p>FY 2016 Base Plans: Development & Integration of TacApps</p>	-	26.277	9.518	-	9.518
<p>Title: Battle Command Common Services Development</p> <p>Description: Battle Command Common Services Development</p> <p>FY 2014 Accomplishments:</p>	7.255	8.736	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army			Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203740A / Maneuver Control System	Project (Number/Name) 484 / Maneuver Control System			
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Battle Command Common Services Development FY 2015 Plans: Battle Command Common Services Development					
Title: Mission Command Convergence Description: Mission Command Convergence Development and Integration FY 2014 Accomplishments: Mission Command Convergence Software Development and Integration for TAIS, BCS3, & Common Software (CS) FY 2015 Plans: Mission Command Convergence - Software Development and Integration for BCS3 and Common Software (CS)	7.814	10.052	-	-	-
Title: CPOF Development Description: CPOF Development FY 2014 Accomplishments: CPOF Development	19.259	-	-	-	-
Title: Command Web Development Description: Command Web provides information sharing of strategic and tactical operational and intelligence data through applications and services and provides the product platform for transition to the CP CE. FY 2014 Accomplishments: Development and Integration of COE v1/COE v2 CPCE contributions FY 2016 Base Plans: Final development of COE v2 CPCE contributions and standards/application interface integration of COE v1 CPCE contributions	1.009	-	0.441	-	0.441
Title: Test and Evaluation Description: Encompasses formal test (operational assessment/test, joint certification, interoperability, and information assurance) and informal testing such as acceptance testing and risk reduction testing. FY 2016 Base Plans:	-	-	3.152	-	3.152

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203740A / <i>Maneuver Control System</i>	Project (Number/Name) 484 / <i>Maneuver Control System</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Formal test (Joint certification, interoperability, and information assurance) and informal testing such as acceptance testing and risk reduction testing.					
Title: Program Management Office	-	-	2.334	-	2.334
Description: Codification of program operational requirements into discrete technical packages for development, testing, deployment, and support over the systems lifecycle.					
FY 2016 Base Plans: Codification of program operational requirements into discrete technical packages for development, testing, deployment, and support over the systems lifecycle					
Accomplishments/Planned Programs Subtotals	35.337	45.065	15.445	-	15.445

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• Funding: <i>BA9320 Maneuver Control System (MCS)</i>	18.179	95.455	145.405	0.252	145.657	172.458	172.943	104.706	75.546	Continuing	Continuing
• SPARES: <i>BS9710 MCS Spares Procurement</i>	0.655	0.637	0.626	-	0.626	0.599	4.907	4.911	-	Continuing	Continuing

Remarks
TMC also executes funding from the CPCE budget line (0604818A EJ4) for CPCE specific activities.

D. Acquisition Strategy
In accordance with the Training and Doctrine Command (TRADOC) requirements document approved in 2008, Maneuver Control System Capabilities Production Document, software capability will be developed in 3-year increments as capability sets designed to deploy specified Mission Command Essential Capabilities to operating force commanders and their integrated battle staffs.
This strategy accounts for subsequent Army directives and migration to the Army Common Operating Environment (COE); designed to optimize opportunities for improved interoperability. The products developed under this funding line are an integral part of the Army Mission Command System of Systems.

E. Performance Metrics
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203740A / Maneuver Control System	Project (Number/Name) 484 / Maneuver Control System
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Office Mgmt	Various	PM Mission Command : Aberdeen Proving Grounds, MD	13.758	1.922	Jan 2014	2.112	Jan 2015	2.334	Jan 2016	-		2.334	Continuing	Continuing	Continuing
Subtotal			13.758	1.922		2.112		2.334		-		2.334	-	-	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Tactical Applications (TacApps)	IA	Software Development WSEC : Picatinny Arsenal, NJ	0.000	-		9.898	Mar 2015	9.518	Mar 2016	-		9.518	-	19.416	-
Command Web Development	Various	CECOM SEC : APG, MD	0.000	1.009	Nov 2013	-		0.441	Oct 2015	-		0.441	-	1.450	-
Mission Command Convergence - CP CE Software Development & Integration (Log Widgets)	Various	Log Widgets IBM : Bethesda, MD	0.000	2.011	Apr 2014	1.654	Apr 2015	-		-		-	Continuing	Continuing	-
Misc Contracts	Various	Various : Various	24.931	-		-		-		-		-	Continuing	Continuing	Continuing
ABCS SoS Contract (Joint Convergence Development)	Various	Lockheed Martin : Tinton Falls, NJ	6.404	-		-		-		-		-	Continuing	Continuing	Continuing
Technical Support	Various	PM Mission Command/SEC : Various	26.320	0.931	Nov 2013	-		-		-		-	Continuing	Continuing	Continuing
CPOF Development	Various	General Dynamics : Scottsdale, AZ	117.996	19.259	Feb 2014	-		-		-		-	Continuing	Continuing	Continuing
ABCS SoS Contract (Joint Convergence Development) Follow-on	Various	General Dynamics : Scottsdale, AZ	1.025	-		-		-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203740A / Maneuver Control System	Project (Number/Name) 484 / Maneuver Control System
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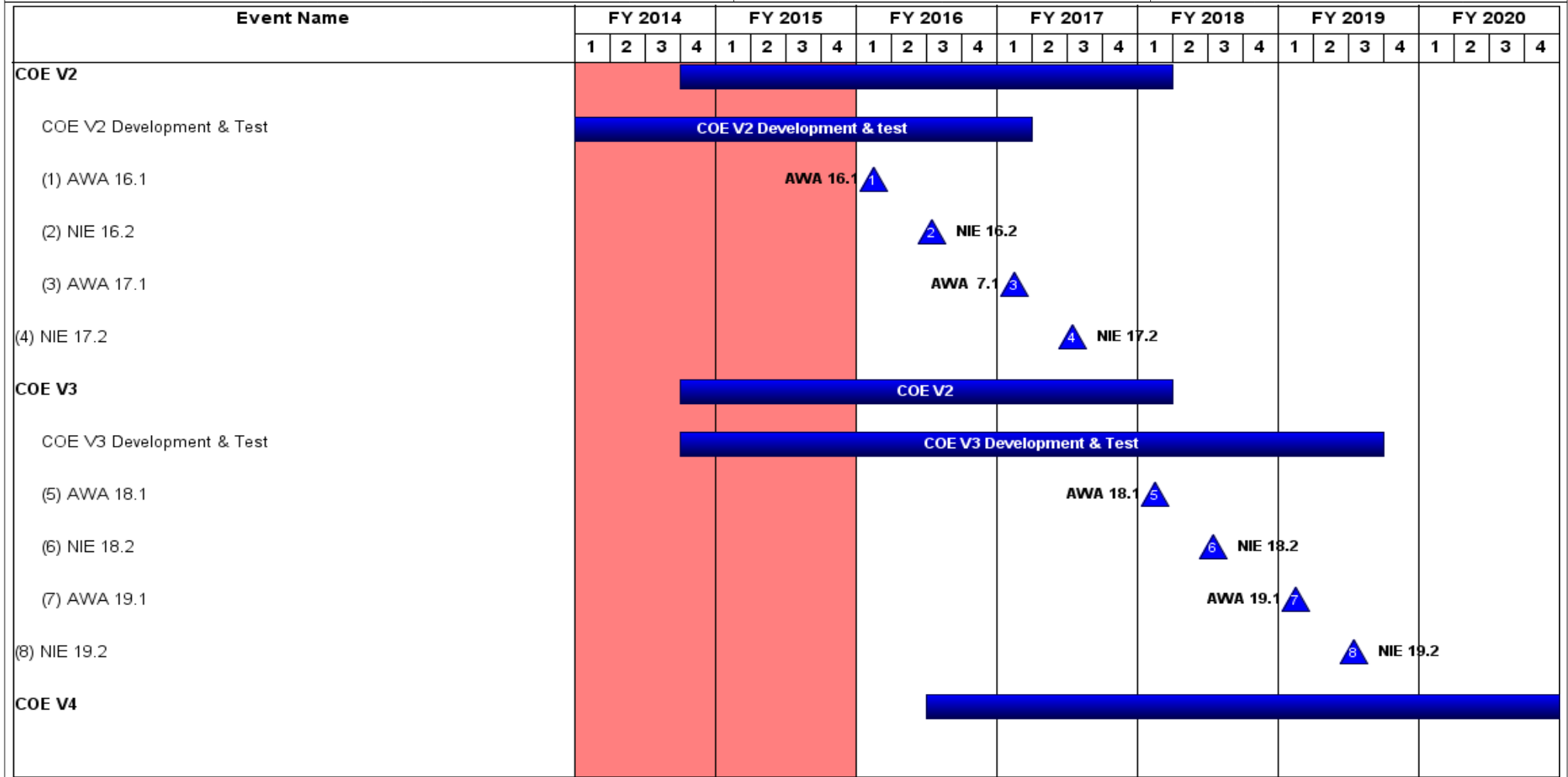
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mission Command Convergence Development & Integration	Various	Various : Various	42.698	-		-		-		-		-	Continuing	Continuing	Continuing
Mission Command Convergence - CP CE Software Development & Integration (Common Software)	Various	software development Future Skies : APG, MD	0.000	3.462	Jan 2014	8.399	Jan 2015	-		-		-	-	11.861	-
Mission Command Convergence Development & Integration (TAIS)	Various	software development SED : Redstone Arsenal, AL	0.000	2.103	Feb 2014	-		-		-		-	-	2.103	-
Software Development & Technical Support for BCCS	Various	CECOM Software Engineering Center : APG, MD	58.655	2.321	Nov 2013	8.736	Nov 2014	-		-		-	Continuing	Continuing	Continuing
PAL Integration	IA	SRI : AZ	11.000	-		-		-		-		-	Continuing	Continuing	-
Subtotal			289.029	31.096		28.687		9.959		-		9.959	-	-	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Misc Engineering Support	Various	PM Mission Command/SEC : Aberdeen Proving Ground, MD	8.935	0.255	Feb 2014	1.150	Feb 2015	-		-		-	Continuing	Continuing	Continuing
Misc Contracts	Various	PM Mission Command : Aberdeen Proving Ground	5.539	0.204	Feb 2014	-		-		-		-	Continuing	Continuing	Continuing
Subtotal			14.474	0.459		1.150		-		-		-	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203740A / <i>Maneuver Control System</i>	Project (Number/Name) 484 / <i>Maneuver Control System</i>
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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203740A / <i>Maneuver Control System</i>	Project (Number/Name) 484 / <i>Maneuver Control System</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
COE V4 Development and Test																	COE V4 Development and Test											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203740A / <i>Maneuver Control System</i>	Project (Number/Name) 484 / <i>Maneuver Control System</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
COE V2	4	2014	1	2018
COE V2 Development & Test	4	2013	1	2017
AWA 16.1	1	2016	1	2016
NIE 16.2	3	2016	3	2016
AWA 17.1	1	2017	1	2017
NIE 17.2	3	2017	3	2017
COE V3	4	2014	1	2018
COE V3 Development & Test	4	2014	3	2019
AWA 18.1	1	2018	1	2018
NIE 18.2	3	2018	3	2018
AWA 19.1	1	2019	1	2019
NIE 19.2	3	2019	3	2019
COE V4	3	2016	1	2022
COE V4 Development and Test	2	2017	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	227.333	-	-	-	-	-	-	-	-	Continuing	Continuing
430: Impr Cargo Helicopter	-	18.616	-	-	-	-	-	-	-	-	Continuing	Continuing
504: Black Hawk Recapitalization/Modernization	-	94.527	-	-	-	-	-	-	-	-	Continuing	Continuing
D17: Apache Block III	-	112.419	-	-	-	-	-	-	-	-	-	112.419
D18: Fixed Wing Aircraft	-	1.771	-	-	-	-	-	-	-	-	-	1.771

A. Mission Description and Budget Item Justification

Prior to FY 2015, this PE funded budget requests for aviation development of modifications and improvements for the Improved Cargo Helicopter, the UH-60L Black Hawk Recapitalization/Modernization, Apache Block III, and Fixed Wing Aircraft.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	239.696	264.887	256.677	-	256.677
Current President's Budget	227.333	-	-	-	-
Total Adjustments	-12.363	-264.887	-256.677	-	-256.677
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-12.363	-264.887	-256.677	-	-256.677

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) 430 / Impr Cargo Helicopter
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
430: <i>Impr Cargo Helicopter</i>	-	18.616	-	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
PE 273744 Project Number 430 was realigned starting in FY 15 to new PE 0607137A Project Number ES4.

A. Mission Description and Budget Item Justification

The CH-47 Chinook is the only heavy lift helicopter for the Army and is an essential element of the current Army Aviation master plan. This program funds improvements to the CH-47F System that include: T55-GA-714A engine control and component upgrades to increase power to support emerging 6K/95 requirements, continued development and testing of the Advanced Chinook Rotor Blades (ACRB) which will provide increased lift in high/hot conditions and reduce O&S costs. Production of the ACRB will begin in FY 2017. Funding also initiates advanced flight control and drive train component improvements to improve aircraft performance. Development of requirements specifications, studies and risk reduction prototyping are also part of this effort.

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

	FY 2014	FY 2015	FY 2016
<p>Title: 714 Engine Component Improvement Program</p> <p>Description: Included in the Engine Component Improvement Program are improvements that address improved performance, reduced maintenance burden for better maintainability for the Soldier, improved safety, and increased reliability leading to reduced O&S costs. Improvements include improved component designs/updates and electronic control unit software.</p> <p>FY 2014 Accomplishments: Included in the Engine Component Improvement Program are improvements that address increased maintainability, improved safety, and increased reliability leading to reduced O&S costs. Improvements include component design/updates and related component design and improved electronic control unit software.</p>	9.685	-	-
<p>Title: Airframe Component Improvement Program</p> <p>Description: Included in the Airframe Component Improvement Program are the continued development and flight testing of the Advanced Chinook Rotor Blade (ACRB) and development of advanced flight control and drive train components. The ACIP will also assess potential improvements to the fuel system and structural modifications for improved aircraft performance, aircraft weight reduction, and reduction of O&S costs.</p> <p>FY 2014 Accomplishments: Included in these efforts are development and testing of the Advanced Chinook Rotor Blade (ACRB) that will result in significant performance improvements such as providing approximately 1,975 lbs of additional lift, improving erosion protection, and reducing</p>	8.931	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) 430 / Impr Cargo Helicopter

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
O&S costs. Funding continues airframe weight reductions and component development of advanced flight controls, drive train, rotor system, and fuel system to increase aircraft performance, reduce aircraft weight, and reduce O&S costs.			
Accomplishments/Planned Programs Subtotals	18.616	-	-

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• AA0252: CH-47 CARGO HELICOPTER MODS	91.064	-	-	-	-	-	-	-	-	-	Continuing
• A05105: CH-47 SLEP (Including Adv Proc)	639.021	-	-	-	-	-	-	-	-	-	Continuing
• A05008: CH-47 CARGO HELICOPTER NEW BUILD	290.005	-	-	-	-	-	-	-	-	-	Continuing

Remarks

D. Acquisition Strategy

The CH-47F program replaces one for one, the aging CH-47D aircraft by FY2020, incorporates a new machined airframe, and includes a new Common Avionics Architecture System (CAAS) cockpit with digital communication/navigation capability allowing improved interoperability on the digital battlefield. The CH-47F program includes recapitalization of key dynamic components, bringing them to a near zero time.

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) 430 / Impr Cargo Helicopter
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Full Rate Production	Full Rate Production																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) 430 / Impr Cargo Helicopter

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Full Rate Production	2	2005	2	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs				Project (Number/Name) 504 / Black Hawk Recapitalization/ Modernization			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
504: Black Hawk Recapitalization/Modernization	-	94.527	-	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The H-60L Digital BLACK HAWK, now designated as UH-60V, is designed to update the existing H-60L analog architecture to a digital infrastructure enabling the upgraded aircraft to have a similar Pilot-Vehicle Interface (PVI) to the H-60M. The program will address current capability gaps and meet operational requirements by employing an evolutionary acquisition approach to leverage mature technologies that have been successfully integrated on other military aircraft. The program will reduce obsolescence and increase commonality and interoperability by installing a digital cockpit, bussing and upgrading the communication/identification suite, improving navigation guidance, and integrating Aircraft Survivability Equipment (ASE), digital moving map, and Joint Variable Message Format (JVFM) messaging.

This line has been moved to the new PE 677135 starting in FY15 and out.

The Improved Turbine Engine Program (ITEP) develops, tests, and qualifies the next generation turboshaft engine. The Improved Turbine Engine (ITE) replaces the existing T700 engine design originated in the 1970's and meets the operational requirement of 6K/95. The ITE will fit inside the existing engine bays of the Black Hawk and Apache Helicopters and provides a significant power enhancement of up to fifty percent (total of 3,000 shaft horsepower) with increased fuel efficiency. Additional benefits include improved design life, enhanced reliability, lower maintenance cost and restored capability lost due to aircraft weight growth, without increasing the logistics footprint. The program consists of system engineering and program management, detailed design engineering, design assurance, hardware manufacturing and testing, component and module level development and testing, system level testing and qualification, as well as integration into the airframe.

FY 2014 ITEP (\$79.880M) funds system engineering/program management, continuing component testing, and initial airframe integration efforts. All funding for ITEP for FY 2015 and beyond is located in Project Element (PE) 0203744A - Project EB1. FY 2014 UH-60V (\$17.3M) funded within PE 0203744A. Funds required for systems engineering/program management and preliminary hardware and software development leading to up to program readiness for preliminary design review

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

	FY 2014	FY 2015	FY 2016
Title: ITEP	94.527	-	-
Description: Improved Turbine Engine Program (ITEP) - a multi-platform turbine engine improvement required across existing Army aircraft to fill the capability gaps for Army Aviation Operations.			
FY 2014 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) 504 / Black Hawk Recapitalization/ Modernization

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Systems Engineering/Program Management requirements. Continue preparation for Milestone entry, development of contractor requirements package, initial airframe integration efforts and continued engine component testing.			
Accomplishments/Planned Programs Subtotals	94.527	-	-

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

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• N/A: N/A	-	-	-	-	-	-	-	-	-		

Remarks
Due to UH-60V RDTE funding being moved to another line (PE 0607136 Project ES3) no other program funding is dependent on this PE line.

D. Acquisition Strategy

The UH-60V program plans to leverage a Government-owned Government-operated (GOGO) facility to design, integrate and build 3 production representative aircraft. The GOGO facility uses a cost plus vehicle and will conduct full and open competition for the selection of the avionics solution provider.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) 504 / Black Hawk Recapitalization/ Modernization
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
ITEP SEPM - Organic	Various	PMO : Huntsville, AL	3.707	3.400	Dec 2013	-		-		-		-	Continuing	Continuing	Continuing
ITEP SEPM - Contractor	Various	TBD : TBD	2.131	2.400	Dec 2013	-		-		-		-	Continuing	Continuing	Continuing
ITEP SEPM - OGA	Various	PMO : Huntsville, AL	4.430	9.300	Dec 2013	-		-		-		-	Continuing	Continuing	Continuing
UH-60V Digital - Organic	TBD	Various : Various	0.983	-		-		-		-		-	-	0.983	-
UH-60V Digital - Contractor	TBD	Various : Various	0.243	-		-		-		-		-	-	0.243	-
Subtotal			11.494	15.100		-		-		-		-	-	-	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
UH-60V Digital Development Engineering	C/CPFF	AMRDEC PIF : Redstone Arsenal	7.014	14.647	Jul 2014	-		-		-		-	Continuing	Continuing	Continuing
ITEP Air Vehicle Integration	SS/IDIQ	Various : Various	0.000	15.000	Sep 2014	-		-		-		-	-	15.000	-
Subtotal			7.014	29.647		-		-		-		-	-	-	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
ITEP Other OGA - AoA Development Support	Various	AMSAA : Huntsville, AL	1.328	-		-		-		-		-	Continuing	Continuing	Continuing
UH-60V Digital	Various	Huntsville, AL : Huntsville, AL	12.160	-		-		-		-		-	-	12.160	-
Subtotal			13.488	-		-		-		-		-	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) 504 / Black Hawk Recapitalization/ Modernization
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Improved Turbine Engine Program Systems Engineering/Program Management	Systems Eng/Pgm				Mgmt																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) 504 / Black Hawk Recapitalization/ Modernization

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Improved Turbine Engine Program Systems Engineering/Program Management	1	2012	4	2014

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) D17 / Apache Block III
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
D17: Apache Block III	-	112.419	-	-	-	-	-	-	-	-	-	112.419
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	

Note
For FY 2014 and prior, all funding for AH-64E was contained in PE 0203744A – Aircraft Modifications/Product Improvement Programs, Project 504. FY 2015 funding has moved from PE 273744, Project D17 to PE 677135, Project ES2.

A. Mission Description and Budget Item Justification

The FY 2016 budget request for Apache AH-64E, previously known as Apache Block III, will fund the non-recurring engineering (NRE), development, and testing work associated with the planned remanufacture and new build of 690 Apache aircraft in the AH-64E configuration (deliveries began in Oct 2011). The AH-64E - program consists of two Major Defense Acquisition Programs (MDAP), AH-64E Remanufacture and AH-64E New Build. This project also addresses obsolescence and reliability challenges and provides increased combat capability to the aircraft. Upgrades include: Unmanned Aircraft System (UAS) Level III-IV Control, Improved Situational Awareness, Upgraded Communications Suite, Improved Drive and Propulsion Systems, Improved Targeting Capability, Increased Computer Processing Capability and Speed, Improved Navigation Systems, and Improved Diagnostics and Maintainability. Upgrades are integrated as incremental block modifications. The program addresses operational shortfalls identified during real-world combat missions and meets Longbow Apache Capability Production Document (CPD) requirements for modernization.

Funds will also provide for the development, integration and testing of the Modernized Rocket Launcher (MRL) with digital launcher electronics.

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

	FY 2014	FY 2015	FY 2016
Title: Product Development	97.106	-	-
Description: Funding is provided for the following efforts by Boeing, Longbow Limited Liability (LBL), and Lockheed Martin.			
FY 2014 Accomplishments:			
Development, Integration & Testing work associated with the planned remanufacture and new build of Apache aircraft in the AH-64E Lot 4-6 configuration (joint interoperability, crashworthy fuel tank kits, embedded diagnostics, communications, mission processor, and navigation upgrades) and to enhance operational capabilities. Risk reduction for Lot 6 CPD capabilities to include cognitive decision aiding, soldier radio waveform, modernized dayside assembly, modernized radio frequency interferometer, maritime targeting, and radar upgrades.			
- Provides NRE for design of the Hydra Launcher Electronics Assembly for development of the MRL.			
Title: Support Costs	2.376	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) D17 / Apache Block III

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Description: Funding is provided for the following effort.			
FY 2014 Accomplishments: GFE supporting Apache AH-64E tests.			
Title: Test and Evaluation	7.780	-	-
Description: Funding is provided for Development Testing and Evaluation and Operational Test and Evaluation.			
FY 2014 Accomplishments: Development, Test & Evaluation, Operational Testing. Government test oversight, test ranges, flight hour costs for MRL testing.			
Title: Management Services	5.157	-	-
Description: Funding is provided for the following effort.			
FY 2014 Accomplishments: Payroll, TDY, Support Contractors, Matrix Support.			
Accomplishments/Planned Programs Subtotals	112.419	-	-

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• AA6605: AH-64 MODS	48.487	-	-	-	-	-	-	-	-	-	48.487
• A05111: AH-64 APACHE BLOCK IIIA REMAN	752.600	-	-	-	-	-	-	-	-	-	752.600

Remarks

D. Acquisition Strategy
The NRE will encompass subsystem integration and will utilize existing test aircraft, incorporate the technical insertions, and initiate appropriate qualification and operational flight-testing.

In FY14, a contract for Apache AH-64E Lot 3, initiating Full Rate Production, is planned with options for Lot 4 and will continue to a total of 690 remanufactured and new build aircraft.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army Date: February 2015

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
2040 / 7	PE 0203744A / Aircraft Modifications/ Product Improvement Programs	D17 / Apache Block III

Training device concurrency will be maintained with each technical insertion. The EMD effort is managed as Cost Reimbursable. Production efforts will be awarded as Firm Fixed Price (FFP) and include the Advance Procurement requirements.

In FY13, FY14, and FY15 MRL NRE will encompass US Government (USG) design of the Hydra Launcher Electronics Assembly (LEA), modification of the M261 launcher, launcher fabrication, and launcher testing.

In FY15-FY18, Apache AH-64E Development & Integration (D&I) Contract.

Multi-year authority may be requested for the out years.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) D17 / Apache Block III
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Management Services (In-House, Travel, etc.)	MIPR	PMO AAH, Matrix Support, AMCOM Express : Redstone Arsenal, AL	1.272	5.157		-		-		-		-	-	6.429	-
Management Services (In-House, Travel, etc.)	MIPR	PEO Missiles & Space, Matrix Support, AMCOM Express, SETA : Huntsville, AL	0.811	0.811		-		-		-		-	-	1.622	-
Subtotal			2.083	5.968		-		-		-		-	-	8.051	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
The Boeing Company	SS/CPIF	Boeing Contracts : Mesa, AZ	214.700	83.246	Dec 2013	-		-		-		-	-	297.946	-
Longbow Limited Liability (LBL) Contracts	SS/CPIF	Longbow Limited Liability (LBL) Contracts : Orlando, FL and Baltimore, MD	16.182	6.000		-		-		-		-	-	22.182	-
Lockheed Martin	SS/CPIF	Lockheed Martin Contracts : Orlando, FL	0.470	-		-		-		-		-	-	0.470	-
Modernized Rocket Launcher Development - USG	MIPR	Various USG Activities : Various	6.860	6.598		-		-		-		-	-	13.458	-
Boeing - MRL Platform SW and Integration	SS/CPIF	Boeing Company : Mesa, AZ	0.760	0.451		-		-		-		-	-	1.211	-
Subtotal			238.972	96.295		-		-		-		-	-	335.267	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) D17 / Apache Block III
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
	NRE Contracts - Boeing																											
NRE Contracts - Boeing																												
NRE Contracts - LB Limited Liability																												
NRE Contracts - LB Limited Liability																												
(1) MRL PDR	▲ PDR																											
(2) MRL Prototypes & CDR					▲ Prototypes & CDR																							
(3) Follow-On Test & Eval I					▲ FOT&E I																							
MRL Design																												
Force Develop Test & Evaluation (FDTE III)													FDTE III															
(4) Follow-On Test & Eval II																	▲ FOT&E II											
MRL Integration and Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) D17 / Apache Block III

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NRE Contracts - Boeing	1	2011	4	2017
NRE Contracts - Longbow Limited Liability	1	2011	4	2017
MRL PDR	3	2014	3	2014
MRL Prototypes & CDR	4	2014	1	2015
Follow-On Test & Eval I	4	2014	4	2014
MRL Design	3	2013	4	2014
Force Develop Test & Evaluation (FDTE III)	1	2017	2	2017
Follow-On Test & Eval II	2	2017	2	2017
MRL Integration and Test	2	2015	4	2015

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Exhibit R-5, RDT&E Termination Liability: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) D17 / Apache Block III
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Cost (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Program Termination Liability	-	112.419	-	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs				Project (Number/Name) D18 / Fixed Wing Aircraft			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
D18: Fixed Wing Aircraft	-	1.771	-	-	-	-	-	-	-	-	-	1.771
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015 funding moves to Program Element 607138.

A. Mission Description and Budget Item Justification

The budget line provides for non-recurring engineering (NRE), development of supplemental type certificates and associated developmental testing, integration of all Army fixed wing aircraft to provide Communication, Navigation and Surveillance (CNS), Aircraft Survivability Equipment (ASE), and Department of Defense (DoD) mandated safety equipment to meet current and evolving international and Army standards.

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

	FY 2014	FY 2015	FY 2016
Title: Non-recurring Engineering	1.723	-	-
Description: Non-recurring engineering efforts provide improved performance to Army fixed wing aircraft for communication, navigation, and surveillance equipment.			
FY 2014 Accomplishments: Non-recurring engineering efforts provide improved performance to Army fixed wing aircraft for communication, navigation, and surveillance equipment.			
Title: Program Management	0.048	-	-
Description: Program Management of PM FW			
FY 2014 Accomplishments: Program Management of PM FW			
Accomplishments/Planned Programs Subtotals			
	1.771	-	-

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• A11300: Utility Fixed Wing Aircraft	18.052	-	-	-	-	-	-	-	-	-	18.052
• AA0270: Utility/ Cargo Airplane Mods	11.500	-	-	-	-	-	-	-	-	-	11.500

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) D18 / Fixed Wing Aircraft
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The Army Fixed Wing acquisition and modernization strategy leverages commercial derivative aircraft through the use of supplemental type certificates (STC) and associated testing and includes modernization for civil and tactical upgrades of military unique equipment and integration of Intelligence, Surveillance and Reconnaissance (ISR) Mission Equipment Packages (MEP). Cockpit modernization upgrades include items such as dual Flight Management Systems, Terrain Area Warning Systems, transponder, Mode S/5 transponders, satellite communications, Traffic Alert and Collision Avoidance II, Flight Data Recorders, Cockpit Voice Recorders, communication radios, military Global Positioning System (GPS), Wide Area Augmentation System/Localizer Performance with Vertical Guidance, Automatic Dependence Surveillance Broadcast (ADS-B) Out, M-code GPS, Blue Force Tracker, and Smart books. ISR MEP upgrades include integration of multi-intelligence systems.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 7				PE 0203744A / Aircraft Modifications/ Product Improvement Programs				D18 / Fixed Wing Aircraft							
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Support	Various	PM Fixed Wing : Redstone Arsenal, AL	0.053	0.048	Dec 2013	-		-		-		-	Continuing	Continuing	Continuing
Subtotal			0.053	0.048		-		-		-		-	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Fixed Wing Non-recurring Engineering	Various	Various : Various	0.829	1.723		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			0.829	1.723		-		-		-		-	-	-	-
Project Cost Totals			0.882	1.771		-		-		-		-	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) D18 / Fixed Wing Aircraft
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
FW Non-recurring Engineering	FW Non-recurring Engineering																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/ Product Improvement Programs	Project (Number/Name) D18 / Fixed Wing Aircraft

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FW Non-recurring Engineering	1	2013	1	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0203752A / <i>Aircraft Engine Component Improvement Program</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	0.309	0.381	0.364	-	0.364	0.325	0.145	0.148	0.146	Continuing	Continuing
106: <i>A/C Compon Improv Prog</i>	-	0.309	0.381	0.364	-	0.364	0.325	0.145	0.148	0.146	Continuing	Continuing

A. Mission Description and Budget Item Justification

Aircraft Engine Component Improvement Program (CIP) develops, tests, and qualifies improvements to aircraft engine components to correct service-revealed deficiencies, improve flight safety, enhance readiness and reduce operating and support (O&S) costs. In addition, CIP provides the test vehicles for the testing and qualification efforts required as a part of the Army's Critical Safety Item (CSI) program. Non-program specific Auxiliary Power Unit (APU) as well as Unmanned Aerial Vehicle (UAV) safety and readiness issues are also addressed under this Program Element.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	0.315	0.381	0.366	-	0.366
Current President's Budget	0.309	0.381	0.364	-	0.364
Total Adjustments	-0.006	-	-0.002	-	-0.002
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.006	-			
• Adjustments to Budget Years	-	-	-0.002	-	-0.002

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203752A / Aircraft Engine Component Improvement Program				Project (Number/Name) 106 / A/C Compon Improv Prog			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
106: A/C Compon Improv Prog	-	0.309	0.381	0.364	-	0.364	0.325	0.145	0.148	0.146	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Aircraft Engine Component Improvement Program (CIP) develops, tests, and qualifies improvements to aircraft engine components to correct service-revealed deficiencies, improve flight safety, enhance readiness and reduce operating and support (O&S) costs. In addition, CIP provides the test vehicles for the testing and qualification efforts required as a part of the Army's Critical Safety Item (CSI) program. Non-program specific Auxiliary Power Unit (APU) as well as Unmanned Aerial Vehicle (UAV) safety and readiness issues are also addressed under this Program Element (PE).

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

	FY 2014	FY 2015	FY 2016
<p>Title: T700 Engine</p> <p>Description: T700 funding is used to address flight safety and readiness problems that arise in the field. This includes programs to improving durability and reliability while reducing cost of ownership.</p> <p>FY 2016 Plans: Will fund effort to update engine drawings to add the latest CSI requirements.</p>	-	-	0.050
<p>Title: GTCP36 Auxiliary Power Unit (APU)</p> <p>Description: Provide timely responses to technical problems arising in the field during operational use. Review operational and repair reports, perform engineering analysis of failed engines and equipment. Perform investigation and testing as required to isolate/verify reported field problems and service revealed deficiencies (SRDs).</p> <p>FY 2015 Plans: Address service revealed deficiencies that affect safe operation of the GTCP 36 APU.</p> <p>FY 2016 Plans: Will continue to address service revealed deficiencies that affect safe operation of the GTCP 36 APU.</p>	-	0.015	0.008
<p>Title: T62 Auxiliary Power Unit (APU)</p> <p>Description: Provide timely responses to technical problems arising in the field during operational use. Review operational and repair reports, perform engineering analysis of failed engines and equipment. Perform investigation and testing as required to isolate/verify reported field problems and service revealed deficiencies (SRDs).</p> <p>FY 2015 Plans:</p>	-	0.016	0.008

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203752A / Aircraft Engine Component Improvement Program	Project (Number/Name) 106 / A/C Compon Improv Prog		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Continue to address service revealed deficiencies affecting safe operation of US Army APUs. FY 2016 Plans: Will continue to address service revealed deficiencies affecting safe operation of US Army APUs.				
Title: UAV Engine Description: UAV Shadow Engine Investigation at U.S. Army Research Laboratory (ARL) Cleveland: US Army Vehicle Technology Directorate (VTD) at ARL Cleveland. Provide research to support airworthiness, reliability and performance improvements of the Unmanned Aerial Vehicle (UAV) shadow engine. Investigate and research the technology challenges (i.e. engine performance, engine durability, engine life, and engine modifications) for reliable engine operation using JP-8 fuel and readily available MIL-spec lubricants. FY 2014 Accomplishments: Researched improvements to address service related deficiencies to improve safety and reduce O&S costs. FY 2015 Plans: Continue to research improvements to address service related deficiencies to improve safety and reduce O&S costs. FY 2016 Plans: Will continue to research improvements to address service related deficiencies to improve safety and reduce O&S costs.		0.220	0.250	0.200
Title: In-House Support Description: In-house support for the Component Improvement Program (CIP) engineers. Contracting support for CIP contracts. FY 2014 Accomplishments: Provided in-house support for the CIP engineers and contracting support for CIP contracts. FY 2015 Plans: Provide in-house support for the CIP engineers and contracting support for CIP contracts. FY 2016 Plans: Will continue to provide in-house support for the CIP engineers and contracting support for CIP contracts.		0.089	0.100	0.098
Accomplishments/Planned Programs Subtotals		0.309	0.381	0.364
C. Other Program Funding Summary (\$ in Millions)				
N/A				

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203752A / Aircraft Engine Component Improvement Program	Project (Number/Name) 106 / A/C Compon Improv Prog

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

Remarks

D. Acquisition Strategy

Improved designs will be implemented via Engineering Change Proposal (ECP) and follow-on procurement or modification to a production contract to introduce the improved hardware.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 7				PE 0203752A / Aircraft Engine Component Improvement Program				106 / A/C Compon Improv Prog							
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
In-house Engineering	WR	AMRDEC : Redstone Arsenal, AL	2.494	0.089	Jan 2014	0.100	Oct 2014	0.098	Oct 2015	-		0.098	Continuing	Continuing	Continuing
Subtotal			2.494	0.089		0.100		0.098		-		0.098	-	-	-
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
T700 Engine	SS/IDIQ	GE-Air : Lynn, MA	61.642	-		-		0.050	Mar 2016	-		0.050	Continuing	Continuing	Continuing
T55 Engine	SS/IDIQ	Honeywell : Phoenix, AZ	30.161	-		-		-		-		-	Continuing	Continuing	Continuing
T62 Auxiliary Power Unit (APU)	C/IDIQ	Redstone Technical Center Redstone Arsenal, AL : ATEC	0.050	-		-		-		-		-	-	0.050	-
APU's	SS/IDIQ	Air Force : Kelly AFB, TX	13.647	-		-		-		-		-	Continuing	Continuing	-
UAV Engine	Various	ARL-Vehicle Technology Directorate : TBD	0.137	0.220	Jun 2014	0.250	Apr 2015	0.200	Apr 2016	-		0.200	Continuing	Continuing	-
APU's	SS/IDIQ	Air Force : Hill AFB, UT	2.319	-		0.031	Apr 2015	0.016	Apr 2016	-		0.016	Continuing	Continuing	Continuing
Subtotal			107.956	0.220		0.281		0.266		-		0.266	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
T-62T-2B Vibration Test	Various	Redstone Technical Text Center : Redstone Arsenal, AL	0.050	-		-		-		-		-	Continuing	Continuing	-
Subtotal			0.050	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203752A / Aircraft Engine Component Improvement Program	Project (Number/Name) 106 / A/C Compon Improv Prog
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Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			

Remarks
Not Applicable

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	110.500	0.309	0.381	0.364	-	0.364	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203752A / Aircraft Engine Component Improvement Program	Project (Number/Name) 106 / A/C Compon Improv Prog
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
T700 Engine Temperature Survey																												
Auxiliary Power Units (APUs)																												
UAV Shadow Engine																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203752A / Aircraft Engine Component Improvement Program	Project (Number/Name) 106 / A/C Compon Improv Prog

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
T700 Engine Temperature Survey	2	2014	2	2019
Auxiliary Power Units (APUs)	1	2014	4	2016
UAV Shadow Engine	2	2014	1	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0203758A / Digitization
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	5.978	5.993	4.361	-	4.361	7.034	6.520	5.697	5.485	Continuing	Continuing
374: HOR Battlefield Digitizn	-	5.978	5.993	4.361	-	4.361	7.034	6.520	5.697	5.485	Continuing	Continuing

A. Mission Description and Budget Item Justification

Horizontal Battlefield Digitization is a strategy that allows warfighters, from the individual soldier and platform to echelons above corps, to share critical situation awareness (SA) and command and control (C2) information. It conducts analysis and evaluation of new information technologies, concepts, and applications of integrated management activities. Digital information technologies to acquire, exchange, and employ data throughout the operational environment, are used to provide an operational picture for leaders. This timely sharing of information significantly improves the ability to quickly make decisions, synchronize forces and fires, and increase the operational tempo. The major efforts included in the program element are: 1) Integration and synchronization of the Army's interoperability efforts; between joint and multi-national forces, combat material, and training efforts. 2) Systems engineering and integration of hardware and software from a System of Systems (SOS) perspective. 3) Develop Army Equipping Enterprise System (AE2S) integration of the Force Development Investment Information System (FDIIS), Army Flow Model (AFM), and Force Development Knowledge Center (FDKC) programs into a single integrated system.

Digitization efforts are in support of the Army Equipping Strategy, National Defense Authorization Act 804, and OSD reports to Congress.

The FY 2016 funding request was reduced by \$1.755 million to account for the availability of prior year execution balances.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	6.183	10.912	15.035	-	15.035
Current President's Budget	5.978	5.993	4.361	-	4.361
Total Adjustments	-0.205	-4.919	-10.674	-	-10.674
• Congressional General Reductions	-	-0.003			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.205	-			
• Adjustments to Budget Years	-	-4.916	-10.674	-	-10.674

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203758A / Digitization				Project (Number/Name) 374 / HOR Battlefield Digitizn			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
374: HOR Battlefield Digitizn	-	5.978	5.993	4.361	-	4.361	7.034	6.520	5.697	5.485	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Horizontal Battlefield Digitization is a strategy that allows warfighters, from the individual soldier and platform to echelons above corps, to share critical situation awareness (SA) and command and control (C2) information. It conducts analysis and evaluation of new information technologies, concepts, and applications of integrated management activities. Digital information technologies to acquire, exchange, and employ data throughout the operational environment, are used to provide an operational picture for leaders. This timely sharing of information significantly improves the ability to quickly make decisions, synchronize forces and fires, and increase the operational tempo. The major efforts included in the program element are: 1) Integration and synchronization of the Army's interoperability efforts; between joint and multi-national forces, combat material, and training efforts. 2) Systems engineering and integration of hardware and software from a System of Systems (SOS) perspective. 3) Develop Army Equipping Enterprise System (AE2S) integration of the Force Development Investment Information System (FDIIS), Army Flow Model (AFM), and Force Development Knowledge Center (FDKC) programs into a single integrated system.

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

	FY 2014	FY 2015	FY 2016
<p>Title: Interoperability Assessment</p> <p>Description: Funds are to be used for the following efforts</p> <p>FY 2014 Accomplishments: Conducted technical interoperability assessments, performed interoperability/integration analyses, analyze networked weapon system and Situational Awareness (SA), Command and Control (C2) systems compatibility and assessed technical and operational test plans, activities, and results.</p> <p>FY 2015 Plans: Conduct technical interoperability assessments, perform interoperability/integration analyses, analyze networked weapon system and Situational Awareness (SA), Command and Control (C2) systems compatibility and assess technical and operational test plans, activities, and results.</p> <p>FY 2016 Plans: Will conduct technical interoperability assessments, perform interoperability/integration analyses, analyze networked weapon system and Situational Awareness (SA), Command and Control (C2) systems compatibility and assess technical and operational test plans, activities, and results.</p>	0.886	1.073	0.537
<p>Title: SA/C2</p> <p>Description: Funds are to be used for the following efforts</p>	1.091	0.961	0.482

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203758A / Digitization	Project (Number/Name) 374 / HOR Battlefield Digitizn

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p><i>FY 2014 Accomplishments:</i> Integrated and synchronized interoperability across Situational Awareness (SA)/Command & Control (C2) programs in support of acquisition synchronization, testing, training, and fielding System of Systems capabilities to the Army Force. Continue application across current and future force.</p> <p><i>FY 2015 Plans:</i> Integrate and synchronize interoperability across Situational Awareness (SA)/Command & Control (C2) programs in support of acquisition synchronization, testing, training, and fielding System of Systems capabilities to the Army Force. Continue application across current and future force.</p> <p><i>FY 2016 Plans:</i> Will integrate and synchronize interoperability across Situational Awareness (SA)/Command & Control (C2) programs in support of acquisition synchronization, testing, training, and fielding System of Systems capabilities to the Army Force. Continue application across current and future force.</p>			
<p><i>Title:</i> Digitization Technical Integration</p> <p><i>Description:</i> Support digitization technical integration with Active and Reserve Components both CONUS and OCONUS.</p> <p><i>FY 2014 Accomplishments:</i> Supported digitization technical integration with Active and Reserve Components both CONUS and OCONUS.</p> <p><i>FY 2015 Plans:</i> Support digitization technical integration with Active and Reserve Components both CONUS and OCONUS.</p> <p><i>FY 2016 Plans:</i> Will support digitization technical integration with Active and Reserve Components both CONUS and OCONUS.</p>	1.071	1.103	0.592
<p><i>Title:</i> AE2S Software</p> <p><i>Description:</i> Procures AE2S software integration and enhancements for the single program language, single platform system that incorporates FDIIS, CEaVa, COP and AFM.</p> <p><i>FY 2014 Accomplishments:</i> Army Equipping Enterprise System (AE2S) software integration and enhancements for the single program language, single platform system that incorporates the EE PEGs Force Development Integration & Information System (FDIIS), Force Development Knowledge Center (FDKC), Common Operational Picture (COP) and Army Force Management (AFM).</p> <p><i>FY 2015 Plans:</i></p>	0.806	0.938	0.966

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203758A / Digitization	Project (Number/Name) 374 / HOR Battlefield Digitizn		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>Army Equipping Enterprise System (AE2S) software integration and enhancements for the single program language, single platform system that incorporates the EE PEGs Force Development Integration & Information System (FDIIS), Force Development Knowledge Center (FDKC), Common Operational Picture (COP) and Army Force Management (AFM).</p> <p>FY 2016 Plans: Army Equipping Enterprise System (AE2S) software integration and enhancements for the single program language, single platform system that incorporates the EE PEGs Force Development Integration & Information System (FDIIS), Force Development Knowledge Center (FDKC), Common Operational Picture (COP) and Army Force Management (AFM).</p>				
<p>Title: Joint & Coalition Interoperability</p> <p>Description: Support Joint and Coalition interoperability programs to improve integration and interoperability in accordance with Army Software Blocking Policy, Joint Planning Guidance, Coalition Specifications, Joint Capabilities Integration and Development System (JCIDS) requirements.</p> <p>FY 2014 Accomplishments: Supported Joint and Coalition interoperability programs to improve integration and interoperability in accordance with Army Software Blocking Policy, Joint Planning Guidance, Coalition Specifications, Joint Capabilities Integration and Development System (JCIDS) requirements.</p> <p>FY 2015 Plans: Support Joint and Coalition interoperability programs to improve integration and interoperability in accordance with Army Software Blocking Policy, Joint Planning Guidance, Coalition Specifications, Joint Capabilities Integration and Development System (JCIDS) requirements.</p> <p>FY 2016 Plans: Will support Joint and Coalition interoperability programs to improve integration and interoperability in accordance with Army Software Blocking Policy, Joint Planning Guidance, Coalition Specifications, Joint Capabilities Integration and Development System (JCIDS) requirements. The FY16 funding request was reduced \$186K to account for the availability of prior year execution balances.</p>		0.944	0.826	0.661
<p>Title: Academic Research</p> <p>Description: Apply university academic and research resources to the integration of Army complex modeling, simulation, and training in support of modernized forces.</p> <p>FY 2014 Accomplishments:</p>		0.506	0.522	0.538

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203758A / Digitization	Project (Number/Name) 374 / HOR Battlefield Digitizn
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Applied university academic and research resources to the integration of Army complex modeling, simulation, and training in support of modernized forces.</p> <p>FY 2015 Plans: Apply university academic and research resources to the integration of Army complex modeling, simulation, and training in support of modernized forces.</p> <p>FY 2016 Plans: Will apply university academic and research resources to the integration of Army complex modeling, simulation, and training in support of modernized forces.</p>			
<p>Title: Cross-platform development</p> <p>Description: Manage cross-platform software and hardware development, testing, training, and fielding to ensure the coordinated interoperability for each Army Force unit rotation.</p> <p>FY 2014 Accomplishments: Managed cross-platform software and hardware development, testing, training, and fielding to ensure the coordinated interoperability for each Army Force unit rotation.</p> <p>FY 2015 Plans: Manage cross-platform software and hardware development, testing, training, and fielding to ensure the coordinated interoperability for each Army Force unit rotation.</p> <p>FY 2016 Plans: Will manage cross-platform software and hardware development, testing, training, and fielding to ensure the coordinated interoperability for each Army Force unit rotation.</p>	0.674	0.570	0.585
Accomplishments/Planned Programs Subtotals	5.978	5.993	4.361

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

N/A

Remarks

Not Applicable for this item

D. Acquisition Strategy

To validate/demonstrate concepts and requirements, near term efforts are focused on developing a seamless battlefield software architecture and digitized hardware systems to include: evaluation of the horizontal battlefield digitization resources for systems, acquisition, integration, and testing of digital capability across multiple command and control, communications, sensors, and weapons platforms. The result will be an integrated, synchronized capability designed to meet the near-term

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army Date: February 2015

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
2040 / 7	PE 0203758A / Digitization	374 / HOR Battlefld Digitizn

requirements of the Stryker Brigade Combat Teams and the Army Future Force. Also supports the Army's role in joint and multi-national digitization programs, battle command efforts and Joint Battlefield Situational Awareness.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203758A / Digitization	Project (Number/Name) 374 / HOR Battlefield Digitizn
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Digitization Technical Integration	Various	Various : Various	3.018	1.071		1.103		0.592		-		0.592	-	5.784	-
Joint & Coalition Interoperability	Various	Various : Various	2.660	0.944		0.826		0.661		-		0.661	-	5.091	-
Subtotal			5.678	2.015		1.929		1.253		-		1.253	-	10.875	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Army Equipping Enterprise SYstem (AE2S) Software	C/CPFF	TBD : TBD	2.271	0.806		0.938		0.966		-		0.966	Continuing	Continuing	Continuing
Cross-Platform Development	Various	TBD : TBD	1.899	0.674		0.570		0.585		-		0.585	-	3.728	-
Subtotal			4.170	1.480		1.508		1.551		-		1.551	-	-	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Interoperability Assessment	Various	Various : Various	2.497	0.886		1.073		0.537		-		0.537	-	4.993	-
Situational Awareness (SA) / Command & Control (C2)	Various	Various : Various	3.074	1.091		0.961		0.482		-		0.482	-	5.608	-
Academic Research	Various	Various : Various	1.426	0.506		0.522		0.538		-		0.538	-	2.992	-
Subtotal			6.997	2.483		2.556		1.557		-		1.557	-	13.593	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		16.845	5.978	5.993	4.361	4.361	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203758A / Digitization	Project (Number/Name) 374 / HOR Battlefld Digitizn
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Interoperability Assessment																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203758A / <i>Digitization</i>	Project (Number/Name) 374 / <i>HOR Battlefld Digitizn</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Interoperability Assessment	1	2015	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	1.830	5.112	3.154	-	3.154	3.945	2.999	4.174	3.375	Continuing	Continuing
038: <i>Avenger PIP</i>	-	-	5.112	3.154	-	3.154	3.945	2.999	4.174	3.375	Continuing	Continuing
DT5: <i>Stinger Product Improvement</i>	-	1.830	-	-	-	-	-	-	-	-	-	1.830

A. Mission Description and Budget Item Justification

Project 038 Avenger Product Improvement Program (PIP): The Avenger Air Defense System is a lightweight, highly mobile surface-to-air missile and gun weapon system mounted on a High Mobility Multi-purpose Wheeled Vehicle (HMMWV). The system employs a canopied turret consisting of a gunner position, two gyro-stabilized missile launcher pods containing four STINGER missiles each, a Forward Looking Infrared Receiver (FLIR), a Laser Range Finder (LRF), an Identification Friend or Foe (IFF) system, and a very high rate of fire .50 caliber machine gun. The gun system is used against ground targets and to cover the Stinger missile dead-zone. Avenger is capable of day, night and adverse weather operations; can be transported by UH-60L Blackhawk helicopter or C-130 aircraft; is air-droppable and can shoot on the move. The system can also be operated by remote control from a protected position up to 50 meters away from the fire unit.

The Avenger system is operated by a two-man crew to counter Unmanned Aerial Systems (UASs), cruise missiles, attack helicopters, and high performance fixed wing/ rotary wing aircraft. The system fills the line-of-sight rear component of the Forward Area Air Defense (FAAD) system.

These funds are provided for the Avenger PIP to modify the Avenger to ensure viability and sustainability through the end of the useful life. Avenger will remain in the force through the Fiscal Year (FY) 30 timeframe according to the Long Range Investments Requirements Analysis. Avenger fills a capability gap which will be permanently filled by the Indirect Fire Protection Capability Increment 2 Intercept (IFPC2-I) which will be fully fielded in FY30. The Avenger Fire Control Computer (AFCC) will undergo software and hardware upgrades that will enable the system to handle increased targeting capability realized with the latest version of the Forward Area Air Defense (FAAD) early warning system and ensures the system meets the latest Information Assurance (IA) requirements, upgraded analog to digital vehicle intercommunication system and Mode 5 cooperative target identification functions.

Project DT5 Stinger Product Improvement: The Stinger Block I missile is an advanced, fire-and-forget, short-range, man-portable, air defense weapon system. Stinger's mission is to provide the force with low-altitude air defense against fixed and rotary wing aircraft, unmanned aircraft systems (UAS) and cruise missiles (CM). Stinger employs an infrared (heat seeking)/ultraviolet seeker to guide to the target. Stinger Block I has extensive infrared counter-countermeasure capabilities and can engage targets from any aspect to include head-on. The missile utilizes a high-explosive, hit-to-kill warhead. Stinger can be fired from the shoulder or from a variety of platforms to include vehicles, helicopters and UAS. The missile is delivered as a certified round and requires no field testing or maintenance.

The Stinger Product Improvement provides design, development, test and integration of a Proximity Fuze into the existing Stinger Block I missiles. The Proximity Fuze will improve system effectiveness against the evolving UAS threat. Unmanned Aerial System Defense (UAS-D) is a requirement of the Operational Requirements

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>
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Document (ORD) for the Stinger Guided Missile System and validated by the Deputy Chief of Staff, G-3/5/7, Current and Future Warfighting Capabilities Division (DAMO-CIC) in memo dated 28 May 2013.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	1.577	5.115	3.556	-	3.556
Current President's Budget	1.830	5.112	3.154	-	3.154
Total Adjustments	0.253	-0.003	-0.402	-	-0.402
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.305	-			
• SBIR/STTR Transfer	-0.052	-			
• Adjustments to Budget Years	-	-0.003	-0.402	-	-0.402

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>	Project (Number/Name) 038 / <i>Avenger PIP</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
038: <i>Avenger PIP</i>	-	-	5.112	3.154	-	3.154	3.945	2.999	4.174	3.375	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Avenger Air Defense System is a lightweight, highly mobile surface-to-air missile and gun weapon system mounted on a High Mobility Multi-purpose Wheeled Vehicle (HMMWV). The system employs a canopied turret consisting of a gunner position, two gyro-stabilized missile launcher pods containing four STINGER missiles each, a Forward Looking Infrared Receiver (FLIR), a Laser Range Finder (LRF), an Identification Friend or Foe (IFF) system, and a very high rate of fire .50 caliber machine gun. The gun system is used against ground targets and to cover the Stinger missile dead-zone. Avenger is capable of day, night and adverse weather operations; can be transported by UH-60L Blackhawk helicopter or C-130 aircraft; is air-droppable and can shoot on the move. The system can also be operated by remote control from a protected position up to 50 meters away from the fire unit.

The Avenger system is operated by a two-man crew to counter Unmanned Aerial Systems (UASs), cruise missiles, attack helicopters, and high performance fixed wing/ rotary wing aircraft. The system fills the line-of-sight rear component of the Forward Area Air Defense (FAAD) system.

These funds are provided for the Avenger PIP to modify and ensure that Avenger is viable and sustainable through the end of program life. Avenger will remain in the force through the Fiscal Year (FY) 30 timeframe according to the Long Range Investments Requirements Analysis. Avenger fills a capability gap which will be permanently filled by the Indirect Fire Protection Capability Increment 2 Intercept (IFPC2-I) which will be fully fielded in FY31. The Avenger Fire Control Computer (AFCC) will undergo software and hardware upgrades that will enable the system to handle increased targeting capability realized with the latest version of the Forward Area Air Defense (FAAD) early warning system and ensures the system meets the latest Information Assurance (IA) requirements, upgraded analog to digital vehicle intercommunication system and Mode 5 cooperative target identification functions.

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

	FY 2014	FY 2015	FY 2016
Title: Avenger Modification	-	5.112	3.154
Description: This funds the effort to upgrade the Avenger Fire Control Computer (AFCC) software and adds new cooperative friendly identification function.			
FY 2015 Plans: Establish allocated and product baselines, and perform engineering design and development activities for platform integration, software upgrades, and capability enhancements. Plan test requirements and conduct limited contractor and government testing. Perform technical assessments, concept studies, cost reduction, risk reduction and development documentation.			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>	Project (Number/Name) 038 / <i>Avenger PIP</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Continue to perform engineering design and development activities for platform integration, software upgrades, and capability enhancements. Develop and execute test requirements and conduct limited contractor and government testing on developing modernization parts. Perform technical assessments, concept studies, cost reduction, risk reduction and development documentation.			
Accomplishments/Planned Programs Subtotals	-	5.112	3.154

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• PE 0605456: <i>PE 0605456A, Proj PA3, PAC-3/MSE Missiles</i>	86.223	34.991	2.272	-	2.272	-	-	-	-	-	123.486
• PE 0102419A: <i>PE 0102419A, Proj E55, Joint Aero Stat Program - EMD Effort</i>	57.976	-	0.002	-	0.002	0.003	0.002	-	-	-	57.983
• PE 0604319A: <i>PE 0604319A, Proj DU3, IFPC2 (FY12 PE0603305A IFPC II - Intercept)</i>	79.190	96.177	156.523	-	156.523	90.980	58.214	27.663	-	Continuing	Continuing
• PE 0605457A: <i>PE 0605457A, Proj S40, Army Integrated Air and Missile Defense (AIAMD)</i>	358.192	152.516	214.099	-	214.099	227.103	169.575	153.451	33.424	Continuing	Continuing
• PE 0604820A: <i>PE 0604820A, Proj E10, Sentinel</i>	1.796	5.221	12.309	-	12.309	11.465	10.971	12.191	30.277	Continuing	Continuing
• PE 0604741A: <i>PE 0604741A, Proj 126, 146, 149; Air Defense C2I Eng Dev</i>	38.412	15.898	24.569	-	24.569	27.131	20.524	20.018	18.082	Continuing	Continuing
• SSN C21300: <i>SSN C21300, Stinger Blk I Upgrades</i>	37.252	1.355	2.216	-	2.216	-	-	-	-	-	40.823
• SSN CE8710: <i>SSN CE8710; Avenger Mods</i>	-	5.611	6.171	-	6.171	37.579	63.312	28.606	-	-	141.279

Remarks
This program is an integral part of the Army Air and Missile Defense Modernization strategy.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>	Project (Number/Name) 038 / <i>Avenger PIP</i>

D. Acquisition Strategy

In Fiscal Year (FY) 2015 the Avenger Product Office will award one or more contracts for the modification effort of the Avenger fleet.

In Fiscal Year (FY) 2016, the Avenger Product office will continue the development for the modification of the fleet through contracts awarded in FY15. When completed, the Avenger fleet will have been modified to support the Force Development Update (FDU) structure until displaced with a replacement system as called out by the Long Range Investments Requirements Analysis (LIRA) currently called the Indirect Fire Protection Control Increment 2-Intercept Solution (IFPC2-I).

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>	Project (Number/Name) 038 / <i>Avenger PIP</i>
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Avenger Modification	Various	Cruise Missile Defense Systems Project Office : Redstone Arsenal, AL	0.000	-		0.509		0.254		-		0.254	Continuing	Continuing	-
Subtotal			0.000	-		0.509		0.254		-		0.254	-	-	-

Remarks
This program supports the Army Integrated Air and Missile Defense (AIAMD) architecture.

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Avenger Modification	Various	The Boeing Company and Various Others : Huntsville, AL	0.000	-		3.233		2.167		-		2.167	Continuing	Continuing	-
Subtotal			0.000	-		3.233		2.167		-		2.167	-	-	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Avenger Modification Service Life Extension Program (SLEP)	Various	The Boeing Company, Aviation and Missile Research Development Engineering Center (AMRDEC) : Huntsville, AL; Redstone Arsenal, AL	0.000	-		1.370		0.733		-		0.733	Continuing	Continuing	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>	Project (Number/Name) 038 / <i>Avenger PIP</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Mode 5/Identification Friend or Foe (IFF) Development					Mode5 Dev																							
Voice Intercom Communication (VIC) Development					VIC Dev																							
Mode 5/MIC Production Representative Articles (PRA)					PRA																							
Mode5/IFF & VIC3 Integration and testing					Mode5/IFF & VIC I&T																							
Mode5/IFF & VIC Log/Maintenance Demo					Mode5/IFF & VIC3 Demo																							
Avenger Fire Control Computer-Revision (AFCC-R) Development													AFCC-R Dev															
AFCC-R Production Representative Articles (PRA)																	AFCC-R PRA											
AFCC-R Integration & Testing																	AFCC-R I&T											
AFCC-R Log/Maintenance Demo																	AFCC-R Demo											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>	Project (Number/Name) 038 / <i>Avenger PIP</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Mode 5/Identification Friend or Foe (IFF) Development	2	2015	2	2016
Voice Intercom Communication (VIC) Development	1	2016	2	2016
Mode 5/VIC Production Representative Articles (PRA)	4	2015	3	2016
Mode5/IFF & VIC3 Integration and testing	2	2016	2	2016
Mode5/IFF & VIC Log/Maintenance Demo	2	2016	2	2016
Avenger Fire Control Computer-Revision (AFCC-R) Development	3	2016	3	2018
AFCC-R Production Representative Articles (PRA)	1	2018	1	2018
AFCC-R Integration & Testing	2	2018	2	2018
AFCC-R Log/Maintenance Demo	2	2018	3	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>				Project (Number/Name) DT5 / <i>Stinger Product Improvement</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DT5: <i>Stinger Product Improvement</i>	-	1.830	-	-	-	-	-	-	-	-	-	1.830
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Stinger Block I missile is an advanced, fire-and-forget, short-range, man-portable, air defense weapon system. Stinger's mission is to provide the force with low-altitude air defense against fixed and rotary wing aircraft, unmanned aircraft systems (UAS) and cruise missiles (CM). Stinger employs an infrared (heat seeking)/ultraviolet seeker to guide to the target. Stinger Block I has extensive infrared counter-countermeasure capabilities and can engage targets from any aspect to include head-on. The missile utilizes a high-explosive, hit-to-kill warhead. Stinger can be fired from the shoulder or from a variety of platforms to include vehicles, helicopters and UAS. The missile is delivered as a certified round and requires no field testing or maintenance.

The Stinger Product Improvement provides design, development, test and integration of a Proximity Fuze into the existing Stinger Block I missiles. The Proximity Fuze will improve system effectiveness against the evolving UAS threat. Unmanned Aerial System Defense (UAS-D) is a requirement of the Operational Requirements Document (ORD) for the Stinger Guided Missile System and validated by the Deputy Chief of Staff, G-3/5/7, Current and Future Warfighting Capabilities Division (DAMO-CIC) in memo dated 28 May 2013.

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

	FY 2014	FY 2015	FY 2016
Title: Proximity Fuze (Prox Fuze) Development and Integration	1.010	-	-
Description: This effort funds the design and development of a Prox Fuze and integrates it into existing STINGER Block I missiles.			
FY 2014 Accomplishments: Complete integration efforts allowing for final revisions and developing the required documentation to support materiel release.			
Title: Test and Evaluation	0.764	-	-
Description: This effort funds Government and contractor Developmental and Operational tests.			
FY 2014 Accomplishments: Complete flight testing as well as required safety and lethality testing in support of materiel release.			
Title: Management Support	0.056	-	-
Description: This effort funds government management and technical support.			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>	Project (Number/Name) DT5 / <i>Stinger Product Improvement</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<i>FY 2014 Accomplishments:</i> Provide government management, technical and administrative support for the program in FY 2014.			
Accomplishments/Planned Programs Subtotals	1.830	-	-

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• SSNC21300: SSN C21300, <i>Stinger Blk I Upgrades</i>	37.252	1.355	2.216	-	2.216	-	-	-	-	-	40.823

Remarks

D. Acquisition Strategy

In Fiscal Year (FY) 12 the Stinger Based Systems (SBS) Product Office utilized Picatinny Arsenal to award a Proximity Fuze (Prox Fuze) development contract for the design, development, test and integration of a Proximity Fuze into existing Stinger Block I missiles. The Proximity Fuze will improve system effectiveness against the evolving Unmanned Aerial System (UAS) threat. UAS Defense (UAS-D) is a requirement of the Operational Requirements Document (ORD) for the Stinger Guided Missile System and validated by the Deputy Chief of Staff, G-3/5/7, Current and Future Warfighting Capabilities Division (DAMO-CIC) in memo dated 28 May 2013.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 7				PE 0203801A / Missile/Air Defense Product Improvement Program				DT5 / Stinger Product Improvement							
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Mgt/Admin	SS/ Various	CMDS PO : Huntsville, AL	0.925	0.056		-		-		-		-	-	0.981	-
Subtotal			0.925	0.056		-		-		-		-	-	0.981	-
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Proximity Fuze Development	MIPR	Picatiny Arsenal : Picatiny Arsenal, NJ	21.967	1.010		-		-		-		-	-	22.977	-
Subtotal			21.967	1.010		-		-		-		-	-	22.977	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Government Test & Evaluation	Various	CMDS Project Office : Redstone Arsenal, AL and Eglin Air Force Base, FL	4.650	0.764		-		-		-		-	-	5.414	-
Subtotal			4.650	0.764		-		-		-		-	-	5.414	-
Project Cost Totals			27.542	1.830		-		-		-		-	-	29.372	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>	Project (Number/Name) DT5 / <i>Stinger Product Improvement</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Proximity Fuze (Prox Fuze) Development	Fuze Development																											
Component Level Qualifications (CLQ)	CLQ																											
Proximity Flight Readiness Reviews (PFRR)	PFRR																											
(1) Proximity Flight Test (PFT)	▲ PFT/DTOE																											
(2) Final Army Fuze Safety Review Board (AFSRB)	▲ Final AFSRB																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i>	Project (Number/Name) DT5 / <i>Stinger Product Improvement</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Proximity Fuze (Prox Fuze) Development	3	2012	2	2014
Component Level Qualifications (CLQ)	1	2014	2	2014
Proximity Flight Readiness Reviews (PFRR)	2	2014	3	2014
Proximity Flight Test (PFT)	3	2014	3	2014
Final Army Fuze Safety Review Board (AFSRB)	3	2014	3	2014

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Improvement Programs
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	60.005	38.323	35.951	-	35.951	7.592	-	-	-	Continuing	Continuing
DZ9: ATACMS Mods	-	60.005	38.323	35.951	-	35.951	7.592	-	-	-	Continuing	Continuing

Note

FY2015: Congressional Mark; program delay

A. Mission Description and Budget Item Justification

Army Tactical Missile Systems (ATACMS) is the United States (U.S.) Army's primary 24/7, all-weather, and surface-to-surface artillery precision missile used by current and future Combatant Commanders to shape the battlefield with long-range fires against hard and soft stationary targets in open, complex, and urban environments. This effort will not build any new missiles or add to the overall inventory. Block (Blk) 1 missiles currently have warheads (WHs) that are non-compliant with the 2008 Department of Defense (DoD) policy on cluster munitions (CM). The modification effort will take expired assets and reset them to a 10 year service life. Under this modification effort, a policy compliant WH will replace the existing M74 bomblets and also replace electronics and propellants. The Stockpile Reliability Program (SRP) will supply additional data to support extending the service life. This effort effectively brings the expired inventory back into service, while meeting the DoD CM Policy, to engage imprecisely located/area targets up to 300 kilometers (km).

B. Program Change Summary (\$ in Millions)

	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>
Previous President's Budget	62.067	49.848	35.951	-	35.951
Current President's Budget	60.005	38.323	35.951	-	35.951
Total Adjustments	-2.062	-11.525	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-11.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.062	-			
• Adjustments to Budget Years	-	-0.025	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Improvement Programs	Project (Number/Name) DZ9 / ATACMS Mods
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DZ9: ATACMS Mods	-	60.005	38.323	35.951	-	35.951	7.592	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Army Tactical Missile Systems (ATACMS) is the United States (U.S.) Army's primary 24/7, all-weather, and surface-to-surface artillery precision missile used by current and future Combatant Commanders to shape the battlefield with long-range fires against hard and soft stationary targets in open, complex, and urban environments. This effort will not build any new missiles or add to the overall inventory. Block (Blk) 1 missiles currently have warheads (WHs) that are non-compliant with the 2008 Department of Defense (DoD) policy on cluster munitions (CM). The modification effort will take expired assets and reset them to a 10 year service life. Under this modification effort, a policy compliant WH will replace the existing M74 bomblets and also replace electronics and propellants. The Stockpile Reliability Program (SRP) will supply additional data to support extending the service life. This effort effectively brings the expired inventory back into service, while meeting the DoD CM Policy, to engage imprecisely located/area targets up to 300 kilometers (km).

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

	FY 2014	FY 2015	FY 2016
Title: Conduct Development Engineering, Design Component Testing, and Performance Analysis.	60.005	38.323	35.951
Description: Funding is provided for the following effort			
FY 2014 Accomplishments: Conduct Development Engineering, Design Component Testing, and Performance Analysis.			
FY 2015 Plans: Conduct Development Engineering to address obsolescence and proximity sensor integration, Design Component Testing, and Performance Analysis.			
FY 2016 Plans: Completion of component hardware build up and integration into completed missiles. Performance Analysis to include ground and flight testing.			
Accomplishments/Planned Programs Subtotals	60.005	38.323	35.951

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• ATACMS MODS: ATACMS MODS (CA6700)	-	-	30.119	-	30.119	67.554	63.456	17.032	-	-	178.161

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203802A / <i>Other Missile Product Improvement Programs</i>	Project (Number/Name) DZ9 / <i>ATACMS Mods</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The ATACMS M57E1 program is a product improved version of the current ATACMS Blk 1 missile. M57E1 will be integrated and tested under a Cost Plus Fixed Fee (CPFF) contract to Lockheed Martin Missile and Fire Control System (LMMFCS).

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Improvement Programs	Project (Number/Name) DZ9 / ATACMS Mods
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Program Management	TBD	PFRMS Project Office, : RSA	0.000	3.600	Mar 2014	4.675	Oct 2014	6.180	Oct 2015	-		6.180	-	14.455	-
Subtotal			0.000	3.600		4.675		6.180		-		6.180	-	14.455	-

Remarks
PFRMS-Precision Fires Rocket and Missile Systems; RSA-Redstone Arsenal; TBD-To Be Determined

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
ATACMS Mods Contracts	C/CPFF	LMMFCS : (Dallas, TX)	0.000	40.564	Dec 2013	17.476	Jun 2015	18.563	Jan 2016	-		18.563	-	76.603	-
Other Government Agencies	TBD	AMCOM/AMRDEC, : RSA	0.000	0.960	Mar 2014	1.188	Dec 2014	1.515	Dec 2015	-		1.515	-	3.663	-
Subtotal			0.000	41.524		18.664		20.078		-		20.078	-	80.266	-

Remarks
ATACMS-Army Tactical Missile System; Mods-Modifications; C-Competitive; CPFF-Cost Plus Fixed Fee; LMMFCS-Lockheed Martin Missile and Fire Control; TX-Texas; TBD-To Be Determined; AMCOM-Army Materiel Command; AMRDEC-U.S. Army Research, Development and Engineering Command; RSA-Redstone Arsenal, Alabama

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Support Contract	C/CPFF	Camber Research/ S3/TMI, : Alabama	0.000	2.460	Mar 2014	1.801	Dec 2014	2.400	Dec 2015	-		2.400	-	6.661	-
Subtotal			0.000	2.460		1.801		2.400		-		2.400	-	6.661	-

Remarks
S3-Systems Studies Simulation, Inc.; TMI-Tec Master, Inc.; TBD-To Be Determined

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Improvement Programs	Project (Number/Name) DZ9 / ATACMS Mods
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Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	TBD	WSMR, NM; : RTC, AL	0.000	12.421	Mar 2014	13.183	Dec 2014	7.293	Dec 2015	-		7.293	-	32.897	-
Subtotal			0.000	12.421		13.183		7.293		-		7.293	-	32.897	-

Remarks
WSMR, NM-White Sands Missile Range, New Mexico; RTC, AL-Redstone Test Center, Alabama

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	60.005	38.323	35.951	-	35.951	-	134.279	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Improvement Programs	Project (Number/Name) DZ9 / ATACMS Mods
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Development Engineering	██████████				██████████				██████████																			
Conduct Arena Warhead Tests					██████████																							
Procure Flight Termination Systems					██████████																							
Proximity Sensor Integration					██████████																							
Obsolescence					██████████																							
(1) Integration and Testing Contract Award					██████████																							
Component Build Up and Performance Analysis					██████████				██████████				██████████															
Sub Component Hardware Build Up					██████████				██████████																			
Missiles Integration, Assembly, and Deliveries									██████████				██████████															
Ground/Flight Tests									██████████				██████████															

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203802A / <i>Other Missile Product Improvement Programs</i>	Project (Number/Name) DZ9 / <i>ATACMS Mods</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development Engineering	2	2014	2	2016
Conduct Arena Warhead Tests	4	2014	2	2015
Procure Flight Termination Systems	3	2014	4	2015
Proximity Sensor Integration	4	2014	2	2015
Obsolescence	3	2014	2	2016
Integration and Testing Contract Award	1	2015	1	2015
Component Build Up and Performance Analysis	1	2015	2	2017
Sub Component Hardware Build Up	1	2015	2	2016
Missiles Integration, Assembly, and Deliveries	3	2016	1	2017
Ground/Flight Tests	3	2016	2	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0203808A / <i>TRACTOR CARD</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	18.768	22.691	34.686	-	34.686	27.586	25.850	17.029	18.893	Continuing	Continuing
DS2: <i>Tractor Puma</i>	-	1.516	10.968	18.138	-	18.138	11.361	10.532	1.432	-	Continuing	Continuing
E11: <i>DELL</i>	-	17.252	11.723	16.548	-	16.548	16.225	15.318	15.597	18.893	Continuing	Continuing

A. Mission Description and Budget Item Justification

The details for this program are reported in accordance with Title 10, United States Code, Section 119(a)(1).

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	18.768	22.691	39.807	-	39.807
Current President's Budget	18.768	22.691	34.686	-	34.686
Total Adjustments	-	-	-5.121	-	-5.121
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-	-	-	-	-
• Adjustments to Budget Years	-	-	-5.121	-	-5.121

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203808A / TRACTOR CARD				Project (Number/Name) DS2 / Tractor Puma			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DS2: Tractor Puma	-	1.516	10.968	18.138	-	18.138	11.361	10.532	1.432	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The details for this program are reported in accordance with Title 10, United States Code, Section 119(a)(1).

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203808A / <i>TRACTOR CARD</i>				Project (Number/Name) E11 / <i>DELL</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
E11: <i>DELL</i>	-	17.252	11.723	16.548	-	16.548	16.225	15.318	15.597	18.893	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The details for this program are reported in accordance with Title 10, United States Code, Section 119(a)(1).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0205402A / <i>Integrated Base Defense - Operational System Dev</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	4.362	10.750	-	10.750	11.108	4.272	-	-	-	30.492
EF2: <i>Integrated Base Defense</i>	-	-	4.362	10.750	-	10.750	11.108	4.272	-	-	-	30.492

Note

FY16 increase of \$7.520 million is a result of adding GBOSS-E and IGSSR-C programs to this funding line.

A. Mission Description and Budget Item Justification

G-BOSS(E): Ground-Based Operational Surveillance System (Expeditionary) (G-BOSS(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. G-BOSS(E) will replace obsolete, quick reaction capability (QRC) surveillance and force protections systems utilizing modular configurations: Light (man-transportable) for extra small base camps or small outpost/company, Medium (mid sensor height) for small to medium size base, and Heavy (high level sensor height) for large contingency base camps. G-BOSS(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.

IGSSR-C: The Integrated Ground Security, Surveillance and Response Capability (IGSSR-C) is a requirement to provide a layered approach to integrate sensors, sensor systems and unmanned systems with automated fusion capabilities. The system will provide a Force Protection (FP) Common Operational Picture (COP) capability for CONUS fixed, OCONUS semi-fixed or expeditionary elements in all Operating Environments (OE). This capability will enable rapid decision analysis, speed the response process as well as increase information dissemination horizontally and vertically along the chain of command and with outside supporting organizations. IGSSR-C is a software centric fusion engine that connects legacy and emerging FP systems, legacy Chemical, Biological, Radiological, and Nuclear (CBRN), unmanned systems, biometric identification and forensic data systems. The desired end state is to achieve interoperability and COP with current and emerging FP systems used by Joint Forces, Department of Defense (DoD) agencies and multi-national forces.

Integrated Base Defense (IBD): The purpose of IBD Kitting is to harvest and refurbish physical security and Force Protection (FP) Non-Standard Equipment (NS-E) and package them into integrated and interoperable IBD Capabilities. IBD provides integration of software and analytical capability to support the integration of systems in the field. IBD employs an enterprise approach to enable IBD capabilities across the operational spectrum by leveraging interoperability efforts in support of the Integrated Unit, Base and Installation Protection (IUBIP) framework.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0205402A / <i>Integrated Base Defense - Operational System Dev</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	4.364	3.230	-	3.230
Current President's Budget	-	4.362	10.750	-	10.750
Total Adjustments	-	-0.002	7.520	-	7.520
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-	-0.002	7.520	-	7.520

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205402A / <i>Integrated Base Defense - Operational System Dev</i>	Project (Number/Name) EF2 / <i>Integrated Base Defense</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
<i>EF2: Integrated Base Defense</i>	-	-	4.362	10.750	-	10.750	11.108	4.272	-	-	-	30.492
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

This project is a shared funding line. Ground-Based Operational Surveillance System (Expeditionary) (G-BOSS(E)) and the Integrated Ground Security, Surveillance and Response Capability (IGSSR-C) are new starts in FY 2016.

A. Mission Description and Budget Item Justification

G-BOSS(E): Ground-Based Operational Surveillance System (Expeditionary) (G-BOSS(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. G-BOSS(E) will replace obsolete, quick reaction capability (QRC) surveillance and force protections systems utilizing modular configurations: Light (man-transportable) for extra small base camps or small outpost/company, Medium (mid sensor height) for small to medium size base, and Heavy (high level sensor height) for large contingency base camps. G-BOSS(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.

IGSSR-C: The Integrated Ground Security, Surveillance and Response Capability (IGSSR-C) is a requirement to provide a layered approach to integrate sensors, sensor systems and unmanned systems with automated fusion capabilities. The system will provide a Force Protection (FP) Common Operational Picture (COP) capability for CONUS fixed, OCONUS semi-fixed or expeditionary elements in all Operating Environments (OE). This capability will enable rapid decision analysis, speed the response process as well as increase information dissemination horizontally and vertically along the chain of command and with outside supporting organizations. IGSSR-C is a software centric fusion engine that connects legacy and emerging FP systems, legacy Chemical, Biological, Radiological, and Nuclear (CBRN), unmanned systems, biometric identification and forensic data systems. The desired end state is to achieve interoperability and COP with current and emerging FP systems used by Joint Forces, Department of Defense (DoD) agencies and multi-national forces.

Integrated Base Defense (IBD): The purpose of IBD Kitting is to harvest and refurbish physical security and FP Non-Standard Equipment and package them into integrated and interoperable IBD Capabilities. IBD provides integration of software and analytical capability to support the integration of systems in the field. IBD employs an enterprise approach to enable IBD capabilities across the operational spectrum by leveraging interoperability efforts in support of the Integrated Unit, Base and Installation Protection framework.

FY 2016 RDTE funding in the amount of \$10.750 million supports the design and prototype development of the G-BOSS(E) in the amount of \$5.750 million, IGSSR-C development/design efforts in the amount of \$3.500 million, and the DOD IBD efforts in the amount of \$1.500 million to provide enhanced situational awareness, increased efficiencies, and more effective responses for both tactical bases and CONUS/OCONUS Installations focused on system engineering, development efforts to upgrade systems and software development.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205402A / <i>Integrated Base Defense - Operational System Dev</i>	Project (Number/Name) EF2 / <i>Integrated Base Defense</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Title: IBD Test and Evaluation Description: Test and Evaluation of Integrated Base Defense Software Development Efforts in support if Integrated Base Defense Kitting. FY 2015 Plans: Test and Evaluation of Integrated Base Defense Software Development Efforts in support if Integrated Base Defense Kitting. FY 2016 Plans: Test and Evaluation of Integrated Base Defense Software Development Efforts in support if Integrated Base Defense Kitting.		-	0.403	0.749
Title: IBD Architecture and Software Development Description: Integrated Base Defense Architecture and Software Development FY 2015 Plans: Integrated Base Defense Architecture and Software Development in support of Integrated Base Defense Kitting. FY 2016 Plans: Integrated Base Defense Architecture and Software Development in support of Integrated Base Defense Kitting.		-	3.561	0.614
Title: IBD Engineering and Management Services Description: Engineering and Managment Services in support of Integrated Base Defense Software Development Efforts for Integrated Base Defense Kitting. FY 2015 Plans: Engineering and Managment Services in support of Integrated Base Defense Software Development Efforts for Integrated Base Defense Kitting. FY 2016 Plans: Engineering and Management Services in Support of Integrated Base Defense Software Development and Initial Packaging Efforts for Integrated Base Defense Kitting.		-	0.398	0.137
Title: G-BOSS(E) Design and Build Description: G-BOSS(E) design and builds prototype tower systems. FY 2016 Plans:		-	-	5.750

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205402A / <i>Integrated Base Defense - Operational System Dev</i>	Project (Number/Name) EF2 / <i>Integrated Base Defense</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Completes initial design and begins development of tower prototypes to support developmental testing activities			
Title: IGSSR-C Design and Development Description: IGSSR-C design efforts and integration activities. FY 2016 Plans: Completes the initial Design and Development of the IGSSR-C Architecture, Software Framework and Core Capabilities and initiates IGSSR-C integration efforts.	-	-	3.500
Accomplishments/Planned Programs Subtotals	-	4.362	10.750

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• G-BOSS(E) (M90212): <i>G-BOSS(E) (M90212)</i>	-	-	-	-	-	-	11.409	23.210	27.472	Continuing	Continuing
• IGSSR-C (M90106): <i>IGSSR-C (M90106)</i>	-	-	-	-	-	2.000	1.055	7.000	9.010	Continuing	Continuing

Remarks

D. Acquisition Strategy

Ground-Based Operational Surveillance System (Expeditionary) (G-BOSS(E)) will replace the interim PSS-G Increment 1 towers with improved persistent surveillance capabilities along with network integration and better mobility utilizing modular configurations. The G-BOSS(E) Capability Design Document (CDD) was approved May 2014. In FY 2014, the Department of Defense (DoD) Physical Security Enterprise and Analysis Group (PSEAG) provided funds to conduct pre-milestone B activities. It is anticipated that a G-BOSS(E) Materiel Development Decision (MDD) will occur FY 2015. Pending successful Milestone B decision, the existing US Marine Corps (USMC) tower's design (Ground Based Operational Surveillance System) (GBOSS) will be leveraged and upgraded to meet the Army's G-BOSS(E) tower requirement. The Naval Surface Warfare Center (NSWC) at Crane, Indiana will provide system design, development and integration. Future funding will complete development and early Operational Testing (OT) leading to Milestone C in FY 2018. Pending a successful Milestone C decision in FY 2018, the proposed acquisition strategy is to award a Low Rate Initial Production Firm Fixed Price (FFP) competitive contract in FY 2018, followed by Full Rate Production (FRP) in FY 2020.

The Integrated Ground Security, Surveillance and Response Capability (IGSSR-C) provides a layered approach to integrate sensors, sensor systems and unmanned systems. The IGSSR-C Capability Design Document (CDD) was approved September 2013 and Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)) assigned IGSSR-C Office of Primary Responsibility (OPR) to PEO IEW&S in December 2013. IGSSR-C is a suite of software that achieves integration, fusion and interoperability in support of the Army Acquisition Executive's Common Operating Environment (COE) Command Post Compute Environment (CPCE) effort. In FY 2014, the Department of Defense (DoD) Physical Security Enterprise and Analysis Group (PSEAG) provided funds to conduct pre-milestone B

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army Date: February 2015

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
2040 / 7	PE 0205402A / <i>Integrated Base Defense - Operational System Dev</i>	EF2 / <i>Integrated Base Defense</i>

activities. The IGSSR-C Materiel Development Decision (MDD) is planned for FY 2015. Pending a successful milestone decision and strategy approval, the plan is to award a Cost Plus Fixed Fee (CPFF) contract in FY 2016. This effort will provide for the design maturation/optimization and software/hardware integration. Pending a successful Milestone C decision in FY 2018, the proposed acquisition strategy is to award a Low Rate Initial Production Firm Fixed Price (FFP) competitive contract, followed by Full Rate Production (FRP) contract in FY 2020.

The IBD acquisition strategy is to leverage existing IBD-related government organizations and to competitively award multiple contracts in support of IBD objectives for the development of holistic IBD architectures and products to support interoperability of fielded and emerging IBD-related systems.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205402A / <i>Integrated Base Defense - Operational System Dev</i>	Project (Number/Name) EF2 / <i>Integrated Base Defense</i>
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
G-BOSS(E) Project Management	MIPR	PM EOIR : Fort Belvoir, VA	0.000	-		-		0.288	Nov 2015	-		0.288	Continuing	Continuing	Continuing
IGSSR-C Project Management	MIPR	PM EOIR : Fort Belvoir, VA	0.000	-		-		0.175	Nov 2015	-		0.175	Continuing	Continuing	Continuing
IBD Engineering and Management Services	Allot	Joint Project Manager Guardian Joint Product Manager Force Protection Services : Fort Belvoir, VA	0.000	-		0.398	Mar 2015	0.137	Jan 2016	-		0.137	Continuing	Continuing	Continuing
Subtotal			0.000	-		0.398		0.600		-		0.600	-	-	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
G-BOSS(E) Design	MIPR	NSWC Crane : Crane, IN	0.000	-		-		2.228	Jan 2016	-		2.228	Continuing	Continuing	Continuing
G-BOSS(E) Prototypes	MIPR	RDECOM CERDEC : Fort Belvoir, VA	0.000	-		-		2.733	Jan 2016	-		2.733	Continuing	Continuing	Continuing
IGSSR-C Design	C/CPFF	TBD : TBD	0.000	-		-		2.777	Nov 2015	-		2.777	Continuing	Continuing	Continuing
IBD Architecture and Software Development	C/CR	AMRDEC : Huntsville, AL	0.000	-		3.561		0.614	Jan 2016	-		0.614	Continuing	Continuing	Continuing
Subtotal			0.000	-		3.561		8.352		-		8.352	-	-	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
G-BOSS(E) Design Support	MIPR	RDECOM CERDEC : Fort Belvoir, VA	0.000	-		-		0.502	Jan 2016	-		0.502	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army	Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205402A / <i>Integrated Base Defense - Operational System Dev</i>
Project (Number/Name) EF2 / <i>Integrated Base Defense</i>	

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	Cost To Complete	Total Cost	Target Value of Contract	
IGSSR-C Design Support	MIPR	RDECOM CERDEC : Fort Belvoir, VA	0.000	-		-		0.547	Jan 2016	-		0.547	Continuing	Continuing	Continuing	
Subtotal			0.000	-		-		1.049		-		1.049	-	-	-	

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	Cost To Complete	Total Cost	Target Value of Contract	
IBD Test and Evaluation	MIPR	A TEC : Aberdeen Proving Ground, MD	0.000	-		0.403	Mar 2015	0.749		-		0.749	-	1.152	-	
Subtotal			0.000	-		0.403		0.749		-		0.749	-	1.152	-	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals			0.000	-		4.362		10.750		-		10.750	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205402A / <i>Integrated Base Defense - Operational System Dev</i>	Project (Number/Name) EF2 / <i>Integrated Base Defense</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020							
	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) G-BOSS(E) Material Development Decision																													▲ 1 MDD			
G-BOSS(E) Risk Reduction																													Risk Reduction			
(2) G-BOSS(E) Milestone B																									▲ 2 MSB							
G-BOSS(E) Engineering Manufacturing & Development																									EMD				■			
(3) G-BOSS(E) Milestone C																									▲ 3 MSC							
G-BOSS(E) Production																									Production				■			
(4) IGSSR-C Material Development Decision																									▲ 4 MDD							
IGSSR-C Risk Reduction																									Risk Reduction				■			
(5) IGSSR-C Milestone B																									▲ 5 MSB							
IGSSR-C Engineering Manufacturing & Development																									EMD				■			
(6) IGSSR-C Milestone C																									▲ 6 MSC							
IGSSR-C Production																									Production				■			
IBD CONOPS & Architecture																									CONOPS							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205402A / <i>Integrated Base Defense - Operational System Dev</i>	Project (Number/Name) EF2 / <i>Integrated Base Defense</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
G-BOSS(E) Material Development Decision	3	2015	3	2015
G-BOSS(E) Risk Reduction	1	2016	2	2016
G-BOSS(E) Milestone B	2	2016	2	2016
G-BOSS(E) Engineering Manufacturing & Development	1	2017	3	2018
G-BOSS(E) Milestone C	3	2018	3	2018
G-BOSS(E) Production	3	2018	4	2020
IGSSR-C Material Development Decision	3	2015	3	2015
IGSSR-C Risk Reduction	1	2016	2	2016
IGSSR-C Milestone B	2	2016	2	2016
IGSSR-C Engineering Manufacturing & Development	3	2016	3	2018
IGSSR-C Milestone C	3	2018	3	2018
IGSSR-C Production	3	2018	4	2020
IBD CONOPS & Architecture	2	2016	1	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0205410A / Materials Handling Equipment
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	0.834	0.402	-	0.402	0.304	0.750	0.750	-	-	3.040
EE9: Material Handling Equipment - Advance Development	-	-	0.834	0.402	-	0.402	0.304	0.750	0.750	-	-	3.040

Note

Funding realigned from 603804A Project G14

A. Mission Description and Budget Item Justification

This program element supports component development and Material Handling Equipment (MHE) prototyping and stays abreast of emerging and available technologies to be integrated into military MHE to address identified capability gaps and warfighter objectives. This project enables the development of selected technologies and transition to system integration and development or production of MHE products. MHE includes Rough Terrain Forklifts, Rough Terrain Container Handlers (RTCH) and Cranes, as well as ancillary MHE equipment, to support distribution of critical supplies in the theater of operations. FY16 funding will allow innovative research with the goal to improve fuel efficiency, operational energies, machine diagnostics and to enhance operation of MHE equipment.

B. Program Change Summary (\$ in Millions)

	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>
Previous President's Budget	-	0.834	0.402	-	0.402
Current President's Budget	-	0.834	0.402	-	0.402
Total Adjustments	-	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0205410A / <i>Materials Handling Equipment</i>				Project (Number/Name) EE9 / <i>Material Handling Equipment - Advance Development</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EE9: <i>Material Handling Equipment - Advance Development</i>	-	-	0.834	0.402	-	0.402	0.304	0.750	0.750	-	-	3.040
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports component development and Material Handling Equipment (MHE) prototyping and stays abreast of emerging and available technologies to be integrated into military MHE to address identified capability gaps and warfighter objectives. This project enables the development of selected technologies and transition to system integration and development or production of MHE products. MHE includes Rough Terrain Forklifts, Rough Terrain Container Handlers (RTCH) and Cranes, as well as ancillary MHE equipment, to support distribution of critical supplies in the theater of operations. FY16 funding will allow for innovative research with the goal to improve fuel efficiency, operational energy technologies, machine diagnostics and to enhance operation of MHE equipment.

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

	FY 2014	FY 2015	FY 2016
<p>Title: Baseline Fuel Efficiency of Material Handling Equipment (MHE)</p> <p>Description: Develop standard duty cycles for fielded system, investigate training/technology for improving efficiency and validate performance of proposed changes.</p> <p>FY 2015 Plans: Continue baseline and evaluate new solutions for fluid and controls</p> <p>FY 2016 Plans: Continue baseline and evaluate new solutions for fluid and controls</p>	-	0.250	0.060
<p>Title: Upgrade RTCH control systems and on-board diagnostics</p> <p>Description: Perform analysis of current control systems and technology which can be used to improve performance and reliability. Investigate integration of on-board diagnostics to aid in operation and maintenance.</p> <p>FY 2015 Plans: Investigate current RTCH control systems and conduct Market Research</p>	-	0.434	-
<p>Title: Investigate Robotic Assist on Material Handling Equipment (MHE)</p> <p>Description: Research and demonstrate technologies which would enhance operation such as the inclusion of cameras, collision sensors and lifting aids.</p>	-	0.150	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205410A / <i>Materials Handling Equipment</i>	Project (Number/Name) EE9 / <i>Material Handling Equipment - Advance Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
FY 2015 Plans: Conduct research into appliqué which will enhance operation			
Title: Operational Energy Technologies Description: Evaluate emerging technologies that can improve machine productivity and efficiency. Baseline fuel efficiency, engine management, efficient lubricants and hydraulic technologies.	-	-	0.240
FY 2016 Plans: Instrument up to three vehicle types (Light Capacity Rough Terrain Forklift, Rough Terrain Container Handler and All Terrain Lifting Army System) and monitor fuel consumption during operations. Build duty cycle profiles for the classes of equipment and identify areas of inefficiency and language to include in future procurements.			
Title: Machine Diagnostic Description: Evaluate machine diagnostic and condition based maintenance technologies to enhance operational availability and reduce overall maintenance burden.	-	-	0.102
FY 2016 Plans: Investigate the commercially available technology for integration on the RTCH which would allow onboard diagnostic and fault production capability.			
Accomplishments/Planned Programs Subtotals	-	0.834	0.402

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• M41200: <i>Rough Terrain Container Handler</i>	1.250	-	-	-	-	-	-	-	-	-	1.250
• M41800: <i>All Terrain Lifting Army System</i>	0.860	-	-	-	-	-	-	-	-	-	0.860
• G41002: <i>5K Light Capacity Rough Terrain (LCRT) Forklift</i>	7.517	14.327	27.982	-	27.982	17.843	18.199	18.555	17.916	-	122.339

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205410A / <i>Materials Handling Equipment</i>	Project (Number/Name) EE9 / <i>Material Handling Equipment - Advance Development</i>

D. Acquisition Strategy

Procure prototype component items for engineering tests and demonstrations with subject matter experts. Conduct trades between cost and improved maintainability and environmental risk reduction. Process engineering change proposals, update technical manuals and training materials, and prepare supporting acquisition documents and data to procure new training aids.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205410A / <i>Materials Handling Equipment</i>	Project (Number/Name) EE9 / <i>Material Handling Equipment - Advance Development</i>
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Upgrade RTCH control systems and on-board diagnostics	TBD	TBD : TBD	0.000	-		0.434		-		-		-	-	0.434	-
Operational Energy Technologies	Various	Various : Various	0.000	-		-		0.240	Mar 2016	-		0.240	-	0.240	-
Robotic Assist on Material Handling Equipment	TBD	TBD : TBD	0.000	-		0.150		-		-		-	-	0.150	-
Machine Diagnostic	Various	Various : Various	0.000	-		-		0.102	Mar 2016	-		0.102	-	0.102	-
Subtotal			0.000	-		0.584		0.342		-		0.342	-	0.926	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Baseline Fuel Efficiency of MHE Equipment	Various	Various : Various	0.000	-		0.250		0.060	Mar 2016	-		0.060	-	0.310	-
Subtotal			0.000	-		0.250		0.060		-		0.060	-	0.310	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		0.000	-	0.834	0.402	-	0.402	-	1.236	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205410A / <i>Materials Handling Equipment</i>	Project (Number/Name) EE9 / <i>Material Handling Equipment - Advance Development</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Baseline fuel efficiency of equipment																												
Investigate current RTCH control systems and conduct market research																												
Investigate robotic assist on Material Handling Equipment																												
Operational Energy Technologies																												
Machine Diagnostic																												
Driver Assist																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205410A / <i>Materials Handling Equipment</i>	Project (Number/Name) EE9 / <i>Material Handling Equipment - Advance Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Baseline fuel efficiency of equipment	1	2015	2	2017
Investigate current RTCH control systems and conduct market research	1	2015	4	2015
Investigate robotic assist on Material Handling Equipment	2	2015	4	2016
Operational Energy Technologies	2	2016	4	2020
Machine Diagnostic	2	2016	2	2017
Driver Assist	1	2017	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0205412A / <i>Environmental Quality Technology - Operational System Dev</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	0.280	-	-	-	-	-	-	-	-	0.280
EE6: <i>Environmental Information Tech Modernization</i>	-	-	0.280	-	-	-	-	-	-	-	-	0.280

A. Mission Description and Budget Item Justification

This project funds the modernization of the Environmental Information Technology Management (EITM) program which includes support for Knowledge Based Corporate Reporting system (KBCRS) and Defense Environmental Network Information Exchange (DENIX).

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	0.280	-	-	-
Current President's Budget	-	0.280	-	-	-
Total Adjustments	-	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0205412A / <i>Environmental Quality Technology - Operational System Dev</i>				Project (Number/Name) EE6 / <i>Environmental Information Tech Modernization</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EE6: <i>Environmental Information Tech Modernization</i>	-	-	0.280	-	-	-	-	-	-	-	-	0.280
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Environmental Information Technology Management (EITM) program includes support for Knowledge Based Corporate Reporting system (KBCRS) and Defense Environmental Network Information Exchange (DENIX). This request for research, development, test and evaluation (RDTE) is to enhance DENIX and KBCRS systems to a net-centric all services transactional system of record and reporting tool set. This also includes upgrades to incorporate new security and other information technology requirements.

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

	FY 2014	FY 2015	FY 2016
Title: Environmental Information Tech Modernization	-	0.280	-
Description: Conducts system enhancements as required to meet data management requirements for the Knowledge Based Corporate Reporting System and the Defense Environmental Network Information Exchange.			
FY 2015 Plans: Provide system upgrades to support users with reporting requirements, for example the Annual Report to Congress and Chemical Management Enterprise Information Integration.			
Accomplishments/Planned Programs Subtotals	-	0.280	-

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603779A: <i>Environmental Restoration Tech Validation (04E)</i>	0.417	-	-	-	-	-	0.308	-	-	-	0.725

Remarks

D. Acquisition Strategy

The Environmental Information Technology Management (EITM) Program is an Office of the Secretary of Defense sponsored program that was assigned to the Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health as the Department of Defense (DoD) Executive Agent by the Under Secretary of Defense for Acquisition, Technology and Logistics in 2001. The DoD Directive 4715.1E defined EITM mission is to ensure efficient use of enterprise environment, safety and occupational health (ESOH) corporate information management processes by providing and sustaining requirement-driven ESOH corporate data management,

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205412A / <i>Environmental Quality Technology - Operational System Dev</i>	Project (Number/Name) EE6 / <i>Environmental Information Tech Modernization</i>
<p>Congressional-reporting and public outreach tools to the DoD, and other DoD stakeholders. Funding provided for this program will allow EITM to develop a Deputy Under Secretary of Defense for Installations and Environment directed Chemical Management Enterprise Information Integration capability that will allow Army net-centric hazardous material and ESOH 2.0 NetCentric data management capabilities per the Secretary of the Army Directive 2009-03 "Army Data Management" and DoD Directive 8320.2 "Data Sharing in a Net-Centric Department of Defense." Prior to funding being committed, Army and DoD environmental information technology stakeholders meet to determine which high priority EITM interface requirements need upgrades to incorporate new security and other information technology requirements.</p>		
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205412A / Environmental Quality Technology - Operational System Dev	Project (Number/Name) EE6 / Environmental Information Tech Modernization
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	Cost To Complete			
System enhancements for required network interfaces to support EITM mission.	C/FFP	Delta Resources : Arlington, VA	0.000	-		0.280	Aug 2015	-		-		-	-	0.280	-	
Subtotal			0.000	-		0.280		-		-		-	-	0.280	-	

Project Cost Totals			Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	-	0.280	-	-	-	-	0.280	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205412A / <i>Environmental Quality Technology - Operational System Dev</i>	Project (Number/Name) EE6 / <i>Environmental Information Tech Modernization</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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 enhancements for KBCRS and DENIX systems (FY 2015)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205412A / <i>Environmental Quality Technology - Operational System Dev</i>	Project (Number/Name) EE6 / <i>Environmental Information Tech Modernization</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
System enhancements for KBCRS and DENIX systems (FY 2015)	4	2015	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0205456A / <i>Lower Tier Air and Missile Defense (AMD) System</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	78.720	64.159	-	64.159	60.214	58.722	75.315	96.392	Continuing	Continuing
EF9: <i>System Integration and Test</i>	-	-	78.720	64.159	-	64.159	60.214	58.722	75.315	96.392	Continuing	Continuing

A. Mission Description and Budget Item Justification

The PATRIOT system includes a family of hardware, software, interceptors (GEM, PAC-2, PAC-3/MSE) and Ground Support Equipment. As software and hardware improvements are developed, there is a continuing need for system level modeling, simulations, and tests. Modeling and Simulation allow for performance assessment against all threats that would not be possible in flight tests due to cost, target and range constraints. Flight testing is periodically required for validation of the Modeling and Simulation as well as satisfying Army Test and Evaluation Command/Director, Operational Test and Evaluation (ATEC/DOTE) requirements of segment improvements.

PATRIOT is an integral part of the overall Air and Missile Defense (AMD) Architecture and enables the incremental fielding of the system capability for Army Air and Missile Defense Battalions.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	78.758	64.628	-	64.628
Current President's Budget	-	78.720	64.159	-	64.159
Total Adjustments	-	-0.038	-0.469	-	-0.469
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.469	-	-0.469
• Other Adjustments 1	-	-0.038	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0205456A / Lower Tier Air and Missile Defense (AMD) System				Project (Number/Name) EF9 / System Integration and Test			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EF9: System Integration and Test	-	-	78.720	64.159	-	64.159	60.214	58.722	75.315	96.392	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is not a new start - continues efforts funded in PAC-3/MSE Missile 0605456A.

A. Mission Description and Budget Item Justification

The PATRIOT system includes a family of hardware, software, interceptors (GEM, PAC-2,PAC-3/MSE) and Ground Support Equipment. As software and hardware improvements are developed, there is a continuing need for system level modeling, simulations, and tests. Modeling and Simulation allows for performance assessment against all threats that would not be possible in flight tests due to cost, target and range constraints. Flight testing is periodically required for validation of Modeling and Simulation as well as satisfying ATEC/DOTE requirements of segment improvements.

PATRIOT is an integral part of the overall Air and Missile Defense (AMD) Architecture and enables the incremental fielding of the system capability for Army Air and Missile Defense Battalions.

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

	FY 2014	FY 2015	FY 2016
Title: Program Development, Integration, and Support	-	13.158	25.428
Description: Funding is provided for the following effort:			
FY 2015 Plans: Program development, integration of missile and ground system hardware and software in support of PDB-8 activities.			
FY 2016 Plans: Continues program development, integration of missile and ground system hardware and software in support of PDB-8 activities.			
Title: Testing, Targets, Modeling and Simulation	-	65.562	38.731
Description: Funding is provided for the following effort:			
FY 2015 Plans: Continues testing program to include utilization of targets/threat simulators, flight simulator, modeling efforts and test activities to support the Test and Evaluation Master Plan(TEMP) and system testing/analysis for PDB-8 IOT&E.			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205456A / Lower Tier Air and Missile Defense (AMD) System	Project (Number/Name) EF9 / System Integration and Test

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Continues testing program to include utilization of targets/threat simulators, flight simulator, modeling efforts and test activities to support the Test and Evaluation Master Plan (TEMP) and system testing/analysis for PDB-8 IOT&E.			
Accomplishments/Planned Programs Subtotals	-	78.720	64.159

C. Other Program Funding Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• PE 0605456A, Project PA3: PE 0605456A, Project PA3 PAC-3/MSE Missile	86.223	34.991	2.272	-	2.272	-	-	-	-	-	123.486
• SSN C53101: SSN C53101 MSE Missile	690.401	532.605	414.946	-	414.946	430.622	462.676	493.613	569.488	Continuing	Continuing
• SSN C50016: SSN C50016, Lower-Tier Air and Missile Defense (AMD)	-	110.300	115.075	-	115.075	130.366	113.676	123.582	151.421	Continuing	Continuing
• PE 0102419A, Project E55: PE 0102419A, Project E55 Joint Aero Stat Program - EMD Effort	57.976	-	-	-	-	-	-	-	-	-	57.976
• PE 0604319A, Project DU3, IFPC2: PE 0604319A, Project DU3, IFPC2 (FY12 PE 0603305A IFPC II - Intercept)	76.559	96.131	155.361	-	155.361	90.323	58.562	43.384	109.495	Continuing	Continuing
• SSN C62002: SSN C62002, IFPC Inc 2-I Block 1 Missile	-	-	-	-	-	19.920	48.076	139.362	175.738	Continuing	Continuing
• SSN C62001: SSN C62001, IFPC Inc 2-I Block 1 System	-	-	-	-	-	-	73.552	123.106	186.840	Continuing	Continuing
• PE0604820A, Project E10: PE0604820A, Project E10 SENTINEL	1.796	5.221	12.309	-	12.309	11.465	10.971	12.191	30.277	Continuing	Continuing
• PE 0605457A, Project S40: PE 0605457A, Project S40, Army Integrated Air and Missile Defense (AIAMD)	358.192	152.516	214.099	-	214.099	227.103	169.575	153.451	33.424	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205456A / Lower Tier Air and Missile Defense (AMD) System	Project (Number/Name) EF9 / System Integration and Test
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• SSN BZ5075: SSN BZ5075, IAMD Battle Command System (IBCS)	-	-	20.917	-	20.917	204.513	296.361	375.763	443.637	Continuing	Continuing
• PE0604741A, Project 126, 146, 149: PE0604741A, Project 126, 146, 149; Air Defense C21 Eng Dev	38.412	15.898	24.569	-	24.569	27.131	20.524	20.018	18.082	Continuing	Continuing
• SSN AD50700: SSN AD50700 Air & Missile Defense Planning & Control Sys	13.090	27.374	28.176	-	28.176	32.443	32.690	33.032	13.366	Continuing	Continuing
• PE 0202429A: PE 0202429A Proj EP8, JLENS COCOM EXERCISE	22.659	43.248	40.565	-	40.565	46.371	6.746	-	-	-	159.589

Remarks

This program is an integral part of the Army Integrated Air and Missile Defense (IAMD) architecture.

D. Acquisition Strategy

The design objective of the PATRIOT system is to provide an element of an integrated Ballistic Missile Defense system capable of being modified to cope with the evolving threat. This strategy minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems. PAC-3 system development efforts further improve system capabilities against emerging and reactive threats. The PAC-3 Missile Program focuses on developing, fabricating and testing the high velocity, hit to kill, surface to air missile and associated ground support equipment to provide essential increases in battle space, accuracy, lethality and firepower to counter and destroy evolving air defense threats. The missile performance is demonstrated through a series of flight tests and modeling and simulation activities. The PAC-3 MSE program evolves the PAC-3 system providing extended ranges, insensitive munitions enhancements, and greater logistical flexibility. The PAC-3 MSE will be fielded to U.S. PATRIOT units.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205456A / Lower Tier Air and Missile Defense (AMD) System	Project (Number/Name) EF9 / System Integration and Test
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Program Management	RO	Various : Huntsville, Alabama	0.000	-		1.150	Dec 2014	1.158	Dec 2015	-		1.158	Continuing	Continuing	-
PAC-3 Product Office	RO	Project Office : Huntsville, AL	0.000	-		0.165	Dec 2014	1.100	Dec 2015	-		1.100	-	1.265	-
Subtotal			0.000	-		1.315		2.258		-		2.258	-	-	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Integration MSE LMMFC	Various	Lockheed Martin Missiles and Fire Control (LMMFC) : Dallas, Texas	0.000	-		-		12.300	Dec 2015	-		12.300	Continuing	Continuing	-
MSE/PAC-3 Raytheon	Various	Raytheon : Waltham, Massachusetts	0.000	-		4.450	Jan 2015	3.800	Jan 2016	-		3.800	Continuing	Continuing	-
SETA Contracts	Various	Multiple : Multiple	0.000	-		3.083	Feb 2015	1.850	Feb 2016	-		1.850	Continuing	Continuing	-
U.S. Other Government Agencies (OGAs)	MIPR	Various : Huntsville, Alabama	0.000	-		4.310	Dec 2014	5.220	Dec 2015	-		5.220	Continuing	Continuing	-
Subtotal			0.000	-		11.843		23.170		-		23.170	-	-	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Targets/Threats Simulators	MIPR	Various : Huntsville, Alabama	0.000	-		25.345	Dec 2014	22.188	Dec 2015	-		22.188	Continuing	Continuing	-
Modeling and Simulation	MIPR	Various : Huntsville, Alabama	0.000	-		3.724	Dec 2014	3.000	Dec 2015	-		3.000	Continuing	Continuing	-
Contractor T&E	Various	Multiple : Multiple	0.000	-		8.425	Dec 2014	7.458	Dec 2015	-		7.458	Continuing	Continuing	-
Other T&E funding	MIPR	Various : WSMR, NM	0.000	-		3.550	Dec 2014	2.585	Dec 2015	-		2.585	Continuing	Continuing	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205456A / <i>Lower Tier Air and Missile Defense (AMD) System</i>	Project (Number/Name) EF9 / <i>System Integration and Test</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
PATRIOT System Testing and Evaluation	1	2015	4	2020
PDB 8 Fielding	4	2017	4	2020
PDB-8 IOC	4	2017	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS)
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	45.353	17.527	-	17.527	27.829	29.669	29.406	24.036	Continuing	Continuing
EG2: GMLRS Alternative Warheads	-	-	33.880	0.319	-	0.319	-	-	-	-	Continuing	Continuing
EG3: Guided MLRS	-	-	11.473	17.208	-	17.208	27.829	29.669	29.406	24.036	Continuing	Continuing

Note
Adjustments to Budget Years: Funding adjusted to reflect changes to FY2015-2016 activities.

A. Mission Description and Budget Item Justification

Projects EG2/EG3. GMLRS rockets are surface-to-surface artillery rockets fired from the Multiple Launch Rocket System (MLRS) and High Mobility Artillery Rocket System (HIMARS) launchers. GMLRS rockets provide 24/7, all-weather precision fires to engage both area and point targets at short, medium, and long ranges.

The GMLRS Program consists of three separate increments: GMLRS Dual Purpose Improved Conventional Munition (DPICM) cluster munition to engage area or imprecisely located targets; GMLRS Unitary that utilizes a 200 lb high explosive warhead to engage point targets with limited collateral damage; and GMLRS Alternative Warhead (AW) that is being developed as a non-cluster munition to replace GMLRS DPICM. GMLRS DPICM Production was terminated in response to the June 2008 Department of Defense (DoD) Cluster Munitions Policy. GMLRS Unitary is currently in full rate production. GMLRS AW is currently in the Engineering and Manufacturing Development (EMD) Phase and scheduled to enter full rate production in FY2015. The GMLRS AW rocket is 90% common with the Unitary variant.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	45.377	17.175	-	17.175
Current President's Budget	-	45.353	17.527	-	17.527
Total Adjustments	-	-0.024	0.352	-	0.352
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-0.024	0.352	-	0.352

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>				Project (Number/Name) EG2 / <i>GMLRS Alternative Warheads</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EG2: <i>GMLRS Alternative Warheads</i>	-	-	33.880	0.319	-	0.319	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY2015, Guided Multiple Launch Rocket System (GMLRS) has its own separate Program Element, 0205778A, to include Projects EG2 (GMLRS Alternative Warhead) and EG3 (Guided MLRS), previously under Program Element 0603778A Project Codes 78G and 784, respectively.

A. Mission Description and Budget Item Justification

The United States (U.S.) Army is funding the development of the Guided Multiple Launch Rocket System (GMLRS) Alternative Warhead (AW) increment under the EG2-GMLRS AW project code. GMLRS AW is being developed as a non-cluster munition to replace GMLRS Dual Purpose Improved Conventional Munitions (DPICM) and service the same area and imprecisely-located targets. GMLRS DPICM Production was terminated in response to the June 2008 Department of Defense (DoD) Cluster Munitions Policy.

The GMLRS AW increment completed Milestone B (MS B) on February 19, 2012 and is currently in the Engineering and Manufacturing Development (EMD) Phase. The three-year EMD contract was awarded on March 30, 2012. Funding was requested in FY2013 for the second year of the EMD contract and for other government and contracted EMD activities to include engineering developmental testing and the Critical Design Review (CDR). GMLRS AW is scheduled for a combined Milestone C (MS C) and Full Rate Production (FRP) Decision in FY2015 and Initial Operational Capability (IOC) in FY2016. Acquisition Strategy is to procure AW as part of the annual GMLRS FRP contract.

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

	FY 2014	FY 2015	FY 2016
Title: Conduct Development Engineering, Design Component Testing, and Performance Analysis.	-	15.754	0.319
Description: Funding is provided for the following effort			
FY 2015 Plans: Assess warhead capability and effectiveness in multiple employment scenarios.			
FY 2016 Plans: Continue assessment of warhead capability and effectiveness in multiple employment scenarios.			
Title: Perform technical assessments and concept studies.	-	8.470	-
Description: Funding is provided for the following effort			
FY 2015 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	Project (Number/Name) EG2 / <i>GMLRS Alternative Warheads</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Evaluate production rate tooling assessments; conduct functional configuration audit; assess readiness for operational testing.			
Title: Prepare Milestone Documentation, Risk Reduction, and Program Reviews.	-	1.491	-
Description: Funding is provided for the following effort			
FY 2015 Plans: Finalize milestone documentation; preparation of all documentation and presentation requirements associated with completion and execution of MS C and Full Rate Production Decision (FRPDR).			
Title: Conduct System Test and Evaluation Activities.	-	8.165	-
Description: Funding is provided for the following effort			
FY 2015 Plans: Initial Operational Test and Evaluation (IOT&E).			
Accomplishments/Planned Programs Subtotals	-	33.880	0.319

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• GMLRS (C64400): <i>GMLRS (C64400)</i>	273.025	127.145	251.060	-	251.060	155.428	170.820	205.038	232.632	Continuing	Continuing
• Guided MLRS (784 & EG3): <i>Guided MLRS (784 & EG3)</i>	15.200	11.473	17.208	-	17.208	27.829	29.669	29.406	24.036	Continuing	Continuing

Remarks
GMLRS procurement funding includes C65404 and C65406.

D. Acquisition Strategy
The GMLRS AW rocket is a product improved version of the current GMLRS rocket. During EMD, GMLRS AW will undergo further development, integration, and testing under a Firm Fixed Price (FFP) contract.

Beginning in FY2015, GMLRS has its own separate Program Element, 0205778A, to include Projects EG2 (GMLRS Alternative Warhead) and EG3 (Guided MLRS), previously under Program Element 0603778A Project Codes 78G and 784, respectively.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	Project (Number/Name) EG2 / <i>GMLRS Alternative Warheads</i>

<u>E. Performance Metrics</u> N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	Project (Number/Name) EG2 / <i>GMLRS Alternative Warheads</i>
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Program Management	TBD	PFRMS Project Office, : RSA	0.000	-		4.642	Oct 2014	0.319	Oct 2015	-		0.319	Continuing	Continuing	Continuing
Subtotal			0.000	-		4.642		0.319		-		0.319	-	-	-

Remarks
TBD-To Be Determined; Cont.-Continuing; PFRMS-Precision Fires Rocket and Missile Systems; RSA-Redstone Arsenal

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
AWP Contracts (Multiple)	Various	ATK (Plymouth, MN) LMMFCS (Dallas, TX) : Systems Integrator	0.000	-		11.081	Dec 2014	-		-		-	Continuing	Continuing	Continuing
Other Government Agencies	TBD	AMCOM/ : AMRDEC, RSA	0.000	-		3.557	Dec 2014	-		-		-	Continuing	Continuing	Continuing
Subtotal			0.000	-		14.638		-		-		-	-	-	-

Remarks
AWP-Alternative Warhead Program; Various-Competitive/Firm Fixed Price/Sole Source/Cost Plus Fixed Fee; TBD-To Be Determined; Cont.-Continuing; AMCOM-Army Materiel Command; AMRDEC-U.S. Army Research, Development and Engineering Command; RSA-Redstone Arsenal; ATK-Alliant Techsystems, Inc.; MN-Minnesota; LMMFCS-Lockheed Martin Missile and Fire Control System; TX-Texas

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Support Contracts	C/CPFF	Camber Research/ S3/TMI, : Alabama	0.000	-		0.237	Dec 2014	-		-		-	Continuing	Continuing	Continuing
Subtotal			0.000	-		0.237		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	Project (Number/Name) EG2 / <i>GMLRS Alternative Warheads</i>
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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			

Remarks
C/CPFF-Competitive/Cost Plus Fixed Fee; Cont.-Continuing; S3-Systems Studies Simulation, Inc.; TMI-Tec Master, Inc.

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	TBD	WSMR, : NM	0.000	-		14.363	Dec 2014	-		-		-	-	14.363	-
Subtotal			0.000	-		14.363		-		-		-	-	14.363	-

Remarks
TBD-To Be Determined; Cont.-Continuing; WSMR, NM-White Sands Missile Range, New Mexico

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-	33.880	0.319	-	0.319	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS)	Project (Number/Name) EG2 / GMLRS Alternative Warheads
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Initial Operational Test (IOT)																												
Perform Technical Assessments and Concept Studies																												
(1) MS C and FRP									▲ 1																			
(2) IOC													▲ 2															
Conduct Development Engineering/Design Component Testing/Performa...																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	Project (Number/Name) EG2 / <i>GMLRS Alternative Warheads</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Initial Operational Test (IOT)	1	2015	2	2015
Perform Technical Assessments and Concept Studies	1	2015	2	2015
MS C and FRP	3	2015	3	2015
IOC	3	2016	3	2016
Conduct Development Engineering/Design Component Testing/Performance Analysis	1	2015	2	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>				Project (Number/Name) EG3 / <i>Guided MLRS</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EG3: <i>Guided MLRS</i>	-	-	11.473	17.208	-	17.208	27.829	29.669	29.406	24.036	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY2015, Guided Multiple Launch Rocket System (GMLRS) has its own separate Program Element, 0205778A, to include Projects EG2 (GMLRS Alternative Warhead) and EG3 (Guided MLRS), previously under Program Element 0603778A Project Codes 78G and 784, respectively.

A. Mission Description and Budget Item Justification

The United States (U.S.) Army continues to explore ways to enhance Guided Multiple Launch Rocket System (GMLRS) Unitary rockets and common components and to mitigate obsolescence issues under the Guided MLRS project code. The Army is requesting funding for the following GMLRS Research, Development, Test and Evaluation (RDT&E) activities: (1) evaluation of enhanced operational capabilities to provide more flexibility across the target set to include increased range, flight performance, and end game optimization; (2) investigation of potential life cycle cost savings through obsolescence initiatives; (3) development of enhancements to the Multiple Launch Rocket System (MLRS) common test equipment; and (4) evaluation and development of technologies to enhance overall product performance and survivability to include Long-Range Precision Fires (LRPF) capabilities and (5) Insensitive Munitions (IM) compliance.

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

	FY 2014	FY 2015	FY 2016
Title: Assess and improve GMLRS rockets.	-	1.606	2.409
Description: Funding is provided for the following effort			
FY 2015 Plans: Continue to assess and evaluate improvements in rocket reliability, increased range, collateral damage, and effectiveness, execute spinless rail flights, and pod enhancement studies.			
FY 2016 Plans: Continue to assess and evaluate improvements in rocket reliability, increased range, collateral damage, effectiveness, and pod enhancements.			
Title: Conduct development engineering and testing for IM program.	-	6.425	9.636
Description: Funding is provided for the following effort			
FY 2015 Plans: Conduct System Functional Design Review (FDR) and System Integration Tests (SITs) and STS flights.			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	Project (Number/Name) EG3 / <i>Guided MLRS</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Proplusion system ground/flight tests.			
Title: Investigate obsolescence cost/cost reduction opportunities/second source suppliers. Description: Funding is provided for the following effort FY 2015 Plans: Insert Guidance Processor Unit (GPU) and Power Condition Unit (PCU) into GMLRS program. FY 2016 Plans: Insert Guidance Processor Unit (GPU) and Power Condition Unit (PCU) into GMLRS program.	-	1.033	1.549
Title: Conduct System Test and Evaluation activities. Description: Funding is provided for the following effort FY 2015 Plans: Conduct configuration ground control testing for the GMLRS IM Rocket Motor (RM) and Ignition Safety Device (ISD). FY 2016 Plans: Conduct configuration ground control testing and flight testing for the GMLRS IM Rocket Motor (RM) and Ignition Safety Device (ISD).	-	2.409	3.614
Accomplishments/Planned Programs Subtotals	-	11.473	17.208

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

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• GMLRS (C64400): <i>GMLRS (C64400)</i>	273.025	127.145	251.060	-	251.060	155.428	170.820	205.038	232.632	Continuing	Continuing
• Gmlrs Alternative Warhead (78G & EG: <i>Gmlrs Alternative Warhead (78G & EG2)</i>)	38.528	33.880	0.319	-	0.319	-	-	-	-	Continuing	Continuing

Remarks

GMLRS Procurement funding includes C65404 and C65406.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	Project (Number/Name) EG3 / <i>Guided MLRS</i>

D. Acquisition Strategy

Project EG3 is intended to support, investigate, and develop alternative material changes to improve the GMLRS family of munitions as they are identified by the material developer or combat developer. This project also supports Insensitive Munitions (IM) activities to improve the overall posture of the system all the way down to component level. Future initiatives include a missile modernization program to extend the shelf life of the GMLRS rocket.

Beginning in FY2015, GMLRS has its own separate Program Element, 0205778A, to include Projects EG2 (GMLRS Alternative Warhead) and EG3 (Guided MLRS), previously under Program Element 0603778A Project Codes 78G and 784, respectively.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	Project (Number/Name) EG3 / <i>Guided MLRS</i>
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Program Management	TBD	PFRMS Project Office, : RSA	0.000	-		0.138	Oct 2014	0.138	Oct 2015	-		0.138	Continuing	Continuing	Continuing
Subtotal			0.000	-		0.138		0.138		-		0.138	-	-	-

Remarks
TBD-To Be Determined; Cont.-Continuing; PFRMS-Precision Fires Rocket and Missile Systems; RSA-Redstone Arsenal, Alabama

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Unitary Contracts/Multiple	SS/CPFF	LMMFCS : Dallas, TX	0.000	-		8.857	Dec 2014	10.978	Dec 2015	-		10.978	Continuing	Continuing	Continuing
Subtotal			0.000	-		8.857		10.978		-		10.978	-	-	-

Remarks
SS/CPFF-Sole Source/Cost Plus Fixed Fee; Cont.-Continuing; LMMFCS - Lockheed Martin Missile and Fire Control System; TX - Texas; AMCOM-Aviation and Missile Command; TBD-To Be Determined; AMRDEC - U.S. Army Research, Development and Engineering Command; RSA - Redstone Arsenal, Alabama

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	TBD	WSMR, : NM	0.000	-		2.478	Dec 2014	6.092	Dec 2015	-		6.092	Continuing	Continuing	Continuing
Subtotal			0.000	-		2.478		6.092		-		6.092	-	-	-

Remarks
TBD-To Be Determined; Cont.-Continuing; WSMR, NM-White Sands Missile Range, New Mexico

Project Cost Totals	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	-	11.473	17.208	-	17.208	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army							Date: February 2015			
Appropriation/Budget Activity 2040 / 7			R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>			Project (Number/Name) EG3 / <i>Guided MLRS</i>				
	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	Project (Number/Name) EG3 / <i>Guided MLRS</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Technical Assessment/Concept, Survivability																												
Obsolescence/Cost Reduction Opportunities and Second Source Suppl																												
GPU/PCU Qualification Testing																												
(1) GPU/PCU Qualification Flights													▲ 1															
IM/Enhanced Technology Improvements																												
Configuration System Qualification Ground/Flight Testing																												
(2) Engineering Change Proposal (ECP) Cut In Decision																					▲ 2							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i>	Project (Number/Name) EG3 / <i>Guided MLRS</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Technical Assessment/Concept, Survivability	1	2015	4	2020
Obsolescence/Cost Reduction Opportunities and Second Source Suppliers	1	2015	4	2020
GPU/PCU Qualification Testing	1	2015	2	2016
GPU/PCU Qualification Flights	4	2016	4	2016
IM/Enhanced Technology Improvements	1	2015	4	2020
Configuration System Qualification Ground/Flight Testing	2	2015	3	2018
Engineering Change Proposal (ECP) Cut In Decision	3	2018	3	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0208053A / Joint Tactical Ground System
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	14.504	10.209	20.515	-	20.515	15.560	8.696	10.606	10.934	Continuing	Continuing
635: Joint Tact Grd Station-P31(MIP)	-	14.504	10.209	20.515	-	20.515	15.560	8.696	10.606	10.934	Continuing	Continuing

Note

Above Threshold Reprogramming(ATR) of \$7.4M.

A. Mission Description and Budget Item Justification

The Joint Tactical Ground Station (JTAGS) is a post-production, ACAT III program and is designated as a DoD Space Program. JTAGS provides missile warning message data for the Air and Missile Defense (AMD) architecture and improves performance for Integrated Air and Missile Defense Fire Control Systems/Composite Army Air and Missile Defense Brigades. The JTAGS Program Element (PE) supports development and test to meet JTAGS ORD thresholds using improved sensors and algorithms as Pre-Planned Product Improvements (P3I). Presently, JTAGS Block 1 is a transportable information processing system, receiving and processing in-theater, direct down-linked data from Defense Support Program (DSP) and other Infrared (IR) satellites. JTAGS then disseminates near real time warning, alerting, and cueing information on ballistic missile launches and other tactical events of interest throughout the theater using existing communication networks, providing critical support to Combatant Commanders in their Areas of Responsibility (AOR). Four OCONUS deployed JTAGS units constitute DoD's only in-theater system providing space-based missile warning. The fifth CONUS system is being used as an institutional trainer but is a deployable asset. JTAGS is designated as the in-theater element of the United States Strategic Command's Theater Event System (TES). JTAGS supports all Theater Missile Defense pillars and by being located in-theater, affords the shortest sensor to shooter connectivity. P3I Improvements will upgrade JTAGS to a new Block 2 configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and will improve warning tactical parameters and timeliness. JTAGS Block 2 P3I is on contract for a two-Phase development effort. Phase 1 deshelters five systems, adds SBIRS Geosynchronous (GEO) scanner capability (FY 2012-15) and updates hardware/software/communication systems. Phase 2 activities include stereo SBIRS GEO starrer sensor data and Net Centric capabilities (FY 2015-18). JROC-Memos 197-12 and 113-13 directs fielding of JTAGS P3I Block 2 Phase 1 by FY15 and Phase 2 by FY 2017.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	7.104	10.209	20.662	-	20.662
Current President's Budget	14.504	10.209	20.515	-	20.515
Total Adjustments	7.400	-	-0.147	-	-0.147
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	7.400	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.147	-	-0.147

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0208053A / Joint Tactical Ground System				Project (Number/Name) 635 / Joint Tact Grd Station-P3I(MIP)			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
635: Joint Tact Grd Station-P3I(MIP)	-	14.504	10.209	20.515	-	20.515	15.560	8.696	10.606	10.934	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

The Joint Tactical Ground Station (JTAGS) is a post-production, ACAT III program and is designated as a DoD Space Program. JTAGS provides missile warning message data for the Air and Missile Defense (AMD) architecture and improves performance for Integrated Air and Missile Defense Fire Control Systems/Composite Army Air and Missile Defense Brigades. The JTAGS Program Element (PE) supports development and test to meet JTAGS ORD thresholds using improved sensors and algorithms as Pre-Planned Product Improvements (P3I). Presently, JTAGS Block 1 is a transportable information processing system, receiving and processing in-theater, direct down-linked data from Defense Support Program (DSP) and other Infrared (IR) satellites. JTAGS then disseminates near real time warning, alerting, and cueing information on ballistic missile launches and other tactical events of interest throughout the theater using existing communication networks, providing critical support to Combatant Commanders in their Areas of Responsibility (AOR). Four OCONUS deployed JTAGS units constitute DoD's only in-theater system providing space-based missile warning. The fifth CONUS system is being used as an institutional trainer but is a deployable asset. JTAGS is designated as the in-theater element of the United States Strategic Command's Theater Event System (TES). JTAGS supports all Theater Missile Defense pillars and by being located in-theater, affords the shortest sensor to shooter connectivity. P3I Improvements will upgrade JTAGS to a new Block 2 configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and will improve warning tactical parameters and timeliness. JTAGS Block 2 P3I is on contract for a two-Phase development effort. Phase 1 deshelters five systems, adds SBIRS Geosynchronous (GEO) scanner capability (FY 2012-15) and updates hardware/software/communication systems. Phase 2 activities include stereo SBIRS GEO starrer sensor data and Net Centric capabilities (FY 2015-18). JROC-Memos 197-12 and 113-13 directs fielding of JTAGS P3I Block 2 Phase 1 by FY15 and Phase 2 by FY 2017.

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

	FY 2014	FY 2015	FY 2016
Title: Execute Block 1 Upgrades	0.200	-	-
Description: Funding is to be provided for the following effort			
FY 2014 Accomplishments: Information Assurance (IA) Testing and Software Upgrades			
Title: JTAGS Test and Evaluation Support	0.898	1.743	1.413
Description: Funding is provided for the following effort			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i>	Project (Number/Name) 635 / <i>Joint Tact Grd Station-P3I(MIP)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p><i>FY 2014 Accomplishments:</i> JTAGS Block 2 Phase 1 Testing</p> <p><i>FY 2015 Plans:</i> JTAGS Block 2 Phase 1 Testing</p> <p><i>FY 2016 Plans:</i> JTAGS Block 2 Phase 2 Testing</p>			
<p><i>Title:</i> JTAGS P3I Block 2 Phase 1 Development (Deshelterization; Hardware/Software Upgrades)</p> <p><i>Description:</i> Funding is provided for the following effort</p> <p><i>FY 2014 Accomplishments:</i> Continue P3I Phase 1 Development</p> <p><i>FY 2015 Plans:</i> Complete P3I Phase 1 Development</p>	6.006	8.466	-
<p><i>Title:</i> JTAGS P3I Block 2 Phase 2</p> <p><i>Description:</i> Phase 2 activities include stereo SBIRS GEO starrer sensor data and Net Centric capabilities, per JROC Memos 197-12 and 113-13.</p> <p><i>FY 2014 Accomplishments:</i> Begin JTAGS P3I Phase 2 Development effort</p> <p><i>FY 2016 Plans:</i> Development of Phase 2 capabilities.</p>	7.400	-	19.102
Accomplishments/Planned Programs Subtotals	14.504	10.209	20.515

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• SSN BZ8401: <i>SSN BZ8401, Joint Tactical Ground Station (JTAGS)</i>	9.899	5.286	3.906	-	3.906	4.452	-	5.431	-	Continuing	Continuing
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0208053A / Joint Tactical Ground System	Project (Number/Name) 635 / Joint Tact Grd Station-P3I(MIP)

D. Acquisition Strategy

Under this program element, critical improvements will be developed making maximum use of Non-Developmental Items (NDI)/Commercial Off-The-Shelf (COTS) components. After design and integration, the system will be subject to thorough developmental and validation/verification testing to verify performance, operational effectiveness and suitability. P3I Improvements will upgrade JTAGS to a new Block 2 configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and will improve warning tactical parameters and timeliness. JTAGS Block 2 P3I is on contract for a two-Phase development effort. Phase 1 deshelers five systems, addressing obsolescence issues, adds SBIRS Geosynchronous (GEO) scanner capability (FY 2012-15) and updates hardware/software/communication systems. Phase 2 activities include stereo SBIRS GEO starer sensor data, Net Centric capabilities (FY 2015-18), and technical refresh issues (as required). JROC-Memos 197-12 and 113-13 directs fielding of JTAGS P3I Block 2 Phase 1 by FY15 and Phase 2 by FY 2017.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 7				PE 0208053A / Joint Tactical Ground System				635 / Joint Tact Grd Station-P31(MIP)							
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Government Program Management	Various	various : various	50.796	3.279		2.599		2.779		-		2.779	Continuing	Continuing	Continuing
Subtotal			50.796	3.279		2.599		2.779		-		2.779	-	-	-
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
JTAGS Block 1 Engineering Services Hardware/Software	SS/CPFF	Northrop Grumman : Colorado Springs, CO/Various	39.682	0.200		-		-		-		-	Continuing	Continuing	Continuing
P31 Phase 1 Development	SS/CPIF	Northrop Grumman : Colorado Springs, CO/Various	40.270	0.627		4.598		-		-		-	Continuing	Continuing	Continuing
P31 Phase 2 Development	SS/CPIF	Northrop Grumman : Colorado Springs, CO/Various	0.000	7.400	Feb 2015	-		15.033	Dec 2015	-		15.033	Continuing	Continuing	Continuing
Government Furnished Equipment	TBD	Various : Various	1.510	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			81.462	8.227		4.598		15.033		-		15.033	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	Various	various : various	27.666	2.100		1.269		1.290	Dec 2015	-		1.290	Continuing	Continuing	Continuing
Subtotal			27.666	2.100		1.269		1.290		-		1.290	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0208053A / Joint Tactical Ground System	Project (Number/Name) 635 / Joint Tact Grd Station-P3I(MIP)
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Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 (ATEC/JITC/ETC)	Various	various : various	7.062	0.898		1.743		1.413		-		1.413	Continuing	Continuing	Continuing
Subtotal			7.062	0.898		1.743		1.413		-		1.413	-	-	-

Remarks
N/A-Not Applicable

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	166.986	14.504	10.209	20.515	-	20.515	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i>	Project (Number/Name) 635 / <i>Joint Tact Grd Station-P3I(MIP)</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
P3I JTAGS Block 2	P3I JTAGS Block 2 Upgrade																											
P3I H/W & S/W Block 2 Phase 1 Deshelterization and Geosynchronous	P3I Hardware/Software																											
P3I GEO Starer and Net Centric Upgrade (P3I Block 2 Phase 2 Upgrade)	P3I GEO Starer																											
Future Sensor Integration and Technology Refresh	Future Sensor Integration																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i>	Project (Number/Name) 635 / <i>Joint Tact Grd Station-P3I(MIP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
P3I JTAGS Block 2	3	2012	4	2018
P3I H/W & S/W Block 2 Phase 1 Deshelterization and Geosynchronous (GEO) Scanner	4	2012	1	2016
P3I GEO Starer and Net Centric Upgrade (P3I Block 2 Phase 2 Upgrade)	2	2015	3	2018
Future Sensor Integration and Technology Refresh	2	2019	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					PE 0303028A / <i>Security and Intelligence Activities</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	7.596	12.518	12.368	-	12.368	11.969	12.106	12.270	12.515	Continuing	Continuing
H13: <i>Information Dominance Center (IDC) - Tiara</i>	-	7.596	12.518	12.368	-	12.368	11.969	12.106	12.270	12.515	Continuing	Continuing

A. Mission Description and Budget Item Justification

The U.S. Army Intelligence and Security Command's (INSCOM) RDTE program provides the Army with low-density, high-demand, extremely advanced offensive cyberspace technologies designed to degrade, deny, disrupt, or destroy adversary Command, Control, Communications, Computers and Intelligence (C4I) and shape the operational warfighting environment in order to create conditions favorable to the application of other elements of national power.

INSCOM conducts RDTE of offensive Cyberspace technologies in direct support of the full range of missions called for in the National Defense Strategy, Comprehensive National Cyber-Security Initiative, National Security Strategy, National Defense Guidance, National Security Presidential Directive (NSPD)-38, NSPD-54 and Homeland Security Presidential Directive (HSPD)-23.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	7.596	12.525	12.459	-	12.459
Current President's Budget	7.596	12.518	12.368	-	12.368
Total Adjustments	-	-0.007	-0.091	-	-0.091
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-0.007	-0.091	-	-0.091

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0303028A / Security and Intelligence Activities				Project (Number/Name) H13 / Information Dominance Center (IDC) - Tiara			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
H13: Information Dominance Center (IDC) - Tiara	-	7.596	12.518	12.368	-	12.368	11.969	12.106	12.270	12.515	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

INSCOM's RDTE program provides the Army with low-density, high-demand, extremely advanced offensive cyberspace technologies designed to degrade, deny, disrupt, or destroy adversary C4I and shape the operational warfighting environment in order to create conditions favorable to the application of other elements of national power.

INSCOM conducts RDTE of offensive Cyberspace technologies in direct support of the full range of missions called for in the National Defense Strategy, Comprehensive National Cyber-Security Initiative, National Security Strategy, National Defense Guidance, NSPD-38, NSPD-54 and HSPD-23.

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

	FY 2014	FY 2015	FY 2016
Title: Cyberspace technologies	7.596	12.518	12.368
Description: INSCOM's RDTE program provides the Army with low-density, high-demand, extremely advanced offensive cyberspace technologies designed to degrade, deny, disrupt, or destroy adversary C4I and shape the operational warfighting environment in order to create conditions favorable to the application of other elements of national power.			
FY 2014 Accomplishments: Utilized support to cyberspace technologies designed to degrade, deny, disrupt, or destroy adversary C4I and shape the operational warfighting environment in order to create conditions favorable to the application of other elements of national power. Provided support to the conduct of offensive Cyberspace technologies in direct support of the full range of missions called for in the National Defense Strategy, Comprehensive National Cyber-Security Initiative, National Security Strategy, National Defense Guidance, NSPD-38, NSPD-54 and HSPD-23.			
FY 2015 Plans: Utilize support to cyberspace technologies designed to degrade, deny, disrupt, or destroy adversary C4I and shape the operational warfighting environment in order to create conditions favorable to the application of other elements of national power. Will support the conduct of offensive Cyberspace technologies in direct support of the full range of missions called for in the National Defense Strategy, Comprehensive National Cyber-Security Initiative, National Security Strategy, National Defense Guidance, NSPD-38, NSPD-54 and HSPD-23.			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303028A / <i>Security and Intelligence Activities</i>	Project (Number/Name) H13 / <i>Information Dominance Center (IDC) - Tiara</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Will continue to utilize and provide support to cyberspace technologies designed to degrade, deny, disrupt, or destroy adversary C4I and shape the operational warfighting environment in order to create conditions favorable to the application of other elements of national power. Will support the conduct of offensive Cyberspace technologies in direct support of the full range of missions called for in the National Defense Strategy, Comprehensive National Cyber-Security Initiative, National Security Strategy, National Defense Guidance, NSPD-38, NSPD-54 and HSPD-23.			
Accomplishments/Planned Programs Subtotals	7.596	12.518	12.368

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0303028A / Security and Intelligence Activities				Project (Number/Name) H13 / Information Dominance Center (IDC) - Tiara							
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Mobile Objects/ PHAEDRUS	Various	TBD : TBD	26.889	7.596		12.518		12.368		-		12.368	Continuing	Continuing	Continuing
Subtotal			26.889	7.596		12.518		12.368		-		12.368	-	-	-
			Prior Years	FY 2014	FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			26.889	7.596		12.518		12.368		-	12.368	-	-	-	
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303028A / <i>Security and Intelligence Activities</i>	Project (Number/Name) H13 / <i>Information Dominance Center (IDC) - Tiara</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Cyber Weapons Rapid Prototyping (Close Access)	Cyber Weapons Rapid Prototyping (C				Cyber Weapons Rapid Prototyping (C																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303028A / <i>Security and Intelligence Activities</i>	Project (Number/Name) H13 / <i>Information Dominance Center (IDC) - Tiara</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Cyber Weapons Rapid Prototyping (Close Access)	1	2015	1	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	9.040	14.167	31.154	-	31.154	25.687	26.316	24.272	6.871	Continuing	Continuing
491: <i>Information Assurance Development</i>	-	4.940	7.197	18.009	-	18.009	8.670	8.971	7.403	-	-	55.190
501: <i>Army Key Mgt System</i>	-	1.262	1.183	1.927	-	1.927	2.328	2.568	-	-	-	9.268
DV4: <i>Key Management Infrastructure (KMI)</i>	-	1.451	2.163	2.009	-	2.009	2.382	2.214	3.333	-	-	13.552
DV5: <i>Crypto Modernization (Crypto Mod)</i>	-	1.387	3.624	9.209	-	9.209	12.307	12.563	13.536	6.871	Continuing	Continuing

Note

In FY16 the following adjustments were made:

The FY16 funding request was reduced by \$2.235 million to account for the availability of prior year funding execution balances.

Information Assurance funding was increased by \$9.725 million in support of defensive cyberspace operations.

Crypto Modernization funding was increased by \$4.441 million in support of the embedded cryptographic modernization initiative.

A. Mission Description and Budget Item Justification

Information Assurance Development supports the implementation of the National Security Agency (NSA) developed Communications Security (COMSEC) technologies into the Army by providing COMSEC system capabilities through encryption, trusted software or standard operating procedures, and integrating these mechanisms into specific systems in support of securing the National Network Enterprise in as transparent a manner as possible. This entails architecture studies, system integration and testing, developing installation kits, and certification and accreditation of Automation Information Systems. The program assesses, develops and integrates Information Assurance (IA)/COMSEC tools (hardware and software) which provide protection for fixed infrastructure post, camp and station networks as well as tactical networks. The cited work is consistent with Strategic Planning Guidance and the Army Modernization and Strategy Plan.

Information Assurance Development funding supports the technical assessment and specifications documentation of cryptographic, key management and IA capabilities in coordination with the NSA, the Defense Information Systems Agency (DISA), and Joint Services, to secure National Security Systems (NSS) and National Security Information (NSI). Technical evaluations assess the security, operational effectiveness and network interoperability of advanced concept technologies to develop policies, standards, and fundamental building blocks for Army COMSEC capabilities. Develop and publish the Cryptographic Modernization strategy to identify, standardize, and govern the insertion of IA capabilities to bridge operational gaps and support the DoD and NSA mandated requirements to enhance network capacity while providing for secure information exchange of voice, video, and data in accordance with the Army Network Campaign Plan. This will be accomplished by

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	
<p>interoperability, standards testing, and IA System of System Network Vulnerability Assessments (IA SoS NVA) of Army Capability Sets for IA/COMSEC capabilities that provide protections for fixed infrastructure post, camp and station networks.</p> <p>The Defensive Cyberspace Operations (DCO) program provides initial capabilities that enable passive and active cyberspace defense operations to preserve friendly cyberspace capabilities and protect data, networks, net-centric capabilities, and other designated systems. Big Data Pilot provides an advanced analytics capability capable of ingesting structured, semi-structured, and unstructured data from multiple data sources (e.g., Joint Regional Security Stacks (JRSS), intrusion detection systems, intrusion prevention systems, network device log files, trouble tickets, firewalls, proxies, web and applications server log files, etc) and proves situational awareness of cyberspace battlefield. It provides the computer network defense provider with common analytic platform which informs and reduces risk associated with future material solutions and forms a blueprint for future Big Data Analytics. Big Data (analysis-of-all DoD Information Network sensor data) provides two optimized and accredited clusters deployed in support of JRSS and Defense Research and Engineering Network (DREN) with a tools suite accessible to Cyber Mission Forces via secure remote access. The Army's DCO activities are a construct of active cyberspace defenses which provide synchronized, real-time capability to discover, detect, analyze, and mitigate threats to and vulnerability of DoD networks and systems.</p> <p>The Army Key Management System (AKMS) is the Army's implementation of the NSA Electronic Key Management System (EKMS) program automating the functions of COMSEC electronic key management, control, planning, and distribution. Supports the Army's ability to communicate and distribute data on the Army's tactical and strategic networks by limiting adversarial access to, and reducing the vulnerability of, Army Command, Control, Communications, Computers, Intelligence (C4I) systems. The NSA EKMS program is being replaced by the NSA Key Management Infrastructure (KMI) Program. The AKMS System of Systems (SoS) systems components are the Local COMSEC Management Software (LCMS), Automated Communications Engineering Software (ACES) and Simple Key Loader (SKL). The transition of the legacy EKMS LCMS to the modern KMI Management Client Nodes (MGC)s began in FY12 and must be completed by the LCMS sunset date of December 2017. AKMS supports the transition to AKMI.</p> <p>The Army Key Management Infrastructure (AKMI) is the Army's implementation of the NSA KMI ACAT IAM Program. KMI further automates the functions of COMSEC electronic key management, control, planning and distribution. AKMI supports the Army's ability to communicate and distribute data on the Army's tactical and strategic networks by limiting adversarial access to, and reducing the vulnerability of, Army C4I systems. KMI provides an integrated, operational environment that brings essential key management functions in-band. AKMI supports Department of Defense (DoD) Global Information Grid (GIG) Net Centric and Crypto Modernization Initiatives and supports emerging key management requirements. AKMI achieves an Over the Network Keying (OTNK) solution to support emerging cryptographically modernized systems. Some components of the AKMS SoS will be replaced under AKMI while others will be modified or adapted to meet the new KMI requirements. The AKMI SoS includes the MGC Nodes, ACES and the NGLD Family.</p> <p>The Crypto Modernization program supports using NSA developed COMSEC technologies within the Army providing encryption, trusted software, or standard operating procedures, and integrating these mechanisms into specified systems in support of securing the National Network Enterprise in as transparent a manner as possible. The Cryptographic Modernization Initiative (CMI) is designed to investigate Courses Of Action (COAs), conduct a Material Solution Analysis (MSA), and execute upgrade activities to ensure all enduring Army communications and data equipment that employs embedded cryptographic hardware will be able to accept and utilize modern cryptographic key.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0303140A / <i>Information Systems Security Program</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	9.351	14.175	19.054	-	19.054
Current President's Budget	9.040	14.167	31.154	-	31.154
Total Adjustments	-0.311	-0.008	12.100	-	12.100
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-0.008			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.311	-			
• Adjustments to Budget Years	-	-	0.169	-	0.169
• Underexecution Reduction	-	-	-2.235	-	-2.235
• Defensive Cyberspace Ops	-	-	9.725	-	9.725
• Embedded Crypto Modernization Initiative	-	-	4.441	-	4.441

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>				Project (Number/Name) 491 / <i>Information Assurance Development</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
491: <i>Information Assurance Development</i>	-	4.940	7.197	18.009	-	18.009	8.670	8.971	7.403	-	-	55.190
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

PE 0303140A, project 491 includes funding for the Army CIO/G6, Project Director (PD) Network Enablers (Net E), and Project Director (PD) Enterprise Services (ES).

A. Mission Description and Budget Item Justification

This program supports the implementation of National Security Agency (NSA) developed Communications Security (COMSEC) technologies into the Army by providing COMSEC system capabilities through encryption, trusted software, or standard operating procedures; and integrating these mechanisms into specified systems in support of securing the National Network Enterprise in as transparent a manner as possible. (PD Net E)

This entails architecture studies, system integration and testing, developing, installation kits, and certification and accreditation of Automation Information Systems. The program assesses, develops and integrates Information Assurance (IA)/COMSEC tools (hardware and software) which provide protection for fixed infrastructure post, camp and station networks as well as tactical networks. The cited work is consistent with Strategic Planning Guidance and the Army Modernization and Strategy Plan. (PD Net E)

Funding supports the technical assessment and specifications documentation of cryptographic, key management and IA capabilities In Coordination With (ICW) the National Security Agency (NSA), the Defense Information Systems Agency (DISA), and Joint Services, to secure National Security Systems (NSS) and National Security Information (NSI). Technical evaluations assess the security, operational effectiveness and network interoperability of advanced concept technologies to develop policies, standards, and fundamental building blocks for Army COMSEC capabilities. (CIO/G6)

Develop and publish the Cryptographic Modernization strategy to identify, standardize, and govern the insertion of IA capabilities to bridge operational gaps and support the DoD and NSA mandated requirements to enhance network capacity while providing for secure information exchange of voice, video, and data IAW the Army Network Campaign Plan. This will be accomplished by interoperability, standards testing, and IA System of System Network Vulnerability Assessments (IA SoS NVA) of Army Capability Sets for IA/COMSEC capabilities that provide protections for fixed infrastructure post, camp and station networks. (CIO/G6)

The Defensive Cyberspace Operations (DCO) program provides initial capabilities that enable passive and active cyberspace defense operations to preserve friendly cyberspace capabilities and protect data, networks, net-centric capabilities, and other designated systems. Big Data Pilot provides an advanced analytics capability capable of ingesting structured, semi-structured, and unstructured data from multiple data sources (e.g., Joint Regional Security Stacks (JRSS), intrusion detection systems, intrusion prevention systems, network device log files, trouble tickets, firewalls, proxies, web and applications server log files, etc) and provides situational awareness of the cyberspace battlefield. It provides the computer network defense provider with a common analytic platform which informs and reduces risk associated with future material solutions and forms a blueprint for future Big Data Analytics. Big Data (analysis-of-all DoD Information Network sensor data) provides two optimized

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 491 / <i>Information Assurance Development</i>		
and accredited clusters deployed in support of JRSS and Defense Research and Engineering Network (DREN) with a tools suite accessible to Cyber Mission Forces via secure remote access. The Army's DCO activities are a construct of active cyberspace defenses which provide synchronized, real-time capability to discover, detect, analyze, and mitigate threats to and vulnerability of DoD networks and systems. (PD ES-CYBER)				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>Title: Assessing emerging COMSEC hardware and software systems and products (PD Net E)</p> <p>Description: Conduct research and analyses as well as basic testing for meeting specific focused goals that will enhance the functions and support of cryptographic systems improving the security and usability of the Army tactical and strategic networks. (PD Net E)</p> <p>FY 2015 Plans: Conduct a six month study of current and emerging cryptographic algorithms and technologies to identify strategies that will increase the longevity of cryptographic solutions. (PD Net E)</p> <p>FY 2016 Plans: Conduct testing of candidate small tactical In-line Network Encryption (INE) solutions and emerging secure wireless solutions. (PD Net E)</p>		-	0.112	1.074
<p>Title: Cryptographic Systems Test and Evaluation (PD Net E)</p> <p>Description: This program supports the Army Cryptographic Modernization Transformational Initiative. This is accomplished by providing test and evaluation capabilities to the COMSEC community in order to assess emerging technologies before being released and approved for Army use; testing can be performed on hardware, software, or network systems. (PD Net E)</p> <p>FY 2014 Accomplishments: The program tests and evaluates systems to confirm capability and interoperability on Army networks and tactical systems as well as identifying risk areas for compliance with COMSEC regulations and procedures. The program tests and evaluates Crypto Systems compliant devices, Suite B IPsec devices built on commercial standards, Cryptographic High Value Product (CHVP), Commercial Solutions for Classified (CSfC) Standards, and new software releases to HAIPE 4.X devices in accordance with AR 700-142 Rapid Action Revision dated October 16, 2008. Develops interfaces and provides ways to insert Data At Rest (DAR) and Data In Transit (DIT) technology within the existing and future network infrastructure. Evaluates performance of technologies and provide direction on where technology will converge to insure the lowest impact on performance while providing the greatest protection from loss of sensitive data. (PD Net E)</p>		1.848	-	-
<p>Title: The Defensive Cyberspace Operations (DCO) - Big Data Pilot (PD ES-CYBER)</p>		-	-	9.725

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 491 / <i>Information Assurance Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Description: Bridge Big Data efforts into the DCO program and deploy additional Big Data Analytics platforms to FY15 JRSS sites. Assess alternative solution architecture/design and Develop, Test, Accredit, and Implement Rapid Deployable Kit (RDK) 2.X. (PD ES-CYBER)</p> <p>FY 2016 Plans: Big Data Pilot cyber funding encompasses beta testing and a validation plan that will be incorporated with the pilot effort. Includes expanded DCO and Cyberspace Situational Awareness program requirements. Candidate deployment locations based on FY15 JRSS site activations. (PD ES-CYBER)</p>			
<p>Title: Oversight and implementation guidance of emerging Cryptographic and IA capabilities to ensure interoperability to maintain compliance with DoD, NSA, and Army policies and regulations. (CIO/G6)</p> <p>Description: The program provides oversight and guidance for technical research and evaluation of Cryptographic and Key Management capabilities to ensure IA compliance and interoperability. This effort improves operational effectiveness, ensures efficient implementation, and enhances network performance by deploying standardized COMSEC capabilities that are interoperable and supportable in Army, coalition and Joint operating environments. This program enables the Army to collaborate and participate in Joint and Army Capability Technology Demonstrations to define, improve, develop and publish IA standards for new/modernized technology insertion to support the LWN 2025 and Beyond. This effort assesses and defines risk mitigation of IA network vulnerabilities in end-to-end Army network operations and Common Operating Environment. (CIO/G6)</p>	3.092	7.085	7.210
<p>FY 2014 Accomplishments: This program researches new and emerging Cryptographic and IA technologies to bridge the operational gaps to enable secure communications between the tactical edge, the Army Enterprise Network and the DoD Joint Information Environment (JIE). Review operational needs and assessments, identify fundamental building blocks for IA solutions and provide risk reduction lab tests commercial products that are designated for Army insertion. Participate in DOD pilot programs that develop strategies and policies that capitalize on leveraging emerging cryptographic and key management technologies to enhance cyber security and maximize performance to the Army networks. Provide strategies, policies, and documentation to protect information, and knowledge sharing on the LandWarNet to secure the edge. Provide policies and guidance for all COMSEC programs and initiatives to ensure capabilities, interoperability, suitability remains in synchronized with Army requirements. (CIO/G6)</p> <p>FY 2015 Plans: This program researches new and emerging Cryptographic and IA technologies to bridge the operational gaps to enable secure communications between the tactical edge, the Army Enterprise Network and the DoD Joint Information Environment (JIE). Review operational needs, operation assessments, identify fundamental building blocks for IA solutions and risk reduction lab test commercial products for Army insertion. Participate in DOD pilot programs. Develop strategies and policies capitalizing on</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 491 / <i>Information Assurance Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
leveraging emerging cryptographic and key management technologies to enhance cyber security, prevent any undue risk and limitations and maximize performance to the Army networks. Effectively provide strategies, policies, and documentation to protect information, and knowledge sharing on the LandWarNet to secure the edge. Provide guidance for the adjustment of COMSEC programs and ensure COMSEC policies remains in synchronization with the latest COMSEC technologies. (CIO/G6)			
FY 2016 Plans: This COMSEC Modernization effort determines the maturity and viability of Cryptographic Key Management and IA technologies to ensure secure and interoperable National Security Systems and National Information. It provides increased operational availability, enhances Cyber posture, ensures performance based standards are consistent with COE and the DoD Joint Information Environment (JIE). Operational needs and assessments are reviewed and validated, identify fundamental building blocks for IA solutions and perform risk reduction testing of commercial products prior to insertion into Army for use. Exercise oversight to improve process and technical solutions before making investment strategy decisions so that duplications will be reduced or eliminated. Participate in operational assessment of NSA, DoD, Joint Staff and Service led Joint Capability Technology Demonstrations (JCTD) to align new technologies to documented Army and Service capability gaps for National Security Systems. Develop strategies and policies that leverage emerging cryptographic and key management tools and services. (CIO/G6)			
Accomplishments/Planned Programs Subtotals	4.940	7.197	18.009

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• DV5: <i>Cryptographic Systems RDTE</i>	1.387	3.624	9.209	-	9.209	12.307	12.563	13.536	6.871	Continuing	Continuing
• TA0600: <i>Information System Security Program - ISSP</i>	13.245	-	19.920	-	19.920	-	-	-	-	-	33.165
• B96002: <i>Cryptographic Systems OPA2</i>	4.334	18.151	16.206	-	16.206	33.006	59.781	48.658	64.961	Continuing	Continuing
• BS9716: <i>NON PEO-SPARES</i>	-	3.521	2.530	-	2.530	2.574	2.656	3.197	4.956	Continuing	Continuing

Remarks
 0303140A DV5 - Cryptographic System - RDTE funds
 TA0600 - Information System Security Program - OPA2 funds
 B96002 - Cryptographic Systems - OPA2 funds
 BS9716 - NON PEO-SPARES - OPA4 funds

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / Information Systems Security Program	Project (Number/Name) 491 / Information Assurance Development

D. Acquisition Strategy

The objective of the Cryptographic Systems program is to provide adaptive, flexible, and programmable cryptographic solutions using best practices, lessons learned and programmatic management to meet the challenge of modernizing the Army's aging cryptographic systems. CDD, approved by CIO/G6, 15 Jul 10; ICD, approved by JROC, 25 Mar 11; AAO; approved by G3, 15 Dec 11.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 491 / <i>Information Assurance Development</i>
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
System Engineering (PD Net E)	SS/LH	CECOM RDEC : CECOM RDEC APG, MD	74.141	0.672		0.112		1.074		-		1.074	Continuing	Continuing	Continuing
Big Data Pilot (PD ES-CYBER)	TBD	TBD : FT BELVOIR, VA	0.000	-		-		9.725		-		9.725	-	9.725	-
Information Assurance System Engineering Support (PD Net E)	C/FFP	DSCI Consulting : APG, MD	6.881	0.225		-		-		-		-	-	7.106	-
Engineering Support (PD Net E)	C/CPFF	CACI : APG, MD	4.515	0.503		-		-		-		-	Continuing	Continuing	Continuing
Engineering Support (PD Net E)	C/CPFF	Booz Allen Hamilton : APG, MD	3.064	0.344		-		-		-		-	-	3.408	-
Engineering Support (PD Net E)	C/FP	CSC : APG, MD	16.448	-		-		-		-		-	-	16.448	-
Engineering Support (CIO/G6)	C/FP	CACI : APG, MD	1.513	1.219		1.147		1.245		-		1.245	Continuing	Continuing	Continuing
System Engineering (CIO/G6)	SS/LH	CECOM RDEC : APG, MD	0.000	-		1.973		2.073		-		2.073	Continuing	Continuing	Continuing
Engineering Support (CIO/G6)	C/CPFF	Booz Allen Hamilton : APG, MD	1.530	1.277		1.751		1.625		-		1.625	Continuing	Continuing	Continuing
Engineering Support (CIO/G6)	C/FFP	AASKI : Edgewood, MD	0.000	-		1.032		1.079		-		1.079	Continuing	Continuing	Continuing
Service (CIO/G6)	SS/LH	ARL/SLAD : White Sand Missile Range (WSMR)	1.464	0.700		1.182		1.188		-		1.188	Continuing	Continuing	Continuing
Subtotal			109.556	4.940		7.197		18.009		-		18.009	-	-	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Support (PD Net E)	C/CPFF	TBD : TBD	1.598	-		-		-		-		-	-	1.598	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 491 / <i>Information Assurance Development</i>
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Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Subtotal			1.598	-		-		-		-		-	-	1.598	-

Remarks
Not Applicable

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	111.154	4.940	7.197	18.009	-	18.009	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 491 / <i>Information Assurance Development</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
TEST & EVALUATION OF CRYPTOGRAPHIC SYSTEMS (PD Net E)																												
STUDY OF CURRENT AND EMERGING CRYPTO ALGORITHMS AND																												
TEST OF SMALL TACTICAL INE AND WIRELESS SOLUTION (PD Net E)																												
CRYPTO STRATEGY (CIO/G6)																												
BIG DATA PILOT (PD ES-CYBER)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 491 / <i>Information Assurance Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
TEST & EVALUATION OF CRYPTOGRAPHIC SYSTEMS (PD Net E)	1	2014	4	2014
STUDY OF CURRENT AND EMERGING CRYPTO ALGORITHMS AND TECHNOLOGIES (PD Net E)	1	2015	2	2015
TEST OF SMALL TACTICAL INE AND WIRELESS SOLUTION (PD Net E)	1	2016	4	2018
CRYPTO STRATEGY (CIO/G6)	1	2014	4	2020
BIG DATA PILOT (PD ES-CYBER)	1	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 501 / <i>Army Key Mgt System</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
501: <i>Army Key Mgt System</i>	-	1.262	1.183	1.927	-	1.927	2.328	2.568	-	-	-	9.268
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Army Key Management System (AKMS) is the Army's implementation of the National Security Agency's (NSA) Electronic Key Management System (EKMS) program automating the functions of Communications Security (COMSEC) electronic key management, control, planning, and distribution. AKMS supports the Army's ability to communicate and distribute data on the Army's tactical and strategic networks by limiting adversarial access to, and reducing the vulnerability of, Army Command, Control, Communications, Computers, Intelligence (C4I) systems. The AKMS System of Systems (SoS) systems components are the Local COMSEC Management Software (LCMS), Automated Communications Engineering Software (ACES) and Simple Key Loader (SKL).

The NSA EKMS program is being replaced by the NSA Key Management Infrastructure (KMI) Program. The transition of the legacy EKMS LCMS to the modern KMI Management Client Nodes (MGC)s began in FY12 and must be completed by the EKMS Tier 2 sunset date of December 2017.

AKMS supports the transition to Army Key Management Infrastructure (AKMI). Some components of the AKMS SoS will be replaced under AKMI while others will be modified or adapted to meet the new AKMI requirements. Two critical components required for the transition include the development of the Mission Planning Management Support System (MPMSS) and the ability to support Over the Network Keying (OTNK).

MPMSS creates a secure, highly automated interface enabling transparent provisioning of KMI products. MPMSS capability is developed by NSA but each Service is responsible for interface development and final integration into their infrastructure. ACES is the initial target for the interface to MPMSS. NSA will be providing additional capabilities and updates to the MPMSS interface specification through FY17. The Army must then adjust to these changes delivered by NSA.

One major enhancement in the KMI architecture is the ability for OTNK. The end state for the Army is to make all 1.5 million legacy ECUs KMI aware with OTNK. Within AKMS this capability will be focused on the SKL. The SKL will act as an interim solution for all legacy ECUs to be recognized on the KMI network until they can be upgraded to be fully KMI aware. OTNK developments are expected to begin in FY2015 and continue throughout the POM.

To support this transition, a new KMI compliant cryptographic engine must be developed. The KOV-21 card used in current Army Tier 3 fill devices has hardware obsolescence issues and does not support OTNK. Redesigning and developmental efforts using modern and readily available components for use in the Army's SKL devices have been initiated. The redesign of the current KOV-21 card is referred to as the KOV-21 Replacement and is an extension of the KOV-21 card as a technology insertion.

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

	FY 2014	FY 2015	FY 2016
Title: Mission Planning Management Support System (MPMSS) Interface	1.262	1.183	1.021

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 501 / <i>Army Key Mgt System</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>Description: The Mission Planning Management Support System (MPMSS) creates a secure, highly automated interface to enable transparent provisioning of Key Management Infrastructure (KMI) products. The MPMSS system is to be used by both the KMI system developer and MPMSS developers to have a standard interface to electronically exchange information, enabling Warfighter Operations, achieving integration between provisioning. NSA plans to deliver the MPMSS capabilities in 4 releases; Spins 1-4, through FY17.</p> <p>FY 2014 Accomplishments: The base capabilities for the MPMSS will be completed in the KMI Spiral 2 Spin 1 which was delivered in Aug 2014. This release will include the 1) migration to the addition of missing mission planning data fields based on the CERDEC evaluation of Sprint 9/ Release 1, 2) the initial Trusted Virtual Environment domain structure, and 3) the upgrade of Operating Systems.</p> <p>FY 2015 Plans: The first functional capability release of MPMSS will be completed in KMI Spiral 2 Spin 2 scheduled for delivery in July 2015. This release will include the 1) KMI product ordering, 2) distribution management and the Spin 1 backlog. This installment will make it easier for the KMI Operating Account Manager (KOAM) to locally generate key for incoming requests where the key is not already on-hand. Additionally, this release will virtualize all needed components for MPMSS. The development of the Army Mission Planner software that will interface with the KMI MPMSS API will begin FY15 and be carried out through FY18. The Army Mission Planner software will be integrated and tested with the KMI MPMSS API Spin 2 capabilities.</p> <p>FY 2016 Plans: The second functional capability release of MPMSS will be completed in KMI Spiral 2 Spin 3 scheduled for delivery in July 2016. This release will include the interface to support the initial certificate management services. The Army Mission Planner software will be integrated and tested with the KMI MPMSS API Spin 3 capabilities. These installments of the MPMSS effort are a continuing effort to the base capabilities developed in the Army Key Management System (AKMS) program and will ensure maximum use of KMI architecture by Army's legacy ECUs. This effort will commence after KMI MP/MSS software code is completed and delivered to the Army.</p>				
<p>Title: Key Management Infrastructure (KMI) Awareness for Legacy Devices</p> <p>Description: KMI Awareness initiative creates a secure, highly automated interface in providing future Over the Network Keying (OTNK) capability to legacy End Crypto Units (ECUs). This initiative will allow KMI aware ECUs to receive, authenticate, and decrypt OTNK messages and increases WarFighter survivability by minimizing the need for Soldiers to travel to obtain keys. The current army inventory of ~1.5M ECUs are not currently KMI aware and cannot perform OTNK functionality.</p> <p>FY 2016 Plans:</p>		-	-	0.906

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 501 / <i>Army Key Mgt System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
KMI Awareness initiative provides OTNK like capability to legacy ECUs through the fill device. Development of a Reprogrammable Single Chip Universal Encryptor (RESCUE) is necessary for the fill device to provide KMI aware services to the ECUs. Developing this capability in the SKL will allow the ~1.5M legacy ECUs to be recognized on the KMI network until they can be upgraded to be KMI aware.			
Accomplishments/Planned Programs Subtotals	1.262	1.183	1.927

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• BA1201: TSEC - AKMS	13.890	10.382	10.373	-	10.373	10.840	10.972	14.850	16.785	Continuing	Continuing
• B96004: Key Management Infrastructure	3.377	41.113	45.678	-	45.678	52.976	49.975	74.511	78.297	Continuing	Continuing
• DV4: Key Management Infrastructure	1.451	2.163	2.009	-	2.009	2.382	2.214	3.333	-	-	13.552

Remarks
 Line Item & Title:
 BA1201: TSEC-AKMS (OPA2)
 B96004: Key Management Infrastructure (OPA2)
 DV4: Key Management Infrastructure (RDTE)

D. Acquisition Strategy
 Army Key Management System (AKMS) is an ACAT III Program of Record (POR) under PD Network Enablers (PD Net E). It is the Army's implementation of the National Security Agency (NSA)'s Electronic Key Management System (EKMS). The AKMS allows the Army to manage, control, plan, and distribute electronic key for the 1.5 million End Cryptographic Units (ECU)s necessary to communicate and distribute data on the Army's tactical and strategic networks.

AKMS was initially approved for Milestone III in FY99. The AKMS System of Systems originally included Local COMSEC Management Software (LCMS), Automated Communications Engineering Software (ACES) and Data Transfer Device (DTD) (AN-CYZ-10). In 2QFY02, the PEO C3T Milestone Decision Authority approved the procurement of the Simple Key Loader (SKL) as the replacement for the DTD within the AKMS System of Systems (SoS) POR. AKMS is a fully fielded POR that undergoes modifications to meet emerging operational needs.

The NSA EKMS program is being replaced by the NSA Key Management Infrastructure (KMI) Program. As the DoD Key Management Lead, NSA is dictating the change from EKMS to KMI. The Army's implementation of the NSA KMI is the Army Key Management Infrastructure (AKMI) program. Some components of the AKMS SoS will be replaced under AKMI while others will be modified or adapted to meet the new AKMI requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 501 / <i>Army Key Mgt System</i>

The LCMS component of the AKMS SoS (AN/GYK-49) is fully fielded. The LCMS is assigned to the COMSEC Account Manager/COMSEC Custodian. LCMS most recent hardware refresh was completed in FY12. The current software baseline is 5.1.0.5 with certain select accounts upgrading to v5.2 based on operational needs. Further LCMS software releases are not anticipated. LCMS workstations will be replaced by KMI Management Client (MGC) Nodes before the NSA mandated EKMS Tier 2 sunset of December 2017. EKMS Common Tier 1 operations and Tier 1 operational support continues to be provided by CECOM. LCMS hardware is sustained by CSLA until fully replaced by the KMI MGC.

The ACES component of the AKMS SoS (AN/GYK-33) current hardware platform is a Dell E6500 non-ruggedized laptop fielded to S6, Spectrum Managers and some COMSEC Account Managers at Battalion level and above. ACES is undergoing a hardware technology refresh and will be replacing 1/5 quantity of laptops each year. The current version of ACES is 3.4. Software is released on an annual basis and coincides with the Capability Set delivery schedule. PD Net E currently holds the software development contract. As the Tier 2.5 component, ACES operates between the LCMS (Tier 2) and the SKL (Tier 3). It links the key data from the LCMS with mission planning data for a single load by the SKL into the ECUs. ACES will continue with modifications to support the AKMI System of Systems. In order to support AKMI, ACES must be modified to seamlessly operate within the KMI architecture.

The SKL is the primary Army fill device and is the Tier 3 component of the AKMS SoS (AN/PYQ-10). The SKL is fully fielded to the Army. Army holds the sole full rate production procurement contract for the SKL, which is heavily utilized by other DoD and civil services as well as FMS customers. The SKL repair capability is with the Original Equipment Manufacturer but TYAD is developing an organic depot repair support. The SKL and its cryptographic engine are facing hardware obsolescence issues. SKL v3.1 in combination with a new KMI compliant cryptographic engine resolves these issues and lays the foundation for the Army's Next Generation Load Device- Medium capability. The SKL v3.1 modifications will be made to the Army's existing fleet of the fill devices via a modification kit starting in FY15. The KMI cryptographic engine is reliant on the CERDEC-led RESCUE RDT&E effort that began in FY14.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 501 / <i>Army Key Mgt System</i>
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
MPMSS	MIPR	NSA : Linthicum, MD	2.250	0.557		-		-		-		-	Continuing	Continuing	Continuing
MPMSS Army Interface	MIPR	TBD : APG, MD	0.000	-		1.183		1.021		-		1.021	Continuing	Continuing	Continuing
KMI Awareness for Legacy Devices	C/CPFF	CERDEC S&TCD : APG, MD	0.000	-		-		0.906		-		0.906	Continuing	Continuing	Continuing
Subtotal			2.250	0.557		1.183		1.927		-		1.927	-	-	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
MP/MSS	MIPR	NSA : Linthicum, MD	2.186	0.353		-		-		-		-	-	2.539	-
Subtotal			2.186	0.353		-		-		-		-	-	2.539	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
MP/MSS	MIPR	NSA : Linthicum, MD	2.331	0.352		-		-		-		-	-	2.683	-
Subtotal			2.331	0.352		-		-		-		-	-	2.683	-

			Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			6.767	1.262	1.183	1.927	-	1.927	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 501 / <i>Army Key Mgt System</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
MPMSS Interface																												
KMI Aware Legacy Devices																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) 501 / <i>Army Key Mgt System</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MPMSS Interface	1	2013	4	2017
KMI Aware Legacy Devices	2	2015	4	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>				Project (Number/Name) DV4 / <i>Key Management Infrastructure (KMI)</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DV4: <i>Key Management Infrastructure (KMI)</i>	-	1.451	2.163	2.009	-	2.009	2.382	2.214	3.333	-	-	13.552
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Key management Infrastructure (KMI) (DV4) was realigned from project 491 in FY2014. KMI supports infrastructure requirements in support of Key Management.

A. Mission Description and Budget Item Justification

The Army Key Management Infrastructure (AKMI) is the Army's implementation of the National Security Agency's (NSA) Key Management Infrastructure (KMI) ACAT IAM program. AKMI supports Department of Defense (DoD) Global Information Grid (GIG) Net Centric and Crypto Modernization Initiatives and supports emerging requirements transitioned from the Army Key Management System (AKMS). KMI automates the functions of Communications Security (COMSEC) electronic key management, control, planning, and distribution. KMI supports the Army's ability to communicate and distribute data on the Army's tactical and strategic networks by limiting adversarial access to, and reducing the vulnerability of, Army Command, Control, Communications, Computers, Intelligence (C4I) systems.

The AKMI System of Systems (SoS) include the Management Clients (MGC), Automated Communications Engineering Software (ACES) and Next Generation Load Device (NGLD) Family. KMI provides an integrated, operational environment that brings essential key management personnel and functions in-band. AKMI achieves an Over the Network Keying (OTNK) solution to support emerging cryptographically modernized systems.

Two critical components required for the transition of AKMS to AKMI include the development of the Mission Planning Management Support System (MPMSS) and the ability to support OTNK.

MPMSS creates a secure, highly automated interface enabling transparent provisioning of KMI products. MPMSS capability is developed by NSA but each Service is responsible for interface development and final integration into their infrastructure. ACES is the initial target for the interface to MPMSS.

The developmental efforts for MPMSS are resourced in the 501 project line.

One major enhancement in the KMI architecture is the ability for OTNK. The end state for the Army is to make all 1.5 million legacy ECUs KMI aware with OTNK. The OTNK capabilities within the AKMI SoS will be found in the Next Generation Fill device family as outlined within the NGLD Capabilities Production Document. NGLD will be an enduring solution to bridge the gap until ~1.5 million legacy ECUs can be recognized on the KMI network or until they can be upgraded to be fully KMI aware.

The NGLD is reliant on a new KMI compliant cryptographic engine that must be developed. The KOV-21 card used in current Army Tier 3 fill devices has hardware obsolescence issues and does not support OTNK. Redesigning and developmental efforts using modern and readily available components for use in the Army's

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) DV4 / <i>Key Management Infrastructure (KMI)</i>
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SKL devices have been initiated. The redesign of the current KOV-21 card is referred to as the KOV-21 Replacement and is an extension of the KOV-21 card as a technology insertion.

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

	FY 2014	FY 2015	FY 2016
<p>Title: Key Management Infrastructure (KMI) Awareness (RESCUE / KOV-21 Replacement Effort)</p> <p>Description: KMI Awareness initiative creates a secure, highly automated interface in providing future Over the Network Keying (OTNK) capability to legacy End Crypto Units (ECUs). This initiative will allow ECUs to receive, authenticate, and decrypt OTNK messages and increases WarFighter survivability by minimizing the need for Soldiers to travel to obtain keys. The KOV 21 card, previously in production through NSA for use in the Simple Key Loader (SKL) and the Secure DTD 2000 System (SDS), is nearing the end of life due to unavailability of parts. Redesigning and developmental efforts using modern and readily available components for use in the Army's SKL and Next Generation Load Devices (NGLDs) are currently underway. The redesign of the current KOV 21 card is referred to as the KOV 21 Replacement and is an extension of the KOV 21 card as a technology insertion. The KOV 21 Replacement will also address requirements codified in the NGLD CPD and the KMI CPD that were technologically unachievable with the KOV 21 card.</p> <p>FY 2015 Plans: The Reprogrammable Single Chip Universal Encryptor (RESCUE) technology development effort will be led by the Army Communications-Electronics Research Development and Engineering Center (CERDEC) Space and Terrestrial Communications Directorate (S&TCD) in coordination with the Army Program Executive Office for Command, Control, and Communications Tactical (PEO C3T) Product Director Network Enablers (PD Net E). The RESCUE effort is focused on the development, maturation, evaluation, and certification of the technology needed to meet the requirements of the Army's NGLDs and can be reused, scaled, and/or repackaged to satisfy the requirements for legacy ECUs, enabling a KMI aware ECU fleet. The RESCUE effort will mature the required cryptographic technology to a Technology Readiness level (TRL) of six (acceptable) or seven (desired). Once the RESCUE reaches its desired TRL, it will be tailored for use as the cryptographic engine for the development of the KOV-21replacement card. The KOV-21 replacement will be developed to be compatible with and installed in the SKL v3.1 to meet the Army's NGLD Medium requirement. The KOV-21 replacement will also be used in the future Army NGLD Large device.</p> <p>FY 2016 Plans: The RESCUE technology development will continue in FY2016. RESCUE development will provide the ability to upgrade legacy ECUs, enabling a KMI aware fully developed PDE-enabled ECU fleet. The KOV-21 Replacement effort lays the foundation for OTNK capability that can be inserted into the SKL to make it an NGLD Medium.</p>	-	2.163	2.009
<p>Title: Key Management Infrastructure (KMI) Awareness</p>	1.451	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) DV4 / <i>Key Management Infrastructure (KMI)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Description: KMI Awareness initiative creates a secure, highly automated interface in providing future OTNK capability to legacy ECUs. This initiative will allow ECUs to receive, authenticate, and decrypt OTNK messages and increases WarFighter survivability by minimizing the need for Soldiers to travel to obtain keys.</p> <p>FY 2014 Accomplishments: Additional Mission Planning Management Support System (MPMSS) capabilities projected to be developed include 1) registration of MPMSS identities, 2) validations required for digital signature based on KMI and other medium assurance Public Key Infrastructure (PKI), 3) allowing the exchange of an electronic equivalent of a signed SF-153 (Hand Receipt, Destruction, Inventory, etc) and 4) integrating MP/MSS Application Program Interface (API) into the Army Mission Planner - Joint Tactical Network Environment NetOps Toolkit (JTNT).</p>			
Accomplishments/Planned Programs Subtotals	1.451	2.163	2.009

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

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• B96004: <i>Key Management Infrastructure</i>	3.377	41.113	45.678	-	45.678	52.976	49.975	74.511	78.297	Continuing	Continuing
• BA1201: <i>TSEC - Army Key Mgt Sys (AKMS)</i>	13.890	10.382	10.373	-	10.373	10.840	10.972	14.850	16.785	Continuing	Continuing
• 501: <i>Army Key Management System (AKMS)</i>	1.262	1.183	1.927	-	1.927	2.328	2.568	-	-	-	9.268

Remarks

Line Item & Title:
 B96004: Key Management Infrastructure (OPA2)
 BA1201: TSEC-AKMS (OPA2)
 501: Army Key Management System (RDTE)

D. Acquisition Strategy

Army Key Management Infrastructure (AKMI) is a Non Program of Record (POR) under PD Network Enablers (PD Net E). AKMI is the Army's implementation of the National Security Agency (NSA) Key Management Infrastructure (KMI) ACAT IAM Program of Record. The AKMI will allow the Army to manage, control, plan, and distribute electronic key for the 1.5 million End Cryptographic Units (ECU)s necessary to communicate and distribute data on the Army's tactical and strategic networks.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) DV4 / <i>Key Management Infrastructure (KMI)</i>
<p>AKMI initial Army Acquisition Program Baseline (APB) was approved 2QFY12. The AKMI System of Systems (SoS) will include the Management Clients (MGC), Automated Communications Engineering Software (ACES) and Next Generation Load Device (NGLD) Family. Each component of the AKMI SoS is in a different phase of the acquisition cycle.</p> <p>The NSA KMI Program is replacing the NSA Electronic Key Management System (EKMS) program. As the DoD Key Management Lead, NSA is dictating the change from EKMS to KMI by a sunset date of December 2017. Components of the AKMI SoS will be retained and adapted from the legacy AKMS program while others will be developed and fielded to meet AKMI requirements.</p> <p>The MGC component of the AKMI SoS (AN/GYK-72(V)1) is currently being fielded. The MGC is assigned to the COMSEC Account Manager/COMSEC Custodian. MGC low rate initial production began in FY12 and full rate production was achieved in FY13. The Army has fielded Spiral 1 Spin 1 MGCs to 20 test and pilot accounts. The remaining Army accounts will be fielded Spiral 2 Spin 1 or Spiral 2 Spin 2 software version before the NSA mandated EKMS Tier 2 sunset of December 2017. MGC hardware will begin transition to CSLA for sustainment once all accounts are fielded.</p> <p>The ACES component of the AKMI SoS (AN/GYK-33) hardware platform will be a non-ruggedized laptop fielded to S6, Spectrum Managers and some COMSEC Account Managers at Battalion level and above. ACES will be retained from the legacy AKMS program to support planning requirements and key distribution for KMI. Software will continued to be released on an annual basis to coincide with the Capability Set delivery schedule. As the Tier 2.5 component, ACES will operate between the MGC (Tier 2) and the NGLD (Tier 3). It links the key data from the MGC with mission planning data for a single load by the NGLD into the ECUs. ACES will require adaptations to meet AKMI requirements and incorporate capabilities provided by the AKMI SoS CONOPS.</p> <p>The NGLD family will become the primary Army fill device and Tier 3 component of the AKMI SoS. The NGLD Capability Production Document (CPD) was signed 4QFY13. The NGLD CPD calls for a family of 3 devices (small, medium, and large) to meet the AKMI requirements. The Army is evaluating existing fill devices to determine if they meet the NGLD small requirement. The Army will gain the NGLD medium capability through the SKL v3.1 in combination with a new KMI compliant cryptographic engine. The SKL v3.1 will be available in FY15. The AKMI program is partnering with RDECOM CERDEC to develop a KMI compliant cryptographic engine. The Army NGLD large strategy is highly reliant on the development of the new KMI compliant cryptographic engine and will drive a final acquisition decision in FY18.</p> <p><u>E. Performance Metrics</u> N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>					Project (Number/Name) DV4 / <i>Key Management Infrastructure (KMI)</i>						
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
KMI Awareness (RESCUE / KOV-21 Replacement Effort)	C/CPFF	CERDEC, S&TCD : APG, MD	0.000	-		2.163		2.009		-		2.009	Continuing	Continuing	Continuing
KMI Awareness	C/CPFF	CERDEC, S&TCD : APG, MD	0.000	1.451		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			0.000	1.451		2.163		2.009		-		2.009	-	-	-
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	1.451		2.163		2.009		-		2.009	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) DV4 / <i>Key Management Infrastructure (KMI)</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
KMI Awareness									RESCUE / KOV-21 Replacement Effort																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) DV4 / <i>Key Management Infrastructure (KMI)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
KMI Awareness	2	2015	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>				Project (Number/Name) DV5 / <i>Crypto Modernization (Crypto Mod)</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DV5: <i>Crypto Modernization (Crypto Mod)</i>	-	1.387	3.624	9.209	-	9.209	12.307	12.563	13.536	6.871	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

DV5 - The Crypto Modernization line was established in Sept 2012.

A. Mission Description and Budget Item Justification

This program supports using National Security Agency (NSA) developed Communications Security (COMSEC) technologies within the Army providing encryption, trusted software, or standard operating procedures, and integrating these mechanisms into specified systems in support of securing the National Network Enterprise in as transparent a manner as possible.

This entails architecture studies, system integration and testing, developing installation kits, and certification and accreditation of Automation Information Systems. The program assesses, develops and integrates emerging Information Assurance (IA)/COMSEC tools (hardware and software) which provide protection for fixed infrastructure post, camp, and station networks as well as tactical networks. The cited work is consistent with Strategic Planning Guidance and the Army Modernization and Strategy Plan.

The Cryptographic Modernization Initiative (CMI) is designed to investigate Courses Of Action (COAs), conduct a Material Solution Analysis (MSA), and execute upgrade activities to ensure all enduring Army communications and data equipment that employs embedded cryptographic hardware will be able to accept and utilize modern cryptographic key.

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

	FY 2014	FY 2015	FY 2016
Title: Crypto Solutions for Low Bandwidth Communications at the Tactical Edge	0.520	-	-
Description: This program creates tools that can be used with current and future methodologies in order to determine what amount of cryptographic solutions can be deployed at the tactical edge. This experimentation will allow for the WarFighter to have optimized solutions tailored for their specific program requirements while also showing trade-offs between competing solutions. Examples of common analysis to be performed are comparisons in encryption implementations, network initialization overhead, comparison of emerging Commercial Solutions for Classified architectures with COMSEC architectures, development of new network security and management protocols optimized for low-bandwidth environments and impact of emerging dynamic capabilities that evade or obstruct the adversary.			
FY 2014 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) DV5 / <i>Crypto Modernization (Crypto Mod)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Develop software for use in NS-2 and/or OPNet environments to target specific comparisons in COMSEC diversity and also comparisons with Commercial Solutions for Classified architectures. Study existing network security and management protocols to identify areas of improvement and propose optimizations and new protocol designs. Identify optimal placement of network discovery servers and key management infrastructure. Investigate use of single packet authorization and propose improvements that make networks and hosts less detectable				
<p>Title: VINSON/ANDVT (Advanced Narrowband Digital Voice Terminal) Cryptograph Modernization (VACM) program</p> <p>Description: This program researches, assesses, tests, plans and works to integrate VACM products for the Army. The VACM program is a NSA mandated program established to replace legacy external cryptographic devices such as the KY-57, KY-99A, KY-58, KY-100 and CV- 3591 /KYV-5. In order to ensure the confidentiality, integrity and availability of classified communications, the cryptographic modules must be tested for interoperability and form fit to ensure a successful fielding. Each software release will require testing to insure comparability and interoperability.</p> <p>FY 2014 Accomplishments: The program tests and evaluates developmental VACM devices to confirm capability and interoperability on Army networks and tactical systems as well as identifying risk areas for compliance with COMSEC regulations and procedures.</p> <p>FY 2015 Plans: The program will test and evaluate Low Rate Initial Production (LRIP) of VACM devices to confirm capability and interoperability on Army networks and tactical systems as well as identifying risk areas for compliance with COMSEC regulations and procedures.</p> <p>FY 2016 Plans: The program will test and evaluate engineering changes to Low Rate Initial Production (LRIP) of VACM devices to confirm continued capability and interoperability on Army networks and tactical systems as well as identifying new risk areas for compliance with COMSEC regulations and procedures.</p>		0.867	0.500	0.500
<p>Title: Cryptographic Systems Test and Evaluation</p> <p>Description: This program supports the Army Cryptographic Modernization Transformational Initiative. This is accomplished by providing test and evaluation capabilities to the COMSEC community in order to assess emerging technologies before being released and approved for Army use; testing can be performed on hardware, software, or network systems.</p> <p>FY 2015 Plans: The program tests and evaluates COMSEC devices to confirm capability and interoperability on Army networks and tactical systems as well as identifying risk areas for compliance with COMSEC regulations and procedures. The program will test and evaluate Crypto Systems compliant devices, Suite B IPsec devices built on commercial standards, Cryptographic High Value Product (CHVP), Commercial Solutions for Classified (CSfC) Standards, and new software releases to HAIPE 4.X devices in</p>		-	3.124	3.179

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) DV5 / <i>Crypto Modernization (Crypto Mod)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>accordance with AR 700-142 Rapid Action Revision dated October 16, 2008. Tests interfaces and provides ways to insert Data At Rest (DAR) and Data In Transit (DIT) technology within the existing and future network infrastructure. Evaluates performance of technologies and provide direction on were technology will converge to insure the lowest impact on performance while providing the greatest protection from loss of sensitive data.</p> <p>FY 2016 Plans: The program continues testing and evaluation COMSEC devices to confirm capability and interoperability on Army networks and tactical systems as well as identifying risk areas for compliance with COMSEC regulations and procedures. The program will test and evaluate Crypto Systems compliant devices, Suite B IPsec devices built on commercial standards, Cryptographic High Value Product (CHVP), Commercial Solutions for Classified (CSfC) Standards, and new software releases to HAIPE 4.X devices in accordance with AR 700-142 Rapid Action Revision dated October 16, 2008. Tests interfaces and provides ways to insert Data At Rest (DAR) and Data In Transit (DIT) technology within the existing and future network infrastructure. Evaluates performance of technologies and provide direction on where technology will converge to insure the lowest impact on performance while providing the greatest protection from loss of sensitive data.</p>			
<p>Title: Embedded Cryptographic Modernization Initialization</p> <p>Description: The Embedded Cryptographic Modernization Initiative conducts research and analyses to determine optimal algorithms and engineering approaches to modernizing various cryptographic sub-systems that are embedded within Army communications systems and data links. The analyses will follow a complete life cycle approach including factors relating to fielding, training, and sustainment as well as technical factors to ensure efficiently meeting of cease key dates while minimizing cost.</p> <p>FY 2016 Plans: The Embedded Cryptographic Modernization Initiative includes research and analyses to determine optimal algorithms and engineering approaches to modernizing various embedded cryptographic sub-systems within Army communications systems and data links. The analyses will follow a complete life cycle approach including factors relating to fielding, training, and sustainment as well as technical factors to ensure compliance with NSA mandated cease key dates, while minimizing cost. Once approaches are identified, the necessary non-recurring testing, engineering and development of hardware and software will be completed. Any necessary production will begin. Detailed fielding and training plans will be developed for each solution.</p>	-	-	5.530
Accomplishments/Planned Programs Subtotals	1.387	3.624	9.209

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) DV5 / <i>Crypto Modernization (Crypto Mod)</i>

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

Line Item	FY 2014	FY 2015	FY 2016	FY 2016	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Cost To	
			Base	OCO	Total					Complete	Total Cost
• 491: <i>Information Assurance Development</i>	4.940	7.197	18.009	-	18.009	8.670	8.971	7.403	-	-	55.190
• TA0600: <i>Information System Security Program - ISSP</i>	13.245	-	-	-	-	-	-	-	-	-	13.245
• B96002: <i>Cryptographic Systems (Crypto Sys)</i>	4.334	18.151	16.206	-	16.206	33.006	59.781	48.658	64.961	Continuing	Continuing
• BS9716: <i>NON PEO-SPARES</i>	-	3.521	2.530	-	2.530	2.574	2.656	3.197	4.956	Continuing	Continuing

Remarks

491 - Information Assurance Development - RDTE funds - funding executed by PM and CIO/G6
 TA0600 - Information System Security Program - OPA2 funds
 B96002 - Cryptographic Systems - OPA2 funds
 BS9716 - NON PEO-SPARES - OPA4 funds

D. Acquisition Strategy

The objective of this program is to integrate and validate hardware and software solutions to provide COMSEC superiority in order to protect against threats, increase battlefield survivability/lethality, and enable critical Mission Command activities. The objective of the Cryptographic Systems program is to provide adaptive, flexible, and programmable cryptographic systems using best practices, lessons learned and programmatic management to meet the challenge of modernizing the Army's aging cryptographic systems. The effort will support the network operations from end-to-end throughout the force and the Common Operating Environment (COE) thus mitigating Information Assurance (IA) networked vulnerabilities to National information security systems. CDD, approved by CIO/G6, 15 Jul 10; ICD, approved by JROC, 25 Mar 11; AAO; approved by G3, 15 Dec 11.

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) DV5 / <i>Crypto Modernization (Crypto Mod)</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
VACM INTEROPERABILITY																												
TEST AND EVALUATION OF LINK/TRUNK ENCRYPTORS SOFTWARE																												
TEST AND EVALUATION OF SECURE VOICE SOFTWARE AND HARDWARE																												
TEST AND EVALUATION OF PROPOSED EMBEDDED CRYPTOGRAPHIC SOFTWARE																												
TEST AND EVALUATION OF IN-LINK NETWORK ENCRYPTORS SOFTWARE																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i>	Project (Number/Name) DV5 / <i>Crypto Modernization (Crypto Mod)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
VACM INTEROPERABILITY	4	2013	4	2016
TEST AND EVALUATION OF LINK/TRUNK ENCRYPTORS SOFTWARE	4	2013	4	2019
TEST AND EVALUATION OF SECURE VOICE SOFTWARE AND HARDWARE	4	2013	4	2020
TEST AND EVALUATION OF PROPOSED EMBEDDED CRYPTOGRAPHIC SOLUTIONS	4	2015	4	2020
TEST AND EVALUATION OF IN-LINK NETWORK ENCRYPTORS SOFTWARE & HARDWARE	4	2013	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0303141A / Global Combat Support System
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	39.834	4.525	12.274	-	12.274	11.368	56.688	63.037	24.189	Continuing	Continuing
083: Global Combat Support Sys - Army	-	21.852	2.035	1.655	-	1.655	1.597	0.311	0.317	-	Continuing	Continuing
08A: Army Enterprise System Integration Program	-	17.982	2.490	1.685	-	1.685	0.908	-	-	-	-	23.065
EK2: GCSS-A Increment 2	-	-	-	8.934	-	8.934	8.863	56.377	62.720	24.189	-	161.083

Note

FY 2016 RDTE \$8.934M added to begin GCSS-Army Increment II functionality. Funding will be for technology maturation, requirements analysis and initial prototyping.

A. Mission Description and Budget Item Justification

The Global Combat Support System-Army (GCSS-Army) program has two components: a functional component titled GCSS-Army and a technology enabler component titled Army Enterprise Systems Integration Program (AESIP). GCSS-Army coupled with AESIP are information and communications technology investments that will provide key enabling support to the transformation of the Army into a network-centric, knowledge-based future force. The GCSS-Army approved Capability Description Document (CDD) and Capability Production Document (CPD) require an enterprise approach to replace current logistics and maintenance Standard Army Management Information Systems (STAMIS). GCSS-Army will provide the Army's Sustainment Support for the warfighter with a seamless flow of timely, accurate, accessible and secure information management that gives combat forces a decisive edge. AESIP will provide the system's enterprise hub services, centralized master data management and cross-functional business intelligence/analytics. GCSS-Army will implement best business practices to streamline supply, accountability, maintenance, distribution, and reporting procedures in support of the future force transition path of the Army Campaign Plan.

B. Program Change Summary (\$ in Millions)

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	41.203	4.527	3.340	-	3.340
Current President's Budget	39.834	4.525	12.274	-	12.274
Total Adjustments	-1.369	-0.002	8.934	-	8.934
• Congressional General Reductions	-	-0.002			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.369	-			
• Adjustments to Budget Years	-	-	8.934	-	8.934

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>				Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
083: <i>Global Combat Support Sys - Army</i>	-	21.852	2.035	1.655	-	1.655	1.597	0.311	0.317	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

GCSS-Army is the tactical unit / installation logistics and financial system for the U.S. Army. GCSS-Army is an Enterprise Resource Planning (ERP) solution that will track supplies, spare parts and organizational equipment. It will track unit maintenance, total cost of ownership and other financial transactions related to logistics for all Army units. This modernized application will subsume outdated Standard Army Management Information Systems (STAMIS) that are not financially compliant and integrate about numerous local supply and logistics databases into a single, enterprise-wide authoritative system. GCSS-Army will be financially compliant and is a key component for the Army Enterprise strategy to be financially auditable by the end of FY17. When fully deployed, GCSS-Army will affect every supply room, motor pool, direct support repair shop, warehouse, DOL and property book office in the Army.

GCSS-Army will modernize automated logistics by implementing best business practices to streamline supply operations, maintenance operations, property accountability, and tactical logistics and financial management and integration procedures in support of the Future Force transition path of the Army Campaign Plan. GCSS-Army is a key component of the Federated ERP Integration solution that will optimize tactical logistics and finance domain business processes into a single federated approach. It will eliminate the need for extensive maintenance and modification of aging, diverse software systems resulting in improved and efficient change control and configuration management through implementation of an enterprise system.

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

	FY 2014	FY 2015	FY 2016
Title: Production and Deployment Phase Contract Activity	21.368	-	-
Description: Manage a myriad of Government contracts associated with work relating to acquisition, engineering, planning and integration activities supporting Global Combat Support System-Army (GCSS-Army). These contracts support an evolutionary development strategy using Systems Applications & Products (SAP) products and architecture. The current efforts support the Milestone Decision Authority's approved federated approach. It is also synchronized with the Army Enterprise Systems Integration Program (AESIP), the Logistics Modernization Program (LMP), and the General Fund Enterprise Business System (GFEBS) to enable end-to-end integration of the Army's logistical and financial Enterprise Resource Planning (ERP) programs.			
FY 2014 Accomplishments: Agile Development work on Release 1.2 (Wave 2) continued with an operational assessment planned for 2Q15.			
Title: Government System Test and Evaluation	0.484	2.035	1.655

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Description: Plans, conducts and reports on developmental tests and assists in planning, conducting, and reporting of operational and interoperability tests, assessments, and experiments in order to provide essential information for the acquisition and fielding of warfighting systems.</p> <p>FY 2014 Accomplishments: The program continued development testing as part of the agile development process on Release 1.2 (Wave 2) work.</p> <p>FY 2015 Plans: An Operational Assessment, lead by ATEC and DOT&E, will be conducted in 2Q15 in accordance with the Program's FDD Acquisition Program Baseline requirements.</p> <p>FY 2016 Plans: The program will be in Increment 1, Wave 2 Fielding, fixing any major issues in the ERP solution that are identified as the fielding continues and making necessary updates to the software baseline to meet auditability requirements.</p>			
Accomplishments/Planned Programs Subtotals	21.852	2.035	1.655

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• W00800: GCSS-Army Other Procurement, Army (OPA)	71.236	117.524	159.262	-	159.262	134.827	31.303	2.410	3.245	Continuing	Continuing
• GCSS-Army Sustainment: GCSS-Army Operations & Maintenance, Army (OMA)	74.618	94.197	93.926	-	93.926	101.663	87.751	88.744	-	Continuing	Continuing

Remarks
PM GCSS-Army Other Procurement, Army (OPA) and Operations & Maintenance, Army (OMA) funding supports acquisition, deployment, and implementation followed by the associated sustainment of GCSS-Army capabilities.

D. Acquisition Strategy
GCSS-Army has an evolutionary acquisition strategy as defined in DoD Directive 5000.01 and DoD Instruction 5000.02 and will define, develop, and deploy an initial operational capability based upon proven technology, time-phased requirements, projected threat assessments, and demonstrated manufacturing capabilities. Increment 1 will be a viable stand alone capability that will not require subsequent releases to be operational.

GCSS-Army Increment I is being implemented in three releases.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i>

Release 1.0 replaces: Standard Army Retail Supply System (SARSS) at one Direct Support Unit (DSU) in the 11th Armored Cavalry Regiment (ACR), Fort Irwin, California. An Operational Assessment (OA) was conducted on Release 1.0 and information is gathered through Continuous Evaluation.

Release 1.1 subsumes Release 1.0 and provides over 80% of the required GCSS-Army capability.

Release 1.2 represents the complete baseline with all required capabilities provided.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i>
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
1. PM GCSS-Army- PMO Operations	Various	PM GCSS-Army : Fort Lee, VA 23805	103.931	-		-		-		-		-	-	103.931	62.385
Subtotal			103.931	-		-		-		-		-	-	103.931	62.385

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
1. Enterprise Resource Planning (ERP) design and development	C/FPAF	Northrop Grumman Information Systems : Chester, VA 23836	444.477	21.368	Dec 2013	-		-		-		-	-	465.845	453.329
Government Developer Subject Matter Experts	IA	ASA (FM&C), CASCOC and GFEBs : Various Locations	22.315	-		-		-		-		-	Continuing	Continuing	19.730
Subtotal			466.792	21.368		-		-		-		-	-	-	473.059

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
1. PM Support - Independent Verification and Validation (IV&V)	C/T&M	CAP Gemini : 2250 Corporate Park Dr, Herndon, VA 20171	1.031	-		-		-		-		-	-	1.031	1.031
2. PM Support - Program Management Support Services A	C/T&M	Engility Corporation : 3750 Centerview Drive Chantilly, VA 20151	1.386	-		-		-		-		-	-	1.386	25.580
3. PM Support - Program Management Support Services B	C/T&M	Logistics Management Institute : Colonial Heights, VA 23834	42.101	-		-		-		-		-	-	42.101	34.531

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>				Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i>							
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Subtotal			44.518	-		-		-		-		-	-	44.518	61.142
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
1. Test and Evaluation - Test and Evaluation	IA	AEC, ATEC, OTC and JITC : Various Locations	34.278	0.484	Jun 2014	2.035		1.655		-		1.655	Continuing	Continuing	-
Subtotal			34.278	0.484		2.035		1.655		-		1.655	-	-	-
Project Cost Totals			649.519	21.852		2.035		1.655		-		1.655	-	-	596.586
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Field Wave 1																												
GCSS-Army Release 1.2 (Wave 2) Plan, Analyze, Design, Build & Test																												
(1) Release 1.2 (Wave 2) In Progress Review					▲																							
Field Release 1.2 (Wave 2)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Field Wave 1	1	2013	2	2016
GCSS-Army Release 1.2 (Wave 2) Plan, Analyze, Design, Build & Test	3	2011	4	2015
Release 1.2 (Wave 2) In Progress Review	3	2015	3	2015
Field Release 1.2 (Wave 2)	1	2015	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>				Project (Number/Name) 08A / <i>Army Enterprise System Integration Program</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
08A: <i>Army Enterprise System Integration Program</i>	-	17.982	2.490	1.685	-	1.685	0.908	-	-	-	-	23.065
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

Army Enterprise Systems Integration Program (AESIP), mission is to integrate Army business processes by providing a single source for enterprise hub services, centralized master data management, and business intelligence and analytics. AESIP is the principle GCSS-Army Business Intelligence system and will aggregate data for enterprise reporting. AESIP will support the Army's federated approach and enable the integration of end-to-end logistical and financial processes. The Army has successfully addressed concerns about the lack of integration of ERPs by leveraging AESIP core capabilities and expanding those benefits across the Army enterprise. AESIP will be an Army specific commercial off-the-shelf (COTS) web portal implementation via the NetWeaver Platform from developer Systems Applications and Products (SAP) American Group to support Army process scenarios and requirements that will provide core competencies:

- Enterprise Service Bus (Hub Services) - For a Service oriented, Single Point of Entry to connect, mediate, and control the exchange of data.
- Enterprise Business Intelligence/Business Warehouse - Aggregates data from ERP and non-ERP systems to provide flexible Enterprise level reporting.
- Enterprise Master Data Management - For a single source of authoritative data and improved workflow and business processes.

The AESIP solution establishes a framework for a fully integrated ERP centric environment that will ultimately provide Commanders Total Visibility from Factory to Battlefield thereby ensuring delivery of the right equipment to the right unit at the right time, while reducing backlogs of material on the battlefield.

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

	FY 2014	FY 2015	FY 2016
Title: System Development and Demonstration (SDD) Phase Contract Activity	13.947	-	-
Description: Manage a myriad of Government contracts associated with work relating to acquisition, engineering, planning and integration activities supporting production and deployment. These contracts support an evolutionary development strategy for enterprise hub services, centralized master data management and business intelligence/business warehouse applications using Systems Applications & Products (SAP) products and architecture. The current efforts support the Milestone Decision Authority federated approach. It is also synchronized with the Global Combat Support System-Army (GCSS-Army), the Logistics Modernization Program (LMP), and the General Fund Enterprise Business System (GFEBs) to enable end-to-end integration of the Army's logistical and financial Enterprise Resource Planning (ERP) programs.			
FY 2014 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 08A / <i>Army Enterprise System Integration Program</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Continued the design, build and test of Hub Services and the Material Master (MM) interfaces required for GCSS-Army Rel 1.2 (Wave 2). Continued planning for application server hosting at Redstone Arsenal and enterprise disaster recovery of ALTESS.				
Title: Production & Full Deployment Phases Contract Activity		3.079	1.946	1.429
<p>Description: Manage a myriad of Government contracts associated with work relating to acquisition, engineering, planning and integration activities supporting Army Enterprise Systems Integration Program (AESIP). These contracts support an evolutionary development strategy using Systems Applications & Products (SAP) products and architecture. The current efforts support the Milestone Decision Authority's approved federated approach. It is also synchronized with the Global Combat Support System-Army (GCSS-Army), the Logistics Modernization Program (LMP), and the General Fund Enterprise Business System (GFEBs) to enable end-to-end integration of the Army's logistical and financial Enterprise Resource Planning (ERP) programs.</p> <p>FY 2014 Accomplishments: Managed a myriad of Government contracts associated with work relating to acquisition, engineering, planning and integration activities supporting Army Enterprise Systems Integration Program (AESIP). These contracts supported an evolutionary development strategy using Systems Applications & Products (SAP) products and architecture. These efforts supported the Milestone Decision Authority's approved federated approach. Provided synchronization between the Global Combat Support System-Army (GCSS-Army), the Logistics Modernization Program (LMP), and the General Fund Enterprise Business System (GFEBs) to enable end-to-end integration of the Army's logistical and financial Enterprise Resource Planning (ERP) programs.</p> <p>FY 2015 Plans: Address system enhancement requests from users and critical requirements from CASCOM or LOGSA during the GCSS-Army full fielding. Expand Business Analytics capability across the Army providing access to data from ERP and non-ERP systems.</p> <p>FY 2016 Plans: Will address system enhancement requests from users and critical requirements from CASCOM or LOGSA during the GCSS-Army full fielding. Enhance the Customer Vender Solution (CVS); required for migrating remaining customer functionality into ERP Central Component (ECC) and expanding customer records. Expand Business Analytics capability across the Army providing access to data from ERP and non-ERP systems; retiring duplicative capabilities.</p>				
Title: Government System Test and Evaluation		0.956	0.544	0.256
<p>Description: Plans, conducts and reports on developmental tests and assists in planning, conducting, and reporting of operational and interoperability tests, assessments, and experiments in order to provide essential information for the acquisition and fielding of warfighting systems.</p> <p>FY 2014 Accomplishments:</p>				

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 08A / <i>Army Enterprise System Integration Program</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Continued developmental and operational (ATEC and JITC) testing and evaluation of AESIP Hub Services and Material Master products.			
FY 2015 Plans: Continue developmental and operational (ATEC and JITC) testing and evaluation of AESIP Hub Services products as well as participate in GCSS-Army's 2Q15 Operational Assessment.			
FY 2016 Plans: Will continue evaluation in support of GCSS-Army Increment 1, Wave 2 Fielding, identifying issues during fielding and documenting necessary updates to the software baseline for auditability requirements.			
Accomplishments/Planned Programs Subtotals	17.982	2.490	1.685

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• AESIP Procurement: <i>AESIP Other Procurement, Army (OPA) (SSN W11001)</i>	0.700	1.076	3.392	-	3.392	2.717	2.164	1.239	-	Continuing	Continuing
• AESIP Sustainment: <i>AESIP Operations & Maintenance Army (OMA)</i>	19.881	37.555	36.503	-	36.503	36.800	32.490	33.075	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

As the technical component of GCSS-Army, AESIP employs an evolutionary acquisition strategy as defined in DoD Directive 5000.01 and DoD Instruction 5000.02, and will define, develop, and deploy an initial operational capability based upon proven technology, time-phased requirements, projected threat assessments, and demonstrated manufacturing capabilities. The system will be developed in multiple releases then integrated and synchronized with related systems.

AESIP will support the Release 1.1 (Wave 1) and 1.2 (Wave 2) schedules of GCSS-Army by providing Enterprise Service Bus (Hub Services), Enterprise Master Data Management, and Enterprise Business Intelligence/Business Warehouse capabilities. Support data trading with Logistics Modernization Program (LMP), General Fund Enterprise Business System (GFEBs) and Logistics Support Agency (LOGSA).

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 08A / <i>Army Enterprise System Integration Program</i>
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
1. PM AESIP- PMO Operations	Various	PM AESIP : 5911 Kingstowne Village Pkwy, Alexandria, VA 22315	26.090	-		-		-		-		-	-	26.090	26.090
Subtotal			26.090	-		-		-		-		-	-	26.090	26.090

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
1. Enterprise Resource Planning (ERP) Implementation Systems Integration	C/T&M	Computer Sciences Corporation (CSC) : 3160 Fairview Park Drive, Falls Church, VA 22042	118.445	-		-		-		-		-	-	118.445	118.445
2. Enterprise Resource Planning (ERP) Implementation - Technical Support Services	FFRDC	MITRE Corporation : 7615 Colshire Drive, McLean, VA 22102	7.179	-		-		-		-		-	-	7.179	7.179
3. Enterprise Resource Planning (ERP) - Government Lead Systems Integrator	IA	US Army ARDEC : Picatinny Arsenal, NJ 08706	49.500	-		-		-		-		-	-	Continuing	Continuing
4. Enterprise Resource Planning (ERP) - Technical Support Services	C/T&M	Systems Applications and Services (SAP) : 1300 Pennsylvania Ave, Washington, DC 20004	13.126	3.079		-		-		-		-	-	Continuing	Continuing
5. Enterprise Resource Planning (ERP) - ERP/SAP Technical and Management Support Services	C/T&M	iLuMina Solution Inc. : 23330 Cottonwood, California, MD 20619	5.313	-		-		-		-		-	-	5.313	5.313

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 08A / <i>Army Enterprise System Integration Program</i>
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
6. Enterprise Resource Planning (ERP) - Enterprise Application Services A	C/T&M	Attain, LLC : 8000 Towers Crescent Dr., Vienna, VA 22182	8.931	-		-		-		-		-	Continuing	Continuing	Continuing
7. Enterprise Resource Planning (ERP) - Enterprise Application Services B	C/T&M	Insap Services Inc. : 12000 Lincoln Dr. Marlton, NJ 08053	0.020	-		-		-		-		-	Continuing	Continuing	Continuing
8. Enterprise Resource Planning (ERP) - Enterprise Application Services C	C/T&M	Oakland Consulting Group Inc : 9501 Sheridan, Lanham, MD 20706	11.897	-		-		-		-		-	Continuing	Continuing	Continuing
Enterprise Resource Planning (ERP) - Enterprise Application Services D	C/T&M	VARIOUS : VARIOUS	0.000	13.947		1.946		1.429		-		1.429	-	17.322	-
9. Enterprise Resource Planning (ERP) - Enterprise Integration Services	C/T&M	EDC Consulting LLC : 1104 Good Hope Rd SE, Washington, DC 20020	1.364	-		-		-		-		-	Continuing	Continuing	Continuing
10. Enterprise Resource Planning (ERP) - Infrastructure Services	C/T&M	TBD : TBD	0.100	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			215.875	17.026		1.946		1.429		-		1.429	-	-	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
1. PM Support - Program Management Support Services A	C/FFP	L3 Services Inc. (MPRI Division) : 1320 Braddock	6.940	-		-		-		-		-	-	6.940	6.940

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 08A / <i>Army Enterprise System Integration Program</i>
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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
		PL, Alexandria, VA 22314													
2. PM Support - Program Management Support Services B	C/T&M	LMI Government Consulting : 2000 Corporate Ridge, McLean, VA 22102	26.208	-		-		-		-		-	-	26.208	26.208
3. PM Support - Program Management Support Services C	C/T&M	Science Applications Internation Corporation (SAIC) : 1710 SAIC Dr., McLean, VA 22102	7.020	-		-		-		-		-	-	7.020	7.020
4. PM Support - Indepent Verification and Validation (IV&V)	C/T&M	CAP Gemini : 2250 Corporate Park Dr, Herndon, VA 20171	2.104	-		-		-		-		-	-	2.104	2.104
Subtotal			42.272	-		-		-		-		-	-	42.272	42.272

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
1. Test and Evaluation - Test and Evaluation	IA	AEC, ATEC, OTC and JITC : Various Locations	2.286	0.956		0.544		0.256		-		0.256	Continuing	Continuing	Continuing
Subtotal			2.286	0.956		0.544		0.256		-		0.256	-	-	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		286.523	17.982	2.490	1.685	1.685	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 08A / <i>Army Enterprise System Integration Program</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Increment 1 Enterprise Service Bus (Hub Services)																												
Increment 1 Enterprise Master Data Management																												
Increment 1 - Enterprise Business Intelligence/Business Warehouse																												
Material Master (MM) Release 3.3																												
MM Release 3.4																												
MM Release 3.5																												
GCSS-Army Release 1.1 (Wave 1) - Fielding																												
Customer Vender Solution 2.0																												
GCSS-Army Release 1.2 (Wave 2) Plan, Analyze, Design, Build & Test																												
GCSS-Army Wave 2 - Fielding																												
(1) GCSS-Army Release 1.2 (Wave 2) -In Progress Review																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) 08A / <i>Army Enterprise System Integration Program</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Increment 1 Enterprise Service Bus (Hub Services)	4	2008	4	2017
Increment 1 Enterprise Master Data Management	4	2008	4	2017
Increment 1 - Enterprise Business Intelligence/Business Warehouse	4	2008	4	2017
Material Master (MM) Release 3.3	4	2012	2	2015
MM Release 3.4	1	2013	3	2014
MM Release 3.5	4	2012	4	2014
GCSS-Army Release 1.1 (Wave 1) - Fielding	1	2013	2	2016
Customer Vender Solution 2.0	2	2013	4	2016
GCSS-Army Release 1.2 (Wave 2) Plan, Analyze, Design, Build & Test	3	2011	4	2015
GCSS-Army Wave 2 - Fielding	1	2015	4	2017
GCSS-Army Release 1.2 (Wave 2) -In Progress Review	3	2015	3	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) EK2 / <i>GCSS-A Increment 2</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EK2: <i>GCSS-A Increment 2</i>	-	-	-	8.934	-	8.934	8.863	56.377	62.720	24.189	-	161.083
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Global Combat Support System-Army (GCSS-Army) program has two components: a functional component titled GCSS-Army and a technology enabler component titled Army Enterprise Systems Integration Program (AESIP). GCSS-Army coupled with AESIP are information and communications technology investments that will provide key enabling support to the transformation of the Army into a network-centric, knowledge-based future force. Building on the foundation of GCSS-Army Increment 1, Increment 2 will provide the Army enhanced Business Intelligence / Business Warehouse (BI/BW) and Army Pre-Positioned Stock (APS) functional capabilities to deliver greater efficiencies and to improve information flow to decision makers. Upon the completion of Increment II, the Army War Reserve Deployment System (AWRDS) will be eligible for retirement since the necessary functionality will have been replaced by GCSS-Army increments.

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

	FY 2014	FY 2015	FY 2016
Title: Technology Maturation and Risk Reduction Phase	-	-	8.934
Description: During the Technology Maturation and Risk Reduction (TMRR) phase, the program develops and demonstrates prototype designs to reduce technical risk, validate design approaches, validate cost estimates, and refine requirements. TMRR is an iterative process of maturing technologies and refining user performance parameters to ensure an affordable and executable production program.			
FY 2016 Plans: Perform analysis to assess risk, affordability, and feasibility. Begin fit/gap analysis and blueprinting of stakeholder requirements.			
Accomplishments/Planned Programs Subtotals	-	-	8.934

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• GCSS-Army Increment II OPA: <i>GCSS-Army Increment II Other Procurement (SSN W11011)</i>	-	-	-	-	-	-	7.365	7.107	31.320	-	45.792

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) EK2 / <i>GCSS-A Increment 2</i>

D. Acquisition Strategy

In FY16 and FY17, initial work in blueprinting, architecture development and documentation required for a MS B decision will take place. The request for proposal and contract strategy will be formulated during this time with an RFP release scheduled for late FY17. The program will request permission from the MDA, the USD(AT&L), to begin Increment 2 work in FY17, working towards a MS B Decision in 2QFY18. Development work will begin in FY18 upon contract award.

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) EK2 / <i>GCSS-A Increment 2</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020							
	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				
Preliminary Design, RFP, Source Selection, Prototyping, Requirements																																
(1) MDA Meeting																					▲ 1											
(2) Milestone B																									▲ 2							
(3) Milestone C																													▲ 3			
(4) Milestone FDD																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i>	Project (Number/Name) EK2 / <i>GCSS-A Increment 2</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Preliminary Design, RFP, Source Selection, Prototyping, Requirements Analysis	1	2016	2	2018
MDA Meeting	2	2017	2	2017
Milestone B	2	2018	2	2018
Milestone C	1	2020	1	2020
Milestone FDD	3	2020	3	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303142A / <i>SATCOM Ground Environment (SPACE)</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	17.644	11.006	9.355	-	9.355	17.748	11.051	9.341	9.385	Continuing	Continuing
253: <i>Dscs-Dcs (Phase II)</i>	-	5.404	4.177	1.594	-	1.594	7.423	6.812	6.029	6.093	Continuing	Continuing
456: <i>MILSATCOM System Engineering</i>	-	12.240	2.951	0.926	-	0.926	4.536	4.239	3.312	3.292	Continuing	Continuing
EA3: <i>Transportable Tactical Cmd Comms (T2C2)</i>	-	-	3.878	3.885	-	3.885	-	-	-	-	-	7.763
EK8: <i>Enroute Mission Command</i>	-	-	-	2.950	-	2.950	5.789	-	-	-	-	8.739

A. Mission Description and Budget Item Justification

Military Satellite Communication (MILSATCOM) systems are joint program/project efforts to satisfy ground mobile requirements for each Service, the Joint Chiefs of Staff (JCS), the National Command Authority, the combatant commanders, the Office of the Secretary of Defense, and other governmental, non-DoD users. The worldwide MILSATCOM systems are: the Super High Frequency (SHF) Defense Satellite Communications System (DSCS); the Wideband Global SATCOM (WGS); the MILSTAR Extremely High Frequency (EHF) Low Data Rate (LDR) and Medium Data Rate (MDR); the Advanced Extremely High Frequency (AEHF); and future MILSATCOM capabilities. All of these systems are required to support legacy, interim and emerging communication space architectures and Future Force requirements. The Army is responsible for materiel development, acquisition, product improvement, testing, fielding and integrated logistics support of ground satellite terminals and SATCOM control subsystems and all associated equipment used to provide range extension of Mission Command Networks and Systems. The Army also participates in the development of MILSATCOM programs, including architectures, payloads, waveforms, antennas and terminal developments to ensure US Army equities are appropriately addressed with our sister services. This includes technology assessment efforts associated with the integration of MILSATCOM components to US Army Landwarnet. This responsibility also includes maintaining the life cycle logistics support required to achieve end-to-end connectivity and interoperability, satisfying JCS network operations in support of the President, JCS, combatant commanders, Military Departments, Department of State, and other government Departments and Agencies. Project EK 8 to support testing for Enroute Mission Command (EMC) has been added to SATCOM Ground Environment programs in FY16. EMC supports Global Response Force (GRF) and other Army units with the requirement to conduct Airborne forcible entry operations with the ability to conduct mission command.

This program is designated as a DoD Space Program.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0303142A / <i>SATCOM Ground Environment (SPACE)</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	18.188	11.011	12.131	-	12.131
Current President's Budget	17.644	11.006	9.355	-	9.355
Total Adjustments	-0.544	-0.005	-2.776	-	-2.776
• Congressional General Reductions	-	-0.005			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.544	-			
• Adjustments to Budget Years	-	-	-2.776	-	-2.776

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) 253 / Dscs-Dcs (Phase II)
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
253: Dscs-Dcs (Phase II)	-	5.404	4.177	1.594	-	1.594	7.423	6.812	6.029	6.093	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides funds to develop Satellite Communication (SATCOM) ground subsystem equipment and software in support of Joint Chiefs of Staff (JCS) validated Mission Command Network and Systems requirements for the worldwide Defense Enterprise Wideband SATCOM System (DEWSS). DEWSS is composed of the Super High Frequency (SHF) Defense Satellite Communications System (DSCS) and Wideband Global SATCOM (WGS) programs, which are required to support legacy, interim and emerging communication space architectures and future Force requirements. Expansion of the WGS constellation and upgrades to both DSCS and WGS are vital to support the Army's emerging power projection and rapid deployment role. DSCS and WGS provide multiple channels of tactical end-to-end connectivity and interoperability with strategic networks and national decision-makers, satisfying JCS network operations in support of the President, JCS, combatant commanders, military departments, Department of State and other government departments and agencies.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Title: Netcentric System Engineering and Analysis</p> <p>Description: Funding is provided for the following effort:</p> <p>FY 2014 Accomplishments: Fund analysis for Digital IF.</p> <p>FY 2015 Plans: Fund analysis for Netcentric System Engineering</p> <p>FY 2016 Base Plans: Fund analysis for Netcentric System Engineering.</p>	2.014	1.516	0.243	-	0.243
<p>Title: Jam Resistant Secure Communications (JRSC)</p> <p>Description: Funding is provided for the following effort:</p> <p>FY 2014 Accomplishments: Fund Jam Resistant Secure Communications (JRSC) risk mitigation.</p>	1.818	-	-	-	-
<p>Title: Future analysis of Wideband SATCOM Operational Management System (WSOMS) database consolidation effort.</p>	1.572	1.123	0.308	-	0.308

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) 253 / Dscs-Dcs (Phase II)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Description: Funding is provided for the following effort:</p> <p>FY 2014 Accomplishments: WSOMS database consolidation effort to evaluate existing database schemas (structure) for each independent Wideband Control subsystem. The result of the analysis will be to define a structure of a consolidated database along with a transition plan. The desired impact will be to reduce total cost of ownership for multiple subsystems in terms of recurring annual licensing costs and shorten logistics trail with associated database storage equipment.</p> <p>FY 2015 Plans: WSOMS database consolidation effort to evaluate existing database schemas (structure) for each independent Wideband Control subsystem. The result of the analysis will be to define a structure of a consolidated database along with a transition plan. The desired impact will be to reduce total cost of ownership for multiple subsystems in terms of recurring annual licensing costs and shorten logistics trail with associated database storage equipment.</p> <p>FY 2016 Base Plans: WSOMS database consolidation effort to evaluate existing database schemas (structure) for each independent Wideband Control subsystem. The result of the analysis will be to define a structure of a consolidated database along with a transition plan. The desired impact will be to reduce total cost of ownership for multiple subsystems in terms of recurring annual licensing costs and shorten logistics trail with associated database storage equipment.</p>					
<p>Title: Protected SATCOM Modem</p> <p>Description: Funding is provided for the following effort:</p> <p>FY 2015 Plans: Fund modem pilot program to address Anti-Jam (AJ) and Anti-Scintillation (AS) for the WGS constellation.</p> <p>FY 2016 Base Plans: To investigate the possibility of integrating anti-jam features into current Commercial Off-The-Shelf (COTS), Network Management System (NMS).</p>	-	1.538	1.043	-	1.043
Accomplishments/Planned Programs Subtotals	5.404	4.177	1.594	-	1.594

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) 253 / Dscs-Dcs (Phase II)
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 22: Defense Enterprise Wideband SATCOM Systems (DEWSS) (BB8500)	57.725	118.085	196.306	-	196.306	144.890	134.373	178.020	170.297	Continuing	Continuing

Remarks

D. Acquisition Strategy

FY2016 funding in the amount of \$1.594 million finances Project Manager, Defense Communications and Army Transmission Systems (PM DCATS) netcentric systems engineering, modem risk mitigation, and DoD Information Assurance Certification Accreditation Process (DIACAP) support. Funding provides for SATCOM terminal upgrades, enhancement of baseband throughput capabilities, technology insertion and upgrades which enhance decision support capabilities, allowing for full utilization of Wideband Global SATCOM (WGS) capabilities. Both the Wideband SATCOM Operational Management System (WSOMS) and the Enterprise Wideband SATCOM Terminal System (EWSTS) Capability Production Documents (CPDs) contain Netcentric-Ready Key Performance Parameters (NR-KPPs) as required by CJCSI 6212.01C. Netcentric efforts are required to facilitate the migration from the current trunk-based communications systems to Internet Protocol (IP) based systems and to engineer, test and integrate IP based capabilities into EWSTS and WSOMS systems. Studies, risk mitigation, system integration and advanced demonstrations for netcentric baseband and policy based control will accommodate technology insertion, data sharing, remote operations, architecture efforts and use of commercial technology, thus ensuring the life of the Defense Enterprise Wideband System (DEWSS) terminal family beyond 2025 and reducing lifecycle costs and enterprise requirements on the WGS and Defense Satellite Communication System (DSCS) satellites in the future.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) 253 / Dscs-Dcs (Phase II)
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Netcentric SE Studies and Analysis	MIPR	CERDEC : APG, MD	1.293	1.391	Aug 2014	1.110	Feb 2015	0.348	Feb 2016	-		0.348	-	4.142	-
Jam Resistant Secure Communications (JRSC)	MIPR	CERDEC : APG, MD	0.750	1.413		-		-		-		-	-	2.163	-
Conduct Analysis of WSOMS Database Consolidation	MIPR	CERDEC : APG, MD	0.934	1.218	Feb 2014	0.950	Feb 2015	0.246	Feb 2016	-		0.246	-	3.348	-
Protected SATCOM Modems	MIPR	CERDEC : APG, MD	0.918	-		0.587	Feb 2015	0.210	Feb 2016	-		0.210	-	1.715	-
Subtotal			3.895	4.022		2.647		0.804		-		0.804	-	11.368	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
In house Support	Allot	PdM WESS : Ft. Belvoir, VA	0.459	0.470		0.480		0.290		-		0.290	-	1.699	-
Contractor Support	C/CPFF	ACC-RI : Rock Island, IL	0.785	0.912	Jul 2014	1.050	Jul 2015	0.500	Jul 2016	-		0.500	-	3.247	-
Subtotal			1.244	1.382		1.530		0.790		-		0.790	-	4.946	-

Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract			
Project Cost Totals			5.139	5.404	4.177	1.594	-	1.594	-	16.314	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) 253 / Dscs-Dcs (Phase II)
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Netcentric System Engineering, Conducting Studies/Analysis																												
Jam Resistant Secure Communications (JRSC)																												
Conduct Analysis of WSOMS Database Consolidation, Net Migration																												
Protected SATCOM Modems																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) 253 / Dscs-Dcs (Phase II)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Netcentric System Engineering, Conducting Studies/Analysis	1	2006	4	2021
Jam Resistant Secure Communications (JRSC)	1	2014	4	2014
Conduct Analysis of WSOMS Database Consolidation, Net Migration	1	2014	4	2016
Protected SATCOM Modems	1	2015	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)				Project (Number/Name) 456 / MILSATCOM System Engineering			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
456: MILSATCOM System Engineering	-	12.240	2.951	0.926	-	0.926	4.536	4.239	3.312	3.292	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Military Satellite Communications (MILSATCOM) System Engineering (SE) provides centralized funding for US Army participation in the joint development of MILSATCOM programs. This includes engineering, technical and cost related analyses supporting architecture, payloads, network and terminal requirement and design decisions across all MILSATCOM programs.

FY16 funds support the continued systems engineering required to mature technology options that demonstrate potential based on the results of the AoA and BAA studies. These efforts have a direct impact on the ability of the WIN-T Military Wideband SATCOM, commercial SATCOM, and Protected SATCOM on the move for WIN-T with minimal development and programmatic risk.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Protected Communications System Engineering	1.975	1.726	0.463	-	0.463
Description: Protected Communications System Engineering					
FY 2014 Accomplishments: Protected Advanced EHF (AEHF) Communications System Engineering					
FY 2015 Plans: Protected Communications System Engineering					
FY 2016 Base Plans: Protected Communications System Engineering					
Title: Wideband Global SATCOM (WGS) Communications System Engineering	1.725	1.225	0.463	-	0.463
Description: Wideband Global SATCOM (WGS) Communications System Engineering					
FY 2014 Accomplishments: Wideband Global SATCOM (WGS) Communications System Engineering and Intelligence, Surveillance, Reconnaissance (ISR) Migration					
FY 2015 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army				Date: February 2015	
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)		Project (Number/Name) 456 / MILSATCOM System Engineering		
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Wideband Global SATCOM (WGS) Communications System Engineering to improve Ku/Ka antenna SWAP FY 2016 Base Plans: Wideband Global SATCOM (WGS) Communications System Engineering to improve Ku/Ka antenna SWAP Title: Experimentation, development, testing and certification of critical SATCOM and Satellite-On-The-Move (SOTM) communication and network technologies. Description: Experimentation, development, testing and certification of critical SATCOM and SOTM communication and network technologies. FY 2014 Accomplishments: Experimentation, development, testing and certification of critical SATCOM and SOTM communication and network technologies.	2.511	-	-	-	-
Title: Federal Communications Commission/ International Telecommunications Union (FCC/ITU) Satellite Communications On the Move (SOTM) Regulatory Proposals/Analyses/Modifications Description: Federal Communications Commission/ International Telecommunications Union (FCC/ITU) SOTM Regulatory Proposals/Analyses/Modifications FY 2014 Accomplishments: Federal Communications Commission/ International Telecommunications Union (FCC/ITU) SOTM Regulatory Proposals/Analyses/Modifications	0.600	-	-	-	-
Title: Protected Terminal COTM and Wide Area Network (WAN) Prototyping Description: Protected Wide Area Network (WAN) and Terminal Prototyping FY 2014 Accomplishments: Protected Terminal COTM and Wide Area Network (WAN) Prototyping	1.225	-	-	-	-
Title: Transportable Tactical Command Communications (T2C2) Description: T2C2 Development: Achieve Materiel Development Decision (MDD), Conduct Analysis of Alternatives (AoA), Preparation for Milestone C, procure Low Rate Initial Production (LRIP), conduct Initial Operational Testing and Evaluation (IOT&E), Support Full Rate Production Decision FY 2014 Accomplishments:	4.204	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) 456 / MILSATCOM System Engineering

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
T2C2: Preparation for Milestone C, procure Low Rate Initial Production (LRIP), conduct Initial Operational Testing and Evaluation (IOT&E), Support Full Rate Production Decision					
Accomplishments/Planned Programs Subtotals	12.240	2.951	0.926	-	0.926

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

N/A

Remarks

D. Acquisition Strategy

This project funds advanced systems engineering, research, development, test and evaluation of new and emerging technologies to optimize terminal performance and communications control. Once the technologies are mature and deemed feasible, funding and management responsibility for implementation of the technology will transition to WIN-T and related PoRs.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) 456 / MILSATCOM System Engineering
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Oversight	MIPR	PM WIN T : PEO C3T	2.414	0.500		0.100		-		-		-	Continuing	Continuing	Continuing
Advanced Architecture/ Advanced Wideband System Architecture	MIPR	MIT Lincoln Labs : Lexington , MA	11.474	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			13.888	0.500		0.100		-		-		-	-	-	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Protected Communications and WGS Communications SE	TBD	PM WIN-T : Various	26.820	1.050		0.300		-		-		-	Continuing	Continuing	Continuing
Experimentation, development, testing & certification of SATCOM & SOTM communication & networking.	MIPR	PM WIN-T : Various	23.201	1.285		-		-		-		-	Continuing	Continuing	Continuing
FCC/ITU SOTM Regulatory Proposals/ Analyses/Modifications	MIPR	John Hopkins Universtiy Applied Physics Lab : Laurel, MD	2.055	0.600		-		-		-		-	Continuing	Continuing	Continuing
Protected COTM Tactical Reference Terminal Prototyping and Protected Wide Area Network Prototyping	TBD	PEO C3T PM WIN-T : Various	19.750	0.961		-		-		-		-	Continuing	Continuing	Continuing
Purchase of prototype hardware and engineering studies	C/CPFF	PEO C3T : PM WIN-T	1.164	-		-		-		-		-	Continuing	Continuing	Continuing
T2C2 Development Analysis of AoA activity associated with the	TBD	PEO C3T : PM WIN-T	0.400	-		-		-		-		-	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) 456 / MILSATCOM System Engineering
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
evaluation and award of T2C2 contract															
Includes conducting market research on T2C2 candidate technologies	TBD	PEO C3T : PM WIN-T	0.100	0.250		-		-		-		-	-	0.350	0.100
T2C2 preparation of Milestone C Documentation	TBD	PEO C3T : PM WIN-T	0.000	1.694		-		-		-		-	-	1.694	-
Subtotal			73.490	5.840		0.300		-		-		-	-	-	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 (In House)	MIPR	PM WIN T : Core, Matrix	25.288	1.700		1.300		0.300		-		0.300	Continuing	Continuing	Continuing
Engineering Contractors Support	C/CPFF	PM WIN-T : Contractor TBD	38.335	0.600		0.500		0.626		-		0.626	Continuing	Continuing	Continuing
System Architecture & Analysis	Various	CERDEC : PM WIN T	17.336	0.165		-		-		-		-	Continuing	Continuing	Continuing
T2C2 preparation for Milestone C; Request for Proposal and solcitation preparation	TBD	PEO C3T PM WIN T : Various	0.200	0.300		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			81.159	2.765		1.800		0.926		-		0.926	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) 456 / MILSATCOM System Engineering
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020							
	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				
WGS/Wideband SE																																
MILSATCOM SE Protected COTM Terminal Engineering																																
Wideband Technology Development/Prototyping																																
Development, Testing and Certification of SOTM Technology																																
Prototype Advanced COTM Terminal PACT (AEHF)																																
FCC/ITU SOTM Regulatory Proposals/Analyses/Modifications																																
T2C2 Product delvelopment and M/S C preparation																																
T2C2 IOT&E & MS C																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) 456 / MILSATCOM System Engineering

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
WGS/Wideband SE	1	2004	4	2020
MILSATCOM SE Protected COTM Terminal Engineering	1	2015	4	2020
Wideband Technology Development/Prototyping	1	2004	4	2014
Development, Testing and Certification of SOTM Technology	1	2012	4	2014
Prototype Advanced COTM Terminal PACT (AEHF)	1	2010	4	2014
FCC/ITU SOTM Regulatory Proposals/Analyses/Modifications	1	2009	4	2014
T2C2 Product development and M/S C preparation	3	2013	4	2014
T2C2 IOT&E & MS C	4	2014	4	2014

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)				Project (Number/Name) EA3 / Transportable Tactical Cmd Comms (T2C2)			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EA3: Transportable Tactical Cmd Comms (T2C2)	-	-	3.878	3.885	-	3.885	-	-	-	-	-	7.763
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Transportable Tactical Command Communications (T2C2) extends the Warfighter Information Network Tactical (WIN-T) network to small company and team sized early entry units. The T2C2 system is based on combat proven capabilities and provides robust voice and data communication capabilities. The T2C2 systems will also integrate users into the higher capacity WIN-T network and extend that network to the tactical edge; T2C2 also enables warfighters in select small Command Posts (CP) (typically Company level) and select Army teams to send and receive time sensitive Situational Awareness (SA), Intelligence, and Mission Command (MC) information while At-the-Halt (ATH) in support of all Joint determined and defined operational phases. These phases span from the initial Shaping Phase, designed to dissuade or deter adversaries and assure mission friends, to Deterrence, Initiative Seizure and Domination phases culminating with post maneuver Stabilization and Enabling of Civil Authorities enabling legitimate civil governance in safe and secure environment. FY16 funding will be used for FY16/17 testing of the T2C2 systems (Light and Heavy) to support a Full Rate Production (FRP) decision scheduled for 2018. These testing events include Product Verification Testing and Army Interoperability Certification (AIC) scheduled for FY2016 and Initial Operational Test & Evaluation (IOT&E) and Joint Integration Test Command (JITC) Certification in FY2017.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: T2C2 Testing	-	0.309	3.885	-	3.885
Description: Testing requirements to achieve Full Rate Production (FRP).					
FY 2015 Plans: Initial testing requirements to support efforts to achieve FRP.					
FY 2016 Base Plans: Testing requirements to achieve FRP, including Electromagnetic testing, Environmental testing, AIC testing, a Network test and Joint Interoperability Testing Command (JITC) Certification.					
Title: T2C2 Testing Articles and Transportation	-	3.569	-	-	-
Description: Procurement of testing articles and the transportation of assets to the testing location.					
FY 2015 Plans: Transportation of test assets to the testing location.					
Accomplishments/Planned Programs Subtotals	-	3.878	3.885	-	3.885

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) EA3 / Transportable Tactical Cmd Comms (T2C2)

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

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>			<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• Transportable Tactical Command Comm: <i>Transportable Tactical Command Communications (T2C2) (B85800)</i>	-	13.999	44.998	5.724	50.722	49.232	62.849	62.962	78.456	-	318.220

Remarks

D. Acquisition Strategy

The Transportable Tactical Command Communications (T2C2) program Acquisition Strategy (AS) is based on integration of existing Commercial-Off-the-Shelf (COTS)/ Non-Developmental Items (NDI) into new integrated systems fielded in the needed configuration for small teams or small unit Command Posts (CP) to allow these units to receive and transmit data. T2C2 will provide a high bandwidth tactical network extension for small unit CPs operating beyond line-of-sight from their higher headquarters and for teams operating outside the full tactical network architecture. A competitive award using an existing IDIQ contract will take advantage of the competitive forces of the commercial marketplace which will result in lower prices, better quality, and reduced time from requirements identification to award. The systems will be improved over time through technology insertions/refreshments via new competitions every three to five years. T2C2 will utilize a two-level maintenance concept, will be Soldier-maintained, and initially supported by Interim Contractor Support. An analysis will be conducted to determine the ultimate supportability path. This strategy will allow a capability to be integrated and delivered quickly to support a limited deployment of Low Rate Initial Production (LRIP) units in FY17 required for Production Verification and Initial Operational Capability testing, with FRP planned for FY18. Fielding completion for all T2C2 systems will be in FY28.

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) EA3 / Transportable Tactical Cmd Comms (T2C2)
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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) Materiel Development Decision	1 MDD				MS C Preparation																							
Milestone C Preparation																												
(2) Milestone C Decision					2 MS C																							
T2C2 Product Verification, AIC & JITC Testing																												
(3) Initial Operational Test & Evaluation													IOT&E															
(4) T2C2 Full Rate Production Decision Review																	4 FRP Decision											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) EA3 / Transportable Tactical Cmd Comms (T2C2)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Materiel Development Decision	3	2014	3	2014
Milestone C Preparation	3	2014	4	2015
Milestone C Decision	4	2015	4	2015
T2C2 Product Verification, AIC & JITC Testing	3	2016	1	2017
Initial Operational Test & Evaluation	3	2017	3	2017
T2C2 Full Rate Production Decision Review	2	2018	2	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) EK8 / Enroute Mission Command
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EK8: Enroute Mission Command	-	-	-	2.950	-	2.950	5.789	-	-	-	-	8.739
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note
This project element is a new start. Funds in this program element are for testing requirements.

A. Mission Description and Budget Item Justification

Enroute Mission Command (EMC) supports the Global Response Force (GRF) and other Army units with the requirement to conduct Airborne forcible entry operations with the ability to conduct mission command, to include mission planning and rehearsal, while enroute on board US Air Force Air Mobility Command (AMC) aircraft. EMC provides a modernization to enroute communications to enable broadband reach-back data capability utilizing military or commercial networks with adequate bandwidth support required by Mission Command and Intelligence applications. EMC2 will provide commanders with the ability to obtain and share near real-time information regarding intelligence, situational awareness and command and control information while enroute to their objective. The ability to adjust plans and strategize utilizing the latest Intel data will give the GRF the information dominance needed to execute their mission once they arrive at their objective. FY16 Funding will be used for Electromagnetic Interference/Electromagnetic Compatibility (EMI/EMC), Flight Test and preparation for Post Fielding Assessment.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: EMC Testing	-	-	2.950	-	2.950
Description: EMI/EMC, Flight Test and Post Fielding Assessment.					
FY 2016 Base Plans: Testing to include EMI/EMC, Flight Test and Post Fielding Assessment.					
Accomplishments/Planned Programs Subtotals	-	-	2.950	-	2.950

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

N/A

Remarks

D. Acquisition Strategy

The continued procurement of the EMC full operational capability follows DoDI 5000.02, 7 Jan 2015, Enclosure 13, Rapid Fielding of Capabilities. The MDA and project manager will tailor and streamline program strategy based on the required timelines to meet urgent need capability requirements. Milestone Decision Authority (MDA) delegation (2QFY15) will yield an Acquisition Decision Memorandum (ADM) which approves the continued procurement.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) EK8 / Enroute Mission Command

<u>E. Performance Metrics</u> N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) EK8 / Enroute Mission Command
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020							
	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				
MDA Decision					MDA																											
ONS IOC					ONS IOC																											
EMI/EMC Test													EMI/EMC																			
Flight Test																	Flight															
Post Fielding Assessment																					Post Fielding Assessment											
ONS FOC																									ONS FOC							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE)	Project (Number/Name) EK8 / Enroute Mission Command

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MDA Decision	2	2015	2	2015
ONS IOC	3	2015	3	2015
EMI/EMC Test	2	2016	2	2016
Flight Test	4	2016	4	2016
Post Fielding Assessment	3	2017	3	2017
ONS FOC	3	2017	3	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0303150A / WWMCCS/Global Command and Control System
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	13.852	2.150	7.053	-	7.053	9.767	8.118	7.934	5.653	-	54.527
C86: Army Global C2 System	-	13.852	2.150	7.053	-	7.053	0.474	0.316	-	-	-	23.845
EA5: Strategic and Joint Mission Command	-	-	-	-	-	-	9.293	7.802	7.934	5.653	-	30.682

Note

In FY16, increase will provide support for modernization of the Defense Readiness Reporting System - Army (DRRS-A).

A. Mission Description and Budget Item Justification

Global Command and Control System-Army (GCCS-A): This project is the Army component system that directly supports the implementation of the Global Command and Control System Family of Systems. GCCS-A provides automated command and control tools for Army Strategic and Operational Theater Commanders to enhance warfighter capabilities throughout the spectrum of conflict during joint and combined operations in support of the National Security. The GCCS-A developed software systems dramatically improves the Army's ability to analyze courses of action; develop and manage Army Forces; and ensure feasibility of war plans. In accordance with Army Command Post Computing Environment and Joint Command and Control objectives, GCCS-A will be re-architected away from a scalable process architecture based server - thick client architecture to a virtualized server - web client architecture hosted on Battle Command Common Services and Mission Command Workstation by the end of Fiscal Year 2016. GCCS-A strategic tools for readiness reporting have been modernized and replaced with the Defense Readiness Reporting System - Army (DRRS-A), a suite of web based applications for Army Readiness, Force Registration and Force Projection. Strategic and Joint Mission Command funding will be used to modernize GCCS-A as outlined in the Joint Command and Control Capability Development Document (JC2 CDD) and the Army Mission Command for Unified Action Capability Definition Package (AMCUA CDP).

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	14.208	2.151	3.930	-	3.930
Current President's Budget	13.852	2.150	7.053	-	7.053
Total Adjustments	-0.356	-0.001	3.123	-	3.123
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.356	-0.001			
• Adjustments to Budget Years	-	-	3.123	-	3.123

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303150A / WWMCCS/Global Command and Control System	Project (Number/Name) C86 / Army Global C2 System
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
C86: Army Global C2 System	-	13.852	2.150	7.053	-	7.053	0.474	0.316	-	-	-	23.845
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY16, \$3.123 million will provide support for modernization of the Defense Readiness Reporting System - Army (DRRS-A).

A. Mission Description and Budget Item Justification

Global Command and Control System-Army (GCCS-A): This project is the Army component of the Global Command and Control System (GCCS) Family of Systems (FoS). GCCS-A provides automated command and control tools, including Force readiness, planning and movement, and situational awareness, for Army Strategic and Operational Theater commanders to enhance warfighter capabilities throughout the spectrum of conflict during Joint and combined operations in support of National Security. GCCS-A dramatically improves the Army's ability to analyze courses of action, develop and manage Army forces and execute war plans. GCCS-A links the GCCS-Joint Common Operating Picture with the Army Mission Command systems. In accordance with Army Command Post Computing Environment and Joint Command and Control objectives, GCCS-A will be re-architected away from a scalable process architecture based server - thick client architecture to a virtualized server - web client architecture hosted on Battle Command Common Services and Mission Command Workstation by the end of Fiscal Year 2016. GCCS-A strategic tools for readiness reporting have been modernized and replaced with the Defense Readiness Reporting System - Army (DRRS-A), a suite of web based applications for Army Readiness, Force Registration and Force Projection.

Fiscal Year 2016 funding supports GCCS-A 4.3 software enhancements and certification testing of the GCCS-A Bridge Effort in conjunction with Common Operating Environment testing to ensure that GCCS-A Bridge Effort software is successfully configured as a virtual machine on Battle Command Common Services and is interoperable with Army and Joint Mission Command Systems. Additionally, the funding will provide continued support of DRRS-A Modernization efforts.

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

	FY 2014	FY 2015	FY 2016
Title: Software and System Engineering (Common Operating Environment (COE) System Engineering)	0.317	0.326	3.063
Description: Software and System Engineering for GCCS-A and DRRS-A Modernization			
FY 2014 Accomplishments: Software and System Engineering for GCCS-A and DRRS-A Modernization			
FY 2015 Plans: Software and System Engineering for GCCS-A and DRRS-A Modernization			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303150A / WWMCCS/Global Command and Control System	Project (Number/Name) C86 / Army Global C2 System		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Software and System Engineering DRRS-A Modernization				
Title: Sync with COE and Command Post Computing Environment (CP CE) and Joint C2 objective Architecture Description: Software enhancement efforts required to sync with COE/CPCE and Joint C2 objective Architecture FY 2016 Plans: Software enhancement efforts required to sync with COE/CPCE and Joint C2 objective Architecture		-	-	2.910
Title: Data Engineering (COE Data Engineering) Description: Data Engineering for GCCS-A and DRRS-A Modernization FY 2014 Accomplishments: Data Engineering for GCCS-A and DRRS-A Modernization FY 2015 Plans: Data Engineering for GCCS-A and DRRS-A Modernization		1.385	0.678	-
Title: Software Development of Automated Command and Control Tools (COE Automated Command and Control Tools) Description: Software Development of Automated Command and Control Tools for GCCS-A and DRRS-A Modernization FY 2014 Accomplishments: Software Development of Automated Command and Control Tools for GCCS-A and DRRS-A Modernization		10.920	-	-
Title: Test and Evaluation Description: Test and Evaluation for GCCS-A and DRRS-A Modernization FY 2014 Accomplishments: Test and Evaluation for GCCS-A and DRRS-A Modernization FY 2015 Plans: Test and Evaluation for GCCS-A and DRRS-A Modernization FY 2016 Plans: Test and Evaluation for GCCS-A. JITC/CTSF/SEC testing.		0.643	0.662	0.450
Title: Program Support and Management Description: Support and Management for GCCS-A and DRRS-A Modernization		0.587	0.484	0.630

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303150A / WWMCCS/Global Command and Control System	Project (Number/Name) C86 / Army Global C2 System

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<i>FY 2014 Accomplishments:</i> Program Support and Management for GCCS-A and DRRS-A Modernization			
<i>FY 2015 Plans:</i> Program Support and Management for GCCS-A and DRRS-A Modernization			
<i>FY 2016 Plans:</i> Program Support and Management for GCCS-A			
Accomplishments/Planned Programs Subtotals	13.852	2.150	7.053

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• BA8250A: BA8250 Army Global Cmd & Control Sys (AGCCS) - OPA	2.590	-	10.137	-	10.137	2.529	2.643	2.619	4.648	Continuing	Continuing

Remarks

D. Acquisition Strategy

GCCS-A is modernizing to meet the requirements defined in the Joint C2 Capability Development Document (CDD) and to align with the Joint and Army Enterprise architectures and Common Operating Environment (COE) standards.

In accordance with the Joint Requirements Oversight Committee (JROC) Memorandum (JROCM) 145-09 which states, "The JROC endorses efforts to develop and implement programmatic recommendations to support the "Do No Harm" Strategy", GCCS-A continues to synchronize and modernize along with the GCCS Family of Systems (FoS).

The GCCS-A Modernization Strategy will consist of two separate program efforts. (1) A Bridge effort, Acquisition Category (ACAT) III level and (2) a Modernization development effort for the Army's Joint and Strategic command and Control capabilities and Common Operating Environment (COE) infrastructure software products. The GCCS-A modernization development effort will be in compliance with Joint Command and Control Capability Development Document (JC2 CDD) and Army Mission Command for Unified Action Capability Definition Package (AMCUA CDP). DRRS-A developmental efforts will continue to satisfy readiness reporting requirements from Army Readiness Division (DAMO-ODR).

In accordance with the Training and Doctrine Command (TRADOC) requirements document approved in 2011, entitled Net Enabled Mission Command (NeMC) Initial Capabilities Document (ICD), software capability will be developed in 2-year increments as capability sets designed to Collaborate, Collapse and Converge Mission Command products. The product development funded under this R-Form is an integral part of the Mission Command System of Systems, under a strategy designed to

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303150A / <i>WWMCCS/Global Command and Control System</i>	Project (Number/Name) C86 / <i>Army Global C2 System</i>

optimize opportunity for improved interoperability among the systems, to capture the benefits of competition where possible and to ensure the rapid integration of new capability into warfighter systems. This strategy is designed to reduce the physical footprint, logistics support requirements and increase operational efficiency through deployment as a virtualized server on Battle Command Common Services and web clients.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303150A / WWMCCS/Global Command and Control System	Project (Number/Name) C86 / Army Global C2 System
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Office Management	Various	Various : Various Locations	14.107	0.587	Nov 2013	0.484	Nov 2014	0.630	Nov 2015	-		0.630	-	15.808	15.805
Subtotal			14.107	0.587		0.484		0.630		-		0.630	-	15.808	15.805

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Software Development (Completed Contracts)	Various	Lockheed Martin Corp (LMC) : Springfield, VA	156.206	-		-		-		-		-	-	156.206	156.206
GCCS-A and DRRS-A Bridge Effort Software Development (Completed Contract)	C/CPAF	Lockheed Martin Corp (LMC) : Springfield, VA	21.312	-		-		-		-		-	-	21.312	21.312
GCCS-A/DRRS-A Bridge Effort Software Development (Completed Contract)	Various	Software Engineering Center : Aberdeen Proving Ground, MD	15.069	-		-		-		-		-	-	15.069	16.304
Defense Readiness Reporting System-Army Bridge Effort Software Development (Completed Contract)	Various	Software Engineering Center : APG, MD	10.217	-		-		-		-		-	-	10.217	10.217
GCCS-A/DRRS-A Bridge Effort Software Development	MIPR	Software Engineering Center : APG, MD	0.000	11.237	Apr 2014	0.326	Feb 2015	5.973	Jan 2016	-		5.973	-	17.536	4.893
Subtotal			202.804	11.237		0.326		5.973		-		5.973	-	220.340	208.932

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303150A / WWMCCS/Global Command and Control System	Project (Number/Name) C86 / Army Global C2 System
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Software Fielding and IA 4.2b (Procurement Funded)					Software Fielding 4.2B																							
GCCS-A Bridge Effort Software Development GCCS-A v4.3 (COE v1)	COE v1																											
Integration & Test GCCS-A v4.3 (COE v1)	Integration & Test																											
GCCS-A Bridge Effort Software Development GCCS-A v4.3 (COE v2)					COE v2																							
Integration & Test GCCS-A v4.3 (COE v2)					Integration & Test																							
(1) Software Materiel Release GCCS-A v4.3 (COE v2)													 GCCS-A 4.3 SMR															
Software Fielding and IA GCCS-A v4.3 (COE v2) (Procurement Funded)																	Software Fielding 4.3											
DRRS-A Modernization Effort	DRRS-A Modernization																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303150A / WWMCCS/Global Command and Control System	Project (Number/Name) C86 / Army Global C2 System

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Software Fielding and IA 4.2b (Procurement Funded)	4	2014	4	2015
GCCS-A Bridge Effort Software Development GCCS-A v4.3 (COE v1)	1	2012	4	2014
Integration & Test GCCS-A v4.3 (COE v1)	1	2013	4	2014
GCCS-A Bridge Effort Software Development GCCS-A v4.3 (COE v2)	4	2014	3	2015
Integration & Test GCCS-A v4.3 (COE v2)	4	2015	3	2016
Software Materiel Release GCCS-A v4.3 (COE v2)	2	2017	2	2017
Software Fielding and IA GCCS-A v4.3 (COE v2) (Procurement Funded)	4	2017	2	2019
DRRS-A Modernization Effort	1	2014	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0303150A / WWMCCS/Global Command and Control System					Project (Number/Name) EA5 / Strategic and Joint Mission Command		
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EA5: Strategic and Joint Mission Command	-	-	-	-	-	-	9.293	7.802	7.934	5.653	-	30.682
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Army Joint and Coalition Services – Command and Control (AJCS-C2) or "Ajax" is modernization development effort for the Army's joint and strategic C2 capabilities. AJCS-C2 provides the materiel solution in response to the Army Mission Command for Unified Action (AMCUA) Capability Definition Package. AJCS-C2 enables Army operational headquarters to integrate with the Joint Force Commands and Unified Action Partners (UAP). AJCS-C2 provides Army leaders: Joint Common Operating Picture (COP); Adaptive planning and execution capabilities for distributed, synchronous and asynchronous collaboration services to develop, revise, and execute their warfighting plans supported by theaterwide analytics; Strategic SA to coalition operations and other mission partners and Coordination and synchronization of Joint Execution Mission Management.

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

N/A

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303150A / WWMCCS/Global Command and Control System	Project (Number/Name) EA5 / Strategic and Joint Mission Command
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Strategic and Joint Mission Command Development													Strategic and Joint Mission Command Development															

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0303150A / <i>WWMCCS/Global Command and Control System</i>	Project (Number/Name) EA5 / <i>Strategic and Joint Mission Command</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Strategic and Joint Mission Command Development	1	2017	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	-	0.750	-	0.750	-	-	0.450	0.459	Continuing	Continuing
EF4: <i>Integrated Broadcast System</i>	-	-	-	0.750	-	0.750	-	-	0.450	0.459	Continuing	Continuing

Note

Project EF4 does not represent a New Start program; the funding supporting this program is being realigned from PE 0603850A Project 472.

A. Mission Description and Budget Item Justification

The Joint Program Office (JPO) for Integrated Broadcast Service (IBS) Terminals supports all of the Joint Services and Special Operations Command (SOCOM). The IBS is the worldwide Department of Defense (DoD) standard network enterprise for disseminating time-sensitive tactical and strategic intelligence and targeting data to all echelons of Joint Service operational users. The JPO's role is to complete consolidation and replacement of existing IBS terminal capability. The Joint Tactical Terminal (JTT) family of systems currently consists of the JTT-Senior and JTT-IBS systems, and they satisfy Key Performance Parameters (KPPs) for the IBS Program. The JTT is the official IBS producer system, and ensures continued IBS interoperability to a variety of tactical producers/consumers across the Joint Services. JPO IBS Terminals performs JTT life cycle program management through fielding and sustainment of recently upgraded JTT equipment, as well as integration and testing of enhancements for modernization of the JTT fleet through block upgrades and/or new production.

FY16 Base funding of \$0.750 million supports a capabilities review and testing of off-the-shelf, smaller size IBS terminals against validated requirements, to include User testing.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	0.750	-	0.750
Total Adjustments	-	-	0.750	-	0.750
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	0.750	-	0.750

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i>				Project (Number/Name) EF4 / <i>Integrated Broadcast System</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EF4: <i>Integrated Broadcast System</i>	-	-	-	0.750	-	0.750	-	-	0.450	0.459	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project EF4 does not represent a New Start program; the funding supporting this program is being realigned from PE 0603850A Project 472.

A. Mission Description and Budget Item Justification

The JPO for IBS Terminals supports all of the Joint Services and SOCOM. The IBS is the worldwide DoD standard network enterprise for disseminating time-sensitive tactical and strategic intelligence and targeting data to all echelons of Joint Service operational users. The JPO's role is to complete consolidation and replacement of existing IBS terminal capability. The JTT family of systems currently consists of the JTT-Senior and JTT-IBS systems, and they satisfy KPPs for the IBS Program. The JTT is the official IBS producer system, and ensures continued IBS interoperability to a variety of tactical producers/consumers across the Joint Services. JPO IBS Terminals performs JTT life cycle program management through fielding and sustainment of recently upgraded JTT equipment, as well as integration and testing of enhancements for modernization of the JTT fleet through block upgrades and/or new production.

FY16 Base funding of \$0.750 million supports a capabilities review and testing of off-the-shelf, smaller size IBS terminals against validated requirements, to include User testing.

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

	FY 2014	FY 2015	FY 2016
Title: Integration and Test	-	-	0.550
Description: Funds support integration and testing of enhancements for modernization of the JTT fleet.			
FY 2016 Plans: Start integration and testing of enhancements for modernization of the JTT fleet.			
Title: Support Costs and Management Services	-	-	0.200
Description: Funding is provided for Project Management Support			
FY 2016 Plans: Funding will initiate Project Management and Matrix Support.			
Accomplishments/Planned Programs Subtotals	-	-	0.750

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i>	Project (Number/Name) EF4 / <i>Integrated Broadcast System</i>

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

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• V29600 OTHER PROCUREMENT, ARMY JTT: V29600 OTHER PROCUREMENT, ARMY JTT	0.824	0.870	0.881	-	0.881	0.892	0.907	0.924	0.940	Continuing	Continuing

Remarks

D. Acquisition Strategy

Funds support integration and testing of enhancements for modernization of the JTT fleet.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i>	Project (Number/Name) EF4 / <i>Integrated Broadcast System</i>
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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Support	C/TBD	TBD : TBD	0.000	-		-		0.100	Dec 2015	-		0.100	-	0.100	-
Project Management Support	C/TBD	TBD : TBD	0.000	-		-		0.100	Dec 2015	-		0.100	-	0.100	-
Subtotal			0.000	-		-		0.200		-		0.200	-	0.200	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Integration and Testing of JTT fleet Modernization	C/TBD	TBD : TBD	0.000	-		-		0.550	Jan 2016	-		0.550	-	0.550	-
Subtotal			0.000	-		-		0.550		-		0.550	-	0.550	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		0.000	-	-	0.750	-	0.750	-	0.750	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i>	Project (Number/Name) EF4 / <i>Integrated Broadcast System</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
IBS terminals integration and test support									Integration and test support																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i>	Project (Number/Name) EF4 / <i>Integrated Broadcast System</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
IBS terminals integration and test support	2	2016	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	33.515	22.870	13.225	-	13.225	12.703	13.445	8.110	8.311	Continuing	Continuing
11A: <i>Advanced Payload Develop & Spt (MIP)</i>	-	5.554	5.271	3.589	-	3.589	3.027	3.241	3.279	3.343	Continuing	Continuing
11B: <i>Tsp Development (MIP)</i>	-	24.678	12.904	7.138	-	7.138	4.375	4.685	-	-	-	53.780
123: <i>Joint Technology Center System Integration</i>	-	3.283	4.695	2.498	-	2.498	5.301	5.519	4.831	4.968	Continuing	Continuing

A. Mission Description and Budget Item Justification

Project 11A: The Advanced Payloads Development project line is a shared funding line between multiple Payload programs. These Payload programs support the Army's transformation by developing Reconnaissance, Surveillance and Target Acquisition (RSTA) and Intelligence, Surveillance and Reconnaissance (ISR) payload systems for Brigade Combat Teams, Divisions, and Corps Unmanned Aircraft Systems (UAS). This is in accordance with Headquarters Department of the Army (HQDA) and Training and Doctrine Command (TRADOC) UAS priorities.

Small Tactical Radar - Lightweight (STARLite) Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI) is a lightweight, high performance, all weather, multi-functional radar system for the Gray Eagle UAS. The STARLite system provides wide area, near real time Reconnaissance, Surveillance and Target Acquisition (RSTA) capabilities. It operates throughout the UAS flight mission profile in adverse weather and through battlefield obscurants. The SAR mode generates quality images for the battlefield commander for detection, classification and location of stationary commercial wheeled vehicle-size targets. The GMTI mode detects moving ground targets, to include man-sized detection, and provides location information and performs cross-cue with the Electro-Optic/Infrared (EO/IR) sensors. STARLite is increasing its software capabilities based on Initial Operational Test and Evaluation (IOT&E) results which will increase automation and upgrade to a common Graphical User Interface (GUI) to align with the Common Operating Environment (COE) requirement to enable Sensor Processing and Exploitation (SPE). The SPE software enhancements will improve performance, reduce operator workload and enhance operator effectiveness.

Common Sensor Payload (CSP) - Electro Optical / Infra Red / Laser Designator (EO/IR/LD) provides High Definition (HD) Full Motion Video (FMV) in both the Electro Optical and Mid Wave IR spectrums with day/night capability to collect and display continuous imagery with the ability to designate targets of interest for attack by laser guided precision weapons. It is the EO/IR/LD sensor for Gray Eagle UAS which supports force applications, battlespace awareness, force protection, and net-centric operations across the battlefield to provide wide area, near real time RSTA capabilities. Additional initiatives will continue to focus on the transition of technologies directly supporting emerging requirements and the Army's Current and Future Force. CSP is being procured for the Gray Eagle UAS program and has potential application to other platforms.

Project 11B: The Tactical Signals Intelligence (SIGINT) Payload (TSP) is a SIGINT sensor for the Gray Eagle that detects radio frequency (RF) emitters. The TSP system will provide a SIGINT capability to the tactical commander. The TSP system will be a modular, scalable payload using an architecture that is software reconfigurable to allow for growth and flexibility as technology, and as the adversaries use of technology, changes. This flexible architecture allows for third party

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>
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software applications to be integrated into the TSP system. The TSP system processing, control and data dissemination is integrated into the Distributed Common Ground System - Army (DCGS-A) via the Operational Ground Station. It supports Manned/Unmanned (MUM) teaming with Brigade Combat Team ground SIGINT Terminal Guidance (STG) teams and manned airborne assets. The TSP system improves situational awareness and shortens the targeting cycle by detecting and identifying emitters associated with high value targets (HVTs). The TSP system is capable of processing conventional signals, standard military signals, and modern signals of interest. This includes detection, recognition, identification, direction finding, and high confidence geo-location.

Project 123: The Unmanned Aircraft System (UAS) Joint Technology Center/Systems Integration Laboratory (JTC/SIL) is a Joint facility that develops, integrates, and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development, builds the UAS Institutional Mission Simulator (IMS) trainers for the Shadow, Hunter, and Gray Eagle programs, and provides modeling and simulation support. The MUSE is a real-time, operator in-the-loop simulation that may be integrated with larger simulations in support of Army and Joint training and exercises. The MUSE is also employed as a Mission Rehearsal Tool for ongoing combat operations. This project funds the management of the JTC/SIL and MUSE enhancements. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	33.515	22.870	16.690	-	16.690
Current President's Budget	33.515	22.870	13.225	-	13.225
Total Adjustments	-	-	-3.465	-	-3.465
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-	-	-3.465	-	-3.465

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>				Project (Number/Name) 11A / <i>Advanced Payload Develop & Spt (MIP)</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
11A: <i>Advanced Payload Develop & Spt (MIP)</i>	-	5.554	5.271	3.589	-	3.589	3.027	3.241	3.279	3.343	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

The Advanced Payloads Development project is a shared funding line between multiple Payload programs. These Payload programs support the Army's transformation by developing Reconnaissance, Surveillance and Target Acquisition (RSTA) and Intelligence, Surveillance and Reconnaissance (ISR) payload systems for Brigade Combat Teams, Divisions, and Corps Unmanned Aircraft Systems (UAS). This is in accordance with Headquarters Department of the Army (HQDA) and Training and Doctrine Command (TRADOC) UAS priorities. Additionally, this PE supports Future Advanced Payloads for Army UAS systems.

Small Tactical Radar - Lightweight (STARLite) Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI) is a lightweight, high performance, all weather, multi-functional radar system for the Gray Eagle UAS. The STARLite system provides wide area, near real time Reconnaissance, Surveillance and Target Acquisition (RSTA) capabilities. It operates throughout the UAS flight mission profile in adverse weather and through battlefield obscurants. The SAR mode generates quality images for the battlefield commander for detection, classification and location of stationary commercial wheeled vehicle-size targets. The GMTI mode detects moving ground targets, to include man-sized detection, and provides location information and performs cross-cue with the Electro-Optic/Infrared (EO/IR) sensors. STARLite is increasing its software capabilities based on Initial Operational Test and Evaluation (IOT&E) results which will increase automation and upgrade to a common Graphical User Interface (GUI) to align with the Common Operating Environment (COE) requirement to enable Sensor Processing and Exploitation (SPE). The SPE software enhancements will improve performance, reduce operator workload and enhance operator effectiveness.

Common Sensor Payload (CSP) - Electro Optical / Infra Red / Laser Designator (EO/IR/LD) provides High Definition (HD) Full Motion Video (FMV) in both the Electro Optical and Mid Wave IR spectrums with day/night capability to collect and display continuous imagery with the ability to designate targets of interest for attack by laser guided precision weapons. It is the EO/IR/LD sensor for Gray Eagle UAS which supports force applications, battlespace awareness, force protection, and net-centric operations across the battlefield to provide wide area, near real time RSTA capabilities. Additional initiatives will continue to focus on the transition of technologies directly supporting emerging requirements and the Army's Current and Future Force. CSP is being procured for the Gray Eagle UAS program and has potential application to other platforms.

FY 2016 base development dollars in the amount of \$3.589 million is for STARLite SPE software developmental test and integration onto Gray Eagle and enhanced CSP usability for the Warfighter.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 11A / <i>Advanced Payload Develop & Spt (MIP)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Software Development to improve CSP and STARLite Sensor Processing and Exploitation (SPE) Description: Development, Testing and Integration FY 2014 Accomplishments: Commence Software Development for STARLite Sensor Processing and Exploitation (SPE) FY 2015 Plans: Continued Software Development for STARLite SPE FY 2016 Base Plans: Complete Test and Integration of SPE Software Improvements onto Gray Eagle	5.554	5.271	1.795	-	1.795
Title: CSP Increased Usability Description: S/W development to increase the usability of the Common Sensor Payload (CSP). FY 2016 Base Plans: S/W enhancements for increased usability	-	-	1.794	-	1.794
Accomplishments/Planned Programs Subtotals	5.554	5.271	3.589	-	3.589

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• A00020: MQ-1 PAYLOAD - UAS - A00020	97.781	-	-	-	-	-	-	-	-	-	97.781
• A01003: SAR/MTI (MIP) - A01003	-	3.686	23.490	-	23.490	1.336	-	-	-	-	28.512
• A01005: CSP FMV (MIP) - A01005	-	8.409	26.502	8.700	35.202	4.771	4.444	-	-	-	52.826

Remarks
 MQ-1 PAYLOAD - UAS - A00020 was a shared Aircraft Procurement, Army (APA) funding line for CSP, STARLite and Tactical Signals Intelligence (SIGINT) Payload (TSP). STARLite (A01003), and CSP (A01005) are broken into individual lines within MQ-1Payload (MIP) (A01001).
 SAR/MTI (MIP) - A01003: Procurement funding line for STARLite
 CSP FMV (MIP) - A01005: Procurement funding line for CSP

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 11A / <i>Advanced Payload Develop & Spt (MIP)</i>

D. Acquisition Strategy

STARLite SAR/GMTI is a threshold requirement for the Gray Eagle UAS. The acquisition strategy for STARLite program was based on a full and open competition for the Army. A five year competitive production contract was awarded in April 2008 to Northrop Grumman for the build, integration, test and delivery of STARLite systems with preplanned improvements for Extended Range and Increased Reliability. Full Rate Production (FRP) was successfully achieved in June 2013. A follow-on production contract was awarded in April 2014 for 3 years to procure all remaining STARLite Payloads required for the Gray Eagle platform. A STARLite system support contract was awarded in September 2013 to provide system sustainment. STARLite is increasing its software capabilities based on Initial Operational Test and Evaluation (IOT&E) results which will increase automation and upgrade to a common Graphical User Interface (GUI) to align with the Common Operating Environment (COE) requirement to enable Sensor Processing and Exploitation (SPE). The SPE software enhancements will improve performance, reduce operator workload and enhance operator effectiveness. A competitive RDTE contract was awarded to Northrop Grumman October 2013 to perform trade studies and begin the development of the software improvements.

Common Sensor Payload (CSP) EO/IR/LD is a KPP (Key Performance Parameter) requirement for the Gray Eagle UAS. The acquisition strategy for the CSP program was based on a full and open competition for the Army. It was briefed and approved at the Army Systems Acquisition Review Council (ASARC) in Dec 2006. A competitive contract was awarded in Nov 2007 to Raytheon for the build, integration, test and delivery of the CSP. FRP was completed June 2013. CSP program was approved by HQDA for fifty-five (55) High Definition (HD) payloads.

The acquisition strategy for FY2016 is to complete STARLite SPE software developmental test and integration onto Gray Eagle; and Non-Recurring Engineering (NRE) support to NVESD to continue enhancing the CSP usability for the Warfighter.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 7				PE 0305204A / Tactical Unmanned Aerial Vehicles				11A / Advanced Payload Develop & Spt (MIP)							
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
TSP Program Management	Various	PM ARES : Aberdeen, MD	11.255	-		-		-		-		-	-	11.255	-
CSP/STARLite Program Management	Various	PM RUS : Aberdeen, MD	8.524	-		-		-		-		-	-	8.524	-
CSP Program Management	MIPR	PM EOIR : Fort Belvoir, VA	0.000	-		-		0.090	Dec 2015	-		0.090	Continuing	Continuing	Continuing
STARLite Program Mgmt Personnel	Various	PM SAI : Aberdeen, MD	0.000	0.500	Dec 2013	0.500	Apr 2015	-		-		-	Continuing	Continuing	Continuing
Subtotal			19.779	0.500		0.500		0.090		-		0.090	-	-	-
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
CSP Development	C/CPFF	Raytheon : McKinney, TX	84.022	-		-		-		-		-	-	84.022	-
STARLite Development	C/CPFF	Northrop Grumman : Linthicum, MD	6.786	-		-		-		-		-	-	6.786	-
STARLite Improvements to Sensor Processing and Exploitation	MIPR	Northrop Grumman : Linthicum, MD	0.000	5.054	Mar 2014	4.771	Feb 2015	-		-		-	Continuing	Continuing	Continuing
STARLite SPE Software Integration onto Gray Eagle	MIPR	PM MAE : Redstone AL	0.000	-		-		1.295	Jun 2016	-		1.295	Continuing	Continuing	Continuing
CSP Enhanced Usability	MIPR	Night Vision Labs : Fort Belvoir, VA	0.000	-		-		1.704	Mar 2016	-		1.704	Continuing	Continuing	Continuing
Subtotal			90.808	5.054		4.771		2.999		-		2.999	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>				Project (Number/Name) 11A / <i>Advanced Payload Develop & Spt (MIP)</i>							
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Payload Integration (NRE) on Gray Eagle	C/CPFF	PM MAE (General Atomics) : San Diego, CA	26.035	-		-		-		-		-	-	26.035	-
Subtotal			26.035	-		-		-		-		-	-	26.035	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
CSP Testing	MIPR	Various : Various	17.086	-		-		-		-		-	-	17.086	-
STARLite Testing	MIPR	Various : Various	13.441	-		-		-		-		-	-	13.441	-
STARLite SPE Software Development Testing	MIPR	YPG : Yuma Proving Ground	0.000	-		-		0.500	Apr 2016	-		0.500	Continuing	Continuing	Continuing
Subtotal			30.527	-		-		0.500		-		0.500	-	-	-
Project Cost Totals			167.149	5.554		5.271		3.589		-		3.589	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 11A / <i>Advanced Payload Develop & Spt (MIP)</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
CSP (EO/IR/LD) Production	CSP Production																											
CSP HD (EO/IR/LD) Production					CSP HD Production																							
CSP HD Retrofit					CSP HD Retrofit																							
CSP Enhanced Usability Development									Development																			
CSP enhanced usability Testing / Integration													Testing / Integration															
CSP enhanced usability Production Cut-In																					Prod							
Improvements to STARLite Sensor Processing and Exploitation					Sensor Improvements																							
STARLite SPE SW Developmental Test					Developmental Test																							
STARLite SPE SW Integration onto Gray Eagle													SPE SW Int.															
Advanced Payloads Development																	Advanced Payload Development											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 11A / <i>Advanced Payload Develop & Spt (MIP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CSP (EO/IR/LD) Production	1	2008	2	2015
CSP HD (EO/IR/LD) Production	2	2013	2	2018
CSP HD Retrofit	4	2013	4	2016
CSP Enhanced Usability Development	1	2016	2	2018
CSP enhanced usability Testing / Integration	3	2017	2	2020
CSP enhanced usability Production Cut-In	2	2020	3	2024
Improvements to STARLite Sensor Processing and Exploitation	1	2014	3	2016
STARLite SPE SW Developmental Test	3	2016	3	2016
STARLite SPE SW Integration onto Gray Eagle	4	2016	3	2017
Advanced Payloads Development	2	2017	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>				Project (Number/Name) 11B / <i>Tsp Development (MIP)</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
11B: <i>Tsp Development (MIP)</i>	-	24.678	12.904	7.138	-	7.138	4.375	4.685	-	-	-	53.780
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Tactical Signals Intelligence (SIGINT) Payload (TSP) is a SIGINT sensor for the Gray Eagle that detects radio frequency (RF) emitters. The TSP system will provide a SIGINT capability to the tactical commander. The TSP system will be a modular, scalable payload using an architecture that is software reconfigurable to allow for growth and flexibility as technology, and as the adversaries use of technology, changes. This flexible architecture allows for third party software applications to be integrated into the TSP system. The TSP system processing, control and data dissemination is integrated into the Distributed Common Ground System - Army (DCGS-A) via the Operational Ground Station. It supports Manned/Unmanned (MUM) teaming with Brigade Combat Team ground SIGINT Terminal Guidance (STG) teams and manned airborne assets. The TSP system improves situational awareness and shortens the targeting cycle by detecting and identifying emitters associated with high value targets (HVTs). The TSP system is capable of processing conventional signals, standard military signals, and modern signals of interest. This includes detection, recognition, identification, direction finding, and high confidence geo-location.

FY2016 Base funding in the amount of \$7.138 Million completes engineering corrective actions, regression testing, Government Production Qualification Testing, Logistics Demonstration and Initial Operational Test and Evaluation (IOT&E).

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: TSP Engineering Manufacturing Development (EMD) and Low Rate Initial Production Research and Development (R&D) Support	24.678	12.904	7.138	-	7.138
Description: EMD Development and Equipment; LRIP R&D: Logistics, Training, corrective action engineering support and test activities.					
FY 2014 Accomplishments: Complete TSP Block 1, Increment 1 Engineering Manufacturing Development (EMD) Phase and supports corrective actions, and regression testing. Also, includes completion of Operational Ground Station and MQ-1C Integration and Test.					
FY 2015 Plans: Continues TSP Block 1. Includes Contractor/ Government Developmental Testing, MQ-1C air worthiness release, System Support Package development, Key Personnel Training, Logistics Demonstration, and prepares for the IOT&E. Begins preparation for TSP Block 2 activities.					
FY 2016 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 11B / <i>Tsp Development (MIP)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Completes TSP Block 1. Includes the completion of Government Production Qualification Testing, prepares and conducts IOT&E and supports the Full Rate Production Decision. Continue initial planning for future capability upgrades.					
Accomplishments/Planned Programs Subtotals	24.678	12.904	7.138	-	7.138

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• A00020: A00020 - MQ-1 Payload (MIP)	97.781	-	-	-	-	-	-	-	-	-	97.781
• A01004: A01004 - SIGINT (MIP)	-	13.218	47.551	-	47.551	39.232	15.844	3.421	3.487	-	122.753
• PE0605766A, Project DX9: Theater Netcentric Geolocation (TNG) - PE0605766A, Project DX9	1.400	1.520	-	-	-	-	-	0.171	0.795	-	3.886

Remarks

MQ-1 PAYLOAD - UAS - A00020: Shared Aircraft Procurement, Army (APA) procurement funding line for CSP, STARLite, TSP, and Advanced Payloads.

SIGINT (MIP) - A01004: Procurement funding line for TSP Payloads. Under Parent Line MQ-1 Payloads (MIP) - A01001.

TSP Theater Net-Centric Geolocation (TNG) - PE0605766A, Project DX9: TNG funding included in Tactical Exploitation of National Capabilities (TENCAP) funding line.

D. Acquisition Strategy

TSP is a threshold requirement for the MQ-1C Gray Eagle UAS. The TSP program entered the Engineering and Manufacturing Development (EMD) phase with a Milestone B decision in September 2011. The TSP Program EMD contract award was based on full-and-open competition and was focused on integration and test onto the Gray Eagle platform and integration and test of TSP software into the Operational Ground Station. The TSP EMD program is a derivative of systems that were fielded as a Quick Reaction Capability on the MQ-1C UAS and a variety of other manned platforms. The demonstrated scalability of these fielded materiel solutions allows the TSP EMD program to leverage effort that directly supports the TSP EMD program.

The TSP program Acquisition Strategy was modified to accommodate the FY 2012 Appropriation that reduced the 11B Funding Line by \$14.100 Million. The modified TSP program followed an incremental Acquisition Strategy with a TSP Block 0, Block 1 and Block 2. Schedule adjusted in accordance with the TSP Acquisition Decision Memorandum dated 22 Mar 2012. Block 0 was to be the QRC system to provide an early operational capability for the MQ-1C. The TSP Block 1 is the current Program

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army Date: February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 11B / <i>Tsp Development (MIP)</i>
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of Record that entered EMD in FY 2011 to meet all the threshold requirements in the approved Capability Production Document (CPD). Block 2 was to address future objective needs.

Based on available funding, the TSP acquisition strategy has been revised to merge Block 0 and current Block 1 capabilities into a single Block of capability. Current capabilities that have not been integrated into the Block 1 are deferred and included in the Block 2 suite of requirements.

Block 1 is the initial production capability, with Block 2 being a continuation of the TSP program of record and will integrate the remaining CPD threshold requirements.

Block 1 Low Rate Initial Production (LRIP) Milestone C was approved on 26 Mar 2014. TSP LRIP contract award was 12 Jun 2014.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 7				PE 0305204A / Tactical Unmanned Aerial Vehicles				11B / Tsp Development (MIP)								
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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-Gov	RO	PM SAI : APG	7.059	0.641	Dec 2013	0.406	Dec 2014	0.450	Dec 2015	-		0.450	-	8.556	-	
Program Management Support	MIPR	Various : APG	3.855	0.720	Mar 2014	-		-		-		-	-	4.575	Continuing	
FFRDC Support	FFRDC	MITRE : APG	1.201	0.647	Mar 2014	-		0.150	Dec 2015	-		0.150	-	1.998	-	
Subtotal			12.115	2.008		0.406		0.600		-		0.600	-	15.129	-	
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
TSP EMD	C/CPIF	BAE Systems, : Nashua, NH	20.206	-		-		-		-		-	-	20.206	-	
TSP Engineering Changes	SS/CPFF	BAE Systems : Nashua, NH	0.000	7.495	Apr 2014	0.800	Jul 2015	-		-		-	-	8.295	-	
MQ-1C and OGS Integration	SS/CPFF	Various : Various	0.000	4.630	Feb 2014	-		-		-		-	-	4.630	-	
TSP System Support (Logistics, Training, & Test)	SS/CPFF	Various : Various	0.000	6.870	Apr 2014	3.143	Jul 2015	1.830	Dec 2015	-		1.830	-	11.843	-	
Subtotal			20.206	18.995		3.943		1.830		-		1.830	-	44.974	-	
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	MIPR	Various : Various	3.066	0.975	Mar 2014	0.579	Mar 2014	1.538	Dec 2015	-		1.538	-	6.158	-	
Subtotal			3.066	0.975		0.579		1.538		-		1.538	-	6.158	-	

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015



Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 11B / <i>Tsp Development (MIP)</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
TSP Block 1 EMD	TSP EMD																											
(1) TSP Block 1 (LRIP) Milestone C	▲ Block 1 Milestone C																											
(2) TSP Block 1 (LRIP) Contract Award	▲ Block 1 (LRIP) Contract Award																											
TSP Block 1 Integration and Test	■ System I&T																											
TSP Block 1 LRIP Engineering Changes	■ Block 1 Fixes																											
Gov't Production Qualification Test 1	■ PQT 1																											
(3) Operational Assessment Report	▲ OAR																											
MQ-1C Integration and Test	■ MQ-1C I&T																											
MQ-1C UGCS Software Release w/TSP Capability	■ UGCS/TSP SW Release																											
TSP/MQ-1C Air Worthiness Release	■ AWR																											
Contractor / Gov't Production Qualification Test 2	■ CT / PQT 2																											
Logistics Demonstration	■ LD																											
TSP Initial Operational Test and Evaluation	■ IOT&E																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 11B / <i>Tsp Development (MIP)</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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) TSP Block 1 Full Production Decision									 Full Rate Production Decision																			
TSP Future Upgrade Planning									 Block 2 Prep																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 11B / <i>Tsp Development (MIP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
TSP Block 1 EMD	4	2011	2	2014
TSP Block 1 (LRIP) Milestone C	2	2014	2	2014
TSP Block 1 (LRIP) Contract Award	3	2014	3	2014
TSP Block 1 Integration and Test	2	2014	3	2016
TSP Block 1 LRIP Engineering Changes	2	2014	4	2014
Gov't Production Qualification Test 1	2	2015	2	2015
Operational Assessment Report	3	2015	3	2015
MQ-1C Integration and Test	2	2014	1	2015
MQ-1C UGCS Software Release w/TSP Capability	1	2015	4	2015
TSP/MQ-1C Air Worthiness Release	4	2015	1	2016
Contractor / Gov't Production Qualification Test 2	1	2016	2	2016
Logistics Demonstration	4	2015	4	2015
TSP Initial Operational Test and Evaluation	2	2016	2	2016
TSP Block 1 Full Production Decision	3	2016	3	2016
TSP Future Upgrade Planning	1	2016	1	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>				Project (Number/Name) 123 / <i>Joint Technology Center System Integration</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
123: <i>Joint Technology Center System Integration</i>	-	3.283	4.695	2.498	-	2.498	5.301	5.519	4.831	4.968	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Unmanned Aircraft System (UAS) Joint Technology Center/System Integration Laboratory (JTC/SIL) is a Joint facility that develops, integrates, and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development, builds the UAS Institutional Mission Simulator (IMS) trainers for the Shadow, Hunter, and Gray Eagle programs, and provides modeling and simulation support. The MUSE is a real-time, operator in-the-loop simulation that may be integrated with larger simulations in support of Army and Joint training exercises. The MUSE is also employed as a Mission Rehearsal Tool for ongoing combat operations. This project funds the management of the JTC/SIL and MUSE enhancements.

This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Product Development	1.524	2.313	2.298	-	2.298
Description: Funding is provided for the following efforts.					
FY 2014 Accomplishments: Move to smart phone or more portable computing capabilities. Evaluate the adaptable environment that gives the user more flexibility by choosing which components to use for a more customized environment. Incorporate new sensor technologies. Incorporate new aircraft and avionics. Design, develop, implement, and release Build 9.04					
FY 2015 Plans: Continue Development of application based software for portable devices. Enhance mission planning software to facilitate ease of use and currency with UAS mission planning application capabilities. Develop and enhance Service Oriented Architecture to support Cloud computing for US military exercises. Develop new sensors simulation capabilities to reflect Service UAS capabilities.					
FY 2016 Base Plans: Redesign ViPRS by implementing a Service Oriented Architecture (SOA) to facilitate external users developing generic solutions without JSIL assistance and to optimize the software baseline to keep up with training					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 123 / <i>Joint Technology Center System Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
audience requirements, thereby reducing the costs of travel and training. Redesign MUSE/AFSERS U2/ GlobalHawk, Tactical Exploitation of National Capabilities (TENCAP), to meet the growing demands of the war fighter training audience and to optimize User Interface for ease of use, which will reduce training costs and the need for JSIL personnel to attend every event. Design and implement a Heads Up Display (HUD) capability for the UAV platforms that MUSE/AFSERS simulates. This will reduce costs since HUD modifications will be able to be modified without having to implement code changes. Continued examination of all GUIs to ensure maximum usability for the war fighter.					
Title: Support OSD Joint UAS Interoperability Requirements and Activities Description: Funding is provided for the following efforts. FY 2014 Accomplishments: Continue development of UCS Architecture environment and compliance tools. Continue to develop and publish multiple new USIPs based on OSD prioritization. Continue to provide technical and administrative support to I IPT and associated WGs. FY 2015 Plans: Continue development of UCS Architecture environment and compliance tools. Continue to develop and publish multiple new USIPs based on OSD prioritization. Continue to provide technical and administrative support to I IPT and associated WGs.	1.465	2.000	-	-	-
Title: Management Services Description: Funding is provided for the following efforts. FY 2014 Accomplishments: Continue coordination and oversight of MUSE product development and OSD Interoperability Requirements and tool development. FY 2015 Plans: Continue coordination and oversight of MUSE product development. FY 2016 Base Plans: Continue coordination and oversight of MUSE product development.	0.294	0.382	0.200	-	0.200
Accomplishments/Planned Programs Subtotals	3.283	4.695	2.498	-	2.498

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 123 / <i>Joint Technology Center System Integration</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0603261N Navy: <i>PE 0603261N Navy</i>	2.000	2.000	-	-	-	-	-	-	-	Continuing	Continuing
• PE 0305206F Air Force: <i>PE 0305206F Air Force</i>	2.472	3.934	3.998	-	3.998	3.411	3.478	3.543	3.607	Continuing	Continuing

Remarks

The JTC/SIL and the MUSE receive funding from the Air Force and Navy through their POM processes. This effort is a continuing effort in support of Service UAS programs.

D. Acquisition Strategy

Continued MUSE development will be accomplished through a combination of Government in-house functional directorate support using a variety of existing contract vehicles.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 7				PE 0305204A / Tactical Unmanned Aerial Vehicles				123 / Joint Technology Center System Integration							
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	AMC, AMCOM, AMRDEC, SED : Redstone Arsenal, AL	1.812	0.294	Dec 2013	0.382	Dec 2014	0.200	Dec 2015	-		0.200	Continuing	Continuing	Continuing
Subtotal			1.812	0.294		0.382		0.200		-		0.200	-	-	-
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
MUSE Development	MIPR	AMC, AMCOM, AMRDEC, SED : Redstone Arsenal, AL	7.313	1.524	Mar 2014	2.313	Dec 2014	2.298	Dec 2015	-		2.298	Continuing	Continuing	Continuing
Subtotal			7.313	1.524		2.313		2.298		-		2.298	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Interoperability Support	MIPR	AMC, RDECOM, AMRDEC : Redstone Arsenal, AL	5.995	1.465	Feb 2014	2.000	Dec 2014	-		-		-	Continuing	Continuing	-
Subtotal			5.995	1.465		2.000		-		-		-	-	-	-
Project Cost Totals			15.120	3.283		4.695		2.498		-		2.498	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 123 / <i>Joint Technology Center System Integration</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Development of application based SW for portable devices																												
(1) Development and Enhance Service Oriented Architecture					▲ 1																							
(2) Develop new sensor simulation capabilities to support UAS					▲ 2																							
(3) Design ViPPRS by implementing Service Oriented Architecture									▲ 3																			
(4) Initiate redesign of MUSE/AFSERS U2/Global Hawk, TENCAP									▲ 4																			
(5) Implement generic higher fidelity data drive 6 DoF									▲ 5																			
(6) Design and implement a HUD capability for UAS platforms									▲ 6																			
(7) Exercise support for Unified Endeavor, Key Resolve									▲ 7																			
(8) Continued examination of GUIs									▲ 8																			
(9) Continued development of UCS Architecture					▲ 9																							
(10) MUSE Product Development and OSD Interoperability					▲ 10																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i>	Project (Number/Name) 123 / <i>Joint Technology Center System Integration</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development of application based SW for portable devices	1	2015	4	2016
Development and Enhance Service Oriented Architecture	1	2015	4	2016
Develop new sensor simulation capabilities to support UAS	1	2015	4	2016
Design ViPPRS by implementing Service Oriented Architecture	1	2016	4	2017
Initiate redesign of MUSE/AFSERS U2/Global Hawk, TENCAP	1	2016	4	2017
Implement generic higher fidelity data drive 6 DoF	1	2016	4	2017
Design and implement a HUD capability for UAS platforms	1	2016	4	2017
Exercise support for Unified Endeavor, Key Resolve	1	2016	4	2017
Continued examination of GUIs	1	2016	4	2017
Continued development of UCS Architecture	1	2015	4	2016
MUSE Product Development and OSD Interoperability	1	2015	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	-	22.870	-	22.870	0.130	0.133	7.977	8.010	Continuing	Continuing
EH2: EMARSS ADV DEV (MIP)	-	-	-	1.740	-	1.740	-	-	3.205	3.218	-	8.163
EH3: EMARSS Payloads ADV DEV (MIP)	-	-	-	3.532	-	3.532	0.130	0.133	4.772	4.792	Continuing	Continuing
EH4: ARL ADV DEV (MIP)	-	-	-	5.100	-	5.100	-	-	-	-	-	5.100
EH5: ARL Payloads ADV DEV (MIP)	-	-	-	12.498	-	12.498	-	-	-	-	-	12.498

A. Mission Description and Budget Item Justification

This project continues development of advanced tactical reconnaissance and surveillance sensor technologies and develops technology for the on-board fusion of multi-discipline intelligence sensors, i.e. Signals Intelligence (SIGINT), Imagery Intelligence (IMINT), and Measurement and Signature Intelligence (MASINT). Hyperspectral, multi-spectral, interferometric synthetic aperture radar sensors, advanced target and image exploitation software will be developed. Additionally, efforts will be directed toward the development of advanced multi-mode Electrooptic/Infrared (EO/IR), multi-mode MTI/SAR radar, foliage penetration radar, multi-spectral/hyperspectral imageries (MSI/HSI), MASINT on-board fusion and registration, and cueing of the EO/IR/SAR/HSI imaging sensor.

The Hyperspectral Longwave Imager for the Tactical Environment (HyLITE) is the next generation airborne day/night hyperspectral reconnaissance sensor for the detection and identification of camouflaged and concealed targets in all terrain environments. Design improvements will be implemented and flight testing conducted to assess system performance.

B. Program Change Summary (\$ in Millions)

	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	22.870	-	22.870
Total Adjustments	-	-	22.870	-	22.870
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	22.870	-	22.870

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

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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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EH2: EMARSS ADV DEV (MIP)	-	-	-	1.740	-	1.740	-	-	3.205	3.218	-	8.163
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

This program is not a New Start. Funding was transferred from PE 0605626. For FY16 and beyond, the EMARSS RDTE funding will be reflected between Project Manager Sensors - Aerial Intelligence (PM SAI) and Project Manager Fixed Wing (PM FW).

Army Aquisition Objective(AAO): Thirty-six (36)
Army Procurement Objective (APO):Twenty-four(24)

All funding is in support of the ACTIVE COMPONENT

A. Mission Description and Budget Item Justification

The budget line provides for all associated 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 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 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.

FY16 RDT&E dollars in the amount of \$1.740 million provides for all associated non-recurring engineering for conversion of initial Quick Reaction capability (QRC)systems into the EMARSS program of record (POR). Upgraded communications and MEP will ensure continued worldwide deployability and over match dominance for AISR.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Non-Recurring Engineering	-	-	1.740	-	1.740
Description: The budget line provides for all associated non-recurring engineering (NRE),development of supplemental type certificates (STC), testing and integration of Army Aerial, Intelligence, Surveillance and reconnaissance (AISR)systems. Funding provides for DoD mandated safety equipment to meet current and evolving International Standards. It also enhances aircraft communications, navigations and surveillance (CNS);					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH2 / EMARSS ADV DEV (MIP)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
aircraft survivability equipment (ASE) and the integration of the AISR mission equipment package (MEP) as well as obsolescence issues involved with the Liberty Project Aircraft (LPA) in regards to the Navy AAR-47 changing to Army AAR-57, Blue Force Tracker (BFT) to Blue Force Tracker-2 (BFT-2).					
<i>FY 2016 Base Plans:</i> FY16 RDT&E dollars in the amount of \$1.740 million provides for all associated non-recurring engineering for conversion of initial Quick Reaction capability (QRC) systems into the EMARSS program of record (POR). Upgraded communications and MEP will ensure continued worldwide deployability and over match dominance for AISR.					
Accomplishments/Planned Programs Subtotals	-	-	1.740	-	1.740

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• EMARSS SEMA Mods (MIP): EMARSS SEMA Mods (MIP)-A02112	-	-	13.669	-	13.669	13.366	3.305	21.294	4.451	-	56.085
• EMARSS Payloads (MIP): EMARSS Payloads (MIP)-AZ2054000	-	-	13.669	-	13.669	13.366	3.305	21.294	4.451	-	56.085
• EMARSS Payloads Adv Dev (MIP): EMARSS Payloads Adv Dev (MIP)-375206EH3	-	-	3.532	-	3.532	0.130	0.133	4.722	4.792	-	13.309

Remarks

D. Acquisition Strategy
The US Army Aerial Intelligence, Surveillance and Reconnaissance(AISR) acquisition and modernization strategy leverages previous investments in quick reaction capability (QRC) AISR systems returning from overseas theaters and converts them to systems capable of meeting the EMARSS Capability Production Document (CPD) threshold requirements.

E. Performance Metrics
N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

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 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
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

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EH3: EMARSS Payloads ADV DEV (MIP)	-	-	-	3.532	-	3.532	0.130	0.133	4.772	4.792	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program is not a New Start and funding transferred from PE 0605626. For FY16 and beyond, funding to support the overall EMARSS effort is found in the following two lines; EH3 EMARSS Payloads (Project Manager Sensors - Aerial Intelligence (PM SAI)) and EH2 EMARSS ADV DEV (Project Manager Fixed Wing (PM FW)). PM SAI funding continues on this line from 0605626A - Aerial Common Sensor.

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. EMARSS provides a persistent capability to detect, locate, classify/identify, and track surface targets with a high degree of timeliness and accuracy. EMARSS aircraft will be assigned to the U.S. Army Intelligence and Security Command's (INSCOM) Aerial Exploitation Battalions (AEB). EMARSS is an improvement over the existing Medium Altitude Reconnaissance and Surveillance System Quick Reaction Capability (MARSS QRC).

The Army Acquisition Objective (AAO) for EMARSS is 36 systems, the Army Procurement Objective (APO) is 24 systems and includes the following variants: EMARSS-G (Constant Hawk & TACOP LiDAR); EMARSS-V (VaDER); EMARSS-M (Liberty Project Aircraft (LPA)); and EMARSS-S (Engineering and Manufacturing Development (EMD) systems.

The modification and conversion leverages the following QRC systems: Constant Hawk (5); LPA (8); TACOP LiDAR (3); and VaDER (4) redeploying out of Afghanistan to meet the EMARSS Capabilities Production Document (CPD).

EMARSS Payloads will consist of Mission Equipment Packages (MEP) and Processing Exploitation & Dissemination commercial derivative equipment such as, an Electro-optical/Infrared (EO/IR) sensor with Full Motion Video (FMV), a Communications Intelligence (COMINT) collection system, an Aerial Precision Geolocation (APG) system, tactical line-of-site (LOS) and beyond line-of-site (BLOS) communications suite, two Distributed Common Ground System - Army (DCGS-A) enabled operator workstations and a self-protection suite. Payloads integrated on platforms will include: niche capabilities such as Wide Area Aerial Surveillance (WAAS), Light Imaging Detection and Ranging (LiDAR) and improved Synthetic Aperture Radar / Moving Target Indicator (SAR/MTI) radar capability.

EMARSS will operate in direct support of tactical missions. EMARSS, integrating elements of the DCGS-A, will provide a near real-time response to Combat Forces with Intelligence, Surveillance and Reconnaissance (ISR) tasking.

FY 2016 RDTE funding in the amount of \$3.532 million funds the product enhancement, sensor engineering support, and test and evaluation.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: EMARSS - Product Enhancement Description: RDTE funds Sensor Engineering Change Proposals (ECPs) and contractor system support. FY 2016 Base Plans: RDTE funds Sensor Engineering Change Proposals (ECPs) and contractor system support.	-	-	2.579	-	2.579
Title: EMARSS - Sensor Engineering Support Description: Matrix Government and Matrix Contractor engineering support for sensor enhancements. FY 2016 Base Plans: Funds Matrix Government and Matrix Contractor engineering support for sensor enhancements.	-	-	0.200	-	0.200
Title: Program Management Support Description: Program Management Office (PMO) support and travel, as well as Systems Engineering and Technical Assistance (SETA) support. FY 2016 Base Plans: Program Management Office (PMO) support and travel, as well as Systems Engineering and Technical Assistance (SETA) support.	-	-	0.195	-	0.195
Title: EMARSS - Test and Evaluation Description: Delta testing and corrective actions resulting from Operational Tests. FY 2016 Base Plans: Delta testing and corrective actions resulting from Operational Tests.	-	-	0.558	-	0.558
Accomplishments/Planned Programs Subtotals	-	-	3.532	-	3.532

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• EMARSS - AZ2054: EMARSS MEP/PED Procurement (AZ2054)	-	-	13.670	-	13.670	13.366	3.305	21.294	4.452	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• ACS: Aerial Common Sensor A02005	-	-	99.500	-	99.500	-	-	-	-	-	99.500
• EMARSS SEMA: EMARSS SEMA A02112	-	-	13.669	-	13.669	13.366	3.305	21.294	4.451	-	56.085
• EMAARSS SEMA: EMARSS 375206 EH2	-	-	-	1.740	1.740	-	-	3.205	3.218	-	8.163
• EMARSS - TNG: TENCAP - TNG (0605766A, Project DX9)	4.172	2.660	0.588	-	0.588	0.769	0.543	-	-	-	8.732

Remarks

EMARSS Theater Net-centric Geolocation (TNG) - TNG funding included in TENCAP TNG funding line.

D. Acquisition Strategy

The EMARSS MEP/PED acquisition strategy capitalizes on significant existing investments in AISR systems by leveraging proven, mature (i.e. Technology Readiness Level (TRL) 8 or greater) sensors, communications subsystems and DCGS-A compliant workstations. All MEP/PED systems leverage sensor integrations previously conducted on other Army and Joint programs. The acquisition strategy supported by the EMARSS CPD includes design and testing of 24 MEP/PED systems and leverages proven Quick Reaction Capabilities for SAR/MTI, LIDAR, WAAS, FMV and COMINT.

The EMARSS acquisition strategy capitalizes on significant existing investments in AISR systems by hosting proven, mature (i.e. Technology Readiness Level (TRL) 8 or greater) sensors, communications subsystems and DCGS-A compliant workstations into a commercial derivative aircraft. All systems are based on the B350ER platform and leverage aircraft modifications and sensor integration previously conducted on other Army and Joint programs. The acquisition strategy supported by the EMARSS CPD includes design and testing of 24 systems. As a result of Congressional language contained in the 2014 National Defense Authorization Act (NDAA), the Army will forgo additional production of Boeing built EMD aircraft and will fulfill the end-state requirements of 24 systems by leveraging QRC platforms and modifying them into CPD compliant systems. The EMARSS Program of Record (POR) will ultimately be comprised of four variants: (4) Boeing EMDs / EMARSS-S, (8) CH and TACOP/LiDAR / EMARSS-G, (4) VaDER / EMARSS-V and (8) Air Force Liberty Project Aircraft (LPA) / EMARSS-M AISR systems. The Air Force LPA aircraft transitioned to the Army 4Q FY14. The four EMARSS-S (EMD) systems will be brought to a production level configuration and available for fielding. Milestone C (4QTR2014) permits the induction of the 20 QRC systems into the EMARSS POR.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	Allot	PM SAI : APG, MD	0.000	-		-		0.095	Oct 2015	-		0.095	-	0.095	-
SETA	C/CPFF	TBD : APG, MD	0.000	-		-		0.100	Feb 2016	-		0.100	-	0.100	-
Subtotal			0.000	-		-		0.195		-		0.195	-	0.195	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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/TBD	JHU/APL : Laurel, MD	0.000	-		-		1.205	Jan 2016	-		1.205	-	1.205	-
Sensor enhancement	C/CPIF	TBD : TBD	0.000	-		-		1.374	Jan 2016	-		1.374	-	1.374	-
Subtotal			0.000	-		-		2.579		-		2.579	-	2.579	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	Various : Various	0.000	-		-		0.100	Nov 2015	-		0.100	-	0.100	-
Matrix Contractor Engineering Support	MIPR	Various : Various	0.000	-		-		0.100	Nov 2015	-		0.100	-	0.100	-
Subtotal			0.000	-		-		0.200		-		0.200	-	0.200	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Delta Testing	MIPR	TBD : TBD	0.000	-		-		0.558	Nov 2015	-		0.558	-	0.558	-
Subtotal			0.000	-		-		0.558		-		0.558	-	0.558	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army								Date: February 2015			
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)				
	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	0.000	-	-	3.532	-	3.532	-	3.532	-		

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

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 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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 - Operational Test																												
LiDAR - Sensor Enhancement																												
Sensor Enhancement																												
QRC to POR - Modification and Conversion																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
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 - Operational Test	1	2016	3	2016
LiDAR - Sensor Enhancement	2	2016	4	2016
Sensor Enhancement	2	2016	4	2016
QRC to POR - Modification and Conversion	1	2016	2	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EH4: ARL ADV DEV (MIP)	-	-	-	5.100	-	5.100	-	-	-	-	-	5.100
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program is not a New Start and funding transferred from PE 0605626. For FY16 and beyond, the ARL RDTE funding will be reflected between Project Manager Sensors - Aerial Intelligence (PM SAI) and Project Manager Fixed Wing (PM FW).

Army Aquisition Objective(AAO): nine (9) aircraft

All funding is in support of the ACTIVE COMPONENT

FY16 base funding in the amount of \$5.100 million dollars is linked to A02110, APA, ARL SEMA MODS (MIP) and AZ2050, APA, ARL Payloads (MIP) dollars.

A. Mission Description and Budget Item Justification

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 sensor installation on the Aerial Reconnaissance Low Enhanced (ARL-E) DeHavilland dash 8 replacement platforms.

FY 16 RDT&E funding of \$5.100 million dollars provides 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 Aerial Intelligence Surveillance and Reconnaissance (AISR) platform ready for worldwide deployment in support of national interest.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Non-Recurring Engineering	-	-	5.100	-	5.100
Description: Funding will provide 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 sensor installation on the Aerial Reconnaissance Low Enhanced (ARL-E) DeHavilland dash 8 replacement platforms.					
FY 2016 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH4 / ARL ADV DEV (MIP)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
FY 16 RDT&E funding of \$5.100 million dollars provides 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 Aerial Intelligence Surveillance and Reconnaissance (AISR) platform ready for worldwide deployment in support of national interest.					
Accomplishments/Planned Programs Subtotals	-	-	5.100	-	5.100

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• ARL SEMA (MIP): ARL SEMA (MIP)-A02109000	-	-	-	-	-	11.800	-	12.300	12.500	-	36.600
• ARL SEMA Mods (MIP): ARL SEMA Mods (MIP)-A02110000	-	-	16.302	32.000	48.302	33.933	21.364	21.780	22.194	-	147.573
• ARL Payloads (MIP): ARL Payloads (MIP)-AZ2050000	-	-	65.138	-	65.138	48.500	53.778	7.668	2.679	-	177.763
• ARL Payloads ADV DEV (MIP): ARL Payloads ADV DEV (MIP)-375206EH5	-	-	12.498	-	12.498	-	-	-	-	-	12.498

Remarks

D. Acquisition Strategy
The U.S. Army AISR acquisitions and modernization strategy leverages previous investments in QRC AISR systems return from overseas operations and converts them to systems capable of meeting the ARL-E Capability Production document (CPD) threshold requirements.

E. Performance Metrics
N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

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 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Test and Evaluation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
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
Test and Evaluation	1	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EH5: ARL Payloads ADV DEV (MIP)	-	-	-	12.498	-	12.498	-	-	-	-	-	12.498
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY16 ARL-E RDT-E funding line (ARL Payloads ADV DEV(MIP) 375206EH5 will be identified between Project Manager Sensors Aerial Intelligence (SAI) and Project Manager Fixed Wing (FW)(ARL ADV DEV (MIP) funding line 375206EH4).

This program is not a New Start and funding transferred from PE 0605626-AC5.

A. Mission Description and Budget Item Justification

The Airborne Reconnaissance Low - Enhanced (ARL-E) program supports the Aerial Layer 2020 Strategy which recommended replacement of the current Airborne Reconnaissance Low Multifunction (ARL-M) and migrates the current ARL sensors plus new niche sensors to the meet the ARL-E Capabilities Production Document (CPD) requirements. ARL-E payload procures the hardware, software, and infrastructure to rapidly install sensors which support a rapid plug and play, quick connect/disconnect, mounting system to allow the installation of various combinations of sensor-types in support of a wide-range of theater operations. The sensor suite will consist of a Communications Intelligence (COMINT) subsystem capable of supporting theater net centric geo-location efforts, High Definition Full Motion Video (FMV); Improved Synthetic Aperture Radar / Moving Target Indicator (SAR/MTI) radar capability and updated mission workstations, as well as radio and data/communications architecture. ARL-E will leverage existing sensors as well as integrating and installing niche sensors to augment current capabilities. Niche capabilities include Wide-Area Augmentation System (WAAS), Light Detection and Ranging (LiDAR) and Hyper Spectral Imaging (HSI) sensors. The ARL Modernization Program standardizes the payload systems, upgrades the COMINT subsystem for improved Irregular Warfare tactical collection and geo-location, enhances the Full Motion Video (FMV) system with a High Definition capability, and improves the Synthetic Aperture Radar / Moving Target (SAR//MTI) capability. The modernization program ensures continued ARL relevancy against current and emerging threat emitters and tactics across the full spectrum of operations.

ARL-E Payload is funding the development and testing of the Long Range Radar (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, IA issues, and improved probability at greater required ranges. Effort will produce a prototype and flight testing to characterize the prototype performance. Funding is also planned for test and evaluation of LRR capability integrated in ARL-E system.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Airborne Reconnaissance Low - Enhanced (ARL-E) Research and Development (R&D) support.	-	-	12.498	-	12.498
Description: .					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<i>FY 2016 Base Plans:</i> Completes development and testing of Long Range Radar prototype and supports ARL-E MEP system Developmental Testing (DT).					
Accomplishments/Planned Programs Subtotals	-	-	12.498	-	12.498

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• AZ2050: ARL MODS (MIP) AZ2050	-	-	69.068	-	69.068	48.929	54.266	7.737	2.703	-	182.703
• 0605766ADX9: Theater Net-Centric Geolocation (TNG)	-	-	-	-	-	1.360	1.898	0.257	0.257	-	3.772

Remarks
 ARL Procurement funding line split with ARL SEMA Mods (MIP) A02110000. FY16 base funding to support the overall ARL-E effort is found in the following two lines: AZ2050 ARL Payloads (per this form) and A02110 ARL SEMA Mods (separate form). 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 (PEO-AVN); and overall sensor, processing, exploitation, and dissemination responsibilities to Program Executive Officer for Intelligence, Electronic Warfare, and Sensors (PEO-IEWS).

The purpose of AZ2050 is to procure, upgrade, test and integrate sensors; communications architecture for sensor information exploitation and dissemination; test, nonrecurring engineering, and integration in support of the ARL-E Payload program ensuring ARL-E is rapidly deployable world-wide against current, new, and emerging threats.

FY16 Base funding within AZ2050 - \$69,068 supports the procurement of the Mission Equipment Payload (MEP) for integration on Aircraft #3 and 4. The MEP for these systems will consist of 1 set of Distributed Common Ground Station-Army (DCGS-A) workstations, 1 set of communication equipment (mission radios, Beyond line of Site (BLOS) and Line of Site (LOS) Data links), 1 COMINT subsystem, 1 Hyper spectral subsystem, 1 Vehicle and Dismount.

D. Acquisition Strategy
 FY15 funding in the amount of \$10.174M from EMARSS PE 0605626A initiated development of Long Range Radar (LRR). The amount of \$12.498 completes the development and testing of the Long Range Radar to replace the current ARL Phoenix Eye Radar to increase performance meet the improved requirement documents of the Appendix J Payload for ARL-E approved CPD. Of the \$12.498, \$1M will fund ARL-E MEP system developmental test efforts.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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>

<u>E. Performance Metrics</u> N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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/TBD	TBD : Aberdeen Proving Ground, MD	0.000	-		-		11.498	Jun 2015	-		11.498	-	11.498	-
Subtotal			0.000	-		-		11.498		-		11.498	-	11.498	-

Remarks
This is an existing contract mod.

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
ARL-E MEP Contract Award	C/TBD	TBD : Aberdeen Proving Ground, MD	0.000	-		-		1.000	Sep 2015	-		1.000	-	1.000	-
Subtotal			0.000	-		-		1.000		-		1.000	-	1.000	-

Remarks
This is an existing contract mod.

Project Cost Totals	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	-	-	12.498	-	12.498	-	12.498	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

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 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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	ARL-E Radar Development C				ARL-E Radar Development C				ARL-E Radar Development C				ARL-E Radar Development C				ARL-E Radar Development C				ARL-E Radar Development C				ARL-E Radar Development C			
ARL-E Radar Development																												
(2) ARL-E MEP Contract Award	ARL-E MEP Con				ARL-E MEP Con				ARL-E MEP Con				ARL-E MEP Con				ARL-E MEP Con				ARL-E MEP Con							
ARL-E MEP Integration																									Test & Evaluation			
ARL-E LRR Test & Evaluation																									Test & Evaluation			

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
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	2	2015	2	2017
ARL-E MEP Contract Award	4	2015	4	2015
ARL-E MEP Integration	4	2015	4	2017
ARL-E LRR Test & Evaluation	2	2016	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	27.607	20.155	25.592	-	25.592	25.777	26.218	30.498	31.064	Continuing	Continuing
956: <i>Distributed Common Ground System (MIP)</i>	-	27.607	9.270	8.923	-	8.923	-	-	-	-	Continuing	Continuing
D07: <i>DCGS-A Common Modules (MIP)</i>	-	-	10.885	16.669	-	16.669	25.777	26.218	30.498	31.064	Continuing	Continuing

Note

Project 956 (DCGS-A Increment 1) is a designated Major Automation Information System (MAIS) program.

Project D07 (Increment 2) was created to clearly delineate between the DCGS-A Project 956 (Increment 1) development efforts beginning in FY15.

A. Mission Description and Budget Item Justification

Distributed Common Ground System - Army (DCGS-A) is the Intelligence, Surveillance and Reconnaissance (ISR) System of Systems (SoS) for Joint, Interagency, Allied, Coalition, and National data analysis, sharing and collaboration. The core functions of DCGS-A are: the vertical and horizontal synchronization of ISR Processing, Exploitation and Dissemination (PED) efforts; operations in a networked environment at multiple security levels; the control of select Army and joint sensor systems; the fusion of all acquired data and information, and distribution of relevant red (threat), gray (non-aligned), and environmental (weather and terrain) information; and providing the Warfighters' early warning, targeting, and sensor ground station capabilities. DCGS-A provides a single integrated ISR ground processing system composed of common components that are interoperable with sensors, other information sources, all Warfighting Functions, and the Defense Information & Intelligence Enterprise (DI2E) and Intelligence Community Information Technology Enterprise (ICITE). DCGS-A is fielded in Fixed, Mobile, and embedded configurations emphasizing the use of reach and split based operations by improving accessibility of data in order to reduce forward deployed footprint. As enhanced capabilities are developed and tested, a continuing series of software releases will be integrated into Army Common/commodity hardware and fielded to units IAW the Dynamic Army Resourcing Priority List (DARPL) process.

The Army Acquisition Executive designated PEO IEW&S and DCGS-A as the Command Post Computing Environment (CPCE) Lead. As such, DCGS-A is defining the architecture to fit within the Common Operating Environment (COE) as described by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) (ASA(ALT)) COE Implementation Plan. This is in accordance with the G-3/5/7 priority to align all Army networks, procurements, and enhancements under one COE and one vision leveraging intelligence community investments.

DCGS-A consolidated, enhanced, and modernized the Tasking, Processing, Exploitation, and Dissemination (TPED) capabilities formerly found in nine Army intelligence programs of record (Common Ground Station (CGS), Guardrail Common Sensor (GRCS), Counterintelligence & Interrogation Operations Workstation (CI&I OPS WS), All Source Analysis System (ASAS), Enhanced TrackWolf (ETW), Digital Topographic Support System (DTSS), Integrated Meteorological System (IMETS), Tactical Exploitation System (TES), and Prophet Control) and two Quick Reaction Capabilities (Joint Intelligence Operations Center – Iraq (JIOC-I) and Imagery Work Station(IWS)). DCGS-A provides these technologically advanced PED capabilities in tailored and scalable mobile, fixed, and embedded configurations in all maneuver

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	
<p>and maneuver support units from Company Intelligence Support Team to Army Service Component Command, and in select maneuver sustainment units battalion and above. The program develops software packages to be embedded in mission command and other select systems to provide required ISR/analytic capabilities. DCGS-A is one of the Army's top modernization priorities.</p> <p>DCGS-A software is tailored by echelon and scalable to each unit's mission. DCGS-A provides commanders and staffs the ability to maintain an accurate and up to date understanding of the operational environment. The DCGS-A contribution to commanders' visualization and situational awareness, rapid planning, and the synchronization of all warfighting functions, enable Army units to operate within the enemy's decision cycle. This capability enhances tactical and operational maneuver and the conduct of full spectrum operations across the range of military operations from humanitarian to major combat operations and campaigns through all phases of the Joint Continuum of Military Operations.</p> <p>The DCGS-A configurations range from laptops to systems integrated in tactical shelters and mounted on tactical vehicles to large commodity servers operating in a sanctuary based processing environment. The fundamental intent and tenet of this approach is to reduce forward deployed equipment/footprint by co-locating the advanced analytics capabilities within the DCGS-A baseline with the regional data centers, where the data is stored. This infrastructure consolidation simultaneously reduces processor and communications requirements in tactical units by limiting the number of large data files transported across tactical communications systems. Following a successful operational assessment and Milestone C in 2QFY12/Full Deployment Decision in 1QFY13, the program is deploying DCGS-A Increment 1 Release 1 Software Baseline capability throughout the Army.</p> <p>FY16 Base funding in the amount of \$8.923 million for project 956, will be used for the continued development and testing of the DCGS-A Increment 1 Software Release 2 as well as the continued development and testing of the Command Post Computing Environment (CPCE) as it fits into the Army's overarching Common Operating Environment (COE) construct. The COE has been directed as a priority effort to align all Army networks, procurements, and enhancements under one COE vision. Funds used for efforts associated with the development of the CPCE/COE will include the continued merger/collapse of capabilities across multiple Battlefield Functional Areas (BFAs) and the consolidation of hardware used across the BFAs. Funds used for efforts associated with the development of the software will include continued advancements in the Standard Sharable Geospatial Foundation to support the Tactical Common Operating Picture, as well as further investment into capabilities and widget development supporting All Source Intelligence, Signals Intelligence (SIGINT), Geospatial Intelligence (GEOINT), emerging architectural and infrastructure enhancements, and software integration efforts. The FY16 funding will be used for integration of commercial technologies to the latest version(s) and changes due to Information Assurance updates. Testing activities requiring these funds will include participation in Network Integration Evaluation and Exercises such as: Empire Challenge, ULCHI Freedom Guardian, and Joint Interoperability Certification test(s) for each software release.</p> <p>FY16 Base funding in the amount of \$16.669 million for D07, will continue the iterative DCGS-A software releases that will increase the Processing, Exploitation, and Dissemination capability our Army requires. Increment 2 of the DCGS-A program will continue critical updates to the Army's ISR PED and multi-intelligence planning, analysis, and production capabilities through the exploitation of Cloud Computing and advanced analytics capabilities. This approach will achieve Information Technology efficiencies through alignment with the Intelligence Community Information Technology Environment, while developing the incremental software updates required to remain current.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	27.607	20.155	25.710	-	25.710
Current President's Budget	27.607	20.155	25.592	-	25.592
Total Adjustments	-	-	-0.118	-	-0.118
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.118	-	-0.118

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>				Project (Number/Name) 956 / <i>Distributed Common Ground System (MIP)</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
956: <i>Distributed Common Ground System (MIP)</i>	-	27.607	9.270	8.923	-	8.923	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project 956 (DCGS-A Increment 1) is a designated Major Automation Information System (MAIS) program.

Beginning in FY16, a portion of the Project 956 funding was shifted to Project D07 (Increment 2) in order to clearly delineate between DCGS-A Increment 1 and Increment 2 development efforts. DCGS-A development efforts continue on project line (D07) within the same program element.

A. Mission Description and Budget Item Justification

Distributed Common Ground System - Army (DCGS-A) is the Intelligence, Surveillance and Reconnaissance (ISR) System of Systems (SoS) for Joint, Interagency, Allied, Coalition, and National data analysis, sharing and collaboration. The core functions of DCGS-A are: the vertical and horizontal synchronization of ISR Processing, Exploitation and Dissemination (PED) efforts; operations in a networked environment at multiple security levels; the control of select Army and joint sensor systems; the fusion of all acquired data and information, and distribution of relevant red (threat), gray (non-aligned), and environmental (weather and terrain) information; and providing the Warfighters' early warning, targeting, and sensor ground station capabilities. DCGS-A provides a single integrated ISR ground processing system composed of common components that are interoperable with sensors, other information sources, and all Warfighting Functions. DCGS-A is fielded in Fixed, Mobile, and embedded configurations emphasizing the use of reach and split based operations by improving accessibility of data in order to reduce forward deployed footprint. As enhanced capabilities are developed and tested, a continuing series of software releases will be integrated into Army common/commodity hardware and fielded to units in accordance with the Dynamic Army Resourcing Priority List (DARPL) process.

The Army Acquisition Executive designated PEO IEW&S and DCGS-A as the Command Post Computing Environment (CPCE) Lead. As such, DCGS-A is defining the architecture to fit within the Common Operating Environment (COE) as described by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) (ASA(ALT)) COE Implementation Plan. This is in accordance with the G-3/5/7 priority to align all Army networks, procurements, and enhancements under one COE and one vision leveraging intelligence community investments.

DCGS-A consolidated, enhanced, and modernized the Tasking, Processing, Exploitation, and Dissemination (TPED) capabilities formerly found in nine Army intelligence programs of records (Common Ground Station (CGS), Guardrail Common Sensor (GRCS), Counterintelligence & Interrogation Operations Workstation (CI&I OPS WS), All Source Analysis System (ASAS), Enhanced TrackWolf (ETW), Digital Topographic Support System (DTSS), Integrated Meteorological System (IMETS), Tactical Exploitation System (TES), and Prophet Control) and two Quick Reaction Capabilities (Joint Intelligence Operations Center – Iraq (JIOC-I) and Imagery Work Station(IWS)). DCGS-A provides these technologically advanced PED capabilities in tailored and scalable mobile, fixed, and embedded configurations in all maneuver and maneuver support units from Company Intelligence Support Team to Army Service Component Command, and in select maneuver sustainment units battalion and

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 956 / <i>Distributed Common Ground System (MIP)</i>

above. The program also develops software packages to be embedded in mission command and other select systems to provide required ISR/analytic capabilities. DCGS-A is one of the Army's top modernization priorities.

DCGS-A software is tailored by echelon and scalable to each unit's mission. DCGS-A provides commanders and staffs the ability to maintain an accurate and up to date understanding of the operational environment. The DCGS-A contribution to commanders' visualization and situational awareness, rapid planning, and the synchronization of all warfighting functions, enable Army units to operate within the enemy's decision cycle. This capability enhances tactical and operational maneuver and the conduct of full spectrum operations across the range of military operations from humanitarian to major combat operations and campaigns through all phases of the Joint Continuum of Military Operations.

The DCGS-A configurations range from laptops to systems integrated in tactical shelters and mounted on tactical vehicles to large commodity servers operating in a sanctuary based processing environment. The fundamental intent and tenet of this approach is to reduce forward deployed equipment/footprint by co-locating the advanced analytics capabilities within the DCGS-A baseline with the regional data centers, where the data is stored. This infrastructure consolidation simultaneously reduces processor and communications requirements in tactical units by limiting the number of large data files transported across tactical communications systems. Following a successful operational assessment and Milestone C in 2QFY12/Full Deployment Decision in 1QFY13, the program is deploying DCGS-A Increment 1 Release 1 Software Baseline capability throughout the Army.

FY16 Base funding in the amount of \$8.923 million for 956, will be used for the continued development and testing of the DCGS-A Increment 1 Software Release 2; as well as the continued development and testing of the Command Post Computing Environment (CPCE) as it fits into the Army's overarching Common Operating Environment (COE) construct. The COE has been directed by the ASA(ALT) and concurred by the Army G3/5/7 as a priority effort to align all Army networks, procurements, and enhancements under one COE vision. Funds used for efforts associated with the development of the CPCE/COE will include the continued merger/collapse of capabilities across multiple Battlefield Functional Areas (BFAs) and the consolidation of hardware used across the BFAs. Funds used for efforts associated with the development of the software will include continued advancements in the Standard Sharable Geospatial Foundation to support the Tactical Common Operating Picture, as well as further investment into capabilities and widget development supporting All Source Intelligence, Signals Intelligence (SIGINT), Geospatial Intelligence (GEOINT), emerging architectural and infrastructure enhancements, and software integration efforts. The FY16 funding will be used for integration of commercial technologies to the latest version(s) and changes due to Information Assurance updates. Testing activities requiring these funds will include participation in Network Integration Evaluation and Exercises such as: Empire Challenge, ULCHI Freedom Guardian, and Joint Interoperability Certification test(s) for each software release.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Design and Development of DCGS-A enterprise level net-centric architecture	13.964	-	4.530	-	4.530
Description: Continue design and development of DCGS-A enterprise level net-centric architecture to include: Development & Integration of DCGS-A Software; DT/OT, Mobile Basic Contract Deliverables, and Program Management support costs. Global Unified Data Environment (Cloud) - development - to create direct Data Ingest of varying intelligence data types and development of analytical tools to exploit single -INT data, further enhancing Cloud Enterprise Account Management load distribution of enterprise level complex					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army			Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 956 / <i>Distributed Common Ground System (MIP)</i>			
B. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
searches. Development of Cloud to Cloud Data Synchronization technologies and enhanced data management applications between Cloud and Edge nodes. FY 2014 Accomplishments: Continued to design and develop DCGS-A enterprise level net-centric architecture to include: Development & Integration of DCGS-A Software; DT/OT and Program Management support costs. Completed DT 1 and 2 and NIE 1. FY 2016 Base Plans: SW Fixes Rel 2, IA updates, Integration, CPCE, Sensor CE.					
Title: Matrix Support including SIL S/W Support Description: Matrix Support including SIL S/W Support FY 2014 Accomplishments: Matrix Support including SIL S/W Support FY 2015 Plans: Matrix Support including SIL S/W Support FY 2016 Base Plans: Matrix Support including SIL S/W Support	4.082	1.356	2.000	-	2.000
Title: Army and Joint Testing/Development/Operational Test Support/Software Fixes Description: Ongoing Army and Joint interoperability testing and evaluation to include Operational Assessment (Network Integration Evaluation (NIE) Operational Assessment), JITC, and Operational Test and Software Fixes FY 2014 Accomplishments: Conducted two developmental tests. FY 2015 Plans: Will support the LUT at NIE 15.2 and funds software fixes once the LUT is complete. FY 2016 Base Plans: Funds fix software issues identified during the LUT at NIE 15.2.	8.520	7.021	1.500	-	1.500
Title: Support Costs and Management Services	1.041	0.893	0.893	-	0.893

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 956 / <i>Distributed Common Ground System (MIP)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Description: Funding is provided for the following effort/Project Management Support					
FY 2014 Accomplishments: Provide PMO support					
FY 2015 Plans: Provide PMO support.					
FY 2016 Base Plans: Provide PMO support					
Accomplishments/Planned Programs Subtotals	27.607	9.270	8.923	-	8.923

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

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• DCGS-A (MIP) Procurement: <i>BZ7316 - Procurement</i>	137.990	192.038	260.268	54.140	314.408	250.786	284.177	311.103	347.362	Continuing	Continuing
• DCGS-A Increment 2 <i>RDTE: 0305208A / D07</i>	-	10.885	16.669	-	16.669	25.777	26.218	30.498	31.064	Continuing	Continuing
• Theater Net-Centric Geolocation <i>TNG: Theater Net-Centric Geolocation (TNG) RDTE</i>	0.050	0.350	0.166	-	0.166	0.166	0.410	0.606	-	-	1.748

Remarks

D. Acquisition Strategy

The Distributed Common Ground System-Army (DCGS-A) program was created in response to the Department of Defense (DoD) Distributed Common Ground/Surface System (DCGS) Mission Area Initial Capabilities Document (MA ICD) dated 13 Aug 2004, which captured the overarching requirements for an Intelligence, Surveillance, and Reconnaissance (ISR) Family of Systems (FoS) that will contribute to Joint and combined Warfighter needs. That ICD was updated as the Distributed Common Ground/Surface System (DCG/SS) Enterprise ICD, and approved by the Joint Requirements Oversight Council (JROC) 27 Feb 2009. The Army requirements were refined in the DCGS-A Capabilities Development Document (CDD), and approved by the JROC 31 Oct 2005. The DCGS-A program is currently in the Production and Deployment phase and was designated as a Major Automated Information System (MAIS) in OSD (AT&L) Memorandum, 29 Mar 2010.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 956 / <i>Distributed Common Ground System (MIP)</i>
<p>DCGS-A is following an evolutionary acquisition approach to develop and field system capabilities over time to satisfy the requirements of the DCGS-A Capability Development Document (CDD). Following this approach, the first increment was defined and a Capability Production Document (CPD) was created with full consideration of all of the preceding supporting documents and analysis. As part of its initial staffing, a Cost Benefit Analysis was completed in support of the DCGS-A CPD. This analysis projected a significant cost avoidance/savings over the life cycle by not limiting the hardware configuration to a one size fits all unit types design but rather integrating the DCGS-A Software capabilities into common servers and other IT components fielded at that echelon. This approach was validated during the Milestone C and Full Deployment Decision process in FY2012 through the Office of the Secretary of Defense (OSD) Cost Assessment and Program Evaluation (CAPE) approval of the Economic Analysis. This Economic Analysis validated the cost savings achieved utilizing the acquisition approach outlined above.</p> <p>PM DCGS-A has been designated as the Command Post Computing Environment (CPCE) Lead for PEO IEW&S. As such, DCGS-A is currently aligning it's architecture to fit within the Common Operating Environment (COE) as described by the ASA(ALT) COE Implementation Plan. This alignment is in accordance with the G-3/5/7 priority to align all Army networks, procurements, and enhancements under one COE and one vision. Our acquisition strategy supports this initiative as we continue to collapse PORs and reduce footprint following our capability migration path and iterative development of software releases which continue to increase capabilities to satisfy the remaining CPD requirements beyond Initial Minimal Capability. As DCGS-A continues the path through Increment 1 and beyond, each release will focus on the COE and continually align the Command Post activities with POR migration activities. The program office expects to continue as the DCGS-A System Integrator for software development and hardware integration for Increment 1, and will continue to access multiple vendors by leveraging a variety of competitively awarded contracts.</p>		
E. Performance Metrics		
N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 7				PE 0305208A / Distributed Common Ground/Surface Systems				956 / Distributed Common Ground System (MIP)							
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Project Management	Various	PM, DCGS-A : APG, MD	27.841	1.041		0.893		0.893	Dec 2015	-		0.893	Continuing	Continuing	Continuing
Subtotal			27.841	1.041		0.893		0.893		-		0.893	-	-	-
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Metadata Catalog	Various	MITRE, : various	17.865	-		-		-		-		-	Continuing	Continuing	Continuing
Design & Develop DCGS-A Architecture	Various	Northrup Grumman, Various : Linthicum, MD, Various	247.877	-		-		-		-		-	-	247.877	-
Design & Develop DCGS-A Incr 1 Software	Various	Various : Various	0.000	13.964		-		-		-		-	Continuing	Continuing	-
Secure Common Data Link (SCDL)	Various	CUBIC : Orlando, Fla.	0.788	-		-		-		-		-	Continuing	Continuing	-
Global Unified Data Environment (Cloud) Development	Various	CERDEC/SEC : APG, MD	21.500	-		-		-		-		-	Continuing	Continuing	-
Software Fixes	C/TBD	Various : Various	0.000	-		-		2.530	May 2016	-		2.530	-	2.530	-
Design & Develop DCGS-A Architecture (CPCE & Sensor CE)	C/TBD	Various : Various	0.000	-		-		2.000	Mar 2016	-		2.000	-	2.000	-
Subtotal			288.030	13.964		-		4.530		-		4.530	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Matrix Support Government Test & Integration Lab	Various	CECOM : CECOM	18.734	4.082		1.356		2.000	Dec 2015	-		2.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 956 / <i>Distributed Common Ground System (MIP)</i>
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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Subtotal			18.734	4.082		1.356		2.000		-		2.000	-	-	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Operational Test Support for DCGS-A Rel 2	Various	ATEC, OTC, Various : APG, MD, EPG, Various	9.245	6.904	Mar 2014	-		-		-		-	Continuing	Continuing	Continuing
Software Integration/Fixes	C/TBD	TBD : TBD	0.000	-		4.894		1.500		-		1.500	-	6.394	-
Developmental Testing for Sensor CE	Various	I2WD, Various : APG, MD, Various	0.000	-		2.127		-		-		-	-	2.127	-
NIE for Rel 2 and CPCE COE V2	Various	NIE : Ft. Bliss	10.287	0.800	Mar 2014	-		-		-		-	Continuing	Continuing	Continuing
Operational Assessments/ Joint Demo for Inc 1 and CPCE	Various	Empire Challenge, ULCHI Freedom Guardia, Unified Vision : AZ, KO, EU	1.800	0.300		-		-		-		-	-	2.100	-
Certification Test	Various	JITC/CTSF : ATEC	1.100	0.516	Mar 2014	-		-		-		-	-	1.616	-
Subtotal			22.432	8.520		7.021		1.500		-		1.500	-	-	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	357.037	27.607	9.270	8.923	-	8.923	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 956 / <i>Distributed Common Ground System (MIP)</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Inc 1 Rel 1 - 2 Development	Inc 1 Rel 1 - 2 Development																											
Developmental Test/Operational Test/Log Demo Inc 1 Rel 2					DT/OT Inc 1 Rel 2																							
Fielding & Training Inc 1 Rel 1 IAW DARPL Rotations					F/T Inc 1 Rel 1																							
Fielding & Training Inc 1 Rel 2 IAW DARPL Rotations									F/T Inc 1 Rel 2																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 956 / <i>Distributed Common Ground System (MIP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Inc 1 Rel 1 - 2 Development	1	2012	4	2016
Developmental Test/Operational Test/Log Demo Inc 1 Rel 2	2	2014	4	2016
Fielding & Training Inc 1 Rel 1 IAW DARPL Rotations	3	2013	4	2015
Fielding & Training Inc 1 Rel 2 IAW DARPL Rotations	1	2016	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>				Project (Number/Name) D07 / <i>DCGS-A Common Modules (MIP)</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
D07: <i>DCGS-A Common Modules (MIP)</i>	-	-	10.885	16.669	-	16.669	25.777	26.218	30.498	31.064	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project D07 (Increment 2) was created to clearly delineate between the DCGS-A Project 956 (Increment 1) development efforts beginning in FY15.

A. Mission Description and Budget Item Justification

Distributed Common Ground System - Army (DCGS-A) is the Intelligence, Surveillance and Reconnaissance (ISR) System of Systems (SoS) for Joint, Interagency, Allied, Coalition, and National data analysis, sharing and collaboration. The core functions of DCGS-A are: the vertical and horizontal synchronization of ISR Processing, Exploitation and Dissemination (PED) efforts; operations in a networked environment at multiple security levels; the control of select Army and joint sensor systems; the fusion of all acquired data and information, and distribution of relevant red (threat), gray (non-aligned), and environmental (weather and terrain) information; and providing the Warfighters' early warning, targeting, and sensor ground station capabilities. DCGS-A provides a single integrated ISR ground processing system composed of common components that are interoperable with sensors, other information sources, all Warfighting Functions, compliant with standards providing the Defense Information & Intelligence Enterprise (DI2E) and Intelligence Community Information Technology Enterprise (ICITE). DCGS-A is fielded in Fixed, Mobile, and embedded configurations emphasizing the use of reach and split based operations by improving accessibility of data in order to reduce forward deployed footprint. As enhanced capabilities are developed and tested, a continuing series of software releases will be integrated into Army Common/commodity hardware and fielded to units IAW the Army Force Generation (ARFORGEN) process.

The Army Acquisition Executive designated PEO IEW&S and DCGS-A as the Command Post Computing Environment (CPCE) Lead. As such, DCGS-A is defining the architecture to fit within the Common Operating Environment (COE) as described by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) (ASA(ALT)) COE Implementation Plan. This is in accordance with the G-3/5/7 priority to align all Army networks, procurements, and enhancements under one COE and one vision leveraging intelligence community investments.

DCGS-A provides technologically advanced Processing, Exploitation, and Dissemination (PED) capabilities through iterative software releases delivered in tailored and scalable mobile, fixed, and embedded configurations in all maneuver and maneuver support units from Company Intelligence Support Team to Army Service Component Command, and in select maneuver sustainment units battalion and above. The program develops software packages to be embedded in mission command and other select systems to provide required ISR/analytic capabilities. DCGS-A is one of the Army's top ten modernization priorities.

FY16 Base funding in the amount of \$16.669 million will continue the iterative DCGS-A software releases that will increase the Processing, Exploitation, and Dissemination capability our Army requires. Increment 2 of the DCGS-A program will continue critical updates to the Army's ISR PED and multi-intelligence planning, analysis, and production capabilities through the exploitation of Cloud Computing and advanced analytics capabilities. This approach will achieve Information

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) D07 / <i>DCGS-A Common Modules (MIP)</i>
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Technology efficiencies through alignment with the Intelligence Community Information Technology Environment, while developing the incremental software updates required to remain current.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>Title: Design & Develop DCGS-A Inc 2 Software</p> <p>Description: Start efforts to design & develop DCGS-A Inc 2 software. Increment 2 expands on the capabilities provided by Increment 1 by adding capabilities at the Army and below echelons while developing new, enhanced, and leap-ahead Intelligence, Surveillance, and Reconnaissance (ISR) and Standard and Shareable Geospatial Foundation (SSGF) enterprise capabilities to align with the Intelligence Community (IC) and Army's Common Operating Environment (COE) and transformation objectives. Increment 2 will include capabilities from, and eventually displace, the Space Operations System (SOS) and the Guardrail Ground Baseline (GGB). Increment 2 and beyond will build upon emerging technologies such as an artificial intelligence system capability, cognitive computing, additional exploitation tools, and capabilities on the explosive growth in unstructured data (social networks and smart devices (both user borne and unattended)), fusion of data collected through Tactical Mesh Sensors and disconnected processing, giant leaps in "Cloud" capability, interoperability with the Army's Joint Tactical Ground Station (JTAGS), the Theater Net-centric Geolocation (TNG) system, and On The Move (OTM) capabilities. These requirements will be defined in future RDP and CD as necessary to ensure DCGS-A provides the data, information, intelligence, situation awareness, and interoperability needed to support the Warfighter.</p> <p>FY 2015 Plans: Continue to design & develop DCGS-A Inc 2 software.</p> <p>FY 2016 Base Plans: Continue to design & develop DCGS-A Inc 2 software.</p>	-	1.836	10.085	-	10.085
<p>Title: System reconfiguration/redesign</p> <p>Description: System Reconfiguration to enhance the systems to deliver higher performance to leverage industry enhancements in Cloud Technology and Solid State hardware.</p> <p>FY 2015 Plans: System Reconfiguration to enhance the systems to deliver higher performance to leverage industry enhancements in Cloud Technology and Solid State hardware.</p> <p>FY 2016 Base Plans:</p>	-	3.020	2.300	-	2.300

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) D07 / <i>DCGS-A Common Modules (MIP)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
System Reconfiguration to enhance the systems to deliver higher performance to leverage industry enhancements in Cloud Technology and Solid State hardware.					
<p>Title: Matrix Support Government Test & Integration Lab</p> <p>Description: Matrix Support Government Test & Integration Lab support for software integration to the target platforms.</p> <p>FY 2015 Plans: Matrix Support Government Test & Integration Lab support for software integration to the target platforms.</p> <p>FY 2016 Base Plans: Matrix Support Government Test & Integration Lab support for software integration to the target platforms.</p>	-	1.657	2.148	-	2.148
<p>Title: Project Management</p> <p>Description: Project Management support to manage the cost, schedule, and performance metrics for the program.</p> <p>FY 2015 Plans: Project Management support.</p> <p>FY 2016 Base Plans: Project Management support.</p>	-	1.054	1.136	-	1.136
<p>Title: Army and Joint Testing/Development/Operational Test Support</p> <p>Description: Development and Testing of Increment 2</p> <p>FY 2016 Base Plans: Will begin development and testing of Increment 2</p>	-	-	1.000	-	1.000
<p>Title: Milestone preparation; Activities; AoA</p> <p>Description: Milestone preparation; Activities; Analyze, define, and document the acquisition approach and achieve a successful Materiel Development Decision for the Increment 2 program.</p> <p>FY 2015 Plans:</p>	-	3.318	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) D07 / <i>DCGS-A Common Modules (MIP)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Analyze, define, and document the acquisition approach and achieve a successful Materiel Development Decision for the Increment 2 program.					
Accomplishments/Planned Programs Subtotals	-	10.885	16.669	-	16.669

C. Other Program Funding Summary (\$ in Millions)													
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost		
• 956: DCGS-A (MIP) 0305208A/956	27.607	9.270	8.923	-	8.923	-	-	-	-	-	Continuing	Continuing	
• BZ7316 - DCGS-A Procurement: BZ7316 - DCGS-A (MIP)	137.990	192.038	260.268	54.140	314.408	250.786	284.177	311.103	347.362	-	-	Continuing	Continuing
• Theater Net-Centric Geolocation TNG: Theater Net-Centric Geolocation (TNG) RDTE	0.050	0.350	0.166	-	0.166	0.166	0.410	0.606	-	-	-	1.748	

Remarks

D. Acquisition Strategy

The Distributed Common Ground System-Army (DCGS-A) program was created in response to the Department of Defense (DoD) Distributed Common Ground/Surface System (DCGS) Mission Area Initial Capabilities Document (MA ICD) dated 13 Aug 2004, which captured the overarching requirements for an Intelligence, Surveillance, and Reconnaissance (ISR) Family of Systems (FoS) that will contribute to Joint and combined Warfighter needs. That ICD was updated as the Distributed Common Ground/Surface System (DCG/SS) Enterprise ICD, and approved by the Joint Requirements Oversight Council (JROC) 27 Feb 2009. The Army requirements were refined in the DCGS-A Capabilities Development Document (CDD), and approved by the JROC 31 Oct 2005. The DCGS-A program is currently in the Production and Deployment phase and was designated as a Major Automated Information System (MAIS) in OSD (AT&L) Memorandum, 29 Mar 2010. The Information Systems Capability Development Document (ISCDD), currently in staffing, is an update to the 2005 CDD.

DCGS-A is following an evolutionary acquisition approach to develop and field system capabilities over time to satisfy the requirements of the DCGS-A Capability Development Document (CDD). Following this approach, the first increment was defined and a Capability Production Document (CPD) was created with full consideration of all of the preceding supporting documents and analysis. As part of its initial staffing, a Cost Benefit Analysis was completed in support of the DCGS-A CPD. This analysis projected a significant cost avoidance/savings over the life cycle by not limiting the hardware configuration to a one size fits all unit types design but rather integrating the DCGS-A Software capabilities into common servers and other IT components fielded at that echelon. This approach was validated during the Milestone C and Full Deployment Decision process in FY2012 through the Office of the Secretary of Defense (OSD) Cost Assessment and Program Evaluation (CAPE) approval of the Economic Analysis. This Economic Analysis validated the cost savings achieved utilizing the acquisition approach outlined above.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) D07 / <i>DCGS-A Common Modules (MIP)</i>

The DCGS-A Increment 2 Acquisition Strategy will be a competitive contract award for managing the development, integration, documentation, and test for the Increment 2 Releases. Anticipate RFP release in 1QFY16 and contract award in 3QFY16.

PM DCGS-A has been designated as the Command Post Computing Environment (CPCE) Lead for PEO IEW&S. As such, DCGS-A is currently aligning its architecture to fit within the Common Operating Environment (COE) as described by the ASA(ALT) COE Implementation Plan. This alignment is in accordance with the G-3/5/7 priority to align all Army networks, procurements, and enhancements under one COE and one vision. Our acquisition strategy supports this initiative as we continue to collapse PORs and reduce footprint following our capability migration path and iterative development of software releases which continue to increase capabilities to satisfy the remaining CPD requirements beyond Initial Minimal Capability. As DCGS-A continues the path through Increment 2, each release will focus on the COE and continually align the Command Post activities with the DCGS-A platforms. The program office expects to award a competitive contract for software development and hardware integration.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) D07 / <i>DCGS-A Common Modules (MIP)</i>
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Project Management	C/TBD	Various : Various	0.000	-		1.054		1.136	Jan 2016	-		1.136	-	2.190	-
Milestone preparation; Activities; Trade Space Analysis (TSA)	C/TBD	Various : Various	0.000	-		3.318		-		-		-	-	3.318	-
Subtotal			0.000	-		4.372		1.136		-		1.136	-	5.508	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Design & Develop DCGS-A Inc 2 software	C/TBD	Various : Various	0.000	-		1.836	May 2015	10.085	May 2016	-		10.085	Continuing	Continuing	Continuing
System reconfiguration/redesign	C/TBD	Various : Various	0.000	-		3.020		2.300	May 2016	-		2.300	-	5.320	-
Subtotal			0.000	-		4.856		12.385		-		12.385	-	-	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Support	C/TBD	Various : Various	0.000	-		1.657		2.148	Dec 2015	-		2.148	-	3.805	-
Subtotal			0.000	-		1.657		2.148		-		2.148	-	3.805	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Government Test & Integration Lab	C/TBD	Various : Various	0.000	-		-		1.000	Jan 2016	-		1.000	-	1.000	-
Subtotal			0.000	-		-		1.000		-		1.000	-	1.000	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army								Date: February 2015					
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>				Project (Number/Name) D07 / <i>DCGS-A Common Modules (MIP)</i>					
	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		10.885		16.669		-		16.669	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) D07 / <i>DCGS-A Common Modules (MIP)</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Acquisition Requirements Package Dev, Source Selection, & Risk Redu					Acq Req, SS, & RR Inc 2																							
Development and Test Inc 2 Rel 1 Software													Dev and Test Inc 2 Rel 1 S/W															
Development and Test Inc 2 Rel 2 Software																	Dev and Test Inc 2 Rel 2 S/W											
Operational Test Inc 2 Rel 1																					■ OT Inc 2 Rel 1							
(1) Increment 2 MDD									▲ MDD Inc 2																			
(2) RFP Release Increment 2													▲ RFP Rel															
(3) Development Contract Award Increment 2													▲ Contract Award Inc 2															
(4) Milestone B													▲ MS B															
Fielding Inc 2																					Inc 2 Fielding							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305208A / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) D07 / <i>DCGS-A Common Modules (MIP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Requirements Package Dev, Source Selection, & Risk Reduction Inc 2	2	2015	3	2016
Development and Test Inc 2 Rel 1 Software	3	2016	4	2018
Development and Test Inc 2 Rel 2 Software	2	2018	4	2020
Operational Test Inc 2 Rel 1	2	2019	2	2019
Increment 2 MDD	2	2015	2	2015
RFP Release Increment 2	1	2016	1	2016
Development Contract Award Increment 2	3	2016	3	2016
Milestone B	3	2016	3	2016
Fielding Inc 2	1	2019	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305219A / MQ-1 Gray Eagle UAV							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	13.074	46.472	-	-	-	-	-	-	-	-	59.546
MQ1: MQ-1 Gray Eagle - Army UAV (MIP)	-	13.074	46.472	-	-	-	-	-	-	-	-	59.546

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 RDT&E budget is driven primarily by the requirement for a Follow-On Operational Test & Evaluation (FOT&E). This test effort will evaluate the changes in the concept of operation as well as changes to materiel, specifically the addition of the Universal Ground Control Station (UGCS), which replaces the currently fielded One System Ground Control Station (OSGCS). It will be conducted during 3QFY15. The scope of FOT&E is similar to that of the Initial Operational Test & Evaluation (IOT&E) performed in FY12 in that both tests will use a Gray Eagle Company staged out at Edwards Air Force Base (EAFB) to support a rotational training unit "in the box" at National Training Center (NTC). FOT&E scope is expanded beyond the IOT&E in that a platoon will break away from the parent Company and move to Goldstone Army Airfield on Fort Irwin, where it will also support the unit training at the NTC.

The Ground Based Sense and Avoid (GBSAA) system provides an alternative means of complying with Federal Aviation Administration "see and avoid" regulations for Unmanned Aircraft Systems.

Justification: No program funding in FY2016.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	10.895	46.472	-	-	-
Current President's Budget	13.074	46.472	-	-	-
Total Adjustments	2.179	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.179	-			
• SBIR/STTR Transfer	-	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

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)
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MQ1: MQ-1 Gray Eagle - Army UAV (MIP)	-	13.074	46.472	-	-	-	-	-	-	-	-	59.546
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Integration of the Universal Ground Products into the Gray Eagle System requires completion of a Follow-On Operational Test and Evaluation (FOT&E). FY2015 funds increase is required to accommodate the FOT&E move to FY2015.

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 RDT&E budget is driven primarily by the requirement for a Follow-On Operational Test & Evaluation (FOT&E). This test effort will evaluate the changes in the concept of operation as well as changes to materiel, specifically the addition of the Universal Ground Control Station (UGCS), which replaces the currently fielded One System Ground Control Station (OSGCS). It will be conducted during 3QFY15. The scope of FOT&E is similar to that of the Initial Operational Test & Evaluation (IOT&E) performed in FY12 in that both tests will use a Gray Eagle Company staged out at Edwards Air Force Base (EAFB) to support a rotational training unit "in the box" at National Training Center (NTC). FOT&E scope is expanded beyond the IOT&E in that a platoon will break away from the parent Company and move to Goldstone Army Airfield on Fort Irwin, where it will also support the unit training at the NTC.

The Ground Based Sense and Avoid (GBSAA) system provides an alternative means of complying with Federal Aviation Administration "see and avoid" regulations for Unmanned Aircraft Systems.

Justification: No program funding in FY2016.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Gray Eagle Software / Hardware Development	2.735	18.965	-	-	-
Description: Gray Eagle Software / Hardware Development					
FY 2014 Accomplishments: Complete development of 4.3.X software.					
FY 2015 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Complete development of 4.3.X software.					
Title: Government Test Support Description: Government test support including support of developmental test, Electromagnetic Environmental Effects (E3) testing on the UGCS, Joint Interoperability Test Center efforts, Link 16 testing, and FOT&E test planning, site preparation, and complete FOT&E. FY 2014 Accomplishments: Continue Government test support including support of developmental test and FOT&E test planning and site preparation. FY 2015 Plans: Complete developmental test to include Captive Carry, Transport/Mobility. Conduct and complete FOT&E.	7.236	21.858	-	-	-
Title: Ground Base Sense and Avoid (GBSAA) Description: Ground Base Sense and Avoid (GBSAA) FY 2014 Accomplishments: Ground Base Sense and Avoid (GBSAA) FY 2015 Plans: Ground Base Sense and Avoid (GBSAA); Development of the GBSAA software, integration, and perform testing.	3.103	5.649	-	-	-
Accomplishments/Planned Programs Subtotals	13.074	46.472	-	-	-

C. Other Program Funding Summary (\$ in Millions)										
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete
• MQ-1 UAV / APA (A00005):	500.547	238.081	260.436	16.537	276.973	55.886	10.890	-	-	Continuing
<i>MQ-1 UAV / APA (A00005) -Base</i>										
• MQ-1 UAV / APA (A00020)	-	-	-	-	-	-	84.189	108.719	46.566	Continuing
GE MODs: MQ-1 UAV /										
APA (A00020) GE MODs										Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army Date: February 2015

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
2040 / 7	PE 0305219A / MQ-1 Gray Eagle UAV	MQ1 / MQ-1 Gray Eagle - Army UAV (MIP)

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 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) was approved 14 Mar 2009. To meet the required capability, evolutionary acquisition has been employed to implement the incremental approach outlined in the CPD. Gray Eagle completed IOT&E and the program now has to complete software development, integration and testing of the universal products (UGCS, UGDT and other universal ground equipment). PM JAMS is developing the R model of the HELLFIRE missile and participating in the integration and test activities for the entire Gray Eagle system. PEO Missile and Space is budgeting for the procurement of missiles for the fielded systems. PEO Intelligence and Electronic Warfare Systems (IEWES) develops, manages, and is responsible for meeting all Gray Eagle costs associated for payloads, payload integration, and payload sustainment.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

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)
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Management	MIPR	PM UAS : Redstone Arsenal, AL	9.066	-		-		-		-		-	-	9.066	-
Subtotal			9.066	-		-		-		-		-	-	9.066	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Development Engineering	C/CPIF	General Atomics / ASI : San Diego, CA	162.335	2.735		-		-		-		-	-	165.070	-
Prototype Manufacturing	Various	General Atomics / ASI : San Diego, CA	213.776	-		-		-		-		-	-	213.776	-
Ground Support Equipment	C/CPIF	Various : Various	9.075	-		-		-		-		-	-	9.075	-
Ground Base Sense & Avoid (GBSAA)	SS/CPFF	Various : Various	7.693	3.103	Aug 2014	5.649	Jan 2016	-		-		-	-	16.445	-
Software / Hardware Development	SS/CPIF	General Atomics : San Diego, CA	76.214	-		18.965	Feb 2015	-		-		-	-	95.179	-
Subtotal			469.093	5.838		24.614		-		-		-	-	499.545	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Contractor Engineering Support	MIPR	Ft. Huachuca : Ft. Huachuca	24.501	-		-		-		-		-	-	24.501	-
Training and Training Equipment	MIPR	Ft. Huachuca : Ft. Huachuca	43.892	-		-		-		-		-	-	43.892	-
Government Engineering Support	C/FFP	Various : Various	18.859	-		-		-		-		-	-	18.859	-
Subtotal			87.252	-		-		-		-		-	-	87.252	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

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)
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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 Software / Hardware Development	ES / HD Development																											
Developmental Testing and Software Testing	DT/ST																											
(1) Operational Test Readiness Review I					1 OTRR1																							
(2) Operational Test Readiness Review II									2 OTRR2																			
(3) Collective Training									3 CT																			
(4) Pilot Test									4 PT																			
(5) Operational Test Readiness Review III									5 OTRR3																			
(6) Follow-on Operational Test and Evaluation									6 FOT&E																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army **Date:** February 2015

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)
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Engineering Software / Hardware Development	1	2013	1	2014
Developmental Testing and Software Testing	1	2014	1	2016
Operational Test Readiness Review I	1	2015	1	2015
Operational Test Readiness Review II	3	2015	3	2015
Collective Training	3	2015	3	2015
Pilot Test	3	2015	3	2015
Operational Test Readiness Review III	3	2015	3	2015
Follow-on Operational Test and Evaluation	3	2015	3	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0305232A / RQ-11 UAV
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	5.984	-	-	-	-	-	-	-	-	-	5.984
RA7: RQ-11 Raven (MIP)	-	5.984	-	-	-	-	-	-	-	-	-	5.984

A. Mission Description and Budget Item Justification

The Small Unmanned Aircraft System (SUAS) provides the battalion and below ground maneuver elements critical situational awareness and enhance force protection. The system provides the small unit commander an organic and responsive tactical Reconnaissance, Surveillance, and Target Acquisition capability through the ability to view real-time Full Motion Video and sensor data via the system ground control stations. Other compatible receivers, such as the One System Remote Video Terminal and appropriately equipped manned platforms may also receive the SUAS products.

A SUAS includes three hand-launched aircraft that do not require an improved launch/recovery location. In addition to the aircraft, the system contains ground control equipment, which includes an interoperable hand controller. The equipment is fully transportable in or on rucksack type packs that are organic to the unit.

The SUAS RDT&E budget line included funding for development of the Tactical Open Government Architecture (TOGA) hand controller. The September 2014 submission of \$2,320k was increased by a below threshold reprogramming of \$464k and an above threshold reprogramming of \$3,200k for a total of \$5,984k. TOGA enhancements will mitigate capability gaps by creating compatibility with current and future SUAS platforms and integration into tactical networks as required. These enhancements will decrease weight (tablet technology for an efficient form factor), efficient graphical interface, decrease cognitive load and support Windows 7 migration to meet Warfighter needs.

Justification: No program funding in FY2016.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	2.320	-	-	-	-
Current President's Budget	5.984	-	-	-	-
Total Adjustments	3.664	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	3.664	-			
• SBIR/STTR Transfer	-	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0305232A / RQ-11 UAV				Project (Number/Name) RA7 / RQ-11 Raven (MIP)			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
RA7: RQ-11 Raven (MIP)	-	5.984	-	-	-	-	-	-	-	-	-	5.984
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Unmanned Aircraft System (SUAS) provides the battalion and below ground maneuver elements critical situational awareness and enhance force protection. The system provides the small unit commander an organic and responsive tactical Reconnaissance, Surveillance, and Target Acquisition capability through the ability to view real-time Full Motion Video and sensor data via the system ground control stations. Other compatible receivers, such as the One System Remote Video Terminal and appropriately equipped manned platforms may also receive the SUAS products.

A SUAS includes three hand-launched aircraft that do not require an improved launch/recovery location. In addition to the aircraft, the system contains ground control equipment, which includes an interoperable hand controller. The equipment is fully transportable in or on rucksack type packs that are organic to the unit.

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Justification: No program funding in FY2016.

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

	FY 2014	FY 2015	FY 2016
Title: Base: Program Management Support Description: Program Management Support FY 2014 Accomplishments: Program Management Support	0.119	-	-
Title: Base: Product Improvement Studies and Development Description: Base: Product Improvement Studies and Development FY 2014 Accomplishments: Base: Product Improvement Studies and Development	5.099	-	-
Title: System Test and Evaluation	0.766	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305232A / RQ-11 UAV	Project (Number/Name) RA7 / RQ-11 Raven (MIP)
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Description: System Test and Evaluation			
FY 2014 Accomplishments: System Test and Evaluation			
Accomplishments/Planned Programs Subtotals	5.984	-	-

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RQ-11 (RAVEN) - A00010: RQ-11 (RAVEN) - A00010	10.372	3.964	-	-	-	-	-	-	-	0.015	14.351

Remarks

D. Acquisition Strategy
 SUAS Product Office executed a single award best value IDIQ contract utilizing full and open competition. This contract provides affordable access for a fully staffed Technical, Management, Training, and Logistics organization, over a five-year period of performance (three year base period and two, single year options). The Government will make contract award based upon competitive source selection criteria.

E. Performance Metrics
 N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305232A / RQ-11 UAV	Project (Number/Name) RA7 / RQ-11 Raven (MIP)
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Program Management Personnel	RO	PM UAS : PM UAS	0.990	0.119	Mar 2014	-		-		-		-	-	1.109	-
Subtotal			0.990	0.119		-		-		-		-	-	1.109	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Product Improvements Studies and Development	C/IDIQ	AMRDEC, Redstone Arsenal, AL : AMRDEC, Redstone Arsenal, AL	5.733	3.164	Jun 2014	-		-		-		-	-	8.897	-
Product Improvement Studies and Development	C/IDIQ	TBD : TBD	0.000	1.935	Dec 2014	-		-		-		-	-	1.935	-
Subtotal			5.733	5.099		-		-		-		-	-	10.832	-

Remarks

FY2014 funds will support the Competitive IDIQ Engineering Services Contract. Contractor, to be determined.

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Other Government Agencies	MIPR	Various : Various	0.000	-		-		-		-		-	-	-	-
Subtotal			0.000	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 and Evaluation 1	MIPR	Various : Various	0.475	0.466	Oct 2014	-		-		-		-	-	0.941	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305232A / RQ-11 UAV	Project (Number/Name) RA7 / RQ-11 Raven (MIP)
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Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 and Evaluation 2	MIPR	Varies : Varies	0.000	0.300	May 2015	-		-		-		-	-	0.300	-
Subtotal			0.475	0.766		-		-		-		-	-	1.241	-
Project Cost Totals			7.198	5.984		-		-		-		-	-	13.182	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305232A / RQ-11 UAV	Project (Number/Name) RA7 / RQ-11 Raven (MIP)
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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) TOGA Development	 TOGA																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305232A / RQ-11 UAV	Project (Number/Name) RA7 / RQ-11 Raven (MIP)
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
TOGA Development	2	2014	4	2014

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0305233A / RQ-7 UAV
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	12.025	16.389	7.297	-	7.297	7.928	10.381	10.027	10.340	Continuing	Continuing
RQ7: RQ-7 Shadow UAV	-	12.025	16.389	7.297	-	7.297	7.928	10.381	10.027	10.340	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Tactical Unmanned Aerial System (TUAS) RQ-7 provides the Army Brigade Commander with dedicated Reconnaissance, Surveillance and Target Acquisition (RSTA), Intelligence, Battle Damage Assessment (BDA), and Force Protection. In line with the Army's Aviation Restructure Initiative (ARI) three Shadow Platoons are being integrated into the Combat Aviation Brigade's (CAB) Apache Reconnaissance Battalion. This will provide Aviation Brigades with Manned-Unmanned-Teaming (MUM-T) and enhanced Aerial Scout capabilities. The RQ-7B Shadow has logged over 924,000 flight hours, most of which were flown in support of Overseas Contingency Operations (OCO).

The full Shadow system consists of four air vehicles with payload, two Universal Ground Control stations, two Universal Ground Data Terminals, one Portable Ground Control Station with Portable Ground Data Terminal, Ground Support Equipment, two launchers, ten High Mobility Multipurpose Wheeled Vehicles (HMMWVs) with trailer(s), and a Light Medium Tactical Vehicle. Each system is equipped with one maintenance Section Multifunctional (MSM) and is supported at the division level by a Mobile Maintenance Facility (MMF). The baseline fielded payload was the electro-optic infrared (EO/IR), but half of those were replaced with a Laser Designator (LD) payload. All 104 systems required by the Army Acquisition Objective (AAO) have been procured. In 2010 the Army G8 established an RQ-7B UAV MODs program. This budget line procures modifications including the Shadow v2, System Modifications, Mission Simulators, and One System Remote Video Terminal Upgrades (OSRVVT).

Implements Shadow v2: Tactical Common Data Link with Type 1 Encryption and NATO interoperability; solves obsolescence associated with legacy computer hardware and the SOLARIS operating system. Government Furnished Equipment (GFE) and spares are also included.

Justification: FY2016 RQ-7 UAV Base funding of \$7.297 million will be used for capability and reliability improvements, specifically: Air Vehicle modifications (development of the ability to operate in GPS denied environment) and Ground Equipment (interoperability) improvements. Additionally, funds will be for system engineering and system test and evaluation support. Funds will also be used to incorporate developmental improvements into Increment II OSRVVT to maintain its interoperability with future supported systems & developments.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305233A / RQ-7 UAV
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	12.025	16.389	7.454	-	7.454
Current President's Budget	12.025	16.389	7.297	-	7.297
Total Adjustments	-	-	-0.157	-	-0.157
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-	-	-0.157	-	-0.157

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0305233A / RQ-7 UAV				Project (Number/Name) RQ7 / RQ-7 Shadow UAV			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
RQ7: RQ-7 Shadow UAV	-	12.025	16.389	7.297	-	7.297	7.928	10.381	10.027	10.340	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Tactical Unmanned Aerial System (TUAS) RQ-7 provides the Army Brigade Commander with dedicated Reconnaissance, Surveillance and Target Acquisition (RSTA), Intelligence, Battle Damage Assessment (BDA), and Force Protection. In line with the Army's Aviation Restructure Initiative (ARI) three Shadow Platoons are being integrated into the Combat Aviation Brigade's (CAB) Apache Reconnaissance Battalion. This will provide Aviation Brigades with Manned-Unmanned-Teaming (MUM-T) and enhanced Aerial Scout capabilities. The RQ-7B Shadow has logged over 924,000 flight hours, most of which were flown in support of Overseas Contingency Operations (OCO).

The full Shadow system consists of four air vehicles with payload, two Universal Ground Control stations, two Universal Ground Data Terminals, one Portable Ground Control Station with Portable Ground Data Terminal, Ground Support Equipment, two launchers, ten High Mobility Multipurpose Wheeled Vehicles (HMMWVs) with trailer(s), and a Light Medium Tactical Vehicle. Each system is equipped with one maintenance Section Multifunctional (MSM) and is supported at the division level by a Mobile Maintenance Facility (MMF). The baseline fielded payload was the electro-optic infrared (EO/IR), but half of those were replaced with a Laser Designator (LD) payload. All 104 systems required by the Army Acquisition Objective (AAO) have been procured. In 2010 the Army G8 established an RQ-7B UAV MODs program. This budget line procures modifications including the Shadow v2, System Modifications, Mission Simulators, and One System Remote Video Terminal Upgrades (OSRVT).

Implements Shadow v2: Tactical Common Data Link with Type 1 Encryption and NATO interoperability; solves obsolescence associated with legacy computer hardware and the SOLARIS operating system. Government Furnished Equipment (GFE) and spares are also included.

Justification: FY2016 RQ-7 UAV Base funding of \$7.297 million will be used for capability and reliability improvements, specifically: Air Vehicle modifications (development of the ability to operate in GPS denied environment) and Ground Equipment (interoperability) improvements. Additionally, funds will be for system engineering and system test and evaluation support. Funds will also be used to incorporate developmental improvements into Increment II OSRVT to maintain its interoperability with future supported systems & developments.

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

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Air Vehicle Improvements	5.472	6.297	1.766	-	1.766
Description: Funding is provided for the following effort					
FY 2014 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305233A / RQ-7 UAV	Project (Number/Name) RQ7 / RQ-7 Shadow UAV
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
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Continued development of manned unmanned teaming (MUM-T), software blocking, and continuation of engine development to include reduced noise signature for engine.					
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<p>FY 2015 Plans: Continued development of manned unmanned teaming (MUM-T), software blocking, and planned completion of engine development.</p>					
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<p>FY 2016 Base Plans: Continued development of manned unmanned teaming (MUM-T), software blocking, and development of the ability to operate in GPS denied environment.</p>					
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<p>Title: Ground Equipment Improvements</p>	3.766	3.682	2.270	-	2.270
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<p>Description: Funding is provided for the following effort</p>					
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<p>FY 2014 Accomplishments: Continues to fund Ground Equipment Improvements. Continues development of interoperability capabilities through use of Universal Ground Data Terminals and Universal Ground Control Stations, and System Vulnerability</p>					
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<p>FY 2015 Plans: Continues to fund Ground Equipment Improvements. Continues development of interoperability capabilities through use of Universal Ground Data Terminals and Universal Ground Control Stations, Network Security and System Vulnerability</p>					
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<p>FY 2016 Base Plans: Continues to fund Ground Equipment Improvements. Continues development of interoperability capabilities through use of Universal Ground Data Terminals and Universal Ground Control Stations, Network Security and System Vulnerability</p>					
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<p>Title: Test and Evaluation</p>	0.655	1.711	0.508	-	0.508
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<p>Description: Funding is provided for the following effort</p>					
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<p>FY 2014 Accomplishments: Continues to fund Test and Evaluation</p>					
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<p>FY 2015 Plans:</p>					
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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305233A / RQ-7 UAV	Project (Number/Name) RQ7 / RQ-7 Shadow UAV
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continues to fund test and evaluation of Air Vehicle and Ground Equipment Improvements. FY 2016 Base Plans: Continues to fund test and evaluation of Air Vehicle and Ground Equipment Improvements.					
Title: System Engineering/Program Management Description: System Engineering/Program Management FY 2015 Plans: Continues to fund System Engineering/Program Management FY 2016 Base Plans: Continues to fund System Engineering/Program Management	-	2.566	0.795	-	0.795
Title: One System Remote Video Terminal (OSRVT) Description: Funding is provided for the following effort FY 2014 Accomplishments: Continues to fund One System Remote Video Terminal (OSRVT). Integrate Incremental II bi-directional functionality into the OSRVT. Develop Software Blocking and Interoperability improvements FY 2016 Base Plans: Continues to fund One System Remote Video Terminal (OSRVT). Integrate Incremental II bi-directional functionality into the OSRVT. Develop Software Blocking and Interoperability improvements	2.132	-	1.958	-	1.958
Title: One System Remote Video Terminal Test and Evaluation Description: One System Remote Video Terminal Test and Evaluation FY 2015 Plans: Complete developmental testing of Increment II capabilities and conduct Initial Operational Test and Evaluation (IOT&E)	-	2.133	-	-	-
Accomplishments/Planned Programs Subtotals	12.025	16.389	7.297	-	7.297

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305233A / RQ-7 UAV	Project (Number/Name) RQ7 / RQ-7 Shadow UAV
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RQ-7 UAV MODS (A00018): RQ-7 UAV MODS (A00018)	121.902	125.380	81.444	8.250	89.694	89.559	81.351	97.150	22.381	Continuing	Continuing

Remarks

D. Acquisition Strategy

A System Capability Demonstration (SCD) was conducted with four contractors. The results from the SCD in conjunction with proposal evaluations resulted in the competitive down select of a Best Value TUAS. A successful Milestone II ASARC was conducted 21 Dec 1999 and a Milestone III Decision 25 Sep 2002. The full rate production contract was awarded 27 Dec 2002 and in FY2009 the last of the authorized 104 systems was placed on contract. Continued development of the selected TUAV system will be accomplished through a series of modifications and retrofits such as Shadow v2, Communications Relay, Laser Designator, Block III engine, and reliability upgrades. Development/integration of these improved capabilities will be through individual efforts on a (mostly) sole source cost-plus fixed fee engineering services contract with the Shadow prime contractor. Development of the Block III engine is being accomplished through a competitive process.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305233A / RQ-7 UAV	Project (Number/Name) RQ7 / RQ-7 Shadow UAV
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Base: Program Management	RO	PM UAS : Redstone Arsenal, AL	2.718	-		0.570		0.214	Dec 2015	-		0.214	Continuing	Continuing	Continuing
Subtotal			2.718	-		0.570		0.214		-		0.214	-	-	-

Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
OIF Improvements / Block Upgrades / Capability Improvements	SS/CPFF	AAI Corporation : Hunt Valley, MD	3.105	-		-		-		-		-	-	3.105	-
System Engineering / Reliability Solutions	SS/CPFF	AAI Corporation : Hunt Valley, MD	2.025	-		-		-		-		-	-	2.025	-
Ground Equipment Improvements	SS/CPFF	AAI Corporation, MD : AAI Corporation, MD	9.452	3.766	Apr 2014	3.682	Jan 2015	2.270	Jan 2016	-		2.270	Continuing	Continuing	Continuing
Block III Engine Development	C/CPFF	LSF : Redstone Arsenal, AL	20.377	4.447	May 2014	5.901	May 2015	-		-		-	-	30.725	-
Other Air Vehicle Improvements	SS/CPFF	AAI Corporation, MD : AAI Corporation, MD	14.956	1.025	Apr 2014	0.396	May 2015	0.266	May 2016	-		0.266	Continuing	Continuing	Continuing
GPS Denied Development	SS/CPFF	AAI Corporation : Hunt Valley, MD	0.000	-		-		1.500	May 2016	-		1.500	-	1.500	-
One System Remote Video Terminal (OSRVT)	SS/CPFF	AAI Corporation, MD : AAI Corporation, MD	8.997	2.132	Jan 2015	-		1.958	Apr 2016	-		1.958	Continuing	Continuing	Continuing
Payload Improvements	SS/CPFF	Various : Various	2.750	-		-		-		-		-	-	2.750	-
Subtotal			61.662	11.370		9.979		5.994		-		5.994	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305233A / RQ-7 UAV	Project (Number/Name) RQ7 / RQ-7 Shadow UAV
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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Contractor Engineering Support	Various	Various : Various	0.562	-		1.331	Dec 2014	0.387	Dec 2015	-		0.387	Continuing	Continuing	Continuing
Base: Government Engineering and Logistic Support	SS/CPFF	Various : Various	0.281	-		0.665	Nov 2014	0.194	Nov 2015	-		0.194	Continuing	Continuing	Continuing
Subtotal			0.843	-		1.996		0.581		-		0.581	-	-	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
RQ-7 Developmental Testing of Product Development	Various	Various : Various	2.582	0.655	Mar 2014	1.611		0.408	Dec 2015	-		0.408	Continuing	Continuing	Continuing
RQ-7 Operational Testing of Product Developments	MIPR	Various : Various	0.200	-		0.100		0.100		-		0.100	Continuing	Continuing	Continuing
OSRVT Developmental Testing	MIPR	Various : Various	0.000	-		0.100		-		-		-	-	0.100	-
OSRVT - Operational Testing	MIPR	Various : Various	0.000	-		2.033		-		-		-	-	2.033	-
Subtotal			2.782	0.655		3.844		0.508		-		0.508	-	-	-

	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	68.005	12.025	16.389	7.297	-	7.297	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305233A / RQ-7 UAV	Project (Number/Name) RQ7 / RQ-7 Shadow UAV
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020							
	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) Block III Engine - Production Contract Award					Block III																											
Block III Fielding																	Block III Fielding															
Block III Engine Development													Block III ED																			
GPS Denied Development																	GPS Denied															
GPS Denied Fielding																									GPS Denied Fielding							
Interoperability Upgrades																									IU							
Software Block Upgrades																									SBU							
Reliability Improvements																													RI			
OSRVT Increment II Interoperability Improvements																													OSRVT			
(2) OSRVT IOT&E									OSRVT IOT&E																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305233A / RQ-7 UAV	Project (Number/Name) RQ7 / RQ-7 Shadow UAV
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Block III Engine - Production Contract Award	4	2015	4	2015
Block III Fielding	1	2017	4	2018
Block III Engine Development	1	2016	3	2016
GPS Denied Development	1	2017	4	2018
GPS Denied Fielding	1	2019	4	2019
Interoperability Upgrades	1	2015	4	2020
Software Block Upgrades	1	2015	4	2020
Reliability Improvements	1	2020	4	2020
OSRVT Increment II Interoperability Improvements	1	2013	4	2020
OSRVT IOT&E	3	2015	3	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development					PE 0307665A / Biometrics Enabled Intelligence							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	7.443	1.973	-	-	-	-	-	-	-	-	9.416
B17: BIOMETRICS ENABLED INTELLIGENCE - MIP	-	7.443	1.973	-	-	-	-	-	-	-	-	9.416

A. Mission Description and Budget Item Justification

Product Manager (PM) Joint Personnel Identification (JPI) supports the Biometric Enterprise database system which will deliver innovative and emergent biometric solutions to protect the nation through global identity superiority. PM JPI will provide an Army tactical biometric collection capability to capture an adversary or neutral person's biometric data and enroll them into the DoD enterprise authoritative biometric database to identify and verify the identity of actual or potential adversaries. U.S. forces are currently operating unilaterally or in combination with joint, multinational, and interagency partners, to identify unknown individuals and verify the identity of person(s) across the full range of military operations. Capabilities proposed for JPIv2 will be configurable for multiple operational mission environments enabling identity dominance on the battlefield and across the DoD spectrum. PM JPI will leverage lessons learned through the current Quick Reaction Capability (QRC).

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	12.443	1.974	-	-	-
Current President's Budget	7.443	1.973	-	-	-
Total Adjustments	-5.000	-0.001	-	-	-
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-5.000	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-	-	-	-	-
• Other Adjustments 1	-	-0.001	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0307665A / <i>Biometrics Enabled Intelligence</i>				Project (Number/Name) B17 / <i>BIOMETRICS ENABLED INTELLIGENCE - MIP</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
B17: <i>BIOMETRICS ENABLED INTELLIGENCE - MIP</i>	-	7.443	1.973	-	-	-	-	-	-	-	-	9.416
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not applicable for this item

A. Mission Description and Budget Item Justification

Product Manager (PM) Joint Personnel Identification (JPI) supports the Biometric Enterprise database system which will deliver innovative and emergent biometric solutions to protect the nation through global identity superiority. PM JPI will provide an Army tactical biometric collection capability to capture an adversary or neutral person's biometric data and enroll them into the DoD enterprise authoritative biometric database to identify and verify the identity of actual or potential adversaries. U.S. forces are currently operating unilaterally or in combination with joint, multinational, and interagency partners, to identify unknown individuals and verify the identity of person(s) across the full range of military operations. Capabilities proposed for JPIv2 will be configurable for multiple operational mission environments enabling identity dominance on the battlefield and across the DoD spectrum. PM JPI will leverage lessons learned through the current Quick Reaction Capability (QRC).

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

	FY 2014	FY 2015	FY 2016
Title: Joint Personnel Identification (JPI)v2	7.443	1.973	-
Description: JPI program development and management			
FY 2014 Accomplishments: Funding supported refinement of a COTS/NDI Acquisition Strategy, based on transition from a developmental acquisition approach to a COTS acquisition approach which began in FY13. Funding provided system engineering activities; technology assessment and development of the performance specification; continued market research and trade study analysis. Additionally, funding provided support for pre-MS B planning and acquisition activities. Activities included requirements to support RFI, draft and final RFP packages, NIE testing approach (Type I SUT). Also, contractor support provided Program, Acquisition, Engineering, Budgeting and Contracts planning preparation, and development. In addition, Product Manager contractor support continued preparing and developing Army and OSD level statutory and regulatory documentation consistent with DoD Instruction 5000.2, the Defense Acquisition System, and compliant with existing statutory and regulatory policy for a FY16 MS B decision. These requirements includes Systems Engineering Plan (SEP), Lifecycle Sustainment Plan (LCSP), Test and Evaluation Master Plan (TEMP), and cost analysis activities, including completion of the CARD, EA, and POE. Funding supported government civilian labor and operations to include travel, training, supplies, infrastructure, and facility costs.			
FY 2015 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0307665A / <i>Biometrics Enabled Intelligence</i>	Project (Number/Name) B17 / <i>BIOMETRICS ENABLED INTELLIGENCE - MIP</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
FY2015 funding supports 10 FTE Civilian Positions to accomplish program management activities to support the Army's tactical collection acquisition strategy. It provides programmatic oversight, engineering, cost estimating, resource and acquisition management. Funds also provide infrastructure, facility costs and communication requirements (desktop support & network connectivity).				
Accomplishments/Planned Programs Subtotals		7.443	1.973	-
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
Army refined the acquisition strategy for the JPIv2 program in FY14. The current program strategy has changed from an investment to a sustainment strategy for currently fielded Biometric Tactical Collection Devices which eliminated JPIv2 in FY16. The current FY15 base RDT&E dollars of \$1.974 million supports 10 Government FTEs which provide program management activities that will sustain the current biometric collection capability and complete termination actions of JPIv2.				
E. Performance Metrics				
N/A				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 7				PE 0307665A / Biometrics Enabled Intelligence				B17 / BIOMETRICS ENABLED INTELLIGENCE - MIP								
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
PM Management Services	Various	Various : Various	0.000	-		-		-		-		-	-	-	-	
Subtotal			0.000	-		-		-		-		-	-	-	-	
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Base Products Development	C/IDIQ	Various : TBD	0.000	6.826		-		-		-		-	-	6.826	-	
Subtotal			0.000	6.826		-		-		-		-	-	6.826	-	
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
PM Civilian Personnel and Other Support Costs	Various	Various : Various	0.000	-		1.973		-		-		-	-	1.973	-	
Subtotal			0.000	-		1.973		-		-		-	-	1.973	-	
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
IA, T&E, Threat Assessment, Interoperability Certifications	Various	Various : TBD	0.000	0.617		-		-		-		-	Continuing	Continuing	Continuing	
Subtotal			0.000	0.617		-		-		-		-	-	-	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army								Date: February 2015				
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0307665A / <i>Biometrics Enabled Intelligence</i>				Project (Number/Name) B17 / <i>BIOMETRICS ENABLED INTELLIGENCE - MIP</i>				
	Prior Years	FY 2014		FY 2015		FY 2016 Base	FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	7.443		1.973		-		-		-		-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0307665A / <i>Biometrics Enabled Intelligence</i>	Project (Number/Name) B17 / <i>BIOMETRICS ENABLED INTELLIGENCE - MIP</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Technical Assessment			TA																									
Operational Assessment							OA																					

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0307665A / <i>Biometrics Enabled Intelligence</i>	Project (Number/Name) B17 / <i>BIOMETRICS ENABLED INTELLIGENCE - MIP</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Technical Assessment	3	2014	3	2014
Operational Assessment	1	2015	1	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0300349A / <i>Win-T Increment 2 - Initial Networking</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	3.247	3.800	-	3.800	-	-	-	-	-	7.047
EE7: <i>WIN-T Increment 2 - Initial Networking</i>	-	-	3.247	3.800	-	3.800	-	-	-	-	-	7.047

A. Mission Description and Budget Item Justification

Warfighter Information Network (WIN-T) Increment (Inc) 2 provides the Army with On-The-Move (OTM) networking capability. The WIN-T Inc 2 network retains capabilities delivered by WIN-T Inc 1 and by leveraging proven government and commercial technologies, adds greater network throughput and automated Network Management to optimize planning (to include spectrum use), initialization, monitoring and troubleshooting. WIN-T Inc 2 employs Beyond Line of Sight (BLOS) Satellite Communications (SATCOM) OTM to extend the network in maneuver Brigade Combat Teams (BCTs) to Company level for the first time. Using equipment mounted on combat platforms, WIN-T Increment 2 delivers a mobile capability that reduces reliance on fixed infrastructure and allows key leaders to move on the battlefield while retaining Situational Awareness and Mission Command capabilities. Using the Highband Networking Radio (HNR), with the Highband Networking Waveform (HNW) and high performance antennas, the WIN-T Inc 2 Line-of-Sight (LoS) network offers an adaptive 30 Megabit per second (Mbps) aggregate throughput to key leaders in their Command Post or in their vehicle. The WIN-T Inc 2 network is self-forming, which means that it automatically creates transmission paths based on terrain and environmental conditions; and self-healing, meaning that the paths will automatically re-route traffic to complete network transactions and calls even if one or more nodes break down or loses connectivity. This offers greater network reliability and better end-to-end connectivity than traditional point-to-point networks. WIN-T Inc 2 introduces the network management capability needed to keep the mobile and dispersed forces networked together through automated planning, initialization, monitoring, and troubleshooting. Finally, WIN-T adopts "Colorless Core" technology that encrypts both classified and unclassified user information in the network and minimizes the number of users on the "core" of the network. The Colorless Core allows commanders to utilize the tactical network without fear of the enemy intercepting information. Colorless Core is a technical insertion in the WIN-T Inc 1b network which enables efficient information sharing between Inc 1b and Inc 2.

WIN-T Inc 3 mature Network Operations (NetOps) technologies will be inserted into WIN-T Increment 2 units.

FY16 funds support Operational Testing (NIE 16.2) and tech insertion of NetOps Build 5 and upgrade to NetCentric Waveform (NCW) 10.x.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0300349A / <i>Win-T Increment 2 - Initial Networking</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	3.249	18.209	-	18.209
Current President's Budget	-	3.247	3.800	-	3.800
Total Adjustments	-	-0.002	-14.409	-	-14.409
• Congressional General Reductions	-	-0.002			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-14.409	-	-14.409

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0300349A / Win-T Increment 2 - Initial Networking				Project (Number/Name) EE7 / WIN-T Increment 2 - Initial Networking			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EE7: WIN-T Increment 2 - Initial Networking	-	-	3.247	3.800	-	3.800	-	-	-	-	-	7.047
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Warfighter Information Network (WIN-T) Increment (Inc) 2 provides the Army with On-The-Move (OTM) networking capability. The WIN-T Inc 2 network retains capabilities delivered by WIN-T Inc 1 and by leveraging proven government and commercial technologies, adds greater network throughput and automated Network Management to optimize planning (to include spectrum use), initialization, monitoring and troubleshooting. WIN-T Inc 2 employs Beyond Line of Sight (BLOS) Satellite Communications (SATCOM) OTM to extend the network in maneuver Brigade Combat Teams (BCTs) to Company level for the first time. Using equipment mounted on combat platforms, WIN-T Inc 2 delivers a mobile capability that reduces reliance on fixed infrastructure and allows key leaders to move on the battlefield while retaining Situational Awareness and Mission Command capabilities. Using the Highband Networking Radio (HNR), with the Highband Networking Waveform (HNW) and high performance antennas, the WIN-T Inc 2 Line-of-Sight (LoS) network offers an adaptive 30 Megabit per second (Mbps) aggregate throughput to key leaders in their Command Post or in their vehicle. The WIN-T Inc 2 network is self-forming, which means that it automatically creates transmission paths based on terrain and environmental conditions; and self-healing, meaning that the paths will automatically re-route traffic to complete network transactions and calls even if one or more nodes break down or loses connectivity. This offers greater network reliability and better end-to-end connectivity than traditional point-to-point networks. WIN-T Inc 2 introduces the network management capability needed to keep the mobile and dispersed forces networked together through automated planning, initialization, monitoring, and troubleshooting. Finally, WIN-T adopts "Colorless Core" technology that encrypts both classified and unclassified user information in the network and minimizes the number of users on the "core" of the network. The Colorless Core allows commanders to utilize the tactical network without fear of the enemy intercepting information. Colorless Core is a technical insertion in the WIN-T Inc 1b network which enables efficient information sharing between Inc 1b and Inc 2.

WIN-T Inc 3 mature Network Operations (NetOps) technologies will be inserted into WIN-T Increment 2 units.

FY16 funds support Operational Testing (NIE 16.2) and tech insertion of NetOps Build 5 and upgrade to NetCentric Waveform (NCW) 10.x.

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

	FY 2014	FY 2015	FY 2016
Title: Product Development	-	0.208	1.127
Description: Product Development			
FY 2015 Plans: Development efforts for Technical Insertions.			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0300349A / Win-T Increment 2 - Initial Networking	Project (Number/Name) EE7 / WIN-T Increment 2 - Initial Networking

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Development efforts for Technical Insertions.			
Title: Test and Evaluation	-	3.039	2.673
Description: Test and Evaluation			
FY 2015 Plans: FY15 funding will be used for the second FOT&E activities, including test report required for Full Rate Production Defense Acquisition Board (DAB) and NIE 15.1 which will test Stryker Platform flat bottom variant.			
FY 2016 Plans: FY16 funds support Operational Testing (NIE 16.2) and tech insertion of NetOps Build 5 and upgrade to NetCentric Waveform (NCW) 10.x.			
Accomplishments/Planned Programs Subtotals	-	3.247	3.800

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• WIN-T Inc 2: WIN-T Inc 2 Procurement	364.438	361.709	504.463	-	504.463	523.513	617.337	627.618	630.365	Continuing	Continuing
• Inc 2 Spares: WIN-T Inc 2 Procurement Spares	21.629	26.100	39.532	-	39.532	22.178	49.562	50.799	124.989	-	334.789
• PE 0603782A/367 RDTE: Research, Development, Test and Evaluation (RDTE) PE 643782/367	1.064	-	-	-	-	-	-	-	-	-	1.064

Remarks

D. Acquisition Strategy

The Acquisition Decision Memorandum of September 27, 2013 authorized the procurement of 98 additional communications nodes for Low Rate Initial Production (LRIP), bringing the total LRIP quantity to 1,030 communications nodes. The Project Manager (PM) procured the authorized quantities on the current initial production contract (W15P7T-10-D-C007). This contract was awarded in 2010 as a three year contract with three option years. Lots 1, 2, 3, 4 (minus Soldier Network Extensions [SNE]) and Lot 5 training bases have been procured. Lot 4 SNEs and Lot 5 CIs will be awarded in May 2015, following a successful Full Rate Production Decision.

WIN-T Inc 2 provides the Army with On-The-Move (OTM) networking capability. Inc 3 NetOps will be technically inserted into Inc 2 and these inserts will be tested in subsequent Network Integration Evaluation 16.2 (NIE 16.2) events.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0300349A / <i>Win-T Increment 2 - Initial Networking</i>	Project (Number/Name) EE7 / <i>WIN-T Increment 2 - Initial Networking</i>

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0300349A / Win-T Increment 2 - Initial Networking	Project (Number/Name) EE7 / WIN-T Increment 2 - Initial Networking
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020							
	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				
LRIP Production	LRIP																															
Network Integrated Evaluation 14.1	NIE 14.1																															
Developmental Test 1	DT 1																															
(1) Delivery Order Award 1				DO (Lot 5)																												
Network Integrated Evaluation 14.2	NIE 14.2																															
Developmental Test 2	DT 2																															
Network Integrated Evaluation 15.1 (FOT&E) (Stryker)	NIE 15.1 FOT&E																															
M-Demo					M-Demo																											
(2) Army Material Release								Army MR																								
(3) Full Rate Production Decision Review												FRP DR																				
(4) Delivery Order Award 2																DO (Lot 6)																
Full Rate Production/Fielding									FRP/Fielding																							
(5) Follow-on Production Award & Del. Order Award 3																																

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0300349A / Win-T Increment 2 - Initial Networking	Project (Number/Name) EE7 / WIN-T Increment 2 - Initial Networking
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
NIE 16.2 NetOps/NCW					NIE 16.2 NetOps/NCW				■																			
(1) Delivery Order Award 4													DO (Lot 8) ▲															
(2) Delivery Order Award 5																	DO (Lot 9) ▲											
(3) Contract Award & Delivery Order Award 6																	Contract Award & DO (Lot 10) ▲											
(4) Delivery Order Award 7																					DO (Lot 11) ▲							

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0300349A / Win-T Increment 2 - Initial Networking	Project (Number/Name) EE7 / WIN-T Increment 2 - Initial Networking

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
LRIP Production	2	2010	3	2015
Network Integrated Evaluation 14.1	1	2014	1	2014
Developmental Test 1	2	2014	2	2014
Delivery Order Award 1	2	2014	2	2014
Network Integrated Evaluation 14.2	3	2014	3	2014
Developmental Test 2	3	2014	3	2014
Network Integrated Evaluation 15.1 (FOT&E) (Stryker)	1	2015	1	2015
M-Demo	2	2015	2	2015
Army Material Release	3	2015	3	2015
Full Rate Production Decision Review	3	2015	3	2015
Delivery Order Award 2	3	2015	3	2015
Full Rate Production/Fielding	3	2015	4	2020
Follow-on Production Award & Del. Order Award 3	1	2016	1	2016
NIE 16.2 NetOps/NCW	3	2016	3	2016
Delivery Order Award 4	1	2017	1	2017
Delivery Order Award 5	1	2018	1	2018
Contract Award & Delivery Order Award 6	1	2019	1	2019
Delivery Order Award 7	1	2020	1	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	54.392	76.187	48.442	-	48.442	63.327	61.491	59.660	62.274	Continuing	Continuing
E25: <i>Mfg Science & Tech</i>	-	54.392	76.187	48.442	-	48.442	63.327	61.491	59.660	62.274	Continuing	Continuing

Note

FY16 reduced to support higher priority efforts.

A. Mission Description and Budget Item Justification

This program element (PE) develops and demonstrates manufacturing processes that enable improvements in producibility and affordability of emerging and enabling components and subsystems of Army air, ground, Soldier, and command/control/communications systems. Initiatives within the PE result in cost savings and reduced risk of transitioning military-unique manufacturing processes into production. Project E25 fosters the transfer of new/improved manufacturing technologies to the industrial base, including manufacturing efforts that have potential for high payoff across the spectrum of Army systems.

Work in this PE is related to, and fully coordinated with, PE 0603710A (Night Vision Advanced Technology), PE 0602303A (Missile Technology), PE 0602105A (Materials Technology), PE 0602618A (Ballistics Technology), PE 0602601A (Combat Vehicle and Automotive Technology), and PE 0603005A (Combat Vehicle and Automotive Advanced Technology) and PE 0602705A (Electronics and Electronic Devices).

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering Science and Technology focus areas and the Army Modernization Strategy.

Work in this PE is performed by the Army Research, Development, and Engineering Command (RDECOM) and efforts are executed by the Army Research Laboratory (ARL) and appropriate Army Research, Development, and Engineering Centers (RDECs).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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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 0708045A / <i>End Item Industrial Preparedness Activities</i>
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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	56.106	76.225	56.824	-	56.824
Current President's Budget	54.392	76.187	48.442	-	48.442
Total Adjustments	-1.714	-0.038	-8.382	-	-8.382
• Congressional General Reductions	-	-0.038			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.714	-			
• Adjustments to Budget Years	-	-	-8.382	-	-8.382

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i>				Project (Number/Name) E25 / <i>Mfg Science & Tech</i>			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
E25: <i>Mfg Science & Tech</i>	-	54.392	76.187	48.442	-	48.442	63.327	61.491	59.660	62.274	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops and demonstrates manufacturing processes that enable improvements in producibility and affordability of emerging and enabling components and subsystems of Army air, ground, lethality, Soldier and command/control/communications/intelligence systems. Focus is on components and subsystems such as advanced armor, power and energy devices, rotors, sensors, displays, propellants and gun tubes. In addition, work is conducted to advance the state of the art in processing and fabrication techniques for coatings, multifunctional materials and structural elements for Army specific applications.

Work supports all Army S&T portfolios. Work in this PE is related to and fully coordinated with PE 0602105A (Materials Technology), PE 0602211A (Aviation Technology), PE 0602303A (Missile Technology), PE 0602601A (Combat Vehicle and Automotive Technology), PE 0602618A (Ballistics Technology), PE 0602705A (Electronics and Electronic Devices), PE 0603003 (Aviation Advanced Technology), PE 0603005A (Combat Vehicle and Automotive Advanced Technology) and PE 0603710A (Night Vision Advanced Technology).

The cited work is consistent with the Assistant Secretary of Defense for Research and Engineering S&T focus areas and the Army Modernization Strategy.

Work in this project is performed by the Army Research, Development and Engineering Command (RDECOM) and efforts are executed by the Army Research Laboratory (ARL) and appropriate Army Research, Development and Engineering Centers (RDECs).

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

	FY 2014	FY 2015	FY 2016
Title: Air Systems	3.100	2.000	5.446
Description: This effort funds manufacturing technology advances needed for more affordable manned and unmanned aircraft components and subsystems. Work focuses on addressing challenges in areas such as engine performance and life, rotor and blade durability, reliable component integration/attachment, structural durability at low weight, and reduced corrosion.			
FY 2014 Accomplishments: Developed machining, finishing and assembly processes for propulsion system components; demonstrated and transitioned an automated production system for applying nanocrystalline diamond and amorphous carbon coatings to Army aviation systems; developed manufacturing techniques and tooling for ballistically tolerant fuel bladders, taking advantage of advanced modeling and simulation techniques, light-weight/high performance materials and flexible tooling concepts.			
FY 2015 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i>	Project (Number/Name) E25 / <i>Mfg Science & Tech</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Continue development of manufacturing techniques and tooling for ballistically tolerant fuel bladders; developing direct digital manufacturing for use in aviation propulsion and power generation gas turbine engines allowing for enhanced component designs optimized for performance and weight savings.</p> <p>FY 2016 Plans: Will continue development of direct digital manufacturing for use in aviation propulsion and power generation gas turbine engines allowing for enhanced component designs optimized for performance and weight savings; will develop AH-64 composite sump manufacturing improvements; will complete the development and demonstration of manufacturing techniques and tooling for ballistically tolerant fuel bladders.</p>			
<p>Title: Ground Maneuver</p> <p>Description: This effort funds manufacturing technology advances needed for more affordable components and subsystems for tactical and combat vehicles and weapons systems. Work focuses on addressing challenges in areas such as advanced armor, gun barrel life, insensitive propellants, precision munitions and vehicle power devices.</p> <p>FY 2014 Accomplishments: Transitioned processes for developing and using Digital Work Instruction to select depots to support production operations; demonstrated the use of MIL-STD-31000 for weapon system production data management; demonstrated successful application of Ta-10W liners for medium and small-caliber barrels through live-fire demonstrations and evaluation of liner wear, transitioned the Ta-10W liner application process to Watervliet Arsenal for implementation (This effort contained in the Lethality Portfolio starting in FY15); demonstrated increased yield and reduced missile antenna manufacturing cost through limited production runs and delivered process and technical data to the Cruise Missile Defense Systems Program Office for implementation on future missile systems; demonstrated safer and more cost effective processes for loading explosives in the 120mm Advanced Multi-Purpose munition through limited production runs and transitioned robust processes for the use of nano-particle field assisted sintering technologies (FAST) to reduce variability and improve fragmentation and performance of warhead liners for the EAPS system program; scaled up manufacturing of low-cost alumina-based ceramic tiles, improved 3D weaving technologies to integrate ceramic tiles of varying thicknesses and demonstrated production of large, single-piece underbody armor solutions to meet objective threat level ballistic requirements; demonstrated manufacturing process maturity for each technology through limited production runs; demonstrated selected high volume, cost effective, manufacturing processes for micro-electro-mechanical systems (MEMS) scale components to allow automated inspection and assembly for safety-and-arm systems (This effort contained in the Lethality Portfolio starting in FY15); developed an automated assembly process resulting in increased throughput and reduced cost of fuel cells for ground vehicle and soldier-born applications; develop gear machining and finishing processes and optimized assembly processes to increase throughput and yield while decreasing the cost for power-take-off systems; developed batch manufacturing of granular IMX-104 to demonstrate scaled-up manufacturing process that reduces</p>	25.910	39.734	15.238

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i>	Project (Number/Name) E25 / <i>Mfg Science & Tech</i>

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

	FY 2014	FY 2015	FY 2016
<p>production costs and increases throughput and yield of IMX-104; developed mature Wide-Band Gallium Nitride MMIC (Monolithic Microwave Integrated Circuit) manufacturing process in the application of weapon system arrays.</p> <p>FY 2015 Plans: Developing a limited manufacturing capability in addressing solutions to make magnesium more affordable for lightweight weapon components; identifying and starting development of an economical mass production process for 7.62mm Advanced Armor Piercing (ADVAP) tungsten carbide penetrators with complex geometry systems; developing processing parameters for loading new ALIMX-101 reduced-sensitivity melt-pour and auxiliary charge explosive systems; developing a manufacturing process for producing low cost infrared signature management solutions; continue development of gear machining and finishing processes and optimized assembly processes to increase throughput and yield while decreasing the cost for power-take-off systems; develop equipment for automated assembly of ceramic tile-based armors, mature automated material consolidation techniques for vehicle armor solutions; demonstrate automated assembly process resulting in improved quality control, reduced assembly times and re-work issues, increased throughput and reduced cost of fuel cells for ground vehicle and soldier-born applications; demonstrate low-cost, mature manufacturing processes by conducting limited production runs and prototype builds of advanced armor systems using low-cost ceramics, cast and forged steel and aluminum alloys and hybridized 3D woven composites; demonstrate machining and post-processing techniques to drastically improve the yield and decrease the cost of tungsten-based penetrators; demonstrate batch manufacturing of granular IMX-104 to demonstrate scaled-up manufacturing process that reduces production costs and increases throughput and yield of IMX-104; develop the ability to rapidly and cost-effectively repair high-cost machined items; develop novel methods of producing and inspecting advanced armor system components for next generation ground vehicle applications; develop novel packaging and processing techniques to enable weight and cost reductions in ground-based systems; continue development of mature Wide-Band Gallium Nitride MMIC (Monolithic Microwave Integrated Circuit) manufacturing process in the application of weapon system arrays.</p> <p>FY 2016 Plans: Will continue development of a manufacturing capability in addressing solutions to make magnesium more affordable for lightweight weapon components; will develop an economical mass production process for 7.62mm Advanced Armor Piercing (ADVAP) tungsten carbide penetrators with complex geometry systems; will continue development of processing parameters for loading new ALIMX-101 reduced-sensitivity melt-pour and auxiliary charge explosive systems; will continue development of a manufacturing process for producing low cost infrared signature management solutions; will initiate development of a scaled up process to produce high energy density 5 volt lithium-ion batteries; will initiate development of a manufacturing pilot line capability for adaptive armor modules; will continue development and demonstration of gear machining and finishing processes and optimized assembly processes to increase throughput and yield while decreasing the cost for power-take-off systems; will develop equipment for automated assembly of ceramic tile-based armors, will mature automated material consolidation techniques for vehicle armor solutions; will demonstrate automated assembly process resulting in increased throughput and reduced cost of fuel cells for ground vehicle and soldier-born applications; will demonstrate machining and post-processing</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i>	Project (Number/Name) E25 / <i>Mfg Science & Tech</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
techniques to improve the yield and decrease the cost of tungsten-based warhead penetrators; will demonstrate mature Wide-Band Gallium Nitride MMIC (Monolithic Microwave Integrated Circuit) manufacturing process in the application of weapon system arrays.			
<p>Title: Lethality (Formerly Precision Munitions and Armament Systems)</p> <p>Description: The Lethality Systems focus area consists of Advanced Weapon Systems, Fire Control, Logistics, Emerging Technologies and Advanced Energetics and Warheads.</p> <p>FY 2015 Plans: Validates the manufacturing process to reduce the cost and time associated with applying Ta-10W liners for medium and small caliber chromium-free gun barrels (This effort contained in the Ground Systems portfolio in FY14); continue the demonstration of selected high volume, cost effective, manufacturing processes for micro-electro-mechanical systems (MEMS) scale components (This effort contained in the Ground Systems portfolio in FY14).</p> <p>FY 2016 Plans: Will develop affordable manufacturing solutions for complex missile seeker components that will shape the missile industry towards cost effective all weather seekers; will develop lower cost material fabrication processes and superior material performance as insulation for rocket nozzles; will demonstrate selected high volume, cost effective, manufacturing processes for micro-electro-mechanical systems (MEMS) scale safe-and-arms components.</p>	-	5.387	1.250
<p>Title: Command, Control, Communications and Intelligence Systems</p> <p>Description: This effort funds manufacturing technology advances needed for more affordable components and subsystems for intelligence, surveillance, reconnaissance and targeting systems, mission command systems, electronic warfare and improved Explosive Device detect/defeat systems. Work focuses on addressing challenges in areas such as large format multi-color focal plane arrays, flexible displays, night vision sensors, target detectors, advanced antennas and sensors.</p> <p>FY 2014 Accomplishments: Demonstrated improved yield and reliability for low light level sensor over multiple production runs; demonstrated manufacturing of large sized high-operating temperature FPAs, increased growth, processing and hybridization yields and delivered 640x480 FPAs for system integration; developed manufacturing processes for reducing the cost and improving performance and reliability of short wave infrared sensors; developed manufacturing processes for reducing the cost and improving performance and reliability of flexible electronics for large area sensors.</p> <p>FY 2015 Plans: Developing cost-effective manufacturing techniques of high definition class cameras for sniper weapon sights and ground vehicles; continue development of processes, tooling and automation techniques to increase yield, decrease fabrication and</p>	13.691	15.009	8.150

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i>	Project (Number/Name) E25 / <i>Mfg Science & Tech</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>assembly times and reduce cost of miniaturized short-wave infrared cameras; continue development of manufacturing processes for reducing the cost and improving performance and reliability of short wave infrared sensors; continue development of manufacturing processes to fabricate low-defect flexible digital radiography panels, demonstrate techniques for integrating flexible sensors and electronics into circuits for system demonstration; transition growth processing with improved yield for high operating temperature focal plane arrays to ground and airborne platforms; developing packaging improvements of a millimeter wave devices used in radio frequency threat warning applications in air combat platforms; developing optimized process improvements in the manufacturing of large format long-wave, dual -band infrared focal plane arrays.</p> <p>FY 2016 Plans: Will develop an improved CMOS (complimentary metal-oxide semiconductor) image sensor manufacturing process using PMOS(P-type metal oxide semiconductor) pixel technology at a domestic foundry for the next generation of digital night vision goggles; will execute pilot line runs and refine manufacturing process to reduce cost and power of miniaturized short-wave infrared cameras; will investigate design revisions for cost-effective manufacturing techniques of high definition cameras for sniper weapon sights and ground vehicles; will develop optimized process improvements in the manufacturing of large format longwave, dual -band infrared focal plane arrays; will continue developing packaging improvements of a millimeter wave devices used in radio frequency threat warning applications in air combat platforms; will demonstrate manufacturing processes to fabricate low-defect, flexible digital radiography panels and electronics for system demonstration.</p>			
<p>Title: Soldier Systems</p> <p>Description: This effort funds manufacturing technology advances needed for more affordable components and subsystems for combat feeding, aerial delivery of supplies, expeditionary basing, Soldier-borne sensors, clothing and protective equipment. Work focuses on addressing challenges in areas such as multifunctional fabrics for shelters, uniforms and portage equipment; affordable, non-contaminating packaging for rations; and lightweight materials for body armor.</p> <p>FY 2014 Accomplishments: Demonstrated mature manufacturing processes supporting the production of light-weight, next generation small arms protective insert (XSAPI) plates for flexible hybridized body armor and transition process data to PM Soldier Protection and Individual Equipment for procurement; developed novel processing techniques for utilizing advanced materials to reduce the weight and increase the performance of soldier-born systems.</p> <p>FY 2015 Plans: Developing process control techniques based on unique thermal and mechanical properties of polyethylene films;; establishing a domestic manufacturing base for high efficiency, lightweight and foldable solar panel production in order to reduce unit cost with</p>	3.730	6.000	2.630

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015		
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i>	Project (Number/Name) E25 / <i>Mfg Science & Tech</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>higher throughput production; developing a scaled manufacturing process to lower costs and achieve high volume production of the lower-cost flame retardant materials with biocidal modular insulation panels.</p> <p>FY 2016 Plans: Will continue developing process control techniques based on unique thermal and mechanical properties of polyethylene films; will continue development of a scaled manufacturing process to lower costs and achieve high volume production of the lower-cost flame retardant materials with biocidal modular insulation panels.</p>				
<p>Title: Innovation Enablers (Formerly Advanced Manufacturing Initiatives)</p> <p>Description: This effort funds manufacturing technology advances needed for affordable model based manufacturing, network centric manufacturing data environments, collaborative manufacturing modeling and simulation, and advanced manufacturing technologies. Work focuses on addressing challenges in areas such as 3D technical data packages for armor systems; providing digital manufacturing capabilities to depots and laboratories, processes and models for data transfer and prototype production; and advanced laser manufacturing techniques for repairing components.</p> <p>FY 2014 Accomplishments: Demonstrated integration of manufacturing planning and machining technologies at select Army organic manufacturing sites.</p> <p>FY 2015 Plans: Demonstrating digital data driven manufacturing of prototype systems; deploying the use of standard machine language and protocols to monitor machine performance to predict quality issues and optimize production rates for high-volume items; establishing and demonstrating the use of a common machine tool library for cross-Army utilization; developing and qualifying additive fabrication and reclamation processes for use on Army components; developing additive manufacturing techniques to establish a validated repair procedure for high value aviation components; developing a flexible and agile common fuze manufacturing process utilizing 2D and 3D printing and additive manufacturing technologies as applied to energetic materials with integrated electronics.</p> <p>FY 2016 Plans: Will begin development to expand existing MBE efforts in techniques to capture, standardize and reuse tech data across weapon system product life cycles; will continue developing additive manufacturing techniques to establish a validated repair procedure for high value aviation components; will continue developing a flexible and agile common fuze manufacturing process utilizing 2D and 3D printing and additive manufacturing technologies as applied to energetic materials with integrated electronics; will continue to develop and qualify additive fabrication and reclamation processes for use on Army components; will demonstrate digital data driven manufacturing of prototype systems, deploy the use of standard machine language and protocols to monitor machine</p>		7.961	8.057	15.728

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i>	Project (Number/Name) E25 / <i>Mfg Science & Tech</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
performance to predict quality issues and optimize production rates for high-volume items, and establish and demonstrate the use of a common machine tool library for cross-Army utilization.			
Accomplishments/Planned Programs Subtotals	54.392	76.187	48.442

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

N/A

Remarks

Not applicable for this item.

D. Acquisition Strategy

Not applicable for this item.

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities	Project (Number/Name) E25 / Mfg Science & Tech
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
N/A																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i>	Project (Number/Name) E25 / <i>Mfg Science & Tech</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
N/A	1	2016	4	2016

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